



Indiana Department of Environmental Management

# INDIANA NONPOINT SOURCE PROGRAM



FFY **2013**  
Annual Report

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*Office of Water Quality*  
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# Overview

The Clean Water Act (CWA) Section 319 established the Nonpoint Source Management Program to control nonpoint sources of water pollution, which are currently the leading causes of water quality degradation in the United States. Section 319(h) provides U.S. EPA (EPA) with the authority to grant federal dollars to states to mitigate and prevent nonpoint source pollution. In Indiana, these funds are administered by the Indiana Department of Environmental Management (IDEM), Office of Water Quality, Watershed Assessment and Planning Branch. On behalf of the State of Indiana, IDEM is pleased to present this *2013 Nonpoint Source Program Annual Report*, as required by Section 319 of the CWA, to report on Indiana's progress towards reducing nonpoint source pollution. It highlights the state's efforts during the reporting period to collect data and assess water quality, implement projects that reduce or prevent nonpoint source pollution, and educate and involve the public to improve and maintain the quality of water resources for current and future generations of Hoosiers. The report provides an overview of nonpoint source pollution and IDEM's role in leading efforts to address this significant source of water pollution. Information on program goals and achievements is presented, as well as information on how IDEM's Nonpoint Source Program is evolving to become more effective. Additionally, the report provides information on nonpoint source grant projects funded through Section 319(h) and Section 205(j) of the CWA. Lastly, the report presents information on how IDEM's key partners play an important role in the work to address nonpoint source pollution.

IDEM would like to acknowledge the work of our many partners in helping to bring about reductions in nonpoint source pollution. The mitigation and prevention of nonpoint source pollution requires the cooperation of many groups and agencies at the federal, state, and local level, as well as all citizens in the state. We will only accomplish the goal of clean water by working together.

# Introduction

## What's the Problem?

Nonpoint source (NPS) pollution comes from many diffuse sources across the landscape that are difficult to specifically identify or abate; in contrast to point source pollution, which is discharged from a single, identified, and often regulated source, such as a pipe. Nonpoint source (NPS) pollution remains the largest source of water quality problems in Indiana. Bacteria, nutrients, and sediment are the leading pollutants of concern. Information from the 2012 Indiana Integrated Water Monitoring and Assessment Report shows that NPS pollution is a significant source of impairment in Indiana waterbodies. While some NPS pollution is naturally occurring, most of it is a result of human activities.

## The Watershed Approach to Addressing Nonpoint Source Pollution

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. The watershed approach provides a framework for coordinating and integrating the myriad 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. By examining water quality issues on a watershed basis, problems can be observed in relationship to their sources so that the 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
4. Diverse, well-integrated partnerships

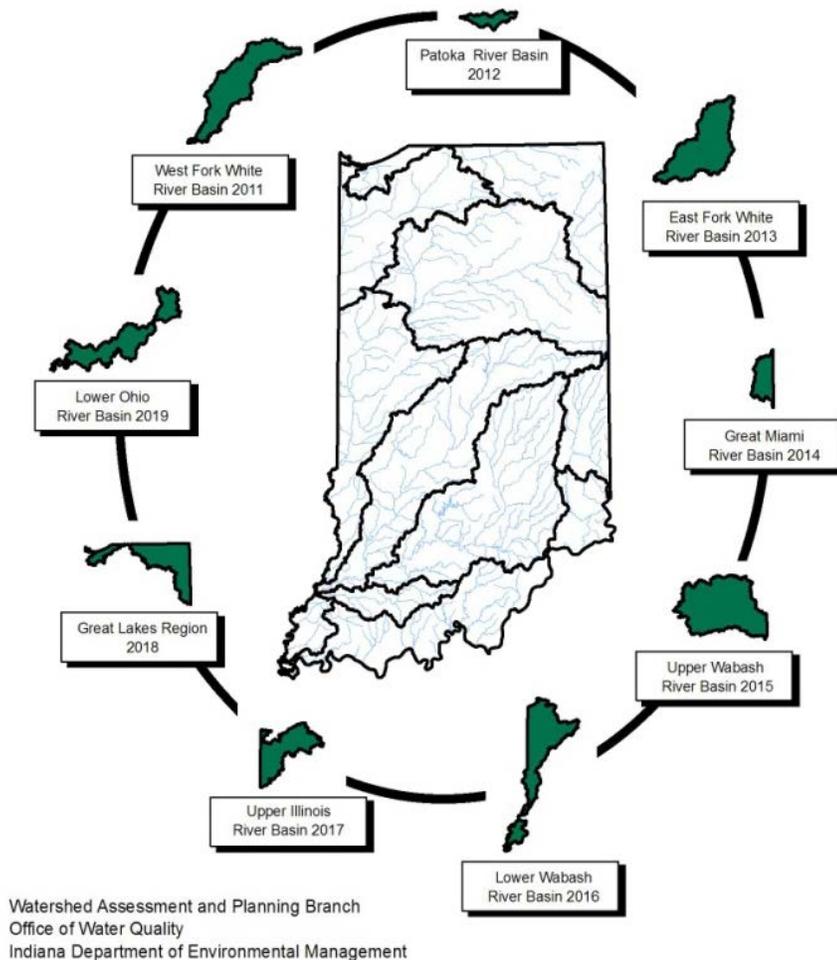
IDEM's ongoing effort to implement the watershed approach includes:

- Ensuring that internal resources continue to be focused on addressing the most significant water quality issues facing Indiana by conducting a periodic review of Office of Water Quality activities and making any necessary adjustments;
- Improving internal coordination between water quality assessment, 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.

# Status of Indiana's Surface Waters

The Office of Water Quality (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, recreational and drinking water uses. 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.

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 (see map below). This will result in a statistically comprehensive and updated data set for the entire state in 2019. The resources freed up by this extended schedule are now directed to targeted monitoring projects, primarily for nonpoint source (NPS) monitoring efforts for the purposes of baseline and performance measures sampling.



**IDEM's nine-year rotating basin monitoring strategy**

As of the December 28, 2012 addendum to the [Integrated Water Quality Monitoring and Assessment Report](#) that IDEM submitted to U.S. EPA on April 1, 2012, Indiana has monitored 38%<sup>1</sup> of its streams to determine whether they are capable of supporting a well balanced warm water aquatic community. Of the streams monitored, 72% were supporting their designated aquatic life use, and 28% were found to be impaired. Indiana has monitored 33%<sup>1</sup> of its streams for recreational uses. Of the streams monitored, 23% were found to support full-body contact recreational uses, while 77% were found to be impaired.

The sources of water pollution in Indiana are location dependent and involve both point and NPS. 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 (NPDES) permit programs and compliance assistance programs. Reducing NPS pollution requires a multi-faceted approach including education and outreach, watershed planning activities, and implementation of best management practices to restore waterbodies identified on Indiana's 303(d) List of Impaired Waters.

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<sup>1</sup> The number of miles monitored has decreased as a function of IDEM's "resetting the clock" with regard to the values we report for the total number of stream miles in the state. This value has and continues to fluctuate as a function of our reach indexing work. For the next State of the Environment Report, we have determined that at high resolution, the correct total miles for the state will be 63,130. This number is larger than those we have used in past reports. Using this number in our calculations of total miles assessed has the effect of reducing that number.

# IDEM's Nonpoint Source Goals and Progress

The Clean Water Act Section 319(h) specifically authorizes EPA to award grants to states with approved Nonpoint Source Management Program Plans. As required by Section 319(h), each state's Nonpoint Source Management Plan describes the state program for nonpoint source (NPS) management and serves as the basis for how funds are spent.

IDEM completed an update of the Indiana State Nonpoint Source Management Plan (Plan) in December 2008, and received approval from EPA on the updated Plan in January 2009. The Plan lays out a strategy to achieve the primary long term goal for the state's NPS Program. In the process of updating the Plan, IDEM evaluated the state's NPS goals and made significant changes to them to align better with the evolving direction of the program's mission in making water quality improvements. Achieving this mission relies on the support, cooperation, and resources IDEM and its partners offer to address NPS pollution in Indiana. Some goals will be easier to achieve than others. IDEM recognizes that the plan is a living document. As progress is made towards the achievement of the goals and objectives, the Plan will be evaluated. Objectives and the approaches to reach objectives will be restructured to reflect both progress made and challenges encountered. This report contains the new goals and progress made to-date on the goals.

## Indiana's Long Term Goal

Indiana's long-term goal is to:

**Make measurable improvements in water quality by addressing NPS pollution through education, planning, and implementation.**

The Plan lays out steps to achieve this goal by providing a single, unified, and coordinated approach to dealing with NPS pollution structured around program objectives. Achievement of the long-term goal will be reached through efforts made on a number of more detailed objectives. Collectively, these objectives will lead to the development of processes, programs, and skills needed to improve water quality and reduce NPS pollution. The key components of the long-term goal are:

1. Identify gaps in knowledge concerning NPS pollution issues in Indiana;
2. Characterize the extent and magnitude of NPS pollution in Indiana;
3. Build partnerships to reduce NPS pollution and improve water quality within all impaired water bodies in Indiana;
4. Focus resources within IDEM to help educate, train, and assist stakeholders and partners as they work to address NPS pollution; and,
5. Target resources to activities that will result in measurable improvements in water quality and reduce NPS pollution.

The long-term goal and corresponding program objectives will help guide efforts to realize the vision. In the Plan, short-term refers to one to five years. Medium-term refers to four to seven years. Long-term refers to seven to ten years from the adoption of the Plan. All objectives build on each other with the achievement of long-term objectives relying on the achievement of short-term and medium-term objectives. Program objectives are expressed as activities linked to the long-term goal.

## Goal Progress

IDEM set forth a series of goals to assess progress on addressing NPS pollution. The goals have been categorized by the following different areas: monitoring, partnerships, capacity building, and funding priorities and adaptive management. Following are the goals and progress made with each of the goals. IDEM is reporting on all short term goals in this report; any medium or long term goal where work has occurred are reported also. The full set of goals can be found in the [Indiana Nonpoint Source Management Plan](#). Status of each goal is defined as one of the following:

1. **Ongoing** = this activity is currently happening and there is no definitive stopping point.
2. **In-progress** = this activity is currently happening, but there is a definitive stopping point.
3. **Continues to be addressed** = we are not pursuing the specific objectives/measures listed through the work we are doing, but the work we are doing reflects the intent of the long-term goal.
4. **Has not been addressed** = this item was not addressed within the timeframe of the current plan.

## Monitoring

### Objective A: NPS Water Quality Monitoring Strategy

Goal	Measure
Short-term: Develop a NPS monitoring strategy in conjunction with IDEM's Assessment Branch to evaluate the magnitude and extent of NPS pollution within the state of Indiana.	Measure: Completion of the NPS monitoring strategy and its incorporation into IDEM's comprehensive water quality monitoring strategy.
<b>Progress or Accomplishments: Complete as reported in the FFY 2011 NPS Annual Report.</b>	
Goal	Measure
Short-term: Develop a data quality objective (DQO) process to require performance and acceptance criteria for data collection by third party entities.	Measure: Completion of a third party DQO process to serve as the basis for designing a plan for collecting data of sufficient quality and quantity to support the goals of the study.

**Progress or Accomplishments: In progress.** The table below describes the overall structure of IDEM's External Data Framework (EDF), which includes potential uses of external data and their corresponding data quality levels.

	<b>Data Quality Level</b>	<b>Potential Uses of the Data by OWQ Programs</b>
<b>Increasing Data Quality Requirements</b> 	<b>3</b>	<i>Any Level 1 or Level 2 use</i> <i>TMDL Modeling</i> <i>CWA Section 305(b) Water Quality Assessments</i> <i>CWA Section 303(d) Listing Decisions</i> <i>Demonstrating the effectiveness of any implementation effort such that one/more impairments may be removed from the State's 303(d) List of Impaired Waters</i> <i>Determining representative background conditions for the purposes of developing National Pollutant Discharge Elimination System (NPDES) permits</i>
	<b>2</b>	<i>Any Level 1 use</i> <i>Supplementary information for use in planning and prioritization of IDEM monitoring efforts or TMDL development</i> <i>Demonstrating the effectiveness of TMDL implementation efforts</i> <i>Demonstrating the effectiveness of WMP implementation efforts</i> <i>Baseline data collection for analysis of trends over time</i> <i>Watershed management planning</i> <i>Demonstrating compliance with minimum control measures specified in Municipal Separate Storm Sewer Systems (MS4) permits</i> <i>Establishing need for low interest loans to assist with Regional Water and Sewer District (RSWD) formation</i>
	<b>1</b>	<i>Education and raising awareness of water quality issues</i> <i>Supplementary information for Total Maximum Daily Load (TMDL) development</i> <i>Supplementary information for development of Indiana's Integrated Water Monitoring and Assessment Report (IR)</i>

Data quality objectives for Level 3 Data (the most stringent level with regard to data quality) and Level 1 (the least stringent) have been created. Level 2 data quality objectives will build upon the products developed through the Environmental Indicators project, funded by a Section 319(h) grant and spearheaded by Purdue University. Technical assistance, in the form of web-based content, for groups submitting data at Level 2 is currently being developed through a contractor funded by a Supplemental 106 grant from EPA. Technical assistance is focused on the topics of study design, QA/QC of water quality monitoring data, and the mechanics of submitting data to IDEM. Staff has begun targeted outreach to potential participants to determine the scope and nature of existing data that might be available from external parties and introducing them to the EDF. An internal workgroup has been convened to develop acceptance criteria for the EDF as well as processes for reviewing and ranking external data received and the management of that data.

Goal	Measure
Medium-term: 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.	Measure: Implementation of the NPS monitoring program and analysis of data collected.
<p><b>Progress or Accomplishments. Ongoing.</b> In 2013, IDEM completed targeted monitoring of biological communities at 7 sites to evaluate effectiveness of restoration activities in the Upper Tippecanoe River watershed and the Blue River (Ohio River tributary) watershed. Also in 2013, IDEM began its baseline watershed study for watershed planning in the Deep River – Portage Burns watershed, and completed its studies on the East Branch Little Calumet and Indian-Kentuck Rivers. These studies will lay the foundation for future analysis of water quality improvements gained through NPS restoration activities.</p>	

**Objective B: Data Collection**

Goal	Measure
Medium-term: Develop and implement a system to store and evaluate NPS pollution environmental monitoring data collected in the state of Indiana.	Measure: Completion of a NPS pollution database for the storage and evaluation of data collected by NPS projects.
<p><b>Progress or Accomplishments: Core database structure is complete – maintenance and improvements are ongoing.</b> To provide an expanded mechanism to enter 319(h) project data into EPA’s Storage and Retrieval System (STORET), the NPS Program is using funds to build onto and improve the existing water quality data Assessment Information Management System (AIMS). The existing AIMS application handles data from multiple water quality and aquatic biota programs, plus data from the NPS and water quality grants. The new improvements will incorporate additions to the web browser access and enhance the STORET interface capabilities. Updates to the query and analysis tools in AIMS will help in statistical and GIS applications. This project just started and progress toward upgrading the application for better maintenance capabilities will segue into the development of the first of several enhancements scheduled over the next 2 years. Of the specifically NPS enhancements, the data collection spreadsheet templates distributed to grantees and contractors for electronic submittal are being reviewed, revised, and improved to increase user friendliness and efficiency when imported into AIMS. The new sheets will be imported into AIMS with more data and metadata, and then uploaded into STORET via the improved WQX connection.</p>	
Goal	Measure
Long-term: Develop standard operating procedures to allow third party entities to enter data into the NPS pollution database or AIMS.	Measure: Development of a Web page for use by third party entities to enter data collected for Section 319-funded projects into the NPS data collection application (or AIMS) optimizing the access to currently collected data by 319 funded projects.
<p><b>Progress or Accomplishments: In progress.</b> As part of the development of enhancements to the AIMS application, it is expected that this interface could be added to the AIMS with access to this information through a new multi-functional database of NPS watershed data, i.e. groups, activities, status, etc. The proposal for this larger multi-functional database has been delayed. A scope of work has been</p>	

developed for the project and it is anticipated that a proposal will be submitted in FFY 2015.

**Objective C: NPS Pollution Assessment Technology**

Goal	Measure
Long-term: Use Geographic Information System (GIS), remote sensing, and other tools to illustrate differences in land use that could affect NPS pollution in Indiana waterways and demonstrate anthropogenic changes.	Measure: Increased number of tools used to demonstrate the effects of various land uses on NPS pollution.
<p><b>Progress or Accomplishments: Continues to be addressed with the improvements to the Indiana Water Quality Atlas (IWQA) and e303d on-line tools.</b> The IWQA will be re-launched by the end of CY 2013 with daily updates to agency water quality data as well as easier functionality for watershed coordinators. The e303d tool has been redesigned to be more user friendly with the most current data layers for a quick and easy reference to impaired waters assessments, the locations of TMDL reports, and watershed management plans. Additional tools will begin upon the completion of a multi-functional database for the NPS Program.</p>	

**Objective D: NPS Pollution Assessment Methodology**

Goal	Measure
Medium-term: Develop an assessment methodology to characterize the causes of impaired waters listed on the 303(d) list and discern point source pollution from NPS.	Measure: Creation of a formal assessment process that uses best available data to characterize pollutant sources.
<p><b>Progress or Accomplishments: Has not been addressed.</b> Though this objective was not attainable in the past five years, it remains one of the NPS Program’s goals. A modified objective combining this goal and the next is proposed in Indiana’s draft 2013-2018 State NPS Management Plan.</p>	
Goal	Measure
Long-term: Use available data to rank watersheds, based on NPS pollution levels and potential to address the problem, to prioritize the state’s management efforts and assist state and local partner NPS programs.	Measure: Development of a ranking system for all watersheds in Indiana and assignment of a NPS management rank to each watershed.
<p><b>Progress or Accomplishments: Has not been addressed.</b> Though this objective was not attainable in the past five years, it remains one of the NPS Program’s goals. A modified objective combining this goal and the previous is proposed in Indiana’s draft 2013-2018 State NPS Management Plan.</p>	

**Partnerships**

**Objective A: Improve EPA/IDEM NPS Program Coordination**

Goal	Measure
Short-term: Establish a formal schedule of meetings with EPA to evaluate IDEM’s NPS Program and obtain feedback on program improvement opportunities and successes.	Measure: Establishment of a fixed communication schedule for program coordination.

**Progress or Accomplishments: Goal requires revision. Communication is regular with US EPA staff on policy and program issues.** In its 2011 NPS Annual Report, IDEM reported that it had determined that communication with EPA will occur as needed and will not be tied to a fixed schedule. EPA agreed with this determination. Therefore, according to the principles of adaptive management, this goal and associated measure will be revised in the next State NPS Management Plan update, anticipated for FFY 2013.

**Objective B: Support the Indiana Department of Natural Resource (IDNR) on the Section 6217 component of the Indiana Coastal Zone Management (CZM) Program**

Goal	Measure
Short-term: Support the IDNR on the Coastal Zone Management Program in obtaining full program approval.	Measure: Number of conditions resolved through the collaborative efforts of the two programs.
<p><b>Progress or Accomplishments: In progress.</b> IDEM has provided support to the IDNR on the Coastal Zone Management Program in a number of keys areas that will assist with full program approval. Since the 2012 NPS Annual Report was submitted to EPA, IDEM has coordinated with the CZM Program to work towards obtaining approval for all remaining measures. IDEM met with the CZM Program in February, April, and June (2013) to discuss actions that should be included in the updated State NPS Management Plan that would further the implementation of the Coastal NPS Program (CNPSP). The CNPSP submitted an update to its management plan in October 2012 and, with the involvement of IDEM, was able to submit a legal opinion in January 2013 indicating that Indiana has legal authorities in place to prevent and abate NPS pollution. IDEM NPS is currently funding a watershed management planning process through Section 319 funding for the East Branch Little Calumet, Salt Creek and in the Deep River watersheds – all of which are essential to identifying critical coastal areas, as required by 6217. Additional 319 funds are being used to implement the Trail Creek watershed management plan, addressing some 6217(g) measures.</p>	
Goal	Measure
Medium-term: Develop a collaborative approach between IDEM and IDNR to work on local watershed management planning and implementation efforts in the Great Lakes drainage basin.	Measure: Number of projects in the coastal zone where IDEM has worked collaboratively through funding, technical support, or other methods with stakeholders in the Lake Michigan and Lake Erie watersheds.
<p><b>Progress or Accomplishments: In process.</b> The IDNR Coastal NPS manager and IDEM’s Northwest Watershed Specialist have a collaborative and supportive partnership in terms of watershed management and reducing NPS pollution in the Little Calumet-Galien basin. The Watershed Specialist is involved with the septic system committee the IDNR Coastal NPS Coordinator has called together to address onsite disposal systems. Also, several IDEM staff have participated with DNR on Coastal States Organization conference calls to discuss how the 319 and 6217 programs can/should interface.</p>	

**Objective C: IDEM Programs**

Goal	Measure
Short-term: Focus NPS financial and technical resources in watersheds with approved TMDLs that address NPS pollution and implementable watershed plans that are supported by a local	Measure: Number of watersheds with approved TMDLs that address NPS pollution impacts and that have Section 319(h)-funded planning or implementation activities occurring.

watershed group.	
<b>Progress or Accomplishments: Ongoing.</b> IDEM has focused Section 319(h) funds on watersheds with approved TMDLS for seven funding cycles. All 42 of IDEM's approved TMDL reports address NPS. Currently, there are (eleven) open or pending 319-funded grant projects within watersheds with an approved watershed-based TMDL. This translates to 73 12-digit watersheds with approved TMDLs that address NPS pollution impacts and that have Section 319(h)-funded planning or implementation activities occurring in FFY 2013. Several other watersheds where grants were recommended for funding have TMDLs almost completed or pending, including Deep River (nine HUC-12s), Southern Whitewater River (20 HUC-12s), and Mississinewa (seven HUC-12s). IDEM's decision to conduct baseline studies for watershed planning activities in conjunction with monitoring and development of TMDLs ties these two programs closer than ever before.	
Goal	Measure
Short-term: Work collaboratively with IDEM's monitoring and assessment programs through the establishment of a formal NPS monitoring strategy.	Measure: Creation of a NPS monitoring strategy and internal procedures detailing needed monetary and staffing resources.
<b>Progress or Accomplishments: Complete as reported in FFY 2011 NPS Annual Report.</b>	
Goal	Measure
Medium-term: Use input obtained from NPS partners to develop and revise, as needed, a comprehensive IDEM Watershed Specialist strategy to support IDEM's internal and external partner's efforts to focus on alleviating NPS pollution issues.	Measure: Completion and implementation of a comprehensive Watershed Specialist strategy.
<b>Progress or Accomplishments: Complete as reported in the FFY 2011 NPS Annual Report.</b>	
Goal	Measure
Long-term: Implement a formal watershed approach to IDEM program coordination when evaluating permits, policies, and rules related to water pollution.	Measure: Development of a formal procedure and staff taskforce to address, on a watershed basis, individual agency actions that may affect water pollution.
<b>Progress or Accomplishments: Piloted, but not sustained.</b> IDEM piloted this concept through the "Watershed Initiative" – active in 2008 and '09, but the effort did not gather momentum or a standard operating procedure on which to model future watershed efforts. It did, however, serve to bring the Monitoring and Assessments programs together with the watershed planning program, ultimately resulting in the Watershed Assessment and Planning Branch, where the NPS Program now resides.	

**Objective D: NPS Partnerships**

Goal	Measure
Short-term: Create an advisory group of state and federal agencies, as well as interested entities and organizations, to assist with refining the state's NPS policy and procedures for all programs and agencies that work with NPS pollution.	Measure: Creation of an advisory group to the IDEM Section 319(h) Program on NPS issues that includes representatives from all applicable programs and partnerships, both regulatory and non-regulatory.

**Progress or Accomplishments: In progress.** Initial work to scope the potential membership and mission of this group has occurred, but no formal meetings have taken place. However, through the Indiana Conservation Partnership (ICP) leadership meetings there is opportunity to discuss IDEM’s Section 319(h) grant program as well as statewide NPS issues. The ICP puts together an annual Plan of Work that includes activities on NPS issues, like sediment and nutrient reduction, for each of the partners. Another example of this from FFY 2013 is work on the State NPS Management Plan. As IDEM was working to create the draft Plan, IDEM met with the ICP leadership as a group, and individual partners separately, to discuss the new U.S. EPA requirements and anticipated changes to the Plan. IDEM also plans to work closely with this group to complete a prioritization of watersheds in the state.

While this goal was originally identified as a short-term goal, its formal implementation was delayed by a number of factors. Working with partners is a goal for the revised State NPS Management Plan and IDEM foresees continuing to work with the ICP specifically to meet NPS goals.

Goal	Measure
Short-term: Use current IDEM Watershed Specialists to assist partners with NPS planning and implementation activities.	Measure: Percentage of partner projects working with an IDEM Watershed Specialist for NPS-related activities.

**Progress or Accomplishments: Ongoing.** Watershed Specialists have been providing technical support to watershed groups and our partners for eight years. Aside from the grant-specific assistance provided to grantees, Watershed Specialists have worked with members of the Coastal Advisory Board, reviewed Sustain Our Great Lakes grant applications, served on the planning committee for the IASWCD Annual Conference, and worked with ISDA district support specialists as watershed issues arise. Specialists also routinely partner with statewide agencies and organizations to train local stakeholder groups on topics related to NPS planning and implementation. In terms of percentages, 100% of our grantees are connected with their Watershed Specialist for technical assistance. For FFY 2013, we estimate that we are currently actively working with approximately 80% of our SWCDs, 70% of Indiana’s RC&Ds, 19% of our MS4s, and at least 17 partner agencies and 107 nonprofit watershed/water quality groups and ad hoc groups (percentage impossible to estimate). (Note: many MS4s are integrated into watershed groups – while Watershed Specialists may not be providing individual assistance to these MS4 entities, they are still working toward goals of the MS4s through other groups).

Goal	Measure
Medium-term: Create a NPS management plan workgroup to conduct annual evaluations of the effectiveness of the NPS Program and recommend revisions to specific components and sections of the plan.	Measure: Creation of the workgroup and production of an annual report.

**Progress or Accomplishments: Incomplete.** IDEM NPS has determined that the formation of a formal advisory group, separate from the ICP, is not feasible or desirable at this time. Instead, staff will be assigned to work on certain objectives in the state NPS management plan, and we will touch base at least annually with members of the ICP and other key partners for updates and input (as we did with this year’s state NPS management plan revision). IDEM NPS provides a report to U.S. EPA annually on progress made on the goals of this plan - there will not be a separate report for the NPS plan each year.

Goal	Measure
Medium-term: Work with surrounding states that share watersheds with Indiana to develop	Measure: Creation of standard operating procedures to work with Ohio, Michigan, Illinois, and Kentucky

consistent approaches to addressing NPS pollution.	on the coordination of NPS activities within watersheds that span state boundaries.
<p><b>Progress or Accomplishments: Ongoing.</b> Watershed Specialists have been working with several bi- and tri-state watershed groups and their partners to create and implement watershed management plans. Several Section 319 grantees are developing plans across state boundaries including the Fawn River, Upper Maumee River, and Middle and Upper St. Joseph River WMPs that meet the checklists of multiple states. As a result of these multi-state efforts, representatives from IDEM, Ohio EPA, and Michigan DEQ have shared information on checklist requirements, monitoring procedures, and TMDL processes in their respective states. While no SOPs have been produced, the “work” of this goal is still being accomplished – it is possible that this metric will need to be revisited in the future. There are currently no joint 319 projects with Illinois or Kentucky, though there is interest in the Kankakee Basin that could eventually lend itself to a joint project with Illinois. As reported in 2012, IDEM used FFY 2009 CWA §205j funds appropriated through the American Recovery and Reinvestment Act to work with the Ohio-Indiana-Kentucky Regional Council of Governments to update a watershed-based plan for Dearborn County, Indiana. That project closed on Aug 2, 2011. Another project using CWA §205j funds was initiated on January 20, 2012 with the Ohio River Basin Sanitation Commission (ORSANCO) to monitor water quality of the Wabash River at the New Harmony, IN bridge. ORSANCO is an interstate commission (including Indiana, Kentucky and Illinois) governing water quality of the Ohio River.</p>	
Goal	Measure
Long-term: Establish a formal process to maintain an inventory of watershed groups, organizations, and governmental entities whose primary purpose is to study, plan, or manage NPS pollution.	Measure: Creation and maintenance of a web-based database of active watershed groups, organizations, and governmental entities whose primary purpose is to study, plan, and manage NPS pollution. The database will be deployed on IDEM’s web site.
<p><b>Progress or Accomplishments: In progress.</b> Compilation of an inventory of watershed-based organizations was accomplished in 2007 and updates are ongoing. Purdue University, as a part of their Watershed Leadership Program, has produced a Google Maps-based tool for locating watershed groups entitled the Indiana Watershed Group Finder. This inventory is the basis for the Watershed Specialists database, a database of group contacts and progress information. Along with this database, IDEM plans to integrate this information into a much larger, multi-functional data management system that will more easily provide geospatial information, WMP development, load reductions, TMDL development, implementation projects, etc. Currently, the various individual databases used throughout the program have been difficult to maintain, relate, or cross reference. It is anticipated that a proposal for this larger multi-functional database will be submitted in FFY 2015. The establishment of standard operating procedures for maintenance of this database will take place after its completion.</p>	

## **Capacity Building**

### **Objective A: Develop Education and Training Initiatives for Use at the Watershed Level to Build Capacity of the Staff of Watershed Groups and Local Governments**

Goal	Measure
Short-term: Update IDEM’s NPS web site to create a repository for information on NPS planning, implementation, and guidance on applying for and implementing Section 319(h) grants.	Measure: Completion of updated NPS web site and compilation of a utilization survey.
<p><b>Progress or Accomplishments: Complete as reported in FFY 2011 NPS Annual Report.</b></p>	

Goal	Measure
Short-term: Evaluate existing NPS pollution program partners and determine resources (financial and technical) needed to improve program efficacy.	Measure: Development of partner resource needs report.
<p><b>Progress or Accomplishments: Complete.</b> IDEM worked with partners on two fronts to achieve this goal. First, as a part of the Indiana Conservation Partnership, IDEM participated in an evaluation of technical staff training needs across the Partnership. Training needs were identified through the use of an Individual Skills Inventory that was distributed to all applicable staff in the partnership in FFY 2011. Training needs were ranked and trainings have been held for the top priority topics identified through the inventory. A technical advisory committee has been formed to begin to develop curriculum for all of the needs identified. Secondly, the Indiana Association of Soil and Water Conservation Districts, utilizing Section 319 funds, sponsored a survey in 2011 to determine financial and technical needs of watershed groups and partners. Three categories of needs were identified: fund development; marketing; and volunteer recruitment and management. Workshops designed to begin addressing funding needs began in the summer of 2012 and an “e-Development newsletter” has been created to go out to partners once per month.</p>	
Goal	Measure
Medium-term: Develop collaborative training and outreach materials based on needs solicited from partners.	Measure: Number and types of training and types of outreach materials developed and distributed as a result of assessed needs.
<p><b>Progress or Accomplishments: In progress.</b> In response to the 2011 individual development needs surveys, IDEM continues to participate as part of the Indiana Conservation Partnership’s Training and Certification Program (TCP), meeting with other partners to develop training for NPS issues in Indiana. A coordinator was hired for the program in June 2012 through a CWA 205(j) grant to coordinate trainings and overall development of the program. Over the past year, the ICP TCP has offered four trainings on nutrient management, four trainings on how to use the NRCS’s RUSLE2 model to calculate soil loss, and over 50 trainings on cover crops. Four additional nutrient management trainings and four rain garden trainings (featuring nation-wide speaker Rusty Schmidt) are planned for fall 2013. Individual partners also held cover crop, soil health, and engineering trainings. Twenty-five ICP employees completed the NRCS-conducted Engineering Boot Camp held in July of this year. Additional employees had to be turned down due to reaching the maximum class size. Fifteen ICP employees attended the NRCS-sponsored Certified Conservation Planning Course conducted in June of this year. Additional results for this goal were recorded in previous NPS annual reports.</p>	
Goal	Measure
Long-term: Create web-based tools to assist local groups with identification of resources, partners, and technical support to create more self-sustaining watershed groups dedicated to addressing NPS pollution.	Measure: Number and type of IDEM NPS web site hits.
<p><b>Progress or Accomplishments: Ongoing.</b> Work has begun on this objective through the creation of tools for the revised NPS website. Tools created to date include e303d, ePrintshop, and the Watershed Toolkit. In 2013, refinements were made to the e303(d) tool and the existing Indiana Water Quality Atlas (IWQA) tool on the NPS website. In addition, we’ve worked in partnership to create the Indiana Water Monitoring Inventory, Hoosier Riverwatch database, Online Load Duration Curve and web-based</p>	

LOADEST interface. The creation of tools will be on-going as new needs come to the forefront and resources become available to create them. For the period October 1, 2012 to present, the NPS website received 75,672 total web page visits. During the same period 6,387 file downloads (PDF, Word, Excel) occurred from the site.

Goal	Measure
Long-term: Survey and assess staff knowledge levels, with partner participation, to refine and modify capacity-building needs and existing resources.	Measure: Modification of partner participation, capacity-building needs based on the results of survey assessment.

**Progress or Accomplishments: Complete and ongoing.** The results for this measure have been reported above, as part of the ICP TCP’s work to provide training to employees of the entire partnership. The survey assessment was completed by way of the Individual Development inventory. In regard to partner participation, there have been times when it has been suggested that employees of a particular agency need a particular training, and another agency has stepped up to provide that training. The cohesion of training efforts within the ICP has greatly increased due to the TCP.

**Objective B: Comprehensive Training Program**

Goal	Measure
Short-term: Develop and conduct training workshops to inform 319(h) grant recipients about key program policies and provide training on grant implementation.	Measure: Annual Section 319(h) training workshop conducted by IDEM that is available for all grant recipients and applicants.

**Progress or Accomplishments: Complete as reported in the FFY 2011 NPS Annual Report.**

Goal	Measure
Medium-term: Develop internal IDEM training manuals and policy documents for use by IDEM personnel to ensure clear and consistent grant program implementation.	Measure: Number of internal training manuals incorporated in day-to-day operations of IDEM’s program for Section 319 implementation and financial management.

**Progress or Accomplishments: Complete, with changes.** This goal has been subject to adaptive management. While early work was performed to document policy decisions, it has been decided that the utility of these documents is not worth the effort. However, the Section 319 program does utilize a number of documented Standard Operating Procedures, and has developed several guidance documents (such as the Agricultural cost-share guidance and other guidance in the NPS Compendium available on the NPS website) to provide consistency across the project management team and to document current policies.

Goal	Measure
Long-term: Develop and implement self-sustaining programs (train-the-trainer) to teach watershed leaders, water quality data collectors, and project facilitators to successfully implement watershed plans.	Measure: Development of a multi-agency strategy for assessing needs and developing related skills and publish on IDEM’s NPS Web site

**Progress or Accomplishments: In progress.** Early work on this objective has begun but needs an overarching strategy shared by all partners. IDEM has been a partner in several efforts to teach watershed management professionals the skills needed to successfully implement watershed management plans, including the Indiana Water Quality Monitoring Council’s field days and symposia, Watershed

Networking Sessions, the Indiana Watershed Leadership Academy, planning for the Indiana Association of Soil and Water Conservation Districts' annual conference, and the Indiana Conservation Partnership's Training and Certification Program whose goal is to teach technical implementation skills. Additionally, IDEM assumed the Hoosier Riverwatch program, Indiana's volunteer monitoring program, in FFY 2013. Hoosier Riverwatch routinely offers "facilitator workshops," which are the program's "train-the-trainer" workshops. In FFY 2013, Riverwatch sponsored one facilitator workshop with an attendance of 3 people. Further, a supplemental 106 grant has been secured to implement the outreach and education component of the External Data Framework, to be published to the IDEM's website. While it is anticipated that this objective will be achieved through a multi-pronged approach, a strategy should be developed by the multiple agencies involved in water quality management to successfully carry a consistent message to Indiana's "on-the-ground" watershed managers. Work on this strategy has not yet begun.

**Objective C: Raise Public Awareness and Provide Education through Outreach Activities**

Goal	Measure
Short-term: Enhance efforts to educate citizens on urban and agricultural NPS issues through the development of a comprehensive outreach campaign.	Measure: Number of outreach efforts conducted, categorized by training versus education.
<b>Progress or Accomplishments: In progress.</b> Education materials including six new brochures, seven bill stuffers, and several large-scale displays were completed in early 2011. These materials were used by IDEM staff to educate the public on NPS issues and concerns at 3 conferences in FFY 2013. Multiple NPS staff also helped to staff the Pathway to Water Quality at Indiana's State Fair in 2013. The Pathway is a demonstration of BMPs to address NPS issues on agricultural and urban lands. The completion of the new state NPS management plan includes a major goal of outreach and education. This goal will direct IDEM NPS's outreach and education efforts.	
Goal	Measure
Medium-term: Develop a repository of web-based public outreach and educational materials for use by internal and external partners and local watershed groups.	Measure: Number of IDEM NPS website hits.
<b>Progress or Accomplishments: Complete as reported in FFY 2011 NPS Annual Report.</b> For the period October 1, 2012 to present, the NPS website received 75,672 total web page visits.	
Goal	Measure
Medium-term: Utilize the IDEM NPS Web site to distribute information regarding NPS pollution, upcoming training events, available resources, and other relevant information. Make it available for use by locally led watershed groups.	Number of IDEM NPS Web site hits. Evaluate the usage of the IDEM NPS website by using their length of stay on the Web site.
<b>Progress or Accomplishments: In progress.</b> For the period October 1, 2012 to present, the NPS website received 75,672 total web page visits. Average visit time varies widely from page to page. The highest average visit time is 11 minutes 5 seconds for the 303(d) Integrated Report. The lowest average visit time is 7 seconds for the front page of the Tanner's Creek WMP. The majority of the pages range from 1 to 3 minute visit times with a handful of outliers for the other pages.	

**Objective D: Build Sustainable, Locally-Led Watershed Groups**

Goal	Measure
Short-term: Work with active watershed groups to assess resource (technical, financial, and managerial) needs to enhance or ensure sustainable activities beyond Section 319(h) funding.	Measure: Number of watershed groups that actively seek and obtain funding, in addition to Section 319(h), to sustain their organization and to continue their efforts to reduce NPS pollution.
<p><b>Progress or Accomplishments: Ongoing</b> IDEM does not currently maintain a tracking system for watershed group funding beyond the 319 and 205j programs though, anecdotally, we believe strongly that watershed groups are seeking and obtaining more non-Section 319 funding than ever. We do know of at least 29 watershed-focused groups that have received non-Section 319 funds, such as Great Lakes Restoration Initiative, Mississippi River Basin Initiative, private donations, memberships, state Lake and River Enhancement, and corporate funding for their watershed efforts.</p>	
Goal	Measure
Long-term: Work to create new watershed groups from ground level and provide these groups with a strong base for sustainability.	Measure: Number of new watershed groups formed subsequent to January 2009.
<p><b>Progress or Accomplishments: Ongoing.</b> IDEM’s Watershed Specialists have assisted over 100 active and developing watershed projects, sponsored by watershed groups, SWCDs and other entities on many levels including: meeting facilitation, reviewing draft and final watershed management plans, developing and reviewing grant proposals from several funding programs, obtaining water quality data and developing watershed maps, connecting groups with other local organizations and agencies to complement planning efforts, and assisting watershed coordinators with the overall watershed planning and implementation processes. Much of this work has insured that existing groups have remained functional and active; however, at least 13 new groups have been formed during this reporting period across the state. Since 2009, a total of 37 new watershed efforts have been formed throughout the state.</p>	

**Funding Priorities and Adaptive Management**

**Objective A: Focus Section 319(h) Planning Funds**

Goal	Measure
Short-term: Target Section 319(h) funds in appropriate amounts, to watershed groups that will develop and implement watershed plans to address 303(d)-listed waters impaired by NPS pollution.	Measure: Number of watershed groups developing and or implementing watershed plans in 303(d) listed waters receiving Section 319(h) funds in appropriate amounts to accomplish their projects goals.
<p><b>Progress or Accomplishments: Ongoing.</b> The Section 319(h) program funding priorities include priorities to plan for and implement plans on waters listed on the 303(d) list or waters for which a TMDL has been calculated. In FFY 2013, the NPS Program initiated three watershed management plans through Section 319(h) and 205(j) and approved four successfully completed plans. Using FFY 2013 319 funds, the program has proposed to initiate planning in three watersheds, with one more plan to be initiated using 205j funding. The NPS Program has also proposed to implement four plans utilizing FFY 2013 funds. To date, at least 69 watershed management plans have been supported by Section 319 funds for some phase of implementation in Indiana. Three began implementation in FFY 2013.</p>	
Goal	Measure

Medium-term: Assess water quality data to identify watersheds that should be evaluated for possible NPS water quality improvements.	Measure: Number of watersheds identified for evaluation of NPS water quality improvements.
<p><b>Progress or Accomplishments: Ongoing.</b> IDEM has developed a draft list of watersheds where Section 319(h)/205J funds have been allocated to local watershed groups that have implemented significant on-the-ground NPS best management practices. These watersheds have been cross-referenced with the 2002 303(d) list to identify waters that may meet the SP-12 (Measure W) and WQ-10 (Success Stories) requirements and should be re-evaluated. Identification of watersheds for targeted monitoring for delistings is currently tracking with current monitoring resources. However, it is anticipated that identification will out-pace monitoring capacity so that a running list of waters to test will be kept by the Watershed Assessment and Planning Branch. Since 2009, IDEM has identified 110 reaches in 83 twelve-digit watersheds as candidates to evaluate for improvement due to NPS activities.</p>	
Goal	Measure
Long-term: Work with internal and external partners to solicit and utilize joint funding strategies, including Section 319(h) funds, in watersheds where other partner-funded projects are occurring to maximize the efficacy of funds.	Measure: Number of projects funded by Section 319(h) in connection with other partner funds that document improvements in water quality where NPS pollution was identified and a watershed approach was used to solve the problem.
<p><b>Progress or Accomplishments: In progress.</b> One watershed was reported to EPA as part of the WQ-10 success measure in FFY 2013. This watershed includes 319 funding alongside state, federal, and local funding that resulted in water quality improvement using a watershed approach. In addition, at least 19 319 grantees are known to be using external funds, apart from the required match, to implement their watershed management plans. For example, one grantee (the Middle Eel River Initiative) has received Mississippi River Basin Initiative funding, USDA-NRCS National Water Quality Initiative supplemental EQIP dollars, and U.S. Fish and Wildlife grants, in conjunction with 319 funds, to implement their watershed management plan and it is anticipated that considerable pollutant load reductions will be realized as a result of the investment. Other watershed groups are utilizing membership funds, state Clean Water Indiana and Lake and River Enhancement (LARE) funds, USDA Farm Bill program funds, Great Lakes Restoration Initiative funding, private foundation awards, and other funding mechanisms to promote water quality and implement their WMPs.</p>	

#### Objective B: Target Key Pollutants and Watersheds

Goal	Measure
Short-term: Determine the extent of impacts that sediments, bacteria, nutrients, and other identified NPS pollutants have on Indiana waters.	Measure: Document the results of impact analysis.
<p><b>Progress or Accomplishments: Ongoing.</b> While the logic behind this goal is pretty straightforward (defining the magnitude of the problem), implementation of the goal has been more complicated than originally anticipated. The completion of the External Data Framework (the acceptance criteria IDEM will use to evaluate water quality information provided by external organizations for potential use in OWQ's 305(b)/303(d) assessment and listing processes) will help move progress on this goal ahead. As detailed in an earlier goal, IDEM is making strides to implement the EDF. However, additional data is needed to provide a larger spatial analysis of water quality concerns in Indiana. This goal is retained in the updated draft Indiana NPS Management Plan, but has been given the status of a long-term goal.</p>	
Goal	Measure

Medium-term: Target Section 319(h) funds to watersheds with waters that are impaired by NPS pollution and where TMDLs can be implemented.	Measure: Number of watersheds that have received Section 319(h) funds where implementable TMDLs have been completed.
<b>Progress or Accomplishments: Ongoing.</b> The NPS Program currently gives priority for project proposals that address watersheds in which a TMDL has been completed OR watersheds in which there are waterbodies on the 303(d) list. Currently, there are 358 out of 1,589 HUC 12s in Indiana that have both a TMDL and an approved watershed management plan. There are at least 175 HUC 12s where TMDLs have been or are being implemented, in part, by projects funded by Section 319(h) grants.	
Goal	Measure
Long-term: Upon completion of nutrient standards, focus Section 319 funds on watersheds that have waters impaired by nutrients.	Measure: Percentage of Section 319 funding allocated to waters impaired by nutrients.
<b>Progress or Accomplishments: Incomplete.</b> Nutrient standards were not completed during this five-year cycle and implementation of this goal as a unique effort was not undertaken. Even so, since nutrients are a cause of NPS pollution in Indiana (as documented by numerous WMPs, models, and data collection efforts), IDEM often allocates Section 319 funding to waters with nutrient issues by default. In addition, IDEM has a standing OWQ nutrient coordination group that met roughly every other month during FFY 2013 to discuss how nutrient standards will be implemented and how those standards will affect programs such as TMDL, permits, and assessments. As a result of this group, there is better program coordination and understanding of requirements and barriers of each program, which is lending to good discussion of approaches for moving forward, including watershed/basin-based coordination. However, since nutrient standards are not in place, and since IDEM is not currently tracking funds dedicated to lessen the impacts of nutrients on waterbodies, IDEM NPS cannot report the percentage of Section 319 funding allocated to waters impaired by nutrients.	

### Objective C: Adaptive Management

Goal	Measure
Short-term: Work with EPA to establish a comprehensive adaptive management program to improve all aspects of the implementation of the IDEM Section 319(h) Program with clearly delineated priorities and corrective actions.	Measure: Percentage of program completion
<b>Progress or Accomplishments: In progress.</b> The new guidance provided to IDEM from the U.S. EPA on the 319 program has brought with it an opportunity to review Indiana's NPS Program and make revisions via the updated state NPS management plan. While the new plan itself is a form of adaptive management, it is IDEM's intention to work with EPA to establish a more formal adaptive management program to address changes in priorities and implement corrective actions when appropriate.	
Goal	Measure
Medium-term: Establish formal processes to incorporate NPS advisory group, social and environmental indicators, and ad hoc, in-house evaluation information in improved program policy and direction.	Measure: Number of formal processes incorporated into program policy.
<b>Progress or Accomplishments: Not addressed.</b> Formal processes to incorporate various perspectives that inform NPS Program policy have not been established in the past five years, nor are they likely to be	

in the near future. Instead, the program has adopted an informal process to revise policy. In summary, when the program learns of problems from watershed groups/grantees or have new state or federal guidance, and it needs to consider policy revisions/new policies, the process is to discuss the issue internally and as needed with Region 5, then come to consensus on the revision/new policy. Particular staff involvement is dependent upon the issue at hand, but all staff are made aware of the policy. One example of policy change that has occurred relatively recently is the decision to cost-share on cover crops for three years instead of one year, with an annual commitment instead of the previous five-year commitment. Several 319 grantees raised concerns about the difficulty in marketing cover crops as a solution to nutrient and sediment reduction in their watersheds when a five-year commitment was required for producers to try them. When the policy changed, there was a positive response among producers to cost-share on cover crops.

Goal	Measure
Long-term: Update the NPS management plan to reflect completed goals, new priorities, and needed corrective actions.	Measure: Percentage of updated plan completed.
<p><b>Progress or Accomplishments: Near completion.</b> IDEM began its revision of the State NPS Management Plan in August 2012. Stakeholder input was solicited in various ways – through a formal survey broadcast to targeted NPS stakeholders, through meetings with key partners, and through a formal public comment period. A draft of the plan was submitted to U.S. EPA on August 2, 2013. IDEM anticipates additional revisions of the document based upon public and Region V comments. The final document is scheduled to be submitted to Region 5 no later than September 30, 2013.</p>	

# NPS Grant Programs

A primary focus of IDEM's Nonpoint Source (NPS) Program is on-the-ground work to improve water quality. The Watershed Planning and Restoration Section manages two federal pass-through grant programs aimed at improving water quality in the state: Section 319(h) and Section 205(j); each named after the section of the CWA that authorizes them. Funding from these grants is predominantly used for the development and implementation of comprehensive watershed management plans (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 be done, however, to fully restore and protect water quality.

## Section 319(h) Grant Program

The Section 319(h) Grant Program is a major resource for reducing NPS pollution in Indiana. Federal funding levels have fluctuated over the years, with Indiana receiving its maximum funding allocation of \$5,220,600 in 2003. Since then, there has been a downward trend in funding levels. This fiscal year Indiana received \$3,333,000 in Section 319(h) funds, which are being used for NPS Program support (technical staff and administration) and seven NPS projects.

Section 319(h) funds require a 40% non-federal match. Match for IDEM's staffing and program support activities is provided by the Indiana State Revolving Fund (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. Most of the SRF projects used for NPS Program match to-date involve extending sewers to areas with failing and aging septic systems. Removing these septic systems eliminates NPS pollutants in the watershed including pathogens, phosphorus, and nitrogen. 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. Match for individual NPS projects is provided by the project sponsor and its partners.

Each year IDEM solicits applications for projects that will reduce NPS pollution in Indiana's lakes, rivers, and streams. In an effort to more efficiently meet our NPS Program goals, coordinate with the TMDL Program and its efforts to identify and reduce NPS pollution, and focus more of the Section 319(h) funds on impaired waters, IDEM identifies priority projects for Section 319(h) funds each year. Below are the five priorities for FFY 2013 funds.

1. In order to continue to make measurable improvements in water quality in Indiana, and to begin prioritizing watersheds for actions focused on reducing nutrient loading to the Gulf of Mexico in coordination with the Indiana Conservation Partnership, IDEM's NPS Program is focusing funding watershed management plan implementation projects addressing nutrients in the following watersheds:

- East Fork White River Basin (HUCs 05120204-Driftwood, 05-Flatrock Haw, 06-Upper East Fork White, 07-Muscatatuck, 08-Lower East Fork White)
  - Wabash River Basin (HUCs 05120101-Upper Wabash, 02-Salamonie, 03-Mississinewa, 04-Upper Eel, 05-Middle Wabash-Deer, 06-Tippecanoe, 07-Wildcat, 08-Middle Wabash-Little Vermillion, 09-Vermillion, 10-Sugar, 11-Middle Wabash-Busseron, 13-Lower Wabash)
2. In order to support the conditionally approved Lake Michigan Coastal Plan until it is finalized and meets the requirements of the Coastal Zone Act Reauthorization Amendments (CZARA), IDEM's NPS Program is focusing funding in the following watershed:
    - Watershed planning and/or implementation in the Coastal Zone Program area (Little Calumet-Galien Basin – HUC4040001)
  3. Watershed planning and/or implementation in watersheds with one or more impaired waterbodies that have an approved Total Maximum Daily Load (TMDL).
  4. Watershed planning and/or implementation in watersheds that include waterbodies in Category 5A or 4A of Indiana's Draft 2012 Integrated Water Monitoring and Assessment Report.
  5. Implementation of nine-element watershed management plans that have met, or will soon meet, IDEM's Watershed Management Plan 2003 or 2009 Checklist.

A Geographic Information System (GIS) map located in Appendix A shows the relationship between TMDL development and watershed management activities in the state. It also shows areas with NPS impaired waterbodies as listed in the 2012 303(d) List of Impaired Waters. Targeting areas for watershed planning with developed TMDLs helps expedite the planning process since groups can use information in the TMDL regarding watershed NPS problems, sources, and needed load reductions. This will be especially helpful to groups when the new TMDL Template is used to develop the TMDL.

Grant applications are submitted by project sponsors, reviewed by a committee, 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 education and outreach designed to bring about behavioral changes and encourage best management practice (BMP) implementation; development of WMPs that meet EPA's required nine elements; and implementation of WMPs by means of a cost-share program to implement BMPs that address the water quality concerns outlined in the WMP. 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, and to work with the grantee on any issues that arise to ensure a successful project close-out.

All seven NPS projects funded with FFY 2013 funds address one or more of the NPS Program priorities and will be working on developing and/or implementing WMPs. Most of the projects will begin early next year. There are currently thirty-six open or pending 319(h) projects, of which twenty-seven are implementing watershed management plans and installing BMPs in critical areas of the watershed. A list of all Section 319(h) projects open or pending during this fiscal year is located in Appendix B. Twelve Section 319(h) projects closed this fiscal year. Two of these projects are highlighted in the [Project Highlights](#) section of this report. Summaries of all twelve closed projects are located in Appendix C.

Specific project information for all Section 319(h) projects is entered and maintained in EPA's Grant Reporting and Tracking System (GRTS) database. Projects used as match for the NPS Program are also entered. 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. The public may view this information on the [GRTS Home Page](#). Final reports and deliverables for all projects are also entered into GRTS. Some projects' final reports and backup documents are included on CDs as an attachment to this report and are listed Appendix D.

## **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 received \$337,750 in FFY 2013 and leftover FFY 2012 Section 205(j) funds. These funds will be used for two projects: one watershed management plan development project and one assessment project. A list of all 205(j) projects open or pending during this fiscal year may be found in Appendix E of this report.

Locations of both Section 319(h) and Section 205(j) watershed planning and implementation projects funded from FFY 2007-2012 are shown on a map in Appendix F. More information about the Section 319(h) and Section 205(j) grant programs in Indiana may be found on [IDEM's website](#).

# Restoration Efforts and Achievements

## 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 nonpoint source (NPS) pollutants, yet 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 will administer a cost-share program to help landowners implement needed BMPs to reach the WMP goals. If the planning process was successful, landowners will be aware of the water quality problems in the watershed and the ways in which to reduce the NPS pollution and will be ready to participate in the cost-share program.

Groups working on implementing WMPs have made great strides this year in reducing NPS pollution in their watersheds. The chart below shows BMPs implemented this fiscal year compared with the last two fiscal years.

BMP	Approximate Number FFY 2011	Approximate Number FFY 2012	Approximate Number FFY 2013
Cover Crop (acres)	2,808	10,147	12,905
Denitrifying Bioreactor (each)	0	0	2
Fence (feet)	55,745	42,472	78,119
Grassed Waterway (feet)	3,768	2,721	75,473
Heavy Use Area Protection (sq feet)	55,194	49,059	71,044
Nutrient Management (acres)	953	3,300	2,382
Pasture and Hay Planting (acres)	402	214	379
Pest Management (acres)	666	0	2,631
Residue Management, No-Till (acres)	4,677	1,643	3,833
Streambank/Shoreline Protection (feet)	7,792	608	579
Watering Facility (each)	1	9	12
Porous Pavement (sq feet)	2,650	5,000	1,150
Rain Barrels (each)	47	14	42
Rain Gardens (sq feet)	4,313	3,218	52,810

Other BMPs implemented include roof runoff management, tree/shrub establishment, two-stage ditch, and water and sediment control basin.

The number of BMPs implemented in a given year may vary depending on many factors including the weather, the focus of current NPS projects' implementation efforts based on their watershed management plan recommendations, the change in focus and availability of other federal and state programs' grant funds, and changes in BMP promotion and recommendations in the agricultural community. Two significant changes may be noted from last year. The number of feet of grassed waterway increased dramatically due to the [Technical Assistance for Agriculture project](#) with the Indiana State Department of Agriculture. Three new staff, funded with Section 319(h) funds, have been trained

and are working in several watersheds in northern Indiana to promote and help implement BMPs. Another significant change is the number of square feet of rain gardens implemented this year. This increase can be attributed to several NPS projects working almost exclusively in urban areas.

One important indicator of program and project success is the quantity of pollutants, such as sediment, phosphorus, nitrogen, and *E. coli*, that has been 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 usually 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 calculates nutrient and sediment loads by land use type and aggregated by watershed. In a few cases, reporting pollutant load reductions may not be feasible because of the type of BMP installed.

Estimated load reduction data for each BMP implemented as a result of the project (including BMPs not funded with 319) 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 are shown below. All load reduction data was obtained from IDEM's Access database.

<b>Nonpoint Source Pollutant</b>	<b>Estimated Reduction FFY 2011</b>	<b>Estimated Reduction FFY 2012</b>	<b>Estimated Reduction FFY 2013</b>
Sediment (tons/yr)	28,880	47,616	54,507
Phosphorus (lbs/yr)	33,434	94,980	92,360
Nitrogen (lbs/yr)	70,450	141,709	170,376
Biological Oxygen Demand (lbs/yr)	6,628	29,542	5,143
Chemical Oxygen Demand (lbs/yr)	1,977	2,709	5,390
Pesticides (lbs/yr)	490	0	0
Suspended Solids (lbs/yr)	5,970	35,122	44,192
Lead (lbs/yr)	5	10	16
Zinc (lbs/yr)	7	14	21
Copper (lbs/yr)	0	1	1

Cumulative total estimated load reductions achieved in Indiana from Section 319(h) projects to-date are:

Nonpoint Source Pollutant	Total Estimated Reduction
Sediment (tons/yr)	389,001
Phosphorus (lbs/yr)	637,702
Nitrogen (lbs/yr)	1,096,526

## Project Highlights

Two grant projects that closed this fiscal year are highlighted here as examples of successful NPS projects working to improve water quality through watershed planning, implementation of BMPs, and education/outreach. The information below was taken primarily from the project's final report.

### MIDDLE EEL RIVER WATERSHED INITIATIVE

The Middle Eel River Watershed (MERW) is part of the northern Eel River Watershed; 8 digit Hydrologic Unit Code (HUC) 05120104. The Eel River is a 110 mile long low gradient stream which lies along the dividing line between the Southern Michigan/Northern Indiana Drift Plains and the Eastern Cornbelt Ecoregions. The Eel River flows southwest from Allen County, Indiana to its confluence with the Wabash River near Logansport in Cass County, Indiana.

**Middle Eel River Watershed Initiative**  
A Coalition Led By Manchester University



The MERW consists of two 10 digit HUCs 0512010405 and 0512010406. The Middle Eel River includes 30 river miles from North Manchester to Mexico, Indiana, and has a watershed of 169,480 acres (264.81 mi<sup>2</sup>). Located primarily in Wabash and Miami Counties, the watershed also includes portions of Kosciusko and Fulton Counties. There are no large metropolitan areas in the MERW. Small towns in the watershed include Silver Lake, North Manchester, Roann, Denver, and Mexico, IN. Land use in the watershed is 89% agricultural, primarily row crops of corn and soybeans. Forests are scattered and fragmented; riparian vegetation is absent or exists as very narrow bands along the river; and many stream segments have been modified for drainage.

Early in 2007 Manchester College (now Manchester University) faculty began to investigate the possibility of a cooperative project to examine water quality concerns in the Middle Eel River Watershed. A total of 102.4 stream miles, including the entire mainstem of the Eel River, are on the 2008 Indiana Impaired Waters 303(d) List. Impairments include: *Escherichia coli* (*E. coli*), Polychlorinated biphenyls (PCBs) and mercury in fish tissue, low dissolved oxygen, impaired biotic community, and excessive nutrients. A core group of stakeholders was established, and after several meetings, Manchester University applied for a Clean Water Act Section 319 grant to address water quality concerns in the middle section of the Eel River. This core group of stakeholders formed the Middle Eel River Watershed Initiative (MERWI).

In January 2009, Manchester University was awarded a Section 319 grant to develop a comprehensive and strategic approach to access, document, and mitigate non-point sources of pollution in the middle

section of the Eel River in northern Indiana. The strategy included writing a watershed management plan, designing and conducting a scientifically sound water quality monitoring program, developing a strategic cost-share program for best management practices, and executing a comprehensive education and outreach program.

*Accomplishments*

[The Middle Eel River Watershed Management Plan](#) (MERWMP) was completed and approved by IDEM in January 2011. The WMP provides a framework and focus for work within the watershed. It is a dynamic document that was written by the Watershed Coordinator under the guidance of the Steering Committee, which met bi-monthly throughout the grant period.

Implementation of the cost-share program began immediately following approval by IDEM. All cost-share funds (\$212,000) were allocated within two months of announcing the program. The MERWI partnered with 22 landowners in the critical areas of the watershed as described in the MERWMP to install and maintain approved BMPs as shown below.

<b>Conservation Practice</b>	<b># of Projects</b>	<b># of Acres</b>
Cover Crops	6	1,808
Conservation Tillage	12	2,423
Nutrient Management	8	817
Heavy Use Protection Area	1	1
Grassed Waterway	1	1
Pasture & Hay Planting	1	76
Fencing	1	n/a
<b>TOTAL Projects and Acreage</b>	<b>30</b>	<b>5,126</b>

Sediment and nutrient load reductions for each installed BMP implemented as a result of this project was calculated using either the Region 5 Load Estimation Model or the STEPL model when applicable. Total estimated load reductions for the cost-share program are displayed below.

<b>Pollutant</b>	<b>319 BMP Estimated Load Reductions</b>
Total Suspended Solids (tons/yr)	4,105
Nitrates (lbs/yr)	27,708
Total Phosphorus (lbs/yr)	10,685

The table below shows the critical area subwatersheds, 12 digit HUC and acreage, 319 cost-share acreage, along with the percentage of 12 digit HUC covered by cost-share practices, percentage of total critical area covered by cost-share practices, and the percentage of the entire watershed covered by cost-share practices.

Critical Area Subwatershed	12 Digit HUC	12 Digit HUC Acreage	319 Cost-share Acreage	% of 12 Digit HUC	% of Total Critical Area (133,558 Acres)	% of Entire Watershed (169,480 Acres)
Beargrass Creek	051201040503	14,793	1,183	8.0%	.88%	.70%
Flowers Creek	051201040601	13,581	738	4.98%	.55%	.43%
Weesau Creek	051201040602	14,853	0	0	0	0
Oren Ditch-Paw Paw Cr.	051201040508	9,782	465	4.7%	.35%	.27%
Otter Creek	051201040502	13,101	864	6.6%	.65%	.51%
Silver Creek	051201040501	20,163	307	1.5%	.23%	.18%
Squirrel Creek	051201040505	15,192	163	1.1%	.12%	.09%
Town of Roann	051201040509	11,304	411	3.6%	.31%	.24%
Washonis Creek	051201040603	20,789	995	4.8%	.75%	.59%
TOTALS		133,558	5,126		3.8%	3.1%

A water quality monitoring program was completed with the goal to assess the middle portion of the Eel River ecosystem based on biological, chemical, and physical parameters prior to and after the implementation of best management practices as prescribed in the MERWMP. This included goals of: Goal 1: Monitor fish community structure and function as it relates to NPS pollution through the use of the Index of Biotic Integrity (IBI) at three mainstem sites and six tributaries prior to and after the implementation of best management practices. Goal 2: Assess stream habitat using the QHEI at three mainstem sites and six tributaries. Goal 3: Document the presences and/or absences of freshwater mussels at three mainstem sites and six tributaries. Goal 4: Quantify *E. coli* prior to and after the implementation of best management practices. Goal 5: Evaluate spawning habitat, year class strength, and population of smallmouth bass (*Micropterus dolomeiu*) in the mainstem of the study reach. Goal 6: Examine water chemistry including water temperature, dissolved oxygen, conductivity, total phosphorus, nitrate nitrogen, pH, and total suspended solids.

The MERWI monitoring program shed some light on the importance of watershed management with a monitoring program at a spatial and temporal scale that has helped to at least describe the best and worst of conditions from 2009-2012 in the Middle Eel River. The results validate the importance of monitoring water chemistry with automatic water samplers and the importance of documenting the presences and status of the biotic community (fish, habitat, and freshwater mussels) at the same time. The goals of this project included writing a watershed management plan during the first two years of the project (2009-2010), spending \$212,000 on best management practices during the last two years of the project (2011-2012), and monitoring stream water quality throughout the grant period (2009-2012). It was believed that if changes did occur as a result of best management practices, resulting improvements could be documented during the sampling period of 2011-2012. The watershed management plan was written and all \$212,000 was spent. In fact, an additional \$3 million was spent in the study area from funds received through the Mississippi River Basin Initiative. However, given the natural variability of the weather, it is not practical or realistic to expect quantifiable changes at the scale of this project over four years. It does illustrate, however, the dynamic nature of streams and the dramatic effect of weather patterns on water quality. For example the difference in *E. coli*, Total Phosphorus, Total Suspended Solids, and Nitrate-nitrogen between 2011(a wet year) and 2012 (a drought year) was dramatic. In each case there were significantly lower loads of all constituents with the lack of overland flow rain events

during May and June 2012. All of this important data supports long-term scientifically valid monitoring to document change from continued work with agricultural producers in the watershed.

The biological results from this project helped to validate priority watersheds. It suggests where biological communities should be protected further and where there are streams in more immediate need of attention. Smallmouth bass responded positively to the dry summer of 2012 with more spawning success than had been documented previously. It is likely that other fish species responded in the same manner. Finally, data from examination of freshwater mussels in the Middle Eel River indicates they are on the “ecological edge”. Freshwater mussels are the most imperiled group of organisms in the Middle Eel River and in North America. It is likely species will continue to become extirpated or even extinct given the lack of juveniles documented for most species found over the course of the project.

Education and outreach has been a high priority for the Initiative, realizing that it is the people who live in a watershed that will actively protect it. People, in general, and in the Middle Eel River watershed in particular, have become disconnected from their natural resources, and through the education and outreach program they have “reconnected” them to the beautiful Eel River through events including field days, canoe floats, and stream clean-ups. Through the MERWI contracted educational programs, over 1,654 people, from 3 to 93 years old, have been directly impacted. This count does not include the number of people reached through outreach events where numbers cannot be tracked, specifically at booths, talks to local groups, newspaper articles, the newsletter, and conversations with individuals. These are the things that are very difficult to measure, but are essential components of a successful outreach program. Additionally, through the hiring of Manchester University students as watershed technicians, future conservation leaders are being trained. The education and outreach program has been a huge success of the Initiative.

*Funding/Partnerships*

This project utilized \$599,000 in Section 319 funds and provided over \$656,574 in match. One of the most successful components of the MERWI has been the ability to leverage 319 funds. The Initiative began with \$600,000 of Section 319 funds, which have been grown to \$3,909,000. The MERWI leveraged 319 funds with agencies and/or individuals for additional support and/or projects within the watershed as shown below.

<b>Project</b>	<b>Dollar Amount</b>
Mississippi River Basin Initiative	\$3+ million
National Water Quality Initiative – Silver Creek Subwatershed	\$300,000
Paired Watershed Study Beargrass and Paw Paw Creek	\$56,000
Cargill Foundation - Undesignated	\$50,000
Indiana Smallmouth Bass Alliance	\$3,000
Private Donation – Undesignated	\$50,000
US Fish & Wildlife - ORBFHP	\$120,000

The MERWI serves as a model of how a diverse, committed, and engaged group of individuals and agencies can work collaboratively toward a common goal. Partners include representatives of natural resource agencies, academia, local governmental agencies, state agencies, federal agencies, not-for-profit and for-profit businesses, community organizations, and local landowners. The unique

partnerships that have been developed and that have been instrumental to the success of the Initiative include:

- *Indiana Department of Natural Resources (IDNR)*
- *State of Indiana NRCS*
- *Waterborne, Inc.*
- *Doud's Orchard*
- *Miami, Wabash & Kosciusko Co. Soil & Water Conservation Service (SWCD)*
- *The Stockdale Mill*
- *Cargill Foundation*
- *Wabash Co. Surveyor*
- *Wabash Co. Highway Department*
- *Wabash Co. Solid Waste District*
- *Miami Co. Highway Department*
- *Miami, Wabash & Kosciusko Co. Natural Resources Conservation Services (NRCS)*
- *The North Manchester Center for History*
- *The North Manchester Rotary*
- *Indiana Smallmouth Bass Alliance*
- *Acres Land Trust*
- *Indiana Department of Agriculture (ISDA)*
- *US Fish and Wildlife Service (USFWS)*
- *Arrowhead Resource Conservation and Development (RC&D)*
- *The North Manchester Wastewater Treatment Plant*
- *Miller's Canoe Rental*

#### *Future Activities*

The MERWI received a new Section 319 implementation grant that will allow continued implementation of the watershed management plan for the next three years (Jan 2012 through Dec 2015). The new Section 319 will allow continued water quality monitoring, educational and outreach activities, and an additional \$250,000 of funds for cost-share on BMPs in critical areas within the watershed.

#### *More Information*

More information on this project and the Middle Eel River Watershed Initiative may be found on their web site at <http://www.manchester.edu/eelriverinitiative/index.htm>.

### **SALT CREEK COST-SHARE AND EDUCATION PROGRAM**



The Salt Creek watershed consists of 49,573 acres located in Porter County, Indiana within the Lake Michigan Watershed. The Salt Creek watershed, HUC 04040001050, is a subwatershed of the Little Calumet-Galien watershed, HUC 04040001. Salt Creek begins in the primarily agricultural lands south of the City of Valparaiso and flows north and west through Valparaiso and unincorporated Porter County before joining the Little Calumet River in the City of Portage. The watershed includes agricultural, forest, grassland, residential, commercial, industrial, and recreational land uses. Incorporated areas include most of the City of Valparaiso, the southeastern portion of the City of Portage, the southern portion of the Town of Burns Harbor, and small portions of the Towns of Chesterton and Porter.

In 2006, Save the Dunes Conservation Fund received Section 319 grant funds to coordinate the development of a WMP to address the NPS pollution problems in Salt Creek. Sections of Salt Creek and its tributaries have been on IDEM's 303(d) List of Impaired Waters for excessive *E. coli* concentrations in 1998, 2002, 2004, 2006, and 2008, and impaired biotic communities in 2002, 2004, 2006, and 2008. Save

the Dunes worked closely with the Salt Creek Steering Committee to develop a WMP that addresses the issues identified by IDEM and those of community members and stakeholders. [The Salt Creek WMP](#) was completed in June 2008 and provides specific recommendations for actions, including BMPs and educational programs, to address the water quality issues impacting Salt Creek. In February 2009, Save the Dunes was awarded a Section 319 grant to coordinate the implementation of the Salt Creek WMP.

### *Accomplishments*

Save the Dunes successfully developed and administered a cost-share program to implement BMPs in critical and priority areas described in the Salt Creek WMP that address the water quality concerns outlined in Plan. Save the Dunes also conducted a comprehensive education and outreach program designed to bring about behavioral changes that lead to reduced NPS pollution in the watershed. The Salt Creek Watershed Group met biannually during the project and provided input on the BMPs installed, helped identify potential partners, and assisted with outreach. A total of 17 projects were cost-shared through the program, including ten rain gardens, four swale systems, one critical area tree



**Roundabout rain garden adjacent to Valparaiso University**



planting, one wash station, one stream stabilization, and one detention basin naturalization and retrofit. One example of a rain garden installed during this project is near a new roundabout in the City of Valparaiso within the Sagers Lake Critical Area.

Save the Dunes partnered with the City of Valparaiso to install this approximately 1,600 ft<sup>2</sup> garden which accepts runoff from portions of the roundabout and surrounding landscape. Save the Dunes cost-shared on the design and supplies for the garden. The City provided in kind services by designing, excavating, and planting the garden, including native prairie and tree plantings surrounding the rain garden. The location, adjacent to Valparaiso University (VU) and on a main thoroughfare, is highly visible, and an educational sign was installed at the site. Save the Dunes led a tour of BMPs installed on and around VU campus in 2012 and the roundabout rain garden was included on the tour.



**Wall Street Basin  
Naturalization and retrofit**

Save the Dunes also partnered with the City of Valparaiso to retrofit and naturalize the Wall Street Detention Basin within the Sagers Lake Critical Area. The Wall Street detention basin collects stormwater runoff from 113 acres, of which approximately 50 acres is impervious roadways, driveways, and rooftops. Section 319 funds were used to go above and beyond water quantity management and safety issues (part of their Storm Water Quality Management Plan), to add water

quality benefits to the basin. The City contracted to design a native landscaping plan and plant and seed the basin. The naturalized basin will not only remove sediment, excess nutrients, and other contaminants before eventually discharging to Salt Creek, but the native plants will serve as habitat for

birds, butterflies and other animals, and the native tree plantings will eventually grow tall enough to provide shade and lower the temperature of the urban runoff. Save the Dunes designed and printed an educational sign that the City installed at the site, and also conducted a site tour of the basin after the Salt Creek Watershed Group meeting in September 2012. Save the Dunes showcased the project as a case study during a workshop on naturalized detention basins held through another grant in August 2013.



In 2012 Save the Dunes again partnered with the City of Valparaiso to stabilize severely eroding banks on a 400-foot section of Beauty Creek near St. Paul’s Church. Beauty Creek, located in western Valparaiso in the Clark Ditch subwatershed in the headwaters of Salt Creek, is designated a Priority Management Area in the Salt Creek WMP. These priority areas are crucial for the long-term environmental health of Salt Creek and require protective measures from accelerated development pressures and existing threats to water quality in order to maintain and/or enhance existing, relatively good water quality. Save the Dunes estimated a pollutant load reduction of 90.5 lb/year of nitrogen, 34.9 lb/year of phosphorus, and 49.2 tons/year of sediment from this stabilization project using the Spreadsheet Tool for Estimating Pollutant Load (STEPL) program.

**Beauty Creek Streambank Stabilization**

In addition to the streambank stabilization project, Save the Dunes partnered with St. Paul’s Church to install a bioswale that accepts runoff from approximately 2.5 acres of St. Paul’s Church and its parking lot adjacent to Beauty Creek. The bioswale will treat runoff from the parking lot and allow for more stormwater infiltration. Together, these two BMPs will help reduce pollutants and excess storm water runoff to Beauty Creek. The Church installed an education sign designed by Save the Dunes at the site.

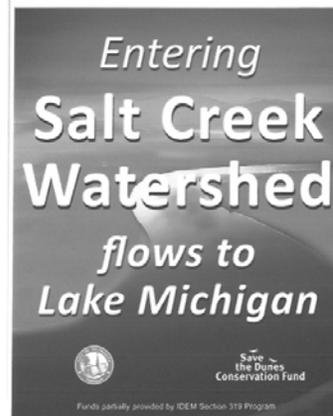


**Swale system at St. Paul’s Church**

The following table shows the total estimated pollutant load reductions achieved by this project through the BMPs implemented in the Salt Creek watershed. Loads were estimated using the Region 5 Model or the STEPL Model.

<b>Pollutant</b>	<b>Estimated Load Reduction</b>
BOD	611 lbs/yr
COD	1,463 lbs/yr
Lead	2 lbs/yr
Zinc	6 lbs/yr
Nitrogen	262 lbs/yr
Phosphorus	59 lbs/yr
Sediments	2,336 tons/yr
Suspended Solids	5,528 lbs/yr

In addition to implementing BMPs, Save the Dunes conducted an extensive education and outreach program to encourage BMP implementation and educate stakeholders on how to reduce NPS pollution. Activities included press releases, newsletter articles, brochures, educational signs at the location of cost-share BMPs, other signs around the watershed that inform stakeholders that they are in the Salt Creek watershed, public service announcements (PSA) on local radio stations (which continue to be aired), and a television PSA aired on NBC Chicago. Save the Dunes manned booths with information on the Salt Creek watershed, NPS pollution, and best management practices at several public events, including Porter County Builder's Association's LivingGreen Expo, Northwest Indiana's Earth Day, Home Builders Association's Home and Lifestyle Show, and the City of Valparaiso's GreenDays Festival. Save the Dunes also created a display on the Salt Creek watershed, stormwater, and low impact development (LID) that was displayed at Valparaiso University.



Progress toward meeting the goals of the Salt Creek WMP has been made through the activities conducted and BMPs installed as part of this project, as well as other efforts ongoing in the watershed. The Salt Creek WMP Goals and Objectives Schedule (Section 4) has been updated to reflect this progress.

#### *Funding/Partnerships*

This project utilized \$498,980 in Section 319 funds and documented \$331,320 in match. The match provided for the project included materials, monetary contributions, technical expertise, and in-kind services from Save the Dunes, stakeholders, contractors, partners on cost-share projects (who matched at least 50%), volunteers, the Valparaiso Public Library, Northwestern Indiana Regional Planning Commission (NIRPC), and many others who contributed to the success of the project.

#### *Future Activities*

The Salt Creek Watershed Group will continue to build partnerships and foster implementation of the Salt Creek WMP. Save the Dunes will continue to promote and monitor the projects demonstrated through this grant. The group will continue to distribute the brochure detailing the projects installed through 2010 and plans to update the brochure to include all projects installed to date. BMP projects that were identified during this project but were not implemented may be pursued in the future. Save the Dunes maintains a spreadsheet of potential projects to implement the Salt Creek WMP.

Save the Dunes is working with IDEM and USEPA Region 5 on a Salt Creek Integrated Watershed Pilot to maximize opportunities to integrate NPS, wetland, stormwater, LID, and TMDL efforts on a watershed basis. The products from this effort will enhance the Salt Creek Watershed Group's ability to target efforts within the identified critical and priority management areas. Products to be developed from this Integrated Watershed Pilot effort include enhanced WMPs, an inventory of potential wetland restoration sites to improve water quality, impervious cover management guidelines to support LID implementation, analysis of peak flow and impervious cover, modeling runs related to sediment and flow, and completed TMDLs for biotic integrity and *E. coli* on listed tributaries. The Integrated

Watershed Plan will characterize water quality in the Salt Creek Watershed. A TMDL has been developed to address the biotic integrity and *E. coli* impairments for listed tributaries. Save the Dunes is currently updating the Salt Creek WMP to incorporate the integrated watershed pilot.

### *More Information*

More information on Save the Dunes Conservation Fund and its activities may be found on its website at [http://www.savedunes.org/about/conservation\\_fund/](http://www.savedunes.org/about/conservation_fund/).

## **Project Recognitions**

Individuals and watershed groups in Indiana work long and 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. This year, several groups were recognized on a state or national level for their efforts at reducing NPS pollution.

- Manchester University and the Middle Eel Watershed Initiative received the **Education and Information Award from the Hoosier Chapter of Soil and Water Conservation Society** in November 2012. The purpose of this award is to recognize the outstanding achievements of a specific individual or group whose efforts in educating and/or informing the public about natural resources issues has resulted in a positive greater awareness of the need for protecting or conserving these resources.

## **Nonpoint Source Success Story**

Section 319 NPS Success Stories are stories gathered by EPA from states and territories 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. This is one of Indiana's such stories submitted to EPA in 2012:

### **Metcalfe Ditch: Funds Leveraged to Restore Biotic Community in Ditch**

(Story taken from the EPA web site: [http://water.epa.gov/polwaste/nps/success319/in\\_metcalfe.cfm](http://water.epa.gov/polwaste/nps/success319/in_metcalfe.cfm))

IDEM added Metcalfe Ditch and its tributaries to Indiana's 303(d) list of impaired waters because of impaired biotic communities in 2002. Using Section 319 funds, project partners developed a watershed management plan, educated stakeholders about proper agricultural and septic system management, and implemented best management practices throughout the watershed to address residential and agricultural NPS pollution. Recent monitoring data show that the Metcalfe Ditch and tributaries segment fully supports its aquatic life use designation. As a result, IDEM has removed this segment from the State's 2012 Section 303(d) list of impaired waters.

## **Problem**

Metcalfe Ditch and its tributaries include a total of 14.3 stream miles in the Buck Creek watershed, a subwatershed of the St. Joseph River watershed in northeast Indiana's Maumee River Basin in DeKalb County. In 2000 IDEM's watershed monitoring program staff collected information on chemical, physical and biological parameters in the watershed to determine whether the waters were meeting water quality criteria and their designated uses. Data collected for the Buck Creek watershed revealed an IBI score of 22 for the fish community. An IBI score greater than 36 is considered supportive of the aquatic life designated use, whereas a score below 36 indicates non-support (i.e., impaired biotic communities). On the basis of these data, IDEM added this segment to the 2002 CWA section 303(d) list of impaired waters.

IDEM identified NPS runoff as the main contributor to the biotic community impairment; no pollutant was identified as the cause of the impairment in the listing. The Buck Creek watershed lies within a predominantly agricultural area, but it also includes the southern tip of the city of Butler. Land use suggests that elevated sediment and nutrient levels were the cause of the impairment. Key pollutant sources in the watershed include runoff from row cropping, livestock grazing and animal feeding, as well as leaking and failing septic systems.

## **Project Highlights**

Since 1990 IDEM has supported a total of 15 CWA section 319 NPS projects and 205(j) water quality management planning projects in the greater St. Joseph River watershed. Project funds have been used to develop a comprehensive watershed management plan, identify critical areas and priority actions to improve water quality, implement BMPs to address failing septic systems, install tree plantings, and encourage landowners to use agricultural BMPs. Key agricultural practices implemented in the watershed include 24,437 linear feet of filter strips; 200 feet of grassed waterway; 194 conservation plans; 121 acres of residue management; 1,575 acres of precision application technology used to apply nutrients; and 198 acres of plant tissue testing and analysis to improve nitrogen management. Other practices include installing a grade control structure and a wetland septic system, repairing two septic systems, planting 23.4 acres of trees, and improving 35 acres of forest.

Between 1997 and 2004, IDEM used CWA section 319 funds to fund technical experts, who provided recommendations on implementing agricultural BMPs. After 2004 these positions were funded by the U.S. Department of Agriculture's Natural Resources Conservation Service. Implementation of the St. Joseph River watershed management plan continues throughout the watershed.

## **Results**

BMPs reduced the amount of NPS pollution entering the Buck Creek watershed, allowing habitat in the streams to improve. IDEM conducted follow-up monitoring of the fish community in 2011. The Metcalfe Ditch and Tributaries segment received an IBI score of 36, indicating that it fully supports its aquatic life use. As a result, IDEM removed the segment from the state's CWA section 303(d) list for its aquatic life use impairment in 2012.

## Partners and Funding

Major partners in these watershed efforts included the nonprofit St. Joseph River Watershed Initiative Partnership, the City of Fort Wayne, the DeKalb County Soil and Water Conservation District (SWCD), and the Indiana Department of Natural Resources. Because the St. Joseph River serves as the drinking water source for Fort Wayne, the second-largest city in Indiana, interest in the watershed is high.

Since 1990 IDEM has directed \$900,747 in CWA section 319 funds and \$53,997 in CWA section 205(j) funds, as well as \$543,300 in local in-kind and cash match, to conduct water quality efforts in the St. Joseph watershed. In addition, between 1994 and 2011, IDEM directed \$1,780,836 of CWA section 319 funds to implement agricultural BMPs statewide and to support regional staff tasked with teaching farmers about water quality and the funding resources that are available to improve it. Local partners leveraged these resources with additional state and federal funds to develop the St. Joseph River watershed management plan, identify critical areas, spur the development of subwatershed groups, implement BMPs, and educate residents about ways to restore the biotic community in the Buck Creek watershed.

From 2000 to 2002, the DeKalb County SWCD used \$75,600 in CWA section 319 funds to pilot a septic system repair cost-share program. The program resulted in repairs to 43 septic systems in the county. The SWCD also used \$10,000 in state Clean Water Indiana funds to leverage \$44,400 in federal dollars to install 24,437 linear feet of filter strips along Metcalf Ditch in 2008–2009.

Aside from CWA funding, groups working to improve water quality in the area brought in an estimated \$1,740,000 in state and federal grants to the greater Maumee River watershed (including Buck Creek) during the period 2005–2012. State-funded awards comprised \$66,864 of those total project dollars.

# Working to Improve the Nonpoint Source Program

IDEM's Nonpoint Source (NPS) Program is actively working to expand state resources devoted to addressing NPS pollution; develop planning and assessment tools to better gauge the effect of grant-funded projects; and fund projects to build watershed planning capacity within the state. This section of the report details efforts undertaken during this reporting period that will increase the effectiveness of the NPS Program in Indiana.

## State Nonpoint Source Management Plan Update

Nationally, the Section 319 grant program has been under scrutiny over the past several years. This year saw the culmination of the recommendations of various studies and workgroups. As a result of the GAO study of 2012<sup>2</sup> and their own review of the Section 319 program, U.S. EPA released new guidance for the state NPS programs in 2012<sup>3</sup> and 2013<sup>4</sup>. In the 2013 guidance (effective for FFY 2014), U.S. EPA targeted 50% of states to have up-to-date state NPS management plans by September 2013. Indiana was one of the states targeted for this measure. Indiana's NPS Management Plan was last updated in 2008. Under U.S. EPA guidance, these plans should be updated every five years. Accordingly, the NPS Program has been working to update Indiana's NPS Management Plan for submittal to U.S. EPA by September 30, 2013.

Work on this project began in August 2012. It was decided that the format should follow the outline required of Indiana's NPS grantee-generated watershed management plans. A stakeholder survey was conducted to gather public input on strengths, weaknesses, opportunities and threats to the program. NPS program staff met with other state and federal agencies to discuss aspects of the plan that coincide with their programs. Specifically, the NPS Program met with Clean Water State Revolving Loan Fund staff to discuss coordination of their NPS program with watershed management plans housed in the NPS Program; NRCS, to discuss IDEM's participation in the National Water Quality Initiative and the prioritization of watersheds; ISDA to discuss the State Nutrient Reduction Strategy; DNR Coastal Program to coordinate actions to meet the final conditions for approval; IDEM's Ground Water program; and the Indiana Conservation Partnership (ICP) leaders (as a group). We also consulted with DNR Fish and Wildlife on areas needing to be protected and with the 303(d) assessments coordinator. A draft plan was created and put on notice for public comment on August 1, 2013. The public comment period will end on Aug 31, 2013 at which point revisions and corrections will be made and the document will be submitted to U.S. EPA for approval on or before September 30, 2013.

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<sup>2</sup> Nonpoint Source Water Pollution: Greater Oversight and Additional Data Needed for Key EPA Water Program. GAO-12-335. Available from <http://www.gao.gov/products/GAO-12-335>

<sup>3</sup> [Guidance on the key components of an effective state nonpoint source \(NPS\) management program](http://water.epa.gov/polwaste/nps/upload/key_components_2012.pdf). (2012). Available from [http://water.epa.gov/polwaste/nps/upload/key\\_components\\_2012.pdf](http://water.epa.gov/polwaste/nps/upload/key_components_2012.pdf)

<sup>4</sup> Nonpoint Source Program and Grants Guidelines for States and Territories. Available from <http://water.epa.gov/polwaste/nps/upload/319-guidelines-fy14.pdf>

## Water Quality Monitoring Strategy

In 2011 IDEM changed its probabilistic surface water quality monitoring efforts from a 5-year to 9-year rotating basin approach to liberate fifty percent of its resources to conduct targeted monitoring in support of water management needs such as public health advisories, developing or refining water quality criteria, and to support watershed planning and implementation efforts. See Attachments 1 and 2 for additional information on the various monitoring programs and their respective data parameters.

IDEM's NPS monitoring includes two types of targeted monitoring: performance measures monitoring (monitoring for success, measured under the EPA's SP-12 measure) and baseline characterization monitoring. The 2013 sampling season was the third season under this new Water Quality Monitoring Strategy.

### Targeted Monitoring for Success (MeasureW/SP-12 and Success Stories/WQ-10)

Part of the EPA's strategy for showing improvement in NPS pollution impairment is through Measure W 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 relate indicators associated impairments.

IDEM has chosen to use delistings (Option 1 above) as the mechanism for demonstrating water quality improvement to EPA. Targeted monitoring to measure water quality improvement as a result of NPS grants was initiated in 2009. Monitoring for success continued this period in the Upper Tippecanoe (HUC 0512010601) and Blue River watersheds (HUCs 051401040606, 051401040805, 051401040905). Samples are still being processed and IDEM reserves judgment as to whether any of the sampling in these watersheds showed improvement.

### Baseline Monitoring 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 other watersheds. The following is a status update of all ongoing baseline studies and studies closed in FFY 2013.

Plummer Creek (HUC 0512020203) – Data collection under this project was completed in June 2012. Assessments of the data were made with local watershed leadership in attendance. The data results

were given to the local watershed group for incorporation into the watershed planning process. The IDEM baseline sampling project is complete in this watershed.

East Branch Little Calumet (HUC 0404000104) – Data collection followed the modified geometric design reported in the FFY 2012 NPS Annual Report and was completed in November 2012. Assessment of the data was completed in February with local watershed leadership in attendance. The data results were given to the local watershed group for incorporation into the watershed planning process. The IDEM baseline sampling project is complete in this watershed.

Indian-Kentuck (HUC 0514010102) – Data collection followed the modified geometric design reported in the FFY 2012 NPS Annual Report and was completed in May 2013. Assessments of the data anticipated to occur with local watershed leaders in the fall of 2013.

Deep River (HUC 0404000105) – In order to maximize available resources, this baseline monitoring project is being conducted in conjunction with a TMDL. Thirty-five sites were selected for water quality monitoring following a modified geometric design as described in the [2013 Sampling and Analysis Workplan for Baseline Monitoring of the Deep River – Portage Burns Watershed](#). Parameters to be sampled include dissolved oxygen, pH, water temperature, specific conductance, turbidity, dissolved oxygen percent saturation, alkalinity, total solids, total suspended solids, sulfate, chloride, hardness (as CaCO<sub>2</sub>), ammonia-nitrogen, total Kjeldahl nitrogen, nitrate/nitrite, total phosphorus, chemical oxygen demand, total organic carbon, flow, *E. coli*, macroinvertebrate community, fish community, and habitat-related parameters (e.g. embeddedness, canopy cover). Data collection began in April 2013 and is scheduled to conclude in March 2014.

## **Nutrient Reduction Strategy**

The Indiana Conservation Partnership is the entity preparing Indiana's State Nutrient Reduction Strategy, with the Indiana Department of Agriculture (ISDA) taking the lead. The ICP consists of IDEM, the Indiana Department of Natural Resources, the ISDA, the Indiana Association of Soil and Water Conservation Districts, the United States Department of Agriculture's Natural Resource Conservation Service, Farm Service Agency, Purdue University Extension and the State Soil Conservation Board. This comprehensive state plan addresses point and NPSs, as well as urban and rural sources. The Strategy includes components such as:

- Analytical tools to prioritize watersheds.
- Regulations addressing nutrient reduction.
- Grants and Conservation Programs to address nutrient challenges, such as IDEM 319 and Clean Water Indiana. This also includes participation in innovative programs such as the Ohio River Basin Water Quality Trading Program to capture additional private-sector funds for conservation practices.
- Nutrient reductions achieved through adaptive management programs such as the Indiana On-Farm Network, which provides participating farmers with in depth nitrogen analysis on their own farms.
- Indiana Soil Health Strategy, which is a unified strategy of several agricultural organizations to address nutrient management.

Indiana's State Nutrient Reduction Strategy was submitted to the U.S. EPA in 2013.

## Total Maximum Daily Load Program

Under the CWA Section 303(d), development of TMDLs is required for all the impaired waterbodies that do not meet the water quality standards (WQS) for the designated uses to protect aquatic life, wildlife, and human health. In October of 2012, the Watershed Assessment and Planning Branch developed a "TMDL Program Plan of Action" for TMDL prioritization, development and implementation based on the primary goal of making measurable improvements in water quality. The objectives of this action plan are 1) create a prioritization scheme for TMDL development and institute a TMDL development process that supports and augments other IDEM OWQ programs and objectives, 2) develop TMDL documents that are implementable by stakeholders, and 3) develop a TMDL implementation tracking system for following-up to determine effectiveness. These objectives will be achieved through seeking input and program coordination within the OWQ and, to the extent possible, with external partners.

Accomplishments this period for each objective are as follow:

1. Create a prioritization scheme for TMDL development and institute a TMDL development process that supports and augments other IDEM OWQ programs and objectives
  - a. TMDL and NPS staff participated in webinars and learned about the Recovery Potential Tool (RPT) for prioritizing watersheds and TMDLs, and piloted the model on two watersheds (the Patoka River basin, HUC 05120209, and five subwatersheds of the Mississinewa River basin, HUCs 05120103-01 through -05) for which TMDLs are slated and that have active watershed groups. Results of the model runs will be shared with the stakeholders as they move into refining existing WMPs or developing new plans in conjunction with the TMDLs.
  - b. TMDL staff began reviewing several other watershed and lake models as to their potential for use in predicting water quality improvements
  - c. Staff and management began discussions on forming an internal (IDEM) planning team for prioritizing TMDL development, and how and when to expand the team to include external partners to better coordinate efforts on TMDL development and implementation.
  - d. Staff developed a modified geometric sampling design to satisfy project requirements across multiple program areas (TMDL, permits, targeted monitoring for documenting improvements)
2. Develop TMDL documents that are implementable by stakeholders
  - a. The first two TMDLs to utilize the new template (Otter Creek and Big Raccoon Creek) were completed and submitted to U.S. EPA in August 2013. As the two new TMDL writers developed the documents, they refined the template and coordinated with the Watershed Specialists to note improvements that can be made to meet the 2009 IDEM WMP Checklist. They also improved upon the content of the TMDLs by coordinating with other IDEM programs and external stakeholders to include more accurate information on permits, compliance, GIS layers, wetlands, and updated recommended implementation activities. With the addition of these two TMDLs, IDEM has completed TMDLs for 819 out of 1586 twelve-digit HUCs, which translates to 1181 TMDLs. Approximately 42% of the approved TMDLs are in various stages of implementation.
  - b. From 2011-2013, IDEM staff coordinated on three pilot [baseline monitoring studies](#) with local groups (without TMDLs being developed), and then launched three new

- comprehensive baseline/TMDL/WMP projects with local groups (Deep River in NW Indiana, Whitewater River in eastern Indiana, and the Mississinewa River in NE Indiana). IDEM will conduct 12 months of baseline sampling and develop the TMDL, and the watershed group will use the TMDL to develop and eventually implement a watershed management plan. Deep River is the first project that is anticipated for TMDL submittal in 2014. The local group anticipates developing a full WMP and beginning implementation by late 2015.
- c. Staff created a TMDL project-specific web page for the [Deep River baseline/TMDL](#) that will house information as the baseline sampling is being done and the TMDL is being developed so that stakeholders can be engaged with IDEM throughout the process. It is anticipated that this engagement will lead to more local interest and capacity for implementing water quality improvements. The Deep River web page is being used as the format for future TMDLs.
  - d. Section 319(h) funds are being prioritized for supporting comprehensive baseline/TMDL/WMP projects.
3. Develop a TMDL implementation tracking system for following-up to determine effectiveness
    - a. Staff have begun mapping BMPs installed with Section 319(h) funds (beginning with the most recent projects), which will then be overlain with TMDL shapefiles cross-referenced with the load allocations and waste load allocations articulated in the TMDLs.

## Capacity Building to Reduce Nonpoint Source Pollution

IDEM is continually seeking ways to build capacity around the state in an effort to strengthen the effectiveness of groups working to achieve water quality goals and show measurable results. The objective is to promote the organizational development and growth of local watershed partnerships and stakeholders committed to improving and maintaining the natural and economic resources of their watersheds; and to provide funding, training, and technical assistance to these groups so they can better address watershed-based problems and help develop sustainable solutions. Following are examples of IDEM working with partners and using Section 319(h) funds to help build capacity statewide and at the local level to reduce NPS pollution in the state.

### Watershed Specialists

The Watershed Specialists continue to 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 2013 are:

- Assisted approximately 80 active and developing watershed projects, 54 of which were Section 319/205j grant funded.
- Participated in the planning and conducting of the 2013 Indiana Association of Soil and Water Conservation Districts Annual Conference. Watershed Specialists moderated presentations on MS4 coordination in watershed planning, partnership building, conservation tillage and cover crops, and cost share program successes. Planning has begun for the 2014 IASWCD Conference, which proposes to include a number of capacity-building and NPS-related topics.

- Assisted Purdue University with the [Indiana Watershed Leadership Academy](#) by participating in their steering committee, reviewing participant assignments and providing feedback to participants, and attending their graduation to evaluate their class projects presented that day.
- Assisted Purdue's webinar speakers by previewing webinar presentations several days beforehand and providing feedback to improve them before they are presented live.
- Worked with others in the Watershed Assessment and Planning Branch to develop baseline/TMDL studies and SP-12 targeted monitoring sites.
- Worked with other agencies in the Indiana Conservation Partnership 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.
- Continued promoting the Mitigation Matchmaker website developed by INDOT, IDNR, and IDEM.
- Worked closely with the Indiana Department of Natural Resources' Lake Michigan Coastal Program, NPS Coordinator to address all outstanding elements 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 bi-state watersheds that meet checklists for both states.
- Continued to participate in the Indiana Conservation Partnership'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.

## Training and Outreach

### *Indiana Watershed Leadership Academy*

IDEM is continuing to partner with Purdue University using Section 319(h) funds 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.

The Indiana Watershed Leadership Academy (IWLA) was developed in 2005 by Purdue University in collaboration with numerous conservation partners throughout the State. The Academy responds to the critical need to build watershed management capacity in Indiana, documented through a [survey](#) conducted by Purdue of watershed volunteers and professionals throughout Indiana.

### *Accomplishments*

Purdue celebrated the conclusion of the eighth class of the Indiana Watershed Leadership Academy in May 2013. Thirty participants from throughout Indiana with very diverse backgrounds including watershed coordinators, state, federal and county government employees, MS4 operators, undergraduate and graduate students, consultants, a planning and zoning coordinator, a lakes council president, a drainage board member, and non-profit representatives convened in January 2013 to begin face to face workshops and distance education on becoming more effective watershed leaders. Those

who completed all components of the program received a Professional Certificate in Watershed Management.

Over the course of the 2013 Academy, they had many notable achievements including:

- Module assignment review – approximately 200 assignments are completed and reviewed by alumni each year. These modules focus on topics known to be important to watershed coordinators in effective planning.
- Web meetings – Purdue used innovative web conferencing technologies to keep participants in touch. Each participant received a webcam and met online every other week from January through March to discuss any issues with the current assignment and to introduce the new learning module.
- Face-to-face workshops – Purdue held three workshops that emphasized topics that people need such as water monitoring data interpretation, identifying critical areas, and selecting Best Management practices.
- Developing tools – as Purdue works with watershed groups they have focused efforts on tools to address needs. For example, the [load calculation tool](#) and the [HUC Finder](#).

Within the Indiana Watershed Leadership Program, Purdue began a monthly [webinar series](#) in March 2011 to build on the educational content provided during the Academy. This webinar series is available to Academy graduates and others throughout the state. The webinars are recorded providing on-demand 24/7 access. To date, there are over 30 archived webinars and the topics for 2013 include:

- Limnology 101: A Brief Introduction
- The Urban Connection
- Impact of Road Salt on the Environment
- One County's Success in Linking Watershed Protection and Land Use Planning
- River Bank Filtration: Design, Purpose, Experience
- Continuous Monitoring of Pollution in the Nation's Precipitation with a Focus on Conditions in Indiana and the Great Lakes
- Outreach Strategies and Effectiveness on the Awareness and Adoption of Conservation Practices by Farmers in the Mackinaw River Watershed, Illinois
- The Influence of the Two-Stage Ditch on Water Quality in An Agricultural Landscape
- Understanding Why Farmers Choose to Adopt Best Management Practices

Outcome-based evaluations each year have been used to enhance the content, improve the overall experience, and demonstrate the impact on watershed management. The Academy has received very strong evaluations from participants. When asked to provide specific comments regarding the overall Academy, participants indicated:

- “A great way to learn of others working hard to understand the importance of working with stakeholders to improve water quality.”

- “Watershed planning can be daunting given the amount of information and work ahead. The Academy lets me know that others have been through it and there is lots of support out there.”
- “I really like all the different ways of learning.”
- “Enjoyed the networking and collaborating ideas, speakers were very informative, great to hear what others are doing.”
- “Enjoyed having an array of guest speakers.”

In the past eight years, 227 people have participated in the Academy, through which they have learned skills in organization and communication, watershed technology, GIS, policy, watershed science, and leadership.

#### Future Activities

The 2014 Indiana Watershed Leadership Academy face-to-face sessions are scheduled, and the application period will open in mid-August 2013. The Advisory Committee will continue to bring statewide input and support to the Academy. Due to the success and continued interest in this program, Purdue has been able to secure additional funding to maintain the Academy through January 2015.

#### ***IASWCD Conservation Development Specialist***

The Indiana Association of Soil and Water Conservation Districts (IASWCD) received 319 funding for a two year project (ending in September 2012) called *Capacity Building and Public Support for Watershed Groups*. The grant funded a Conservation Development Specialist (CDS) position in an effort to raise the level of awareness and abilities of Soil and Water Conservation Districts (SWCDs) and watershed groups throughout the State to address issues related to NPS pollution in an effective and efficient manner. There were four primary goals of the Conservation Development Specialist position, they are respectively:

1. Develop and distribute needs assessment tools and produce education, training and support based on the identified needs.
2. Increase public awareness and support of nonpoint pollution reduction projects and clean water initiatives.
3. Assist and coordinate Conservation Development Specialist tasks and activities with the Watershed Specialists team.
4. Submit all grant reports and invoices within the required timeframe and format.

The CDS role provided an opportunity to reach out to SWCDs and watershed groups, offering much needed resource development tools and information. Serving in partnership with IDEM, this position provided yet another opportunity for dialog and evaluation of watershed groups and SWCDs’ capacity building needs and how those needs can be addressed by the CDS and/or any of the other Indiana Conservation Partnership (ICP) entities. The contacts, tools and resources provided through this position during this grant period have been solely directed toward resource development, which ultimately translates to the reduction of NPS pollution.

The continuation of work through the Conservation Development Specialist role is supported by the IASWCD Board of Directors. The CDS continues to offer assistance to local organizations with capacity building tools and features including information and expertise related to creative leveraging of local/state/federal funds, fundraising, private donor relationships, and marketing and grants development. The CDS will continue to work with the ICP, offering an opportunity to build on the foundation of work already created from prior accomplishments and creating an outstanding opportunity to maximize the outcomes from past work.

### ***Hoosier Riverwatch***

[Hoosier Riverwatch](#), a state-sponsored water quality monitoring initiative, is a new addition to the IDEM Office of Water Quality, Watershed Assessment and Planning Branch. The program began in Indiana to increase public awareness of water quality issues and concerns by training volunteers to monitor stream water quality. The mission of Hoosier Riverwatch is “To involve the citizens of Indiana in becoming active stewards of Indiana's water resources through watershed education, water monitoring, and clean-up activities”. 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.

Prior to November 2012, Hoosier Riverwatch was part of the Indiana Department of Natural Resources. The move to IDEM better integrates the volunteer water monitoring program into watershed monitoring and planning activities. Many Section 319 grant projects utilize the program for their education and water monitoring activities.

The Hoosier Riverwatch Volunteer Stream Monitoring Internet Database was developed in the summer of 2000. Indiana volunteer stream monitoring groups enter data collected during habitat, chemical, and biological sampling into this statewide database. Only volunteers who have completed a Hoosier Riverwatch training workshop may enter data. Volunteers and the general public can view and download all stream data entered into the database by Riverwatch 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.

This fiscal year Hoosier Riverwatch educated and trained 267 water quality monitoring volunteers throughout Indiana and distributed equipment packages to a variety of schools and non-profit organizations. Approximately 291 data records were entered into the online database by volunteers this year.

### ***Indiana Conservation Partnership Training and Certification Program***

Since September 2009, IDEM has participated with other members of the Indiana Conservation Partnership in developing a Training and Certification Program (TCP) to meet staff training and

certification needs across the Partnership. The IDEM NPS Program hopes to gain the following benefits from the ICP TCP:

- 1) Training for program staff on best management practices that will make cost-share practice approval decisions more efficient;
- 2) Increase in number of District employees who are competent to plan for and design best management practices to meet the goals of Indiana's watershed management plans; and
- 3) Certification program for Watershed Coordinators that will result in increased recognition of these staff by their employers so that compensation is sufficient to decrease the level of turnover currently seen in these positions.

A Partnership-wide survey was conducted in April 2011 to determine training needs across the partnership. Four priority training needs rose to the top and have been the focus of the ICP TCP's course offerings over the past two years: nutrient management, RUSLE2, cover crops, and "urban" trainings. During the past year, the ICP TCP has offered four trainings on nutrient management, four trainings on how to use the NRCS's RUSLE2 model to calculate soil loss, and over 50 trainings on cover crops. Four additional nutrient management trainings and four rain garden trainings (featuring nation-wide speaker Rusty Schmidt) are planned for fall 2013. Individual partners also held cover crop, soil health, and engineering trainings.

The Partners generally agree that the USDA's AgLearn online training interface is a forum that can be used to provide awareness-level trainings and have agreed to require their employees to complete the "Conservation Planning, Part I" course to obtain general conservation planning awareness. IDEM NPS staff anticipate completing this training in the next fiscal year. Twenty-five ICP employees completed the NRCS-conducted Engineering Boot Camp held in July of this year. Additional employees had to be turned down due to reaching the maximum class size. Fifteen ICP employees attended the NRCS-sponsored Certified Conservation Planning Course conducted in June of this year.

A coordinator for the ICP TCP program was hired in June 2012 under a 205j grant agreement with the Marion County Soil and Water Conservation District. The coordinator was charged with organizing priority trainings, securing funding for future efforts, and generally moving the program forward to a curriculum-based program that could provide certification for technical employees of the ICP. The coordinator has been successful in organizing and advertising the above training opportunities. The coordinator has also secured \$7,450 in grant funds through the Sustainable Agriculture Research and Education grant, \$25,000 in match from the State Soil Conservation Board, as well as applying for a \$100,000 Conservation Innovation Grant (through NRCS) and an additional \$75,000 SARE grant.

### ***ISDA Technical Assistance for Agriculture Project***

Many state and federal initiatives and programs are in place to reduce NPS pollution in Indiana. However, a persistent obstacle to the installation of NPS mitigating practices in Indiana has been a lack of field technical staff to "sell" and design best management practices for agricultural land. One initiative IDEM has been involved in to solve this problem is the Indiana Conservation Partnership's Training and Certification Program, described above. However, until the ICP TCP is consistently able to train additional technical staff, there is still a need for more "boots on the ground".

In response to this need, in 2010, IDEM funded a proposal from the Indiana State Department of Agriculture to hire and train 3 technical staff positions to serve in watersheds in the Wabash Basin with known water quality issues to provide technical assistance and help implement BMPs through state and federal agricultural programs aimed at reducing sediment and nutrient runoff to Indiana's surface waters. Since the project began in July 2011, "technicians" have been trained by ISDA, NRCS, and through attendance at education events, trainings, field days and workshops. The technicians now assist NRCS and SWCD staff with landowner customer service and conservation program signups, and provide technical assistance on BMP design and implementation. Much of the funding to-date for these BMPs has come from Clean Water Indiana Program and Conservation Reserve Program funds.

This project has helped implement more than 2,268 acres of nutrient management, pest management, no-till, and cover crop; and 75,473 feet of grassed waterway. Total estimated load reductions from BMPs installed with any assistance from these technicians are: 12,916 tons/year of sediment, 15,300 lbs/year of phosphorus, and 31,603 lbs/year of nitrogen in the Mississinewa (0512010306), Salamonie (0512010204), several ten-digit HUC watersheds in the Upper Eel (05120104), Upper Wabash (05120101) and Tippecanoe (05120106) watersheds.

## **Lessons Learned/Adaptive Management**

Part of improvement and program development is taking time to evaluate existing processes and identify ways to do things better. For the NPS Program, this involves getting input and lessons learned from our grantees, our staff who manage these projects, and our partners. Key lessons learned by our grant projects are passed along to other watershed groups by IDEM's Watershed Specialists and NPS staff throughout the grant process.

## **Lessons Learned By Section 319(h) Grant Projects**

A requirement of all Section 319(h) grant projects is to document project successes, failures, and lessons learned in their Final Report. This information serves three purposes. First, it helps the grantee improve and use this knowledge when planning for future work in the watershed. Second, it helps IDEM improve, where applicable, its processes and policies. Third, it allows other watershed groups to learn from the successes and failures of their peers. Following are excerpts from this year's projects' final reports on their lessons learned:

### General

- The most significant lessons learned have been relative to the specific capacity building needs of our SWCDs and watershed groups. Although our electronic communication vehicles are priceless, meeting face-to-face with individuals and groups has been of extreme value in designing tools, trainings and support. "One size does not fit all."
- You need a staff of 2-3, above and beyond the SWCD staff, to administer a 319 grant.
- Three years to complete a 319 project is not enough time, a 4 to 5 year project time frame would be better.
- Having one dedicated IDEM contact throughout the process is critical.
- 319 grants offer real economic resources for communities, but execution is not streamlined and administrative resource demands are extremely high.

- Up front discussion and agreement of project personnel and the project’s sponsoring personnel should occur on various levels. Inclusion of appropriate IDEM personnel might be beneficial. There needs to be a clear understanding and agreement about input, recommendations, approvals and requests, among other things; a sort of “operating procedure” for all parties. Lack of good communication and understanding/agreement on lines of responsibility and authority can lead to individual frustration, low productivity, and general hard personal feelings....even if the project is deemed to be successful and meeting or exceeding expectations.
- An extremely important lesson learned is the necessity of matching the Coordinator’s available presence to the duration of the grant. This grant was initially set for a three (3) year period, in terms of Tasks B, C, D, and E. However, Task A funds, which included salary, travel and expenses to support the Coordinator were only allocated for a two (2) year period. *(They worked it out).*
- A difficulty in working on watershed management is the lack of information available at the watershed level. While this has improved over the past four years, all of the agencies (SWCDs, NRCS, IDNR, IDEM) work through political systems with imaginary theoretical boundaries that are ineffective for dealing with watershed concerns. Statistics are available by county, not by watershed.
- The time frame for a four year project that allows the writing of a watershed management plan followed by implementation is a good design, but slightly flawed. It is not realistic to expect to show any improvement in water quality through pre and post BMP implementation water quality monitoring. This is because the cost-share program begins at year three, implementation occurs in the fall of year three and the spring and fall of year four. This does not allow sufficient time for the best management practices to be effective or impact water quality. The best approach would be to fund an initial project for at least 6 years to allow implemented best management practices time to potentially impact on water quality.
- A lesson learned from both phases of this project is that it is still difficult to keep interest and information on a high profile level for a project or program over an extended period of time. Although efforts were in place to try and generate new and innovative ideas with the Steering Committee, the sheer longevity of this project has created a slump in Steering Committee participation although interest seemed high. It is imperative to find fresh people and ideas to generate new interest and enthusiasm.
- It is very important to keep up to date with training opportunities on the ever increasing innovations and changes that seemingly happen rapidly each year in agriculture. To be able to adequately do a good job of conservation planning with landowners, there is the need to adapt and be able to advise on up to date information

#### Education and Outreach

- We have learned constantly through our rigorous evaluation of each workshop and overall evaluation of the Academy. Valuable feedback led to changes in venue, topic, and agenda structure providing more informative and productive learning opportunities.
- A lesson learned is that with a watershed project covering multiple counties, publicity and getting timely information out to landowners can be a somewhat difficult challenge. That is why it is important to keep communications open for every opportunity to educate the public with partnership sponsors. We found that there is no local singular media outlet, such as a daily or weekly newspaper, radio or television station that includes all of our four counties.

### Partnerships

- The public-private partnership that previously existed between CEES and Veolia Water was very unique and somewhat dependent on key personal relationships and the shared understanding of mutual benefits. Rebuilding such a unique and beneficial relationship will take time and committed personnel on both sides. When possible, if IDEM or other key agencies could help facilitate these relationships, the impact to watershed project would be enormous and incredibly positive.
- Another lesson learned is the importance of documenting clear, detailed agreements that delineate the items of support pledged by Partners. Some specific suggestions to address might include: the providing of office space; use of office equipment; office responsibilities; and general expectations. In the event of a disruption in support of something like local office space, the personnel and various expenses to a project may be negatively impacted and recovery may be very difficult.
- Watershed projects are like ecosystems, the more diversity and partnerships, the better!
- Partnerships are key components to watershed projects.
- It takes time to build successful partnerships and to implement meaningful projects. The current project was 4 years long, which is a relatively long 319 grant. Four years was absolutely necessary to execute some of the larger cost-share projects. Many of the projects were not completed until the final year of the grant. The timeline for a cost-share program should be as long as possible.

### Implementation

- It is necessary to have sufficient resources in a project budget to accommodate investigation of projects. Several projects identified during this contract were not implemented after considerable input of time and effort. It was not possible to anticipate that these projects would not ultimately be feasible without expending the resources to investigate them. Also, the feasibility of partnering with other organizations to implement projects can be inhibited when the timelines of each project do not overlap.
- Planning and implementation need to be developed hand in hand. One should not be completed by one lead agency and the other by another lead agency. This did not allow for a flow from planning to implementation in a smooth manor.
- Similar to our previous 319 grant, it was realized during this grant period how long it takes for a cost-share project (particularly in urban areas) to move from the initial planning phase to completion. The requirement for homeowner association approval is an added step – underscoring the need for pursuing these projects early in the grant cycle. Additionally, communicating the benefits of such projects to homeowner associations is vital to having the project approved – many neighborhoods simply view the projects as added work and expenses.
- One must remember that the cost-share program is a voluntary program. No matter how bad the situation and how hard one might try to fix the problem, unless the owner is willing to improve the situation it is not going to happen. A shift in larger cultural awareness is really necessary before conservation will be possible across all landowners.
- Not all cost share programs work the same! It seems that resources could be saved and efficiency improved if cost-share programs through the NRCS and IDEM could be standardized so that these programs reimbursed at the same rates. In other words, since NRCS reimburses the farmer a set dollar amount per acre for certain conservation practices such as: cover crops,

no-till, and nutrient management, if IDEM operated the same way it would: avoid confusion for the landowner, make filing of paperwork more efficient, and avoid competition between programs.

- Large projects in public areas are often thought to be the most effective for demonstration. However, a small residential cost-shared rain garden was one of the most effective demonstrations in the watershed. A landowner installed a sign at his rain garden, allowed groups to tour his yard, and spoke publically about his rain garden. Many of his neighbors contacted us to inquire about rain gardens after viewing his.

### Monitoring

- Continuous water quality monitoring, that includes time integrated sampling, along with monitoring the biological community and physical habitat, is crucial for protecting a watershed. Grab samples are insufficient to capture water quality concerns in dynamic river systems. Water quality monitoring may provide statistical support of conservation practice effectiveness on a watershed scale. In other words, using models is fine for a theoretical approach to calculating load reductions, but if you really want to know what is happening in real time, in the real world, with our water resources, a commitment to long term (50 -100 years) funding for rigorous water quality monitoring is essential.
- When contracting with a laboratory for analysis, it is important to confirm the laboratory's methods and quality control procedures frequently. Universities are excellent sources for finding water quality interns. Universities also provide volunteer data by conducting water quality monitoring as part of science courses. The data must be flagged as volunteer, but is useful nonetheless.
- Privacy issues make it almost impossible to determine areas of conservation on the ground, and consequently this has a negative impact on the ability to determine the effectiveness of BMPs. For example, it is against NRCS policy to disclose the location of conservation practices or to map the BMPs that are currently on the ground in NRCS programs. If this information were available, number of acres, type of practice, locations, length of practice, etc, potentially it would be possible to examine the BMPs to determine their effectiveness and then place new BMPs in areas where they could be most effective. This could be followed by water quality monitoring to statistically support their effectiveness. Currently, there is really no way to know which practices are having an impact or the spatial and temporal scale necessary to document an improvement in water quality.

### **Adaptive Management by IDEM**

The following items were previously determined by IDEM staff to need improvement or program/policy changes. These determinations were based on the communicated needs of and lessons learned from grant projects, staff ideas about how to improve the NPS Program, recommendations from EPA, and changes in national NPS policy. Following are the items and a status of their progress.

- Establish a formal policy, requirements, and process for updating watershed management plans. Develop guidance for WMP revisions.
  - ✓ In Process – guidance for updating watershed management plans may be found on [IDEM's web site](#) at. Additional guidance is in the [Instructions for the Nonpoint](#)

[Source Management Program Section 319\(h\) Grant Application](#). IDEM will work on consolidating, updating, and formalizing this guidance and process.

- Develop a comprehensive monitoring policy for planning and implementation projects.
  - ✓ Complete – Groups desiring to conduct their own water quality monitoring must read and follow the document developed by Purdue called [Monitoring Water in Indiana: Choices for Nonpoint Source and Other Watershed Projects \[PDF\]](#). IDEM intends to provide baseline monitoring for at least one planning project per year.
- Develop standardized Policy Documents and procedures for disseminating new policy decisions and clarifying gray areas.
  - ✓ Complete – IDEM has a mostly informal process for disseminating new policy decisions. When we learn of problems from watershed groups/grantees or have new state or federal guidance and we need to consider policy revisions or new policies, we discuss internally and as needed with EPA, then come to consensus on the revision/new policy. All NPS staff are informed of the decision, the NPS Program guidance documents and the web site are revised as appropriate, and project managers notify their projects of the changes.
- Integrate the Section 319(h) program with other state and federal programs.
  - ✓ Complete and ongoing – IDEM is finalizing the updated Indiana NPS Management Plan. During this process IDEM targeted external partner feedback in the form of survey and response. IDEM continually looks to recruit new stakeholders in its mission to reduce NPS in Indiana. This is primarily achieved through the duties carried out by the regional watershed specialists and other NPS staff. The current list of external partners, which may be found in the revised NPS Management Plan, is varied in its scope, but continues to grow as the NPS Program investigates new partnerships and unique opportunities.
- Actively work to bring in information and lessons learned from other state Section 319(h) programs, as well as national workshops.
  - ✓ Complete and ongoing – Staff attends national meetings and workshops when possible and brings back pertinent information. Staff also contacts other states, particularly in Region 5, or searches states' web sites for new ideas, lessons learned or when other information is desired.
- Compliance/Enforcement - verification of installed BMPs and enforcement if necessary.
  - ✓ In process – Staff visually checks BMPs as time allows, but a formal process has not been developed.
- Training on how to Calculate Load Reductions and use Models
  - ✓ Complete – Training on the STEP-L model for NPS staff was provided by Tetra Tech in the fall of 2012.

- Improve 319(h) Proposal Review Process – to help ensure success of projects, measurable results, and meeting program goals. Clarify process to potential grantees.
  - ✓ Complete – new application forms were finalized in 2012 to help make the information requested more relevant to the pertinent review criteria. The application instructions were also revised to reflect the changes. The review sheets used to review and rank 319 applications were revised again this year to better reflect our priorities so the review process is more focused and the proposals rank appropriately.
- Create a comprehensive list of 319 eligible BMPs to help 319(h) recipients when developing their cost-share program.
  - ✓ Complete – The [Section 319 Grant Program Eligible NRCS FOTG Practices](#) is a list of NRCS practices that may be incorporated into a cost-share program and implemented with Section 319 funds.
- Training for project managers in Conservation Planning.
  - ✓ In process - this is available through the [ICP Training and Certification Program](#) that has been developed. IDEM staff will be taking advantage of the training next fiscal year.
- Update the Indiana Nonpoint Source Management Plan.
  - ✓ In Process – The draft plan has been completed and IDEM is currently seeking public comment on the document. The comment period ends August 31, 2013. IDEM will submit the final plan to EPA in September 2013.
- Update NPS Program policies and priorities based on the recent Government Accounting Office study.
  - ✓ Complete – IDEM’s NPS Program policies and priorities have been updated based on EPA’s 2013 *Nonpoint Source Program and Grants Guidelines for States and Territories*, which addresses the GAO study recommendations. The Indiana Nonpoint Source Management Plan has also been revised in accordance with that guidance.

For FFY 2014 IDEM plans to continue adaptive management in the following areas:

- Provide more guidance on how to determine critical areas for watershed planning
- Increase coordination with the Clean Water State Revolving Fund (CWSRF) Program to utilize both programs’ resources to reduce NPS pollution statewide more efficiently and effectively.

# Partners in Water Quality

The work that IDEM's many partners do to help assess and reduce nonpoint source (NPS) pollution is a vital component of how Indiana addresses this environmental challenge. Increased communication and partnership building will help assure that these efforts are complementary and that resources available in Indiana are used in a manner that allows for maximum returns.

## 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 about natural resource management. NRCS helps 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(h) grants. NRCS Farm Bill conservation programs are utilized as one funding source for implementing local watershed management plans.

For Federal Fiscal Year 2012\* (Oct. 1, 2011 through Sept. 30, 2012), NRCS programs in Indiana that support NPS pollution efforts included:

**Wildlife Habitat Incentive Program** – Approximately \$5.5 million provided to landowners to develop and improve wildlife habitat on private lands. This was a significant increase from past years due to the drought and the ability to tailor WHIP for FY12 to meet the needs of producers suffering from the drought.

**Environmental Quality Incentive Program** – Approximately \$17.4 million provided to agriculture producers to implement structural and management conservation practices that optimize environmental benefits on working agricultural land.

**Wetlands Reserve Program** – Approximately \$7.8 million provided to landowners to protect, restore, and enhance wetlands on their property.

**Conservation Stewardship Program** – Provided just over one million dollars to landowners to promote conservation on private working lands.

**Grassland Reserve Program** – Provided \$12,000 to landowners to promote conservation on grasslands.  
\*Final program numbers for FFY 2013 are not available until after October.

## **Indiana Association of Soil and Water Conservation Districts**

The mission of the Indiana Association of Soil and Water Conservation Districts is to represent Soil and Water Conservation Districts as one voice, and to assist the leadership of local SWCDs through coordination and education for the wise use and management of our natural resources.

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 Indiana Conservation Partnership organizations, the agriculture industry and Indiana farmers. With oversight from ICP representatives 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.

Through the Annual Conference of Indiana Soil and Water Conservation Districts, relevant sessions directly and indirectly address NPS pollution. The technical, capacity building, outreach and education and conservation implementation categories provide a wide variety of topics. Expert presenters and facilitators share their expertise and knowledge during this two and a half day event with designated sessions offering Continuing Education Units (CEUs). Additionally, 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. Nine SWCD Supervisor scholarships were awarded for the 2013 Annual Conference; thus, providing further opportunities for education for the wise use and management of Indiana’s natural resources.

The IASWCD provides significant resources to the ever popular 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 Conservation Development Specialist (CDS) offers assistance to local organizations (primarily Indiana Watershed Initiatives and Soil and Water Conservation Districts) with capacity building tools and features. These activities include Resource Development Workshops; as-well-as, support and assistance provided to individual SWCDs and watershed groups. Based on need and logistics, the individual support and assistance is provided via email, phone and through personal visits.

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*, offers additional opportunities to increase public awareness and supports successful nonpoint pollution reduction practices.

The *Development eLetter* is a monthly development resource provided to SWCDs, watershed groups and conservation partners. The CDS researches funding sources and disseminates this electronic publication, providing up-to-date funding opportunities and educational resources for Indiana's SWCDs and watershed groups.

The IASWCD Conservation Resource Development web page can be accessed through the IASWCD web site and the *Development eLetter* serves as an additional link to this resource. 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 Conservation Resource Development web page can be accessed from the [IASWCD web site](#).

## **Indiana State Department of Agriculture**

The ISDA - Division of Soil Conservation works along with the State Soil Conservation Board 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, and promoting the opportunities and benefits associated with caring for our soil and water resources.

The Division of Soil Conservation (Division)/State Soil Conservation Board (SSCB) employs Resource Specialists to directly assist landowners with the planning and implementation of conservation practices addressing specific soil and water resource concerns. Resource Specialists work in regional Conservation Implementation Teams (CIT) alongside staff from the Natural Resources Conservation Service and Soil and Water Conservation Districts. 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 Division/SSCB also employs District Support Specialists, through the Clean Water Indiana Fund, to work directly with the local SWCDs to develop conservation priorities, goals, and plans for their respective territories. The District Support Specialists prepare and conduct trainings for SWCD supervisors and staff. They are also a resource for SWCDs in carrying out their legal and operational responsibilities.

## **Conservation Reserve Enhancement Program (CREP)**

CREP provides both state and federal incentives to landowners who are willing to install water quality and erosion prevention practices directly adjacent to eligible surface waters. This program is possible through an agreement between the State of Indiana and the United States Department of Agriculture. The program expanded in August 2010 from the original three watersheds--Pigeon-Highland, Tippecanoe, and Upper White River—to 11 watersheds. 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. The eleven targeted watersheds include 26,250 eligible acres. To date, over 8,143 acres of conservation practices have been enrolled or installed along Indiana's rivers, lakes, streams and wetlands under the Conservation Reserve Enhancement Program.

## **Clean Water Indiana Program**

The Clean Water Indiana (CWI) Program was established to provide financial assistance to landowners and conservation groups. The financial assistance supports the implementation of conservation practices which will reduce NPSs of water pollution through education, technical assistance, training, and cost sharing programs. The CWI fund is administered by the Division of Soil Conservation under the direction of the State Soil Conservation Board.

The CWI Program is responsible for providing local matching funds as well as grants for sediment and nutrient reduction projects through Indiana's Soil and Water Conservation Districts. CWI also contributes critical state matching funds for Indiana's Conservation Reserve Enhancement Program, an initiative which utilizes federal funds to encourage landowners to conserve environmentally sensitive land. Furthermore, the CWI Program has supported the Conservation Cropping Systems Initiative which focuses on management systems approach to crop production which results in improved soil and water quality as well as profitability on Indiana cropland.

In 2012, the State Soil Conservation Board (SSCB) awarded over \$1,088,000 to 22 Indiana SWCDs who are partnering with 62 SWCDs to execute multi-district, multi-year watershed based grants. The projects will address at least two of the State priorities, as identified in the SSCB business plan adopted in 2010, including soil quality degradation, water quality impairments, and other soil and water related natural resources concerns. For 2013, the SSCB has voted to fund multi-year, multi-district, watershed based grants similar to the 2012 Clean Water Indiana program.

In 2010, 2011 and 2012, the State Soil Conservation Board (SSCB) allotted CWI funds for the Conservation Cropping Systems Initiative (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 our partners directed at production efficiency and nutrient/sediment runoff reduction. In FFY 2012, 169 presentations were given to over 10,000 individuals and CCSI was present at events and/or provided technical assistance in over 69 counties.

## **Indiana On-Farm Network**

Participating farmers use precision agriculture tools, protocols, and technologies to conduct in depth Nitrogen analysis on their own farms. 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. ISDA currently has established 17 groups, evaluating a total of approximately 500 fields with tools such as: Guided Corn Stalk Nitrate Testing, Geo-referenced Aerial Imagery, collaborative peer-to-peer learning, and Replicated Strip Trials. The Nitrogen data are reported back to farmers as their individual farm data and as aggregate results. Aggregate results are used publically for educational purposes. Field history information is 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 on farm evaluation plots comparing different management practices (timing, form, application rate, etc). All data collected through OFN is anonymous. Reports can never be linked to a name or specific location.

## **Indiana Department of Natural Resources, Lake and River Enhancement Program**

The legislation establishing the Lake and River Enhancement (LARE) program in IDNR's Division of Fish and Wildlife charges the Department with the responsibility to "Administer a lake and river enhancement program to do the following: (A) Control sediment and associated nutrient inflow into lakes and rivers, and (B) Accomplish actions that will forestall or reverse the impact of that inflow and enhance the continued use of Indiana's lakes and rivers." An amendment in the 2011 General Assembly added use of LARE funds to control invasive plants or animals, or removal of logjams or obstructions in rivers. The first grant awards for logjam removal were made in March of 2012 and were increased in 2013.

The importance of conserving natural resources, including wildlife, protecting the water quality of lakes and rivers, and protecting high water quality resources is recognized as important goals, addressed with projects to protect and enhance aquatic habitat for fish and wildlife. The effort to insure the continued viability of Indiana's publicly accessible lakes and streams for multiple uses, including recreational opportunities, is crucial since funding comes directly from boat-owners in Indiana. A lake and river enhancement fee annually assessed by the Indiana Bureau of Motor Vehicles (BMV) is collected when boats are registered. These funds are used for the LARE program as well as IDNR Division of Law Enforcement for aquatic safety programs and maritime patrols.

To accomplish the goals of the LARE program, grants have been made available for technical and financial assistance to various agencies and non-governmental entities (such as a lake or homeowner association) for qualifying projects since 1989. Projects to reduce the impact of soil erosion include the installation of grass cover, filter strips, and stream bank or shoreline stabilization structures to reduce sedimentation and nutrient runoff. In March of 2013 over \$1.5 million dollars in grants were awarded to address control of invasive aquatic species, sediment removal from publicly accessible lakes and rivers, and logjam removal from rivers. In July of 2013, over \$768,000 was granted for new biological, diagnostic, design and construction projects on lakes and in lake watersheds throughout the state.

Several new and continuing Watershed Land Treatment projects involving land users in several Soil and Water Conservation Districts are also active as of July, 2013. These projects promote improved water quality and aquatic habitat, enhanced opportunities for boating, fishing, and other recreational pursuits, as well as providing increased economic value for businesses, communities, and individuals who live on or use these water bodies.

## **Indiana Department of Natural Resources, Healthy Rivers Initiative (HRI)**

The Healthy Rivers Initiative 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. Staff from several divisions of IDNR, including Fish and Wildlife, Forestry, State Parks, Nature Preserves, and Land Acquisition, partner together with other personnel from local, state, and federal agencies along with private sector companies such as Eli Lilly and non-governmental organizations, such as The Nature Conservancy to achieve the goals of the program.

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, such as hunting, fishing, trapping, hiking, boating, and bird watching and leaving a legacy for future generations by providing a major conservation destination for tourists.

At the conclusion of the first three years of the HRI, in June of 2013, 30,129 acres of land are permanently protected, with 6,947 acres acquired by DNR in the Wabash River Project Area, 2,688 acres enrolled in the USDA Wetlands Reserve Program (WRP) that are not owned by DNR to complement the existing 12,723 acres of state-owned land. In the Muscatatuck Project Area, 3,387 acres were acquired; 1,895 acres were enrolled in the WRP that are not owned by DNR, complementing the existing 2,489 acres of state-owned land.

## **Indiana State Revolving Fund Loan Program**

The Indiana State Revolving Fund 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 Indiana NPS Management Plan. The money loaned to these NPS projects also is documented as match, when applicable, for the state Section 319(h) 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;
- Brownfield Remediation;
- Conservation easements; and
- Agricultural and waste management BMPs.

This reporting period, the SRF Program loaned \$8.9 million to three communities on projects to reduce NPS pollution, primarily by extending sanitary sewers to areas with septic systems, thereby eliminating this potential source of pollution. In this state fiscal year (7/1/2012 – 6/30/2013) 944 septic systems were eliminated. Throughout the life of the SRF NPS Program, \$205 million has been loaned for NPS purposes. Approximately 12,000 septic systems have been removed from service and seven Brownfield sites have been remediated.

## **Indiana University, Indiana Clean Lakes Program**

The School of Public and Environmental Affairs (SPEA) at Indiana University (IU) has been working with IDEM through Section 319(h) 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. These waterbodies are one of the State's most precious natural resources. However, Indiana's lakes are under pressure. Human activities such as poorly managed agriculture, suburbanization of lakeshores, boating impacts, and septic system discharges can result in 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.

Section 314 of the Clean Water Act charges IDEM with responsibility for monitoring, assessing, and reporting the trophic state and trends in trophic conditions of Indiana's lakes. Continued assessment of lake nutrient levels and effects, as begun by the State in the early 1970s, is needed in order to do the following: 1) report the status of lake eutrophication levels to the EPA (EPA) in the State's 305(b) water quality reports and 303(d) listing of impaired waterbodies; 2) ascertain and track any trends in lake eutrophication levels for State and EPA use; 3) collect any data needed to continue to develop State nutrient criteria, as mandated by EPA; and 4) collect data needed to determine if lakes and reservoirs are meeting state water quality standards.

Indiana's CLP, coordinated by IU-SPEA staff and students, includes the following components:

- Annual sampling of lakes and reservoirs to meet numbers 1 and 2 above;
- Training and support of a corps of volunteer lake monitors;
- Education and outreach through the production and distribution of the quarterly newsletter, *Water Column*; maintenance of [a 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 within the State and elsewhere.

IU-SPEA completed a 319(h) grant project in January 2012 to collect and analyze water samples from lakes and reservoirs in Indiana from the 1999 through the 2011 summer sampling seasons. The *Indiana Lake Water Quality Assessment Report* and the *Indiana Volunteer Monitoring Report* from this project may be found on their web site at <http://www.indiana.edu/~clp/PUBreports.php>. IU-SPEA continues to collect lake data under a 319(h) grant that runs through 2014. Since 2010, data is being collected using a random sampling design (from a set of Indiana public lakes and reservoirs with boat access and a surface area greater than five acres) as opposed to a targeted design which was used in the past. This change was made to provide a more statistically valid assessment of Indiana lakes and reservoirs. By doing this, the biannual 305(b) report to EPA will more accurately reflect the status of Indiana's publicly-accessible lakes and reservoirs, without geographical bias.

IU-SPEA started a pilot aquatic invasive species (AIS) monitoring program to expand the current Volunteer Monitoring Program in 2012. This AIS program will help the state with spread prevention and early detection. Zebra mussels will be added to the program for monitoring and reporting starting in 2014.

During the summer of 2012, IU-SPEA participated with the U.S. Environmental Protection Agency and other states, tribes, and partners to conduct the second nationwide survey of the condition of the nation's lakes. [The National Lakes Assessment](#) (NLA) will help citizens and governments measure the health of our waters, take actions to prevent pollution, and evaluate the effectiveness of protection and restoration efforts. The NLA 2012 is one in a series of national surveys of the condition of the nation's waters (see [www.epa.gov/aquaticsurveys](http://www.epa.gov/aquaticsurveys)).

## **Indiana Lake Michigan Coastal Program**

The purpose of the Indiana Lake Michigan Coastal Program (LMCP) is to enhance the state's role in planning for and managing natural and cultural resources in the coastal region and support partnerships between federal, state, and local agencies and organizations. The Indiana Department of Natural Resources is the lead agency implementing the LMCP and the program houses a full-time Coastal Special Projects Coordinator (formerly Coastal NPS 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 2012/2013 grant cycle project applications were received and grants awarded to communities that will result in NPS runoff reduction and water quality improvements consisting of BMPs to prevent sediment and pollutant discharges, low-impact development practices maximizing storm water infiltration and use of native plants, and backyard stewardship programs to reduce runoff contaminants from gardening and lawn care products. The RFP for the 2014 LMCP Grant cycle was issued in August of 2013.

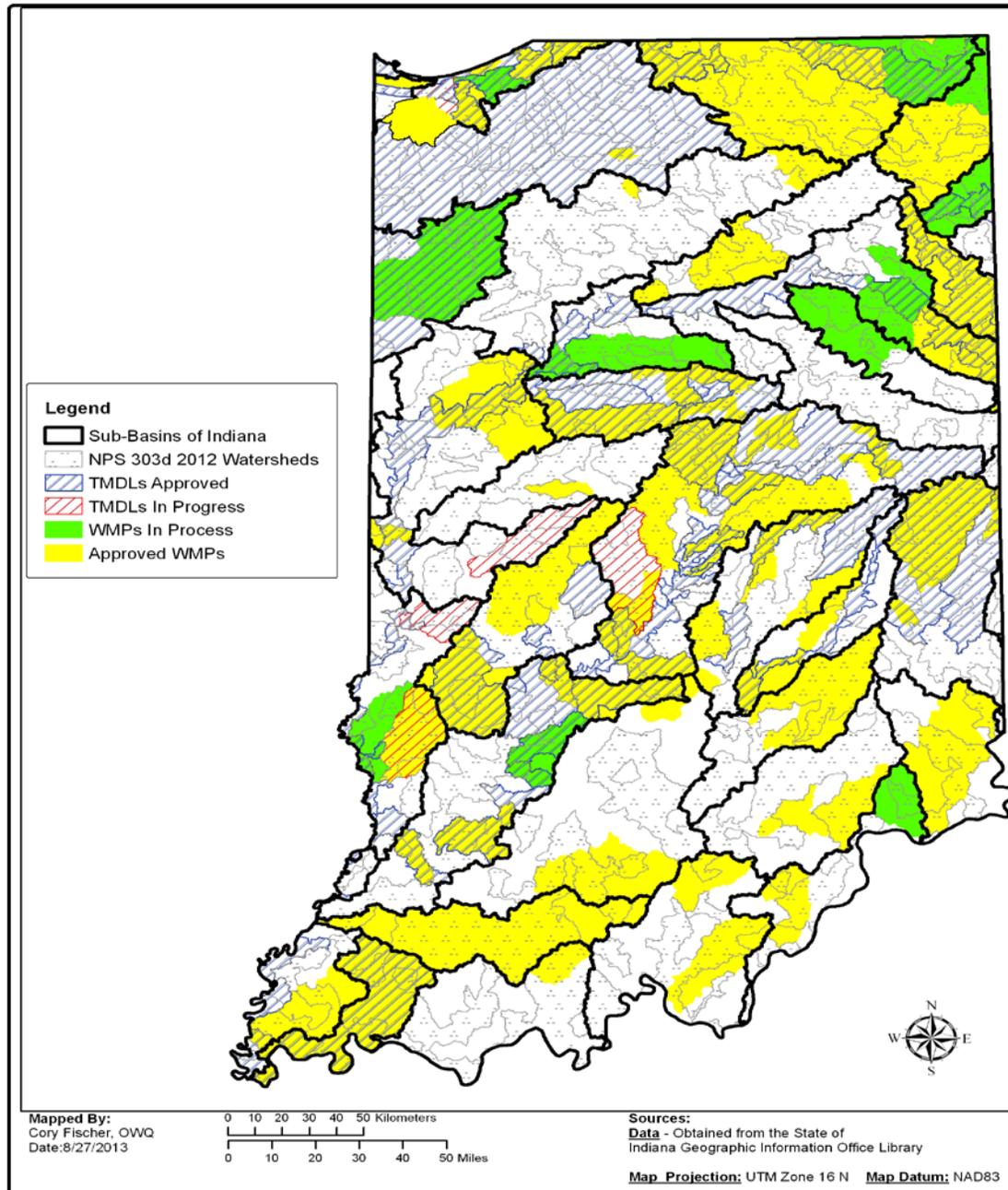
As part of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), Congress created a stand-alone provision, Section 6217, which requires that states and territories with approved coastal zone management programs develop a coastal NPS pollution control program to address water quality impairment 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 Section 319(h) program work together in meeting the requirements of this program. The LMCP Special Projects Coordinator is responsible for 6217 development and implementation.

In October of 2012 the LMCP submitted supporting documentation to the National Oceanic and Atmospheric Administration (NOAA) and EPA for several 6217 Nonpoint Source Management Measures including Agriculture, large and small CAFO's, Watershed Protection, Onsite Septic Systems, Critical Areas, and Wetland, Riparian, and Vegetated Treatment Systems. In their January 2013 joint response, NOAA/EPA indicated that additional programmatic measures had been met but requested more documentation on monitoring and enforcement programs. In January of 2013, the Indiana Attorney General submitted a letter to NOAA/EPA confirming Indiana's authority to prevent and control NPS pollution which was accepted with conditions by NOAA in February of 2013.

The LMCP manages the Indiana Clean Marina Program in partnership with the IDEM Office of Pollution Prevention and Technical Assistance. It is a voluntary, incentive based program that 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, four marinas have been designated officially as Clean Marinas: Hammond Marina, Trail Creek Marina, Washington Park Marina, and Portage, Marina. In support of the Clean Marina program in 2012/2013, the Coastal Nonpoint Source Program purchased several hundred bilge socks that absorb fuel and oil in engine compartments for distribution to boaters and marinas. In addition, Clean Boater educational materials are made available at marina and boating public events throughout the year.

In 2013, LMCP continued its partnership with the Indiana State Department of Health (ISDH) to promote the utilization of the state's online septic system tracking database and the adoption of operating and inspection programs by local authorities. LMCP convenes an Onsite Septic Work Group which meets 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.

# APPENDIX A: Watershed Planning/TMDL Activities, and 303(d) Listed Waterbodies by Watershed Area



## APPENDIX B: Open 319(h) Projects 9/1/12 – 8/31/13

FFY	ARN	Contractor	Project Status	Start	End	Type
2008	8-189	Save the Dunes Conservation Fund	Salt Creek Watershed Cost-Share & Outreach Program	Closed	2/1/2009	1/31/2013 Restoration/Impl
	9-57	Historic Hoosier Hills	South Laughery Creek Watershed	Closed	4/1/2009	1/31/2013 Restoration/Impl
	9-90	Manchester College	Middle Eel River Watershed Initiative	Closed	1/1/2009	12/31/201 Planning
	9-91	Historic Hoosier Hills	Indian Creek Watershed Project	Closed	2/26/2009	2/25/2013 Restoration/Impl
2009	10-1	Indiana University	Eagle Creek Watershed Implementation Project	Closed	12/3/2009	12/2/2012 Restoration/Impl
	2-6	Wabash River Enhancement Corp.	Region of the Great Bend of Wabash WMP Impl	Open	2/14/2012	2/13/2015 Restoration/Impl
	2-7	Bartholomew County SWCD	Flatrock-Haw WMP Implementation	Open	1/3/2012	1/2/2015 Restoration/Impl
	9-274	Allen County SWCD	St. Marys River WMP Implementation	Open	1/15/2010	1/14/2014 Restoration/Impl
	9-275	Steuben County SWCD	Pigeon Creek WMP Implementation Phase 2	Closed	9/23/2009	9/22/2013 Restoration/Impl
	9-276	Monroe County SWCD	Bean Blossom Watershed Implementation Project	Closed	11/3/2009	11/2/2012 Restoration/Impl
	9-277	Historic Hoosier Hills	Central Muscatatuck Watershed Project	Closed	8/27/2009	8/26/2013 Restoration/Impl
	9-282	Upper Wabash River Basin	Wabash River Basin WMP Implementation	Closed	8/28/2009	2/27/2013 Restoration/Impl
2010	10-64	Indiana Association of Soil and	Capacity Building & Public Support for Wtrshd Grps	Closed	9/22/2010	9/21/2012 ProgramSupport
	10-65	St. Joseph River Watershed	Middle St. Joseph River WMP Development & Impl.	Open	9/27/2010	3/26/2014 Restoration/Impl
	10-66	Purdue University	Watershed Leadership Academy	Closed	2/1/2011	1/31/2013 ProgramSupport
	10-80	Clark County SWCD	Silver Creek Watershed Improvement Project	Open	10/18/2010	1/17/2014 Restoration/Impl
	10-81	Jasper County SWCD	Task G - Upper Iroquois Watershed Initiative	Open	11/8/2010	11/7/2014 Planning
	10-85	Dearborn County SWCD	Hogan Creek Watershed Project	Open	11/16/2010	11/15/201 Restoration/Impl
	10-86	LaGrange County SWCD	Pigeon River WMP Development & Implementation	Open	9/28/2010	9/27/2014 Restoration/Impl
	10-87	Washington County SWCD	Mill Creek - Blue River Watershed Project	Closed	11/15/2010	8/14/2013 Planning
	1-2	Sullivan County SWCD	Busseron Creek Watershed Implementation	Open	11/24/2010	11/23/201 Restoration/Impl
	1-66	Indiana State Department of	Technical Assistance for Agriculture	Open	7/15/2011	1/17/2015 ProgramSupport
	2-72	Purdue University	Watershed Leadership Academy Con't	Open	2/1/2013	1/31/2015 ProgramSupport
	2-73	Tippecanoe Watershed Foundation	Upper Tippecanoe River-Grassy Creek Implementation	Open	10/22/2012	1/31/2015 Restoration/Impl
2011	2-11	Save the Dunes Conservation Fund	Little Calumet River East Branch WMP	Open	1/17/2012	7/16/2014 Planning
	2-13	Greene County SWCD	Plummer Creek WMP	Open	3/1/2012	8/31/2014 Planning
	2-15	Upper White River Watershed	Partners & Projects Protecting the White Implemen	Open	1/30/2012	1/29/2015 Restoration/Impl
	2-16	St. Joseph River Watershed	Upper St. Joe Watershed Project	Open	2/14/2012	1/31/2016 Restoration/Impl
	2-21	Allen County SWCD	Upper Maumee WMP & Implementation	Open	2/14/2012	1/31/2016 Restoration/Impl
	2-22	Carroll County SWCD	Deer Creek-Sugar Creek WMP & Implementation	Open	4/13/2012	1/31/2016 Restoration/Impl

## APPENDIX B: Open 319(h) Projects 9/1/12 – 8/31/13

	2-25	Indiana University	Indiana Clean Lakes Program	Open	1/5/2012	1/4/2016	Assessment
	2-8	The Nature Conservancy	Two-Stage Ditch Implementation	Open	1/17/2012	1/16/2014	Restoration/Impl
	3-60	Historic Hoosier Hills	Indian Creek Watershed Project	Open	5/14/2013	1/31/2016	Restoration/Impl
2012							
	3-119	Dearborn County SWCD	Whitewater River WMP	Pending			Planning
	3-18	Clinton County SWCD	South Fork Wildcat Creek Stewardship Initiative	Open	12/21/2012	12/20/201	Restoration/Impl
	3-31	Alliance of Indiana Rural Water	Middle Patoka River Implementation	Open	1/18/2013	1/17/2016	Restoration/Impl
	3-4	Manchester College	Middle Eel Watershed Initiative Implementation	Open	1/3/2013	1/2/2016	Restoration/Impl
	3-47	LaPorte County SWCD	Trail Creek Cost-Share Program	Open	2/12/2013	2/11/2016	Restoration/Impl
	3-77	Sullivan County SWCD	Turtle Creek-Turman Creek-Kelly Bayou WMP	Pending			Restoration/Impl
	3-8	Steuben County SWCD	Pigeon Creek WMP Revision and Implementation	Open	1/17/2013	1/16/2016	Restoration/Impl
	3-9	Huntington County SWCD	Lower Salamonie River WMP and Implementation	Open	1/18/2013	1/17/2017	Restoration/Impl
2013							
	3-118	Clark County SWCD	Fourteen Mile Creek/Goose Creek-OH River	Pending			Planning
	3-120	Washington County SWCD	Mill Creek-Blue River Watershed Implementation	Pending			Restoration/Impl
	3-122	Jay County Commissioners	Upper Salamonie WMP	Pending			Planning
	3-125	Northwestern Indiana Regional	Deep River-Portage Burns Waterway Watershed Initia	Pending			Combo
	4-1	Wabash River Enhancement Corp.	Region of the Great Bend of the Wabash River Impl.	Pending			Restoration/Impl
	N-05	Gibson County SWCD	Lower Patoka Implementation	Pending			Restoration/Impl
	N-11	Orange County SWCD	Lost River Watershed Implementation	Pending			Restoration/Impl

## **APPENDIX C: Project Summaries for Closed Section 319(h) Projects**

### FFY 2008

**Indian Creek Watershed Project (9-91)** – Historic Hoosier Hills RC&D will implement the Indian Creek Watershed Management Plan (WMP) by developing and implementing a cost-share program for best management practices (BMPs) that address the water quality concerns outlined in the WMP. The Grantee will also provide public education and outreach and conduct water quality monitoring.

**Salt Creek Watershed Cost-Share and Outreach Program (8-189)** – Save the Dunes Conservation Fund will implement the Salt Creek Watershed Management Plan by developing and implementing a cost-share program for BMPs in the Salt Creek Watershed. BMPs may include Conservation Design, Low Impact Development, and traditional agricultural BMPs that address the water quality concerns outlined in the Salt Creek Watershed Management Plan. The Grantee will also conduct a public education and outreach program and water quality monitoring.

**South Laughery Creek Watershed (9-57)** – Historic Hoosier Hills RC&D will implement the South Laughery Creek Watershed Management Plan by implementing a cost-share program to install BMPs that address the water quality concerns outlined in the WMP. The Grantee will also conduct an education and outreach program designed to bring about behavioral changes and encourage BMP implementation that will lead to reduced NPS pollution in the watershed.

**Middle Eel River Watershed Initiative (9-90)** – Manchester College will develop a WMP for the Middle Eel River. Once the WMP has been approved by the State, the grantee will begin implementing BMPs in identified critical areas of the watershed to improve water quality. The Grantee will also develop and execute a monitoring program to assess water quality before and during BMP implementation to compare with water quality data collected after BMP implementation. A public education and outreach program will also be conducted.

### FFY 2009

**Pigeon Creek WMP Implementation Phase 2 (\$145,800)** – The Steuben County SWCD is developing and implementing a cost-share program for best management practices (BMPs) such as conservation buffers, a constructed wetland, rain gardens, and green roofs that address the water quality concerns outlined in the Pigeon Creek Watershed Management Plan (WMP). The SWCD will conduct a monitoring program to determine the fate and source of pollutants in the watershed and to guide future sampling and/or remediation of point and NPS pollution. They will also conduct an education and outreach program designed to bring about behavioral changes and encourage BMP implementation including: presentations to schools and others on water quality issues, public meetings, press releases, signs at highly visible BMP sites throughout the watershed, workshops on water quality issues, and a brochure regarding septic maintenance.

**Bean Blossom Watershed Implementation Project (\$401,345)** – The Monroe County SWCD is implementing a cost-share program for best management practices (BMPs) such as rain gardens, rain barrels, cover crops, livestock exclusion fencing, buffer strips, and others that address the water quality concerns outlined in the Bean Blossom Creek Watershed Management Plan (WMP). Two innovative BMPs will also be implemented in the watershed as demonstration projects to educate the public on improving water quality through BMPs. These BMPs will be located on public land or an area where the public has access on a regular basis; in a critical area identified in the WMP; and used/showcased as part of an education and outreach effort. The SWCD will conduct a monitoring program to determine if the

## **APPENDIX C: Project Summaries for Closed Section 319(h) Projects**

quality of the water within the Bean Blossom watershed has improved over the past several years of the WMP. An education and outreach program will also be conducted to help bring about behavioral changes and encourage BMP implementation. This will include outdoor field days, public meetings, presentations, newsletters, and workshops on NPS pollution. A survey will be conducted throughout the watershed to understand the awareness, attitudes, capacity, and behaviors of residents of the project watershed. The survey will follow the EPA Region V Social Indicator framework. Survey data will be used to develop descriptive statistics of the target audience to inform planning and future implementations efforts.

**Central Muscatatuck Watershed Project (\$507,656)** - The Historic Hoosier Hills RC&D is developing and implementing a cost-share program for best management practices (BMPs) such as conservation tillage, pasture/hayland improvement, livestock exclusion, riparian buffers, and others that address the water quality concerns outlined in the Central Muscatatuck River Watershed Management Plan (WMP). The RC&D will also conduct an education and outreach program designed to bring about behavioral changes and encourage BMP implementation. The Program will include field tours or field days to educate watershed stakeholders about the cost-share program, workshops to educate watershed stakeholders about septic systems, river or lake clean-ups, a monitoring program for educational purposes based on Hoosier Riverwatch methods, public meetings, workshops to provide teachers information on developing water quality and NPS pollution curriculum, signs to recognize landowners who participated in the cost-share program, a brochure to promote the cost-share program, news releases to the local media, articles to partner newsletters, and radio announcements.

**Upper Wabash River WMP Implementation (\$198,500)** - The Upper Wabash River Basin Commission is developing and implementing a cost-share program for best management practices (BMPs) such as conservation tillage, riparian buffers, cover crops, and others that address the water quality concerns outlined in the Upper Wabash River Watershed Management Plan (WMP). The Commission will conduct a monitoring program to evaluate trends in water quality, as well as educate watershed stakeholders. They will also conduct an education and outreach program designed to bring about behavioral changes and encourage BMP implementation including a brochure advertising the cost-share program to landowners and operators, a workshop to promote the cost-share program and best management practices, brochures addressing residential water quality topics, news releases to the local media, field days to educate watershed stakeholders about water quality impairments and best management practices that improve water quality.

**Eagle Creek Watershed Implementation Project (\$393,225)** – Indiana University is addressing agricultural and urban NPS water pollution concerns in the Eagle Creek watershed by implementing the Eagle Creek Watershed Management Plan. IU will develop and implement a cost-share program to implement BMPs such as rain gardens, swales, two-stage ditches, and conservation tillage that address the water quality concerns outlined in the Eagle Creek Watershed Management Plan. They will promote the cost-share program and identify projects in part through an education and outreach program including watershed committee meetings, a quarterly watershed newsletter, news releases, agricultural field days, urban field days, and workshops. IU is also conducting a monitoring program to document trends in the watershed and provide information to educational programs.

FFY 2010

**Capacity Building and Public Support for Watershed Groups and SWCDs (EDS# A305-10-64)** – The Indiana Association of Soil and Water Conservation Districts (IASWCD) will develop needs assessment

## **APPENDIX C: Project Summaries for Closed Section 319(h) Projects**

tools and distribute them to watershed groups and all 92 Soil and Water Conservation Districts (SWCDs). The tools will be used to determine the need for training and support in areas that will help build capacity for the group. The IASWCD will evaluate the responses received and develop and conduct no less than two training workshops each year based on the needs identified. They will also conduct an outreach and education program to increase public awareness and support of nonpoint pollution reduction projects and clean water initiatives including: publishing the IASWCD Weekly Update e-newsletter, submitting releases to the media regarding watershed and water quality issues, promoting recognition programs to SWCDs and watershed groups, and acknowledging successful watershed practices through means such as the Annual River Friendly Farmer and District Showcase awards. In addition, the IASWCD will assist IDEM with conducting no less than two Watershed Network Sessions each year.

**Watershed Leadership Academy** (EDS# A305-10-66) - Purdue University will once again recruit watershed leaders from diverse backgrounds and conduct the Indiana Watershed Leadership Academy (IWLA) course at least two times during the term of the grant agreement. Purdue will award graduates of the Academy with a Professional Certificate in Watershed Management from Purdue University. Each Academy course will combine two face-to-face training sessions with distance education. Purdue will update lesson topics to meet watershed leader needs; develop, prepare, and distribute materials; integrate interactive multi-media teaching tools and examples into modules for enhancing the learning process; manage an interactive web site; hold at least six yearly interactive online meetings to enhance community and discuss learning; review assignments; and provide personal feedback. In addition, Purdue will develop a minimum of twenty-four one hour webinars on topics of relevance to watershed managers. Purdue will tape the best aspects of the live webinars and provide them as on-demand web-based video learning for the public.

**Mill Creek – Blue River Watershed Project** (EDS# A305-10-87) - The White River RC&D will produce a watershed management plan (WMP) for the Mill Creek – Blue River watershed, Hydrologic Unit Code 0514010407. The RC&D will form a steering committee of local stakeholders that will meet quarterly to guide the development of the WMP. The RC&D will also conduct a monitoring program to gather reliable baseline data to understand and prioritize watershed problems. An education and outreach program designed to bring about behavioral changes that lead to reduced NPS pollution in the watershed will be conducted including: a brochure or flyer, media release, and watershed newsletter quarterly to increase public understanding and support for a WMP; stakeholder meetings; field days; presentations to local officials to solicit input in the planning process and to address the current state of the project and its future plans; a storm drain marking event and stream clean-up day each year; volunteer water quality monitoring each month for two years using Hoosier Riverwatch methods; classroom presentations each year to educate primary school students about the importance of preventing NPS pollution and the benefits of improving water quality in their watershed.

## **APPENDIX D: List of Attached Final Reports for Section 319(h) Projects**

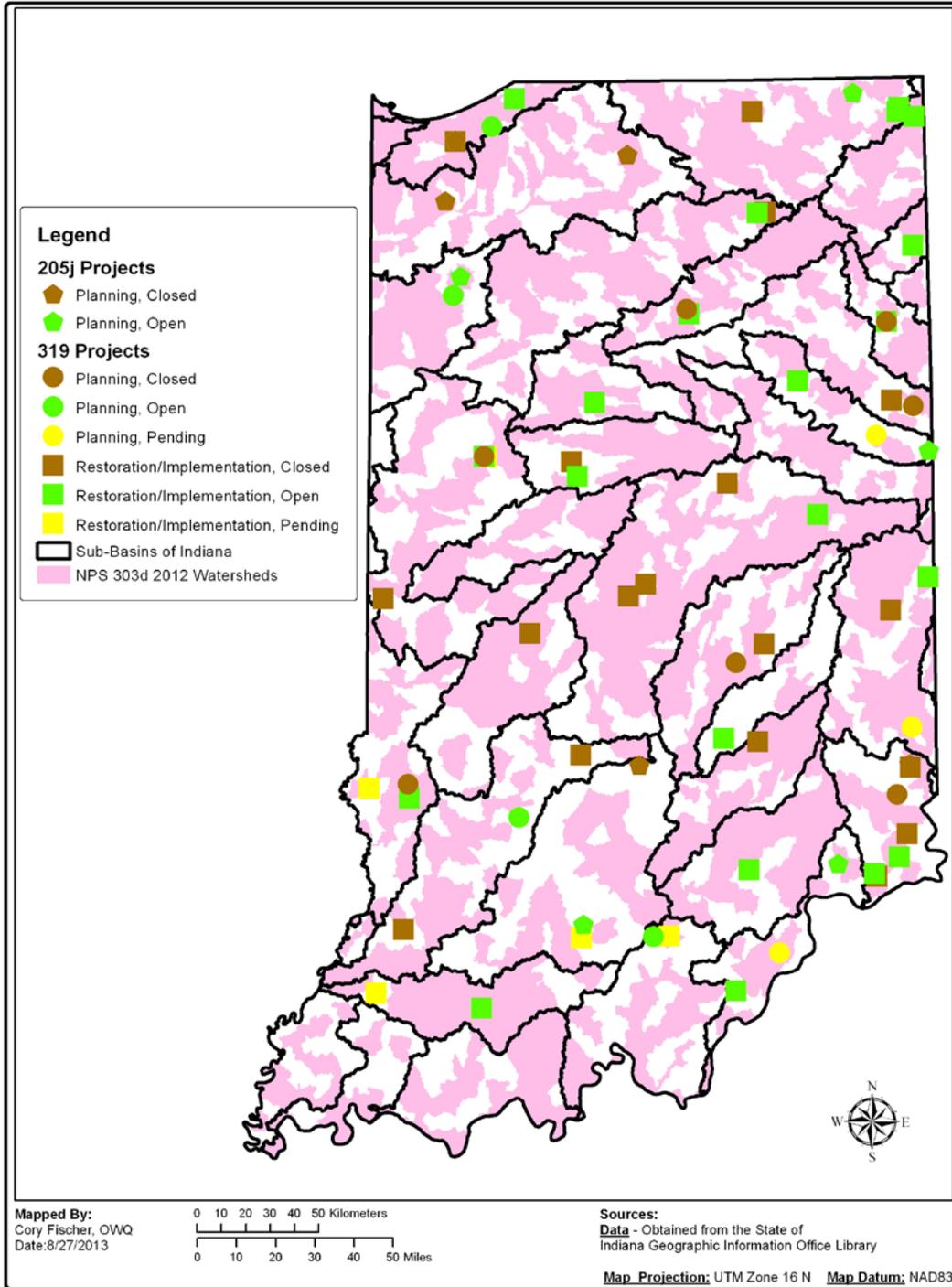
<b>ARN</b>	<b>FFY</b>	<b>Project Name</b>
8-189	2008	Salt Creek Watershed Cost-Share & Outreach Program
9-90	2008	Middle Eel Watershed Initiative
10-1	2009	Eagle Creek Watershed Implementation Project
9-275	2009	Pigeon Creek WMP Implementation Phase 2
9-276	2009	Bean Blossom Watershed Implementation Project
9-282	2009	Wabash River Basin WMP Implementation
10-64	2010	Capacity Building & Public Support for Watershed Groups
10-66	2010	Watershed Leadership Academy

Projects' final reports not listed here may be found in GRTS.

**APPENDIX E: Open 205(j) Projects 9/1/12 – 8/31/13**

<b>FFY</b>	<b>ARN</b>	<b>Contractor</b>	<b>Project</b>	<b>Status</b>	<b>Start</b>	<b>End</b>	<b>Type</b>
2009							
	10-27	Save the Dunes Conservation Fund	Salt Creek Integrated Pilot	Open	6/1/2010	2/28/2014	Planning
	9-271	Clinton County SWCD	S. F. Wildcat Creek WMP	Closed	10/29/200	10/28/2012	Planning
2010							
	10-81	Jasper County SWCD	Upper Iroquois Watershed Initiative	Open	11/8/2010	11/7/2014	Planning
	10-83	Orange County SWCD	Lost River Watershed	Closed	11/15/201	8/14/2013	Planning
2011							
	2-14	Marion County SWCD	ICP Technical Training Coordination	Open	1/24/2012	1/23/2014	ProgramSupport
	2-2	Ohio River Valley Water Sanitation	Lower Wabash River Nutrients Monitoring	Open	1/20/2012	1/19/2015	Assessment
	2-24	enfoTech and Consulting, Inc.	AIMS II Expansion, Enhancements &	Open	6/6/2012	6/5/2014	ProgramSupport
	2-35	Jefferson County SWCD	Indian-Kentuck Creek WMP	Open	3/13/2012	5/12/2014	Planning
2012							
	3-3	LaGrange County SWCD	Fawn River WMP	Open	1/18/2013	7/17/2015	Planning
	3-5	Upper Wabash River Basin Commission	Upper Wabash River WMP	Open	1/9/2013	4/8/2015	Planning

# APPENDIX F: Location of WMP Planning and Implementation Projects 2007-2012



## Watershed Assessment and Planning Branch Monitoring Activities 2012

Probabilistic Monitoring	2012	Parameters	2013
Watershed or Waterbody Name(s)	Patoka	<i>E. coli</i> , Aluminum, Antimony, Arsenic, Calcium, Cadmium, Chromium, Copper, Lead, Magnesium, Nickel, Selenium, Zinc, Alkalinity, Total Solids, Total Dissolved Solids, Total Suspended solids, Sulfate, Chloride, Hardness, TKN, Ammonia- Nitrogen, Nitrate/Nitrite, Total Phosphorous, TOC, Cyanide-Total, Cyanide-Weak Acid Dissociable, Chemical Oxygen Demand, Fish, Macroinvertebrates, Periphyton, Habitat	East Fork White River Basin
Hydrologic Unit Code(s)	05120209		05120204 thru 05120208
Laboratory Analytical Costs/Funding Source	A yet to be selected IDEM Contract laboratory, IDEM Mobile <i>E coli</i> Lab, Indiana Fish Taxonomy Lab, Indiana Macro-invertebrate Taxonomy Lab, Indiana Algal Biomass Lab	<i>E. coli</i> , Total and Dissolved Metals (Aluminum, Antimony, Arsenic, Calcium, Cadmium, Chromium, Copper, Lead, Magnesium, Nickel, Selenium, Silver, Zinc), Alkalinity, Total Solids, Total Dissolved Solids, Total Suspended Solids, Sulfate, Chloride, Hardness, TKN, Ammonia-Nitrogen, Nitrate + Nitrite Nitrogen, Total Phosphorous, TOC, Cyanide-Total, Cyanide-Weak Acid Dissociable when necessary), Chemical Oxygen Demand, Temperature, Dissolved Oxygen, pH, Turbidity, Specific Conductance, Fish, Macroinvertebrates, Periphyton, Habitat	

## Watershed Assessment and Planning Branch Monitoring Activities 2012

Watershed Baseline Studies	2012		2013
Watershed or Waterbody Name(s)	Plummer Creek 38 sites Little Calumet River East Branch Indian-Kentuck	Water sampling monthly for field parameters, general chemistry and nutrients, <i>E. coli</i> will be done 5X, flow monthly, Fish tissue  Water sampling monthly for field parameters, general chemistry, nutrients, and <i>E. coli</i> , flow monthly, biological communities, possibly fish tissue  Not determined	East Arm Little Calumet Watershed  Indian-Kentuck Watershed
HUC(s)	0512020203 040400010401, 402, 403 0514010102		
Laboratory Analytical Costs/Funding Source	All ISDH(MOU)/319	Water sampling monthly for field parameters, general chemistry and nutrients, <i>E. coli</i> will be done 5X, flow monthly,  Macroinvertebrate and habitat  Fish tissue	
Total Maximum Daily Load Development	2012		2013
Watershed or Waterbody Name(s)	Upper East Fork White River (Sand Creek) Muscatatuck River (Big Creek & White Oak Creek)	E. coli, Dissolved Oxygen(DO), D.O. Saturation, Turbidity, Specific Conductance, Temperature, pH, Ammonia- Nitrogen, Total Phosphorous, Nitrate/Nitrite, TKN, Dissolved Solids, Suspended Solids  May vary from year to year depending on the BMPs implemented, critical areas, & land use.	TBD
HUC(s)	0512020603 0512020701, 706		
Laboratory Analytical Costs /Funding Source	All IDEM Mobile Lab/106		

## Watershed Assessment and Planning Branch Monitoring Activities 2012

Performance Measure Monitoring	2012	Parameters	2013
Watershed or Waterbody Name(s)	South Fork Patoka River Indian Kentuck	[Impaired biotic communities] Fish and macroinvertebrates	TBD
HUC(s)	051202090701 051401010205		
Laboratory Analytical Costs /Funding Source	IDEM/319 TBD lab/lab account		

Toxic Algae Monitoring	2012	Parameter	2013
Watershed or Waterbody Name(s)	Worster Lake, Lake James, Sand and Long Lakes, Mississinewa, Salamonie, Racoon Lake, Monroe (3 beaches), Hardy Lake, Whitewater Lake  Potato Creek, Pokagon, Chain-o-Lakes, Mississinewa, Salamonie, Racoon Lake, Monroe (2 beaches), Hardy, Whitewater, and Summit	Cell Count and Identification Microcystin/Cylindrospermopsin Toxin Analysis Enumeration Chlorophyll <i>a</i>	TBD
Hydrologic Unit Code(s)	N/A		
Laboratory Analytical Costs (\$)/Funding Source	IDEM IDEM/Supplemental 106		
Fixed Stations	2012	Parameters	

## Watershed Assessment and Planning Branch Monitoring Activities 2012

163 Sites throughout all 9 Watershed Basins	163 Sites divided into 16 routes, sampled monthly	<p>CHEMISTRY (dissolved vs. total metals at selected sites): Alkalinity, Hardness, Calcium, Magnesium, Ammonia-N, Nitrate + Nitrite- N, Nitrogen- TKN, Phosphorous-Total, COD, TOC, BOD, Solids, Total, Solids-Suspended, Solids-Dissolved, Fluoride, Chloride, Sulfate, Cyanide-Total, Cyanide-Free, Cyanide-Amenable, Arsenic (ug/l), Cadmium (ug/l), Chromium-Total (ug/l), Copper(ug/l), Iron (ug/l), Lead (ug/l), Manganese (ug/l), Nickel (ug/l), Potassium (ug.l), Sodium, Zinc (ug/l), <i>E.coli</i>, RADIOLOGICA (select sites, drinking water intakes)L: Alpha, gross, Beta, gross FIELD: Turbidity, DO, pH, Temperature, Specific Conductance, Weather coding</p> <p>ORGANICS/PESTICIDES (select sites, drinking water intakes): Hexachlorocyclopentadiene, Desethylatrazine, Desisopropylatrazine, Hexachlorobenzene, Simazine, Atrazine, Clomazone, Pentachlorophenol, Lindane, Terbufos, Acetochlor, Alachlor, Heptachlor, Metolachlor, Chlorpyrifos, Cyanazine, Penimethalin, Heptachlor Epoxide, Ocychlordane, Gamma-Chlordane, Alpha-Chlordane, Trans-Nonachlor, Endrin, Cis-Nonachlor, P,P'-DDT, Bis(2-Ethylhexyl)adipate, Methoxychlor, Bis(2-Ethylhexyl)phthalate, Benzo[a]pyrene, Trifluralin, Aldrin, Dieldrin, Propachlor</p>	
Fish Tissue Monitoring	2012		2013
Watershed or Waterbody Name(s)	East Fork White River & Whitewater River Basins	Percent Moisture, Percent Lipid, PCBs, Organochlorine-Pesticides, Cadmium, Selenium, Lead, Mercury	Upper Wabash River Basin
Hydrologic Unit Code(s)	051202XX & 05080003  (4-5 samples will be collected from Lake Michigan by DNR & analyzed by IDEM)		
Laboratory Analytical Costs /Funding Source	Pace/Lab Account		
Special Studies	2012		2013
Hydraulic Controlled Release Facilities Scheduled for NPDES Renewal in 2011	See attached Table 2		?
Laboratory Analytical Costs /Funding Source	ISDH		
Dissolved Metals on 7 Stream Reaches	2012	Parameter	2013

## Watershed Assessment and Planning Branch Monitoring Activities 2012

Watershed or Waterbody name(s)	Gaff Ditch INB0614-T1001	Lead	N/A
	Big Pine Creek- Brown DT to Pine Village INB084B-T1046	Lead	N/A
	Sulphur Creek INB11G4-T1024	Copper	N/A
	Sulphur Creek INB11G4-T1024	Nickel	
	Sulphur Creek INB11G4-T1024	Zinc	
	Patoka River INP0947_T1007	Lead	
	East Fork White river INW08A3-M1056	Lead	

# Watershed Assessment and Planning Branch Monitoring Activities 2013

Fixed Station Monitoring		Parameters	
2013			
Watershed or Waterbody Name(s)	163 sites throughout all 9 watershed: Divided into 16 routes sampled monthly	CHEMISTRY (dissolved vs. total metals at 12 selected sites geographically representative): Alkalinity, Hardness, Calcium, Magnesium, Ammonia-N, Nitrate+Nitrite-N, Nitrogen-TKN, Phosphorous-Total, COD, TOC, BOD, Solids-Total, Solids-Suspended, Solids-Dissolved, Fluoride, Chloride, Sulfate, Cyanide-Total, Cyanide-Free, Cyanide-Amenable, Arsenic (µg/l), Cadmium (µg/l), Chromium-Total ( µg/l), Copper( µg/l), Iron ( µg/l), Lead ( µg/l), Manganese ( µg/l), Nickel ( µg/l), Potassium ( µg/l), Sodium ( µg/l), Zinc ( µg/l), <i>E. coli</i> , RADIOLOGICAL (select sites, drinking water intakes): Alpha (gross), Beta (gross) FIELD: Turbidity, DP, pH, Temperature, Specific Conductance, Weather coding ORGANICS/PESTICIDES (select sites, drinking water intakes): Hexachlorocyclopentadiene, Desethylatrazine, Desisopropylatrazine, Hexachlorobenzene, Simazine, Atrazine, Cloazone, Pentachlorophenol, Lindane, Terbufos, Acetochlor, Alachlor, Heptachlor, Metolachlor, Chlorpyrifos, Cyanazine, Penimethalin, Heptachlor Epoxide, Ocychlorane, Gamm-Chlordane, Alpha-Chlordane, Trans-Nonachlor, endrin, Cis- Nonachlor, P,P'-DDT, Bis(2-Ethylhexyl)adipate, Methoxychlor, Bis(-Ethylhexyl)phthalate, Benzoapyrene, Trifluralin, Aldrin, Dieldrin, Propachlor	
Laboratory Analytical Costs/Funding Source	ISDH/106		
Probabilistic Monitoring		Parameters	
2013		2014	
Watershed or Waterbody Name(s)	East Fork White River	<i>E. coli</i> , Aluminum, Antimony, Arsenic, Calcium, Cadmium, Chromium, Copper, Lead, Magnesium, Nickel, Selenium, Silver, Zinc, Alkalinity, Total Solids, Dissolved Solids, Total Suspended Solids, Sulfate, Chloride, Hardness, TKN, Ammonia- Nitrogen, Nitrate/Nitrite, Total Phosphorous, TOC, Cyanide-Total, Cyanide-Weak Acid Dissociable, Chemical Oxygen Demand, Fish, Macroinvertebrates, Periphyton, Seston, Habitat	Upper Wabash River Basin
Hydrologic Unit Code(s)	05120204, 05120205, 05120206, 05120207, 05120208		
Laboratory Analytical Costs/Funding Source	Heritage Environmental, IDEM Mobile Lab, IDEM Algal Biomass Lab/106		
TMDL/Watershed Baseline Studies		Parameters	
2013		2014	
Watershed or Waterbody Name(s)	Deep River Southern Whitewater Basin	Water sampling monthly for alkalinity, total solids, total suspended solids, total dissolved solids, sulfate, chloride, hardness, ammonia-nitrogen, total Kjeldahl nitrogen, nitrate+nitrite-nitrogen, total phosphorous, total organic carbon and chemical oxygen demand. Field measurements pH, DO, temperature, turbidity, and specific conductance. <i>E. coli</i> will be done 5X, flow monthly, Fish, Macroinvertebrates, Habitat Water sampling monthly for alkalinity, total solids, total suspended solids, total dissolved solids, sulfate, chloride, hardness, ammonia-nitrogen, total Kjeldahl nitrogen, Nitrate+Nitrite-Nitrogen, Total Phosphorous, total organic carbon and chemical oxygen demand. Field measurements pH, DO, temperature, turbidity, and specific conductance. <i>E. coli</i> will be done 5X, flow monthly, Fish,	TBD

## Watershed Assessment and Planning Branch Monitoring Activities 2013

		<b>Macroinvertebrates,</b>	
Hydrologic Unit Code(s)	0404000105 0508000305, 0508000306, 0508000308		
Laboratory Analytical Costs/Funding Source	Heritage Environmental Labs and IDEM Mobile <i>E. coli</i> lab Chemistry Lab yet to be determined. IDEM Mobile <i>E. coli</i> lab		
Performance Measure Monitoring	2013	Parameters	2014
Watershed or Waterbody Name(s)	Blue River Tributaries to Upper Tippecanoe River	<i>May vary from year to year depending on the impaired listing, BMPs implemented, critical areas, &amp; land use.</i> E. coli, Dissolved Oxygen, D.O. Saturation, Turbidity, Specific Conductance, Temperature, pH, Ammonia- Nitrogen, Total Phosphorous, Nitrate/Nitrite, TKN, Dissolved Solids, Suspended Solids, Fish, Macroinvertebrates, Habitat	TBD
Hydrologic Unit Code(s)	Blue River: 051401040606, 051401040805, 051401040905 Upper Tippy: 051201060104, 051201060105		
Laboratory Analytical Costs /Funding Source	IDEM mobile <i>E. coli</i> lab		

Toxic Algae Monitoring	2013	Parameters	2014
Watershed or Waterbody Name(s)	Designated swimming beaches in the lakes at the following state owned parks or managed recreation areas: Potato Creek, Pokagon, Chain-o-Lakes, Mississinewa, Salamonie, Raccoon Lake, Monroe (2 beaches), Hardy, Whitewater, Brookville (2 beaches), Deam Lake and Starve Hollow	Cyanobacterial Identification and Cell Enumeration, Microcystin and Cylindrospermopsin toxin analysis	Designated swimming beaches in the lakes at the following state owned parks or managed recreation areas: Potato Creek, Pokagon, Chain-o-Lakes, Mississinewa, Salamonie, Raccoon Lake, Monroe (2 beaches), Hardy, Whitewater, Brookville (2 beaches), Deam Lake and Starve Hollow
Laboratory Analytical Costs (\$)/Funding Source	IDEM Algal Biomass Lab/106		
Fish Tissue Monitoring	2013	Parameters	2014
Watershed or Waterbody Name(s)	Upper Wabash (4-5 samples will be collected from Lake Michigan by DNR & analyzed by IDEM)	Percent Moisture, Percent Lipid, PCBs, Organochlorine-Pesticides, Cadmium, Selenium, Lead, Mercury	Lower Wabash and Kankakee river basins (4-5 samples will be collected from Lake Michigan by DNR & analyzed by IDEM)
Hydrologic Unit Code(s)	05120101, 05120102, 05120103, 05120104, 05120105, 05120106 and 05120107 (4-5 samples will be collected from Lake Michigan by DNR & analyzed by IDEM)		
Laboratory Analytical Costs /Funding Source	Pace/IN Lab Account		
Special Studies	2013	Parameters	2014
Hydraulic Controlled Release Facilities	Adams Lake Bryant		

## Watershed Assessment and Planning Branch Monitoring Activities 2013

	Dupont Lakeville Atlanta Tri-Lakes RSD Center Point Little Raccoon RSD Lyons Morgantown Silver Lake Wakarusa Holton Lakeville Michigantown		<b>TBD</b>
Laboratory Analytical Costs /Funding Source	ISDH/106		
Grand Calumet/Indiana Harbor	2013	Fish & Macroinvertebrate Community, Fish Tissue Contaminants, surficial contaminant chemistry & Toxicity Sampling, Habitat & Water Chemistry Analyses	
Laboratory Analytical Costs /Funding Source	Heritage/ URL/ Pace		