

CHAPTER 1 INTRODUCTION

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Introduction

1.1 Purpose

The Northwestern Indiana Regional Planning Commission (NIRPC) is a regional council of local governments serving the citizens of Lake, Porter, and LaPorte counties in Northwest Indiana. NIRPC is comprised of fifty-three members and includes appointments from municipalities, county councils, boards of commissioners, county surveyors, and the governor. NIRPC provides a forum that enables the citizens of Northwest Indiana to address regional issues relating to transportation, the environment and community, and economic development.

NIRPC's Mission Statement is:

- To serve as Northwest Indiana's Metropolitan Planning Organization (MPO), and act as the designated recipient for certain transportation funding.
- To generate meaningful dialogue and cooperation on issues of common concern.
- To contribute to the development of a common vision pertaining to Northwest Indiana's future.
- To provide a forum in which elected officials and other decision-makers can develop and implement solutions to regional problems.
- To promote public-private partnerships.
- To provide a common voice for Northwest Indiana in its communications with the state and the federal government.

The Northwest Indiana Watershed Management Framework aligns with NIRPC's mission to generate meaningful dialogue and cooperation on issues of common concern, contribute to the development of a common vision, and to provide a forum to develop and implement solutions. NIRPC has also recently completed a 2040 Comprehensive Regional Plan (2040 CRP) with the input of hundreds of stakeholders and citizens throughout the region. The 2040 CRP embraces the goal of clean water throughout the region and prioritizes watershed management planning as the most effective strategy to achieve it. This plan demonstrates that the public and local elected officials in Northwest Indiana continue to look to NIRPC as a regional leader in watershed management planning.

In 2010, NIRPC was awarded a Section 205j ARRA Project (EDS# A305-10-19) from IDEM to in part update the 2005 Watershed Framework. The overall goal and purpose of the Watershed Framework, similar to the Indiana Department of Environmental Management's (IDEM) Watershed Restoration Action Strategy (WRAS) documents¹, is to provide a reference point on existing watershed conditions, and to provide technical resources to assist with the development and implementation of local watershed management plans. The Watershed Restoration Action Strategies for the sub-basins in our region were developed nearly 10 years ago and significant changes have occurred since this time. This Watershed Framework continues to build off of the State's

¹ Indiana Department of Environmental Management Watershed Restoration Action Strategies- <http://www.in.gov/idem/nps/2964.htm>

effort to assemble characterization and water quality information in one place and to provide a guide for future watershed planning efforts that impact our three county planning area.

The first rendition of the Watershed Framework, completed in 2005, addressed water quality issues and contributing factors at a broad scale, sub-basin level (8-digit HUC). Local stakeholders experienced in watershed planning and others interested in near future plan development expressed a need for information at a smaller, more focused watershed or subwatershed level (10- or 12-digit HUC). They told us that this scale could allow the Framework to be of greater value as a watershed planning tool. In response to their input, considerable effort in this update was directed at analyzing and displaying characterization information at the subwatershed level. What has evolved is a *planning tool* to help local stakeholders identify where water quality and habitat problems exist and the factors that contribute to those problems. The Watershed Framework follows IDEM's 2009 Watershed Management Plan (WMP) Checklist to the greatest extent possible. This will enable local watershed practitioners to easily pull the information into their own Plans.

A significant future addition to the Watershed Framework as a planning tool will be the development of "Watershed Templates". Watershed templates will provide groups with a jump start in the watershed management planning process. Given the number of watersheds (HUC-10) that touch upon Northwest Indiana, 19 in all, template development priority will be given to those watersheds with communities or organizations that express a strong commitment to developing a watershed management plan in the very near future. Over time NIRPC anticipates developing a Watershed Template for each watershed that does not have an existing watershed management plan.

For fledgling watershed groups, and even those with prior watershed planning experience, the WMP Checklist requirements can be challenging. To the greatest extent possible each Watershed Template will be designed by NIRPC to follow the format of the most current IDEM WMP Checklist. The watershed templates will focus on the resource intensive and technically complex watershed inventory elements on the checklist that provide a snapshot of current watershed conditions. Much of this includes desktop analysis and gathering of existing reports and information. WMP sections that require a public involvement process will be left blank for local groups to complete. Examples of elements that should include a local public process include developing a list of stakeholder concerns, identification of critical areas, setting goals and choosing BMPs to apply. The Watershed Templates will be formatted in a manner that allows the WMP creator to integrate information obtained through their public process with the provided data.

What Are Hydrologic Unit Codes (HUCs)?

Hydrologic Unit Codes or HUCs are a numbering system developed by the US Geological Survey for watersheds. Each unique HUC is attached to a specific watershed, enabling different agencies to have common terms of reference. These commonly understood boundaries foster understanding of how landscapes function, where water quality problems should be addressed, and who needs to be involved in the planning process.

The entire country has been mapped with three levels of HUCs: 8-digit HUCs for sub-basins, 10-digit HUCs for watersheds, and 12-digit HUCs for sub-watersheds. For example, all of the land area draining into the Kankakee River is in one 8-digit HUC. The 10-digit HUCs divide the larger sub-basin into watersheds, and the 12-digit HUCs divide the watersheds into sub-watersheds.

Before a standardized HUC system was developed, Indiana used 11-digit HUCs for watersheds and 14-digit HUCs for sub-watersheds. These delineations were completed by the Indianapolis USGS office in the mid-1990's and were based on Indiana-specific characteristics of hydrography.

Source: IDEM Watersheds and Nonpoint Source Pollution-

<http://www.in.gov/idem/nps/2422.htm>

1.2 Background

Bound by Lake Michigan to the north and the Kankakee River to the south Lake, Porter and LaPorte Counties encompass an area covering nearly 1,513 square miles. Three relatively large sub-basins drain this area: the Little Calumet-Galien, the Chicago, and the Kankakee (Figure 1). The Little Calumet-Galien sub-basin stretches along the southern shore of Lake Michigan, from southwest Michigan across northern Lake, Porter, and LaPorte Counties in Indiana and over into Illinois. The Chicago sub-basin, once part of the Little Calumet-Galien prior to human alterations, stretches from north central Lake County turning northward into Illinois near the Lake Michigan shoreline. The Kankakee River sub-basin, the largest in our region, spans from Kosciusko County, Indiana westward into Illinois. Each of these sub-basins will be described in greater detail at the subwatershed level in this document.

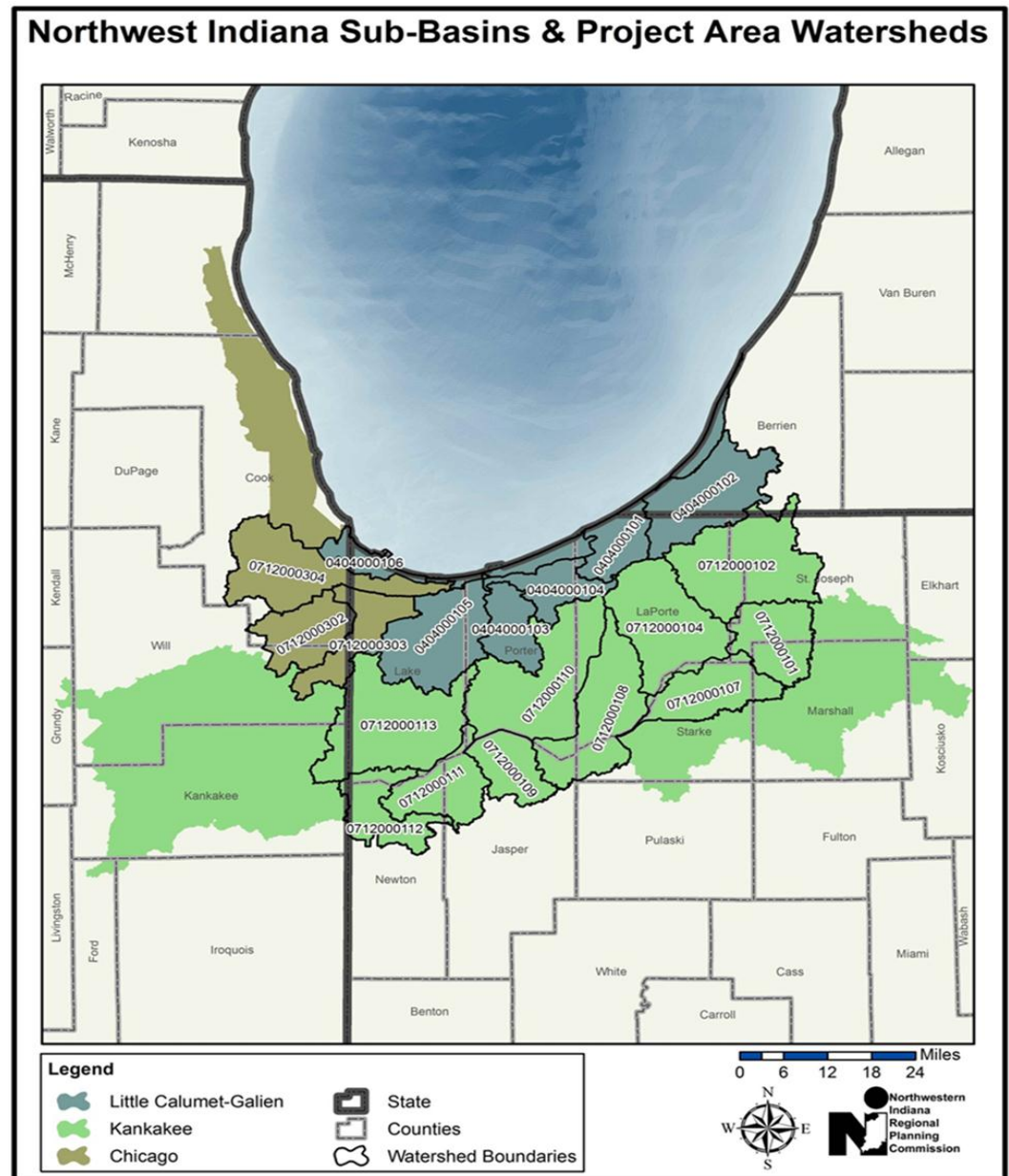


Figure 1 Sub-Basins & Watersheds in Framework Project Area

Little Calumet-Galien Sub-Basin

Within Indiana, the Little Calumet-Galien sub-basin (HUC 04040001) covers nearly 512 square miles of northern Lake, Porter, LaPorte, and St. Joseph Counties. Its land cover is a diverse mix of development (30%), agriculture (25%), forest (18%), wetland (13%), and grassland (8%). Of the 533 miles of stream and ditch that drain the landscape to Lake Michigan, nearly 277 miles (44%) are included on the 2008 303d List of Impaired Waterbodies (Figure 2). The most common impairments include *Escherichia coli* (132 miles) and Impaired Biotic Communities (109 miles). A total of 69 miles of stream have multiple impairments (ex. *E. coli* and impaired biotic communities) existing within the same reach. Some of the major tributaries in the sub-basin include the Little Calumet River, Deep River, Salt Creek, Trail Creek, and Galien River.

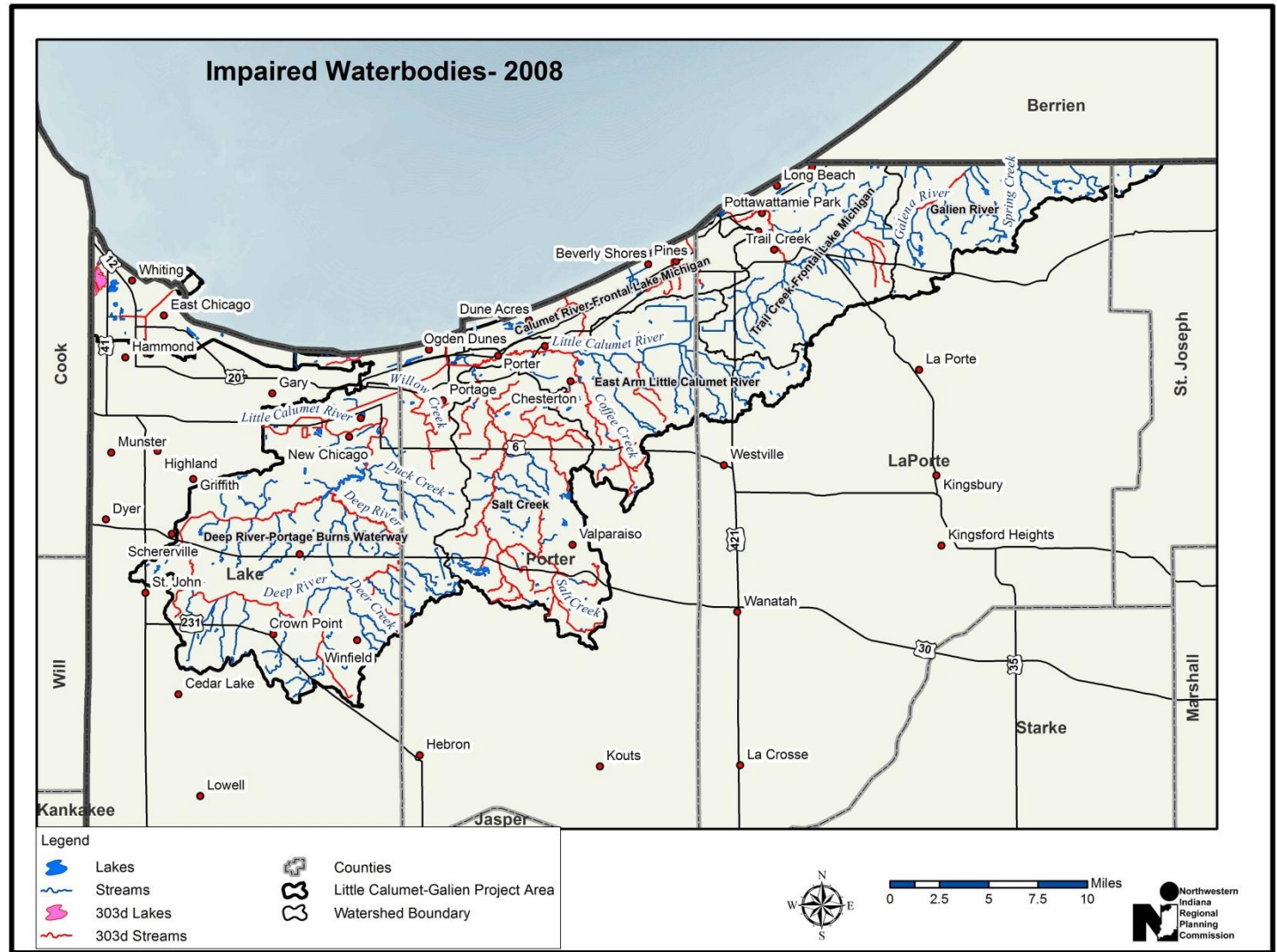


Figure 2 Little Calumet-Galien Sub-Basin Impaired Waterbodies

Kankakee Sub-Basin

The Kankakee sub-basin (HUC 07120001) covers nearly 3,029 square miles of Michigan, Indiana, and Illinois. Within Indiana, the project area drains approximately 1,605 square miles of predominately agricultural land (73%) in St. Joseph, Marshall, Starke, LaPorte, Jasper, Porter, Newton, and Lake Counties. Of the 2,073 miles of stream and ditch that drain this landscape, nearly 450 miles (22%) are included on the 2008 303d List of Impaired Waterbodies (Figure 3). The most common impairments include *E. coli* (230 miles) and Impaired Biotic Communities (158 miles). Multiple impairments exist in 127 miles of stream reach. Some of the major tributaries in the sub-basin include the Kankakee River, Little Kankakee River, Heinold Ditch, Mill Creek, Singleton Ditch, Cedar Creek and West Creek.

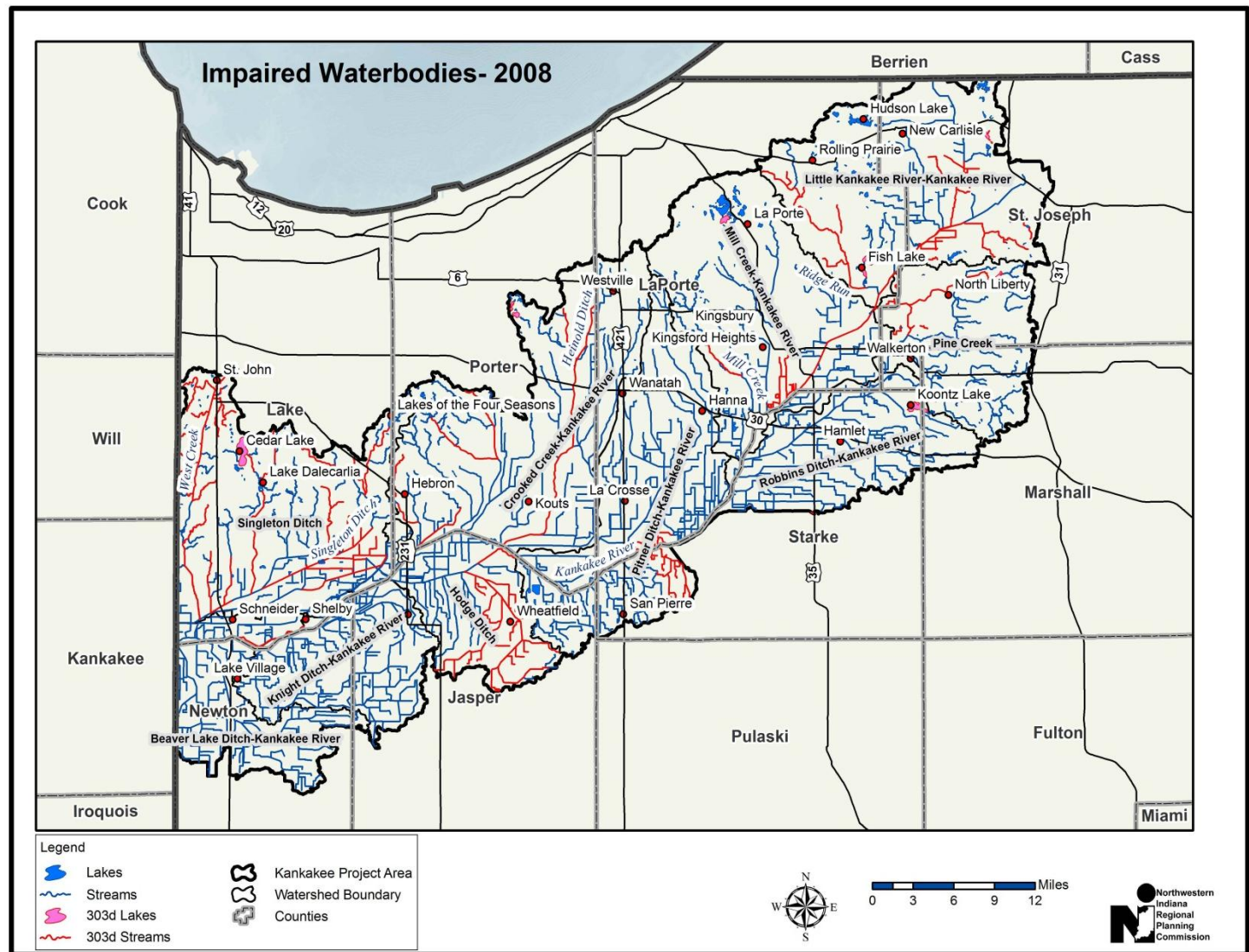


Figure 3 Kankakee Sub-Basin Impaired Waterbodies

Chicago Sub-Basin

The Chicago sub-basin (HUC 07120003) covers nearly 656 square miles of Indiana and Illinois. Within Indiana, the sub-basin drains approximately 90 square miles of predominately developed land (80%) in Lake County, Indiana. Of the 59 miles of stream and ditch that drain this landscape, nearly 32 miles (54%) are impaired (Figure 4). The most common impairments include Cyanide (21 miles), PCB’s in Fish Tissue (21 miles), Chloride (19 miles), *E. coli* (18 miles), Impaired Biotic Communities (18 miles), and Dissolved Oxygen (11 miles). Each impaired stream reach, with the exception of Dyer Ditch, has multiple impairments (29 miles). Some of the major tributaries in the sub-basin include the Little Calumet River, Grand Calumet River, Hart Ditch, Dyer Ditch, and Cady Marsh Ditch.

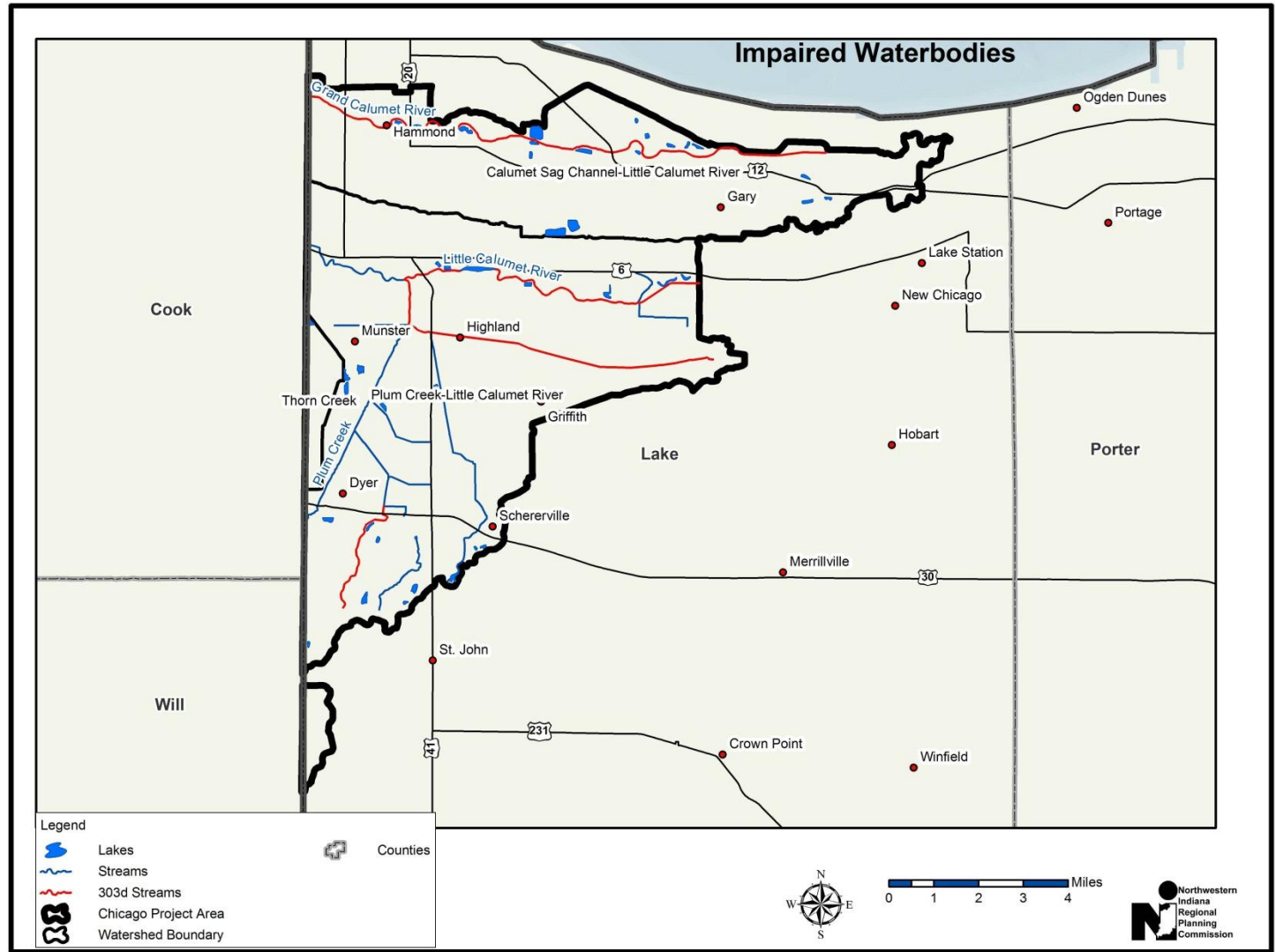


Figure 4 Chicago Sub-Basin Impaired Waterbodies

1.3 History of Watershed Planning in Northwest Indiana

Watershed management planning in the northern part of the region has experienced somewhat of a boom since 2002. The original 2005 Framework did provide sub-basin scale background information, broad nonpoint source pollution concerns, and restoration actions that could be incorporated by local groups developing plans. However, the catalyst for much of the recent watershed work can likely be attributed to the resources that IDEM has invested in it over the past several years (Figure 5). This and of course an ever increasing number of stakeholders seeing the merits of a watershed approach to addressing nonpoint source pollution and aquatic habitat degradation (Figure 6).

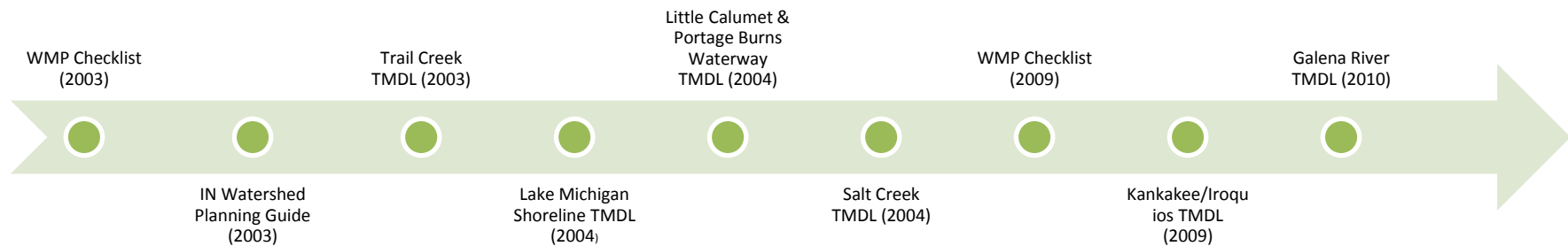


Figure 5 IDEM Projects Supporting WMP Development

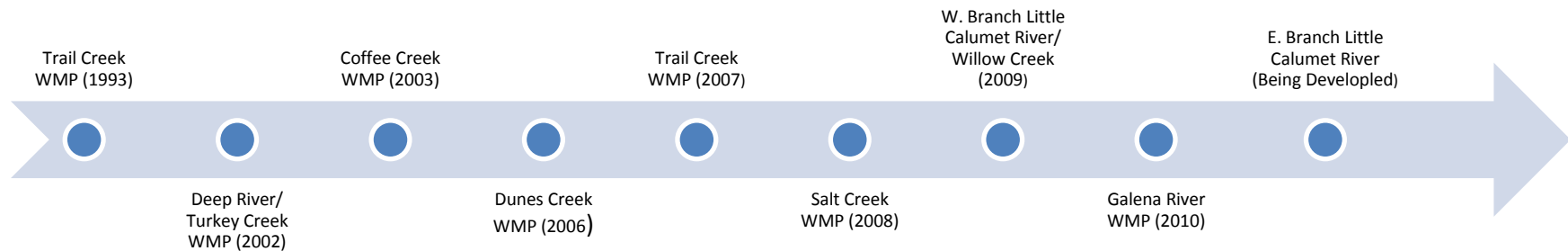


Figure 6 Watershed Management Planning Timeline in Northwest Indiana

1.4 Related Initiatives

The following are a few of the many related initiatives and programs in the region and state. Developing and implementing watershed management plans usually involves a combination of local, state and federal partners which can assist in plan development and implementation. These programs may have planning components, monitoring data, implement control measures, or even regulations that a local group can incorporate into a watershed management plan. Including representatives from these programs as local committee member may also be of value to the watershed plan development and implementation process. Additional details on related programs and initiatives are included in the sub-basin chapters of this document.

1.4.1 Indiana Coastal Nonpoint Pollution Control Program

As a participating member in the National Coastal Zone Management Program, the Indiana Lake Michigan Coastal Program (LMCP) has developed a Coastal Nonpoint Source Pollution Control Program to meet Federal requirements. The Coastal Nonpoint Pollution Control Program was established by Congress in 1990 to encourage better coordination between state coastal zone managers and water quality experts to reduce polluted runoff in the coastal zone. The Coastal Nonpoint Program, coordinated by the Indiana Department of Natural Resources, focuses on pollution prevention rather than restoration. Outlined in the Coastal Nonpoint Pollution Control Program document are a series of management measures that Indiana must implement under several broad categories including agricultural runoff; forestry runoff; marinas and recreational boating; channel modification; dams and erosion of stream banks and the shoreline; wetlands; riparian areas; and vegetated treatment systems for full program approval. Additionally the document lists the programs and authorities by which these measures are implemented. Watershed management planning and implementation plays a critical role in implementing this program. For more information about the Coastal Nonpoint Pollution Control Program please visit <http://www.in.gov/dnr/lakemich/6084.htm>.

1.4.2 Grand Calumet Remedial Action Plan

The Grand Calumet River has been listed as an Area of Concern (AOC) with the International Joint Commission since 1987. The Grand Calumet Remedial Action Plan (RAP) provides strategies for restoration and delisting of the Grand Calumet River, which is listed for all 14 Beneficial Use Impairments. The Citizens Advisory for the Remediation of the Environment committee and IDEM are leading this effort to restore the Grand Calumet River and delist it as an area of concern. For more information about the Grand Calumet River AOC please visit <http://www.epa.gov/glnpo/aoc/grandcal.html>.

1.4.3 Kankakee River Basin Commission

The Kankakee River Basin Commission (KRBC) was created in 1977 by the Indiana General Assembly to address water resource development issues, primarily flood control, siltation, and drainage problems, in the eight-county Kankakee River basin. Currently, the KRBC's priorities includes coordinating the water resources and the water related land resources of the Kankakee River basin in Indiana by promoting and protecting the varied aspects of the drain infrastructure with projects for flood control, drain maintenance, and environmental enhancements for natural resource conservation and recreational development. The KRBC provides the organizational structure to promote and sustain the development of surface and ground water for agricultural, residential, recreational and commercial purposes; to address water quality and instream issues; to restore and protect fisheries, wetlands and aquatic habitat; and to ensure future availability of water supplies in the basin. With the local drainage boards, the KRBC has continued a program to remove trees

and obstructions to the river channel which have led to scouring of the riverbanks and levees and also partnered with other local and state agencies to provide stabilization to the riverbanks through vegetation or rip rap. The KRBC also sponsors watershed management plan development for smaller watersheds within the larger basin. For more information about the KRBC please visit <http://kankakeeriverbasin.org/>.

1.4.4 Little Calumet River Basin Development Commission

The Little Calumet River Basin Development Commission was created in 1980 by the Indiana General Assembly to serve as the required local sponsor for the Little Calumet River, Indiana Flood Control and Recreation Project. The Federal project, which was authorized for construction in the 1986 Water Resources Development Act, is designed to provide structural flood protection up to the 200-year level along the main channel of the Little Calumet River from the Illinois State Line to Martin Luther King Drive in Gary. Project features include 9.7 miles of set-back levees in Gary and Griffith; 12.2 miles of levees and floodwalls in Hammond, Highland and Munster; a flow diversion structure at the Hart Ditch confluence in Hammond/Munster; and modification of four major highway bridges to permit better flow. A direct benefit of the project is the creation of a 2,000 acre river/recreation corridor system. For more information about the Little Calumet River Basin Development Commission please visit <http://www.littlecalumetriverbasin.org/>.

1.4.5 National Pollutant Discharge Elimination System (NPDES)

The Clean Water Act of 1972 enabled the National Pollutant Discharge Elimination System (NPDES) to require a permit to discharge pollutants to waterbodies within the United States. The permit includes a limit to the amount of pollutant that can be discharged. Municipal wastewater treatment plants and industrial users that discharge pollutants into streams and rivers are required to obtain NPDES permits. The purpose of the NPDES permit is to protect water bodies from point source pollution. Pollution in the waterbodies can limit recreational uses as well as impair drinking water sources. NPDES permits in Indiana are obtained through the IDEM with oversight from USEPA Region 5. In total, 129 NPDES facilities are located within the Watershed Frame project area based on information obtained from EPA's Enforcement & Compliance History Online (ECHO) system <http://www.epa-echo.gov/echo/>. For more information about the NPDES program please visit <http://www.in.gov/idem/4894.htm>.

1.4.6 Municipal Separated Storm Sewer Systems (MS4) Program

MS4s are defined as a conveyance or system of conveyances owned by a state, city, town, or other public entity that discharges to waters of the United States and is designed or used for collecting or conveying storm water. The Clean Water Act requires storm water discharges from certain types of urbanized areas to be permitted under the National Pollutant Discharge Elimination System (NPDES) program. In 1990, Phase I of these requirements became effective, and municipalities with a population served by a municipal separate storm sewer system (MS4) of 100,000 or more were regulated. In 1999, Phase II became effective, and any entity responsible for an MS4 conveyance, regardless of population size, could potentially be regulated.

Within Lake, Porter and LaPorte Counties there are a total of 29 designated MS4 entities currently permitted by IDEM. The MS4 program requires communities to develop, implement, and enforce a stormwater management program that will reduce the discharge of pollutants. The program has six (6) minimum control measures and should identify best management practices (BMPs) and measurable goals for each measure. The six (6) control measures are: 1) Public Education and Outreach, 2) Public Participation/Involvement, 3) Illicit Discharge Detection and Elimination, 4) Construction Site Runoff

Control, 5) Post-construction Runoff Control, and 6) Pollution Prevention/Good Housekeeping. NIRPC is conducting the first two control measures for most MS4 communities within Lake and Porter Counties. For more information about the program please visit <http://www.in.gov/idem/4900.htm>.

1.4.7 Integrated Water Monitoring and Assessment Report and Total Maximum Daily Loads (TMDL) Reports

IDEM develops the Integrated Water Monitoring and Assessment Report every two years to fulfill the requirements of Sections 305(b) and 303(d) of the federal Clean Water Act (CWA). Section 305(b) of the Clean Water Act requires IDEM to assess and report on whether Indiana waters support the beneficial uses designated in Indiana's water quality standards. Section 303(d) requires IDEM to identify impaired waters that do not meet applicable water quality standards or for which one or more designated uses are threatened. This information is submitted to the U.S. EPA every two years. The most current report available can be found at <http://www.in.gov/idem/nps/2639.htm>.

The Integrated Report includes the Consolidated List which places each of Indiana's waterbodies into one or more categories. The category a waterbody falls under depends on what is known about the water quality:

- Category 1: The waterbody is fully supporting all of its designated uses and none of its uses are threatened.
- Category 2: The waterbody is fully supporting the designated use assessed and no other use is threatened; insufficient data and information are available to determine if the remaining uses are supported or threatened.
- Category 3: Insufficient data and information are available to determine if the waterbody is supporting its designated use.
- Category 4: The designated use is impaired or threatened but a total maximum daily load (TMDL) is not required because:
 - a) A TMDL has already been completed for the impairment(s) and approved by U.S. EPA and is expected to result in attainment of all applicable water quality standards;
 - b) Other pollution control requirements are reasonably expected to result in the attainment of the water quality standard in a reasonable period of time; and/or,
 - c) Impairment is not caused by a pollutant.
- Category 5: The designated use is impaired, and a TMDL is required because:
 - a) The aquatic life use, recreational use, or drinking water use is impaired or threatened by one or more pollutant;
 - b) The "fishable use" of the waterbody is impaired; and/or,
 - c) The concentration of mercury or PCBs in the edible tissue of fish collected from the waterbody exceeds Indiana's human health criteria for these contaminants.

The 303(d) list is comprised of the Category 5 waters on Indiana’s Consolidated List and is included in Appendix A of the Integrated Report. Waterbodies placed on the 5A list are required to undergo a planning process designed to reduce the amount of the pollutant(s) for which it is listed from both point and nonpoint sources of pollution. This process is called Total Maximum Daily Loads (TMDL). IDEM defines a TMDL as “a process that leads to quantification of the amount of a specific pollutant discharged into a waterbody that can be assimilated and still meet the water quality standards (designated uses).” Six TMDLs have been developed to date which are relevant to the region and are included in Table 1 below. Copies of TMDL reports can be viewed and downloaded at <http://www.in.gov/idem/nps/2652.htm>.

TMDL Name	Parameter	Approval Date
Galena River Watershed	<i>E. coli</i>	09/20/2010
Kankakee/Iroquois Watershed	<i>E. coli</i>	09/29/2009
Lake Michigan	<i>E. coli</i>	09/01/2004
Little Calumet River & Burns Ditch	<i>E. coli</i>	01/28/2005
Salt Creek	<i>E. coli</i>	09/27/2004
Trail Creek	<i>E. coli</i>	03/01/2004

Table 1 Relevant TMDLs.

Figure 7 shows the waterbodies that have been included by IDEM on the 2008 303(d) list. Further details are presented in the sub-basin and watershed template sections. Alternatively, IDEM has created a web-based GIS application called “e303d”² that displays impaired waters along with additional information associated with the listings, such as the development status of TMDLs and the establishment of watershed management plans (WMPs). This application offers users the ability to zoom to their address, waterbody, county, or watershed, identify waterbodies and all associated listing category data, TMDLs and WMPs where these activities are or have been occurring in the selected area, and provides the assessments reported in the Integrated Report. To begin using the “e303d” tool please visit.

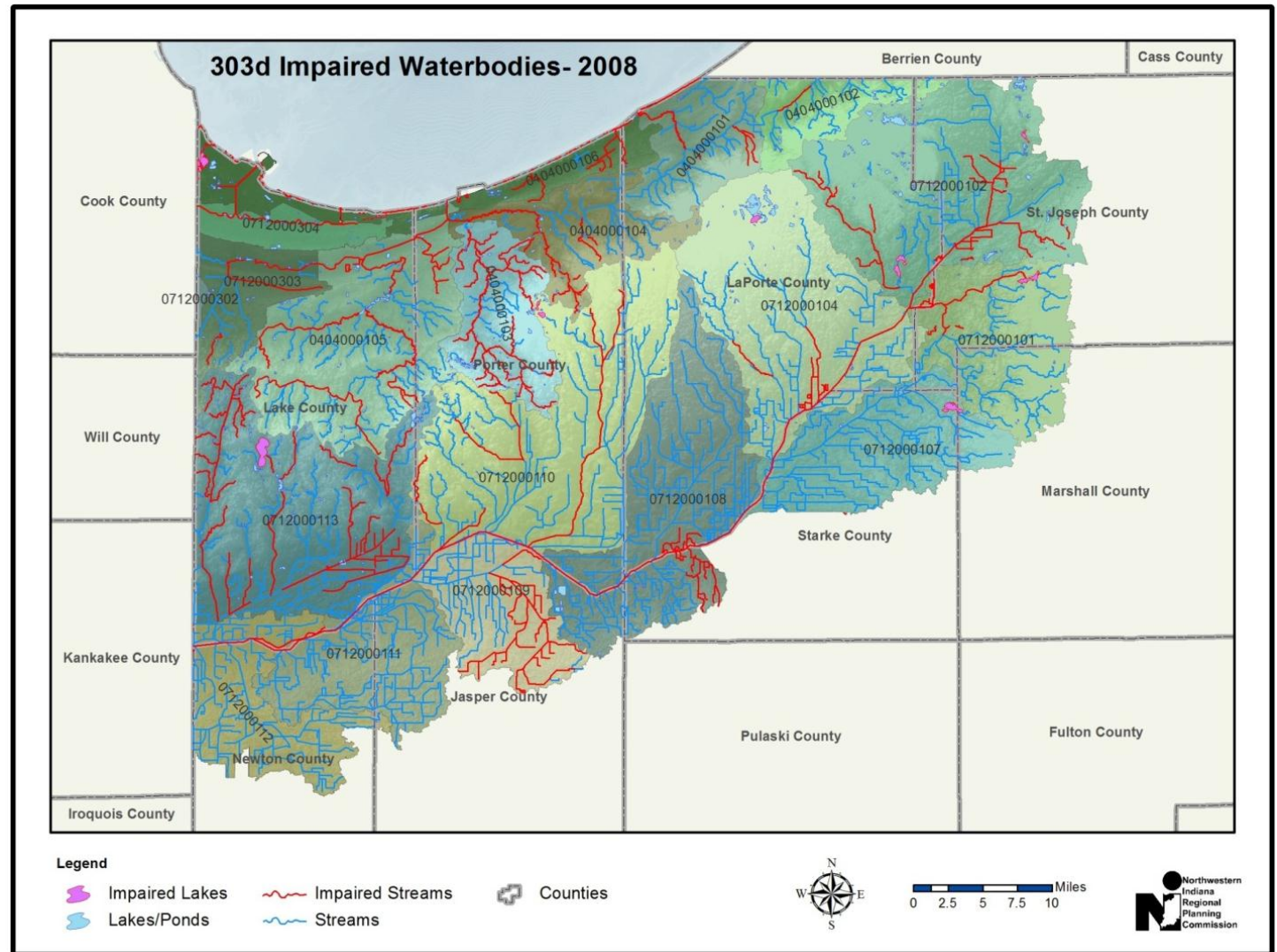


Figure 7 303(d) Impaired Waterbodies (2008)

² <http://www.in.gov/idem/nps/3474.htm>

1.5 Framework Development

This update expands upon the work completed with the 2005 Watershed Framework by including more data and information at the watershed and subwatershed level. Watershed boundaries that touch upon Lake, Porter and LaPorte Counties have been expanded to include their full coverage into adjacent counties within Indiana. Land cover data for the watersheds that Indiana shares with Illinois have been included as well. A threshold/exceedance analysis of several water quality, habitat, and biological parameters has been included based upon target values from IDEM. Information on soils, topography, and land cover has been greatly expanded upon. All of these changes and additions will be incorporated into the watershed templates.

The watershed templates are being specifically developed to assist groups and communities that are interested in pursuing the development of watershed management plans that meet IDEM's 2009 Watershed Management Plan Checklist. Information within these templates may also be of benefit for those wishing to pursue other grant program opportunities such as the DNR's Lake and River Enhancement (LARE) Program or are interested in finding out what water quality issues may exist within their watershed or community. Any community or group interested in a watershed template for their particular watershed of interest can contact Joe Exl, NIRPC Senior Water Resource Planner, at 219-763-6060 or jexl@nirpc.org.

The Framework may also be of interest to MS4 entities required to characterize the water quality of all known waters of the state that receive storm water outfall discharges with their program area (327 IAC 15-13-7 Storm Water Quality Management Plan: Part B).

1.6 Document Format

Chapters 2-4 of the Northwest Indiana Watershed Management Framework are dedicated to the description of our region's sub-basins including the Little Calumet-Galien, Chicago, and Kankakee. The background information in these chapters has been expanded considerably to include regional analysis of topography, soils, land use, water quality, and pollutant loading and reduction information. Chapter 5 includes potential implementation measures that stakeholders may want to consider for inclusion for any watershed management plan developed in Northwest Indiana. The management measures and practices are consistent with federal guidance developed by the U.S. Environmental Protection Agency and align with the implementation strategy set forth by IDEM in the Indiana Nonpoint Source Management Program.