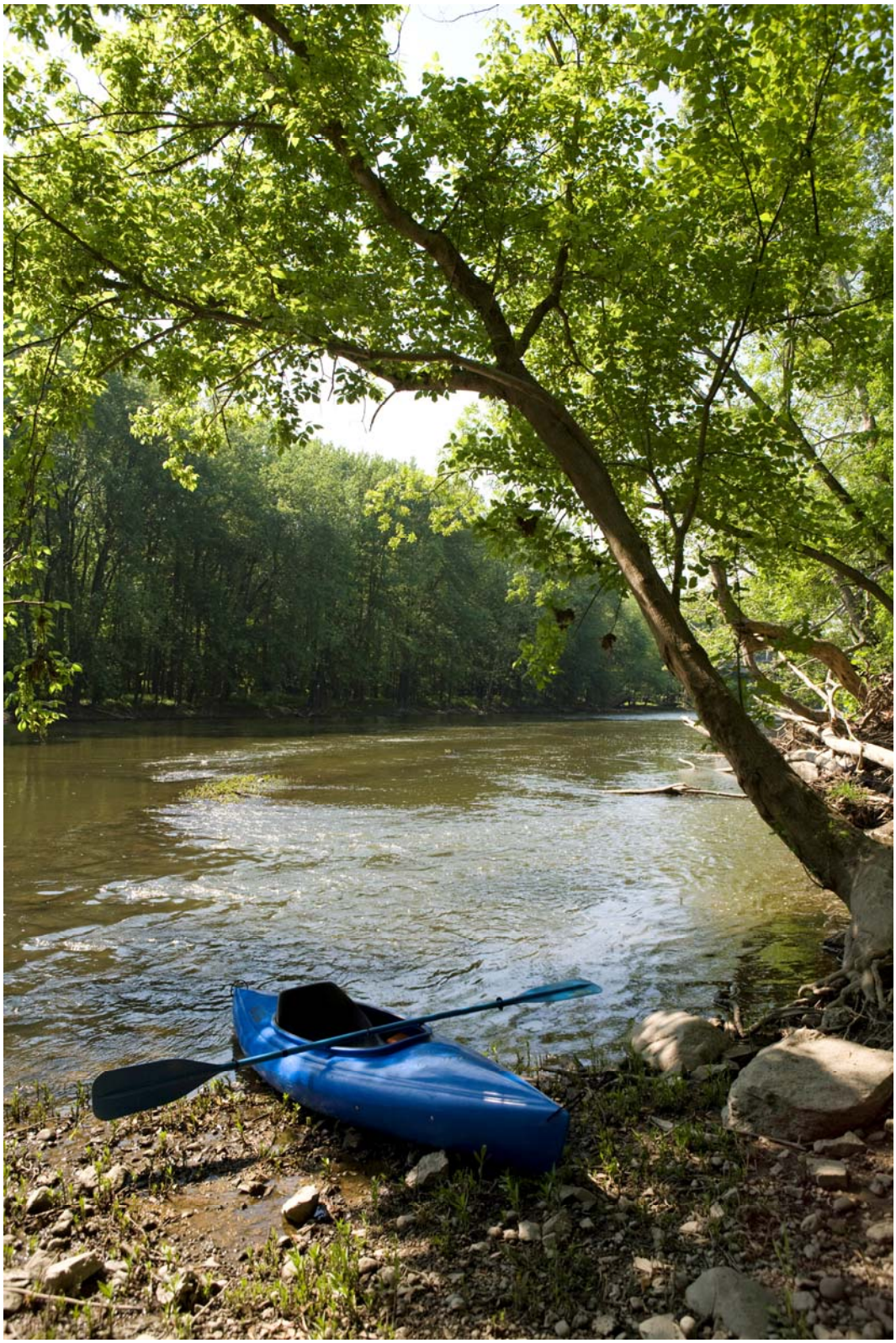

Indiana Department of Environmental Management

Office of Water Quality

September 2008

FFY 2008 Annual Report to the U.S. Environmental Protection Agency

Section 319 Nonpoint Source Grant Program

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OVERVIEW

This *2008 Nonpoint Source Program Annual Report,* as required by Section 319 of the Clean Water Act, reports 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 the Indiana Department of Environmental Management's (IDEM) 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 presents information on how IDEM's chief partners play an important role in the work to address nonpoint source pollution. Lastly, the report provides information on projects funded through Section 319 of the Clean Water Act.

IDEM and our many partners are working together on a watershed by watershed basis to improve and protect our water resources. The prevention of NPS pollution requires the cooperation of many groups and agencies at the federal, state, and local level, as well as all citizens living in the watershed. We cannot accomplish the goal of clean water without the help of many people working together.

Cover Photo: Denise Szocka, IDEM-MACS
Above Photo: Elizabeth Pelloso, IDEM-Wetlands/Stormwater

INTRODUCTION

What's the Problem?

Nonpoint source (NPS) pollution remains the largest source of water quality problems in Indiana. Information from the 2008 Indiana Integrated Water Monitoring and Assessment Report shows that NPS pollution is a significant source of impairment in Indiana waterbodies. Bacteria, nutrients, and sediments are the leading NPS pollutants of concern in Indiana. 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 regulated source, such as a pipe. 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 and agencies. 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:

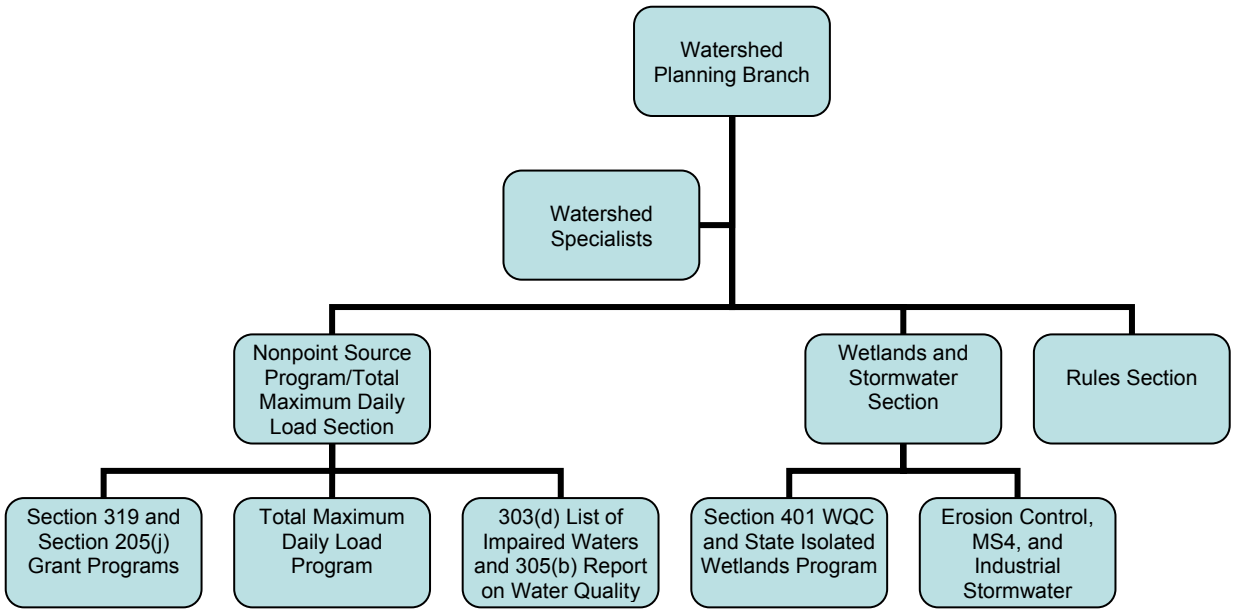
1. Geographic focus based on hydrological rather than political boundaries
2. Water quality objectives based on scientific data
3. Coordinated priorities and integrated solutions
4. Diverse, well-integrated partnerships

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 semi-annual review of Office of Water Quality (OWQ) 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.

Putting the Pieces Together to Improve Water Quality

IDEM has aligned a number of programs to address strategically NPS pollution. This functional rethinking of several key water programs has greatly improved coordination of agency programs and increased assistance to partners outside of the agency.



Organization chart for IDEM's Watershed Planning Branch

IDEM relies on the interactions between the programs in the Watershed Planning Branch to lead statewide efforts to address NPS pollution. Each program brings a different set of resources and expertise to this issue –

1. Section 319 and 205(j) Grant programs – provide funding to a variety of groups and agencies to develop comprehensive watershed plans to address NPS pollution, implement plans to carry-out on the ground solutions, and conduct education, outreach and assessment work to inform the public about NPS pollution and measure progress towards correcting problems. In addition, these programs work internally and externally to build capacity for watershed managers and other environmental professionals through trainings, seminars, conferences, and other educational opportunities.

2. Total Maximum Daily Load (TMDL) Program – develops reports to assess sources of pollution within a watershed and establish load reductions to ensure that water quality standards will be met. This program works closely with the 319/205(j) Program to share information on water quality within a given watershed to local watershed groups and to increase their interest in applying for grants and in implementing aspects of the TMDL report.

3. 305(b)/303(d) Program– compiles information and develops the Integrated Report, which includes the 303(d) List of Impaired waters. The report describes the status of water quality within the state of Indiana. This information is disseminated internally and externally. Impaired waters are the chief priority of the Watershed Planning Branch, with priorities in all programs set to address directly the causes of impairments through planning, implementation, and regulatory oversight.

4. Wetlands/Stormwater programs – provide regulatory oversight on both issues through the implementation of state and federal permit programs. Staff in these programs directly assist groups with education on water quality topics and works closely with other staff to provide technical expertise on a variety of issues including wetland and stream restoration, erosion control, and urban stormwater best management practices.

5. Rules Program – develop rules and and assist with non-rule policy documents to implement agency regulatory programs that affect both point and NPS pollution.

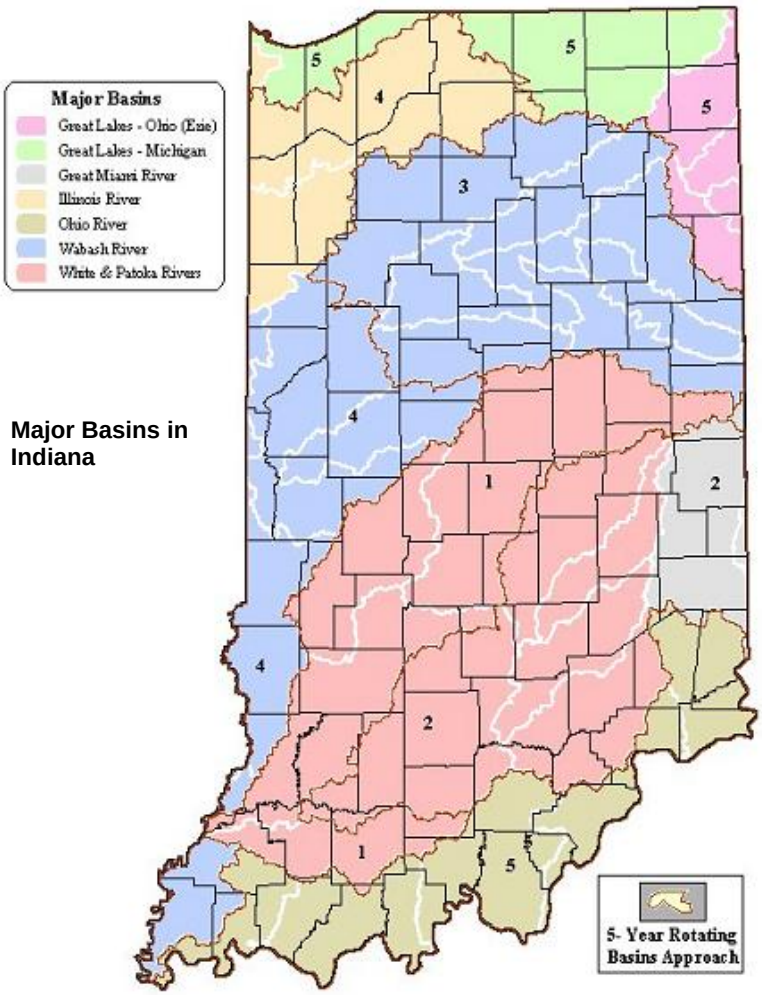
6. Watershed Specialists – facilitate watershed planning at the local level and help build capacity and sustainability. This includes providing technical support, coordination of meetings and bringing of groups together, aiding with grant applications and information transfer, reviewing watershed plans, and working with groups to find new ways to improve water quality on the local level. Staff in this program are integral to coordination of all programs within the branch.

Additionally, IDEM's efforts to address NPS pollution rely heavily on the efforts of our partners. With the extent and variety of NPS issues across Indiana, the need for cooperation across political boundaries is essential. Many local, regional, state, and federal agencies play an essential part in addressing NPS pollution, especially at the watershed level. They provide information about local concerns and infrastructure and build support for the kind of pollution controls that are necessary to prevent and reduce NPS pollution. By establishing coordinated frameworks to share information and resources, Indiana can more effectively focus its water quality protection efforts.

In particular, IDEM works closely with the Natural Resources Conservation Service, the Indiana Department of Agriculture, the Indiana Department of Natural Resources, and the Indiana Association of Soil and Water Conservation Districts. A workgroup comprised of key staff from these organizations meets to exchange information and work toward better coordination of programs and resources on the mutually important issue of NPS pollution. IDEM has broadened discussions to include emerging issues on urban storm water and wetland regulation. Also, IDEM is working more closely with the Coastal Zone Program to address nonpoint source issues in the Lake Michigan watershed in a more coordinated manner.

STATUS OF INDIANA'S SURFACE WATERS

The Office of Water Quality assesses the quality of Indiana's waters using a rotating basin approach. Approximately one-fifth of the state's waters (1-2 basins) are assessed for support of aquatic life, fishing and recreational uses each year. The monitoring program is designed to characterize the overall environmental quality of each major river basin and to identify those monitored waterbodies within each basin that are not fully supporting their designated uses. The results are reported in the Indiana Integrated Water Monitoring and Assessment Report, published every two years.



Major Basins in Indiana

Waters that do not fully support one or more of their designated beneficial uses, are placed on the Indiana's 303(d) List of Impaired Waters, which may be viewed at:

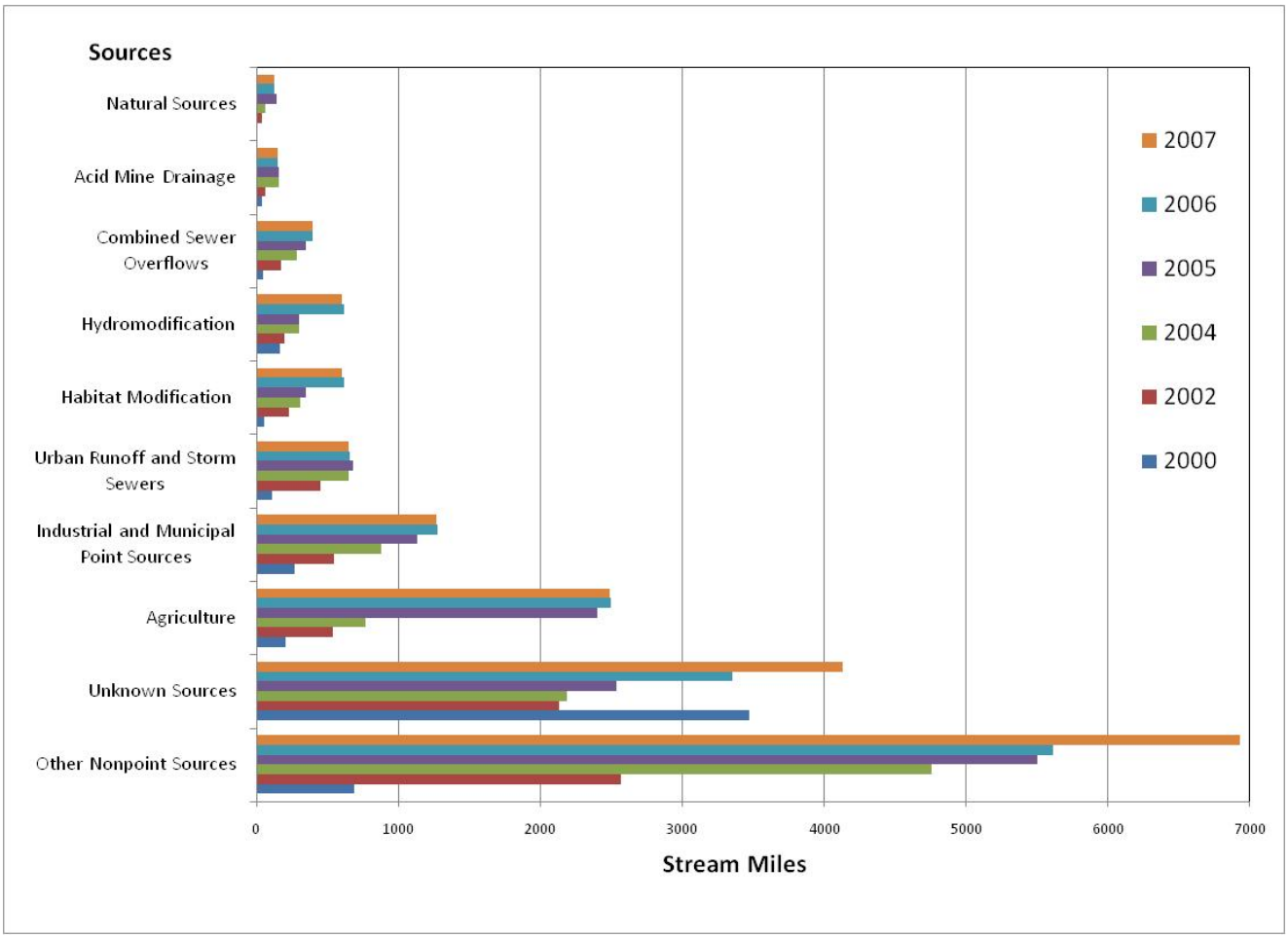
http://www.in.gov/idem/4680.htm

According to the 2008 Integrated Water Quality Monitoring and Assessment Report, Indiana has monitored 55.7% of its streams to determine whether they are capable of supporting a well balanced warm water aquatic community. Of the streams monitored, 79.4% were supporting their designated aquatic life use. Indiana has monitored 38.1% of its streams for recreational uses. Of the streams monitored, 31.1% support full-body contact recreational uses, while 68.9% were found to be impaired. These numbers are presently being revised for the 2010 assessment and listing cycle and reflect the most current information available.

For more information on the assessment of Indiana waters, see the 2008 Integrated Water Quality Monitoring and Assessment Report at:

http://www.in.gov/idem/4679.htm

Sources of Stressors and Responses Impairing Indiana's Streams



Source: 2008 Integrated Water Quality Monitoring and Assessment Report

It is important to note that the data represents total stream miles assessed in each year. Since IDEM is assessing more streams each year, these numbers represent running totals and do not, per se, indicate trends.

Many of the problems caused by point source pollution have been addressed through the National Pollutant Discharge Elimination System (NPDES) permit program. The primary focus now is on reducing NPS pollution in order to restore waterbodies that are identified as impaired on Indiana's 303(d) list.

IDEM's NPS Goals and Progress

The goal of IDEM's NPS program, as stated in the current *Nonpoint Source Management Plan* (2005-2010), is to:

Restore waters impaired by nonpoint source pollution and support preservation of local water quality through locally led partnerships

In this reporting period, IDEM continued to retool and refocus the efforts of its NPS program. The key focus areas of the NPS program this reporting period include –

- improve coordination with partners (internal and external)
- target funding of projects on impaired waters to create watershed management plans and implement watershed plans
- build capacity to address NPS pollution on the local level
- actively manage funded projects to ensure successful completion of goals
- work closely with USEPA to identify needed areas of improvement
- expand the scope of projects to include urban NPS pollution issues
- develop consistent methods to assess the efforts of projects to address NPS pollution

IDEM is about to complete a comprehensive revision to the existing *Nonpoint Source Management Plan*, with the assistance of an outside contractor. The goal is to produce a more streamlined document that focuses on the key Indiana NPS issues, accurately reflect the current resources, and lay out steps to achieve realistic water quality improvement goals. A final draft will be submitted for USEPA review and comment by the end of 2008. Once approved, the NPS Management Plan will contain new goals and objectives which will be reported in future Annual Reports.

The Assessment and Watershed Planning Branch have worked closely to develop an Office of Water Quality NPS monitoring strategy that includes monitoring at the project, watershed, and state level for NPS pollution. Staff from both branches attended the National Nonpoint Source Monitoring Conference to get additional information for this effort. A draft will be submitted to USEPA for review and comment by the end of 2008, and if approved, implemented in FFY 2009.

Short-term Goal Progress

In 2005, IDEM set forth a series of short-term goals to assess our progress on addressing NPS pollution. The status of these goals is reported in this document. These goals will be revised for the next reporting period when *Nonpoint Source Management Plan* is approved by USEPA. IDEM has drafted, in the revised Plan, new short-term goals that are more measurable, meaningful, and reflect the direction of the program as a whole.

The NPS Program short-term objectives are listed below, along with action items to accomplish the objectives, and the measures being used to track progress in meeting them. The objectives have baseline values reported for 2005. Explanation of progress towards goals is included following the metric table for each objective.

I. Objective: Support restoration through development & implementation of watershed management plans

A. Target support to watershed groups in priority areas working on 303(d)-listed waters

Measure	2005 Baseline	2006	2007	2008	2009	2010
1. Number of active watershed groups	66	76	82	90		
2. Number of new watershed groups	N/A	8	4	6		

STATUS: The continued efforts of IDEM's Watershed Specialists have increased locally-led watershed group formation within Indiana.

B. Set solicitation priorities each year to target restoration projects to implement watershed management plans in areas with impaired streams/lakes

Measure	2005 Baseline	2006	2007	2008	2009	2010
1. Number of watersheds with plans that meet USEPA's Nine Elements	25	38	49	66		

STATUS: IDEM actively works with watershed groups to ensure that USEPA and IDEM requirements are met for every watershed plan funded by 319 and 205(j) grants. IDEM also seeks input from USEPA on ways to improve these plans.

C. Participate in the Region 5 Accountability Pilot Watershed-based planning and restoration in lieu of TMDL.

Measure	2005 Baseline	2006	2007	2008	2009	2010
1. Percent of completed watershed plans in the pilot that are implemented	0	0	0	15		

STATUS: This measure does not accurately reflect the work that has been completed by the projects in this pilot and will likely be revised for future reports. There are currently five projects in the Accountability Project: Cedar Creek, Eagle Creek, Little Elkhart River, Dunes Creek, and Clifty Creek. Load reductions have occurred in all five projects.

II. Objective: Aid in the reduction and cleanup of NPS pollution to ground and surface water

A. Work with State Revolving Fund staff to identify and implement opportunities for partnerships.

Measure	2005 Baseline	2006	2007	2008	2009	2010
1. Number of nonpoint source SRF projects	16	10	3	4		
2. Measure or estimate NPS load reduction from SRF projects.	Not complete	Not complete	Not complete	Not complete		

STATUS: Nonpoint source projects funded by SRF comprise IDEM's match requirements for implementation of Section 319 grant funds. IDEM has not developed formal methods for estimating pollutant load reductions from these projects at this time. Work on this short term goal did not occur during this reporting period. IDEM will need to consult with USEPA to determined needed deliverables for this measure.

B. Support environmentally friendly land use development

Measure	2005 Baseline	2006	2007	2008	2009	2010
1. Number of 319 projects with low impact development (LID) component	2	4	6	6		
2. Estimated sediment load reduction from LID areas funded by 319	0	0	0	0		

STATUS: IDEM is actively working with groups in urban areas of the state to identify urban best management practices and LID principles for funding through the 319 grant program. IDEM has seen more interest in urban BMPs, as stakeholders in urbanized watersheds begin to look for more creative solutions to stormwater and urban water quality. Although sediment load reductions have not been documented, other reductions of urban NPS pollutants have been documented by these projects. This is discussed in further detail later in this report.

Currently, six projects funded with Section 319 grants have LID components:

Grant Year	***Project***	***Sponsor***
2002	Cedar Creek WMP Implementation Phase I	St Joseph River Watershed Initiative
2003	Small Grants for IN Lakes Water Qual. Imp.	ILMS
2003	Dunes Creek WMP	Save the Dunes
2005	Clifty Creek Watershed Project	Bartholomew Co SWCD
2005	Tippecanoe River 2-stage Ditch Dev.	The Nature Conservancy
2006	Salt Creek Implementation Demo.	Save the Dunes

III. Objective: Support the Coastal Zone Management (CZM) Plan

A. For projects within the Coastal Zone, give priority to projects that are integrated with the Coastal Zone Program (CZP)

Measure	2005 Baseline	2006	2007	2008	2009	2010
1. Number of 319 projects in the Coastal Zone that also implement 6217	2	5	7	7		

STATUS: Projects that are currently integrated with the CZP include:

Grant Year	***Project***	***Sponsor***
2001	Dunes Creek WMP Implementation Phase I	Save the Dunes Conservation Fund
2002	Salt Creek WMP	Save the Dunes Conservation Fund
2003	Dunes Creek Watershed Plan	Save the Dunes Conservation Fund
2005	Little Calumet River WMP	Gary Storm Water Management District
2005	Lake George	City of Hobart
2006	Salt Creek Implementation Demo	Save the Dunes
2008	Salt Creek Watershed Cost-Share	Save the Dunes

IDEM is working with the Department of Natural Resources CZP to identify needs within this section of the state and establish funding priorities. IDEM's 319 Program will be providing direct financial assistance to the CZM Program to meet goals and objectives upon submittal of a grant proposal.

IV. Objective: Develop tools to measure program effectiveness

A. Develop and implement the Evaluation Framework

Measure	2005 Baseline	2006	2007	2008	2009	2010
1. Meet milestones in the Framework	100% on schedule	100% on schedule	100% on schedule	100% on Schedule		

STATUS: The development of social indicators to measure the effects of NPS pollution programs will provide another means for assessing the efficacy of programs. The project is on track for completion in 2008 and another contract has been signed to further work on the Evaluation Framework.

V. Objective: Share information on NPS restoration and status of water quality

A. Develop and implement a system to store environmental monitoring data in AIMS and transfer to STORET

Measure	2005 Baseline	2006	2007	2008	2009	2010
1. Number of 319 projects with environmental data in AIMS	0	0	1	4		

STATUS: To provide a mechanism to enter 319 project data into EPA's Storage and Retrieval System (STORET), the NPS Program has requested that funds be used to build onto and improve the existing water quality database management system, AIMS, currently used by the Assessment Branch in IDEM. The current AIMS application handles data from multiple water quality and aquatic biota programs and will be expanded to include the programs, projects, and data collected through the NPS and water quality grants. The improvements will incorporate web browser access to staff and management and enhanced STORET interface capabilities that will benefit all water quality programs in meeting federal mandates for this program and the agency's other water quality monitoring programs. Additionally, the querying and analytical tools available in AIMS will help in the evaluation of the data through statistical and GIS applications and be integrated with the Assessment Branch point and nonpoint source monitoring data for further program analyses.

The project has been contracted to secure the expertise to upgrade the AIMS application to accommodate the user and programmatic needs. Efforts were made to work on NPS data entry options as suggested by the contract for upload into AIMS and into the existing STORET by the end of the first quarter of 2008. The data selected for inclusion into the system will be set up to be compatible with the AIMS structure. As the enhanced system is ready, the new NPS data will be uploaded, and testing will be done using data mapper software to upload current and older data that is in alternate formats.

B. Develop systems and tools for watershed planning, implementation, and TMDLs

Measure	2005 Baseline	2006	2007	2008	2009	2010
1. Number of tools and reports available via the www to Indiana watershed coordinators, TMDL Program	4	4	4	4		

STATUS: The four tools that form the baseline of this metric are -

Indiana Water Quality Atlas: Internet Mapping and Analysis
The Indiana Water Quality Atlas (IWQA) is a collaborative project to create a web-based interactive atlas of water quality-related GIS data. The primary project partners are IDEM, the Indiana Geographic Information Council (IGIC), Indiana Land Resources Council (ILRC), Upper White River Watershed Alliance (UWRWA), and Natural Resources Conservation Service (NRCS). The IWQA will continue to spur water quality and watershed management, land use planning, and data exploration by facilitating access to a wide variety of spatially and temporally referenced data through a common interface. It also promotes interdisciplinary research by

providing new tools to combine, analyze, and display multi-dimensional data from a wide array of disciplines. Access to the application can be found at http://iwqa.idem.in.gov.

A Study of Indicators of Nonpoint Source Pollution
The overall goal of the study was to develop an essential suite of indicator parameters, for use by state agencies and watershed groups, which can be cost-effectively used to assess NPS impairments and identify specific causes and sources linked to the impairments. The study resulted in the development of a user's manual, which will be posted to the IDEM website.

Indiana Watershed Planning Guide and Watershed Management Plan Template
This project revised and updated the *Watershed Action Guide for Indiana* and created the *Indiana Watershed Planning Guide* which provides guidance and specifications on the development of a watershed management. In addition, these documents provide a watershed plan template for watershed coordinators and stakeholders. This document is distributed in hard copy and is also available on the website at:

http://www.in.gov/idem/catalog/documents/water/iwpg.pdf

Using Watershed Planning Tools for TMDLs
The purpose of the project was to develop a framework for integrating IDEM's TMDL strategy with its watershed planning and restoration program and to coordinate internal discussions for enhancing collaboration on watershed restoration efforts. The materials developed through this project are being used by the TMDL Program.

Tools that are under development and are described in greater detail in this report include the IQWA (Phase II), the Evaluation Strategy Framework, and AIMS database upgrade for NPS monitoring data.

C. Improve communication between and among agencies and the watershed management community

Measure	2005 Baseline	2006	2007	2008	2009	2010
1. Implement an advisory group of state, federal agencies, and local/ regional coordinators	No advisory group	Interagency advisory group	Interagency advisory group	Interagency advisory group		
2. Number of projects with three or more active, contributing partners	6	21	36	42		

STATUS: IDEM works closely with the NRCS, the Indiana Department of Agriculture (IDOA), the IDNR, and the Indiana Association of Soil and Water Conservation Districts (IASWCD). A workgroup comprised of key staff from these organizations meets to exchange information and work toward better coordination of programs and resources on the mutually important issue of NPS pollution. IDEM places a high emphasis on the formation of active partnerships for all watershed projects. The increase in the number of projects with three or more active partners

reflects changes to grant review criteria, direct assistance from IDEM staff, and the recognized need to leverage resources and engage all stakeholders in watershed-based activities.

D. Support lake water quality assessments and track trends in lake water quality

Measure	2005 Baseline*	2006	2007	2008	2009	2010
1. Lake acres with specific water quality assessment	74,361	69,472	74,361	103,010		
2. Number of lakes assessed for trophic conditions	401	403	401	401		

*2004 Integrated Water Quality Monitoring and Assessment Report

STATUS: For 2007, the number of lake acres with specific water quality assessments and the number of lakes assessed for trophic state returned to the baseline values reported in 2006. This is due, in large part, to the timing of this report, which precedes the 2007 CWA Section 314 lakes assessments for trend and trophic state. These assessments are conducted as the data becomes available, and IDEM only recently received the necessary data from the Clean Lakes Program. Until these assessments are complete, there will be no new numbers to report for trophic state. There were also no significant changes made to IDEM's designated use assessment methodology for lakes between 2006 and 2007, which resulted in similarly little change in reported values. However, IDEM's designated use assessment methodology for lakes is presently under revision. New designated use assessments are currently underway and will be reported during the 2008 305(b)/303(d) listing cycle and the 2008 NPS annual report.

E. Identify surface water and ground water interactions and locations with residential well contamination

Measure	2005 Baseline	2006	2007	2008	2009	2010
1. Number of basins assessed	0	14	0	0		
2. Number of residential wells assessed	143	130	40	30		

STATUS: This measure will be reevaluated for next year and modified to reflect more accurately agency priorities.

RESTORATION EFFORTS AND ACHIEVEMENTS

A primary focus of IDEM's NPS Program is on-the-ground work to improve water quality. Funding for the implementation of watershed plans that work to restore water quality on waterways impaired for NPS pollution has resulted in measurable improvements in terms of estimated pollutant load reductions and stakeholder involvement, but much more work remains to restore fully water quality.

Section 319(h) & Section 205(j) Grant Programs

The NPS/TMDL Section in the Office of Water Quality 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 portion of the Clean Water Act that authorizes the program. The 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. The continued decline in the levels of 205(j) funding available has made it challenging to expend these funds on meaningful projects; an effective watershed planning project requires more money than is typically now available in Indiana's 205(j) allocation. Four 205(j) projects closed this fiscal year, all of which developed a watershed management plan (WMP). One of these WMPs is currently being implemented using FFY 2008 Section 319(h) funds. The others will most likely be implemented using future Section 319(h) funding. A list of open 205(j) projects during this fiscal year may be found in Appendix D.

The Section 319(h) Program is one of the primary resources for reducing NPS pollution in Indiana. In FFY 2008, Indiana received $4,331,700 in Section 319(h) funds and awarded grants for eight projects. Most of the projects will begin this fall. Each year proposals are submitted, reviewed by a committee, and selected for funding based on the NPS Program's priorities and the quality of the proposal. The Program focus has changed over the years from funding many smaller projects, to funding fewer, larger, better quality projects with a greater opportunity for showing water quality improvements. This is being achieved, in large part, through the IDEM Watershed Specialists working with potential project sponsors before and during development of their project proposals. Better thought-out projects and fewer, better quality proposals are now being submitted. In addition, more emphasis is being placed on project partners and documentation of their commitment to the project in the grant application. Strong partnerships are a key to project success. Also, more projects are now implementing watershed management plans and utilizing more 319 funds to implement on-the-ground best management practices in their watersheds.

Projects are administered through grant agreements that spell out the tasks, schedule and budget for the project. Projects are normally 2-3 years long and work to reduce NPS pollution and improve water quality in various ways including education and outreach, technical assistance, and development and implementation of watershed management plans. 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.

There are currently sixty-one open or pending 319 projects; a decrease of eleven from last year and twenty-one from the year before. A map showing the locations of Section 319(h) and Section 205(j) projects funded in the last six years is shown in Appendix A. A complete list of Section 319(h) projects open during this fiscal year is located in Appendix C. Final reports and products from the projects that closed this year are included as an attachment to this report, and a list of final reports is included in Appendix E. Basic project information for all Section 319 projects is entered and maintained in EPA's Grant Reporting and Tracking System (GRTS) database. The GRTS mandated elements entered for projects include the project schedule, budget, description, BMPs implemented, estimated pollutant load reductions, and progress reports. BMPs that were implemented through October 2007 are also located and stored in the web-based Reach Indexing Tool (WebRIT). Streams receiving direct benefit from these projects are selected and identified using the National Hydrography Dataset (NHD). BMPs implemented after that date are not located in WebRIT since EPA stopped using this tool in anticipation of replacing it with a drainage map tool that utilizes Microsoft's Virtual Earth. General information about the two grant programs in Indiana may be found on IDEM's website at: http://www.in.gov/idem/4342.htm.

NPS Program Focus

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 has identified priority projects for Section 319(h) funding for the last several funding cycles. The focus of the Program for FFY 2008 was:

- Watershed management planning and implementation in areas with approved TMDLs;
- Watershed management planning and implementation in areas with waterbodies on the 2008 Section 303(d) list; and
- Implementation of watershed management plans that meet the IDEM WMP Checklist (that includes the EPA required nine elements)

A Geographic Information System (GIS) map was created (Appendix B) to help identify areas that have been involved in the planning and implementation of watershed management plans and the relationships with the TMDL development activities. It also shows the areas of Indiana where there are watersheds with NPS impaired waterbodies as listed in the 2008 303(d) List of Impaired Waterbodies. This assists with the continuation of the targeted approach to watershed management providing for coordination of TMDL, planning, and implementation efforts in areas of the state most in need of restoration. 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.

Of the eight Section 319(h) projects funded in FFY 2008, all address one or more of the program priorities. Six of the funded projects are restoration and implementation projects and two are watershed planning projects in areas with waterbodies on the 303(d) list. One has an approved TMDL.

The NPS Program priorities were selected because developing and implementing comprehensive watershed management plans is an effective way to focus efforts and resources on a watershed and its particular problems and develop solutions to those problems. In this process, local stakeholders join forces to develop plans, usually at the multiple 11-digit or 14-digit hydrologic unit code (HUC) level, that make sense for the particular conditions found in that watershed. Indiana is currently transitioning to 10 and 12-digit HUCs, so future watershed plans will be based on these HUC areas. The group identifies the problems, causes, sources, and critical or target areas in the watershed, then sets goals and chooses measures or best management practices (BMPs) to be implemented to achieve those goals. Indicators are chosen and monitored to evaluate the effectiveness of the implementation efforts.

Before a watershed management plan can be implemented using Section 319(h) funds, it must meet the required elements of IDEM's *Watershed Management Plan Checklist*. This checklist incorporates EPA's nine required components of a watershed based plan. A *Watershed Management Plan Guidance* document is provided to help groups achieve the elements required in the checklist. Organizing a group to develop a watershed management plan that meets the required elements can be a daunting task. To help groups develop watershed management plans, IDEM developed the *Indiana Watershed Planning Guide*.

In addition to the resources listed above, additional help is provided to groups by the project's IDEM Project Manager and Watershed Specialist. These key IDEM staff meet with the local Watershed Coordinator, attend stakeholder meetings, and help guide the group through the decision making process, and provide technical support on issues such as determining pollutant loads and/or load reductions needed for the Plan. This extra guidance is invaluable as groups strive to develop a Plan that meets IDEM's Checklist and can be implemented. Once the Plan is complete, it provides a road map for how to allocate resources most effectively to address the priority water quality concerns in the watershed.

In both grant programs this fiscal year, twelve watershed management plans were completed and approved, or will be approved shortly. Twelve additional plans are being developed and will be completed and ready for implementation within the next two years. Of the sixty-one active 319 projects, thirty nine are implementing watershed management plans. These projects are installing BMPs in critical areas of the watershed as determined by the watershed management plan.

Pollutant Load Reductions

One important indicator of program (and project) success is pollutant load reduction for such pollutants as sediment, phosphorus, nitrogen, *E. coli,* as a result of the BMPs installed. Load reductions, in most cases, are estimated using the Region 5 Load Estimation Model. This is a simple Excel model that provides a general estimate of pollutant reduction (sediment, phosphorus and nitrogen) at the source level. It estimates load reductions from structural and agricultural field practices and urban BMPs. Reductions achieved through practices related to nutrient (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 needs to be used. In addition to the Region 5 Model, the Spreadsheet Tool for the Estimation of Pollutant Load (STEPL) model is also available and is used by some groups in

Indiana. This model calculates nutrient (N, P and BOD pollutants) and sediment loads by land use type and aggregated by watershed. Alternative methods for estimating pollutant loads are also used when applicable. The estimated load reduction data for each BMP is submitted by the project sponsor with the request for payment and entered into an Access database at IDEM, as well as the EPA GRTS database. Reported estimated load reductions from Section 319(h) projects (from the IDEM Access database) for this fiscal year are:

- Sediment: 16,308 tons/year
- Phosphorus: 50,591 lbs/year
- Nitrogen: 99,366 lbs/year

These reductions are a result of BMPs installed between 9/1/07 and 8/31/08. BMPs installed include filter strips, conservation cover, residue management (no-till), cover crop, streambank and shoreline protection, pasture and hay planting, grassed waterways, water and sediment control basins, critical area planting, livestock fencing, heavy use area protection and prescribed grazing. Other BMPs implemented, which may not be reflected in the load reduction estimations include implementation of nutrient, pesticide and manure management plans and repair/replacement of septic systems. Total estimated load reductions achieved in Indiana since 2000 are:

- Sediment: 144,585 tons/year
- Phosphorus: 286,735 lbs/year
- Nitrogen: 478,966 lbs/year

Additional pollutant load reductions achieved from BMPs installed this fiscal year include:

- Biological Oxygen Demand: 8,303 lbs/yr
- Chemical Oxygen Demand: 30 lbs/yr
- Herbicides: 434 lbs/yr
- Pesticides 198 lbs/yr
- Suspended Solids: 62 lbs/yr

Project Highlights

Twenty-two Section 319 projects closed this fiscal year, including eight planning projects, ten implementation projects, two projects focusing on education, and two assessment projects. Summaries of these projects may be found in Appendix E. Three projects are highlighted here as examples of successful projects working to improve water quality through watershed planning, implementation of BMPs, and education and outreach through building the capacity of local watershed individuals and groups to effectively reduce NPS pollution in their watersheds.

Salt Creek Watershed Management Plan

The Salt Creek watershed is located in Porter County within Indiana's Lake Michigan watershed. Sections of Salt Creek and its tributaries have been on the 303(d) list of impaired waters for *E. coli* and impaired biotic communities since 2002. In 2004, a TMDL report was completed for *E. coli* impairments in Salt Creek. In 2006, Save the Dunes Conservation Fund (SDCF) applied for and received Section 319 funding to develop a watershed management plan for the Salt Creek watershed to begin addressing the nonpoint source pollution problems in the Salt Creek watershed.

Accomplishments

SDCF worked closely with the Steering Committee (made up of representatives from all municipalities within the watershed, IDEM, IDNR, Indiana Dunes National Lakeshore, Northwest Indiana Regional Plan Commission, USEPA, USFWS, Valparaiso and Purdue Universities and many other organizations and citizens), to develop a comprehensive watershed management plan that addresses the issues identified by IDEM and those of community members and stakeholders. A Technical Advisory Committee planned watershed management efforts and provided technical input, and an Outreach Committee coordinated volunteer activities and community outreach and encouraged public participation. The Salt Creek Watershed Management Plan (SCWMP) includes recommendations for improving water quality in the Salt Creek watershed and is a framework to achieve the vision developed by public participants and Steering Committee members. The SCWMP was completed and accepted by IDEM in June 2008, and may be found online at http://www.savedunes.org/water_programs/.

Along with the development of the SCWMP, SDCF performed public education and outreach activities including hosting a workshop, producing and distributing two brochures, submitting news releases and articles, and airing four Public Service Announcements. The workshop was conducted to inform participants about watershed management planning and the Salt Creek watershed, and was an important step in raising awareness, overcoming barriers, and forming a group of diverse stakeholders interested in working together in the watershed. A summary of the workshop is available online at http://www.savedunes.org/water_program/water_program/

A brochure created to inform the public about the watershed planning process and encouraging their input may also be found at the above website.

Another part of the project involved implementing BMPs as demonstrations in the watershed. SDCF partnered with the City of Portage Parks and Recreation Department to install a 2,100 square foot green roof on a concession stand at Imagination Glen Park. Educational signs were also installed at the site. SDCF also partnered with the City of Valparaiso and the Valparaiso Parks Department to install two rain gardens, along with educational signage, at the Forest Park Golf Course adjacent to Beauty Creek. In addition, they planted critical areas along Beauty Creek at the golf course and picnic area. Estimated load reductions from the rain gardens (calculated using the STEPL model):

Nitrogen	11.4 lb/yr (50% reduction),
Phosphorus	1.7 lb/yr (68% reduction)
Sediment	0.5 tons/yr (83% reduction)

In the summer of 2008 Valparaiso University partnered with SDCF to install a vegetated swale on campus that generated the following estimated load reductions:

Nitrogen	4.5 lb/yr (7.5% reduction)
Phosphorus	1.8 lb/yr (17.5% reduction)
Sediment	0.5 tons/yr (47.5% reduction)

In an effort to update historical water quality assessments and supplement on-going and basin-wide sampling completed by IDEM, SDCF conducted water quality monitoring during the project. USEPA Region 5 worked closely with SDCF to develop a user-friendly Microsoft Excel-based tool, called Data2Maps, to quickly and easily manage and interpret water quality data. The program automatically produces informative, visually-engaging, and easy to interpret maps. These maps were used for stakeholder meetings and helped facilitate communication of water quality data to diverse groups of people with different levels of technical expertise. The 2007 monitoring results are summarized in Section 3 of the SCWMP.

Funding

Save the Dunes Conservation Fund utilized $221,576 in 319(h) funds and provided a 26% match for the project.

Future Activities

SDCF continues to build partnerships and pursue project opportunities to reduce NPS pollution in the Salt Creek watershed. They were awarded additional 319 funds in 2007, and in March 2008 began a project to work with local stakeholders to identify sites where conservation design/low impact development (CD/LID) can be utilized and subsequently install these BMPs. In addition, SDCF received $496,980 in FFY 2008 319 funds to implement the Salt Creek WMP and will begin the project in early 2009.

Clifty Creek Watershed Project

The Bartholomew County Soil and Water Conservation District was awarded a Section 319 grant in 2005 to implement the Clifty Creek Watershed Management Plan. The purpose of the project was to develop and conduct educational programs, implement best management practices (BMPs) in critical areas of the watershed, develop and distribute public outreach materials, and monitor water quality in the Clifty Creek Watershed (HUC 05120206010).

Accomplishments

A comprehensive public education and outreach program was conducted. This included: workshops and field days to educate stakeholders about Hoosier Riverwatch and BMPs; public meetings and presentations; news releases; newsletters; project displays; and water quality programs for children. The success of this project helped to draw attention to water quality concerns in Bartholomew, Decatur, Rush, and Shelby counties and specifically the Clifty Creek watershed. Through many water festivals and environmental programs, youth of the community are more aware of water issues. The Bartholomew County SWCD also contributed toward the construction and the development of educational programming for a permanent water quality exhibit in the kidscommons Children's Museum in Columbus. The CreekLab and RiverLab components, shown below, teach children about watersheds and water quality. Project staff are also promoting the RiverLab and accompanying curriculum for educators to use in their classroom, as well as at outdoor labs and county fairs.

A cost share program was implemented in the watershed, resulting in the installation of BMPs that reduce sediment and nutrients. Practices installed included Prescribed Grazing, Heavy Use Area Protection, Fencing, Residue Mgt/No-Till Strip Till, Nutrient Management, Prescribed Grazing, Pasture and Hay Planting, Residue Management/Mulch Till, Cover and Green Manure Crop, and Stream Crossings. The Region 5 Model was used to calculate sediment and nutrient load reductions for every BMP implemented through the cost-share program. These BMPs resulted in estimated load reductions of:

Sediment	6,678 tons/year
Phosphorus	89,384 lbs/year
Nitrogen	12,963 lbs/year

Two cost-share demonstration projects were included in the program - one in an urban/suburban setting and one in an agricultural setting. The Bartholomew County Solid Waste Management District (BCSWMD) partnered with the Clifty Creek Watershed Project to design and install an urban bioswale at the Columbus/Bartholomew County Recycling Center. The bioswale, part of the BCSWMD's 3-R's (Reduce-Reuse-Recycle) Park, demonstrates a BMP for improving storm water runoff quality and decreasing water quantity. As a result of this project, a 2008 Governor's Award for Environmental Excellence is being presented to the BCSWMD this fall. The second BMP, Rotational Grazing, was implemented and demonstrated at an area farm. These demonstration projects helped promote BMPs needed to improve water quality in the watershed.

The District (and volunteers) also conducted water quality monitoring in the watershed on a monthly basis. Columbus City Utilities, a project partner since June 2007, performed chemical analysis of the water samples for parameters including BOD5, *E.coli*, total coliforms nitrates and ammonia. A multi-parameter water quality probe and data logger was also utilized, with the cooperation of the United States Geologic Survey (USGS), to monitor temperature, conductivity, dissolved oxygen, pH, turbidity, and chlorophyll. Water quality and flow data are available online at:

http://waterdata.usgs.gov/in/nwis/uv/?site_no=03364650&PARAmeter_cd=00065,00060,00010.

With the data collected, the District identified the most problematic sites and calculated load values for N, TSS, and *E. coli* per month. This and other information were used to update critical areas identified in the Clifty Creek WMP.

Funding

The Bartholomew County SWCD utilized $459,949 in Section 319 funds and provided a 31% match for the project.

Future Activities

As a result of this 319(h) grant, the Bartholomew County SWCD applied for and received an additional 319(h) grant to continue implementation in the Clifty Creek watershed and to develop a WMP for the Haw Creek watershed.

Indiana Watershed Leadership Program

In 2004, a Section 319 grant was awarded to Purdue University to develop a watershed leadership course, provide technical assistance to watershed coordinators and groups, and hold an Indiana watershed conference. The goal was to meet the educational 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 subsequent implementation of that community supported watershed management plan will result in reduced NPS pollution in Indiana's watersheds and improved water quality.

Accomplishments

A Steering Committee was formed to provide guidance on developing the watershed leadership program. The Committee was made up of a wide range of people and organizations including the major conservation agencies in Indiana, as well as others that play a significant role in watershed management in the state.

A statewide survey was conducted to assess the training needs of watershed groups. Results showed a high need for training in technical, scientific, social, and funding aspects of watershed management, as well as assistance with information access and use.

Purdue, together with a Steering Committee of watershed professionals throughout Indiana, created the Indiana Watershed Leadership Academy to increase the capacity of watershed leaders to lead community-based watershed groups in accomplishing this task. The Academy requires participants to complete activities that reflect real tasks in watershed management, holds them accountable to the group and to themselves to actually complete the tasks, and builds community among participants despite being geographically dispersed. The Academy combines face to face workshops with distance education, including nine learning modules on various topics such as stakeholder involvement, watershed inventory and analysis, setting goals to achieve outcomes and sustaining your watershed group financially, and an in-depth learning project to be presented during the graduation session.

Since 2006, nearly 80 people have participated in the Academy, through which they have learned skills in organization and communication, watershed technology, GIS, policy, watershed science, and leadership. The Academy has received outstanding evaluations from participants.

Purdue also provided technical assistance to watershed managers and volunteers working in watershed protection and restoration in many other ways including a watershed education, resource, watershed group networking support through a listserv, Web and IP Video workshops on storm water management, video tutorials, and a skill support Web site available at: http://www.purdue.edu/watersheds

Lastly, Purdue helped organize and conduct the Indiana Rivers Rally in June 2007. More than 180 participants from throughout the state and beyond came together for three days of education, collaboration, and celebration. The Rivers Rally created a unique forum where all participants joined together to increase their collective capacity for water resource protection, improvement, and recreational opportunities.

Funding

Purdue utilized $158,799 in Section 319(h) funds and provided a 25% match for the project.

Future Activities

This project was such a success at increasing the capacity of Indiana watershed groups and individuals to lead effective watershed management efforts, Purdue was awarded additional funding to continue the Indiana Watershed Leadership Academy through January 2011.

WORKING TO IMPROVE THE NPS PROGRAM

IDEM's NPS Program is actively working to expand agency 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.

NPS Management Plan

The NPS/TMDL Section is completing the revision of the State NPS Management Plan that will map out NPS pollution priorities for the next five years. IDEM contracted with Briljent to help develop the plan, and a Plan will be completed and submitted USEPA review by the end of 2008. IDEM has involved all key stakeholders in this process and has held meetings with stakeholders to gather comments on the draft and gage interest in coordination of various programs through the formation of a State Nonpoint Source Advisory Committee.

NPS Monitoring Strategy

The Watershed Planning Branch along with the Assessments Branch is completing its NPS monitoring strategy, which is comprised of monitoring at three levels including project, watershed, and statewide. The five-year rotating basin approach will be employed to ascertain water quality conditions from NPS pollution, the protocol developed from the Office of Water Quality watershed initiative will be used at the watershed level, and the initial sampling for project level effectiveness will reproduce the sampling effort completed for one or two 319 implementation projects. The draft monitoring strategy will be completed and submitted to USEPA by the end of 2008 and implemented in FFY 2009.

Program Guidance

The NPS Program has been working to develop and improve guidance for project sponsors. In the spring of 2008, the NPS Program assigned a full time staff member with the responsibility of working with the NPSTeam Leader on Program Guidance. This position was created to respond to the need of external customers for detailed guidance and support interpreting federal and state policy on the distribution of 319 funds. Three major projects have been initiated and as IDEM's NPS Program evolves and expectations and policies change, new and more detailed guidance will be developed.

In FFY 2007, a guidance document addressing agriculture cost-share program policies and requirements was created and made available on the IDEM web site:

Clean Water Act Section 319 Agricultural Cost-Share Guidance for Indiana.

Building on the success of this document, the NPS Program is working on an **Urban Best Management Practice (BMP) Guidance** document. When completed, this guidance will provide information on the IDEM's NPS Program funding priorities in urban areas, design specifications for urban BMPs, load calculation guidance, as well as information on the eligibility of BMPs in different urban settings. Accompanying this guidance document will be a new 319-U Cost Share Form and a cost share form for demonstration projects that can be used for both urban and agricultural demonstration projects.

The NPS Program is turning more attention to the urban environment and the NPS pollutants associated with these areas. Many projects are beginning to develop urban cost-share programs and install urban or low impact development (LID) BMPs. One of the issues with funding urban BMPs is the overlap with the NPDES Municipal Separate Storm Sewer System (MS4) Program. Section 319(h) funds cannot be used to fund measures required by this program. Therefore, guidance was needed to give applicants and sponsors information on the use of 319 funds in MS4 areas. A guidance document was developed entitled:

Guidance on Section 319 Grant Funding Eligibility for Projects within Designated Municipal Separate Storm Sewer System (MS4)

This guidance was developed in partnership with USEPA staff and IDEM's Stormwater Program and has proven to be very useful in advising customers on projects that can be funded through 319 in areas where MS4 entities exist.

The NPS Program is finalizing a presentation for new grantees entitled ***319 Grant 101.*** The goals of this presentation are to familiarize grant recipients with required paperwork, grant agreement conditions, and timelines; and educate them on how to form effective steering committees, draft a watershed management plan, build partnerships, and identify ways to become sustainable beyond the scope of Section 319(h) grant awards. The training session will be divided up into two presentations - one for planning projects and one for implementation projects approved for funding during that fiscal year's solicitation cycle. The first training is being planned for November 2008 and envisioned as a trial run for subsequent years. Attendance will be mandatory for future grantees.

In 2003 the NPS Program developed guidance and the **Watershed Management Plan Checklist** which included requirements for watershed management plans that had to be met before implementation funding could be received (based on the EPA nine minimum elements). It has been determined, based on comments from customers and staff, that the current checklist's expectations are difficult for project sponsors to comprehend and the language of the checklist is not detailed enough to ensure that WMPs are uniformly reviewed by NPs Program staff. Using USEPA's nine elements and Indiana's Watershed Planning Guide, staff has been working since January 2008 on revising the checklist, as well as milestones for completing the plan. The goal of this project is to provide customers with a WMP checklist that not only clearly outlines IDEM's NPS Program expectations, but provides examples and direction as to how those expectations can be met. This, in turn, will allow IDEM staff to more efficiently and objectively review the plans, provide effective feedback, and ensure that the plans meet the requirements and are comprehensive enough to allow for successful implementation.

Evaluation Strategy Framework/Social & Environmental Indicators

In an effort to measure the effectiveness of Indiana's NPS Program, the NPS/TMDL Section developed an evaluation strategy framework to improve performance-monitoring systems that is updated yearly. The goal of this framework is to set timelines and benchmarks and to document yearly progress. The framework contains tasks such as selecting indicators, both social and environmental using these indicators to establish baselines, to monitor progress at both the State and project level; collect and document results, measure change in what the State and citizens do and the impact of those changes on the environment; and to combine the NPS program framework with the assessment monitoring programs. The strategy will be implemented in a graded/stepwise approach with full implementation of the strategy into the NPS Program by September 30, 2011.

Using 319 funds, Purdue University has taken the lead to develop social indicators and to support IDEM's development of environmental indicators for NPS management. **Social indicators** in this context are used to measure the social components of NPS projects, including measures of capacity, awareness, attitudes, and behaviors of target audiences. Many watershed groups implicitly try to build community and individual capacity, but have lacked the tools to measure the success of this work. Using social indicators as part of a package of assessment tools is a way to address these shortcomings and provide an immediate indication of how a project is proceeding. Purdue is working in conjunction with the EPA Region V to develop and test these social indicators. Pilot studies have been conducted in three watersheds – Clifty Creek, Eagle Creek, and the South Fork of the Kilmore Creek. Additional watersheds in Indiana will be selected each year to support this project. The strategies for collecting social indicators include specifically designed surveys to collect social data throughout the project and complete an evaluation. Purdue will then help these groups interpret the data and modify their interventions to fit more appropriately the social conditions in their watersheds. Purdue is also conducting capacity building with IDEM staff to develop a comprehensive understanding of how to collect, use and interpret social indicator data.

Purdue is also supporting IDEM in the development of a flexible **environmental indicators** framework that will allow each NPS project to select indicators that are most useful in documenting its success while facilitating statewide estimates of environmental outcomes of the NPS program. A comprehensive list of indicators has been compiled, and indicators are being evaluated to determine which are the most clear, valid, useful, practical, and cost-effective for Indiana projects. The framework will include indicators of changes in management, stressors of water quality, and water quality condition. To determine where environmental indicators have been collected throughout the state Purdue has initiated the development of a Monitoring Council with key representatives from the entire water quality monitoring community, including consultants, federal agencies, health departments, industry, municipalities, public drinking water, a regional planning agency, state agencies, SWCDs, universities, and volunteer monitors. In addition a web-based inventory of data is being populated, which will facilitate statewide access to this information and eventually promote efficiencies in monitoring and evaluation of nonpoint project outcomes.

As a means of storing and collecting the indicator data, a database is being developed for IDEM to house the physical, chemical, and biological data collected from the 319 and 205(j) projects.

The contractor is expected to complete this project by 2009. This database is being developed in a cooperative effort by the NPS/TMDL Section and the Assessment Branch. The social indicators will be stored in a region wide database that will be interfaced with GRTS.

Accountability Pilot Project

Indiana has five watersheds included in USEPA Region V's Accountability Pilot Project. Watershed projects included in the Pilot utilize planning followed by implementation to meet water quality standards in lieu of establishing a TMDL for the impaired waterbodies within the watersheds. For each project, updates on the project's status are submitted annually to EPA through a database. A summary of the management actions and project milestone dates submitted this year for each of the five watersheds are as follows:

Cedar Creek - The St. Joseph River Watershed Initiative is implementing the management plan for Cedar Creek by placing BMPs to reduce NPS pollution that focuses on *E. coli*, sediment and phosphorous. Critical milestones for the project include a 40% average annual reduction in *E. coli*, 10% average annual reduction in total phosphorus and a 15% reduction in annual sediment loads by November of 2007 when the first phase of implementation ends. Approximately 20% of the plan has been implemented. They anticipate completing implementation efforts in 2015 with the ability to de-list in 2019. Implementation activities to date have resulted in a .92% reduction in sediment.

Little Elkhart River – LaGrange County has completed a management plan for headwater streams of the Little Elkhart River system. This mostly rural watershed with significant livestock production suffers impairments from *E. coli* and ammonia. Through the course of implementing the plan, they expect to reduce *E. coli* and ammonia by 25% by the end of 2010. Approximately 70% of the plan has been implemented. Two automated samplers have been added to the implementation projects along with a pair watershed design to measure water quality changes before and after implementation. Implementation efforts should be complete by 2014 and delisting possible by 2016.

Eagle Creek – The Eagle Creek Watershed Alliance is currently implementing the management plan for the Eagle Creek watershed. The Eagle Creek Reservoir is an important drinking water source for the City of Indianapolis. Critical milestones for phase I implementation efforts are a 40% reduction in *E. coli*, 8% reduction in sediment, 3% reduction in total P, and a 2% reduction in Total N by February 2008. Implementation efforts are expected to be finished by 2016 with delisting by 2019. Approximately 80% of the plan has been implemented. Eagle Creek has implemented one BMP and has identified and is setting the groundwork for several more; all locations are in the critical areas. Implementation efforts to date have resulted in a reduction of 194 pounds of phosphorus and 158 pounds of nitrogen per year.

Dunes Creek – Save the Dunes Conservation Fund will implement the Dunes Creek Watershed Management Plan to address *E. coli* impairment and reduce other NPS pollutants. The watershed management goal is to improve the water quality and habitat of Dunes Creek by reducing and preventing pollutant loads in the watershed such that, at a minimum, the Creek meets Indiana water quality standards. Milestones include reducing nutrients (N&P) and sediment 15%, *E. coli* to meet the state standard, improve biotic communities to partially

supporting and reducing TDS and chloride concentrations to meet water quality standards by the end of 2012. The needed implementation efforts are estimated to be complete in 2016 and delisting is expected to take place during 2018. Approximately 60% of the plan has been implemented. Currently, implementation activities have resulted in reductions of phosphorus (6 lbs/yr) and sediment (4 tons/yr).

Clifty Creek – The Bartholomew County SWCD and partners are implementing the Clifty Creek Watershed Management Plan by implementing a cost-share program and providing education and outreach. The education, outreach, and partnership-building activities include workshops, public meetings, newsletters, news releases, informational displays for use at events, and educational road signs within the watershed. The District will develop, promote, and implement a cost-share program that is consistent with the sediment, nutrient, and *E. coli* load reduction goals outlined in the Plan. Milestones include reduction of sedimentation by 92%, reduction of nitrogen loads by 50%, and reduction of Phosphorus loads by 89% all by 2011. *E. coli* spikes will be reduced 20% by 2012 and to the state standard by 2018. Most implementation is expected to be complete by 2012 with *E. coli* delisting occurring by 2020. Approximately 56% of the plan has been implemented. Presently, Clifty Creek, through several BMP installations, has reduced sediments loads at 245 tons per year and phosphorous reduction of 67,625 pounds per year. Annual percent reduction values reported are:

Parameter	Percent reduction in 2007	Percent Reduction in 2008
Nitrogen	.02	.52
Sediment	.7	17.6
Phosphorus	14.5	Not reported
BOD	Not reported	.006

Total Maximum Daily Load Program

Under the federal Clean Water Act (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. The NPS Program and the TMDL Program continue to work together to facilitate the integration of watershed management planning and implementation with the development of TMDLs and their implementation. The Section 319(h) Program priorities are developed in cooperation with the TMDL program in order to achieve the goals of both programs in the most efficient and cost-effective manner.

TMDL staff and Section 319(h) staff attend watershed meetings together and match watershed groups to grant funding and data resources. Section 319(h)-funded projects are often key stakeholders in the development of TMDLs and provide data, meeting spaces, and stakeholder lists which have greatly improved the quality of TMDL reports. The development of TMDLs has, in some cases, spurred the development of new watershed groups – thirteen new watershed groups have been formed as the result of a TMDL (and were funded with 319 grants to continue the work started by the TMDL) and twenty watersheds where TMDLs were completed had 319-funded watershed groups already established. TMDL staff has even worked with watershed groups to assist in the development of implementation projects designed to help meet load reductions stated in the TMDL report.

Indiana is divided into 2426 fourteen digit watersheds and 571 of these watersheds have TMDLs developed or scheduled to be developed by the end of 2008. This translates to 990 TMDLs and of these, 65% are in various stages of implementation. IDEM currently produces over 100 TMDLs each year, a significant improvement over previous years. TMDLs have primarily focused on *E. coli*, but recent TMDLs have been developed that quantify the impacts of nutrients on waters with impaired biotic communities.

Watershed Specialists

The five IDEM Watershed Specialists are charged with fostering, assisting, and building the capacity of local efforts to improve water quality using the watershed approach, which encompasses coordination of information, programs, policies, funding, planning, technical assistance, and training at the local, state, regional, and federal levels. The Watershed Specialists work as liaisons in assigned watersheds of the state and participate in state or regional work-related committees to promote the watershed approach. Their Strategic Plan was recently finalized and includes the following:

Mission: The Watershed Specialists assist local watershed groups through technical and outreach resources to achieve sustainability, to protect existing water quality resources, and to develop plans and restoration projects in an effort to restore impaired waters and attain water quality standards throughout the state.

Customers: The Watershed Specialists act as liaisons between federal, state and local programs and officials to promote coordination and integration of those activities with other local planning efforts. In addition, they support local, regional, and interstate watershed groups in building capacity for performing their watershed management activities.

Challenges & Opportunities: Being in a position to affect change at the grass roots level means that established ways of thinking sometimes stand in the way of progress. The Watershed Specialists understand that these differences in opinion and outlook can sometimes slow the watershed planning process down. They value the diversity of opinion and seek to encourage different ways of thinking. What works for one group may not work for another. Decisions made at all levels influence watershed planning. The Watershed Specialists' challenge is to bring people together and to work through issues that may be rooted in long-standing priorities. It is their goal to assist local groups to work in a committed, sustainable manner.

Focus on Sustainability: Helping groups to achieve sustainability is a cornerstone of the Watershed Specialists' mission. They define sustainability by way of three categories: Financial, Technical, and Managerial/Organizational. Assistance with these management categories is a part of both their one-on-one and mass outreach approaches to watershed groups. As a part of individual group site visits, they can work through group-specific issues related to these management categories. Through the Networking Sessions, they focus on these aspects of management in order to build groups' capacity in a way that will lead to sustainability. They give groups tools and guidance to build relationships within their organizations and partnerships within their communities, to create transferable skills through an

effective training program, to build information systems, and to use appropriate resources to meet their goals.

Accomplishments of the Watershed Specialists in 2007/2008 include:

- Developed and conducted three Watershed Coordinator Networking Sessions in Salamonie, Edinburgh, and Evansville which focused on watershed group funding and financial planning, and conducted two urban BMP field days in Michigan City and Indianapolis to highlight green infrastructure, storm water BMPs, Brownfield redevelopment, and LEED certified developments
- Continued working with the IASWCD Watershed Information Specialist to develop website resource information, to develop and conduct the Watershed Coordinator Networking Sessions, to develop a watershed group tracking database, and layout a framework for the toolkit
- Assisted over 90 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 319 and LARE grant proposals, obtaining water quality data and watershed maps, connecting them with other local organizations and agencies to complement planning efforts, and assisting watershed coordinators with the overall watershed planning and implementation processes
- Attended TMDL public meetings to provide information on watershed planning and generate interest in forming local watershed groups
- Worked with three new 319 Project Managers to ensure smooth transitions as they begin working with watershed groups
- Continued working with local watershed groups on regional capacity development for their larger, 8-digit HUC basins (St. Joseph-MI and St. Joseph-OH Basins, Upper Maumee Basin, St. Mary's Basin, Upper Wabash River Basin, Tippecanoe River Basin, Upper White River Basin, Wildcat River Basin, Little Calumet-Galien Basin, Lower Eel River Basin, Middle Wabash-Busseron Basin, Patoka River Basin, Whitewater River Basin)
- Continued development of a watershed management toolkit of resources for local watershed groups, tapping information from IFA and other agency programs such as NPS, TMDL, Stormwater, OPPTA, OLQ, SRF, Brownfields, NRCS, IDNR, RCAP
- Continued working with the IDEM NPS/TMDL Section staff to identify and improve programmatic issues affecting staff resources and local watershed activities
- Assisted in developing and conducting the Indiana Watershed Leadership Academy sessions

Capacity Building to Reduce NPS 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 three examples of IDEM working with partners and using Section 319 funds to help build capacity statewide and at the local level to reduce NPS pollution in the state.

Purdue University

IDEM is partnering with Purdue University and using Section 319(h) funds to continue 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. Purdue University, together with a Steering Committee of watershed professionals throughout Indiana, created the Indiana Watershed Leadership Academy to increase the capacity of watershed leaders to lead community-based watershed groups in accomplishing the task. For more information on this project, see the Restoration Efforts and Achievements, Project Highlights in this report.

Gary Storm Water Management District

As part of their 319 grant project, *Little Calumet River Watershed Management Plan*, the Gary Storm Water Management District sponsored a Watershed Awareness Day which was held at Indiana University Northwest along the banks of the Little Calumet River on Saturday, October 13, 2007. The activity was advertised through a mailing and leaflets in public places. Over 50 residents and youth attended the activity. In conjunction with the activity, a community survey was conducted which was filled out by 76 responders. Gary students from Youth Leaders in Action, the Provisions Youth Group, and the Boys and Girls Club participated in the educational activities including Riverwatch water quality and biological indicators testing. A native plant walk along the river levee helped residents and students identify native plants and animals. A watershed runoff education activity tracing the cycle of pollutant runoff was popular with students. A 12 mile bike ride along the levee was also part of the activities. This unique project allowed the watershed group to engage the public in a natural setting; showing them the attractive qualities of an intensely urbanized watershed while providing an educational component.

IDEM - Outreach on Urban NPS Issues

In January 2007 IDEM's NPS Program used funds to create a display dedicated to educating the public on urban storm water issues. The display was rolled out at the annual Indiana Association of Soil and Water Conservation Districts statewide conference. The display featured a public service (PSA) style video on urban storm water pollution, with rubber duckies representing pollution going into storm drains. The video was adapted from a Minnesota PSA obtained from USEPA's Outreach Toolbox. In early 2008, a second video was developed, that

focused on proper application of lawn chemicals to avoid creating NPS pollution. These videos can be viewed online at:

http://www.in.gov/idem/watershed/index.html

The videos have been distributed to a number of watershed groups and MS4 communities to enhance their education programs.

Lessons Learned/Adaptive Management

Lessons Learned By Section 319 Grant Projects

A requirement of all Section 319 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 direct excerpts from projects' final reports on their lessons learned:

- One surprising thing learned in this process was that sometimes more lime or soil amendments were required than indicated by the soil test. Good vegetative ground cover would not grow without the extra treatment on certain projects.
- In regard to public outreach, we found that the newspaper articles were the most effective at reaching the largest number of people. Face to face contact was made at a lot of community meetings, but more requests for assistance actually resulted from the news releases.
- We found that one contact with the landowner was not sufficient. Several follow-ups by phone, correspondence and/or visits were usually required after interest was expressed in order to get a project started.
- It is difficult to obtain water quality samples from a representative storm event in a large watershed.
- The weather and construction conditions were not conducive to installing all of the practices. In agricultural areas there are only two short windows each year that construction projects can be installed, that is in the spring before planting and in the fall after harvest. During the time period of this grant we experienced extremely wet springs and wet falls preventing the heavy equipment from getting into the fields.
- One of the frustrations was stakeholder apathy. Meeting attendance varied from 6- to 25 attendees. It is always difficult to schedule a location and time that can accommodate all stakeholders.
- The project suffered a setback after the resignation of the original watershed coordinator in until a new coordinator was hired.
- A failure was not realizing the time on a staff level it would take to work on this aspect of the project and the lack of reasonably priced consultants in the area who can do this type of work. The lesson learned is to allow more time for this type of work. (signage)

- A significant lesson learned is that it is difficult for a single local stakeholder in multi-jurisdictional watersheds to bring all potential stakeholders to the table and maintain interest and commitment over the planning period and into the implementation stage. Participation in the planning process was voluntary and not all potential stakeholders were in a position to commit to the watershed planning process. None-the-less, many stakeholders did take the first step to recognize the necessity of looking beyond their own jurisdictional boundaries to solve water quality and quantity issues. As a result of this planning process, it was recognized by the project sponsor and the participating stakeholders that a new more regional entity will need to be established for the successful implementation of the watershed plan.
- We underestimated the cost of completing some of the tasks
- It was difficult to achieve more than passing interest in the project and its goals among farmers using more traditional farming practices within the watershed. Participation in events geared directly toward these farmers was low.
- The most important lesson learned in the project by "non-farmers" is that changes in land use and farming practices that have water quality implications have a cost that farmers must figure into their decision-making process. Using manure for fertilizer and fuel must be cost-effective before farmers will consider it.
- The results of the project demonstrated to the satisfaction of the participating farmers that substantial reductions in the application of nitrogen fertilizers (from 185 lbs/acre to 110 lbs/acre) could be effected with insignificant reductions in corn yields; further reductions (to as little as 80 lbs/acre) reduced yields by about 11 bushels per acre.
- The watershed coordinator was a member of the 2006 Indiana Watershed Leadership Academy, sponsored by Purdue University. The information learned through the academy proved invaluable as the steering committee worked to identify stakeholder concerns and provide for long term effectiveness of the plan.
- The key to success was partnering with an already established activity. Many farmers regularly attend the annual farm and field day. We had a ready-made targeted, interested audience. In addition we tied conservation information to a current topic – ethanol production.
- The staff turnover rate was higher than many watershed projects during this 2 ½ year grant period. This created challenges. However, during this time, the steering committee, SWCDs, and volunteers were able to continue meeting the goals of the project by promoting education and outreach, conducting water quality monitoring, reviewing and implementing cost-share practices, and meeting on a monthly basis.
- The Grantee and IDEM both failed to create a safety net of information in the event IDEM's Project Manager or the Grantee's Watershed Coordinator failed to complete their tasks. There was no one overseeing either position to double check that things were on schedule and being completed in a timely manner. This grant had four IDEM Project Managers. Since IDEM typically hires recent college graduates for these jobs, the grant lacked experienced oversight. Crucial deadlines were missed and some records were lost. The Grantee had three Watershed Coordinators over the life of the grant. This resulted in missed information, some records being lost or misfiled and inaccurate information being given to participants in the cost share projects. The third coordinator had health problems and a lack of understanding about the importance of paperwork. This resulted in missed reports and the completion of schedule projects.

- Because numerous agencies and individuals worked together, we were able to provide many high quality educational presentations. Both the SWCDs and Purdue Extension provided expertise, name recognition, and credibility to our education and outreach efforts.
- We started the project with very good information from a LARE diagnostic study. This document was a tremendous help as the steering committee identified problem areas in the watershed and established strategies and goals to address the areas of concern.
- The biggest down fall of the project was excluding many operations that could have greatly benefited from cost share assistance. Due to the limitations that IDEM put in the contract about animal feeding operations requiring CNMPs. The costs were so high for obtaining a CNMP that all of the producers decided to not participate, even with cost share for developing a CNMP.
- One of the challenges of the project was that we had so many Project Managers from IDEM. It is always difficult to pick up where someone left off, and this sometimes caused a breakdown in communication.
- We had challenges, but we learned from those challenges and hopefully they will ultimately make our plan even more successful. We had challenges with getting people to stay active in the Steering Committee. People like to see progress and action, and writing a Watershed Management Plan does not provide the same sort of visual progress as implementing a cost-share program. Another lesson that we learned is that sometimes it takes a year or two before the news of the project will spread and interest picks up. In our case, the continuation of the project through the upcoming implementation phase will hopefully keep the momentum going.

Adaptive Management by IDEM

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 (see above), our staff who manage these projects, and our partners. Last year, the following items were determined by staff to need improvement or program/policy changes. Following is an update on progress made on these improvements.

- Creating a more consistent method for evaluation of watershed management plans against the “Nine Elements” checklist.
  - ✓ In Process – a new WMP checklist is being developed. For additional information see the “Working to Improve the NPS Program, Program Guidance” section of this report.
- Working more proactively with watershed groups on the development of watershed management plans to identify possible problems or roadblocks to success.
  - ✓ In Process and Ongoing - The draft WMP submittal timeline has been revised, starting with the FFY 2008 grant agreements, to require more frequent draft submittals to better guide the development process and provide timely feedback.
- Create additional guidance on IDEM Section 319(h) program requirements, fundable activities, and policy that affects grant recipients.

- ✓ In Process – Additional guidance is being developed. For more information on this guidance see the "Working to Improve the NPS Program, Program Guidance" section of this report.

- Update and rethink the existing website to better deploy information on grants and NPS pollution topics.
  - ✓ In Process – we are currently working with our Office of Media & Communication Services to scope out a comprehensive project to update the website and address other outreach and communication needs.

- Develop stronger relationships with IDEM permitting programs to ensure implementation activities detailed in grant agreements can obtain any needed permits.
  - ✓ Ongoing - NPS Program staff work very closely with Wetlands and Stormwater staff to coordinate BMPs and needed permits, advise grantees on BMPs that will work with MS4 requirements, and direct grantees to BMPs that, were possible, can be installed without the need for permits.
- Work more closely with grant applicants during the application development process to ensure that potential grant recipients have adequate human resources to manage effectively Section 319(h) grant funds.
  - ✓ In Process – Watershed Specialists are working closely with FFY 2009 applicants to help ensure their proposal is feasible, will fulfill NSP priorities, and will result in a successful project.
- Develop a monitoring guidance for watershed groups that includes environmental indicators that will developed through the Environmental Indicators Project
  - ✓ In Process- Logistics for two half-day expert panel workshops and a monitoring conference are underway. These activities will occur in the first quarter of FFY 2009.
- Ensure that grant sponsors are always actively involved with grant activities.
  - ✓ Complete – an internal policy was created to ensure that the signatory authority for the grantee receives or is copied on all correspondence related to the grant.
- Integrate the Section 319(h) program with other state and federal programs.
  - ✓ Ongoing - The completion of the State NPS Management Plan will set the stage for much more formal coordination between programs that impact NPS pollution in Indiana.
- Build sustainable watershed groups that can continue to work on NPS issues and not be reliant solely on Section 319(h) grant funds.
  - ✓ Ongoing – the IDEM WSS developed and conducted three Watershed Coordinator Networking Sessions which focused on watershed group funding and financial planning. For more information see the "Working to Improve the NPS Program, Watershed Specialists" section of this report.
- Actively work to bring in information and lessons learned from other state Section 319(h) programs, as well as national workshops.
  - ✓ Work needed – more coordination with sister programs in other states is needed to bring new ideas, concepts, and innovation to IDEM's NPS Program.

For 2008, IDEM staff have identified as priorities for improvement for the next reporting cycle:

1. Establish a formal policy, requirements, and process for updating watershed management plans

2. Finalize the Urban Guidance document and associated forms. Address altered drainage areas/watershed

3. Improve/Update the current Ag Guidance

4. Develop a comprehensive Monitoring Policy for planning and implementation projects

5. Develop standardized Policy Documents (and procedures for disseminating new policy decisions and clarifying gray areas)

6. Create a NPS Program Newsletter to disseminate program information and lessons learned from projects

7. Finalize WMP Checklist and Instructions

8. Compliance/Enforcement - verification by PMs of installed BMPs, enforcement of GA deadlines

9. Clarify and refine roles of NPS and WSS staff to maximize program effectiveness

10. Training on how to Calculate Load Reductions and use Models

11. Improve Proposal Development Process

12. Improve 319 Review Process – to help ensure success of projects, measurable results, and meeting program goals. Clarify process to potential grantees.

PARTNERS IN WATER QUALITY

The work that IDEM's many partners do to help assess and reduce 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 the resources available in Indiana are deployed 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 toward a landscape with 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 and advice about natural resource management. NRCS helps install practices and systems that meet technical standards and specifications. NRCS also provides financial assistance through incentive programs, easement programs, grants, and stewardship payments. NRCS' standards and specifications are utilized for many of the cost-share practices implemented through 319 grants. NRCS Farm Bill conservation programs are utilized as one funding source for implementing local watershed management plans.

NRCS' strategic plan is focused on NPS pollution issues in several areas. For example, one of the national goals for NRCS is "Clean & Abundant Water." The national objective is that agricultural producers will reduce potential delivery of sediment and nutrients from their operations by more than 70 million tons by 2010. Another goal is "High-Quality Productive Soils," and the national objective is that farmers will manage 70 percent of cropland under systems that maintain or improve soil condition and increase soil carbon by 2010.

Indiana NRCS has spearheaded a partnership effort to conduct a statewide natural resources assessment broken down by 8-digit watersheds, following the national Rapid Watershed Assessment (RWA) framework. The RWAs are available on-line at:

http://www.in.gov/isda/2732.htm

For 2008, NRCS programs in Indiana that support NPS pollution efforts included*:

Wildlife Habitat Incentive Program –
Approximately $104,345 received and 111 contracts funded.

Environmental Quality Incentive Program –
Approximately $10.9 million received and 736 contracts funded.

Wetlands Reserve Program –
Received $5.7 million, and funded 44 contracts funded for 2,288 acres.

Conservation Security Program –
The 2008 sign-up took place in the Upper East Fork of the White River watershed. There were around 27 new contracts in this watershed, and payments were also made on past-year contracts. Funding for 2008 was around $8.5 million.

Ground and Surface Water Program –
Received approximately $228,000 and 17 contracts were approved.

* Note: program numbers are as of July 31. Final program numbers not available until October.

Indiana State Revolving Fund Loan Program

The Indiana State Revolving Fund (SRF) Loan Program finances projects that abate or prevent NPS pollution of Indiana's waters. The SRF Program has traditionally provided low interest loans to Indiana communities for projects that improve wastewater and drinking water infrastructure. The Program has been expanded to fund projects that meet the objectives in the Indiana NPS Management Plan. The money loaned to these NPS projects is also 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;
- Groundwater remediation;
- Failing septic system repair, replacement or connection to sewer;
- Storm water BMPs;
- Source water and wellhead protection;
- Conservation easements; and
- Agricultural and waste management BMPs.

This fiscal year, the SRF Program loaned $25.3 million to four 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 fiscal year 796 septic systems were eliminated. Throughout the life of the SRF NPS program, $120 million has been loaned and over 6,500 septic systems have been removed from service.

Indiana Department of Natural Resources, Division of Fish and Wildlife, Lake and River Enhancement Program

The goal of the IDNR Division of Fish and Wildlife's Lake and River Enhancement Program is to protect and enhance aquatic habitat for fish and wildlife to insure the continued viability of Indiana's publicly accessible lakes and streams for multiple uses, including recreational opportunities. This is accomplished through measures that strive to reduce non-point source

sediment and nutrient pollution of surface waters to a level that meets or surpasses state water quality standards.

To accomplish this goal, grants are made available for technical and financial assistance for qualifying projects. By state statute, a portion of LARE funds must be dedicated to the management of invasive exotic aquatic species and sediment removal from publicly accessible lakes. In March 2008, grants amounting to $724,973 were awarded to survey and treat exotic invasive plants in 48 lakes in 13 counties. Eighty percent of the lake associations that requested funding received awards. Highest funding priorities included eradication of new exotic species introductions in Lake Manitou and Griffy Lake and follow-up control of other invasive species in those lakes; follow-up control for lakes previously funded for fluridone treatments and some new fluridone treatments; and maintenance treatments in lakes with new 2007-11 management plans and other lakes that have received past funding in two years or fewer. Another type of grant, for sediment removal from lakes, provides positive recreational and economic benefits to both users and residents of the affected waterbodies. A total of $473,500 was distributed in seven counties to seven sediment removal projects involving 11 Indiana lakes.

In July 2008, the IDNR awarded $1,055,110 in Lake and River Enhancement grants to protect the water quality of Indiana lakes and streams and to reduce soil erosion through, among other actions, the installation of grass cover, filter strips, and streambank or shoreline stabilization structures to reduce sedimentation and nutrient runoff. Some grants are being used to develop scientific studies to diagnose and document water-related problems as well as the implementation of solutions. The 26 grants announced in July will benefit citizens and resources in 25 counties throughout the state. The projects funded by the grants will enhance and improve water quality in several watershed land treatment projects as well as addressing concerns on several lakes. The LARE projects, when completed, should result in improved water quality, boating, fishing, and other recreational opportunities as well as providing increased economic value for businesses, communities, and persons who utilize the water bodies.

Indiana State Department of Agriculture, Division of Soil Conservation

The Division of Soil Conservation, formerly a part of the Indiana Department of Natural Resources, transitioned to the Indiana State Department of Agriculture in April 2005 to ensure that agriculture had a vehicle to carry out increasingly important conservation initiatives. The Division of Soil Conservation focuses on strengthening the capacity of local Soil and Water Conservation Districts to ensure that constituents have a local resource for conservation assistance. In addition, DSC provides conservation technical assistance to implement the federal Farm Bill, capitalizing on federal dollars that Indiana has lost in the past.

The Division of Soil Conservation is a member of the Indiana Conservation Partnership. Working together, the Partnership provides technical, educational, and financial assistance to landowners to reduce erosion and sediment-related problems on the land or in public waters. IDEM partners with the Partnership on many projects and programs.

The Division of Soil Conservation employs 30 Resource Specialists to assist directly landowners' implementation of conservation practices addressing specific soil and water resource problems. Resource Specialists work in regional Conservation Implementation Teams with staff from the other Indiana Conservation Partnership members. 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, water and sediment control basins, wetland restorations, and livestock watering systems. The average grassed waterway in Indiana conservatively will typically save over 26 tons of soil/year and staff collectively will assist with the installation of over 500 of these per year.

The Division also employs eight District Support Specialists to work directly with the local Soil and Water Conservation Districts (SWCD) 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.

Indiana's First CREP:
Indiana's first CREP agreement was signed with USDA-Farm Service Agency (FSA) in July of 2005. Since that time, protocols have been established for payments and contracts, staffing has been trained and targeted toward promotion and technical application, funding has been allocated to landowners and follow up tracking and accountability for easements and maintenance have been put in place.

To date, over 600 landowners have begun the process of contracting and over 4500 acres have been committed to meaningful conservation practices along Indiana's rivers, lakes, and streams. The ISDA cash contribution to date exceeds $1,000,000 with USDA-FSA's portion to Indiana landowners being over $7,000,000. ISDA-DSC technical assistance has exceeded $1.5 M with Clean Water Indiana CREP marketing funds exceeding $50,000. Landowners in Indiana have never experienced such a program and early adoption has been slow. Currently, ISDA is working with USDA-FSA to augment the current program to offer additional state funding and grow the number of watersheds and acres eligible for CREP payments.

Clean Water Indiana Grants:
In 2007 ISDA along with the State Soil Conservation Board allocated over $500,000 toward soil and water quality grants to fund SWCD activities at the local level. These grants focused on the following four areas: education, technical assistance, coordination of conservation programs, and cost share for landowners.

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 to support partnerships between federal, state and local agencies and organizations. The Indiana Department of Natural Resources is the lead agency implementing the LMCP.

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 management programs to 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 Indiana Clean Marina Program, a collaborative effort between the IDEM, DNR and Illinois-Indiana Sea Grant, was officially unveiled to marina operators at a workshop held on May 28, 2008. The Indiana Clean Marina program 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. Participants attending the workshop were introduced to the program and received copies of the Indiana Clean Marina Program Guidebook. Subsequent meetings have been held with marinas that were not able to attend the kickoff workshop. An Indiana Clean Marina Program website was also developed and is hosted on the LMCP website at www.in.gov/dnr/lakemich.

To date, two marinas have signed the Indiana Clean Marina Pledge indicating their intent to become designated marinas within a year's time. Additionally, educational materials were distributed to recreational boaters at the Michigan City in-water boat show on August 21-24, 2008. Indiana received interim approval of the Section 6217 Marina & Recreational Management Measures from NOAA and EPA on July 16, 2008 based on the development of the program.

The LMCP continues to partner with the Lake, Porter and LaPorte County Soil and Water Conservation Districts (SWCD) and Northwest Territory RC&D to fund an 18-month position entitled "Coastal Conservationist." This project is targeting technical and financial assistance for underutilized USDA and related natural resources programs to landowners in the Little Calumet-Galien Watershed. The Coastal Conservationist serves as a liaison between subwatershed coordinators, land users, and USDA personnel providing targeted USDA financial and technical assistance services to clients. Work products for this position include 1250+ identified rural land users, 250+ onsite visits to review resource conditions, 100+ completed conservation plans meeting NRCS FOTG criteria, and 50+ land tracts under obligation for installing practices with USDA and other funding assistance. Project completion is set for September 2008.

New for 2008, the LMCP has developed a Coastal Nonpoint Grants Program to assist local communities and groups implement federally approved management measures within the Little Calumet-Galien watershed. Funding for the 2008 grant cycle is available to implement practices that are consistent with the 6217(g) guidance for the Pollution Prevention and Marina & Recreational Boating management measures. Funding priority is given to marinas enrolled in the Indiana Clean Marina Program or for implementation projects identified in local watershed management plans.

The LMCP hosted a variety of training workshops and informational programs over the review period. Workshop topics included Coastal Community Planning and Development, Conflict Resolution, Project Design and Evaluation, Current and Future Challenges of Septic Systems, and Hoosier Riverwatch to name a few. In an effort to increase the capacity for watershed management planning in the coastal area, the Coastal Nonpoint Program also funded a

representative of the LaPorte SWCD and the Northwest Territory RC&D to attend the Indiana Watershed Leadership Academy. Participants of the Academy learn the skill sets needed to successfully implement a watershed management plan. The LaPorte County SWCD was successful in receiving a DNR Lake & River Enhancement Program grant to conduct a watershed diagnostic study and management plan for the Galena River. The Northwest Territory RC&D plans on submitting a 319 grant application for the East Branch of the Little Calumet River for the next funding cycle.

The LMCP continues to partner with local subwatershed groups by provide technical assistance in the development and implementation of watershed management plans within the Little Calumet-Galien River Watershed. The LMCP has funded a variety of projects identified as an implementation goal within these plans (ex. Dunes Creek Daylighting Project, riparian corridor land acquisitions, and stream habitat restoration). The LMCP's Coastal Nonpoint Coordinator works closely with IDEM staff and other stakeholders to assure consistency with Section 6217 guidance in the development and implementation of these watershed management plans. Nearly 50% of the land area that comprises the Little Calumet-Galien Watershed is currently developing or implementing a watershed management plan. This is a 10% increase from the last reporting period due to the current development of the Galena River watershed management plan. For those areas in which no watershed management plan is in place, LMCP and IDEM staff work with stakeholders to encourage them to develop a plan.

Indiana Association of Soil and Water Conservation Districts

The mission of the Indiana Association of Soil and Water Conservation Districts (IASWCD) 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.

One of the many ways the IASWCD promotes the wise use of Indiana's natural resources is by providing information and outreach in support of statewide efforts to develop and enhance Indiana's watershed program and help address NPS pollution. Section 319(h) funds are used to staff a Watershed Information Specialist position at the IASWCD that serves as a liaison with IDEM Office of Water Quality staff to help promote watershed management efforts throughout the state.

Following are the accomplishments for the 2008 reporting period:

- Served as a key contact for SWCDs via the IASWCD Weekly Update, developed under this contract and instrumental in regularly communicating issues, events, and resources in watershed management statewide. Update can be found at www.iaswcd.org. This position also contributed significantly to the development of the Watershed Networking Sessions, statewide events that were replicated regionally to maximize participation and contact between the Watershed Team and local groups.

- Met regularly with IDEM Watershed Specialists and Watershed Planning Branch Chief

for communication and planning purposes.

- Participated in implementation of the strategic plan for the Watershed Specialists, including development of a watershed toolkit. A watershed resources website has also been launched within the IASWCD website. It can be found at http://www.iaswcd.org/watershed/index.html

- Two types of Annual Lists have been developed. The first is a list of local contacts, including SWCD supervisors, staff, and technical partners, watershed coordinators, and agency staff. This has been created and maintained throughout the contract term. The second is a watershed inventory. This project was developed with the help of Purdue University, IDEM, NRCS, CTIC, and other partners. It identifies past and current efforts in watershed management and is a comprehensive and very necessary element for increasing program delivery efficiency and maximizing partner / public dollars. It can be found at https://engineering.purdue.edu/~iwla/finder/index.html

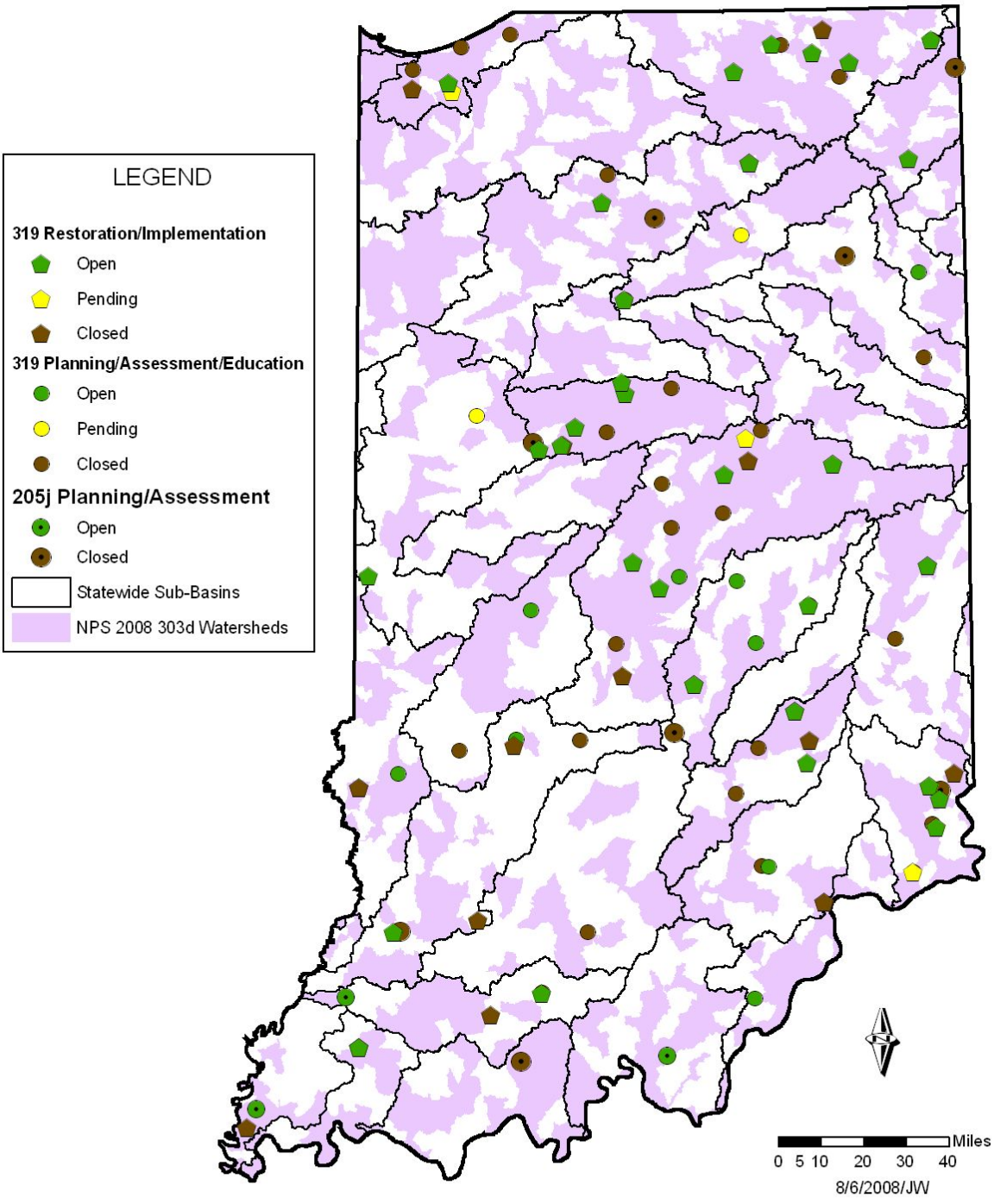
- Successfully integrated a Watershed Management track at the 2008 IASWCD Annual Conference. A total of 5 breakout sessions were planned and delivered by experts throughout the state. This track will again take place at the 2009 Conference.

- Attended the following events/presentations given: (Jan. 2008) 2008 Annual Conference of Indiana Soil and Water Conservation Districts; (January 2008) Indiana Watershed Leadership Academy Facilitator; (March 2008) Indiana Lakes Management Society Annual Conference;(May 2008) Indiana Water Resources Association Spring Meeting; (May 08) National River Rally Conference
- Facilitated an interim planning team for development of an Indiana Water Monitoring Council. It can be found at http://www.inwmc.org/

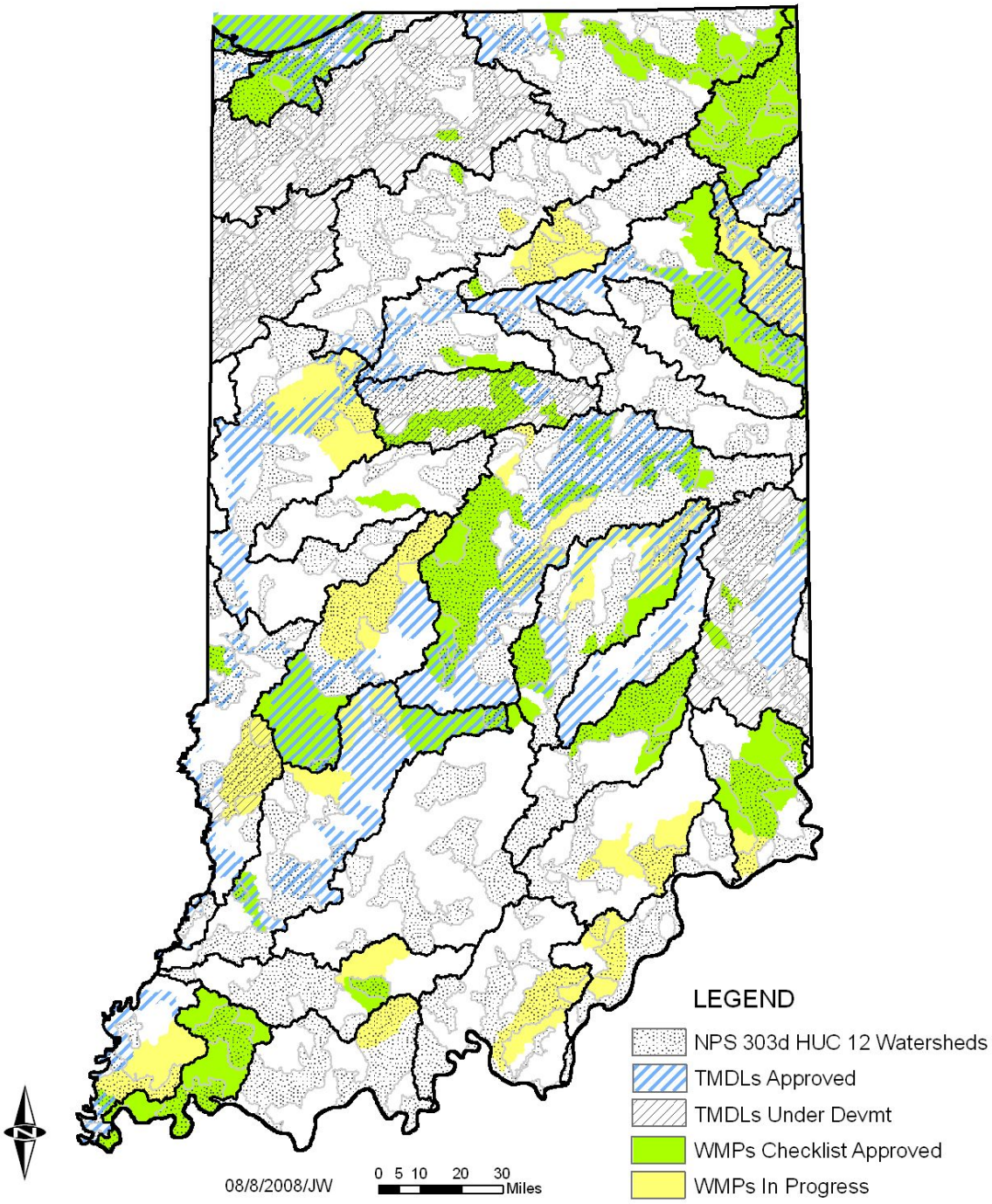
- Contributed to the development of the NRCS Rapid Watershed Assessment project for Indiana. Information can be found at http://www.in.gov/isda/2732.htm

APPENDIX A: Geographic Location of FFY 2003 - 2008 Section 319 & 205j Projects

(Does not include statewide Projects)



APPENDIX B: Location of Watershed Planning/TMDL Activities
and 303(d) Listed Waterbodies by Watershed Area



Appendix B illustrates the distribution of TMDL development activities over watershed planning activities. The grayed areas are representative of the watersheds that include at lease one listing of a NPS impaired water body. As evident by the areas with solid green or yellow and blue or gray stripes, these watersheds have receive much attention for their level of impairments and interest from local entities to improve water quality through comprehensive planning and subsequent implementation activities.

APPENDIX C: Open 319 Projects 9/1/07 – 8/31/08

FFY	ARN	Contractor	Project	Status	Start	End	Type
2001							
	6-71	Save the Dunes Conservation Fund	Dunes Creek WMP Implementation Phase I	Open	7/26/2006	9/30/2008	Restoration/Impl
2002							
	6-152	Purdue University	Watershed Enhancement of Indiana Map Model	Closed	8/1/2006	10/31/2007	Education
	6-64	St. Joseph River Watershed	Cedar Creek WMP Implementation Phase I	Open	11/14/2005	11/13/2008	Restoration/Impl
	6-70	Save the Dunes Conservation Fund	Salt Creek Watershed Management Plan	Closed	1/3/2006	7/2/2008	Planning
	7-172	St. Joseph River Watershed	St. Joseph River Water Quality Database	Open	10/4/2007	3/31/2009	Education
2003							
	3-735	Indiana University	Ag BMP Application to Remediate Nitrate Contaminat	Closed	10/14/2003	10/13/2007	Assessment
	3-738	Indiana Lakes Management Society	Small Grants for Indiana Lakes Water Quality Impro	Closed	2/13/2004	2/12/2008	Restoration/Impl
	3-740	Sycamore Trails RC & D Council	Partners for Reclamation	Closed	9/26/2003	9/25/2007	Restoration/Impl
	3-750	Save the Dunes Conservation Fund	Dunes Creek Watershed Plan	Closed	11/5/2003	11/4/2007	Planning
	5-102	Hoosier Heartland	Riparian Forested Buffer Project	Closed	5/6/2005	8/5/2008	Restoration/Impl
	5-115	Friends of the Limberlost	Limberlost/Loblolly WMP	Closed	6/7/2005	9/6/2007	Planning
	6-155	Hamilton County SWCD	Duck Creek WMP	Open	7/26/2006	3/31/2009	Restoration/Impl
	6-165	Wildcat Creek Watershed Alliance	Implementation of Wildcat Creek WMP	Open	8/29/2006	3/31/2009	Restoration/Impl
	7-161	Briljent	NPS Management Plan	Open	5/29/2007	12/31/2008	ProgramSupport
	7-9	Steuben County Commissioners	Pigeon Creek WMP Implementation	Open	11/17/2006	11/16/2008	Restoration/Impl
2004							
	4-128	Four Rivers RC&D	Livestock Management Improvement Project	Closed	12/21/2004	10/1/2007	Restoration/Impl
	4-141	U. S. Geological Survey	Effects of Nutrients on Algal Biomass/Gr Lks, Ohio	Closed	2/28/2005	11/27/2007	Assessment
	4-151	Sullivan County SWCD	Partnership for Turtle Creek	Closed	2/24/2005	2/23/2008	Restoration/Impl
	4-152	Daviess County SWCD	Livestock Waste Management for Prairie Creek Wtsh	Closed	6/13/2006	6/12/2008	Restoration/Impl
	4-154	Purdue University	Indiana Watershed Leadership Program	Closed	2/25/2005	2/24/2008	Education
	5-112	Madison County SWCD	Lilly & Little Duck Creek Planning Project	Closed	4/4/2005	12/3/2007	Planning
	5-113	Madison County SWCD	Swanfelt Watershed Implementation Project	Closed	3/2/2006	3/1/2008	Restoration/Impl
	5-133	Indiana University	Assessment of Indiana Lakes	Open	8/5/2005	1/4/2009	Assessment
	5-44	Delaware Co. SWCD	White River Watershed Plan Implementation	Open	3/11/2005	12/10/2008	Restoration/Impl
	5-64	Wayne County SWCD	Whitewater River Implementation Plan	Open	12/29/2004	12/28/2008	Restoration/Impl
	6-108	St. Joseph River Watershed	Sediment, Pesticide & Nutrient Reduction Phase II	Open	3/20/2006	3/31/2009	Restoration/Impl
	6-65	Indiana University	Integration of WQ Tools/Information to Reduce NPS	Open	12/21/2006	3/31/2009	ProgramSupport
	6-663	Indiana University	Eagle Creek WMP Implementation Phase I	Open	3/2/2006	3/1/2009	Restoration/Impl
	7-8	Cass County SWCD	Eel River-Tick Creek	Open	9/15/2006	3/14/2009	Restoration/Impl
2005							
	5-134	Clay County SWCD	Lower Eel River WMP	Closed	9/9/2005	3/8/2008	Planning
	5-160	Clinton County SWCD	South Fork Wildcat Creek-Kilmore Creek WMP	Closed	10/25/2005	4/24/2008	Planning

	5-162	Sullivan County SWCD	Partnership for Turtle Creek	Closed	2/24/2006	2/23/2008	Restoration/Impl
	5-163	Purdue University	Develop/Demo of Evaluation Framework for NPS Prog	Open	12/22/2005	12/31/2008	ProgramSupport
	5-164	Rush County SWCD	Little Blue River Watershed Project	Closed	9/28/2005	9/27/2007	Planning
	5-165	Jennings County SWCD	Lower Sand Creek Watershed	Open	10/12/2005	10/11/2008	Restoration/Impl
	5-172	Pheasants Forever	Prairie Grass/Tree Planting & Wetland Restor	Open	1/5/2006	1/4/2009	Restoration/Impl
	5-175	City of Hobart	Lake George Shoreline Stabilization and WMP Implem	Closed	12/7/2005	12/6/2007	Restoration/Impl
	6-01	Gary Storm Water Management Dist.	Little Calument River WMP	Closed	4/6/2006	4/5/2008	Planning
	6-05	Bartholomew County SWCD	Clifty Creek Watershed Project	Closed	10/25/2005	4/24/2008	Restoration/Impl
	6-111	Clinton County SWCD	Spring Creek-Lick Run Watershed BMP Implementation	Open	6/1/2006	5/31/2009	Restoration/Impl
	6-128	Dearborn County SWCD	Tanners Creek Watershed Implementation	Open	4/6/2006	10/5/2008	Restoration/Impl
	6-150	U. S. Geological Survey	Report on E. coli for Dunes Creek	Open	5/29/2007	8/28/2008	ProgramSupport
	6-156	Conservation Technology	Training Program for NPS Pollution/Seminars	Open	8/28/2006	11/27/2008	Education
	6-164	Historic Hoosier Hills	Southern Laughery Creek Watershed Implementation	Open	12/6/2006	3/31/2010	Restoration/Impl
	6-166	Tippecanoe County Surveyor	Implementation of Lauramie Creek WMP	Open	9/15/2006	9/14/2009	Restoration/Impl
	6-75	The Nature Conservancy	Tippecanoe River 2-Stage Ditch Demonstration	Open	5/4/2006	1/3/2010	Restoration/Impl
	8-69	Indiana Department of	WQ Assessment Information Accessibility System	Open	3/26/2008	3/25/2009	ProgramSupport
2006							
	6-170	Indiana Association of Soil and	Indiana Watershed Promotion/TMDL Support	Open	5/12/2007	5/11/2010	ProgramSupport
	6-171	Owen County SWCD	Owen County Watershed Initiative	Open	11/22/2006	2/21/2009	Planning
	6-172	Clark County SWCD	Silver Creek Watershed Improvement	Open	1/8/2007	4/7/2009	Planning
	6-176	Putnam County SWCD	Big Walnut/Deer Creek WMP	Open	11/3/2006	2/2/2009	Planning
	6-177	Elkhart River Restoration	Elkhart River WMP	Open	11/22/2006	2/21/2010	Restoration/Impl
	7-103	Johnson County SWCD	Youngs Creek WMP Phase III	Open	1/2/2007	4/1/2009	Restoration/Impl
	7-135	Gibson County SWCD	Pigeon Creek Headwaters - Contract#2	Open	2/2/2007	2/1/2009	Restoration/Impl
	7-157	Patoka Lake Regional Water &	Patoka Lake Source Water Protection Plan	Open	8/20/2007	8/19/2010	Restoration/Impl
	7-3	Marion County SWCD	Lower Fall Creek Watershed Improvement Project	Open	11/22/2006	5/21/2009	Planning
	7-7	Howard County SWCD	Pete's Run and Little Deer Ck. Implementation	Open	11/22/2006	5/21/2009	Restoration/Impl
	7-79	LaGrange County SWCD	LaGrange WQ Improvement	Open	3/8/2007	3/31/2011	Restoration/Impl
	7-80	Tippecanoe Environmental Lake &	Upper Tippecanoe/Grassy Ck. Implementation	Open	3/8/2007	6/7/2009	Restoration/Impl
	7-81	Hancock County SWCD	Sugar Creek WMP	Open	1/3/2007	7/2/2009	Planning
	7-87	Historic Hoosier Hills	Central Muscatatuck WMP	Open	2/15/2007	8/14/2009	Planning
	8-134	Purdue University	Strengthening Watershed Leaders' Capacity (IWLA)	Open	7/31/2008	1/31/2011	ProgramSupport
	8-75	Save the Dunes Conservation Fund	Salt Creek Implementation Demonstration	Open	3/13/2008	3/12/2011	Restoration/Impl
2007							
	7-182	LaGrange County SWCD	Little Elkhart River WMP Update	Open	11/26/2007	11/25/2011	Restoration/Impl
	7-183	Knox County SWCD	Kessinger Ditch WMP Implementation	Open	9/22/2007	12/31/2010	Restoration/Impl
	7-184	Allen County SWCD	St. Marys WMP Planning and Implementation	Open	9/7/2007	3/6/2010	Planning
	7-186	Purdue University	Development/Demo of Evaluation Framework	Open	7/14/2008	1/31/2012	ProgramSupport
	7-187	Sullivan County SWCD	Busseron Watershed Planning & Implementation	Open	12/12/2007	3/11/2011	Planning
	8-131	Henry County SWCD	Big Blue River WMP	Open	7/15/2008	1/14/2011	Planning
	8-54	Clinton County SWCD	SF Wildcat Creek/Blinn Ditch/Kilmore Ck	Open	6/1/2008	11/30/2010	Restoration/Impl
	8-55	Vermillion County SWCD	Little Vermillion Watershed Project	Open	5/1/2008	10/31/2011	Restoration/Impl
	8-56	Wayne County SWCD	Whitewater River Initiative	Open	2/22/2008	8/21/2011	Restoration/Impl

	8-93	Dearborn County SWCD	Hogan Creek Watershed Project	Open	3/28/2008	9/27/2010	Restoration/Impl
	8-94	Rush County SWCD	Little Blue River Watershed Project	Open	3/28/2008	9/27/2010	Restoration/Impl
	8-97	Bartholomew County SWCD	EF White River/Clifty Creek	Open	4/25/2008	4/24/2011	Restoration/Impl
2008							
	8-189	Save the Dunes Conservation Fund	Salt Creek Watershed Cost-Share & Outreach Program	Pending			Restoration/Impl
	8-190	Delaware Co. SWCD	White River Watershed Project	Pending			Restoration/Impl
	9-54	Wabash River Enhancement Corp.	Wabash River:Lafayette-West Lafayette Reach WMP	Pending			Planning
	9-56	Dearborn County SWCD	Tanners Creek Watershed Project	Pending			Restoration/Impl
	9-57	Historic Hoosier Hills	South Laughery Creek Watershed	Pending			Restoration/Impl
	9-89	Madison County SWCD	Little Duck & Lilly Creek Implementation Project	Pending			Restoration/Impl
	9-90	Manchester College	Middle Eel River Watershed Initiative	Pending			Planning
	9-91	Historic Hoosier Hills	Indian Creek Watershed Project	Pending			Restoration/Impl

APPENDIX D: Open 205(j) Projects 9/1/07 - 8/31/08

FFY	ARN	Contractor	Project	Status	Start	End	Type
2003							
	N03-1	Indiana Department of Environmental	Wetland Tracking Database	Cancelled	10/4/2006	3/31/2008	ProgramSupport
2004							
	5-71	Dearborn County SWCD	Hogan Creek WMP	Closed	3/11/2005	9/30/2007	Planning
	5-73	City of Fort Wayne	Lower St. Joseph River-Bear Creek WMP	Closed	6/2/2005	9/30/2007	Planning
2005							
	6-106	Harrison County SWCD	Indian Creek Watershed Management Plan	Closed	3/2/2006	3/1/2008	Planning
	6-107	Gibson County Commissioners	Gibson Co. Watershed and Wastewater Project	Closed	5/4/2006	5/3/2008	Planning
2006							
	7-111	U. S. Geological Survey	Algal Biomass Report on 2001-2005 Data	Open	5/2/2007	2/1/2009	ProgramSupport
	7-6	Posey County SWCD	Big Creek WMP	Open	11/21/2006	2/20/2009	Planning

APPENDIX E: Project Summaries for Closed Section 319 Projects

FFY 2002

Watershed Enhancement of Indiana Map Model (6-152) – Purdue University enhanced the Indiana Map Model to strengthen the visual presence of watershed boundaries and update and upgrade the technology. These enhancements included installing wire lights for watershed boundaries, new chasing lights for rivers, and updating cities with landmark buildings. Purdue also staffed the model at events across the State including the 2007 Indiana State Fair.

Salt Creek Watershed Management Plan (6-70) – See Project Highlights

FFY 2003

Ag BMPs to Remediate Nitrate Contamination (3-735) - Indiana University established a program to implement BMPs to reduce nitrate leaching in the East Fork White River aquifer in Jackson County and monitored groundwater chemistry and hydrology to determine the effects of BMP implementation. The program included providing nutrient management training for farmers in the study area through workshops and personal instruction from agricultural nutrient management specialists; establishing demonstration plots with conventional and low-nitrogen application strips; conducting soil and plant tissue analyses during and after the growing season and compiling yield determinations from the demonstration plots; and making nitrification inhibitors and instruction on their use available to farmers in the study area. Outreach activities were conducted including a web site to describe project progress, a public meeting to discuss the results of the study, and presenting the results to the local SWCDs in the region where the study was conducted.

Small Grants for Indiana Lakes Water Quality Improvement (3-738) - The Indiana Lakes Management Society (ILMS) administered a competitive small grants program targeting lake associations and other groups for projects that help improve water quality in Indiana lakes and reduce nonpoint source pollution in their watersheds. BMPs and activities included biorentention filters, wetland restoration, streambank stabilization, education/outreach on nonpoint source pollution issues, promoting lake associations, promoting volunteer monitoring, and other efforts related to water quality improvements in lakes and watersheds. The availability of the grant funds was advertised and information about the projects and their benefits was publicized in the Indiana Lakes Management Society (ILMS) quarterly newsletter.

Partners for Reclamation (3-740) - The Sycamore Trails RC&D implemented a program for the reclamation of abandoned coal mine sites in the Eel River basin, portions of the Upper White, Lower White, Lower East Fork White River, Middle Wabash-Little Vermilion, and the Middle Wabash-Busseron basins. Over twenty-five abandoned coal mine sites identified through the already-developed screening and approval process conducted by the Indiana Department of Natural Resources Division of Reclamation were reclaimed. An outreach program was implemented to notify landowners of reclamation assistance available through the project and to publicize its success.

Dunes Creek Watershed Management Plan (3-750) - Save the Dunes Conservation Fund (SDCF) developed a watershed management plan for the Dunes Creek watershed. Steering committee meetings were held bi-monthly and public meetings quarterly to solicit input on the watershed management plan. SDCF conducted a chemical and biological water quality monitoring program in the Dunes Creek watershed to help with the development of the plan. A study to assess the efficacy of a pilot wetland restoration site along a section of Dunes Creek was also conducted. Study results are included in the final summary project report. In addition to developing a WMP, SDCF formed a partnership with Porter County to promote and install low impact development practices at the new county visitor's center. Public outreach activities included outreach brochures, news releases about the project, and quarterly newsletters, e-mail, or website articles.

Riparian Forested Buffer Project (5-102) - Hoosier Heartland RC&D (HHRCD) continued their Riparian Forested Buffer project to improve water quality by addressing non-point sources; particularly sediment and attached nutrients, through the installation of forested buffers adjacent to waterbodies. HHRCD implemented 46.4 acres of forested buffers adjacent to rivers, streams, ditches, lakes, ponds, and/or retention basins in the Upper White River Watershed using the cost share incentive program. They also developed and installed a minimum of two high profile buffer demonstration sites and conducted a field day to publicize the site and showcase buffer benefits to target audiences. The two demonstration sites were used in a CITYgreen model of buffers with the intent of quantifying the environmental and economic benefit of establishing buffers and produce materials to advertise such benefits. HHRCD conducted an outreach and education program including articles, press releases, and distributing other marketing & educational materials.

Limberlost/Loblolly WMP (5-115) - The Friends of the Limberlost developed a watershed management plan for the Limberlost-Loblolly watershed. Public outreach and education activities included field days, workshops about nonpoint source pollution and best management practices, presentations about the project for local groups and officials, and news releases to the local media. Stakeholder input was solicited through public meetings and regular stakeholder meetings. A watershed inventory was completed to help determine and identify problems in the watershed.

FFY 2004

Livestock Management Improvement Project (4-128) – The Four Rivers Resource Conservation and Development (RC&D) implemented a cost-share program to demonstrate grazing land best BMPs in Dubois and Pike counties and provide technical assistance to forage and livestock producers. The BMPs included developing comprehensive nutrient management plans (CNMPs), alternative watering systems, riparian buffers, rotational grazing systems, fencing, heavy use area protection and composting animal waste. Four Rivers also provided technical assistance to forage and livestock producers on improved forage management by aiding in the creation of grazing management plans, assisting landowners with soil and manure testing to complete whole farm nutrient management plans and educating producers in proper nutrient management. A public education and outreach program was implemented to educate stakeholders about livestock BMPs.

Effects of Nutrients on Algal Biomass and Biological Communities in the Great Lake and Ohio River Basins (4-141) - The United States Geological Survey (USGS) used the biological and habitat data collected by the State along with the biomass and chemical data collected by the Survey to help determine whether impacts by nutrients are affecting aquatic biota. The focus of the study was in the Great Lake and Ohio River Basins. The Survey monitored algal productivity in the Great Lake and Ohio River Basins by measuring chlorophyll A (CHLA) in phytoplankton and periphyton samples, particulate organic carbon (POC) for phytoplankton, and ash-free dry mass (AFDM) in periphyton samples.

Partnership for Turtle Creek (4-151) – The Sullivan County SWCD used 319 funds to continue implementing a cost-share and education program in the Turtle Creek watershed following the guidance of the Turtle Creek Watershed Management Plan. The goal of the cost-share program was to stabilize the shoreline of Turtle Creek Reservoir and reduce erosion and sedimentation in the Turtle Creek watershed. BMPs included gabion baskets and water and sediment control basins. Educational opportunities were provided to the citizens of the Turtle Creek Watershed through activities including stakeholder meetings, water quality information display booths, and workshops about BMPs that reduce sediment and nutrient runoff, and presentations in the Sullivan County Schools.

Livestock Waste Management for Prairie Creek Watershed (4-152) – The Daviess County SWCD implemented the Prairie Creek Watershed Management Plan by implementing a cost-share program to construct eight mortality composters and covered dried manure-staging facilities for demonstration of best technology in Prairie Creek Watershed. The SWCD also implemented an outreach program to notify landowners of cost-share assistance available through the project and to publicize its success through news releases and the SWCD or Perdue Farms Newsletter.

Indiana Watershed Leadership Program (4-154) – See Project Highlights

Lilly & Little Duck Creek Planning Project (5-112) – The Madison County SWCD developed a watershed management plan for the Lilly Creek (HUC 05120201050060) and Little Duck Creek (HUC 05120201060020) watersheds. The District conducted a chemical and biological monitoring program in the watersheds to establish baseline water quality. The District also conducted an education and outreach program designed to bring about behavioral changes that lead to reduced nonpoint source pollution in the watershed, including the following activities: distributing quarterly newsletters to provide information to residents of the watersheds on the project; submitting press releases to the media; conducting a watershed tour to educate the public on BMPs used in the watersheds; presenting educational programs about nonpoint source pollution to civic groups and other interested parties; and maintaining the existing Madison County SWCD website dedicated to watershed planning and education projects.

Swanfelt Watershed Implementation Project (5-113) - The Madison County SWCD implemented the Swanfelt Watershed Management Plan by implementing a cost-share program to implement Residue Management/No-till BMPs in the watershed. The District also implemented an education and outreach program to encourage public behavioral changes that result in a reduction of NPS pollution including: public meetings, a vegetative filter strip/conservation tillage marketing program, a field day to educate the public on agricultural BMPs, water quality educational programs, nonpoint source pollution education newsletters, press releases, and a septic repair and maintenance brochure.

FFY 2005

Lower Eel River Watershed Management Plan (5-134) – The Clay County SWCD developed a watershed management plan for two 11-digit HUC watersheds (05120203080 and 05120203090) in the Lower Eel Watershed. The District conducted a monitoring program to establish baseline conditions and to help with the development of the plan. Public meetings were held to educate the public about the project and get stakeholder input. Information was submitted to the media no less than quarterly about the project and related activities.

South Fork Wildcat Creek-Kilmore Creek Watershed Management Plan (5-160) – The Clinton County SWCD developed a watershed management plan for the South Fork Wildcat Creek-Blinn Ditch (Hydrologic Unit Code (HUC) 05120107040090) and the Kilmore Creek-Boyles Ditch (HUC 05120107040040) watersheds. The District conducted a chemical and biological monitoring program in the watersheds to establish baseline water quality and help with the development of the watershed management plan. An education and outreach program was conducted to help bring about behavioral changes that lead to reduced nonpoint source pollution in the watershed including: stakeholder meetings, quarterly mailings to stakeholders, steering committee meetings, articles to local newsletters, press releases to the media, and a workshop/field day designed to educate the entire county on local water quality issues.

Partnership for Turtle Creek (5-162) – The Sullivan County SWCD and the Partnership for Turtle Creek continued to implement a cost-share and an education program to reduce sediment loading in the Turtle Creek and Little Turtle Creek watersheds following the guidance of the Turtle Creek Watershed Management Plan (WMP). The Partnership implemented cost-share programs to reduce nonpoint source pollution in the Turtle Creek and Little Turtle Creek watersheds, and to stabilize the shoreline of Turtle Creek Reservoir. BMPs included gabion baskets, water and sediment control basins, and exclusion fencing. A public education and outreach program was conducted including newsletters, steering committee meetings, displays and information distributed at local fairs and festivals, watershed demonstrations using the EnviroScape model, workshops to teach water quality testing, and information about the project submitted to the media.

Little Blue River Watershed Project (5-164) - The Rush County SWCD developed a watershed management plan for the Little Blue River watershed (Hydrologic Unit Code 05120204030). Public meetings were conducted to inform the public about the project and to solicit input on the WMP. The District implemented two demonstration projects to promote best management practices (BMPs). A

bioswale was installed at the city park and served as an urban demonstration project. A conservation bus tour and field day was conducted to demonstrate agricultural BMPs such as no-till, rotational grazing, and filter strips. Education and outreach activities were conducted to increase awareness about the project and nonpoint source pollution including news releases or articles, a display about the project at the Rush County and Shelby County Fairs, education programs/presentations about topics such as water quality, nonpoint source pollution, and BMPs, a field day at a demonstration area, a community watershed clean-up day, and educational water quality monitoring activities.

Lake George Stabilization and WMP implementation (5-175) – The City of Hobart stabilized the banks on Lake George in Fred Rose Park and developed land use planning recommendations for minimizing impacts of future development. The City installed approximately 4,200 feet of bioengineered bank stabilization on Lake George in accordance with the design plans developed through the Lake and River Enhancement Program. In addition to stabilizing the shoreline, the City educated the public and encouraged activities that reduce erosion including posting educational signs at public access locations and "no-wake" buoys in the lake to mark shallow water/aquatic plant zones, and conducting a public tour of the construction site and techniques necessary to save riparian vegetation. The City also prepared specific policy recommendations to prevent further degradation of water quality from growth and development.

Little Calumet River Watershed Management Plan (6-01) – The Gary Storm Water Management District developed a watershed management plan for the West Branch of the Little Calumet River watershed, including three 14-digit hydrologic unit code (HUC) watersheds: 071200003030050, 04040001040020, and 04040001040030. The District conducted a monitoring and assessment program to gather needed information to complete the plan including a stream reach survey, E. coli sampling, a stream reach characterization, vegetative community characterization, an inventory of land use, and an ownership inventory. The District conducted public education and outreach activities within the watershed to increase awareness of water quality issues and nonpoint source pollution including steering committee/public meetings, fact sheets on the Little Calumet River watershed, surface water runoff, septic systems, Gary storm water management, and habitat protection for water quality, and a volunteer monitoring program.

Clifty Creek Watershed Project (6-05) – See Project Highlights

APPENDIX F: List of Attached Final Reports for Section 319 Projects

ARN	FFY	Project Name
6-152	2002	Watershed Enhancement of Indiana Map Model
6-70	2002	Salt Creek Watershed Management Plan
3-735	2003	Ag BMP Application to Remediate Nitrate Contaminants
3-738	2003	Small Grants for Indiana Lakes Water Quality Improvement
3-740	2003	Partners for Reclamation
3-750	2003	Dunes Creek Watershed Plan
5-102	2003	Riparian Forested Buffer Project
5-115	2003	Limberlost/Loblolly WMP
4-128	2004	Livestock Management Improvement Project
4-141	2004	Effects of Nutrients on Algal Biomass, Great Lakes/Ohio Basin
4-151	2004	Partnership for Turtle Creek
4-152	2004	Livestock Waste Management for Prairie Creek Watershed
4-154	2004	Indiana Watershed Leadership Program
5-112	2004	Lilly & Little Duck Creek Planning Project
5-113	2004	Swanfelt Watershed Implementation Project
5-134	2005	Lower Eel River WMP
5-160	2005	South Fork Wildcat Creek-Kilmore Creek WMP
5-162	2005	Partnership for Turtle Creek
5-164	2005	Little Blue River Watershed Project
5-175	2005	Lake George Stabilization and WMP Implementation Project
6-01	2005	Little Calumet River WMP
6-05	2005	Clifty Creek Watershed Project

Indiana's FFY 2008 NPS Program

Summary of Cumulative Environmental Benefits from Project Activities

Section 319(h) NPS projects funded under the FFY 2008 grant cycle were highly successful in achieving important water quality benefits to Indiana's surface waters. The following is a summary of best management practices (BMPs) installed during these projects along with the associated estimated load reductions for sediment, phosphorus, and nitrogen:

Agricultural Management Practices

- Implemented 31 nitrogen reduction practices on approximately 6,840 acres of farmlands within targeted watersheds and 11 sites incorporated Nutrient and/or Pest Management (590) Plans/practices on 5,471 acres of producing farmland.

- Installed more than 17,414 linear feet of fencing (382) to exclude livestock from waterways, 676 feet of pipeline and 1 watering facility.

- Established 5 Prescribed Grazing (528A) areas on 93 acres and 9 Pasture and Hay Planting (512) areas on 100 acres.

- Load reductions resulting from these practices: 15,499 tons/year of sediment, 32.325 lbs/year of phosphorus, and 34,562 lbs/year of nitrogen.

Water Quality and Riparian Zone Restoration

- 7 Heavy Use Protection (561) areas totaling 60 acres were completed and I Wetland Detention Improvement was completed on 0.43 acres for the total reduction of 77 tons/year of sediment, 74 lbs/year of phosphorus, and 151 lbs/year of nitrogen in annual load reduction.

- 2 Filter Strip (393)/Buffer Strip (741), 1 Vegetative Buffer, and 1 Grassed Swale plantings were also installed along 3.36 acres of riparian zone, as well as another 6,000 feet of Streambank and Shoreline Protection (580), to provide for an additional 542 tons/year of sediment, 606 lbs/year of phosphorus, and 1,444 lbs/year of nitrogen.

Habitat Restoration

- Established 4 Tree/Shrub areas on 22 acres, 1 Forest Stand Improvement project on 10 acres and 1 Critical Area Planting of 1 acres for habitat restoration. Load Reductions resulting from these practices: 167 tons/year of sediment, 167 lbs/year of phosphorus, and 334 lbs/year of nitrogen.

Waste Management

- Successfully completed the installation of 4 Waste Storage/Utilization Facilities (313) and 3 Waste Management Systems. Also, installed 2 Rain Gardens and a Roof Runoff Management system in urban areas. The total load reduction estimated from these practices: 23 tons/years sediment, 17,418 lbs/year of phosphorus, and 62,873 lbs/year of nitrogen.

ANNUAL LOAD REDUCTION SUMMARY

Total FFY 2008 Pollutant Load Reductions

Reduced Sediment loadings by 16,308 tons/year

Reduced Phosphorus loadings by 50,591 pounds/year

Reduced Nitrogen loadings by 99,366 pounds/year

Project Name	Sediment	Phosphorus	Nitrogen
Livestock Waste Management for Prairie Creek Watershed	0	17396	62819
Partnership for Turtle Creek	446	446	892
Lower Sand Creek Watershed	1461	1664	3326
Clifty Creek Watershed Project	399	15997	916
Sediment, Pesticide, & Nutrient Management Phase 2	1291	1689	3355
Spring Creek-Lick Run Watershed BMP Implementation	564	721	1441
Tanners Creek Watershed Implementation	268	256	514
Southern Laughery Creek Watershed Implementation	964	923	1846
Youngs Creek Watershed Management Plan Phase 3	1136	1241	2482
LaGrange Water Quality Improvement	475	451	903
Eel River-Tick Creek	7123	7319	14647
Pigeon Creek WMP Implementation (Steuben Co.)	1490	1780	4787
Cedar Creek WMP Implementation Phase 1	50	62	125

This table shows some of the larger load reductions by project.

Total from Project BMPs installed during FFY 2002 through FFY 2007

Sediment load reduction calculations: 124,599 tons/year

Phosphorus load reduction calculations: 231,851pounds/year

Nitrogen load reduction calculations: 371,042 pounds/year