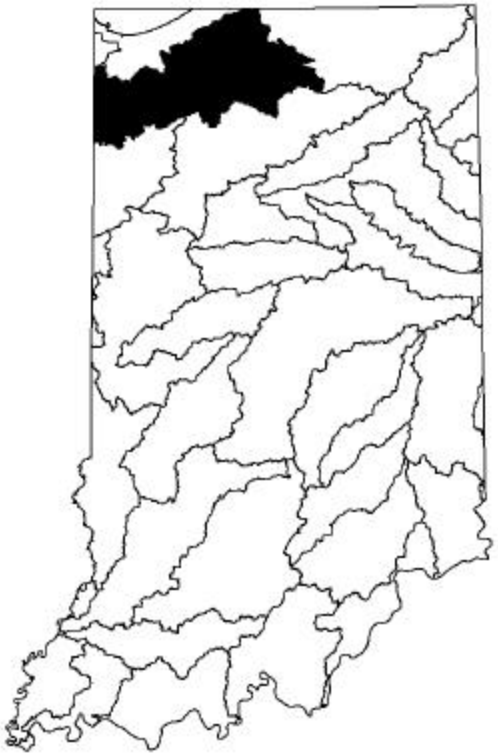
Kankakee River Watershed Restoration Action Strategy

Part I: Characterization and Responsibilities



Prepared by

Indiana Department of
Environmental Management
Office of Water Quality

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FOREWORD

The First Draft (October 1999) of the Watershed Restoration Action Strategy (WRAS) was reviewed internally by IDEM and revised accordingly. The Second Draft (April 2000) was reviewed by stakeholders and revised accordingly. This Third Draft (January 2001) is intended to be a living document to assist restoration and protection efforts of stakeholders in their sub-watersheds. As a "living document" information contained within the WRAS will need to be revised and updated periodically.

The WRAS is divided into two parts: Part I, Characterization and Responsibilities and Part II, Concerns and Recommendations.

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EXECUTIVE SUMMARY

The overall goal and purpose of Part I of the Watershed Restoration Action Strategy (WRAS) is to provide a reference point and map to assist local citizens with improving water quality. The major water quality concerns and recommended management strategies will be addressed in Part II: Concerns and Recommendations of the WRAS.

This Strategy broadly covers the entire watershed; therefore, it is intended to be an overall strategy and does not dictate management and activities at the stream site or segment level. Water quality management decisions and activities for individual portions of the watershed are most effective and efficient when managed through sub-watershed plans. However, these sub-watershed plans must also consider the impact on the watershed as a whole.

This Strategy is intended to be a fluid document in order to respond to the changing and dynamic quality of our environment. Therefore, this Strategy will require revision when updated information becomes available.

Overview of the Kankakee River Watershed

The Kankakee River stretches across Indiana for 90 miles starting near South Bend in St. Joseph County and ending at the Illinois State line. The River continues for 57 miles through Illinois before its confluence with the Des Plaines River. The confluence of the Des Plaines and Kankakee rivers form the Illinois River.

The Kankakee valley was originally a Grand Marsh of more than 500,000 acres of river channel, lakes, marsh and marginal wetlands. The original river channel meandered 240 miles in Indiana. In the late 1800's efforts were made to drain the wetlands; this was accomplished around 1917. The Kankakee River basin drains 1.9 million acres of land within Indiana. Today straight channels produced from ditching, dredging and channelization, associated with agricultural production, characterize the watershed.

The land cover in the watershed is predominantly agriculture, representing approximately 82% of the total land cover. Corn and soybeans comprise the majority of the crops produced in the Kankakee River watershed.

Current Status of Water Quality in the Kankakee River Watershed

Section 303(d) of the Clean Water Act requires states to identify waters that do not meet, or are not expected to meet, applicable water quality standards. The Clean Water Act Section 303(d) list for Indiana provides a basis for understanding the current status of water quality in the Kankakee River Watershed. The following waterbodies are on Indiana's 1998 Clean Water Act Section 303(d) list submitted to and approved by EPA:

Table E-1
Indiana's 1998 Clean Water Act Section 303(d) List

Kankakee River Watershed

WATERBODY / COUNTY NAME	REASON
Beaver Creek/Newton	Impaired Biotic Communities
Cedar Creek /Lake	Impaired Biotic Communities
Cedar Lake/Lake	FCA for PCB
Cobb Creek-Breyfogel Ditch/Porter	D.O., Impaired Biotic Communities
Crooked Creek/ LaPorte and Porter	Impaired Biotic Communities
Dyer Ditch/Lake	Impaired Biotic Communities
Kankakee River/Jasper and Newton	FCA for PCB
Kankakee River/Lake and LaPorte	FCA for PCB and Hg, E.coli
Pine Creek/Starke	D.O.
Unnamed Ditch/(Wyatt) St. Joseph	E.coli

FCA = Fish Consumption Advisory
PCB = Polychlorinated Biphenyls
Hg = Mercury
D.O. = Dissolved Oxygen

Water Quality Goal

The overall water quality goal for the Kankakee River Watershed is that all waterbodies meet the applicable water quality standards for their designated uses as determined by the State of Indiana, under the provisions of the Clean Water Act.

Kankakee River Watershed Restoration Action Strategy

Part I: Characterization and Responsibilities

1. Introduction

The Clean Water Action Plan states that "States and tribes should work with public agencies and private-sector organizations and citizens to develop, based on the initial schedule for the first two years, Watershed Restoration Action Strategies, for watersheds most in need of restoration." A WRAS is essentially a large-scale coordination plan for an eight-digit hydrologic unit watershed targeted by the Unified Watershed Assessment. In Indiana, 11 such units, including the Kankakee River watershed, were designated for restoration by the FFY 1999 Unified Watershed Assessment. Each year, the Assessment will be refined further as additional information becomes available, and targeted areas will become more specific. This will require amendments to the WRAS, which must be flexible and broad enough to accommodate change. The WRAS will also foster greater cooperation among State and Federal agencies, which should result in more effective use of personnel and resources.

The WRAS provides an opportunity to assemble, in one place, projects and monitoring that has been completed or is on going within a watershed. It also allows agencies and stakeholders to compare watershed goals and provides a guide for future work within a watershed.

The WRAS for the Kankakee River watershed contains two parts. Part I provides a characterization of water quality in the watershed and agency responsibilities. Part II provides a discussion of resource concerns and recommended strategies.

1.1 Purpose of This Document

The overall goal and purpose of the Watershed Restoration Action Strategy Part I is to provide a reference point and roadmap to assist with improving water quality. Part I is a compilation of information, facts, and local concerns in this watershed. It will serve as a reference document for watershed groups and others involved in the assessment and planning of watershed restoration activities.

Part I of the Strategy is intended to be a fluid document in order to respond to the changing and dynamic quality of our environment. Therefore, it will require revision when updated information becomes available.

1.2 Guide to the Use of This Document

Chapter 1: Introduction - This Chapter provides a non-technical description of the purpose of Part 1 of the Strategy. This Chapter also provides an overview of stakeholder groups in the Kankakee River watershed.

Chapter 2: General Watershed Description- Some of the specific topics covered in this chapter include:

An overview of the watershed
Hydrology of the watershed
A summary of land use within the watershed
Natural resources in the watershed
Population statistics
Major water uses in the watershed
Water quality classifications and standards

Chapter 3: Causes and Sources of Water Pollution - This Chapter describes a number of important causes of water quality impacts including biochemical oxygen demand (BOD), toxic substances, nutrients, E. coli bacteria and others. This Chapter also describes both point and nonpoint sources of pollution.

Chapter 4: Water Quality and Use Support Ratings - This Chapter describes the various types of water quality monitoring conducted by IDEM. It summarizes water quality in the watershed based on Office of Water Quality data, and presents a summary of use support ratings for those surface waters that have been monitored or evaluated.

Chapter 5: State and Federal Water Quality Programs - Chapter 5 summarizes the existing State and Federal point and nonpoint source pollution control programs available to address water quality problems. These programs are management tools available for addressing the priority water quality concerns and issues that are discussed in Part II of the Strategy. Chapter 5 also describes the concept of Total Maximum Daily Loads (TMDLs). TMDLs represent management strategies aimed at controlling point and nonpoint source pollutants. IDEM's TMDL Strategy will also be discussed.

1.3 Stakeholder Groups in the Watershed

The Kankakee River watershed contains several stakeholder groups that have different missions (Appendix C). Many of these groups have a long history of conservation work in the Kankakee River watershed. The following discussions briefly describe some of the watershed groups.

Elkhart County Soil and Water Conservation District

The Elkhart County Soil and Water Conservation District has developed a Long Range Plan and Annual Work Plan. Listed below are concerns addressed in their plans:

1. Monitor surface water quality
2. Facilitate communication between ag and urban
3. Education and information on septic systems
4. Assist farmers in removing livestock from drainage ways

Jasper County Soil and Water Conservation District

The Jasper County Soil and Water Conservation District has prioritized the concerns for the Kankakee River watershed. Listed below are their top five resource concerns.

1. Water Quality
2. Flood Control
3. Wetland restoration
4. Irrigation
5. Wildlife (including fisheries, recreation, improvement)
6. Increased Development

Kosciusko County Soil and Water Conservation District

The Kosciusko County Soil and Water Conservation District has held locally led meetings to prioritize concerns of the local people related to natural resources. Following are some of the concerns addressed through this process.

1. Loss of land to urban sprawl
2. Threats to right to farm
3. Lack of erosion control
4. Lack of water usage plan
5. Loss of fish and wildlife habitat
6. Disappearing wetlands as they relate to water quality
7. Lack of Stewardship Ethic
8. Lack of manure management

Lake County Soil and Water Conservation District

The Lake County Soil and Water Conservation District has held public meetings to prioritize the natural resource concerns in their county. Following are listed the highest concerns.

1. Erosion of cropland
2. Rural preservation, survival of the farm unit and farmland /woodland
3. Water quality, animal/fertilizer runoff, lack of filter strips, pesticide management
4. Drainage and Flood control, lack of proper drainage/retention ponds
5. Urban conservation , need for increased urban conservation/education
6. Lack of money and power, lack of funds, political control, and enforcement
7. Air quality, enforcement consistency in pollution laws, education

LaPorte County Soil and Water Conservation District

LaPorte County Soil and Water Conservation District conducted locally led conservation meetings to identify natural resource concerns for their county. Listed below are the top five issues:

1. Poor land use planning.
2. Community lacks awareness of resources concerns, wildlife issues, and lack of agricultural knowledge by the general public and industry

3. Water quality
4. Right to farm
5. Wetlands

Newton County Soil and Water Conservation District

Newton County Soil and Water Conservation District conducted locally led conservation meetings to identify natural resource needs and concerns within their county. Listed below are the top concerns for the county:

1. Decrease wind and water erosion
2. Remove sediment caused by water wind erosion from surface water
3. Determine if a groundwater quality problem exists and what are the source(s)
4. Wind borne contaminates

Porter County Soil and Water Conservation District

The Porter County Soil and Water Conservation District has held local meetings to identify local natural resource needs. Listed below are the top five concerns for their county.

1. Loss of Farmland
2. Urban Conservation Practices
3. Water Quality
4. More funding for conservation practices
5. Loss of topsoil

Pulaski County Soil and Water Conservation District

The Pulaski County Soil and Water Conservation District has identified the following resources concerns.

1. Drainage
2. Wind Erosion
3. Water Quality
4. Wildlife habitat

St. Joseph County Soil and Water Conservation District

The St. Joseph County Soil and Water Conservation District has conducted locally led meetings to gather the concerns of the local people on issues related to natural resources. Through these meetings the concerns have been prioritized; they are listed below.

1. Zoning to protect farmland, highly productive land

2. Water quality, ground and surface water related to septic and wells
3. Urban Growth
4. Education;stewardship in natural resources, soils and drainage, conservation

Starke County Soil and Water Conservation District

The Starke County Soil and Water Conservation convened the Starke County Local Conservation Work Group to assess and prioritize the natural resources needs and concerns of their county. Listed below are the concerns related to water resources.

1. Lack of maintenance on the Kankakee, Yellow, Tippecanoe Rivers, lack of master drainage plan, farmland flooding
2. Lack of filter strips on main tributaries causing sedimentation
3. Groundwater quality, contamination from urban sources, shallow wells
4. Lack of plan for urban runoff
5. Water rights, irrigation
6. Non point source pollution in surface water, herbicide runoff, livestock runoff
7. Source point pollution, wells
8. Water contamination from farm sources, flooding and runoff

Kankakee River Basin Commission

The Kankakee River Basin Commission (KRBC) was created in 1977 by the Indiana State legislature. The KRBC areas of concern include:

1. Drainage and flooding
2. Proper fish and wildlife management
3. Protection, preservation of remaining wetlands and forests
4. Recreational potential

2 General Watershed Description

This Chapter provides a general description of Kankakee River and its watershed and includes the following:

Section 2.1 Kankakee River Watershed Overview
Section 2.2 Land Cover, Population, and Growth Trends
Section 2.3 Agricultural Activities in the Kankakee River Watershed
Section 2.4 Significant Natural Areas in the Kankakee River Watershed
Section 2.5 Surface Water Use Designations and Classifications
Section 2.6 US Geological Survey Water Use Information for the Kankakee River Watershed

2.1 Kankakee River Watershed Overview

The Kankakee River Watershed is an 8 digit (07120001) hydrologic unit code (HUC) watershed located in northwest Indiana (Figure 2-1). The watershed in Indiana encompasses 1.9 million acres with nearly 1.6 million acres of that being cropland. The Kankakee River originally was a large marsh area caused by the receding ice sheet from the Wisconsin glacial age. Today the river averages 1 foot of fall per mile throughout the Indiana portion of the River. Today the Kankakee has been channeled and straightened to improve drainage.

Geology and Soils

The Kankakee River is part of the upper Mississippi River watershed. The river has a length of 135 miles. The topography of the Kankakee watershed was impacted greatly by the Wisconsin glacial age. After the ice receded the water scoured a floodplain 2 to 10 miles wide. The river contains low flow velocities, which allows sediment to settle to the river bottom instead of being flushed downstream. The sedimentation problem is due mainly to unstable agricultural ditch banks and adjacent cropland. Water contributing to the flow of the Kankakee River is mainly from groundwater through the pervious, sandy soils. Flooding is frequent but is usually maintained within the riverbanks. Out of bank flows occur on average every two years. (KRBC 1989)

Since most of the soils are sandy, nearly level, somewhat poorly to poorly drained, extensive drainage work has been completed in the watershed. Most of this work was completed by the early 1900s. Today efforts to maintain the drainage-ways and preserve wetlands and wetland habitat continue.

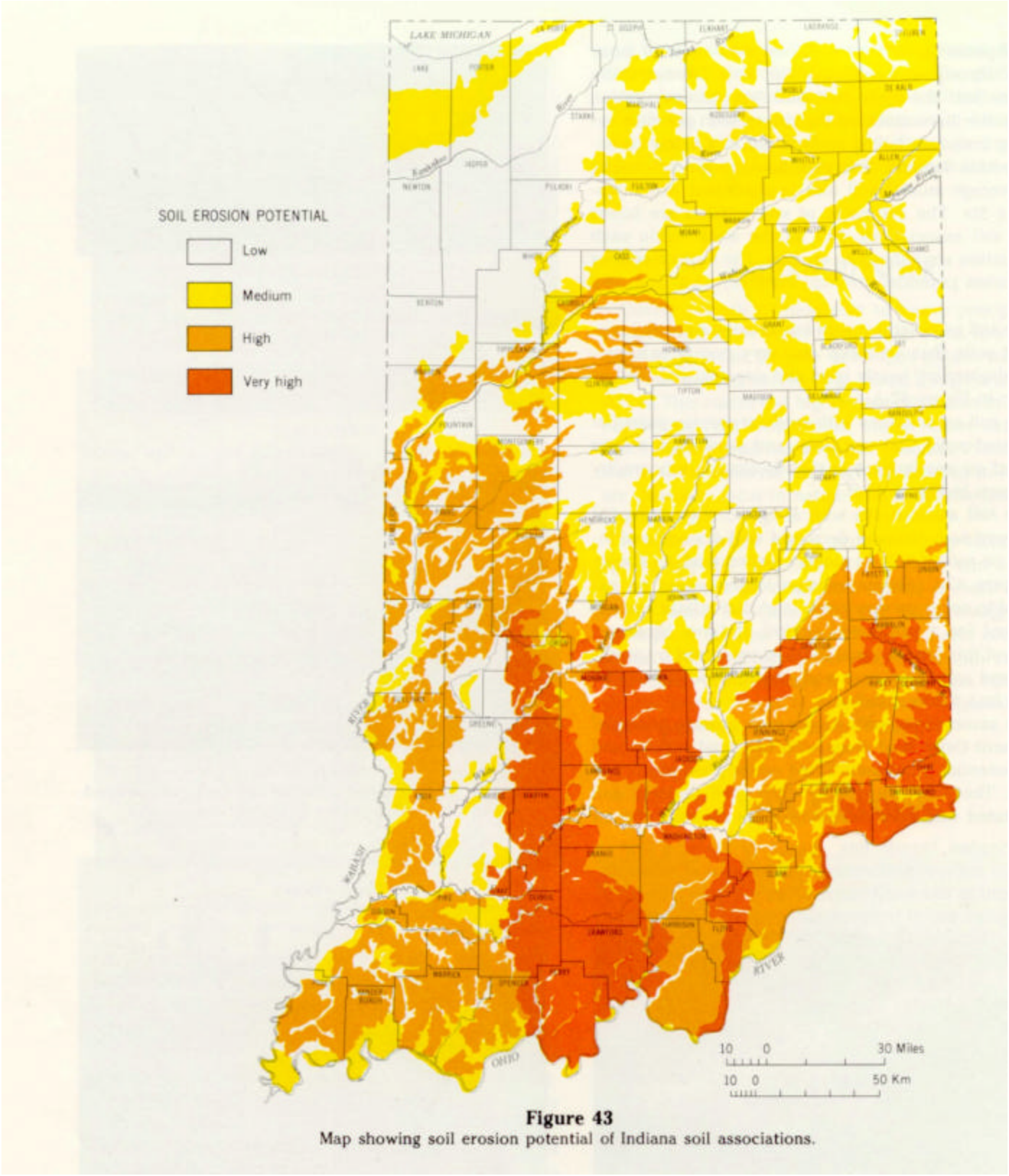


Figure 43
Map showing soil erosion potential of Indiana soil associations.

Figure 2-3 Erosion Potential *
**** from The Indiana Water Resource, IDNR, 1980***

Climate

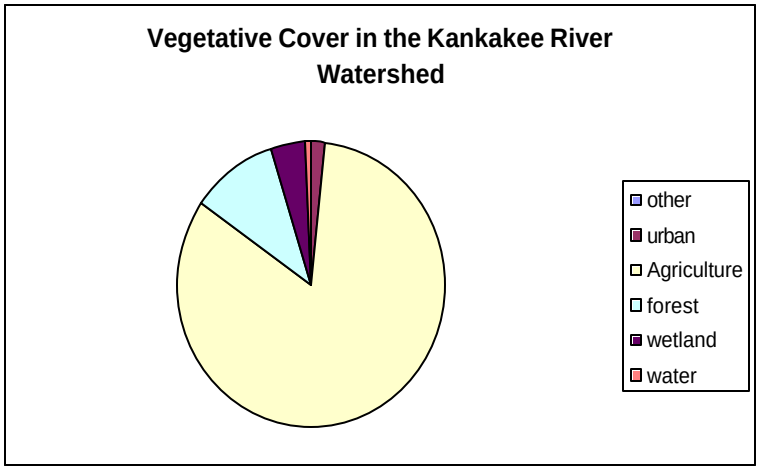
Average daily high temperature in winter is 25-27 degrees F and the average daily low temperature is 16-19 degrees F. In summer the average daily high temperatures is 72 degrees F and the average daily maximum is 83-85 degrees F. Total precipitation is about 37 inches; 60 percent of this falls between April and September. Snowfall averages 28-36 inches. Prevailing wind is from the south-southwest with average winds of 12 miles per hour, in spring. (USDA Soil Survey: Marshal1 and Newton Counties)

2.2 Land Cover, Population, and Growth Trends

2.2.1 General Land Cover

The native vegetation of the Kankakee River watershed consisted mainly of grasslands and wetlands, part of the Grand Kankakee Marsh. The area was a mixture of wet prairie, marshes, and shallow lakes. Throughout the watershed small areas of old wind-blown dunes still exist These are called the Kankakee sands and support the dessert like oak barrens. Frequent fires helped maintain the plant communities. Species that thrived included little and big bluestem, Indiana grass, prairie dropseed, side-oats gramma, prairie dock, blue lupine, butterfly weed, yellow wild indigo and prairie blazingstar (TNCIN 1996) Today this vegetation has been replaced with an intensive agricultural base.

The U.S. Geological Survey - Biological Resources Division and the U.S. Fish and Wildlife Service are overseeing the National Gap Analysis Program (GAP). In Indiana, Indiana State University and Indiana University are carrying out the Indiana GAP Project which involves an analysis of current vegetative land cover through remote sensing (ISU 1999). This analysis provides vegetative land cover data in 30 by 30-meter grids (Figure 2-4). The following is a summary of vegetative cover in the watershed determined from the GAP image:



2.2.2 Population

The 1990 total population in the eleven counties that have land portions in the watershed was 1,278,300 (IRBC 1993). Table 2-1 shows a break down of population by county and estimated population projections. It should be noted that these numbers do not reflect the actual population living in the Kankakee River watershed. A better estimate of the population within the Kankakee River watershed may be the 1990 and 1995 U.S. Geological Survey Water Use Reports, which show a total population in the watershed of 220,800 in 1990 and 233,860 in 1995 (Table 2-6). These reports indicate that the population in the watershed appears to have grown by about 5.6 percent between 1990 and 1995.

The U.S. Census and the Indiana Business Research Center also provide information about the population in cities and towns. Table 2-2 contains population estimates for various cities and towns located wholly within the watershed.

TABLE 2-1
KANKAKEE RIVER COUNTY POPULATION PROJECTIONS 1990-2020*

County	1990	2000	2010	2020	Percent Change (1990 to 2020)
Elkhart	156,200	169,600	178,400	184,800	+ 15.2
Jasper	25,000	25,700	26,600	27,100	+ 7.7
Kosciusko	65,300	70,300	74,600	78,300	+ 16.8
Lake	475,600	470,400	478,500	486,600	+ 2.3
LaPorte	107,100	108,200	109,600	110,600	+ 3.2
Marshall	42,200	44,300	46,400	48,000	+ 12.1
Newton	13,600	13,500	13,900	14,200	+ 4.3
Porter	128,900	133,000	135,300	133,500	+ 3.4
Pulaski	12,600	12,700	13,200	13,900	+ 9.3
St. Joseph	247,100	254,500	258,300	260,100	+ 5.0
Starke	22,700	23,400	24,000	24,500	+ 7.3

* IBRC 1993

TABLE 2-2
KANKAKEE RIVER CITY AND TOWN POPULATION ESTIMATES*

City/Town	Census 1990	Estimate 1996	Percent Change (1990 to 1996)
Bremen	4,725	4,975	+ 5.3
DeMotte	2,482	3.738	+ 50.6
Hamlet	789	821	+ 4.1
Hebron	3,183	3,446	+ 8.3
Kingsbury	258	264	+ 2.3
Kingsford Heights	1,486	1,433	- 3.6
Knox	3,705	3,884	+ 4.8
LaCrosse	677	638	- 5.8
Lapaz	562	583	+ 3.7
LaPorte	21,507	20,696	- 3.8
Lakeville	655	744	+ 13.6
Lowell	6,430	7,162	+ 11.4
Nappanee	5,474	5,812	+ 6.2
New Carlisle	17,753	17,293	- 2.6
North Judson	1,582	1,552	- 1.9
North Liberty	1,366	1,553	+ 13.7
Plymouth	8,291	9,779	+ 17.9
Walkerton	2,061	2,115	+ 2.6
Wanatah	852	950	+ 11.5
Wheatfield	439	451	+ 2.7

* IBRC 1997

2.3 Agricultural Activities in the Kankakee River Watershed

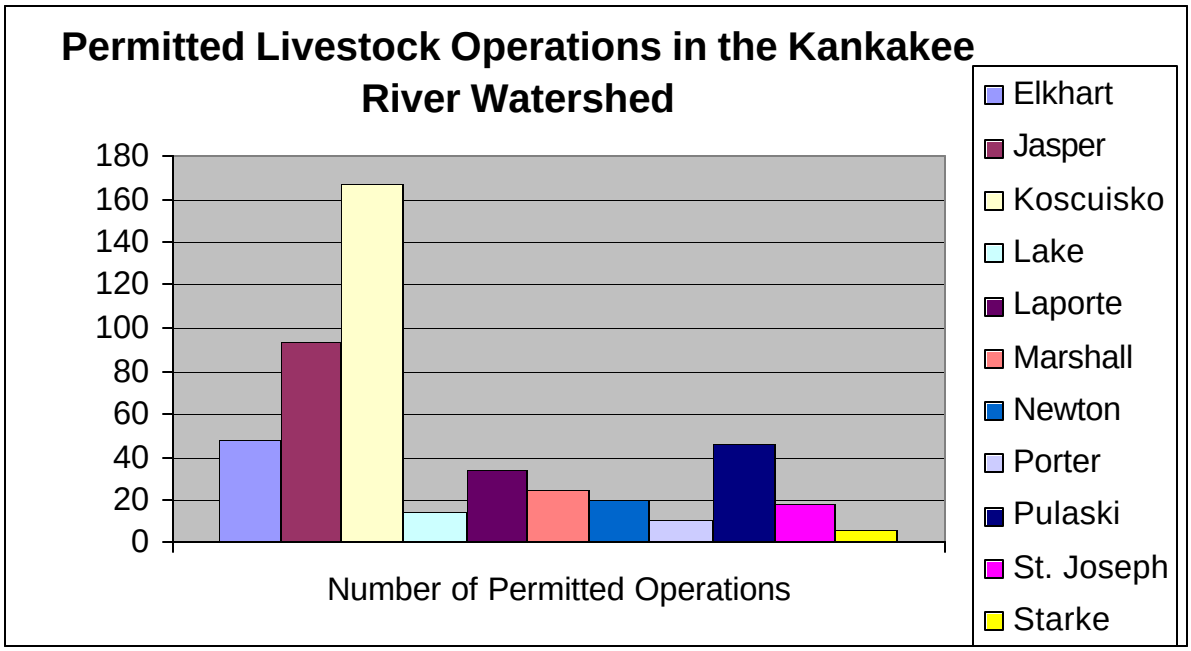
Agriculture is the dominant land use in the Kankakee River Watershed. Section 2.2.1 shows that 82 percent of land cover in the watershed is algricultural vegetation. This section provides an overview of the agricultural activities in the watershed.

2.3.1 Livestock Operations

Confined feeding is the raising of animals for food, fur or recreation in lots, pens, ponds, sheds or buildings, where they are confined, fed and maintained for at least 45 days during any year, and where there is no ground cover or vegetation present over at least half of the animals' confinement area. Livestock markets and sale barns are generally excluded (IDEM 1999).

Indiana law defines a confined feeding operation as any livestock operation engaged in the confined feeding of at least 300 cattle, or 600 swine or sheep, or 30,000 fowl, such as chickens, ducks and other poultry. The IDEM regulates these confined feeding operations, as well as smaller livestock operations which have violated water pollution rules or laws, under IC 13-18-10.

As of October 1999, there were 481 livestock producers operating under the Confined Feeding Rules in the eleven counties of the watershed (IDEM 1999).



2.3.2 Crop Production

As discussed previously, the soils of the Kankakee River watershed are good for crop production. Table 2-4 lists the 1997 acres of the major crops produced in 1997 throughout the eleven counties in the watershed. For 1997, total acres of corn edged out total acres of soybeans as the number one crop produced in the eleven counties. Corn and soybeans are clearly the primary crops produced in the watershed on basis of total acres.

TABLE 2-3
LIVESTOCK IN THE KANKAKEE RIVER WATERSHED

	1997 Livestock Inventory*							
	Hogs and pigs		Cattle and calves		Layers 20 weeks and older		Ducks, geese and other poultry	
County	Number	State Rank**	Number	State Rank**	Number	State Rank**	Number	State Rank**
ELKHART	73,951	16	4,2719	1	77,185	23	278,686	2
JAPSER	93,813	13	10,734	33	D	12	@	@
KOSCIUSKO	@	@	@	@	2,461,526	3	552,118	1
LAPORTE	27,110	47	24,980	7	782	42	@	@
LAKE	9,435	74	3,204	84	999	37	@	@
MARSHALL	15,124	65	15,452	18	D	26	D	5
NEWTON	22,013	58	3,660	79	D	7	D	51
PORTER	14,134	66	4,416	74	@	@	@	@
PULASKI	54,160	27	6,106	64	D	8	@	@
ST. JOSEPH	27,430	46	6,440	61	D	13	2,152	9
STARKE	2,268	84	1,702	91	892	40	@	@

* USDA-NASS 1997

@ indicates is not in the top 4 for this county

** State Rank is out of a total of 92 counties in Indiana

(D) Numbers not disclosed by USDA-NASS

TABLE 2-4
CROPS PRODUCED IN THE KANKAKEE RIVER WATERSHED

	1997 Crops*							
	Corn for grain		Soybeans for beans		Wheat		Hay crops	
County	Acres	State Rank**	Acres	State Rank**	Acres	State Rank**	Acres	State Rank**
Elkhart	62,900	46	46,300	56	4,200	60	19,500	2
Jasper	143,700	1	113,700	5	--	--	3,100	81
Kosciusko	102,500	11	80,400	22	7,700	25	12,600	12
Lake	70,300	33	64,000	40	ϑ	ϑ	4,200	64
LaPorte	122,000	3	88,800	26	5,200	47	10,900	14
Marshall	91,800	18	71,400	31	6,000	36	10,700	11
Newton	107,400	7	84,900	21	ϑ	ϑ	1,800	87
Porter	61,700	42	55,400	50	5,000	40	3,800	67
Pulaski	106,400	9	87,400	18	3,300	61	4,200	72
St. Joseph	73,200	31	49,700	53	4,300	58	6,800	40
Starke	62,500	49	32,500	68	--ϑ	--	2,500	88

* USDA-NASS 1997

** State Rank is out of a total of 92 counties in Indiana

2.4 Significant Natural Areas in the Kankakee River Watershed

In 1993, the Indiana Natural Resources Commission (NRC) adopted its “Outstanding Rivers” List for Indiana. This listing is referenced in the standards for utility line crossings within floodways, formerly governed by IC 14-28-2 and now controlled by 310 IAC 6-1-16 through 310 IAC 6-1-18. Except where incorporated into a statute or rule, the "Outstanding Rivers List" is intended to provide guidance rather than to have regulatory application (NRC 1997). To help identify the rivers and streams which have particular environmental or aesthetic interest, a special listing has been prepared by IDNR’s Division of Outdoor Recreation. This listing is a corrected and condensed version of a list compiled by American Rivers and dated October 1990. The NRC has adopted the IDNR listing as an official recognition of the resource values of these waters. A river included in the "Outstanding Rivers List" qualifies under one or more of 22 categories. Table 2-5 presents the rivers in the Kankakee River watershed which are on the "Outstanding Rivers List" and their significance.

The Kankakee is also listed as having all or part designated in the "Roster of Indiana Waterways Declared Navigable" (15 IR 2385, July 1992). Ownership is often the issue determined by whether a waterway is navigable. Other issues can include recreational and commercial usage of the surface of a river or stream. But the most important issues that can develop if a waterway is determined navigable are the regulatory functions. For example the Indiana Department of Natural Resources typically require permits for the following:

a) place, fill, or erect a permanent structure in;
b) remove water from; or
c) remove material from

a navigable waterway (IC 14-29-1-8 and 310 IAC 21.)

Other regulatory standards could include IC 14-18-6 (Lake Michigan fills), IC 14-29-4-5 (dedication of channels into navigable waters), IC 14-19-1-1 (general charge of Indiana navigable waters placed in DNR), and IC 14-29-3 (removal of sand and gravel from the beds of navigable waters).

Other Significant Natural Areas

Grand Kankakee Marsh Proposed National Wildlife Refuge

U.S. Fish and Wildlife Service (USFWS) is evaluating the development of a National Wildlife Refuge in northwestern Indiana and northeastern Illinois. The size, if approved, would be approximately 30,000 acres within the Kankakee River watershed. The goals of the Refuge would be to "preserve, restore and enhance all animals and plants that are endangered or threatened with becoming endangered; restore and preserve a natural diversity and abundance of flora and fauna; perpetuate the migratory bird resource; and provide the public with additional high quality wildlife-dependent public use and environmental education opportunities." The USFWS, working with volunteers, would preserve 100,000 acres of bottomland hardwood forests, prairies and oak savannas, watershed wetlands, and riparian woodland corridors. The USWFS would restore approximately 30,000 acres. Issues that have been raised by the public include water quality, biological diversity, drainage, and flood control, tax revenue, agricultural economy. (USFWS, Region 3: Planning, Grand Kankakee Marsh)

Fish and Wildlife Sites and Nature Preserves

Within the watershed of the Kankakee River are several areas of significance for wildlife concerns. There are three nature preserves located in Jasper County. They are Ciurus Park, Tefft Savanna, Stoutsburg Savanna (IDNR, Nature Preserves). Several fish and wildlife areas are within the watershed of the Kankakee. These areas include the Kankakee, Jasper - Pulaski, Kingsbury, Miysawbah, and LaSalle fish and wildlife areas (IDNR, Fish and Wildlife).

TABLE 2-5
WATERS OF THE KANKAKEE RIVER WATERSHED ON THE OUTSTANDING RIVERS LIST FOR INDIANA*

River Segment	County	Significance
•Kankakee River: Upstream boundary of Kingsbury Fish and Wildlife area through the LaSalle State Fish and Wildlife Area to the Indiana – Illinois state line.	LaPorte, Newton and Porter	Canoe trails. State designated canoe/boat routes. State Heritage Program Sites. Rivers identified by state natural heritage programs or similar state programs as having outstanding ecological importance.

*NRC 1997

2.5 Surface Water Use Designations and Classifications

The following uses are designated by the Indiana Water Pollution Control Board (327 IAC 2-1-3):

- Surface waters of the state are designated for full-body contact recreation during the recreational season (April through October).
- All waters, except limited use waters, will be capable of supporting a well-balanced, warm water aquatic community.
- All waters, which are used for public or industrial water supply, must meet the standards for those uses at the point where water is withdrawn.
- All waters, which are used for agricultural purposes, must meet minimum surface water quality standards.
- All waters in which naturally poor physical characteristics (including lack of sufficient flow), naturally poor or reversible man-induced conditions, which came into existence prior to January 1, 1983, and having been established by use attainability analysis, public comment period, and hearing may qualify to be classified for limited use and must be evaluated for restoration and upgrading at each triennial review of this rule.
- All waters, which provide unusual aquatic habitat, which are an integral feature of an area of exceptional natural beauty or character, or which support unique assemblages of aquatic organisms may be classified for exceptional use.

All waters of the state, at all times and at all places, including the mixing zone, shall meet the minimum conditions of being free from substances, materials, floating debris, oil, or scum attributable to municipal, industrial, agricultural, and other land use practices, or other discharges:

- that will settle to form putrescent or otherwise objectionable deposits,
- that are in amounts sufficient to be unsightly or deleterious,
- that produce color, visible oil sheen, odor, or other conditions in such degree as to create a nuisance,
- which are in amounts sufficient to be acutely toxic to, or to otherwise severely injure or kill aquatic life, other animals, plants, or humans, or

- which are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such degree as to create a nuisance, be unsightly, or otherwise impair designated uses.

2.5.1 Surface Water Classifications in the Kankakee River Watershed

The statewide classifications discussed in Section 2.5 apply to all stream segments in the Kankakee River watershed.

2.6 US Geological Survey Water Use Information for the Kankakee River Watershed

The U.S. Geological Survey's (USGS) National Water-Use Information Program is responsible for compiling and disseminating the nation's water-use data. The USGS works in cooperation with local, State, and Federal environmental agencies to collect water-use information at a site-specific level. USGS also compiles the data from hundreds of thousands of sites to produce water-use information aggregated up to the county, state, and national levels. Every five years, data at the state and hydrologic region level are compiled into a national water-use data system. Table 2-6 shows the USGS Water-Use information for the Kankakee River Watershed for 1990 and 1995.

TABLE 2-6
1990 & 1995 Water Use Information for the Kankakee River Watershed

Population and Water Use totals	1990	1995
Total population in the watershed (thousands)	220.8	233.86
Public Water Supply	**1990**	**1995**
Population served by public groundwater supply (thousands)	83.69	74.3
Population served by surface water supply (thousands)	48.26	66.88
Total population served by public water supply (thousands)	131.95	141.18
Total groundwater withdrawals (mgd)	14.02	12.78
Total surface water withdrawals (mgd)	0	0.56
Total water withdrawals (mgd)	14.02	13.34
Total per capita withdrawal (gal/day)	106.25	94.49
Population self-supplied with water (thousands)	88.85	92.68
Commercial Water Use	**1990**	**1995**
Groundwater withdrawal for commercial use (mgd)	2.8	6.24
Surface water withdrawal for commercial use (mgd)	1.03	7.67
Deliveries from public water supplies for commercial use (mgd)	2.91	4.02
Total commercial water use (mgd)	6.74	17.93
Industrial Water Use	**1990**	**1995**
Groundwater withdrawal for industrial use (mgd)	4.89	10.32
Surface water withdrawals for industrial use (mgd)	1.63	1.44
Deliveries from public water suppliers for industrial use (mgd)	4.42	4.34
Total industrial water use (mgd)	10.94	16.1
Agricultural Water Use	**1990**	**1995**
Groundwater withdrawals for livestock use (mgd)	1.24	1.1
Surface water withdrawals for livestock use (mgd)	1.97	0.98
Total livestock water use (mgd)	3.21	2.08
Groundwater withdrawals for irrigation (mgd)	4.18	17.4
Surface water withdrawals for irrigation (mgd)	10.76	30.26
Total irrigation water use (mgd)	14.94	47.66
Power Generation Water Use	**1990**	**1995**
Groundwater withdrawals (mgd)	0.44	0.45
Surface water withdrawals (mgd)	30.27	11.5
Total withdrawals (mgd)	30.71	11.95
Mining Use	**1990**	**1995**
Groundwater withdrawals	0.42	0.08
Surface water withdrawals	1.99	2.23
Total withdrawals (mgd)	2.41	2.31

Notes:
mgd million gallon per day
gal/day gallon per day

- The water-use information presented in this table was compiled from information provided in the U.S. Geological Survey's National Water-Use Information Program data system for 1990 and 1995. The National Water-Use Information Program is responsible for compiling and disseminating the nation's water-use data. The U.S. Geological Survey works in cooperation with local, State, and Federal environmental agencies to collect water-use information at a site-specific level. Every five years, the U.S. Geological Survey compiles data at the state and hydrologic region level into a national water-use data system and are published in a national circular.

3 Causes and Sources of Water Pollution

A number of substances including nutrients, bacteria, oxygen-demanding wastes, metals, and toxic substances, cause water pollution. Sources of these pollution-causing substances are divided into two broad categories: point sources and nonpoint sources. Point sources are typically piped discharges from wastewater treatment plants, large urban and industrial stormwater systems, and other facilities. Nonpoint sources can include atmospheric deposition, groundwater inputs, and runoff from urban areas, agricultural lands and others. Chapter 3 includes the following:

Section 3.1 Causes of Pollution
Section 3.2 Point Sources of Pollution
Section 3.3 Nonpoint Sources of Pollution

3.1 Causes of Pollution

"Causes of pollution" refer to the substances which enter surface waters from point and nonpoint sources and result in water quality degradation and impairment. Major causes of water quality impairment include biochemical oxygen demand (BOD), nutrients, toxicants (such as heavy metals, polychlorinated biphenyls [PCBs], chlorine, pH and ammonia) and E. coli bacteria. Table 3-1 provides a general overview of causes of impairment and the activities that may lead to their introduction into surface waters. Each of these causes is discussed in the following sections.

TABLE 3-1
CAUSES OF WATER POLLUTION AND CONTRIBUTING ACTIVITIES

Cause	Activity associated with cause
Nutrients	Fertilizer on agricultural crops and residential/ commercial lawns, animal wastes, leaky sewers and septic tanks, direct septic discharge, atmospheric deposition, wastewater treatment plants
Toxic Chemicals	Pesticide applications, disinfectants, automobile fluids, accidental spills, illegal dumping, urban stormwater runoff, direct septic discharge, industrial effluent
Oxygen-Consuming Substances	Wastewater effluent, leaking sewers and septic tanks, direct septic discharge, animal waste
E. coli	Failing septic systems, direct septic discharge, animal waste (including runoff from livestock operations and impacts from wildlife), improperly disinfected wastewater treatment plant effluent

3.1.1 E. coli Bacteria

E. coli bacteria are associated with the intestinal tract of warm-blooded animals. They are widely used as an indicator of the potential presence of waterborne disease-causing (pathogenic) bacteria, protozoa, and viruses because they are easier and less costly to detect than the actual pathogenic organisms. The presence of waterborne disease-causing organisms can lead to outbreaks of such diseases as typhoid fever, dysentery, cholera, and cryptosporidiosis. The detection and identification of specific bacteria, viruses, and protozoa, (such as Giardia, Cryptosporidium, and Shigella) require special sampling protocols and very sophisticated laboratory techniques which are not commonly available.

E. coli water quality standards have been established in order to ensure safe use of waters for water supplies and recreation. 327 IAC 2-1-6 Section 6(d) states that *E. coli* bacteria, using membrane filter count (MF), shall not exceed 125 per 100 milliliters as a geometric mean based on not less than five samples equally spaced over a 30 day period nor exceed 235 per 100 milliliters in any one sample in a 30 day period.

E. coli bacteria may enter surface waters from nonpoint source runoff, but they also come from improperly treated discharges of domestic wastewater. Common potential sources of *E. coli* bacteria include leaking or failing septic systems, direct septic discharge, leaking sewer lines or pump station overflows, runoff from livestock operations, urban stormwater and wildlife. *E. coli* bacteria in treatment plant effluent are controlled through disinfection methods including chlorination (often followed by dechlorination), ozonation or ultraviolet light radiation.

3.1.2 Toxic Substances

327 IAC 2-1-9(45) defines toxic substances as substances, which are or may become harmful to plant or animal life, or to food chains when present in sufficient concentrations or combinations. Toxic substances include, but are not limited to, those pollutants identified as toxic under Section 307 (a)(1) of the Clean Water Act. Standards for individual toxic substances are listed 327 IAC 2-1-6. Toxic substances frequently encountered include chlorine, ammonia, organics (hydrocarbons and pesticides) heavy metals and pH. These materials are toxic to different organisms in varying amounts, and the effects may be evident immediately or may only be manifested after long-term exposure or accumulation in living tissue.

Whole effluent toxicity testing is required for major NPDES dischargers (discharge over 1 million gallons per day or population greater than 10,000). This test shows whether the effluent from a treatment plant is toxic, but it does not identify the specific cause of toxicity. If the effluent is found to be toxic, further testing is done to determine the specific cause. This follow-up testing is called a toxicity reduction evaluation. Other testing, or monitoring, done to detect aquatic toxicity problems include fish tissue analyses, chemical water quality sampling and assessment of fish community and bottom-dwelling organisms such as aquatic insect larvae. These monitoring programs are discussed in Chapter 4.

Each of the substances below can be toxic in sufficient quantity or concentration.

Metals

Municipal and industrial dischargers and urban runoff are the main sources of metal contamination in surface water. Indiana has stream standards for many heavy metals, but the

most common ones in municipal permits are cadmium, chromium, copper, nickel, lead, mercury, and zinc. Standards are listed in 327 IAC 2-1-6. Point source discharges of metals are controlled through the National Pollution Discharge Elimination System (NPDES) permit process. Mass balance models are employed to determine allowable concentrations for a permit limit. Municipalities with significant industrial users discharging wastes to their treatment facilities limit the heavy metals from these industries through a pretreatment program. Source reduction and wastewater recycling at waste water treatment plants (WWTP) also reduces the amount of metals being discharged to a stream. Nonpoint sources of pollution are controlled through best management practices.

In Indiana, as well as many other areas of the country, mercury contamination in fish has caused the need to post widespread fish consumption advisories. The source of the mercury is unclear; however, atmospheric sources are suspected and are currently being studied.

Polychlorinated biphenyls (PCBs)

Polychlorinated biphenyls (PCBs) were first created in 1881 and subsequently began to be commercially manufactured around 1929 (Bunce 1994). Because of their fire-resistant and insulating properties, PCBs were widely used in transformers, capacitors, and in hydraulic and heat transfer systems. In addition, PCBs were used in products such as plasticizers, rubber, ink, and wax. In 1966, PCBs were first detected in wildlife, and were soon found to be ubiquitous in the environment (Bunce 1994). PCBs entered the environment through unregulated disposal of products such as waste oils, transformers, capacitors, sealants, paints, and carbonless copy paper. In 1977, production of PCBs in North America was halted. Subsequently, the PCB contamination present in our surface waters and environment today is the result of historical waste disposal practices.

Ammonia (NH_3)

Point source dischargers are one of the major sources of ammonia. In addition, discharge of untreated septic effluent, decaying organisms which may come from nonpoint source runoff and bacterial decomposition of animal waste also contribute to the level of ammonia in a waterbody. Standards for ammonia are listed in 327 IAC 2-1-6.

3.1.3 Oxygen-Consuming Wastes

Oxygen-consuming wastes include decomposing organic matter or chemicals, which reduce dissolved oxygen in water through chemical reactions. Raw domestic wastewater contains high concentrations of oxygen-consuming wastes that need to be removed from the wastewater before it can be discharged into a waterway. Maintaining a sufficient level of dissolved oxygen in the water is critical to most forms of aquatic life.

The concentration of dissolved oxygen in a water body is one indicator of the general health of an aquatic ecosystem. 327 IAC Section 6 (b)(3) states that concentrations of dissolved oxygen shall average at least five milligrams per liter per calendar day and shall not be less than four milligrams per liter at any time. Dissolved oxygen concentrations are affected by a number of factors. Higher dissolved oxygen is produced by turbulent actions, such as waves, which mix air and water. Lower water temperatures also generally allows for retention of higher dissolved oxygen concentrations. Low dissolved oxygen levels tend to occur more often in warmer,

slow-moving waters. In general, the lowest dissolved oxygen concentrations occur during the warmest summer months and particularly during low flow periods.

Sources of dissolved oxygen depletion include wastewater treatment plant effluent, the decomposition of organic matter (such as leaves, dead plants and animals) and organic waste matter that is washed or discharged into the water. Sewage from human and household wastes is high in organic waste matter. Bacterial decomposition can rapidly deplete dissolved oxygen levels unless these wastes are adequately treated at a wastewater treatment plant. In addition, excess nutrients in a water body may lead to an over-abundance of algae and reduce dissolved oxygen in the water through algal respiration and decomposition of dead algae. Also, some chemicals may react with and bind up dissolved oxygen. Industrial discharges with oxygen consuming wasteflow may be resilient instream and continue to use oxygen for a long distance downstream.

3.1.4 Nutrients

The term "nutrients" in this Strategy refers to two major plant nutrients, phosphorus and nitrogen. These are common components of fertilizers, animal and human wastes, vegetation, and some industrial processes. Nutrients in surface waters come from both point and nonpoint sources. Nutrients are beneficial to aquatic life in small amounts. However, in over-abundance and under favorable conditions, they can stimulate the occurrence of algal blooms and excessive plant growth in quiet waters or low flow conditions. The algal blooms and excessive plant growth often reduce the dissolved oxygen content of surface waters through plant respiration and decomposition of dead algae and other plants. This is accentuated in hot weather and low flow conditions because of the reduced capacity of the water to retain dissolved oxygen.

3.2 Point Sources of Pollution

As discussed previously, sources of water pollution are divided into two broad categories: point sources and nonpoint sources. This section focuses on point sources. Section 3.3.1 defines point sources and Section 3.3.2 discusses point sources in the Kankakee River Watershed.

3.2.1 Defining Point Sources

Point sources refer to discharges that enter surface waters through a pipe, ditch or other well-defined point of discharge. The term applies to wastewater and stormwater discharges from a variety of sources. Wastewater point source discharges include municipal (city and county) and industrial wastewater treatment plants and small domestic wastewater treatment systems that may serve schools, commercial offices, residential subdivisions and individual homes. Stormwater point source discharges include stormwater collection systems for medium and large municipalities which serve populations greater than 100,000 and stormwater discharges associated with industrial activity as defined in the Code of Federal Regulations (40 CFR 122.26(a)(14)). The primary pollutants associated with point source discharges are Oxygen demanding wastes, nutrients, sediment, color and toxic substances including chlorine, ammonia and metals.

Point source dischargers in Indiana must apply for and obtain a National Pollutant Discharge Elimination System (NPDES) permit from the state. Discharge permits are issued under the NPDES program, which is delegated to Indiana by the US Environmental Protection Agency (EPA). See Chapter 5 for a description of the NPDES program and permitting strategies.

3.2.2 Point Source Discharges in the Kankakee River Watershed

As of June 1999, there were 150 NPDES permits within the Kankakee River watershed (Table 3-2, Figure 3-1). See Chapter 5 for definition of minor dischargers.

Another point source covered by NPDES permits is combined sewer overflows (CSO). A combined sewer system is a wastewater collection system that conveys sanitary wastewater (domestic, commercial and industrial wastewater) and stormwater through a single-pipe system to a Publicly Owned Treatment Works. A CSO is the discharge from a combined sewer system at a point prior to the Publicly Owned Treatment Works. CSOs are point sources subject to NPDES permit requirements including both technology-based and water quality-based requirements of the Clean Water Act.

CITY / TOWN	NUMBER OF CSOs
Bremen	3
Crown Point	5
Knox	1
LaPorte	1
Nappanee	15
North Judson	2
Plymouth	10
Remmington	1
Rensselaer	18
Valparaiso	3

In addition to the NPDES permitted dischargers in the watershed, there may be many unpermitted, illegal discharges to the Kankakee River system. Illegal discharges of residential wastewater (septic tank effluent) to streams and ditches from straight pipe discharges and old inadequate systems are a problem within the watershed.

Table 3-2
NPDES PERMITTED FACILITIES
KANKAKEE RIVER WATERSHED

NPDES	Facility Name	Maj/Mi	City	County	Status
ING080001	Crossroads I-65 Truck Plaza	Minor	Lowell	Lake	Inactive
ING080022	Tristate Coach Lines, Inc.	Minor	Gary	Lake	Active
ING080067	Amoco Oil Company, St. #10052	Minor	Lowell	Lake	Active
ING250007	Hoosier Tire & Rubber Corp.	Minor	Plymouth,	Marshall	Active
ING340015	Laketon Refining, Hartsdale	Minor	Schererville	Lake	Inactive
ING490038	Northern Indiana Materials	Minor	Lowell,	Lake	Active
ING490040	Lowell Mining Company	Minor	Lowell,	Lake	Active
INP000005	Matlack, Inc. - Brite-Sol	Minor	Westville	La Porte	Active
INP000006	Chemical Leaman Tank Lines	Minor		La Porte	Inactive
INP000066	Wells Aluminum Corporation	Minor	North Liberty	St. Joseph	Active
INP000068	Merit Steel Company, Inc.	Minor	Kouts	Porter	Active
INP000098	Freeman Products, Inc.	Minor	Knox	Starke	Active
INP000108	Thermo Products, Inc.	Minor	North Judson	Starke	Active
INP000162	Ventline Div. - Phillips Prod.	Minor	Bristol	Elkhart	Active
IN0000060	Shell Oil Co. East Chicago	Minor		Lake	Inactive
IN0000230	Delmonte USA Plant #105	Minor		Marshall	Inactive
IN0000311	BPC Manufacturing Operations	Minor		Marshall	Inactive
IN0001007	IDNR	Minor		Newton	Inactive
IN0020061	Hebron Municipal STP	Minor	Hebron	Porter	Active
IN0020427	Bremen_municipal STP	Major	Bremen	Marshall	Active
IN0020486	New Carlisle Municipal STP	Minor		St. Joseph	Inactive
IN0020737	Modine Mfg Co	Minor		La Porte	Inactive
IN0020877	North Judson Municipal STP	Minor	North Judson	Starke	Active
IN0020991	Plymouth Municipal STP	Major	Plymouth	Marshall	Active
IN0021385	Knox Municipal STP	Minor	Knox	Starke	Active
IN0022284	Argos Municipal STP	Minor	Argos	Marshall	Active
IN0022527	Cedar Lake Town of	Minor		Lake	Inactive
IN0022811	Dyer Water Dept	Minor	Dyer	Lake	Inactive
IN0023337	Kingsford Hghts Municipal STP	Minor	Kingsford Heights	La Porte	Active
IN0023400	Kouts Municipal STP	Minor	Kouts	Porter	Active
IN0023426	Lafayette Wstwtr Trmt Plt	Minor		St. Joseph	Inactive
IN0023540	Lakeville Municipal STP	Minor	Lakeville	St. Joseph	Active
IN0023621	Lowell Municipal STP	Major	Lowell	Lake	Active
IN0024848	Westville Municipal STP	Minor	Westville	La Porte	Active
IN0025046	Rockwell Inter	Minor		Starke	Inactive
IN0025160	Ancilla Convent WWTP	Minor	Plymouth	Marshall	Active
IN0025283	South County Utilities	Minor	Crown Point	Lake	Active
IN0025461	Ferro Corp	Minor		Marshall	Inactive
IN0025577	Laporte Municipal STP	Major	Laporte	La Porte	Active
IN0025682	Northern Indiana Public Servic	Minor		Lake	Inactive
IN0025771	Northern Indiana Public Servic	Minor		Lake	Inactive
IN0025801	North Liberty Municipal STP	Minor	North Liberty	St. Joseph	Active
IN0025887	Valparaiso Dept Wtr Wks-airpor	Minor	Valparaiso	Porter	Active
IN0025933	Wells Aluminum Corp	Minor		St Joseph	Inactive
IN0030261	Bass Lake State Beach	Minor	Knox	Starke	Inactive
IN0030490	Kankakee Valley Elem & High S.	Minor	Wheatfield	Jasper	Active
IN0030503	Lincoln Elementary School	Minor	Roselawn	Newton	Active

Table 3-2 (Continued)

NPDES	Facility Name	Maj / Min	City	County	Status
IN0030520	St John the Evangelist School	Minor		Lake	Inactive
IN0031127	Winfield Elem. School	Minor	Crown Point	Lake	Active
IN0031259	Utilities Inc	Minor		Lake	Inactive
IN0031275	Kankakee Rest Area I-65	Minor	Demotte	Jasper	Active
IN0031917	Divine Heart Seminary	Minor		Marshall	Inactive
IN0032263	Laville Jr-Sr High School	Minor	Lakeville	St. Joseph	Inactive
IN0032409	Dyer Town Of-water Utility	Minor	Dyer	Lake	Inactive
IN0032441	Rockwell International	Minor		Starke	Inactive
IN0032506	Louisville & Nashville RR Co	Minor		Lake	Inactive
IN0032522	Plymouth Fertilizer	Minor	Plymouth	Marshall	Active
IN0032620	Heinz USA-ARGOS	Minor		Marshall	Inactive
IN0032646	Knox City Of-Water Works	Minor	Knox	Starke	Inactive
IN0032662	Walkerton Public Water Supply	Minor		St. Joseph	Inactive
IN0032671	Packaging Corp. Of America	Minor	Wanatah	La Porte	Inactive
IN0033081	Lake Dale Development	Minor	Fort Wayne	Lake	Active
IN0033715	Mccord Corp:	Minor		Marshall	Inactive
IN0035904	Costello Mobile Home Park	Minor		Marshall	Inactive
IN0036412	Mikel Mobile Estates	Minor	Etna Green	Kosciusko	Active
IN0036773	American Brick Company	Minor		Lake	Inactive
IN0036897	New Prairie High School	Minor	New Carlisle	St. Joseph	Active
IN0037176	Twin Lakes Utilities	Minor	Crown Point	Lake	Active
IN0037419	Divine Heart Seminary	Minor		Marshall	Inactive
IN0038172	Roll Coater, Inc.	Major	Kingsbury,	La Porte	Active
IN0039101	Jasper-newton Utility Corp.	Minor	Demotte	Jasper	Active
IN0039331	Dyer Municipal STP	Major	Dyer	Lake	Active
IN0039381	Highland Municipal STP	Minor		Lake	Inactive
IN0039926	Demotte Municipal STP	Minor	Demotte	Jasper	Active
IN0040100	Hamlet Municipal STP	Minor	Hatfield	Starke	Active
IN0040193	La Crosse Municipal STP	Minor	Lacrosse	La Porte	Active
IN0040223	Lapaz Municipal STP	Minor	Plymouth	Marshall	Active
IN0040525	Pottawatamie Municipal STP	Minor		Porter	Inactive
IN0040576	St. John Municipal STP	Minor		Lake	Inactive
IN0040592	Schneider Municipal STP	Minor	Schneider	Lake	Active
IN0040690	Walkerton Municipal STP	Minor	Walkerton	St. Joseph	Active
IN0040703	Wanatah Municipal STP	Minor		La Porte	Inactive
IN0040754	Wheatfield Municipal STP	Minor	Wheatfield	Jasper	Active
IN0041611	Plymouth Community School Corp	Minor		Marshall	Inactive
IN0041874	South Bend Country Club	Minor	South Bend	St. Joseph	Active
IN0041882	Yogi Bear's Jellystone Pk.	Minor	Plymouth	Marshall	Active
IN0042293	La Porte City of	Minor		La Porte	Inactive
IN0042463	Westville Estates Mobile Home	Minor		La Porte	Inactive
IN0042943	Lake Region Christian Assembly	Minor	Crown Point	Lake	Active
IN0042978	Westville Correctional Center	Minor	Westville	La Porte	Active
IN0043109	Cheri Mobile Home Park	Minor		Starke	Inactive
IN0043184	Mixsawbah State Fish Hatchery	Minor	Walkerton	La Porte	Active

Table 3-2 (Continued)

NPDES	Facility Name	Maj/Min	City	County	Status
IN0043338	Allis-Chalmers	Minor		La Porte	Inactive
IN0043397	Apple Valley M.H.P.	Minor	Hebron	Lake	Active
IN0044202	Gatewood Estate MHP	Minor	Plymouth	Marshall	Inactive
IN0044342	Hebron Town of Wtr Trmt Plt	Minor	Hebron	Porter	Inactive
IN0044351	Kingsford Heights Mun Wtr Plt	Minor	Kingsford Heights	La Porte	Inactive
IN0044504	West Elementary School	Minor	Plymouth	Marshall	Inactive
IN0044768	Lacrosse Water Dept	Minor	Lacrosse	La Porte	Active
IN0044822	Knox Grey Iron Casting Center	Minor		Starke	Inactive
IN0044849	Amax Coal Co Minnehaha Mine	Minor		Jasper	Inactive
IN0045144	Cheval Packing Co	Minor		St. Joseph	Inactive
IN0045462	Arrowhead Engineering Corp	Minor		Starke	Inactive
IN0045471	Kingsbury Utility Corporation	Minor	Kingsbury	La Porte	Active
IN0045683	Rutzel Slaughter House	Minor		St. Joseph	Inactive
IN0045888	Boone Grove Elem. & H.S.	Minor	Boone Grove	Porter	Active
IN0045985	Avery Dennison International	Minor	Schererville	Lake	Active
IN0046051	Anr Pipeline Co., St. John	Minor	Saint John	Lake	Active
IN0046647	Lake Dalecarlia Regional Waste	Minor	Lowell	Lake	Inactive
IN0046752	IRECO, Inc.	Minor	Kingsbury	La Porte	Inactive
IN0047295	Young Door Company	Minor		Marshall	Inactive
IN0048062	Dome Pipeline Corp. (Griffith)	Minor	Griffith	Lake	Inactive
IN0049191	New Energy Corp.	Minor	South Bend	St. Joseph	Active
IN0049751	Westville Oil & Manufacturing	Minor		La Porte	Inactive
IN0051039	Starke Co. Airport	Minor	Knox	Starke	Inactive
IN0051446	Lake Eliza Conservancy Dist.	Minor		Porter	Active
IN0052248	Morgan Township Schools	Minor	Valparaiso	Porter	Active
IN0052272	Potato Creek State Rec. Area	Minor	North Liberty	St. Joseph	Active
IN0052485	Wanatah Water Treatment	Minor	Wanatah	La Porte	Inactive
IN0053104	Our Lady of Holy Cross Care Ce	Minor	San Pierre	Starke	Active
IN0053201	NIPSCO, Rollin M. Schahfer Sta	Major	Wheatfield	Jasper	Active
IN0053228	Milburn Peat Co	Minor		La Porte	Inactive
IN0053589	Tall Timber Subd.	Minor		La Porte	Inactive
IN0054241	R & J Mfg. Corp.	Minor	Plymouth	Marshall	Inactive
IN0054330	Miller Bearing Company, Inc.	Minor		Marshall	Inactive
IN0054470	Chicagoland Christian Village	Minor	Crown Point	Lake	Active
IN0054488	U.S. Army Reserve Training Ctr	Minor	Kingsbury	La Porte	Inactive
IN0054712	Norco Pipeline, Inc. Hartsdale	Minor	Schererville	Lake	Inactive
IN0054941	Dyer Creamery Corporation	Minor	Dyer	Lake	Inactive
IN0055018	Dean Pickle & Specialty Prdts	Minor	Plymouth	Marshall	Inactive
IN0055069	Unifrax	Minor	South Bend,	St. Joseph	Active
IN0056286	Lowell Mining Company	Minor	Lowell,	Lake	Inactive
IN0056308	Northern Ind. Materials Corp.	Minor	Lowell	Lake	Inactive
IN0056669	Wanatah Municipal STP	Minor	Wanatah	La Porte	Active
IN0056804	Amoco Oil Company, St. #10052	Minor	Lowell	Lake	Inactive
IN0056928	Marathon Service Station #1291	Minor	Kouts	Porter	Inactive
IN0056995	St. John Water Works	Minor	St. John	Lake	Active

Table 3-2 (Continued)

NPDES	Facility Name	Maj/Min	City	County	Status
IN0057002	Lake of the Woods Reg Sew Dist	Minor	Bremen	Marshall	Active
IN0057029	Porter Township School Corp.	Minor		Porter	Active
IN0058289	Bass Lake Conservancy District	Minor	Knox	Starke	Active
IN0058297	Quik Stop, Inc.	Minor	Wheatfield,	Jasper	Inactive
IN0058548	Buckhill Estates WWTP	Minor	Crown Point,	Lake	Active
IN0058823	Marti's Place	Minor	Hebron	Porter	Active
IN0059064	Mallard's Pointe Condominium	Minor	Valparaiso	Porter	Active
IN0059099	PHJC Ministry Center	Minor		Marshall	Inactive
IN0059111	Oakwood Mobile Home Park	Minor	Lowell,	Lake	Inactive
IN0059862	Bosch Automotive Proving Grnds	Minor	New Carlisle	St. Joseph	Active
IN0109410	St. John Municipal STP	Minor		Lake	Inactive

3.3 Nonpoint Sources of Pollution

Nonpoint source pollution refers to runoff that enters surface waters through stormwater runoff, contaminated ground water, snowmelt or atmospheric deposition. There are many types of land use activities that can serve as sources of nonpoint source pollution including land development, construction, mining operations, crop production, animal feeding lots, timber harvesting, failing septic systems, landfills, roads and paved areas. Stormwater from large urban areas (greater than100,000 people) and from certain industrial and construction sites is technically considered a point source since NPDES permits are required for discharges of stormwater from these areas.

Sediment and nutrients are major pollution causing substances associated with nonpoint source pollution. Others include *E. coli* bacteria, heavy metals, pesticides, oil and grease, and any other substance that may be washed off the ground or removed from the atmosphere and carried into surface waters. Unlike point source pollution, nonpoint pollution sources are diffuse in nature and occur at random time intervals depending on rainfall events. Below is a brief description of major areas of nonpoint sources of pollution in the Kankakee River watershed.

3.3.1 Agriculture

There are a number of activities associated with agriculture that can serve as potential sources of water pollution. Land clearing and tilling make soils susceptible to erosion, which can then cause stream sedimentation. Pesticides and fertilizers (including synthetic fertilizers and animal wastes) can be washed from fields or improperly designed storage or disposal sites. Construction of drainage ditches on poorly drained soils enhances the movement of oxygen consuming wastes, sediment and soluble nutrients into groundwater and surface waters.

Concentrated animal operations can be a significant source of nutrients, biochemical oxygen demand and *E. coli* bacteria if wastes are not properly managed. Impacts can result from over application of wastes to fields, from leaking lagoons and from flows of lagoon liquids to surface waters due to improper waste lagoon management. Also there are potential concerns associated with nitrate-nitrogen movement through the soil from poorly constructed lagoons and from wastes applied to the soil surface.

Grassed waterways, conservation tillage, and no-till practices are several common practices used by many farmers to minimize soil loss. Maintaining a vegetated buffer between fields and streams is another excellent way to minimize sediment and nutrient loads to streams.

3.3.2 Urban/Residential

Runoff from urbanized areas, as a rule, is more localized and can often be more severe in magnitude than agricultural runoff. Any type of land-disturbing activity such as land clearing or excavation can result in soil loss and sedimentation. The rate and volume of runoff in urban areas is much greater due both to the high concentration of impervious surface areas and to storm drainage systems that rapidly transport stormwater to nearby surface waters. This increase in volume and rate of runoff can result in streambank erosion and sedimentation in surface waters.

Urban drainage systems, including curb and guttered roadways, also allow urban pollutants to reach surface waters quickly and with little or no filtering. Pollutants include lawn care pesticides and fertilizers; automobile fluids; lawn and household wastes; road salts, and E. coli bacteria (from animals and failing septic systems). The diversity of these pollutants makes it very challenging to attribute water quality degradation to any one pollutant.

Replacement of natural vegetation with pavement and removal of buffers reduces the ability of the watershed to filter pollutants before they enter surface waters. The chronic introduction of these pollutants and increased flow and velocity into a stream results in degraded waters. Many waters adjacent to urban areas are rated as biologically poor. This degradation also exists in lakes, which have been heavily influenced by adjacent urban development.

The population figures discussed in Section 2.3.2 are good indicators of where urban development and potential urban water quality impacts are likely to occur. Concentrated areas where urban development is high may lead to further water quality problems associated with the addition of impervious surfaces next to surface waters.

3.3.3 Onsite Wastewater Disposal

Septic systems contain all of the wastewater from a household or business. A complete septic system consists of a septic tank and an absorption field to receive effluent from the septic tank. The septic tank removes some wastes, but the soil absorption field provides further absorption and treatment. Septic systems can be a safe and effective method for treating wastewater if they are sized, sited, and maintained properly. However, if the tank or absorption field malfunction or are improperly placed, constructed or maintained, nearby wells and surface waters may become contaminated.

Some of the potential problems from malfunctioning septic systems include:

- Polluted groundwater: Pollutants in septic effluent include bacteria, nutrients, toxic substances, and oxygen-consuming wastes. Nearby wells can become contaminated by failing septic systems.

- Polluted surface water: Groundwater often carries the pollutants mentioned above into surface waters, where they can cause serious harm to aquatic ecosystems. Leaking septic tanks can also leak into surface waters through or over the soil. In addition, some septic tanks may directly discharge to surface waters.

- Risks to human health: Septic system malfunctions can endanger human health when they contaminate nearby wells, drinking water supplies, and fishing and swimming areas.

Pollutants associated with onsite wastewater disposal may also be discharged directly to surface waters through direct pipe connections between the septic system and surface waters (straight pipe discharge). However, 327 IAC 5-1-1.5 specifically states that “point source discharge of sewage treated or untreated, from a dwelling or its associated residential sewage disposal system, to the waters of the state is prohibited”.

3.3.4 Construction

Construction activities that involve excavation, grading or filling can produce significant sedimentation if not properly controlled. Sedimentation from developing urban areas can be a major source of pollution due to the cumulative number of acres disturbed in a watershed. Construction of single family homes in rural areas can also be a source of sedimentation when homes are placed in or near stream corridors.

As a pollution source, construction activities are typically temporary, but the impacts on water quality can be severe and long lasting. Construction activities tend to be concentrated in the more rapidly developing areas of the watershed.

4. Water Quality and Use Support Ratings in the Kankakee River Watershed

This section provides a detailed overview of water quality monitoring, water quality, and use support ratings in the Kankakee River watershed and includes the following:

4.1 Water Quality Monitoring Programs

This section discusses water quality monitoring programs. Specifically, Section 4.1.1 describes IDEM's Office of Water Quality monitoring programs and Section 4.1.2 discusses other monitoring efforts in the watershed.

4.1.1 Office of Water Quality Programs

The Water Quality Assessment Branch of the Office of Water Quality is responsible for assessing the quality of water in Indiana's lakes, rivers and streams. This assessment is performed by field staff from the Survey Section and the Biological Studies Section. Virtually every element of IDEM's surface water quality management program of IDEM is directly or indirectly related to activities currently carried out by this Branch. The biological and surface water monitoring activities identify stream reaches, watersheds or segments where physical, chemical and/or biological quality has been or would be impaired by either point or nonpoint sources. This information is used to help allocate waste loads equitably among various sources in a way that would ensure that water quality standards are met along stream reaches in each of the nearly 100 stream segments in Indiana.

The purpose of the Surveys Section is to provide the water quality and hydrological data required for the assessment of Indiana's waters by conducting Watershed/Basin Surveys and Stream Reach Surveys. In 1996, the Section began a five-year synoptic study (Basin Monitoring Strategy) of the State's ten major watersheds. Information from these studies will be integrated with data from biological and nonpoint source studies as well as the Fixed Station Monitoring Program to make a major assessment of the State's waters. Such surveys determine the extent to which water quality standards are being met and whether the fishable, swimmable and water supply uses are being maintained.

Information derived from this strategy will contribute significantly to improved planning processes throughout the Office of Water Quality. This plan should initiate the development of interrelated action plans, which encompass the wide range of responsibilities, such as rule making, permitting, compliance, nonpoint source issues, and wastewater treatment facility oversight.

The Biological Studies Section conducts studies of fish and macroinvertebrate communities as well as stream habitats to establish biological conditions to which other streams may be compared in order to identify impaired streams or watersheds. The Biological Studies Section also conducts fish tissue and sediment sampling to pinpoint sources of toxic and bioconcentrating substances. Fish tissue data serve as the basis for fish consumption advisories, which are issued, through the Indiana State Department of Health, to protect the health of Indiana citizens. This Section also participates in the development of site-specific water quality standards.

The Biological Studies Section relies on the Volunteer Water Quality Monitoring Programs to provide additional data on lakes and wetlands that may not be sampling sites in the Monitoring Strategy. Volunteer collected data provides IDEM scientists with an overall view of water quality trends and early warning of problems that may be occurring in a lake or wetland. If volunteers detect that a lake or wetland is severely degraded, professional IDEM scientists will conduct follow up investigation.

4.2 Summary of Ambient Monitoring Data for the Kankakee River Watershed

The fixed station-monitoring program managed by IDEM's Office of Water Quality has been monitoring surface water chemistry throughout the state since 1957. The data set from 1986 to 1995 was analyzed using the Seasonal Kendall test. This test deduces if a statistical change in the surface water chemistry occurred over a time period. The results of the Seasonal Kendall analysis for stations located in the Kankakee River watershed are provided in Table 4-1. The data collected from 1991 to 1997 from this monitoring program was also analyzed to determine benchmark characteristics. The results of the benchmark characteristic analysis for stations located in the Kankakee River watershed are provided in Appendix B. For a more in depth discussion of this analysis, please refer to the Indiana Fixed Station Statistical Analysis 1997 (IDEM 32/02/005/1998), published in May 1998 by the Assessment Branch of the Office of Water Quality - IDEM.

TABLE 4-1
RESULTS OF SEASONAL KENDALL ANALYSIS FOR STATIONS LOCATED IN THE KANKAKEE RIVER WATERSHED 1986 TO 1995

Parameter	KR-68 Kankakee River, S.R. 55 Bridge, 1 Mile South of Shelby	KR-118 Kankakee River, U.S. 6 Bridge South of Kingsbury Wildlife
Biological Oxygen Demand	«	«
Chemical Oxygen Demand	«	«
Dissolved Oxygen	-	-
E. coli	«	«
Ammonia	«	«
Nitrite + Nitrate	«	«
Total phosphorus	–	«
Total Residue	–	↘
Total Residue, Filterable	?	?
Total Residue, Nonfilterable	↘	«
Copper	«	«
Cyanide (total)	«	«

Notes

« No Statistical Change; significance < 80% or reported slope = 0.00000

↓ Statistically Decreasing; significance >95% with a negative slope

↘ Potentially Decreasing; significance >80% with a negative slope

↖ Potentially Increasing; significance >80% with a positive slope

↑ Statistically Increasing; significance >95 % with a positive slope

? Insufficient Data for analysis

4.3 Fish Consumption Advisories

Since 1972, the Indiana Department of Natural Resources, the IDEM, and the Indiana State Department of Health (ISDH) have worked together to create the Indiana Fish Consumption Advisory. Each year members from these three agencies meet to discuss the findings of recent fish monitoring data and to develop the new statewide fish consumption advisory.

The 1998 advisory is based on levels of PCBs and mercury found in fish tissue. Fish are tested regularly only in areas where there is suspected contamination. In each area, samples were taken of bottom-feeding fish, top-feeding fish, and fish feeding in between. Over 1,600 fish tissue samples collected throughout the state were analyzed for PCBs, pesticides, and heavy metals. Of those samples, 99 percent contained mercury. Criteria for placing fish on the 1996 Indiana Fish Consumption Advisory have changed from using the Food and Drug Administration guidelines to using the Great Lakes Task Force risk-based approach.

The ISDH defines the Advisory Groups as follows:

Group 1	Unrestricted consumption
Group 2	One meal per week (52 meals per year) for adult males and females. One meal per month for women who are pregnant or breastfeeding, women who plan to have children, and children under the age of 15.
Group 3	One meal per month (12 meals per year) for adult males and females. Women who are pregnant or breastfeeding, women who plan to have children, and children under the age of 15 do not eat.
Group 4	One meal every two months (six meals per year) for adult males and females. Women who are pregnant or breastfeeding, women who plan to have children, and children under the age of 15 do not eat.
Group 5	No consumption (DO NOT EAT)

Carp generally are contaminated with both PCBs and mercury. Except as otherwise noted, carp in all Indiana rivers and streams fall under the following risk groups:

Carp, 15-20 inches - Group 3
Carp, 20-25 inches - Group 4
Carp over 25 inches - Group 5

In the Kankakee River Watershed, the following waterbodies are under the 1998 fish consumption advisory:

Waterbody/County	Species	Size	Contaminant	Group
Kankakee River/Laporte County	Bigmouth buffalo	16-22	Mercury	2
		22+	Mercury	2
	Channel catfish	17+	Mercury	3
	Northern pike	15+	PCBs	3
	Quillback	15-16	PCBs	3
	Shorthead redhorse	13-17	Mercury, PCBs	3
		17+	Mercury, PCBs	4
Kankakee River/Lake County	Bigmouth buffalo	18-24	Mercury, PCBs	2
		24+	Mercury, PCBs	3
	Carp	20-22	PCBs	2
		22+	PCBs	3
	Northern pike	31+	PCBs	2
	Quillback	13-15	PCBs	2
		15+	PCBs	3
	Shorthead redhorse	14-16	PCBs	2
		16-19	PCBs	3
		19+	PCBs	4
	Silver redhorse	18-20	PCBs	2
		20+	PCBs	3
	Smallmouth buffalo	18-22	Mercury, PCBs	2
		22-28	Mercury, PCBs	3
		28-32	Mercury, PCBs	4
		32+	Mercury, PCBs	5
Lake Maxinkuckee/Marshall County	Chanel catfish	16-22	Mercury, PCBs	2
		21+	Mercury, PCBs	3
	Largemouth bass	6-17	Mercury	2
		17+	Mercury	3
	Walleye	22-23	Mercury	2
		23+	Mercury	3

4.4 Clean Water Act Section 305(b) Report

Section 305(b) of the Clean Water Act requires states to prepare and submit to the EPA a water quality assessment report of state water resources. A new surface water monitoring strategy for the Office of Water Quality was implemented in 1996 with the goal of monitoring all waters of the state by 2001 and reporting the assessments by 2003. Each year approximately 20 percent of the waterbodies in the state will be assessed and reported the following year. AIndiana 305(b) Report 1994-95" provides the most recent comprehensive report on Indiana water quality and is the baseline report for areas of the state for which water quality assessments have not yet been updated (IDEM 1994-95). The methodology of the Clean Water Act Section 305(b) assessment and use support ratings are discussed in Section 4.5.

Appendix C contains the listing of the Kankakee River watershed waterbodies assessed, status of designated use support, probable causes of impairment, and stream miles affected. This assessment was based on data collected during the summer of 1996.

4.5 Clean Water Act Section 305(b) Assessment and Use-Support: Methodology

The Office of Water Quality determines use support status for each stream and waterbody in accordance with the assessment guidelines provided by EPA (1997). Results from four monitoring programs are integrated to provide an assessment for each stream and waterbody:

Physical/chemical water column results,
Benthic aquatic macroinvertebrate community assessments,
Fish tissue and surficial aquatic sediment contaminant results, and
E. coli monitoring results.

The assessment process was applied to each data sampling program. The individual assessments were integrated into an overall assessment for each waterbody by use designation: aquatic life support, fish consumption, and recreational use. River miles in a watershed appear as one waterbody while each lake in a watershed is reported as a separate waterbody.

Physical/chemical data for toxicants (total recoverable metals), conventional water chemistry parameters (dissolved oxygen, pH, and temperature), and bacteria (*E. coli*) were evaluated for exceedance of the Indiana Water Quality Standards (327 IAC 2-1-6). U.S. EPA 305(b) Guidelines were applied to sample results as indicated in Table 4-3 (U.S. EPA 1997b).

TABLE 4-2
CRITERIA FOR USE SUPPORT ASSESSMENT*

Parameter	Fully Supporting	Partially Supporting	Not Supporting
Aquatic Life Use Support			
Toxicants	Metals were evaluated on a site by site basis and judged according to magnitude of exceedance and the number of times exceedances occurred.		
Conventional inorganics	There were very few water quality violations, almost all of which were due to natural conditions.		
Benthic aquatic macroinvertebrate Index of Biotic Integrity (mIBI)	mIBI $\geq$ 4.	mIBI $<$ 4 and $\geq$ 2.	mIBI $<$ 2.
Qualitative habitat use evaluation (QHEI)	QHEI $\geq$ 64.	QHEI $<$ 64 and $\geq$ 51.	QHEI $<$ 51.
Fish community (fIBI) (Lower White River only)	IBI $\geq$ 44.	IBI $<$ 44 and $\geq$ 22	IBI $<$ 22.
Sediment (PAHs = polynuclear aromatic hydrocarbons. AVS/SEM = acid volatile sulfide/ simultaneously extracted metals.)	All PAHs $\leq$ 75th percentile. All AVS/SEMs $\leq$ 75th percentile. All other parameters $\leq$ 95th percentile.	PAHs or AVS/SEMs $>$ 75th percentile. (Includes Grand Calumet River and Indiana Harbor Canal sediment results, and so is a conservative number.)	Parameters $>$ 95thpercentile as derived from IDEM Sediment Contaminants Database.
Indiana Trophic State Index (lakes only)	Nutrients, dissolved oxygen, turbidity, algal growth, and sometimes pH were evaluated on a lake-by-lake basis. Each parameter judged according to magnitude.		
Fish Consumption			
Fish tissue	No specific Advisory*	Limited Group 2 - 4 Advisory*	Group 5 Advisory*
* Indiana Fish Consumption Advisory, 1997, includes a state wide advisory for carp consumption. This was not included in individual waterbody reports because it obscures the magnitude of impairment caused by other parameters.			
Recreational Use Support (Swimmable)			
Bacteria (cfu = colony forming units.)	No more than one grab sample slightly $>$ 235 cfu/100ml, and geometric mean not exceeded.	No samples in this classification.	One or more grab sample exceeded 235 cfu/100ml, and geometric mean exceeded.

*From Indiana Water Quality Report for 1998

5 State and Federal Water Programs

This Chapter summarizes the existing point and nonpoint source pollution control programs available for addressing water quality problems in the Kankakee River watershed. Chapter 5 includes:

Section 5.1 Indiana Department of Environmental Management Water Quality Programs
Section 5.2 Indiana Department of Natural Resources Water Programs
Section 5.3 USDA/Natural Resources Conservation Service Water Programs

5.1 Indiana Department of Environmental Management Water Quality Programs

This Section describes the water quality programs managed by the Office of Water Quality within IDEM and includes:

Section 5.1.1 State and Federal Legislative Authorities for Indiana's Water Quality Program
Section 5.1.2 Indiana's Point Source Control Program
Section 5.1.3 Indiana's Nonpoint Source Control Programs
Section 5.1.4 Integrating Point and Nonpoint Source Pollution Control Strategies
Section 5.1.5 Potential Sources of Funding for Water Quality Projects

5.1.1 State and Federal Legislative Authorities for Indiana's Water Quality Program

Authorities for some of the programs and responsibilities carried out by the Office of Water Quality are derived from a number of federal and state legislative mandates outlined below. The major federal authorities for the state's water quality program are found in sections of the Clean Water Act. State authorities are from state statutes.

Federal Authorities for Indiana's Water Quality Program

- The Clean Water Act Section 301 - Prohibits the discharge of pollutants into surface waters unless permitted by EPA.

- The Clean Water Act Section 303(c) - States are responsible for reviewing, establishing and revising water quality standards for all surface waters.

- The Clean Water Act Section 303(d) - Each state shall identify waters within its boundaries for which the effluent limits required by 301(b)(1) A and B are not stringent enough to protect any water quality standards applicable to such waters.

- The Clean Water Act Section 305(b) - Each state is required to submit a biennial report to the EPA describing the status of surface waters in that state.

- The Clean Water Act Section 319 - Each state is required to develop and implement a nonpoint source pollution management program.

- The Clean Water Act Section 402 - Establishes the National Pollutant Discharge Elimination System (NPDES) permitting program. Allows for delegation of permitting authority to qualifying states (which Indiana has received).

- The Clean Water Act Section 404/401 - Section 404 regulates the discharge of dredge and fill materials into navigable waters and adjoining wetlands. Section 401 requires the U.S. Army Corps of Engineers to receive a state Water Quality Certification prior to issuance a 404 permit.

State Authorities for Indiana's Water Quality Program

IC 13-13-5 Designation of Department for Purposes of Federal Law: Designates the Indiana Department of Environmental Management as the water pollution agency for Indiana for all purposes of the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) effective January 1, 1988, and the federal Safe Drinking Water Act (42 U.S.C. 300f through 300j) effective January 1, 1988.

5.1.2 Indiana's Point Source Control Program

The State of Indiana's efforts to control the direct discharge of pollutants to waters of the State were inaugurated by the passage of the Stream Pollution Control Law of 1943. The vehicle currently used to control direct discharges to waters of the State is the NPDES (National Pollutant Discharge Elimination System) permit program. This was made possible by the passage of the Federal Water Pollution Control Act Amendments of 1972 (also referred to as the Clean Water Act). These permits place limits on the amount of pollutants that may be discharged to waters of the State by each discharger. These limits are set at levels protective of both the aquatic life in the waters which receive the discharge and human health.

The State of Indiana was granted primacy from U.S. EPA to issue NPDES permits on January 1, 1975 through a Memorandum of Agreement.

U.S. EPA, Region V, has oversight authority for the NPDES permits program. Under terms of the Memorandum of Agreement, Region V has the right to comment on all draft Major discharger permits. In addition to NPDES, the Office of Water Quality Permits Section has a pretreatment group which regulates municipalities in their development of municipal pretreatment programs and indirect discharges, or those discharges of process wastewater to municipal sewage treatment plants through Industrial Waste Pretreatment permits and regulation of Stormwater, CSO's, and variance requests through a special projects group currently known as the Urban Wet Weather Group. Land Application of waste treatment plant sludge is no longer a part of the Office of Water Quality but is now a part of the Office of Land Quality (formerly, Office of Solid and Hazardous Waste).

The purpose of the NPDES permit is to control the point source discharge of pollutants into the waters of the State such that the quality of the water of the State is maintained in accordance with the standards contained in 327 IAC 2. The NPDES permit requirements must ensure that the minimum amount of control is imposed upon any new or existing point source through the application of technology-based treatment requirement contained in 327 IAC 5-5-2. According to 327 IAC 5-2-2, "Any discharge of pollutants into waters of the State as a point source discharge, except for exclusions made in 327 IAC 5-2-4 is prohibited unless in conformity with a

valid NPDES permit obtained prior to discharge." This is the most basic principal of the NPDES permit program.

The majority of NPDES permits have existed since 1974. This means that most of the permit writing is for permit renewals. Approximately 10 percent of each year's workload is attributed to new permits, modifications and requests for estimated limits. NPDES permits are designed to be re-issued every five years but are administratively extended in full force and effect indefinitely if the permittee applied for a renewal before the current permit expires.

There are several different types of permits that are issued in the NPDES permitting program. Table 5-1 lists and describes the various permits.

TABLE 5-1
TYPES OF PERMITS ISSUED UNDER THE NPDES PROGRAM

Type of Permit	Subtype	Comment
Municipal, Semi-Public or State (sanitary discharger)	Major	A facility owned by a municipality with a design flow Municipal of 1 MGD or greater (Cities, Towns, Regional Sewer Districts)
	Minor	Any municipally owned facility with a design flow of less than 1 MGD (Cities, Towns, Regional Sewer Districts)
	Semipublic	Any facility not municipally, State or Federally owned (i.e.- mobile home parks, schools, restaurants, etc.)
	State Owned	A facility owned or managed by a State agency (State parks, prisons, etc.)
	Federally Owned	A facility owned by a federal agency (military Owned installation, national park, federal penitentiary, etc.)
Industrial (Wastewater generated in the process of producing a product)	Major	Any point source discharger designated annually by agreement between the commissioner and EPA. Classification of discharger as a major involves consideration of factors relating to significance of impact on the environment, such as: Nature and quantity of pollutants discharged; Character and assimilative capacity of receiving waters; Presence of toxic pollutants in discharge; Compliance history of discharger.
	Minor	All dischargers which are not designated as major dischargers.
	General	General permit rule provides streamlined NPDES permitting process for certain categories of industrial point source discharges under requirements of the applicable general permit rule, rather than requirements of an individual permit specific to a single discharge. General permit rules: 327 IAC 15-7 Coal mining, coal processing, and reclamation activities; 327 IAC 15-8 Non-contact cooling water; 327 IAC 15-9 Petroleum product terminals; 327 IAC 15-10 Groundwater petroleum remediation systems; 327 IAC 15-11 Hydrostatic testing of commercial pipelines; 327 IAC 15-12 Sand, gravel, dimension stone or crushed stone operations.
	Cooling Water	Water which is used to remove heat from a product or process; the water may or may not come in contact with the product.
	Public Water Supply	Wastewater generated from the process of removing pollutants from ground or surface water for the purpose of producing drinking water.
Pretreatment Urban Wet Weather Group (Associated with NPDES but do not fall under same rule.)	Stormwater-related	Wastewater resulting from precipitation coming in contact with a substance which is dissolved or suspended in the water.
	Industrial Wastewater Pre-treatment	Processed wastewater generated by Industries that contribute to the overall wastewater received by the wastewater treatment plant.
	Combined Sewer Overflow (CSO)	Wastewater discharged from combined storm and sanitary sewers due to precipitation events. Municipal and Industrial Urban Wet Weather Programs

5.1.3 Nonpoint Source Control Programs

Nonpoint source (NPS) pollution is so named because the pollutants do not originate at single point sources, such as industrial and municipal waste discharge pipes. Instead, NPS pollutants are carried over fields, lawns, and streets by rainwater, wind, or snowmelt. This runoff may carry with it such things as fertilizer, road salt, sediment, motor oil, or pesticides. These pollutants either enter lakes and streams or seep into groundwater. While some NPS pollution is naturally occurring, most of it is a result of human activities.

Reducing NPS pollution requires careful attention to land use management and local geographic and economic conditions. The NPS Program was established to fully integrate methods for coping with the state's varied NPS water pollution problems. While a number of agencies and organizations currently have their own programs for addressing specific NPS issues, overall NPS coordination is being aided through the consolidated NPS Management Plan that was developed in the early stages of the Program's formation. Approximately, over 180 NPS-related projects have been funded and managed by the NPS Program since 1990. The NPS Management Plan was prepared in 1989, partially based on findings from the NPS Assessment Report, which was also completed that year. The NPS Management Plan was updated and received EPA approval in 1999. Some of the objectives of the Management Plan included the education of land users, the reduction and remediation of NPS pollution caused by erosion and sedimentation of forested and agricultural lands, and urban runoff. Other objectives addressed pesticide and fertilizer use, land application of sludge, animal waste practices, past and present mining practices, on-site sewage disposal, and atmospheric deposition.

The state's NPS Program, administered by the IDEM Office of Water Quality's Watershed Management Section, focuses on the assessment and prevention of NPS water pollution. The program also provides for the exchange of education and information in order to improve the way land is managed. Through the use of federal funding for the installation of best management practices (BMPs), the NPS Program effectively reaches out to citizens and assists in the development of BMPs to manage land in such a way that less pollution is generated. The NPS program promotes a non-regulatory, voluntary approach to solving water quality problems.

The many nonpoint source projects funded through the Office of Water Quality are a combination of local, regional, and statewide efforts sponsored by various public and not-for-profit organizations. The emphasis of these projects has been on the local, voluntary implementation of NPS water pollution controls. Since the inception of the program in the late 1980s, it has utilized over $12 million of federal funds for the development of over 180 projects.

The federal Clean Water Act contains nonpoint source provisions in several sections of the Act including the Section 319 Nonpoint Source Program, the Section 314 Clean Lakes Program (no longer funded), the Section 104(b)(3) Watershed Management Program, and the Section 205(j) Water Quality Planning Program. The Section 319 program provides for various voluntary projects throughout the state to prevent water pollution and also provides for assessment and management plans related to water bodies in Indiana impacted by NPS pollution. Section 314 has assessment provisions that assist in determining the nonpoint and point source water quality impacts on lakes and provides recommendations for improvements, but no longer receives funding. Section 104(b)(3) provides assistance in the development of watershed management planning efforts and education/information and implementation projects. Section 604(b) provides for planning activities relating to the improvement of water quality from

nonpoint and point sources. The Watershed Management Section within the Planning Branch of the Office of Water Quality provides for the administration of the Section 319 funding source for the NPS-related projects. The Financial Management Services Branch of the Office of Water Quality administers the Section 104(b)(3) and Section 604(b) grants.

Clean Water Act Section 319(h) grant monies are made available to the states on an annual basis by EPA. Agencies and organizations in the state that deal with NPS problems submit proposals to the Office of Water Quality each year for use of these funds in various projects.

One of the most important aspects of all NPS pollution prevention programs is the emphasis on the watershed approach to these programs. This calls for users in the watershed to become involved in the planning and implementation of practices, which are designed to prevent pollution. By looking at the watershed as a whole, all situations causing the degradation of water quality will be addressed, not just a few. Appendix C lists the conservation partners and local stakeholders located in the Kankakee River watershed.

5.1.4 Integrating Point and Nonpoint Source Pollution Control Strategies

Integrating point and nonpoint source pollution controls and determining the amount and location of the remaining assimilative capacity in a watershed are key long-term objectives of watershed management. The information is used for a number of purposes including: determining if and where new or expanded municipal or industrial wastewater treatment facilities can be allowed; setting the recommended treatment level at these facilities; and identifying where point and nonpoint source pollution controls must be implemented to restore capacity and maintain water quality standards.

Total Maximum Daily Loads

The Clean Water Act mandates an integrated point and nonpoint source pollution control approach. This approach, called a total maximum daily load (TMDL), uses the concept of determining the total pollutant loading from point and nonpoint sources that a waterbody can assimilate while still maintaining its designated use (maintaining water quality standards). EPA is responsible for ensuring that TMDLs are completed by States and for approving the completed TMDLs.

Under the TMDL approach, waterbodies that do not meet water quality standards are identified. States establish priorities for action, and then determine reductions in pollutant loads or other actions needed to meet water quality goals. The approach is flexible and promotes a watershed approach driven by local needs and directed by the State's list of priority waterbodies. The overall goal in establishing the TMDL is to establish the management actions on point and nonpoint sources of pollution necessary for a waterbody to meet water quality standards.

The Office of Water Quality at IDEM is in the process of reorganizing its work activities around a five year rotating basin schedule. The waters of the state have been grouped geographically into major river basins, and water quality data and other information will be collected and analyzed from each basin, or group of basins, once every five years. The schedule for implementing the TMDL Strategy is proposed to follow this rotating basin plan to the extent possible. The TMDL Strategy discusses activities to be accomplished in three phases. Phase One involves planning, sampling and data collection and would take place the first year. Phase Two involves TMDL development and would occur in the second year, and Phase Three is the TMDL implementation and would occur the third year. It is expected that some phases,

especially implementation of TMDLs (Phase Three) in the basin(s), may take more than one year to fully accomplish.

Initially, as part of the TMDL Strategy in a watershed, the IDEM TMDL Program Manager, in coordination with the IDEM Basin Coordinator of the target basin, will develop an activity reference guide for each TMDL. This activity reference guide will provide: (1) a list of the necessary activities and tasks, (2) a schedule for completing activities and tasks associated with an individual TMDL, and (3) a roster that indicates which Section, staff, and /or contractor are responsible for completion of each activity/task.

In Phase Three, the TMDL scenario chosen in conjunction with watershed stakeholders during Phase Two will be used to develop a plan to implement the TMDL. During this process, stakeholder participation will be essential. The Basin Coordinator, in conjunction with the stakeholder groups, will develop a plan to implement the TMDL. Once the draft plan has been finalized through comments from stakeholder groups and IDEM, the plan becomes "draft-final" and open public review. Public meetings will be held in areas affected to solicit comments.

5.1.5 Potential Sources of Funding for Water Quality Projects

There are numerous sources of funding for all types of water quality projects. The sources of funding include federal and state agencies, nonprofits, and private funding. Funds may be loans, cost-share projects, or grants. Section 319(h) grants and other funding sources are discussed below.

If a local government, environmental group, university researcher, or other individual or agency wants to find funding to address a local water quality problem, it is well worth the time to prepare a thorough but concise proposal and submit it to applicable funding agencies. Even if a project is not funded, follow-up should be done to determine what changes may be needed in order to make the application more competitive.

Section 319(h) Grants

EPA offers to the state Clean Water Act Section 319(h) grant moneys on an annual basis. These grants must be used to fund projects that address nonpoint source pollution issues. Some projects which the Office of Water Quality has funded with this money in the past include best management practice (BMP) demonstrations, watershed water quality improvements, data management, educational programs, modeling, stream restoration, and riparian buffer establishment. Units of government, nonprofit groups, and universities in the state that have expertise in nonpoint source pollution problems are invited to submit Section 319(h) proposals to the Office of Water Quality.

Office of Water Quality staff review proposals for minimum 319 eligibility criteria such as:

- Does it support the state NPS Management Program milestones?
- Does the project address targeted, high priority watersheds?
- Is there sufficient non-federal cost-share match available (25% of project costs)?
- Are measurable outputs identified?
- Is monitoring required? Is there a Quality Assurance/Quality Control plan for monitoring?
- If a Geographical Information System is used, is it compatible with that of the state?
- Is there a commitment for educational activities and a final report?

- Are upstream sources of NPS pollution addressed?
- Are stakeholders involved in the project?

Office of Water Quality staff separately review and rank each proposal which meets the minimum 319 eligibility criteria. In their review, members consider such factors as: technical soundness; likelihood of achieving water quality results; degree of balance lent to the statewide NPS Program in terms of project type; and competence/reliability of contracting agency. They then convene to discuss individual project merits, to pool all rankings and to arrive at final rankings for the projects. Comments are also sought from outside experts in other governmental agencies, nonprofit groups, and universities. The Office of Water Quality seeks a balance between geographic regions of the state and types of projects. All proposals that rank above the funding target are included in the annual grant application to EPA, with EPA reserving the right to make final changes to the list. Actual funding depends on approval from EPA and yearly congressional appropriations.

To obtain more information about applying for a Section 319(h) grant, contact:

Susan McLoud, Watershed Management Section Chief
IDEM Office of Water Quality
100 N. Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015
(317) 232-0019

Other Sources of Funding

Besides Section 319(h) funding, there are numerous sources of funding for all types of water quality projects. The sources of funding include federal and state agencies, nonprofit, and private funding. Funds may be loans, cost-shares, or grants. Appendix D provides a summary list of agencies and funding opportunities.

5.2 Indiana Department of Natural Resources Water Programs

5.2.1 Division of Soil Conservation

The Division of Soil Conservation's mission is to ensure the protection, wise use, and enhancement of Indiana's soil and water resources. The Division's employees are part of Indiana's Conservation Partnership, which includes the 92 soil and water conservation districts (SWCDs), the USDA Natural Resources Conservation Service, and the Purdue University Cooperative Extension Service. Working together, the partnership provides technical, educational, and financial assistance to citizens to solve erosion and sediment-related problems occurring on the land or impacting public waters.

The Division administers the Clean Water Indiana soil conservation and water quality program under guidelines established by the State Soil Conservation Board, primarily through the SWCDs in direct service to landusers. The Division staff includes field-based resource specialists who work closely with landusers, assisting in the selection, design, and installation of practices to reduce soil erosion on their land. Regional Urban Conservation Specialists work primarily with developers, contractors, and others to address erosion and sediment concerns in urban

settings, developments under construction, and in landfills. The Lake and River Enhancement staff (LARE) oversee all administrative, operational, and technical aspects of the LARE program, which provides financial assistance to local entities concerned with improving and maintaining water quality in public-access lakes, rivers, and streams.

5.2.2 Division of Water

The IDNR, Division of Water (DOW) is charged by the State of Indiana to maintain, regulate, collect data, and evaluate Indiana's surface and ground water resources.

The Engineering Branch of the DOW includes Dam and Levee Safety, Project Development, Surveying, Drafting, and Computer Services. The Dam and Levee Safety Section performs geotechnical and hydraulic evaluation on existing and proposed dams and levees throughout the State. The Project Development Section provides technical support to locally funded water resource projects along with engineering leadership and construction management to State funded water resource projects. The remaining sections provide support services to all Sections within the DOW such as reservoir depth mapping, topographic mapping, highwater marks, design of publications and brochures, and computer procurement and maintenance.

The Planning Branch of the DOW consists of Basin Studies, Coastal Coordination, Floodplain Management, Ground Water, Hydrology and Hydraulics, and Water Rights. Basin Studies are comprehensive reports on surface-and ground-water availability and use. Coastal Coordination is a communication vehicle to address Lake Michigan's diverse shoreline issues. Floodplain Management involves various floodplain management aspects including coordination with the National Flood Insurance Program and with State and Federal Emergency Management agencies during major flooding events. The Ground Water Section maintains the water-well record computer database and publishes reports and maps on the ground-water resource for the State. Hydrology and Hydraulics Section develops and reviews floodplain mapping and performs hydrologic studies and modeling. The Water Rights Section investigates and mediates groundwater/surface water rights issues, licenses water-well drillers, and develops well construction and abandonment procedures.

The Regulations Branch of DOW is made up of Stream Permits, Lake Permits, Permit Administration, Public Assistance, and Legal Counsel. The Stream Permits Section is responsible for reviewing permit applications for construction activity in the 100-year regulatory floodway along Indiana's waterways. The Lake Permits Section reviews construction projects at or below the legal lake level for all of Indiana's public freshwater lakes. Permit Administration Section provides administrative support to Branch staff, maintains the application database, and coordinates the application review process with other Divisions. The Public Assistance Section provides technical assistance on possible permit applications on proposed construction projects, investigates and mediates unpermitted construction activities and in some cases with the support of Legal Counsel pursues legal action for violation of State laws.

5.3 USDA/Natural Resources Conservation Service Water Quality Programs

While there are a variety of USDA programs available to assist people with their conservation needs. The following assistance programs are the principal programs available.

Conservation Technical Assistance (CTA)

The purpose of the program is to assist landusers, communities, units of state and local government, and other Federal agencies in planning and implementing conservation systems. The purpose of the conservation systems are to reduce erosion, improve soil and water quality, improve and conserve wetlands, enhance fish and wildlife habitat, improve air quality, improve pasture and range condition, reduce upstream flooding, and improve woodlands.

The objective of the program is to: Assist individual landusers, communities, conservation districts, and other units of State and local government and Federal agencies to meet their goals for resource stewardship and assist individuals to comply with State and local requirements. NRCS assistance to individuals is provided through conservation districts in accordance with the Memorandum of Understanding signed by the Secretary of Agriculture, the Governor of the State, and the conservation district. Assistance is provided to landusers voluntarily applying conservation and to those who must comply with local or State laws and regulations. Assistance is also provided to agricultural producers to comply with the highly erodible land (HEL) and wetland (Swampbuster) provisions of the 1985 Food Security Act as amended by the Food, Agriculture, Conservation and Trade Act of 1990 (16 U.S.C. 3801 et. seq.); the Federal Agriculture Improvement and Reform Act of 1996, and wetlands requirements of Section 404 of the Clean Water Act. NRCS makes HEL and wetland determinations and helps land users develop and implement conservation plans to comply with the law. They also provide technical assistance to participants in USDA cost-share and conservation incentive programs. NRCS collects, analyzes, interprets, displays, and disseminates information about the condition and trends of the Nation's soil and other natural resources so that people can make good decisions about resource use and about public policies for resource conservation. They also develop effective science-based technologies for natural resource assessment, management, and conservation.

Conservation of Private Grazing Land Initiative (CPGL)

The Conservation of Private Grazing Land initiative will ensure that technical, educational, and related assistance is provided to those who own private grazing lands. It is not a cost-share program. This technical assistance will offer opportunities for: better grazing land management; protecting soil from erosive wind and water; using more energy-efficient ways to produce food and fiber; conserving water; providing habitat for wildlife; sustaining forage and grazing plants; using plants to sequester greenhouse gases and increase soil organic matter; and using grazing lands as a source of biomass energy and raw materials for industrial products.

Conservation Reserve Program (CRP)

NRCS provides technical assistance to landowners interested in participating in the Conservation Reserve Program administered by the USDA Farm Service Agency. The Conservation Reserve Program reduces soil erosion, protects the Nation's ability to produce food and fiber, reduces sedimentation in streams and lakes, improves water quality, establishes wildlife habitat, and enhances forest and wetland resources. It encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover, such as tame or native grasses, wildlife plantings, trees, filterstrips, or riparian buffers. Farmers receive an annual rental payment for the term of the multi-year contract. Cost-share funding is provided to establish the vegetative cover practices.

Environmental Quality Incentives Program (EQIP)

The Environmental Quality Incentives Program provides technical, educational, and financial assistance to eligible farmers and ranchers to address soil, water, and related natural resource concerns on their lands in an environmentally beneficial and cost effective manner. The program provides assistance to farmers and ranchers in complying with Federal, State, and tribal environmental laws, and encourages environmental enhancement. The program is funded through the Commodity Credit Corporation. The purposes of the program are achieved through the implementation of a conservation plan, which includes structural, vegetative, and land management practices on eligible land. Five to ten year contracts are made with eligible producers. Cost-share payments may be made to implement one or more eligible structural or vegetative practices, such as animal waste management facilities, terraces, filter strips, tree planting, and permanent wildlife habitat. Incentive payments can be made to implement one or more land management practices, such as nutrient management, pest management, and grazing land management.

Fifty percent of the funding available for the program is targeted at natural resource concerns relating to livestock production. The program is carried out primarily in priority areas that may be watersheds, regions, or multi-state areas, and for significant statewide natural resource concerns that are outside of geographic priority areas.

Watershed Surveys and Planning

The Watershed and Flood Prevention Act, P.L. 83-566, August 4, 1954, (16 U.S.C. 1001-1008) authorized this program. Prior to fiscal year 1996, small watershed planning activities and the cooperative river basin surveys and investigations authorized by Section 6 of the Act were operated as separate programs. The 1996 appropriations act combined the activities into a single program entitled the Watershed Surveys and Planning program. Activities under both programs are continuing under this authority.

The purpose of the program is to assist Federal, State, and local agencies and tribal governments to protect watersheds from damage caused by erosion, floodwater, and sediment and to conserve and develop water and land resources. Resource concerns addressed by the program include water quality, opportunities for water conservation, wetland and water storage capacity, agricultural drought problems, rural development, municipal and industrial water needs, upstream flood damages, and water needs for fish, wildlife, and forest-based industries.

Types of surveys and plans include watershed plans, river basin surveys and studies, flood hazard analyses, and flood plain management assistance. The focus of these plans is to identify solutions that use land treatment and non-structural measures to solve resource problems.

Watershed Program and Flood Prevention Program (WF 08 or FP 03)

The Small Watershed Program works through local government sponsors and helps participants solve natural resource and related economic problems on a watershed basis. Projects include watershed protection, flood prevention, erosion and sediment control, water supply, water quality, fish and wildlife habitat enhancement, wetlands creation and restoration, and public recreation in watersheds of 250,000 or fewer acres. Both technical and financial assistance are available.

Wetlands Reserve Program (WRP)

The Wetlands Reserve Program is a voluntary program to restore wetlands. Participating landowners can establish conservation easements of either permanent or 30 year duration, or can enter into restoration cost-share agreements where no easement is involved. In exchange for establishing a permanent easement, the landowner receives payment up to the agricultural value of the land and 100 percent of the restoration costs for restoring the wetlands. The 30 year easement payment is 75 percent of what would be provided for a permanent easement on the same site and 75 percent of the restoration cost. The voluntary agreements are for a minimum 10 year duration and provide for 75 percent of the cost of restoring the involved wetlands. Easements and restoration cost-share agreements establish wetland protection and restoration as the primary land use for the duration of the easement or agreement. In all instances, landowners continue to control access to their land.

Wildlife Habitat Incentives Program (WHIP)

The Wildlife Habitat Incentives Program provides financial incentives to develop habitat for fish and wildlife on private lands. Participants agree to implement a wildlife habitat development plan and USDA agrees to provide cost-share assistance for the initial implementation of wildlife habitat development practices. USDA and program participants enter into a cost-share agreement for wildlife habitat development. This agreement generally lasts a minimum of 10 years from the date that the contract is signed.

REFERENCES

Bunce, Nigel J. 1994. *Environmental Chemistry*. Second Edition. Wuerz Publishing Ltd. Winnipeg, Canada.

Indiana Agricultural Statistics Service. 1998-1999. Indiana Agricultural Statistics 1998-1999. Purdue University, 1148 AgAD Building, Room 223, West Lafayette, IN 47907-1148. http://www.usda.gov/nass/ .

Indiana Business Research Center (IRBC). 1993. Indiana County Population Projections 1990-2030. http://www.statelib.lib.in.us/www/rl/projections .HTML

IBRC. 1997. Indiana Cities and Towns Population. http://www.iupui.edu/it/ibrc/Population/CITYEST/allcities.html Last Updated: November

Indiana Department of Environmental Management (IDEM). 1994. Indiana 305(b) Report. Office of Water Quality

IDEM. 1999. Confined Feeding Operations. As presented on http://www.stat.in.us/idem/oshwm/confined.html Last update: April.

Indiana State University (ISU). 1999. Indiana GAP Analysis Home Page. http://139.102.7.220/h1/bertha/gap/ Last accessed: June

Indiana Department of Natural Resources, Division of Fish and Wildlife. http://www.state.in.us/dnr/fishwild/index.htm

Indiana Department of Natural Resources, Division of Nature Preserves. http://www.state.in.us/dnr/naturepr/index.htm

KRBC 1989. Kankakee River Basin Commission, Kankakee River Master Plan, February 1989.

Lineback, J.A., N.K. Blever, D,M. Mickelson, W.R. Farrand, and R.P. Goldwait. 1983. Quaternary geologic map of Chicago quadrangle, United States Department of the Interior, Geological Survey, Washington, DC.

National Oceanic and Atmospheric Administration (NOAA). 1996. Annual Climatological Data. National Climate Data Center as cited in Tetra Tech, Inc. (1999).

Natural Resources Commission (NRC). 1992. "Roster of Indiana Waterways Declared Navigable." As presented on http://www.ai.org/nrc/navigati.htm.

Natural Resources Commission (NRC). 1997. Outstanding Rivers List for Indiana. As presented on http://www.ai.org/nrc/outstand.htm Last update: October.

TNCIN 1996. The Nature Conservancy in Indiana Newsletter Spring 1996. "Saving Our Last Great Places: Kankakee Barrens,. http://www.tnc.org/infield/State/Indiana/news9601.htm

U.S. Department of Agriculture (USDA). 1997. 1997 Census of Agriculture Profiles: Indiana State and County Profiles Ranked Items and Other County Summary Data. http://www.nass.usda.gov/census/census97/profiles/in/inb.htm

U.S. Department of Agriculture (USDA) Soil Survey of Marshall and Newton Counties.

U. S. Environmental Protection Agency (EPA). 1997a. Guidelines for Preparation of the State Water Quality Assessments (305[b] Reports) and Electronic Updates: Report Contents. Washington, DC: U. S. Environmental Protection Agency. *EPA-841-B-97-002A*.

USFWS, Region 3:: Planning, Grand Kankakee Marsh. Grand Kankakee Marsh National Wildlife Refuge-Planning. http://www.fws.gov/r3pao/planning/kankakee/news1.htm

Kankakee River Watershed Restoration Action Strategy

Part II: Concerns and Recommendations

Prepared by

Indiana Department of
Environmental Management
Office of Water Quality

January 2001

FOREWORD

The First Draft (October 1999) of the Watershed Restoration Action Strategy (WRAS) was reviewed internally by IDEM and revised accordingly. The Second Draft (April 2000) was reviewed by stakeholders and revised accordingly. This Third Draft (January 2000) is intended to be a living document to assist restoration and protection efforts of stakeholders in their sub-watersheds. As a "living document" information contained within the WRAS will need to be revised and updated periodically.

The WRAS is divided into two parts: Part I, Characterization and Responsibilities and Part II, Concerns and Recommendations.

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Kankakee River Watershed Restoration Action Strategy Part II: Concerns and Recommendations

Part II of the Watershed Restoration Action Strategy discusses the water quality concerns identified for the Kankakee River Watershed and lists recommended management strategies to address these concerns.

Part II includes:

1 Water Quality Concerns and Priority Issues Identified by Stakeholder Groups

The Kankakee River watershed contains potential stakeholder groups that have different missions. Many of these groups have a long history of working in the Kankakee River watershed. The following discussion briefly describes some of the watershed groups and lists their priorities and concerns.

Elkhart County Soil and Water Conservation District

The Elkhart County Soil and Water Conservation District has developed a Long Range Plan and Annual Work Plan. Listed below are concerns addressed in their plans.

1. Monitor surface water quality
2. Facilitate communication between ag and urban
3. Education and information on septic systems
4. Assist farmers in removing livestock from drainage ways

Jasper County Soil and Water Conservation District

The Jasper County Soil and Water Conservation District has prioritized the concerns for the Kankakee River watershed. Listed below are their top five resource concerns.

1. Water Quality
2. Flood Control
3. Wetland restoration
4. Irrigation

5. Wildlife (including fisheries, recreation, improvement)
6. Increased Development

Kosciusko County Soil and Water Conservation District

The Kosciusko County Soil and Water Conservation District has held locally led meetings to prioritize concerns of the local people related to natural resources. Following are some of the concerns addressed through this process.

1. Loss of land to urban sprawl
2. Threats to right to farm
3. Lack of erosion control
4. Lack of water usage plan
5. Loss of fish and wildlife habitat
6. Disappearing wetlands as they relate to water quality
7. Lack of Stewardship Ethic
8. Lack of manure management

Lake County Soil and Water Conservation District

The Lake County Soil and Water Conservation District has held public meetings to prioritize the natural resource concerns in their county. Following are listed the highest concerns.

1. Erosion of cropland
2. Rural preservation, survival of the farm unit and farmland /woodland
3. Water quality, animal/fertilizer runoff, lack of filter strips, pesticide management
4. Drainage and Flood control, lack of proper drainage/retention ponds
5. Urban conservation , need for increased urban conservation/education
6. Lack of money and power, lack of funds, political control, and enforcement
7. Air quality, enforcement consistency in pollution laws, education

LaPorte County Soil and Water Conservation District

LaPorte County Soil and Water Conservation District conducted locally led conservation meetings to identify natural resource concerns for their county. Listed below are the top five issues:

1. Poor land use planning
2. Community lacks awareness of resources concerns, wildlife issues, and lack of agricultural knowledge by the general public and industry
3. Water quality
4. Right to farm
5. Wetlands

Newton County Soil and Water Conservation District

Newton County Soil and Water Conservation District conducted locally led conservation meetings to identify natural resource needs and concerns within their county. Listed below are the top concerns for the county:

1. Decrease wind and water erosion
2. Remove sediment caused by water wind erosion from surface water
3. Determine if a groundwater quality problem exists and what are the source(s)
4. Wind borne contaminates

Porter County Soil and Water Conservation District

The Porter County Soil and Water Conservation District has held local meetings to identify local natural resource needs. Listed below are the top five concerns for their county.

1. Loss of Farmland
2. Urban Conservation Practices
3. Water Quality
4. More funding for conservation practices
5. Loss of topsoil

Pulaski County Soil and Water Conservation District

The Pulaski County Soil and Water Conservation District has identified the following resources concerns.

1. Drainage
2. Wind Erosion
3. Water Quality
4. Wildlife habitat

St. Joseph County Soil and Water Conservation District

The St. Joseph County Soil and Water Conservation District has conducted locally led meetings to gather the concerns of the local people on issues related to natural resources. Through these meetings the concerns have been prioritized; they are listed below.

1. Zoning to protect farmland, highly productive land
2. Water quality, ground and surface water related to septic and wells
3. Urban Growth

4. Education; stewardship in natural resources, soils and drainage, conservation

Starke County Soil and Water Conservation District

The Starke County Soil and Water Conservation convened the Starke County Local Conservation Work Group to assess and prioritize the natural resources needs and concerns of their county. Listed below are the concerns related to water resources.

1. Lack of maintenance on the Kankakee, Yellow, Tippecanoe Rivers, lack of master drainage plan, farmland flooding
2. Lack of filter strips on main tributaries causing sedimentation
3. Groundwater quality, contamination from urban sources, shallow wells
4. Lack of plan for urban runoff
5. Water rights, irrigation
6. Non point source pollution in surface water, herbicide runoff, livestock runoff
7. Source point pollution, wells
8. Water contamination from farm sources, flooding and runoff

Kankakee River Basin Commission

The Kankakee river Basin Commission (KRBC) was created in 1977 by the Indiana state legislature. The KRBC areas of concern include:

1. Drainage and flooding
2. Proper fish and wildlife management
3. Protection, preservation of remaining wetlands and forests
4. Recreational potential

2 Water Quality Concerns and Priority Issues Identified by State and Federal Agencies

This section presents the combined efforts of state and federal agencies, and universities (such as IDEM, IDNR, USDA-Natural Resources Conservation Service, Ohio River Valley Water Sanitation Commission, Purdue University, Indiana University, Indiana Geologic Survey, and US Geological Survey) to assess water quality concerns and priority issues in the Kankakee River Watershed. This multi-organization effort formed the basis of the Unified Watershed Assessment for Indiana. At this time, the Unified Watershed Assessment has been completed for 1998 and 2000-2001, as described below.

Indiana's 1998 Unified Watershed Assessment (UWA)

The UWA workgroup gathered a wide range of water quality data that could be used to characterize Indiana's water resources. These data were used in "layers" in order to sort the 8-digit HUC watersheds according to the present condition of the water in lakes, rivers, and streams. The workgroup used only those data which concerned the water column, organisms living in the water, or the suitability of the water for supporting aquatic ecosystems. Each "layer" of information/data was partitioned by percentiles into scores. The scores ranged between one and five, with a score of one indicative of good water quality or minimum impairment, and a score of five indicating heavily impacted or degraded water quality. The scoring derived through the UWA process is presented in Table 2-1.

The data layers listed in Table 2-1 can be defined as:

- Lake Fishery: Large mouth bass community information for lakes
- Stream Fishery: Small mouth bass community information for streams
- Aquatic Life Use Support: The 'livability' of the water column for aquatic life, determined from evaluation of chemical and physical water data, and assessment of aquatic life
- Fish Consumption Advisories: Site specific advisories based on current data
- Fish Index of Biotic Integrity: Based on fish community diversity and fish health
- Qualitative Habitat Evaluation Index: Measure of whether the aquatic habitat is suitable for diverse communities, based on visual observations
- Lake Trophic Scores: Indicator for the rate at which a lake is 'aging' due to inputs of nutrients and other factors
- Sediment Potential: Indicator of potential sediment input to waterbodies in the watershed

The sources and additional information for these data layers include:

- Lake Fishery: From IDNR fisheries surveys of lakes and reservoirs from 1972 to 1994. Raw scores were averaged for all lakes in the watershed
- Stream Fishery: From IDNR fisheries surveys of streams from 1970 to 1994. Raw scores were averaged for all streams in the watershed
- Aquatic Life Use Support: IDEM, Office of Water Quality, Assessment Branch
- Fish Consumption Advisories: ISDH and IDEM, Office of Water Quality, Assessment Branch
- Fish Index of Biotic Integrity: IDEM, Office of Water Quality, Assessment Branch
- Qualitative Habitat Evaluation Index: IDEM, Office of Water Quality, Assessment Branch
- Lake Trophic Scores: Indiana Clean Lakes Program through IDEM, Office of Water Quality, Assessment Branch. This score was based on information gathered from sampling conducted in the 1970's and 1980's
- Sediment Potential: U.S. Geological Survey scored the population rate of change and the 1996 Conservation Tillage Transect data. The scores were then added and normalized to produce a sediment yield indicator for each watershed

TABLE 2-1
RESULTS OF THE UNIFIED WATERSHED ASSESSMENT
FOR KANKAKEE RIVER

Data/Information Layer	KANKAKEE RIVER (07120001) Score
Lake Fishery	Nd
Stream Fishery	5
Aquatic Life Use Support	4
Fish Consumption Advisories	3
Fish Index of Biotic Integrity	3
Qualitative Habitat Evaluation Index	4
Lake Trophic Scores	4
Sediment Potential	2

Note:
The UWA scores range from one to five, with a score of one indicating good water quality and a score of five indicating severe impairment.

Indiana's 2000-2001 Unified Watershed Assessment (UWA)

During summer 1999 the UWA workgroup used additional layers of information to identify the **resource concerns and stressors** for each of the 361 11-digit watersheds in Indiana. Examination of the human activities that have the potential to impact the ecosystem will help planners to focus on those areas where restoration may be most critical. Organizations can identify opportunities to use their programs and resources to address those areas.

This focusing process will illuminate areas where the interests of two or more partner agencies may converge. It is intended that this will lead to more effective allocation of resources for restoration and protection activities. At the local level, this information can assist groups to prioritize watershed activities and provide some discussion points for planning.

This amended assessment has the following benefits:

- Provides a logical process for targeting funds, which may be expanded or updated without changing the basic framework.
- Provides information at a finer resolution (11-digit hydrologic units) to agencies and local groups interested in watershed assessment.
- Identifies data gaps.
- Can be used as a compliment to other assessments, such as the 305(b) Report and 303(d) List.

Table 2-2 and Figure 2-1 show the results of the 2000-2001 UWA for the Kankakee River watershed.

3 Identification of Impaired Waters

Section 303(d) of the Clean Water Act requires states to identify waters that do not or are not expected to meet applicable water quality standards with federal technology based standards alone. States are also required to develop a priority ranking for these waters taking into account the severity of the pollution and the designated uses of the waters. Indiana's 303(d) list was approved by EPA on February 16, 1999.

Once the Section 303(d) list and ranking of waters is completed, the states are required to develop Total Maximum Daily Loads (TMDLs) for these waters in order to achieve compliance with the water quality standards. The TMDL is an allocation that determines the point and nonpoint source (plus margin of safety) load reductions required in order for the waterbody to meet water quality standards. IDEM's Office of Water Quality has and continues to perform point source waste load allocations for receiving waters. Part I of the WRAS briefly outlines IDEM's strategy for developing TMDLs.

The following Kankakee River Watershed waterbodies are on Indiana's 1998 Clean Water Act Section 303(d) list submitted and approved by EPA 303(d) list (Figure 3-1):

Indiana's 1998 Clean Water Act Section 303(d) List
Kankakee River Watershed

Waterbody/County Name	Reason
Beaver Creek/Newton	Impaired Biotic Communities
Cedar Creek /Lake	Impaired Biotic Communities
Cedar Lake/Lake	FCA for PCB
Cobb Creek-Breyfogel Ditch/Porter	D.O., Impaired Biotic Communities
Crooked Creek/LaPorte and Porter	Impaired Biotic Communities
Dyer Ditch/Lake	Impaired Biotic Communities
Kankakee River/Jasper and Newton	FCA for PCB
Kankakee River/Lake and LaPorte	FCA for PCB and Hg, E.coli
Pine Creek/Starke	D.O.
Unnamed Ditch/(Wyatt) St. Joseph	E.coli

FCA = Fish Consumption Advisory
PCB = Polychlorinated Biphenyls
Hg = Mercury
D.O. = Dissolved Oxygen

4 Priority Issues and Recommended Management Strategies

Part I provided the existing water quality information for the Kankakee River watershed and Part II lists priority issues and concerns from local, state, and federal stakeholders in the watershed. This section pulls together the priority issues and concerns held by all stakeholders and recommends management strategies. Underlying all discussions of priority issues and concerns is the fact that improving water quality in the Kankakee River Watershed will also enhance the natural and recreational values of Kankakee River. Each subsection below focuses on a single priority issue.

4.1 Data/ Information and Targeting

The success in restoring water quality in the Kankakee River Watershed is fundamentally based on identifying the specific geographic problem areas; identifying all sources contributing to the impairment of the waterbody; and quantifying the contribution of a pollutant by each source.

Recommended Management Strategy 1: Data and assessments from the 1996 sampling performed by the Office of Water Quality are complete and are included in the 1998 305(b) report (Appendix B of Part I). This information was used in writing this Watershed Restoration Action Strategy, and will provide guidance in the future in order to better prioritize and target specific areas in the Kankakee River Watershed. The scale at which targeting and prioritization should occur is the 14-digit HUC watershed area (Figure 2-2 of Part I). Targeting and prioritization will require input from stakeholders living in those geographic areas. The purpose of prioritization and targeting is to enhance allocation of resources in the effort of improving water quality.

Recommended Management Strategy 2: Through the development of Total Maximum Daily Loads (TMDLs) for impaired waterbodies in the Kankakee River Watershed, all sources contributing to the impairment of a waterbody will be identified and quantified in terms of their contribution to the waterbody. This includes gathering more data and information on nonpoint sources of water pollution. Throughout the TMDL process, information and feedback from watershed stakeholders will be required in order to generate appropriate allocation scenarios. The result of developing TMDLs will be an understanding of the impact of nonpoint sources on water quality in the watershed.

4.2 Streambank Erosion and Stabilization

The erosion of streambanks within the Kankakee River Watershed is a major concern. The erosion increases the sediment load in waterbodies and directly impacts the scenic and recreational values of waterbodies in the Kankakee River Watershed. Streambank erosion is often a function of many factors that include stream energy and velocity, flooding, and land management. Increased drainage in headwater streams and ditches increases stream energies during rainfall events and often leads to increased streambank erosion downstream. Land clearing and urban development also impact volume and velocity of runoff. Hence, this problem is not easily solved.

Recommended Management Strategy 1: IDEM's Office of Water Quality offers their active support to the primary agency that has jurisdiction over this problem in order to facilitate the development of solutions.

Recommended Management Strategy 2: Structural stabilization of specific streambank areas in the Kankakee River watershed may solve problems on a temporary basis. However, a comprehensive understanding of drainage, stream flows and energies, and land management practices is required to adequately approach this problem. Conservation partners (local, state, and federal) are actively working within their specific geographic areas (typically at the county level); however, this may not facilitate solving the streambank erosion problems because efforts may not be coordinated between headwater and downstream areas. For example, drainage should take into account the work and efforts of downstream partners to reduce flooding and streambank erosion. Conservation efforts should be in the context of watersheds and span county boundaries in order to account for downstream impacts. Local Drainage Boards, Planning and Zoning Boards, and County Commissioners could effectively address this issue by involving local stakeholders in the decision making process and approaching the issue on a watershed basis.

4.3 Failing Septic Systems and Straight Pipe Discharges

Local county health departments and other stakeholders have identified failing septic systems and straight pipe discharge from septic tanks as significant sources of water pollution in the Kankakee River watershed. Straight pipe discharges from septic tanks and septic tanks connected to drainage tiles are illegal (327 IAC 5-1-1.5); however, these practices still exist in the Kankakee River watershed.

Recommended Management Strategy 1: The direct impact of communities discharging their septic tank effluent to waterbodies needs to be adequately characterized. This will involve coordination between the Office of Water Quality, local health departments, Indiana State Department of Health, and other stakeholders. The option of choice to eliminate the illegal discharges will be a cooperative effort between homeowners and local, state, and federal stakeholders.

Recommended Management Strategy 2: Local planning, zoning, and health ordinances could be adopted or strengthened to address this problem during new development. Existing local ordinances could be enforced more vigorously to correct problems with existing systems. Both of these strategies will require input from local stakeholders.

Recommended Management Strategy 3: An education/ outreach program on the health and environmental risks of septic system discharges, system maintenance, and system function would provide homeowners and others with basic information to better understand the impacts of inadequate systems. This kind of education effort would involve local health departments, Indiana State Department of Health, IDEM, and other stakeholders. The ArrowHead RC&D is working on a project to demonstrate proper septic system installation.

4.4 Water Quality - General

The Clean Water Act Section 303(d) list presented in Section 3 lists impaired waterbodies for the Kankakee River watershed.

Recommended Management Strategy: The Clean Water Act requires states to complete TMDLs for waterbodies listed on the Section 303(d) list. The Office of Water Quality is currently evaluating and exploring the modeling process and data needs required to complete TMDLs for the Section 303(d) listed waterbodies. Completion of a TMDL will involve loading allocations of a pollutant to both point and nonpoint sources. The development of TMDLs will involve meetings with stakeholder groups linked to the Section 303(d) waterbodies. As TMDLs are developed, this Watershed Restoration Action Strategy will be amended to incorporate the final TMDLs.

4.5 Fish Consumption Advisories

As noted in Part I and Part II, fish consumption advisories are concerns within the Kankakee River watershed.

Recommended Management Strategy 1: The source of the contamination is unknown and may be from atmospheric deposition or some unknown discharge. To address this concern, the cause or source must be identified. Until that is accomplished, the fish consumption advisories should be followed.

4.6 Nonpoint Source Pollution - General

Nonpoint source pollution contributions are often difficult to assess or quantify. They can include sediment deposition from soil erosion, nutrient runoff from animal wastes and commercial fertilizer, herbicide and insecticide runoff, and oil or fuel waste runoff. Nonpoint pollution can emanate from agricultural as well as urban lands. Currently, loadings of nonpoint source pollutants to water are often inferred by examination of land use practices, without actual measurements. In addition, the actual water quality impairments related to nonpoint source pollutants have not been well characterized in the Kankakee River watershed. Finally, very few regulatory control mechanisms exist to control nonpoint source pollution.

Recommended Management Strategy 1: Through the TMDL development process, the Office of Water Quality will identify, assess, and quantify nonpoint source pollutant loadings to impaired waterbodies. In order to accomplish this task, the Office of Water Quality will work closely with local, state, and federal stakeholders at the watershed and subwatershed level. Loading scenarios for nonpoint source pollutants will be developed by the Office of Water Quality and reviewed by local, state, and federal stakeholders. Implementation of nonpoint source controls will involve a blend of funding assistance and regulatory action, where applicable.

Recommended Management Strategy 2: Numerous funding mechanisms, such as Conservation Reserve Program, Environmental Quality Incentive Program, Lake and River Enhancement program, and 319(h) grants, exist to promote practices to reduce nonpoint source pollution in the watershed. To more efficiently and effectively address nonpoint source pollution in the watershed, the prioritization and targeting discussed previously in Part II should be used to allocate further application of resources.

Recommended Management Strategy 3: The management of urban nonpoint sources can be addressed through effective land use planning and site design. Designs that incorporate less impervious area and more natural infiltration areas have proven effective in reducing urban nonpoint pollution. Local stakeholders working with local planning and zoning authorities, and

developers, should implement more stringent site design requirements to reduce nonpoint source contaminants. The state and federal stakeholders would support this effort.

4.6.1 Nonpoint Source Pollution- Education and Outreach

This Watershed Restoration Action Strategy is a beginning point for education and outreach efforts. It compiles existing knowledge about the water resource in this watershed and presents it to the stakeholders who live in the Kankakee River. It brings to a public forum the available information and local concerns. However, the education process does not stop with the publication of this document.

Recommended Management Strategy: Local stakeholders, in cooperation with state and federal agencies, need to seek additional information on water quality concerns and issues addressed in this document and make that information available to the public. Additionally, the problems associated with septic failures, soil erosion, land use issues, and riparian zones can be emphasized through meetings, training sessions, and stakeholder group discussions. Field days are excellent ways to present information and encourage discussion. Use of experts with strong background knowledge coupled with local sponsors is an effective method to convey solutions to these problems.

4.7 Point Sources - General

There are 150 NPDES permitted dischargers, and 59 CSO discharge points in the Kankakee River watershed. Additionally there are illegal point source discharges, such as tiles discharging septic tank effluent that exist in the watershed.

Recommended Management Strategy: The Permitting and Compliance Branch of the Office of Water Quality is responsible for issuing and monitoring compliance of NPDES permit holders. Clearly, more emphasis and resources are needed to identify and correct illegal point sources and noncomplying point sources. Improving compliance of NPDES dischargers and identifying illegal dischargers will involve fostering a working relationship with other local, state, and federal stakeholders to monitor compliance and report unusual discharges or stream appearance. In regards to illegal discharges, the Office of Water Quality will work with local, state, and federal stakeholders to identify and eliminate these sources of water pollution.

5 Future Expectations and Actions

As discussed in Part I, this Watershed Restoration Action Strategy is intended to be fluid document that will be revised or amended as new information becomes available. Section 5.1 discusses expectations derived from the Strategy and how progress will be measured. Specific revisions and amendments to the Watershed Restoration Action Strategy are discussed in Section 5.2. Finally, the Watershed Restoration Action Strategy will be reviewed by all stakeholders before it becomes final, as described in Section 5.3.

5.1 Expectations and Measuring Progress

The Kankakee River Strategy provides a starting point to address water quality concerns held by local, state, and federal stakeholders. Part II provides recommended management strategies to address these concerns. Through cooperative efforts with stakeholders, all of the recommended management strategies listed will begin implementation by the summer of 2000.

Measurement of progress is critical to the success of any plan. Water quality improvements will not take place overnight. Measuring of progress in terms of water quality will be provided through the Office of Water Quality Assessment Branch's rotating basin monitoring strategy. Specifically, they have completed sampling in the Kankakee River watershed in 1999 and will return again in five years. This will allow an assessment of progress in improving water quality.

5.2 Expected Revisions and Amendments

This Watershed Restoration Action Strategy is intended to provide a starting point to improve water quality and measure the improvement. Hence, this document will require revisions and amendments as new information becomes available. The future revisions and amendments have been divided into those that are expected within the next year (Section 5.2.1) and those that will occur over a long-term basis (Section 5.2.2).

5.2.1 Short Term Revisions and Amendments

The most significant revisions and amendments will likely occur during 2001 and after, as a result of the rotating basin assessments to be completed during 2001. The Section 305(b) assessments will be completed by late 1999 or early 2000. Local, state, and federal stakeholder comments regarding the Watershed Restoration Action Strategy will be addressed in future revisions of the document.

5.2.2 Long Term Revisions and Amendments

The Office of Water Quality is moving toward adopting a watershed management approach to solve water quality problems. Part of the watershed approach is the use of a rotating basin management cycle. The Assessment Branch of the Office of Water Quality has already adopted this rotating basin cycle in its intensive monitoring and assessment of Indiana waterbodies (this

is in addition to the already established fixed monitoring station monitoring which occurs on a monthly basis). Based on the cycle the Assessment Branch is using, the next intensive monitoring of the Kankakee River watershed will occur during the sampling season of 2004. The information from the 2004 monitoring effort will be incorporated into the Watershed Restoration Action Strategy.

In addition, the Watershed Restoration Action Strategy may be revised or amended prior to 2004, if sufficient information becomes available.

5.3 Review of the Watershed Restoration Action Strategy

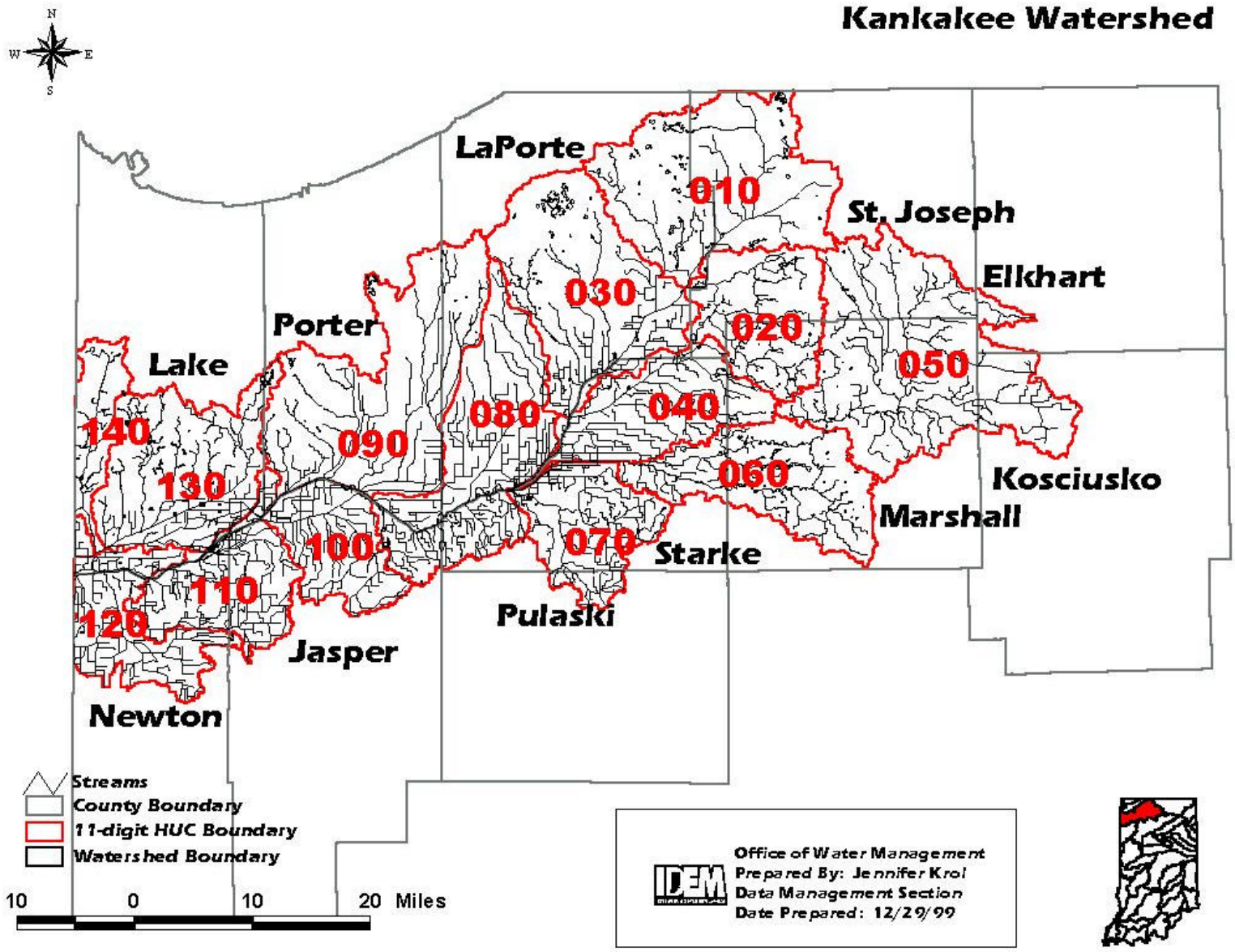
Before this Watershed Restoration Action Strategy becomes final, it will undergo rigorous review. The first stage of review will be performed internally by the Office of Water Quality. Once the Watershed Restoration Action Strategy has been revised to address internal Office of Water Quality comments, it will be circulated to local, state, and federal stakeholders in the watershed and meetings within the watershed will be held to discuss the document. Written comments from local, state, and federal stakeholders will be addressed and the Watershed Restoration Action Strategy will again be revised to incorporate applicable comments. Once internal and external comments have been addressed, the final version of the Watershed Restoration Action Strategy will be released.

Table 2-2

HYDROLOGIC UNIT SCORES for Each Parameter Used in the Unified Watershed Assessment [2000-2001]

11 Digit Hydrologic Unit		Mussel Diversity and Occurrence	Aquatic Life Use Support	Recreational Use Attainment	Stream Fishery	Lake Fishery	Eurasian Milfoil Infestation Status	Lake Trophic Status	Critical Biodiversity Resource	Aquifer Vulnerability	Population Using Surface Water for Drinking Water	Residential Septic System Density	Degree of Urbanization	Density of Livestock	% Cropland	Mineral Extraction Activities
Kankakee	07120002010	nd	nd	nd	nd	nd	nd	nd	4	2	1	2	1	3	5	2
	07120002020	nd	nd	nd	nd	nd	nd	nd	2	3	1	1	2	3	5	2
	07120002030	nd	nd	nd	nd	nd	nd	nd	3	2	1	1	2	2	5	2
	07120002040	nd	nd	nd	nd	nd	nd	nd	4	3	1	1	2	2	5	1
	07120002050	nd	nd	nd	nd	nd	nd	nd	2	3	1	1	2	1	5	1
	07120002070	nd	nd	nd	nd	nd	nd	nd	3	4	1	1	2	1	5	1
	07120002090	nd	nd	nd	nd	nd	nd	nd	2	5	1	1	1	1	5	1
	07120002150	nd	nd	nd	nd	nd	nd	nd	5	1	5	1	2	1	5	1

Figure 2-1


Kankakee Watershed
N
W
E
S
LaPorte
St. Joseph
Elkhart
Porter
Lake
Kosciusko
Marshall
Starke
Pulaski
Jasper
Newton
010
020
030
040
050
060
070
080
090
100
110
120
130
140
Streams
County Boundary
11-digit HUC Boundary
Watershed Boundary
10 0 10 20 Miles
IDEM
Office of Water Management
Prepared By: Jennifer Krol
Data Management Section
Date Prepared: 12/29/99

APPENDIX A

BENCHMARK CHARACTERISTICS ANALYSIS OF DAT FROM FIXED STATIONS IN THE KANKAKEE RIVER WATERSHED 1991 TO 1997

Station: KR-68

	Valid N	Mean	Confid. -95.000%	Confid. +95.000%	Median	Sum	Minimum	Maximum	Lower Quartile	Upper Quartile	Range	Quartile Range	Variance	Std.Dev.	Standard Error	Skewness	Std.Err. Skewness	Kurtosis	Std.Err. Kurtosis
Alkalinity (mg/l)	65	191.0154	183.5487	198.482	196	12416	104	259	176	208	155	32	908.0154	30.13329	3.737575	-0.99819	0.297116	1.727524	0.586236
Ammonia (mg/l as N)	65	0.077846	0.060088	0.095604	0.05	5.06	0.01	0.5	0.05	0.05	0.49	0	0.005136	0.071665	0.008889	3.797328	0.297116	18.56508	0.586236
BOD (mg/l)	32	1.04375	0.75186	1.33564	0.5	33.4	0.5	4.2	0.5	1.55	3.7	1.05	0.655444	0.809595	0.143117	2.150101	0.414457	6.317957	0.809371
COD (mg/l)	65	20.10462	18.29631	21.91292	19.8	1306.8	2.5	49.6	14.6	25	47.1	10.4	53.25795	7.297804	0.905181	1.001476	0.297116	3.213658	0.586236
Cyanide (mg/l)	62	0.00521	0.005043	0.005376	0.005	0.323	0.005	0.008	0.005	0.005	0.003	0	4.3E-07	0.000656	8.3E-05	3.349901	0.303902	10.79525	0.599288
Nitrate (mg/l as N)	65	1.623846	1.315484	1.932208	1.2	105.55	0.05	9	0.9	1.9	8.95	1	1.54868	1.24446	0.154356	3.593354	0.297116	18.73785	0.586236
Total Phosphorus (mg/l as P)	65	0.081692	0.070844	0.09254	0.07	5.31	0.015	0.24	0.05	0.11	0.225	0.06	0.001917	0.043779	0.00543	1.124649	0.297116	1.477937	0.586236
Total Solids (mg/l)	65	432.8154	408.536	457.0948	429	28133	205	1020	409	452	815	43	9600.997	97.98468	12.1535	3.106822	0.297116	20.8775	0.586236
Suspended Solids (mg/l)	65	25.01538	19.58954	30.44123	20	1626	2	152	13	32	150	19	479.4841	21.89713	2.716004	3.349365	0.297116	17.1816	0.586236
Dissolved Solids (mg/l)	0																		
Sulfate (mg/l)	0																		
TKN (mg/l as N)	64	0.829688	0.742737	0.916638	0.8	53.1	0.3	2	0.6	1	1.7	0.4	0.121168	0.348092	0.043512	1.141134	0.299327	1.666087	0.590491
E. coli (CFU/100ml)	61	414.0164	175.0904	652.9424	110	25255	5	5000	40	260	4995	220	870296.5	932.8968	119.4452	3.60213	0.30627	13.35054	0.603837
TOC (mg/l)	0																		
Hardness (mg/l)	65	287.2	275.9497	298.4503	300	18668	126	338	280	316	212	36	2061.413	45.40278	5.631522	-1.91749	0.297116	3.65038	0.586236
Chloride (mg/l)	0																		
Dissolved Oxygen (mg/l)	50	9.448	8.901074	9.994926	9.595	472.4	6.22	13.46	7.8	10.78	7.24	2.98	3.703555	1.924462	0.27216	0.13059	0.336601	-0.90478	0.661908
pH	51	7.862373	7.762444	7.962301	7.89	400.981	6.73	8.92	7.7	8.04	2.19	0.34	0.126235	0.355296	0.049751	-0.50073	0.333464	3.538675	0.65592
Copper (ug/l)	65	3.998462	2.981649	5.015274	4	259.9	2	33	2	5	31	3	16.83922	4.103561	0.508984	5.747459	0.297116	39.86365	0.586236
Iron (ug/l)	65	1427.692	1194.799	1660.585	1200	92800	260	6300	740	1900	6040	1160	883389.9	939.8882	116.5788	2.375811	0.297116	10.20168	0.586236
Zinc (ug/l)	65	10.87385	9.215594	12.5321	10	706.8	2.25	40	6.9	10	37.75	3.1	44.78587	6.692224	0.830068	1.888481	0.297116	5.203761	0.586236

Station: KR-118

	Valid N	Mean	Confid. -95.000%	Confid. +95.000%	Median	Sum	Minimum	Maximum	Lower Quartile	Upper Quartile	Range	Quartile Range	Variance	Std.Dev.	Standard Error	Skewness	Std.Err. Skewness	Kurtosis	Std.Err. Kurtosis
Alkalinity (mg/l)	68	217.8382	211.5593	224.1172	225	14813	113	268	211.5	233	155	21.5	672.9137	25.94058	3.145758	-1.92263	0.290765	5.023789	0.574005
Ammonia (mg/l as N)	69	0.091304	0.074702	0.107906	0.05	6.3	0.05	0.3	0.05	0.1	0.25	0.05	0.004776	0.06911	0.00832	1.698447	0.288737	1.943129	0.570095
BOD (mg/l)	32	1.26875	0.882122	1.655378	1	40.6	0.5	5.1	0.5	1.65	4.6	1.15	1.14996	1.072362	0.189569	1.92519	0.414457	4.299515	0.809371
COD (mg/l)	69	20.0942	17.93984	22.24856	18	1386.5	10	65	14.1	21.6	55	7.5	80.42585	8.968046	1.079626	2.440144	0.288737	9.113941	0.570095
Cyanide (mg/l)	69	0.005043	0.004979	0.005108	0.005	0.348	0.005	0.007	0.005	0.005	0.002	0	7.2E-08	0.000268	3.2E-05	6.606273	0.288737	45.38393	0.570095
Nitrate (mg/l as N)	69	1.737681	1.239825	2.235537	1.2	119.9	0.6	16	1	1.6	15.4	0.6	4.29503	2.072445	0.249493	5.643555	0.288737	35.62735	0.570095
Total Phosphorus (mg/l as P)	69	0.063188	0.050409	0.075968	0.05	4.36	0.015	0.36	0.04	0.07	0.345	0.03	0.00283	0.053199	0.006404	3.163842	0.288737	14.25995	0.570095
Total Solids (mg/l)	68	432.7059	420.0387	445.3731	428.5	29424	322	711	416.5	448	389	31.5	2738.718	52.33276	6.34628	2.623118	0.290765	13.04504	0.574005
Suspended Solids (mg/l)	68	25.13235	11.85395	38.41075	17	1709	2	460	10	25	458	15	3009.37	54.85773	6.652477	7.656304	0.290765	61.3365	0.574005
Dissolved Solids (mg/l)	0																		
Sulfate (mg/l)	0																		
TKN (mg/l as N)	69	0.802899	0.704973	0.900824	0.7	55.4	0.3	3.1	0.6	0.9	2.8	0.3	0.166168	0.407637	0.049074	2.908348	0.288737	13.96736	0.570095
E. coli (CFU/100ml)	68	834.7794	433.6986	1235.86	275	56765	5	9400	91.5	610	9395	518.5	2745668	1657.006	200.9414	3.549123	0.290765	14.03474	0.574005
TOC (mg/l)	0																		
Hardness (mg/l)	68	303.0294	292.5666	313.4922	317.5	20606	160	398	272.5	334.5	238	62	1868.447	43.22554	5.241866	-1.03348	0.290765	1.434707	0.574005
Chloride (mg/l)	1	16				16	16	16											
Dissolved Oxygen (mg/l)	55	9.446727	9.00603	9.887424	9.56	519.57	6.04	12.86	7.82	10.45	6.82	2.63	2.657459	1.630172	0.219812	-0.00611	0.321742	-0.5887	0.633507
pH	54	7.816111	7.739901	7.892322	7.85	422.07	6.83	8.47	7.72	7.96	1.64	0.24	0.07796	0.279213	0.037996	-0.8472	0.324556	2.365677	0.638893
Copper (ug/l)	70	3.014286	2.438047	3.590524	2	211	2	18	2	4	16	2	5.840373	2.416686	0.288849	4.111483	0.28675	21.78247	0.566265
Iron (ug/l)	70	1442.429	939.048	1945.809	1150	100970	240	18000	730	1600	17760	870	4456859	2111.127	252.328	7.196904	0.28675	56.73122	0.566265
Zinc (ug/l)	70	10.53071	7.880829	13.1806	10	737.15	2.25	90	5	10	87.75	5	123.5066	11.11335	1.3283	5.528688	0.28675	38.47316	0.566265

APPENDIX B

KANKAKEE RIVER WATERSHED WATERS
ASSESSED IN THE CLEAN WATER ACT SECTION
305(B) REPORT
1994 TO 1995

KANKAKEE RIVER WATERSHED WATERS
ASSESSED IN THE CLEAN WATER ACT SECTION 305(B) REPORT
1994 TO 1995

WATERBODY	NEAREST TOWN	STATUS OF DESIGNATED USE SUPPORT 1	METHOD OF ASSESSMENT 2	PROBABLE CAUSE OF IMPAIRMENT	MILES AFFECTED	COMMENTS
Travis Ditch	Kingsbury LaPorte	NS (Aquatic Life) PS (Recreational)	Monitored (c) (b)	E. coli	13.2	Biological Assessment "very Poor" 3 miles south of LaPorte.
Kingsbury Creek	Kingsbury	NS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E. coli	9.3	Biological Assessment "Poor".
Kankakee River	Crumstown	FS (Aquatic Life) NS (Recreational)	Monitored (c)	E. coli	15.8	
Kankakee River	English Lake	FS (Aquatic Life)	Monitored (c)		5.0	Alachlor found above detection level at .12 ug/l.
Kankakee River	Shelby	FS (Aquatic Life)	Monitored (c)		23.0	
Kankakee River	Hamlet	FS (Aquatic Life) NS (Recreational	Monitored (c)	E. coli	3.4	
Kankakee River	Knox	FS (Aquatic Life) NS (Recreational	Monitored (c)	E. coli	5.5	
Barringer Ditch	Mill Creek	FS (Aquatic Life)	Monitored (c)		0.7	
Dixon West Place Ditch	South Bend	FS (Aquatic Life)	Monitored (c)		8.0	
Little Kankakee	LaPorte	NS (Aquatic Life)	Monitored (b)		3.0	Biological Assessment "very poor" near headwaters.
Little Kankakee	Fish Lake	FS (Aquatic Life)	Monitored (c) (b)		7.0	
Pine Creek	Walkerton	NS (Aquatic Life)	Monitored (c) (b)		29.0	Biological Assessment "Poor".
Geyer Ditch	New Carlisle	NS (Aquatic Life)	Monitored (c) (b)		11.2	Biological Assessment "Poor".

WATERBODY	NEAREST TOWN	STATUS OF DESIGNATED USE SUPPORT 1	METHOD OF ASSESSMENT 2	PROBABLE CAUSE OF IMPAIRMENT	MILES AFFECTED	COMMENTS
Laskowski Ditch	Crumstown	FS (Aquatic Life)	Monitored (c)		6.0	
County Line Ditch	Crumstown	PS (Aquatic Life)	Monitored (c)	Ammonia TSS	11.5	
Niespodziany Ditch	Crumstown	PS (Aquatic Life	Monitored (c)	Ammonia D.O.	6.0	New Carlisle STP
Mill Creek	Union Mills	FS (Aquatic Life)	Monitored (c) (b)		8.0	High BOD no significant impacts to stream.
Potato Creek	North Liberty	NS (Aquatic Life)	Monitored (c) (b)		7.0	Biological Assessment "Poor".
Sherman Emmans Ditch	LaPaz	FS (Aquatic Life)	Monitored (c)		5.0	
Peter Sarber Ditch	LaPaz	FS (Aquatic Life)	Monitored (c) (b)		5.0	
Peter Sarber Ditch	Walkerton	NS (Aquatic Life)	Monitored (b)		12.0	Biological Assessment "Poor"
Breckenridge Ditch	Kingsbury	FS (Aquatic Life)	Monitored (c)		11.0	
Breckenridge Ditch	Stillwell	NS (Aquatic Life)	Monitored (b)		6.0	Biological Assessment "Poor"
Yellow Bank River	Teegarden	FS (Aquatic Life)	Monitored (c)		9.0	
Yellow River	Bremen	FS (Aquatic Life)	Monitored (c) (b)		4.0	Includes Run-off from Prairie View Landfill. Biological Assessment "Poor" north of Bremen.
Yellow River	Bremen	NS (Aquatic Life) NS (Recreational	Monitored (c) (b)	E.coli	7.0	Biological Assessment "Poor"

WATERBODY	NEAREST TOWN	STATUS OF DESIGNATED USE SUPPORT 1	METHOD OF ASSESSMENT 2	PROBABLE CAUSE OF IMPAIRMENT	MILES AFFECTED	COMMENTS
Yellow River	Inwood	FS (Aquatic Life) NS (Recreational	Monitored (c) (b)	E.coli	6.4	
Yellow River	Plymouth	FS (Aquatic Life)	Monitored (b)		13.0	Biological Assessment "Excellent" 4.5 miles south of Plymouth.
Yellow River	Plymouth	FS (Aquatic Life) NS (Recreational	Monitored (c) (b)	E.coli	4.5	
Yellow River	Plymouth	FS (Aquatic Life) NS (Recreational	Monitored (c) (b)	E.coli	7.5	
Yellow River	Knox	FS (Aquatic Life Threatened) NS (Recreational	Monitored (c) (b)	E.coli	29.8	Knox STP under Agreed Order for new construction.
Yellow River	Knox	FS (Aquatic Life) NS (Recreational	Monitored (c)	E.coli D.O. Bypassing	11.2	
Newcomer, Anthony Gross, Lehman-Brink Ditches	Bremen	FS (Aquatic Life) FS (Recreational)	Monitored (c)		24.0	
Sara Hershberger Ditch	Bremen	FS (Aquatic Life) FS (Recreational	Monitored (c)		5.3	
Kline Ditch	Bremen	FS (Aquatic Life) FS (Recreational	Monitored (c)		7.2	
Army Ditch	Bremen	NS (Aquatic Life) NS (Recreational	Monitored (c) (b)	E.coli CSO's	10.0	Biological Assessment "Poor".
Heston Ditch	Lakeville	FS (Aquatic Life) FS (Recreational	Monitored (c)		1.8	
Kehman Ditch	LaPaz	FS (Aquatic Life) FS (Recreational	Monitored (c)		3.9	Includes Laville High School STP discharge.

WATERBODY	NEAREST TOWN	STATUS OF DESIGNATED USE SUPPORT 1	METHOD OF ASSESSMENT 2	PROBABLE CAUSE OF IMPAIRMENT	MILES AFFECTED	COMMENTS
Shidler-Hoffman Ditch	Wyatt	FS (Aquatic Life) FS (Recreational	Monitored (c)		3.8	
W. Branch Bunch Ditch	Bremen	FS (Aquatic Life) FS (Recreational	Monitored (c)		7.5	Includes Lakeville STP Lagoon Discharge.
E. Branch Bunch Ditch	Bremen	FS (Aquatic Life) FS (Recreational	Monitored (c)		13.6	
Stock Ditch	Bremen	FS (Aquatic Life) FS (Recreational	Monitored (c)		4.7	
Dausman Ditch	Bremen	FS (Aquatic Life Threatened) NS (Recreational)	Monitored (c) (b)	E.coli	30.7	Mikel Mobile Home Park STP poorly operated and maintained.
Lemler Ditch	Bremen	FS (Aquatic Life) FS (Recreational)	Monitored (c)		4.2	
Brook Ditch	Bremen	FS (Aquatic Life) FS (Recreational	Monitored (c)		6.8	
Border Ditch	Bremen	FS (Aquatic Life) FS (Recreational)	Monitored (c)		1	
Martin & Walt Kimble Ditches	Linkville	FS (Aquatic Life) NS (Recreational)	Monitored (c)	E.coli	7.4	
Isacc Sells Ditch	Linkville	FS (Aquatic Life) NS (Recreational	Monitored (c)	E.coli	4.1	
Crews Ditch	Inwood	NS (Aquatic Life) NS (Recreational	Monitored (c) (b)	E.coli	20.2	Biological Assessment, "Poor". Located 5 mile east of Plymouth.
Elmer Seltenright Ditch	LaPaz	NS (Aquatic Life)	Monitored (b)		2.0	Biological Assessment "Poor".
Elmer Seltenright Ditch	Plymouth	FS (Aquatic Life Threatened) NS (Recreational)	Monitored (c) (b)	E.coli	9.6	Gatewood Mobile Home Park STP poorly operated and maintained.
Schuh Ditch	Plymouth	FS (Aquatic Life) NS (Recreational)	Monitored (c)	E.coli	4.4	
Bogus Run	English Lake	FS (Aquatic Life)	Monitored (c) (b)		30.0	

WATERBODY	NEAREST TOWN	STATUS OF DESIGNATED USE SUPPORT 1	METHOD OF ASSESSMENT 2	PROBABLE CAUSE OF IMPAIRMENT	MILES AFFECTED	COMMENTS
Bogus Run	Denham	NS (Aquatic Life)	Monitored (b)		6.0	Biological Assessment, "Poor".
Pine Creek	Denham	FS (Aquatic Life)	Monitored (c)		4.7	
Pine Creek	N. Judson	PS (Aquatic Life) FS (Recreational)	Monitored (c)	D.O.	3.9	
Pitner Ditch and tributaries	LaCrosse	FS (Aquatic Life) NS (Recreational)	Monitored (c)	E.coli	60.1	
Origer Ditch	English Lake	FS (Aquatic Life)	Monitored (c)		10.8	
Payne Ditch	English Lake	FS (Aquatic Life) FS (Recreational	Monitored (c)		13.2	
Keller Arm and tributaries	English Lake	FS (Aquatic Life) NS (Recreational)	Monitored (c)	E.coli	2.0	Only Lawton Ditch sampled.
Davis Ditch	Wheatfield	FS (Aquatic Life) FS (Recreational	Monitored (c)		7.2	
Cook Ditch	LaCrosse Kouts	FS (Aquatic Life) FS (Recreational	Monitored (c)		23.6	
Reeves Ditch	Kouts	FS (Aquatic Life) FS (Recreational	Monitored (c) (b)		9.7	
Slocum/Topper Ditch	Wanatah	FS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E.coli	23.0	
Topper Ditch	Wanatah	NS (Aquatic Life)	Monitored (c) (b)		12.0	Biological Assessment, "Poor".
Topper Ditch	Wanatah	NS (Aquatic Life)	Monitored (b)		4.0	Biological Assessment, "Poor".
Geiger Ditch	LaCrosse	FS (Aquatic Life)			19.4	
Geiger Ditch	Kouts	NS (Aquatic Life) NS (Recreational)	Monitored (b)	D.O. E.coli	2.0	Biological Assessment, "Poor".

WATERBODY	NEAREST TOWN	STATUS OF DESIGNATED USE SUPPORT 1	METHOD OF ASSESSMENT 2	PROBABLE CAUSE OF IMPAIRMENT	MILES AFFECTED	COMMENTS
Crumpacker Arm/Wright Arm	Westville	NS (Aquatic Life) NS (Recreational)	Monitored (c)	E.coli Ammonia D.O.	1.0	No sample from Wright Arm, Degradation Due to Westville STP and Westville Correctional STP. Occasional low D.O.
Forbes Ditch	Westville	NS (Aquatic Life) NS (Recreational)	Monitored (c)	D.O. E.coli	1.5	
Crooked Creek	Westville	NS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E.coli D.O.	1.5	Biological Assessment, Very poor".
Crooked Creek	Valparaiso	NS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E.coli D.O.	3.2	Biological Assessment, Poor".
Crooked Creek, West Branch	Valparaiso	PS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E.coli D.O.	4.1	Biological Assessment, "Fair".
Crooked Creek, West Branch	Kouts	FS (Aquatic Life Threatened) NS (Recreational)	Monitored (c) (b)	E.coli Non point source	47.4	
Pleasant Township Ditch	Kouts	FS (Aquatic Life Threatened) NS (Recreational)	Monitored (c)	E.coli	10.3	Threatened due to bypassing from Kouts STP.
Sandy Hook/Ahlgrim Ditch	Kouts	NS (Aquatic Life)	Monitored (b)	D.O.	3.0	Biological Assessment, Poor".
Sandy Hook/Cobb Ditches	Kouts	FS (Aquatic Life) NS (Recreational)	Monitored (c)	E.coli	9.0	
Phillips Ditch	Kouts	FS (Aquatic Life) FS (Recreational)	Monitored (c)		5.0	
Cornell Ditch	Hebron	NS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	D.O. E.coli	5.0	Low D.O. at time of sampling.
Cobb Creek	Hebron	FS (Aquatic Life) NS (Recreational)	Monitored (c)	E.coli Non point source	4.7	

WATERBODY	NEAREST TOWN	STATUS OF DESIGNATED USE SUPPORT 1	METHOD OF ASSESSMENT 2	PROBABLE CAUSE OF IMPAIRMENT	MILES AFFECTED	COMMENTS
Cobb Creek	Hebron	FS (Aquatic Life)	Monitored (c) (b)		5.9	
Cobb Creek/Breyfogel	Hebron	NS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	Ammonia Low D.O. E.coli	3.4	Hebron STP impacts stream with low D.O. E.coli and occasional ammonia violations. Biological Assessment, Poor".
Hodge Ditch	Wheatfield	NS (Aquatic Life)	Monitored (c) (b)	Low D.O.	4.0	Biological Assessment, Very poor".
Hodge Ditch and tributaries	DeMotte	FS (Aquatic Life) FS (Recreational)	Monitored (c) (b)		70.4	
DeHean and Tyler Ditches	DeMotte	NS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E.coli D.O.	11.2	DeMotte STP impacts stream. Biological Assessment, "Poor" on Tyler Ditch.
Brent Ditch	DeMotte	FS (Aquatic Life) FS (Recreational)	Monitored (c)		4.0	
Evers Ditch	DeMotte	FS (Aquatic Life) NS (Recreational)	Monitored (c)	E.coli	6.0	
Otis Ditch	DeMotte	FS (Aquatic Life) NS (Recreational)	Monitored (c)	E.coli	7.6	
Knight Ditch	Lake Village	NS (Aquatic Life)	Monitored (b)		7.0	Biological Assessment "Very Poor" near Lake Village, "Fair" further upstream.
Beaver Lake Ditch and tributaries	Lake Village	FS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E.coli Non point source	30.5	
Lawlet Ditch and tributaries	Lake Village	FS (Aquatic Life) FS (Recreational)	Monitored (c)		22.4	
Best Ditch and tributaries	Lake Village	NS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E.coli	10.6	Biological Assessment, "Poor".

WATERBODY	NEAREST TOWN	STATUS OF DESIGNATED USE SUPPORT 1	METHOD OF ASSESSMENT 2	PROBABLE CAUSE OF IMPAIRMENT	MILES AFFECTED	COMMENTS
Beaver Creek and tributaries	Eros	FS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E.coli	47.0	
Beaver Creek	Morocco	NS (Aquatic Life) PS (Recreational)	Monitored (c) (b)	E.coli D.O.	1.2	Morocco sewer system impacts stream. Biological Assessment, "Poor".
Beaver Creek	Morocco	FS (Aquatic Life)	Monitored (b)		2.4	1 mile east of Illinois border.
Singleton Creek	Schneider	NS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E.coli D.O.	44.7	
Bryant Ditch	LeRoy	FS (Aquatic Life) NS (Recreational)	Monitored (c)	E.coli	6.2	Apply Valley Mobile Home Park impacts stream.
Brown Ditch	Hebron	FS (Aquatic Life)	Monitored (b)		3.0	
Brown/Tully Ditch	Shelby	NS (Aquatic Life) FS (Recreational)	Monitored (c) (b)	Low D.O.	32.2	Biological Assessment was "Poor" for Tully Ditch near Shelby.
West Creek	St. John	FS (Aquatic Life) FS (Recreational)	Monitored (c) (b)		21.2	
Craigmile Ditch	Knox	FS (Aquatic Life)	Monitored (b)		2.0	
Bessler Ditch	LaCrosse	FS (Aquatic Life)	Monitored (b)		0.5	
Cedar Lake Ditch	N. Judson	NS (Aquatic Life)	Monitored (b)		4.0	Biological Assessment rate, "Poor".
Delehanfy Ditch	Wheatfield	NS (Aquatic Life)	Monitored (b)		4.1	Biological Assessment rate, "Poor".

WATERBODY	NEAREST TOWN	STATUS OF DESIGNATED USE SUPPORT 1	METHOD OF ASSESSMENT 2	PROBABLE CAUSE OF IMPAIRMENT	MILES AFFECTED	COMMENTS
Stony Run E. Ditch	LeRoy	NS (Aquatic Life)	Monitored (b)		5.0	Biological Assessment rate, “Poor”.
Eagle Creek	Knox	FS (Aquatic Life)	Monitored (b)		6.8	
Eagle Creek	Knox	FS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E.coli	18.4	
Tuesburg Ditch (Hanna Arm)	Hanna	FS (Aquatic Life)	Monitored (b)		9.0	
Jordan Creek	Walkerton	FS (Aquatic Life)	Monitored (b)		1.0	
Kuehn Ditch	LaCrosse	FS (Aquatic Life)	Monitored (b)		1.5	
Long Ditch	Kingsford Hts.	NS (Aquatic Life)	Monitored (b)		4.0	Biological Assessment, “Poor”.
Whitham Ditch	Kingsford Hts.	NS (Aquatic Life)	Monitored (b)		2.0	Biological Assessment, “Poor”.
Whaley Ditch	Kentland	FS (Aquatic Life)	Monitored (b)		3.0	

WATERBODY	NEAREST TOWN	STATUS OF DESIGNATED USE SUPPORT 1	METHOD OF ASSESSMENT 2	PROBABLE CAUSE OF IMPAIRMENT	MILES AFFECTED	COMMENTS
Whitham Ditch	Hanna	FS (Aquatic Life)	Monitored (b)		2.0	
Richman Ditch	Hanna	FS (Aquatic Life)	Monitored (b)		6.8	
Rice Ditch	Hanna	NS (Aquatic Life)	Monitored (b)		2.2	Biological Assessment, "Poor".
Salisbury Ditch	Kingsford Hts.	NS (Aquatic Life)	Monitored (c) (b)		2.0	Biological Assessment, "Very Poor".
Iroquois River	Rensselaer	FS (Aquatic Life) FS (Recreational)	Monitored (c) (b)		51.4	
Iroquois River	Parr	NS (Aquatic Life)	Monitored (b)		5.0	Biological Assessment, "Very Poor", but "Good" further downstream.
Carpenter Creek	Remmington	FS (Aquatic Life) FS (Recreational)	Monitored (c) (b)		18.1	
Carpenter Creek	Egypt	NS (Aquatic Life)	Monitored (b)		7.0	Biological Assessment, "Poor".
Hunter Ditch	Goodland	FS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E.coli	3.1	
Darroach Ditch	Kentland	FS (Aquatic Life)	Monitored (b)		3.4	
Montgomery Ditch	Kentland	FS (Aquatic Life)	Monitored (b)		20.1	
Cedar Creek	Lowell	NS (Aquatic Life)	Monitored (c) (b)	E.coli	3.0	Biological Assessment, "Poor".

WATERBODY	NEAREST TOWN	STATUS OF DESIGNATED USE SUPPORT 1	METHOD OF ASSESSMENT 2	PROBABLE CAUSE OF IMPAIRMENT	MILES AFFECTED	COMMENTS
Foss Ditch	Lake Dalecarlia	FS (Aquatic Life Threatened)	Monitored (c)	D.O.	4.5	Occasional low D.O. Center utilities STP.
Lost Creek	Nappanee	FS (Aquatic Life)	Monitored (b)		1.5	
Yellow Creek	Nappanee	NS (Aquatic Life)	Monitored (b)		1.8	Biological Assessment, “Poor”.
Moffit Ditch	DeMotte	NS (Aquatic Life)	Monitored (b)		1.0	Biological Assessment, “Poor”.
Unnamed Tributary of English Lake	N. Judson	NS (Aquatic Life)	Monitored (b)		1.3	Biological Assessment, “Poor”.
Geisel Ditch (Spring Run)	Lowell	FS (Aquatic Life)	Monitored (b)		2.0	
Hunsley Ditch (Sheldon Arm)	Hanna	FS (Aquatic Life)	Monitored (b)		1.5	
Bice Ditch	Rensselaer	FS (Aquatic Life)	Monitored (b)		10.2	
Banham Ditch	Earl Park	NS (Aquatic Life)	Monitored (b)		3.7	Biological Assessment, “Poor”.
Bruner Ditch	Rensselaer	FS (Aquatic Life)	Monitored (b)		2.7	
Curtis Creek	Rensselaer	NS (Aquatic Life)	Monitored (b)		7.0	
Curtis Creek	Rensselaer	NS (Aquatic Life)	Monitored (b)		7.0	Biological Assessment, “Poor”.
Dexter Ditch	DeMotte	FS (Aquatic Life)	Monitored (b)		5.0	
Finigan Ditch	Benton	FS (Aquatic Life)	Monitored (c)		1.0	
Goshwa Ditch	Remmington	FS (Aquatic Life)	Monitored (c)		8.7	

WATERBODY	NEAREST TOWN	STATUS OF DESIGNATED USE SUPPORT 1	METHOD OF ASSESSMENT 2	PROBABLE CAUSE OF IMPAIRMENT	MILES AFFECTED	COMMENTS
Hickory Branch	Newton	FS (Aquatic Life)	Monitored (c)		3.0	
Lateral Ditch # 77	Lewiston	FS (Aquatic Life)	Monitored (c)		3.0	
Leuck Ditch	Fowler	FS (Aquatic Life)	Monitored (c)		9.4	
Leuck Ditch	Ambia	FS (Aquatic Life)	Monitored (b)		9.4	
Mud Creek	Earl Park	FS (Aquatic Life)	Monitored (c)		14.0	
Mud Lake Ditch	Enos	NS (Aquatic Life)	Monitored (b)		3.7	Biological Assessment, “Poor”.
Narrows Ditch	Morocco	FS (Aquatic Life)	Monitored (b)		2.4	
Oliver Ditch	Rensselaer	NS (Aquatic Life)	Monitored (b)		5.2	Biological Assessment, “Poor”.
Oliver Ditch	Lewiston	FS (Aquatic Life)	Monitored (b)		1.1	
Oliver Ditch	Wheatfield	NS (Aquatic Life)	Monitored (b)		1.0	Biological Assessment, “Poor”.
Ryan Ditch	Lewiston	FS (Aquatic Life)	Monitored (b)		0.5	Biological Assessment, “Poor”.
Slough Creek	Rensselaer	FS (Aquatic Life)	Monitored (b)		1.5	
Slough Creek	Rensselaer	NS (Aquatic Life)	Monitored (b)		1.0	Biological Assessment, “Poor”.
Sugar Creek	Earl Park	FS (Aquatic Life)	Monitored (b)		6.0	
Thompson Ditch	Brooke	FS (Aquatic Life)	Monitored (b)		1.5	
Whaley Ditch	Kentland	FS (Aquatic Life)	Monitored (b)		0.5	

WATERBODY	NEAREST TOWN	STATUS OF DESIGNATED USE SUPPORT 1	METHOD OF ASSESSMENT 2	PROBABLE CAUSE OF IMPAIRMENT	MILES AFFECTED	COMMENTS
Lawrence Pontius Ditch	Koontz Lake	FS (Aquatic Life) NS (Recreational)	Monitored (c)	E.coli	3.4	
Robbins Ditch	Koontz Lake	FS (Aquatic Life) NS (Recreational)	Monitored (c)	E.coli	5.1	
Robbins Ditch	Hamlet	NS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E.coli	26.2	Biological Assessment, "Poor".
Robbins Ditch	Hamlet	FS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E.coli	1.3	
Blad Ditch	Hamlet	FS (Aquatic Life) NS (Recreational)	Monitored (c)	Low D.O. Ammonia E.coli Phosphorus	1.4	Jellystone Park STP having operational problems.
Blad Ditch	Hamlet	FS (Aquatic Life)	Monitored (c)		3.5	
Jain Ditch	Hamlet	NS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E.coli	27.2	Biological Assessment, "Poor".
Danielson Ditch	Hamlet	FS (Aquatic Life) FS (Recreational)	Monitored (c)		12.5	
Bailey Ditch	Hamlet	FS (Aquatic Life Threatened) FS (Recreational)	Monitored (c)	Low D.O.	33.5	
Laramore Ditch	Knox	FS (Aquatic Life) FS (Recreational)	Monitored (c)		19.0	
Wolf Creek	Argos	FS (Aquatic Life) FS (Recreational)	Monitored (c) (b)		5.4	
Wolf Creek	Argos	FS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E.coli	6.9	
Meyers Ditch	Argos	PS (Aquatic Life) NS (Recreational)	Monitored (c)		15.9	Argos STP permit violations causing degradation in streams.
Clifton Ditch	Hibbard	FS (Aquatic Life) FS (Recreational)	Monitored (c)	E.coli D.O.	4.4	

WATERBODY	NEAREST TOWN	STATUS OF DESIGNATED USE SUPPORT 1	METHOD OF ASSESSMENT 2	PROBABLE CAUSE OF IMPAIRMENT	MILES AFFECTED	COMMENTS
Lowry/Listenberger Ditch	Burr Oak	FS (Aquatic Life) FS (Recreational)	Monitored (c)		6.4	
Harry Cool Ditch	Twin Lakes	NS (Aquatic Life) NS (Recreational)	Monitored (c) (b)	E.coli	6.0	Biological Assessment, "Poor".
Gunnard Anderson Ditch	Ancilla Domini	FS (Aquatic Life) NS (Recreational)	Monitored (c)	E.coli	6.4	Ancilla Domini : STP discharge to Gilbert Lake which affects ditch.
Earl Gjmere Ditch	Ancilla Domini	FS (Aquatic Life) NS (Recreational)	Monitored (c)	E.coli	5.8	
Cavanaugh Ditch	Knox	FS (Aquatic Life) NS (Recreational)	Monitored (c)	E.coli	2.4	Low level toxic parameters in sediment.

1 PS = Partial Support; NS = Non Support; FS = Full Support. IF a use is not listed, it was not monitored or evaluated.

2 b = biological; c = chemical

APPENDIX C

POTENTIAL STAKEHOLDERS FOR THE KANKAKEE RIVER WATERSHED

Potential Stakeholders in the Kankakee River Watershed

Elkhart County

Elkhart County SWCD
17746-B County Road 34
Goshen, IN 46528-9261
(219) 533-4383

USDA-NRCS
17746-B County Road 34
Goshen, IN 46528-9261
(219) 533-4383

Elkhart County Commissioners
117 N 2nd Street
Goshen, IN 46528
(219) 534-3541

Elkhart County Cooperative Extension Service
17746 County Road 34
Goshen, IN 46528
(219) 533-0554

Elkhart County Health Department
117 N 2nd Street, Room 112
Goshen, IN 46526-3231
(219) 533-4431

Jasper County

Jasper County Health Department
105 W Kellner Blvd.
Rensselaer, IN 47978-2626
(219) 866-4917

Jasper County SWCD
800 South College Avenue
Rensselaer, IN 47978-3054
(219) 866-8554

USDA-NRCS
800 South College Avenue
Rensselaer, IN 47978-3054
(219) 866-8554

Remington Town Hall
3 East Michigan Street
Remington, IN 47977
(219) 261-2523

Mayor of Rensselaer
122 South Van Rensselaer Street
Rensselaer, IN 47978
(219) 866-5212

Jasper County Cooperative Extension Service
122 North Cullen Street
Rensselaer, IN 47978
(219) 866-5741

Jasper County Planning and Development
115 West Washington Street
Rensselaer, IN 47978
(219) 866-4908

Jasper County Surveyor
115 West Washington Street
Rensselaer, IN 47978
(219) 866-4907

Jasper County Courthouse
County Commissioners
Rensselaer, IN 47987
(219) 956-3606

Kosciusko County

Kosciusko County Health Department
Courthouse Third Floor, Rm. 2
100 West Center Street
Warsaw, IN 46580-2877
(219) 372-2349

Kosciusko County SWCD
217 E Bell Drive
Warsaw, IN 46580-9350
(219) 267-7445

USDA-NRCS
217 E Bell Drive
Warsaw, IN 46580-9350
(219) 267-7445

Kosciusko County Cooperative Extension Service
100 W Center Street
Warsaw, In 46580
(219) 372-2340

Kosciusko County Commissioners
100 W Center Street
Warsaw, IN 46580
(219) 372-2433

Kosciusko County Surveyor
100 W Center Street
Warsaw, IN 46580
(219) 372-2366

Lake County

Sue Gerlach
IDNR , RS
928 S. Court Street, Ste. C
Crown Point, IN 46307-4848
(219) 663-0238, Ext. 3

Lake County Health Department
2293 N. Main St.
Crown Point, IN 46307-1896
(219) 755-3655

Lake County SWCD
928 S. Court Street, Ste. C
Crown Point, IN 46307-4848
(219) 663-0588

USDA-NRCS928 S. Court Street, Ste. C
Crown Point, IN 46307-4848
(219) 663-0588

Lake County Cooperative Extension Service
2293 N. Main Street
Crown Point, IN 46307-1885
(219) 755-3240

Lake County Commissioners
2293 N. Main Street
Crown Point, IN 46307-1885
(219) 755-3200

Lake County Surveyor
2293 N Main Street, # 14
Crown Point, IN 46307-1932
(219) 755-3745

LaPorte County

LaPorte County Health Department
County Complex, 4th Floor
809 State Street
LaPorte, IN 46350-3329
(219) 326-6808, Ext. 200

LaPorte County SWCD
100 Legacy Plaza West
LaPorte, IN 46350-5274
(219) 324-6303

USDA-NRCS
100 Legacy Plaza West
LaPorte, IN 46350-5274
(219) 324-6303

LaPorte County Government Offices
% County Surveyor
813 Lincolnway
LaPorte, IN 46530-3436
(219) 873-7014

LaPorte County Cooperative Extension Service
Courthouse Square, 502A
809 State Street
LaPorte, IN 46350
(219) 326-6808

LaPorte County Commissioners
County Courthouse
809 State Street
LaPorte, IN 46530

Marshall County

Marshall County Health Department
112 W Jefferson St., Room 103
Plymouth, IN 46563-1764
(219) 935-8565

Marshall County SWCD
2903 Gary Drive, Suite 1
Plymouth, IN 46563-0000
(219) 936-2024

USDA-NRCS
2903 Gary Drive, Suite 1
Plymouth, IN 46563-0000
(219) 936-2024

Marshall County Cooperative Extension Service
304 Marshall County Building
112 W. Jefferson Street
Plymouth, IN 46563-1764
(219) 935-8545

Marshall County Surveyor
112 W. Jefferson Street
Plymouth, IN 46563-1764
(219) 935-8530

Marshall County Commissioners
112 W. Jefferson Street
Plymouth, IN 46563-1764

(219) 935-8510

Newton County

Newton County Health Department
210 East State Street
P.O. Box 139
Morocco, IN 47963-0139
(219) 285-2052

Newton County SWCD
213 East North Street
P.O. Box 440
Morocco, IN 47963-0440
(219) 285-6802

USDA-NRCS

213 East North Street
P.O. Box 440
Morocco, IN 47963-0440
(219) 285-6802

Morocco Town Clerk
112 East Main Street
Morocco, IN 47963
(219) 285-2070

Goodland Town Hall
115 West Union Street
Goodland, IN 47948
(219) 297-4841

Brook Town Hall
223 West Main Street
Brook, IN 47922
(219) 275-6181

Kentland Town Hall
300 North 3rd Street
Kentland, IN 47951
(219) 474-5062

Newton County Commissioners
201 North 3rd Street
Kentland, IN 47951
(219) 474-6081

Newton County Cooperative Extension Service
201 North 3rd Street
Kentland, In 47951
(219) 474-6081

Newton County Surveyor
201 North 3rd Street
Kentland, IN 47951
(219) 474-6081

Porter County

Porter County Health Department
155 Indiana Avenue, Suite 104
Valparaiso, IN 46383-5502
(219) 465-3525

Porter County SWCD
3001 Leonard Drive, Suite 104
Valparaiso, IN 46383-4386
(219) 464-1049

USDA-NRCS
3001 Leonard Drive, Suite 104
Valparaiso, IN 46383-4386
(219) 462-7515

Porter County Commissioners
155 Indiana Avenue, Suite 205
Valparaiso, IN 46383-5555
(219) 465-3440

Porter County Surveyor
155 Indiana Avenue, Suite 303
Valparaiso, IN 46383-5555
(219) 465-3560

Porter County Cooperative Extension Service
155 Indiana Avenue, Suite 301
Valparaiso, IN 46383-5555
(219) 465-3555

Pulaski County

Pulaski County Health Department
Pulaski Co. Building, Suite 205
125 S. Riverside Drive
Winamac, IN 46996-1528
(219) 946-6080

Pulaski County SWCD
309 North West Street
Winamac, IN 46996-1247
(219) 946-3243

Pulaski County Cooperative Extension Service
125 South Riverside Drive
120
Winimac, IN 46996
(219) 946-3412

Pulaski County Surveyor

112 East Main Street
Winimac, IN 46996
(219) 946-3253

USDA-NRCS
309 North West Street
Winamac, IN 46996-1247
(219) 946-3243

St. Joseph County

St. Joseph County SWCD
St. Joseph Co. Farm Bureau
60455 U.S. 31 South, Suite 4
South Bend, IN 46614-5137
(219) 291-7444

USDA-NRCS
St. Joseph Co. Farm Bureau
60455 U.S. 31 South, Suite 4
South Bend, IN 46614-5137
(219) 291-7444

St. Joseph County Health Department
County-City Building, Floor 8
227. W. Jefferson Blvd.
South Bend, IN 46601-1807
(219) 235-9750

South Bend Audubon Society
P.O. Box 581
Mishawaka, IN 46546
(219) 243-8739

St. Joseph County Surveyor
227 East Jefferson Blvd.
South Bend, IN 46601
(219) 235-9631

St. Joseph County Cooperative Extension Service
227 W. Jefferson Blvd.
646 County-City Bldg.
South Bend, IN 46601-1870
(219) 235-9604

Starke County

Starke County Health Department
Courthouse, First Floor
53 East Mound Street
Knox, IN 46534-1148
(219) 772-9137

Starke County SWCD
1406 South Heaton Street
Knox, IN 46534-2395
(219) 772-3066

USDA-NRCS
1406 South Heaton Street
Knox, IN 46534-2395
(219) 772-3066

Starke County Commissioners
53 East Mound Street
Knox, IN 46534
(219) 772-9106

Starke County Cooperative Extension Service
1 East Washington, Street
Knox, IN 46534
(219) 772-9141

Starke County Surveyor
53 East Mound Street
Knox, IN 46534
(219) 772-9135

OTHER STAKEHOLDERS

Kankakee FWA
Glenn McCormick
P.O. Box 77
North Judson, IN 46366
(219) 896-3522

Willow Slough FWA
2042 S 500 W
Morocco, IN 47963
(219) 285-2704

Jasper-Pulaski FWA
5822 Fish and Wildlife Lane
Medaryville, IN 47957
(219) 843-4841

Sierra Club
212 W. 10th Street, Suite A-335
Indianapolis, IN 46202
(317) 972-1903

C.R. Pumroy
1107 South 600 East
Kouts, IN 46347

Arrow Head Country RC&D
Randy Moore
436 N. West Street
Winamac, IN 46996

(219) 946-3022

Kankakee River Basin Commission
Jody Melton
6100 Southport Road
Portage, IN 46368
(219) 763-0696

J.R. Black
Alliance to Restore the Kankakee
9 Northview
Kankakee, IL 60901
(815) 939-4971

IDNR Region 2
5931 Fox River Drive
Plano, IL 60545
(630) 553-0164

Northwestern Indiana Regional
Planning Commission
6100 Southport Road
Portage, IN 46368
(219) 763-6060

The Nature Conservancy
Mary McConnell
1330 West 38th Street
Indianapolis, IN 46208-4103
(317) 923-7547

U.S. Fish and Wildlife Service
620 South Walker Street
Bloomington, IN 47403-2121
(812) 334-4261

The Kankakee River Basin Partnership
685 Larry Power Road
Bourbonnais, IL 60914

Statewide Potential Stakeholders

Indiana Farm Bureau
225 S East St
Indianapolis, IN 46202
(765) ___-____

Indiana Department of Environmental Management
100 N. Senate Ave
P.O. Box 6015
Indianapolis, IN 46206-6015

IDEM Switchboard
(317) 232-8603 or (800) 451-6027

Agricultural Liaison	(317) 232-8587
Air Management	(317) 233-0178
Community Relations	(317) 233-6648
Compliance and Technical Assistance	(317) 232-8172
Criminal Investigations	(317) 232-8128
Enforcement	(317) 233-5529
Environmental Response	(317) 308-3017
Legal Counsel	(317) 232-8493
Media and Communication Services	(317) 232-8560
Pollution Prevention and Technical Assistance	(317) 232-8172
Solid and Hazardous Waste Management	(317) 233-3656
Water Management	(317) 232-8670

Indiana Department of Natural Resources
402 West Washington Street
Indianapolis, IN 46204-2748

IDNR Field Representatives are located in the individual County SWCDs.

Division of Engineering	(317) 232-4150
Division of Entomology and Plant Pathology	(317) 232-4120
Division of Fish & Wildlife	(317) 232-4080
Division of Forestry	(317)-232-4105
Division of Historic Preservation & Archaeology	(317) 232-1646
Division of Law Enforcement	(317) 232-4010
Division of Nature Preserves	(317)-232-4052
Division of Oil and Gas	(317) 232-4055
Division of Outdoor Recreation	(317)-232-4070
Division of Public Information and Education	(317) 232-4200
Division of Reclamation	(317)-232-1547
Division of Safety and Training	(317) 232-4145
Division of Soil Conservation	(317)-233-3870
Division of State Parks and Reservoirs	(317)-232-4124
Division of Water	(317)-232-4160

Indiana State Department of Health
2 North Meridian St.
Indianapolis, IN 46204
(317) 233-1325

Federal Potential Stakeholders

Indiana Natural Resources
Conservation Service
6013 Lakeside Blvd
Indianapolis, In 46278
(317) 290-3200

NRCS Field Representatives are located in the individual County SWCDs.

U.S. EPA Region 5
77 West Jackson Blvd
Chicago, IL 60604
(312) 353-2000
(800) 632-8431

U.S. Corps of Engineers
South Bend Sub-Office
6910 N Grumwood
Granger, IN 46530
(219) 277-6044

APPENDIX D

FUNDING SOURCES

FUNDING SOURCES

This listing of funding sources was derived from the November 1998 *Watershed Action Guide for Indiana*, which is available from the Watershed Management Section of IDEM.

FEDERAL CONSERVATION AND WATERSHED PROGRAMS

Environmental Protection Agency

Section 319, 604(b), and 104(b)3 Grants

Grants for conservation practices, water body assessment, watershed planning, and watershed projects. Available to non-profit or governmental entities. These monies, enabled by the Clean Water Act, are funneled through the Indiana Department of Environmental Management. *For details see IDEM below.*

U.S. Department of Agriculture (See county listings for local federal agency contacts.)

EQIP: Environmental Quality Incentive Program. Administered by the Natural Resources Conservation Service. Conservation cost-share program for implementing Best Management Practices, available to agricultural producers who agree to implement a whole-farm plan that addresses major resource concerns. Up to $50,000 over a 5- to 10-year period. Some parts of the state are designated Conservation Priority Areas and receive a larger funding allotments.

WRP: Wetland Reserve Program. Administered by the Natural Resources Conservation Service. Easement and restoration program to restore agricultural production land to wetland. Easements may be for 10 years, 30 years, or permanent. Longer easements are preferred. Partnerships with other acquisition programs are encouraged. Restoration and legal costs are paid by NRCS. Landowner retains ownership of the property and may use the land in ways that do not interfere with wetland function and habitat, such as hunting, recreational development, and timber harvesting.

CRP: Conservation Reserve Program. Administered by the Farm Service Agency with technical assistance from NRCS. Conservation easements in certain critical areas on private property. Agricultural producers are eligible. Easements are for 10 or 15 years, depending on vegetative cover, and compensation payments are made yearly to replace income lost through not farming the land. Cost share is available for planting vegetative cover on restored areas.

WHIP: Wildlife Habitat Incentive Program. Administered by the Natural Resources Conservation Service. Cost share to restore habitat on previously farmed land. Private landowners who are agricultural producers are eligible. Cost share up to 75%, and contracts are for 10 years.

FIP: Forestry Incentive Program. Administered by the Natural Resources Conservation Service. Cost-share to assist forest management on private lands. Funds may be limited.

U.S. Fish & Wildlife Service

Partners for Wildlife: assistance for habitat restoration.

STATE CONSERVATION AND WATERSHED PROGRAMS

IDNR Division of Soil Conservation

LARE: Lake & River Enhancement Program. Funds diagnostic and feasibility studies in selected watersheds and cost-share programs through local Soil & Water Conservation Districts. Project oversight provided through county-based Resource Specialists and Lake & River Enhancement Watershed Coordinators. Funding requests for Watershed Land Treatment projects must come from Soil & Water Conservation Districts. If a proposed project area includes more than one district, the affected SWCDs should work together to develop an implementation plan. The SWCDs should then apply for the funding necessary to administer the watershed project. Before applying for funding, the SWCDs should contact the Lake & River Enhancement Coordinators to determine (1) the appropriate watershed to include in the project, (2) if the proposed project meets the eligibility criteria, and (3) if funding is available.

IDNR Division of Fish & Wildlife

Classified Wildlife Habitat Program: Incentive program to foster private wildlife habitat management through tax reduction and technical assistance. Landowners need 15 or more acres of habitat to be eligible. IDNR provides management plans and assistance through District Wildlife Managers. See county listings.

Wildlife Habitat Cost-share Program: Similar to above.

IDNR Division of Forestry

Classified Forest Program: Incentive program to foster private forest management through tax reduction and technical assistance. Landowners need 10 or more acres of woods to be eligible. IDNR provides management plans and assistance through District Foresters. (See county listings.)

Classified Windbreak Act: Establishment of windbreaks at least 450 feet long adjacent to tillable land. Provides tax incentive, technical assistance through IDNR District Foresters.

Forest Stewardship Program & Stewardship Incentives Program: Cost share and technical assistance to encourage responsibly managed and productive private forests.

IDNR Division of Reclamation

Appalachian Clean Streams Initiative: Funds for acid mine drainage abatement.

IDNR Division of Nature Preserves

State Nature Preserve Dedication: Acquisition and management of threatened habitat.

IDEM Office of Water Management

State Revolving Fund: Available to municipalities and counties for facilities development. Will be available in 1999 for nonpoint source projects as well. Funding is through very low-interest loans.

Section 319 Grants: Available to nonprofit groups, municipalities, counties, and institutions for implementing water quality improvement projects that address nonpoint source pollution concerns. Twenty-five percent match is required, which may be cash or in-kind. Maximum grant amount is $112,500. Projects are allowed two years for completion. Projects may be for land treatment through implementing Best Management Practices, for education, and for developing tools and applications for state-wide use.

Section 205(j) Grants, formerly called 604(b) Grants: Available to municipalities, counties, conservation districts, drainage districts. These are for water quality management projects such as studies of nonpoint pollution impacts, nonagricultural NPS mapping, and watershed management projects targeted to Northwest Indiana (including BMPs, wetland restoration, etc.)

Section 104(b)(3) Grants: These are watershed project grants for innovative demonstration projects to promote statewide watershed approaches for permitted discharges, development of storm water management plans by small municipalities, projects involving a watershed approach to municipal separate sewer systems, and projects that directly promote community based environmental protection. NOTE: the application time frame for IDEM grant programs is annually, by March 31st.

PRIVATE FUNDING SOURCES

National Fish and Wildlife Foundation

1120 Connecticut Avenue, NW Suite 900, Washington DC 20036. Nonprofit, established by Congress 1984, awards challenge grants for natural resource conservation. Federally

appropriated funds are used to match private sector funds. Six program areas include wetland conservation, conservation education, fisheries, migratory bird conservation, conservation policy, and wildlife habitat.

Individual Utilities

Check local utilities such as IPALCO, CINergy, REMC, NIPSCO. Many have grants for educational and environmental purposes.

Indiana Hardwood Lumbermen's Association

Indiana Tree Farm Program

The Nature Conservancy

Land acquisition and restoration.

Southern Lake Michigan Conservation Initiative
Blue River Focus Area
Fish Creek Focus Area
Natural Areas Registry
Hoosier Landscapes Capitol Campaign

Conservation Technology Information Center (CTIC)

'Know Your Watershed' educational materials are available

Indiana Heritage Trust

Land acquisition programs

Ducks Unlimited

Land acquisition and habitat restoration assistance

Quail Unlimited

Pheasants Forever

Sycamore Land Trust

Acres Inc.

Land trust

Oxbow, Inc.

Land trust

SOURCES OF ADDITIONAL FUNDING OPPORTUNITIES

Catalog of Federal Funding Sources for Watershed Protection
EPA Office of Water (EPA841-B-97-008) September 1997

GrantsWeb: http://www.srainternational.org/cws/sra/resource.htm

APPENDIX E

Written Stakeholder Comments

“Gentle Flow”
Sediment Traps Mfg. Co.

Bill Nichols 219-
696-6389
gentleflow@hotmail.com

1006 W 203' Ave Lowell
IN 46356-9746

November 14, 2000

Matt Jarvis
Regional Watershed Conservationist
1523 N US Ilighway 421
Suite 2
Delphi, IN 46923-9396

Dear Matt Jarvis

Subject: RESTORATION OF THE KANKAKEE RIVER WATERSHED

This is a great but simple problem.

A. You must learn to work with "Mother Nature"
B. You must start at the top of the source "at the tributary" and build detention ponds every time you have a two (2) foot descent.
C. You must install sediment traps every time you have one (1) foot of fall.
D Dead and floating trees must be taken out of the river.

Sincerely,

Bill Nichols

FIGURE 2-1
KANKAKEE RIVER WATERSHED

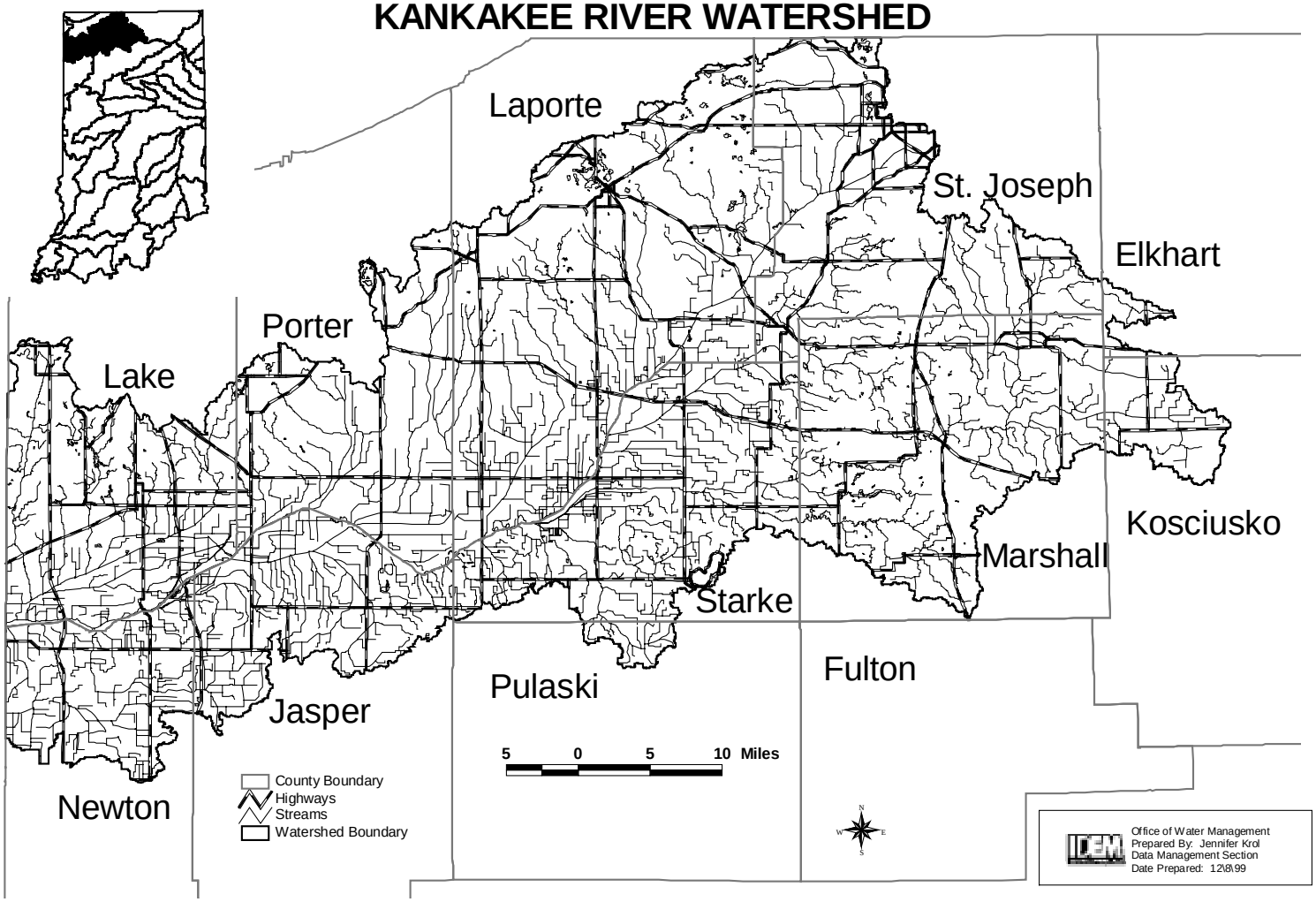


FIGURE 2-2
KANKAKEE RIVER WATERSHED

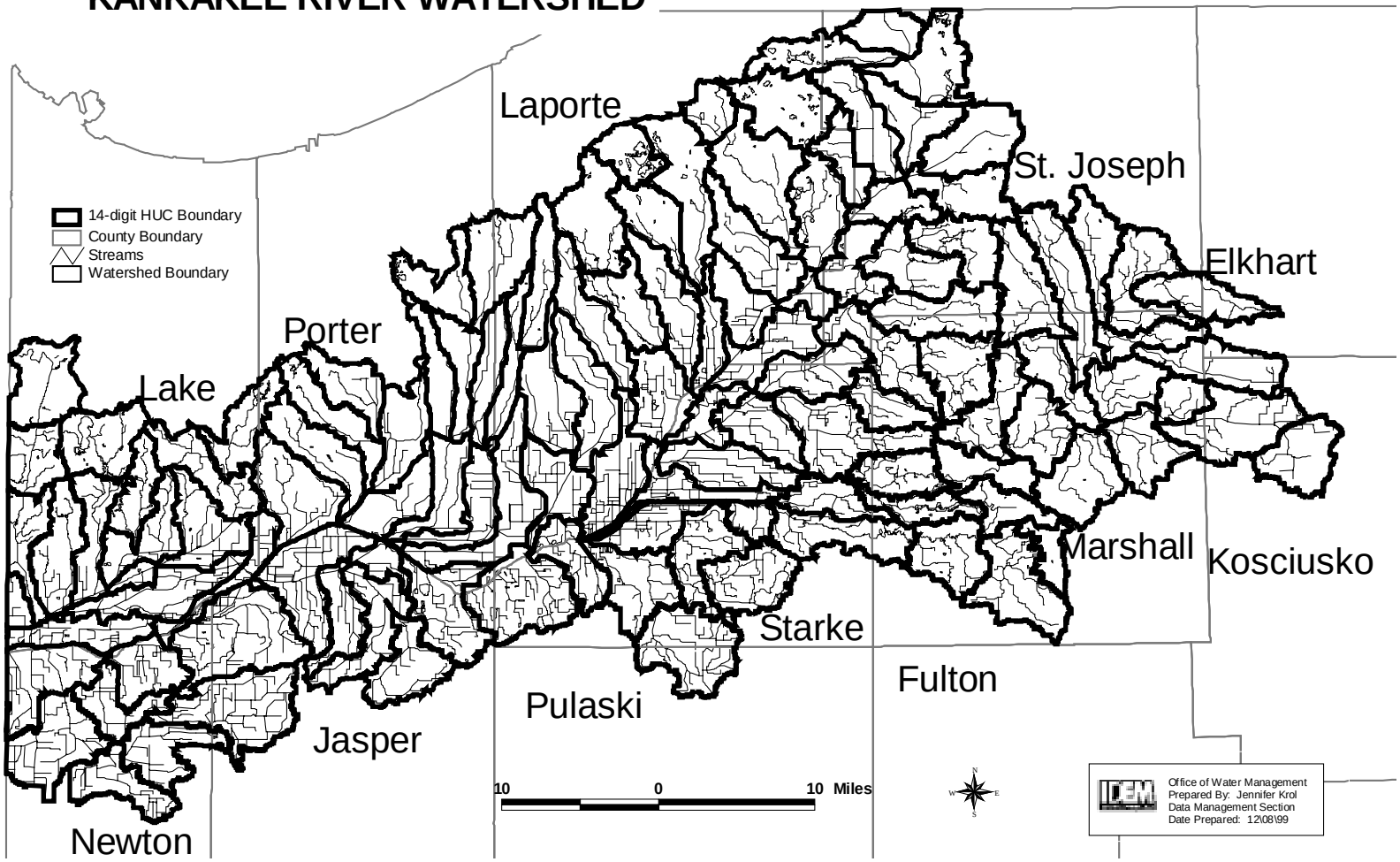


FIGURE 2-4
KANKAKEE WATERSHED

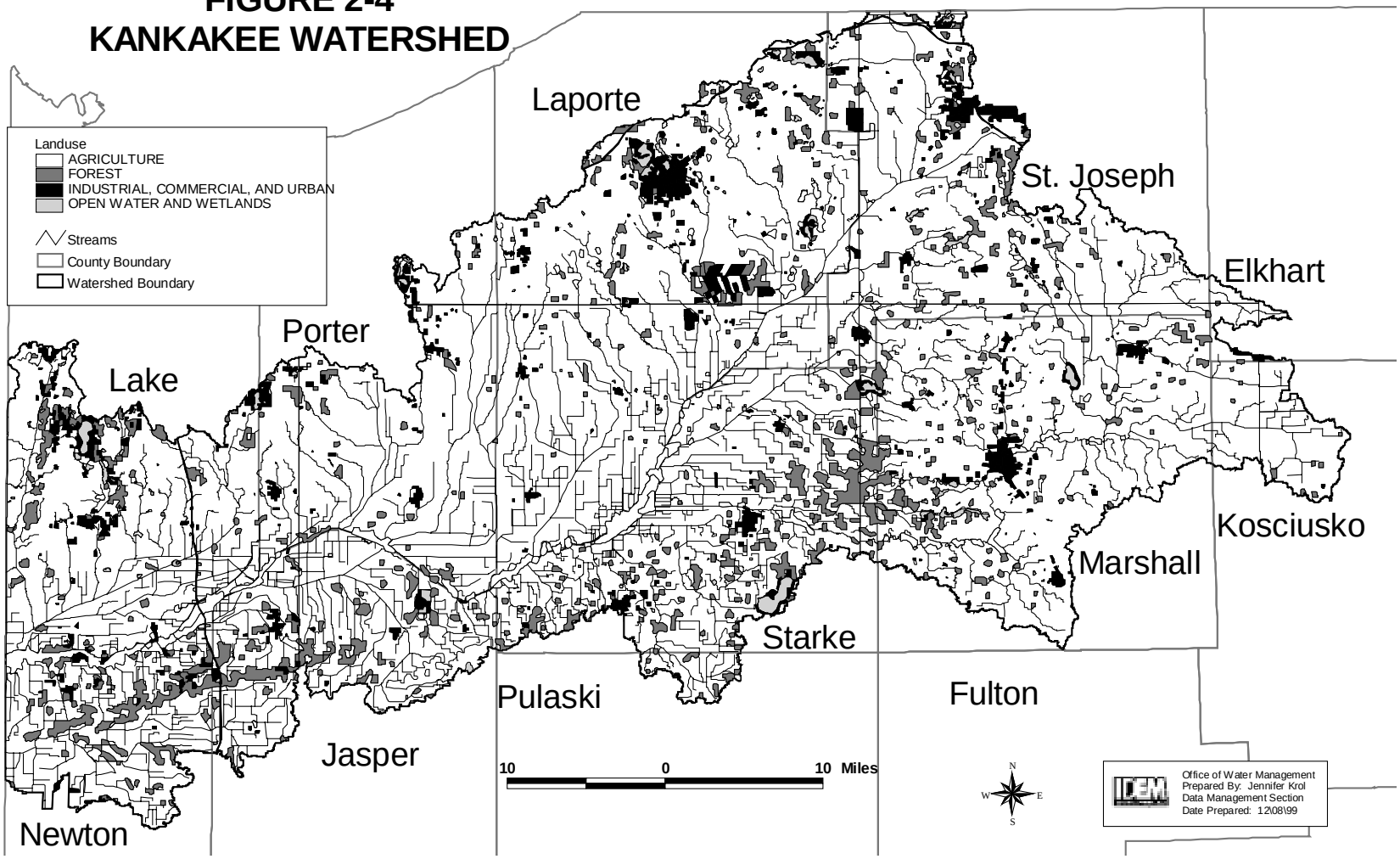


FIGURE 3-1
KANKAKEE RIVER WATERSHED

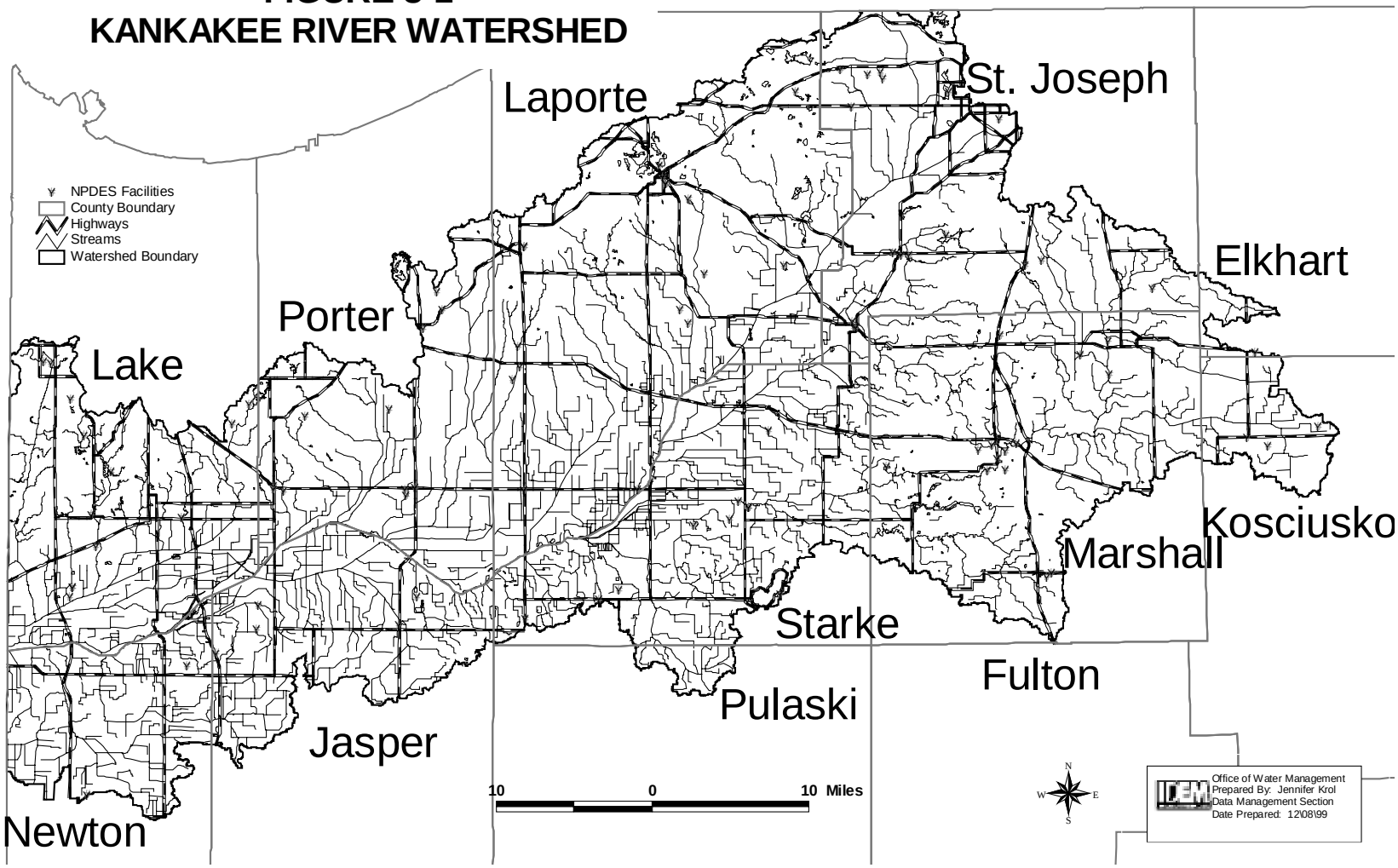


FIGURE 3-1
KANKAKEE RIVER WATERSHED

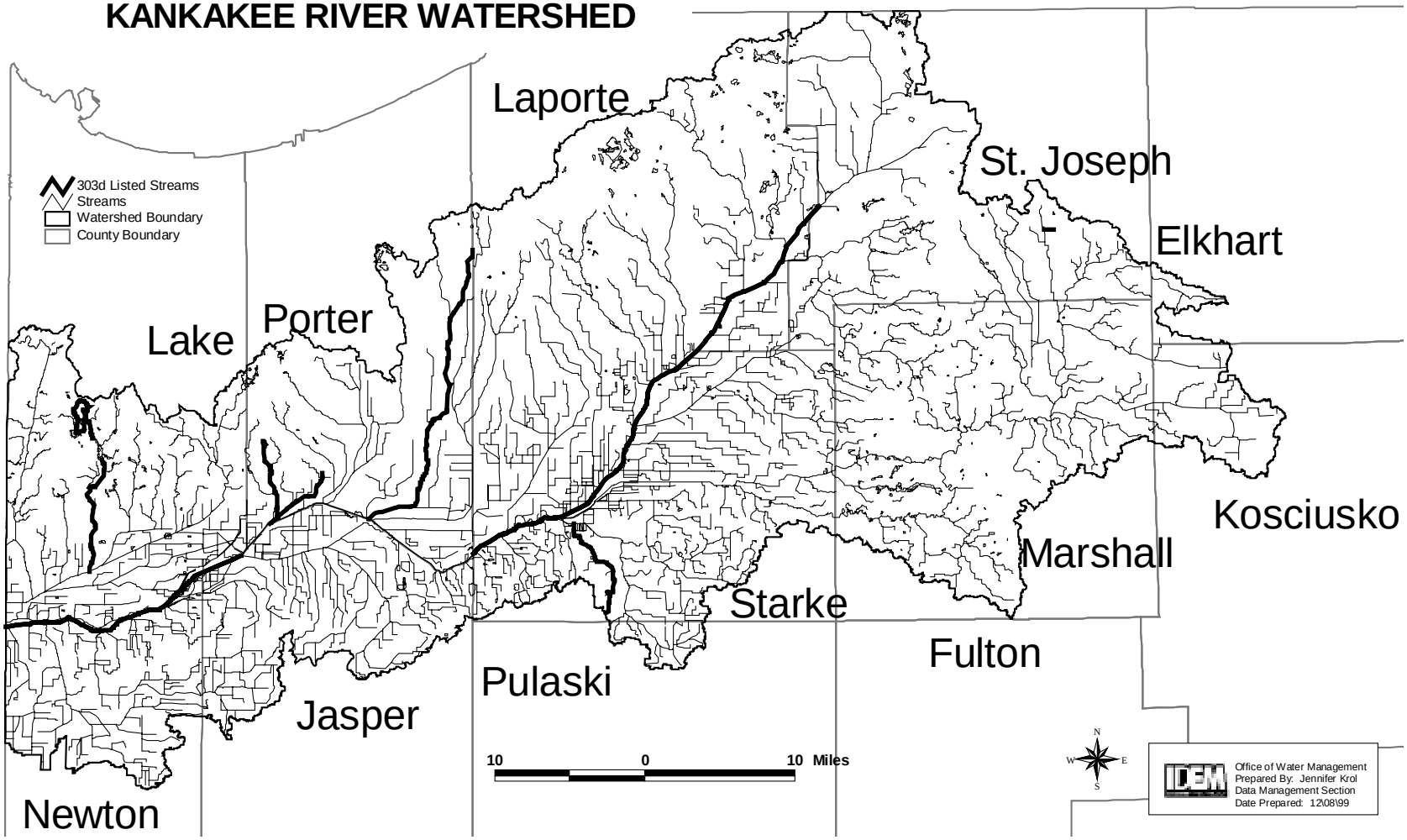


FIGURE 5-1
KANKAKEE RIVER WATERSHED