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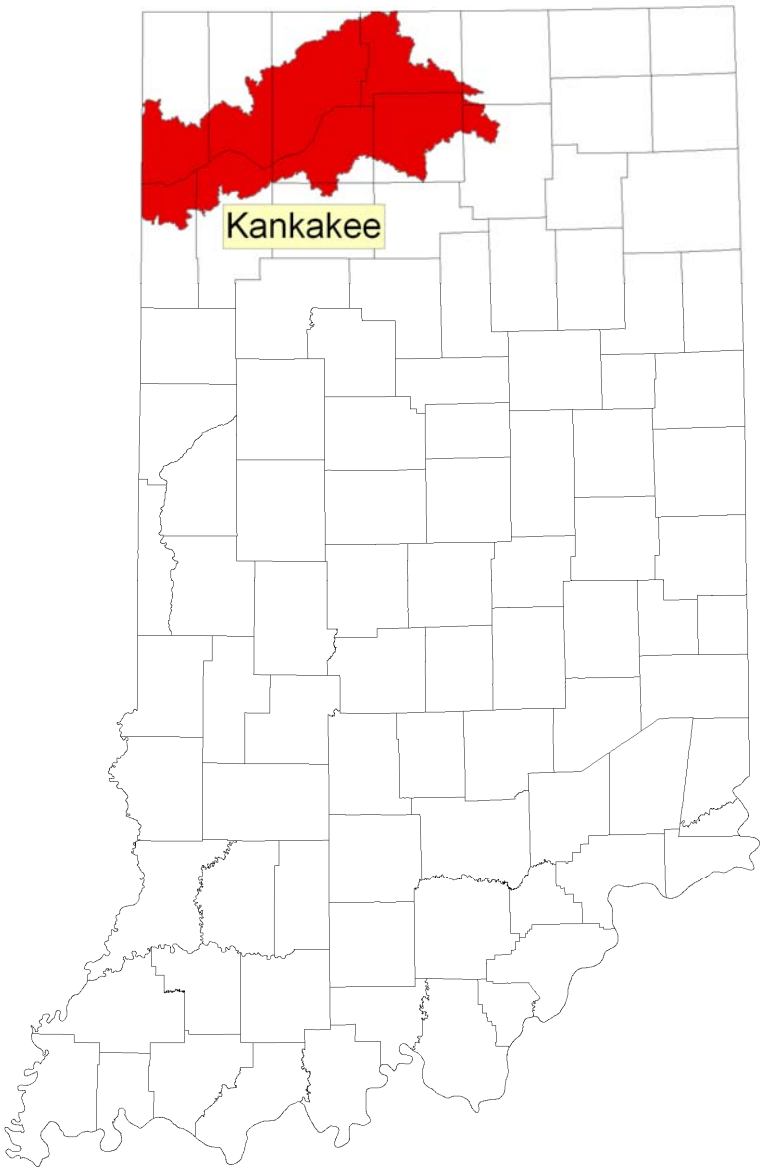
Rapid Watershed Assessment
Kankakee Watershed

Rapid Watershed Assessments provide initial estimates of where conservation investments would best address the concerns of land owners, conservation districts, and community organizations and stakeholders. These assessments help land owners and local leaders set priorities and determine the best actions to achieve their goals.



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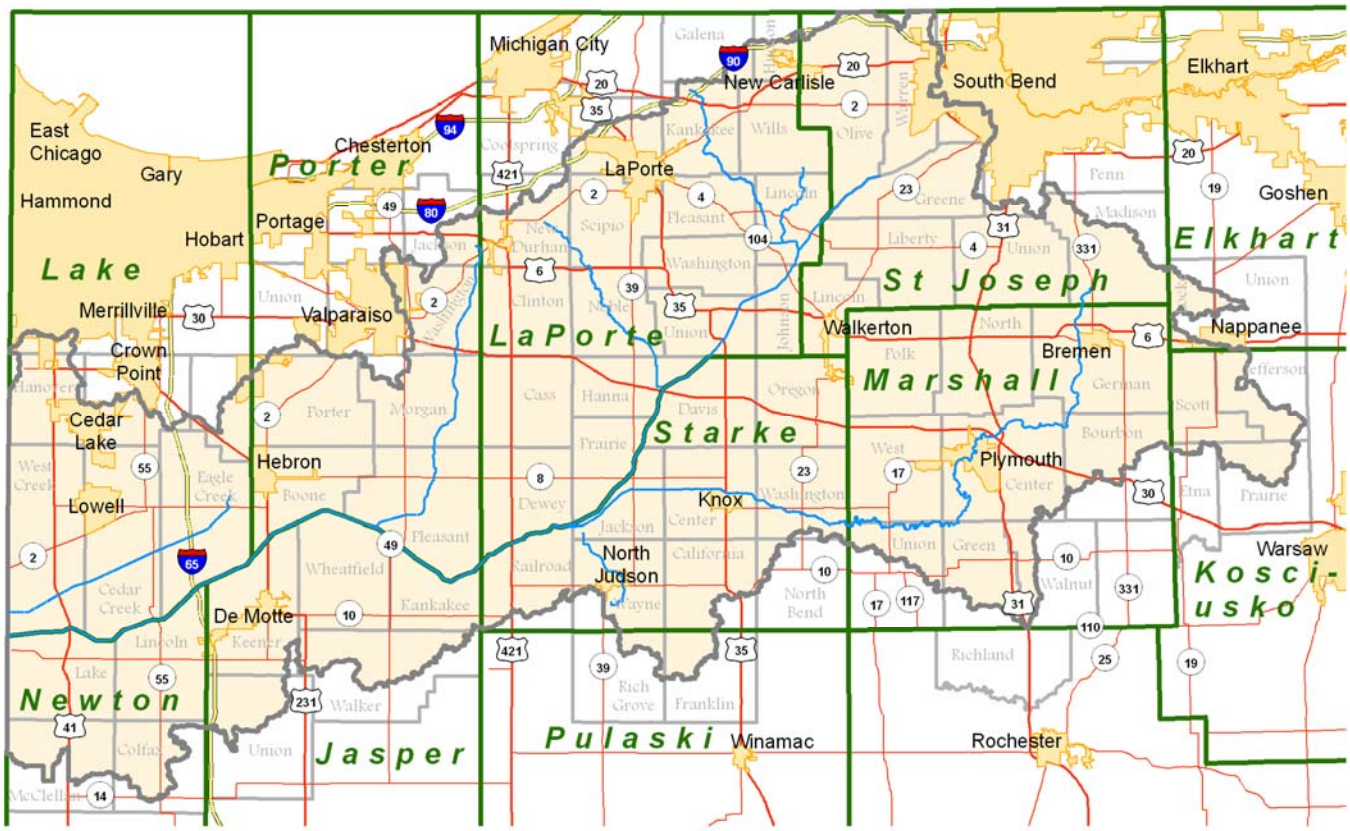
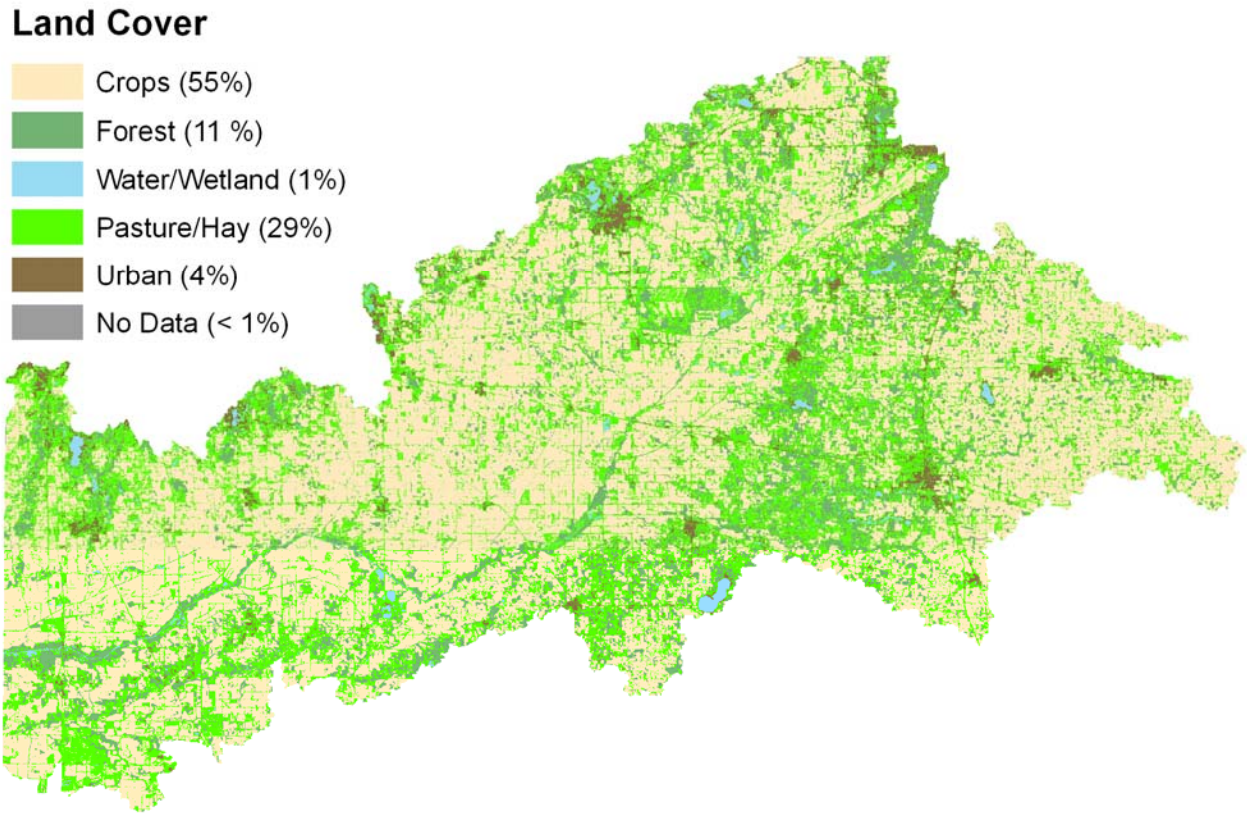
Kankakee Watershed



Introduction

The Kankakee watershed is an eight digit (07120001) hydrologic unit code HUC) watershed in the upper Northwest corner of Indiana. The entire watershed has drainage in parts of Michigan, Indiana, and Illinois. The Indiana part of the watershed drainage area is just over 1,361,300 acres. The watershed covers eleven different Indiana counties. It is subdivided into 120 subbasins represented on the map by 12 digit HUCs (Figure 2-1).



The primary waterbody is the Kankakee River, which has drainage originating in Berrien County, Michigan and flowing south, southwest through St. Joseph, Marshall, LaPorte, Stark, Porter, Jasper, Lake, and Newton Counties, and discharges in the Illinois River. Also, portions of Elkhart, Kosciusko and Pulaski Counties drain into the Kankakee. The landscape changes from moderately steep to gently rolling to broad, flat plains as the river leaves Indiana. Flooding and drainage issues are two of the major concerns along the river.

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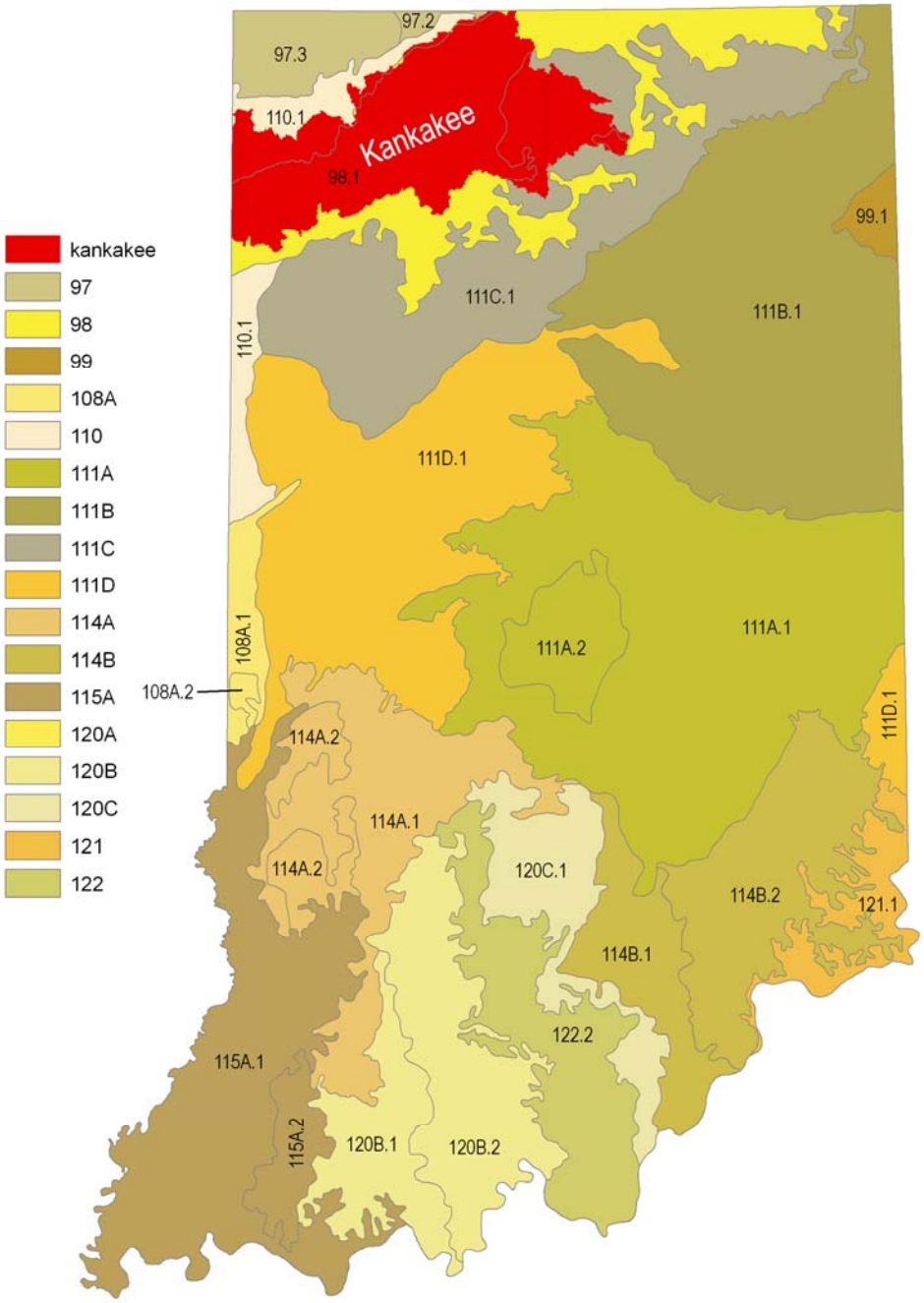
Common Resource Area

There are two common resource areas in the watershed:

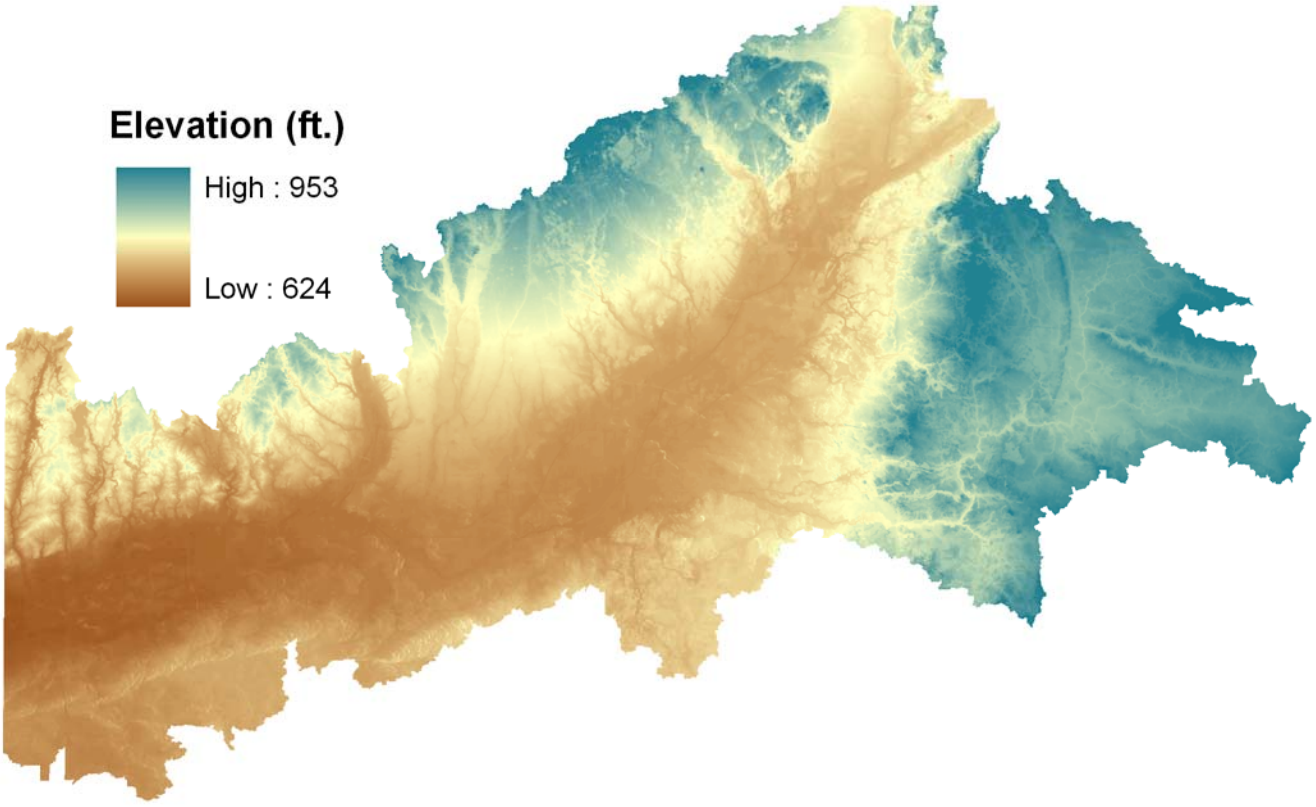
The Central Corn Belt Drift Plains (98.1) is characterized by broad, flat and slightly rolling upland hill slopes mainly dominated by cropland. Corn, other feed grains, and hay for dairy cattle and other livestock are the dominate crops. Soft winter wheat and dry beans are important cash crops within the resource area. Fruits and vegetables are grown in places where soils and markets are favorable. There are a few scattered areas that are used for permanent pasture, woodlots and urban uses. Soils are very poorly drained to excessively drained, formed in loamy glacial drift.

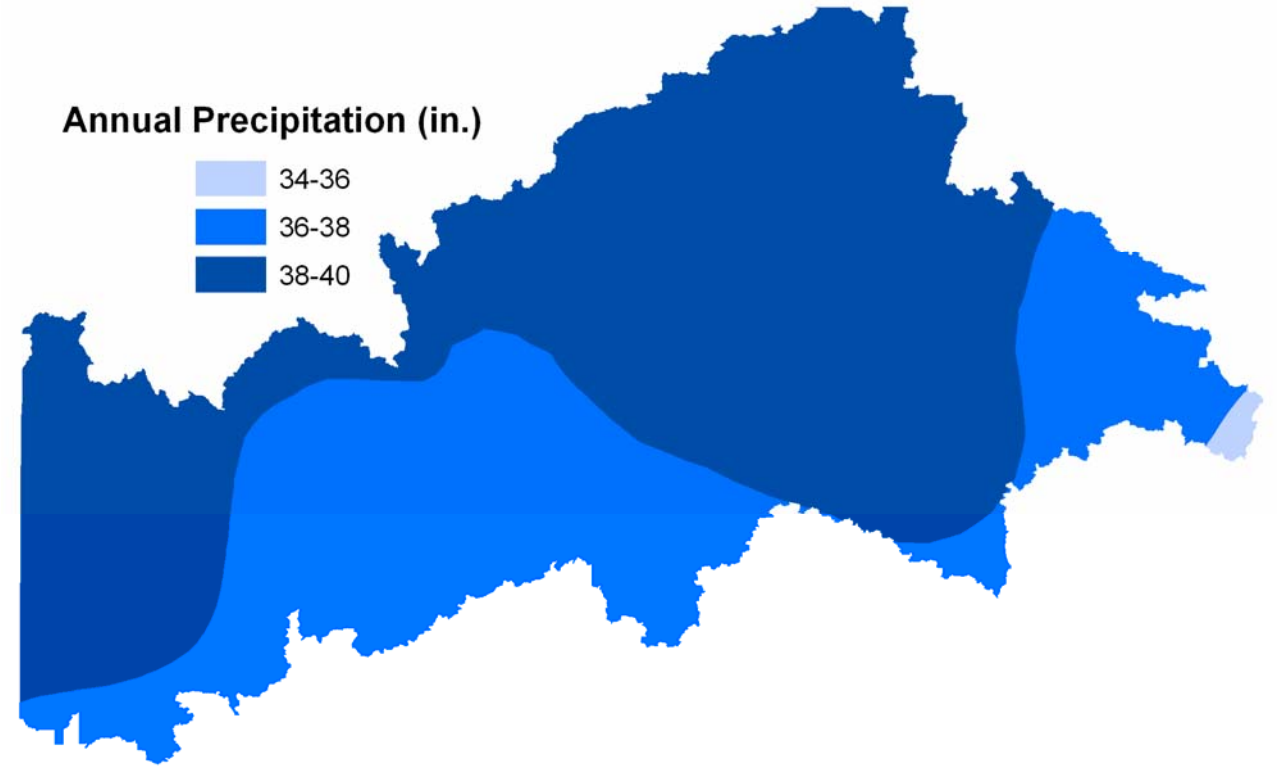
The Southern Michigan and Northern Indiana Drift and Till Plains, Northwestern Part (111C.1) is characterized by hummocky, pitted moraine with many pothole lakes, ponds, marshes, bogs, and clear streams. End moraines and kames supported oak-hickory forests. Ground moraines supported swamp forest to sphagnum bogs. Marsh and woodland remains. Corn, soybean, and livestock farming are dominate. Recreational and residential areas are common. Soils are well drained to very poorly drained, formed in loamy glacial drift and lacustrine sediment.



Physical Description

The Kankakee watershed is located in Northwestern corner of Indiana. The primary waterbody is the Kankakee River, which receives rainfall runoff from just over 1,361,300 acres from eleven different counties within Indiana. The Kankakee originates in Berrien County, Michigan and travels south, southwest through St. Joseph, Marshall, LaPorte, Stark, Porter, Jasper, Lake, and Newton Counties, and discharges in the Illinois River. The landscape changes from moderately steep to gently rolling to broad, flat plains as the river leaves Indiana. Flooding and drainage are two of the major concerns within the watershed.




Annual Precipitation (in.)
34-36
36-38
38-40

Assessment of waters

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 Watershed.

WATERBODY SEGMENT ID	WATERBODY SEGMENT NAME	CAUSE OF IMPAIRMENT
INK0112_00	ALDRICH DITCH - SCHANG DITCH	E. COLI
INK011A_T1001	KANKAKEE RIVER-MAINSTEM	E. COLI
INK011A_T1001	KANKAKEE RIVER-MAINSTEM	FCA for MERCURY
INK011A_T1001	KANKAKEE RIVER-MAINSTEM	FCA for PCBs
INK011C_00	LITTLE KANKAKEE RIVER-BYRON	E. COLI
INK011D_T1002	KANKAKEE RIVER	E. COLI
INK011D_T1002	Kankakee River	FCA for MERCURY
INK011D_T1002	Kankakee River	FCA for PCBs
INK0125_00	POTATO CREEK-KARTOFFEL CREEK	E. COLI
INK0126_00	PINE CREEK-HORACE MILLER DITCH	E. COLI
INK0131_T1003	KANKAKEE RIVER - MAINSTEM	E. COLI
INK0131_T1003	Kankakee River - mainstem	FCA for MERCURY
INK0131_T1003	Kankakee River - mainstem	FCA for PCBs
INK0133_T1004	KANKAKEE RIVER - MAINSTEM	E. COLI
INK0133_T1004	Kankakee river - mainstem	FCA for MERCURY
INK0133_T1004	Kankakee river - mainstem	FCA for PCBs
INK0134_T1005	KANKAKEE RIVER-MAINSTEM	E. COLI
INK0134_T1005	KANKAKEE RIVER-MAINSTEM	FCA for MERCURY
INK0134_T1005	KANKAKEE RIVER-MAINSTEM	FCA for PCBs
INK0134_T1005	KANKAKEE RIVER-MAINSTEM	IMPAIRED BIOTIC COMMUNITIES
INK0138_00	KANKAKEE RIVER-LONG DITCH	E. COLI
INK0138_T1006	KANKAKEE RIVER-MAINSTEM	E. COLI
INK0138_T1006	KANKAKEE RIVER-MAINSTEM	FCA for MERCURY
INK0138_T1006	KANKAKEE RIVER-MAINSTEM	FCA for PCBs
INK0138_T1006	KANKAKEE RIVER-MAINSTEM	IMPAIRED BIOTIC COMMUNITIES
INK013C_T1007	KANKAKEE RIVER-MAINSTEM	E. COLI
INK013C_T1007	KANKAKEE RIVER-MAINSTEM	FCA for MERCURY
INK013C_T1007	KANKAKEE RIVER-MAINSTEM	FCA for PCBs
INK0146_T1008	Kankakee River	E. COLI
INK0146_T1008	Kankakee River	FCA for MERCURY
INK0146_T1008	Kankakee River	FCA for PCBs
INK0147_T1009	KANKAKEE RIVER	E. COLI
INK0147_T1009	Kankakee River	FCA for MERCURY
INK0147_T1009	Kankakee River	FCA for PCBs
INK0153_T1016	UNNAMED DITCH	E. COLI
INK0154_00	ARMEY DITCH - HEADWATERS	E. COLI
INK0155_00	YELLOW RIVER - ARMEY DITCH - ALBERT ZEIGER DITCH	E. COLI
INK0157_00	STOCK DITCH - BUNCH BRANCHES	E. COLI
INK0158_00	YELLOW RIVER - RIVERSIDE CHURCH	E. COLI

WATERBODY SEGMENT ID	WATERBODY SEGMENT NAME	CAUSE OF IMPAIRMENT
INK015F_00	YELLOW RIVER - MILNER SELTENRIGHT DITCH	E. COLI
INK0165_00	YELLOW RIVER - LISTENBERGER/CLIFFTON DITCHES	E. COLI
INK0166_00	YELLOW RIVER - OBER	E. COLI
INK016A_00	YELLOW RIVER-KNOX	E. COLI
INK0183_M1011	KANKAKEE RIVER-ENGLISH LAKE	E. COLI
INK0183_M1011	KANKAKEE RIVER-ENGLISH LAKE	FCA for MERCURY
INK0183_M1011	KANKAKEE RIVER-ENGLISH LAKE	FCA for PCBs
INK0187_M1012	KANKAKEE RIVER	FCA for MERCURY
INK0187_M1012	KANKAKEE RIVER	FCA for PCBs
INK0195_T1013	CROOKED CREEK	IMPAIRED BIOTIC COMMUNITIES
INK0197_T1014	CROOKED CREEK	IMPAIRED BIOTIC COMMUNITIES
INK019A_00	COBB DITCH-SIEVERS CREEK	IMPAIRED BIOTIC COMMUNITIES
INK019F_M1104	KANKAKEE RIVER	E. COLI
INK019F_M1113	KANKAKEE RIVER	FCA for MERCURY
INK019F_M1113	KANKAKEE RIVER	E. COLI
INK019F_M1113	KANKAKEE RIVER	FCA for PCBs
INK019F_T1018	BREYFOGEL DITCH	IMPAIRED BIOTIC COMMUNITIES
INK01B2_M1019	KANKAKEE RIVER	FCA for MERCURY
INK01B2_M1019	KANKAKEE RIVER	FCA for PCBs
INK01B3_M1020	Kankakee River	FCA for MERCURY
INK01B3_M1020	Kankakee River	FCA for PCBs
INK01C4_M1021	Kankakee River	FCA for MERCURY
INK01C4_M1021	Kankakee River	FCA for PCBs
INK01D1_T1107	EAST BRANCH STONY RUN	CHLORIDES
INK01D1_T1107	EAST BRANCH STONY RUN	NUTRIENTS
INK01D1_T1107	EAST BRANCH STONY RUN	TOTAL DISSOLVED SOLIDS
INK01D3_00	SINGLETON DITCH-BRYANT DITCH	E. COLI
INK01D7_T1025	CEDAR CREEK	IMPAIRED BIOTIC COMMUNITIES
INK01D8_00	SINGLETON DITCH-BRUCE DITCH/BAILEY DITCH	IMPAIRED BIOTIC COMMUNITIES
INK01E1_T1108	BULL RUN BASIN	IMPAIRED BIOTIC COMMUNITIES
INK01P1022_00	CEDAR LAKE	FCA for PCBs
INK01P1037_00	LAWRENCE LAKE	IMPAIRED BIOTIC COMMUNITIES
INK01P1038_00	MYERS LAKE	IMPAIRED BIOTIC COMMUNITIES
INK01P1055_00	NORTH CHAIN LAKE	FCA for MERCURY
INK01P1055_00	NORTH CHAIN LAKE	FCA for PCBs
INK01P1060_00	LOWER FISH LAKE	FCA for MERCURY
INK01P1060_00	LOWER FISH LAKE	FCA for PCBs
INK01P1078_00	BASS LAKE	FCA for MERCURY

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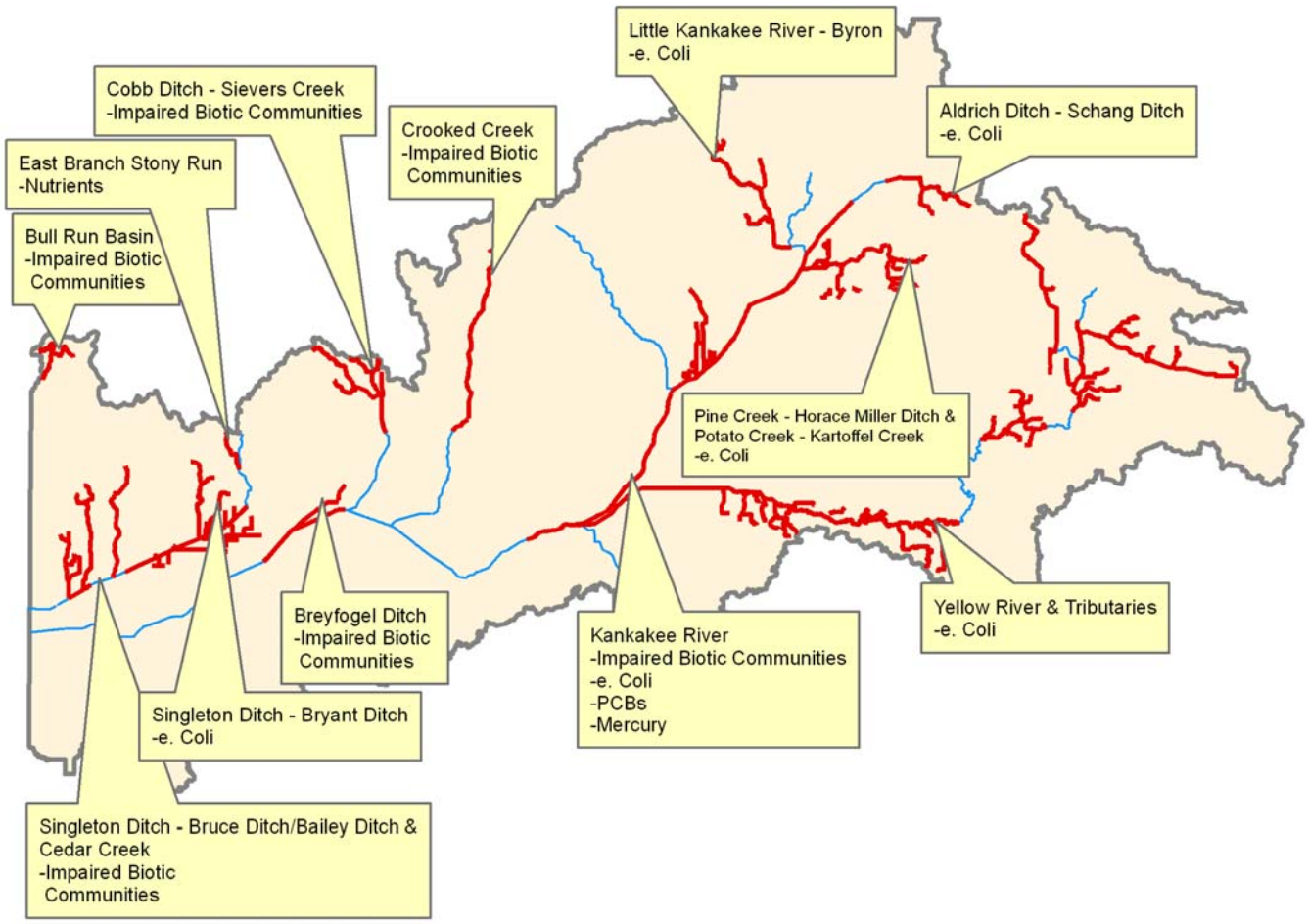
Kankakee Watershed – Impaired Waters

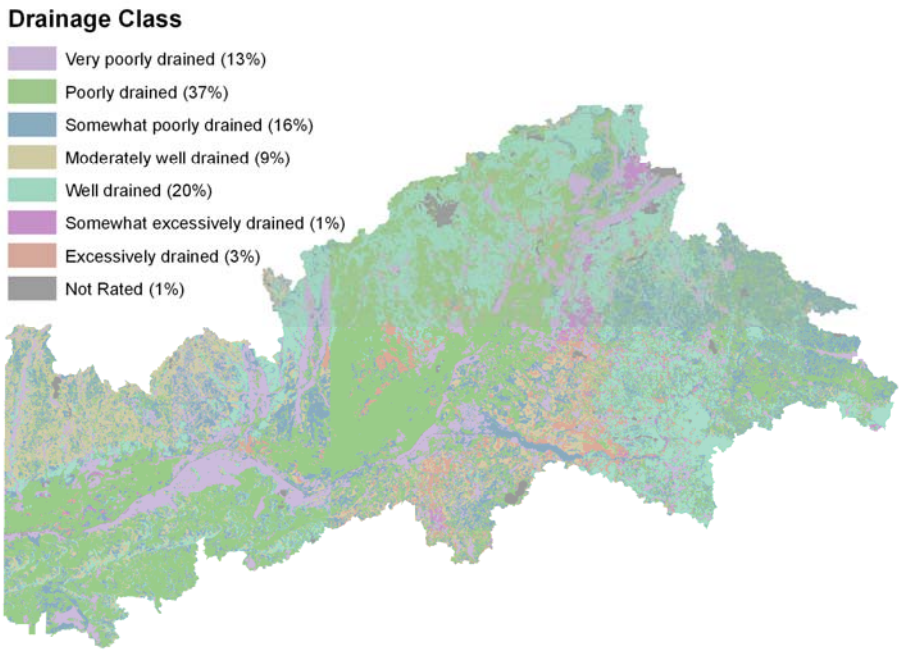


Soils

The Kankakee watershed covers a large landscape of various landforms and soils. The dominant soil orders in this Major Land Resource Area (MLRA), 98 – Southern Michigan and Northern Indiana Drift Plain, are Alfisols, Histosols, and Mollisols. The soils in the area dominantly have a mesic soil temperature regime, an aquic or udic soil moisture regime, and mixed mineralogy. They are very deep, well drained to very poorly drained, and loamy or sandy. Hapludalfs formed in outwash or glacial drift over outwash on outwash plains, kames, terraces, and deltas (Boyer, Oshtemo, and Spinks series) or in till (Hillsdale and Riddles series) or loess over till (Miami series) on till plains and moraines. Glossudalfs (Capac and Marlette series) and Endoaqualfs (Conover series) formed in till on till plains and moraines. Haplosaprists (Houghton series) formed in organic deposits in depressions on lake plains, till plains, and outwash plains. Argiaquolls (Sebewa series) and Endoaquolls (Gilford and Maumee series) formed in outwash in depressions on outwash plains, flood plains, and lake plains. Argiaquolls (Brookston series) also formed in silty material over till in depressions on till plains and moraines.

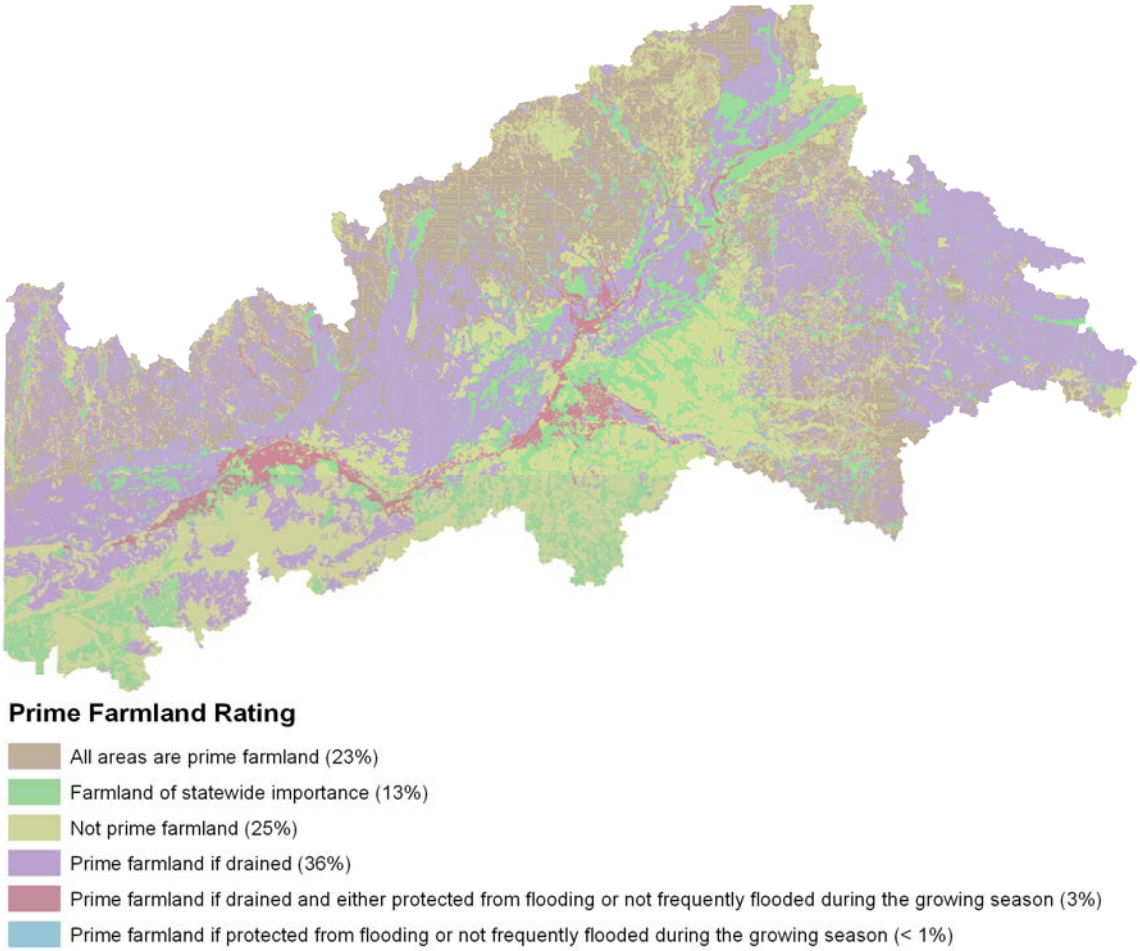
Drainage Classification

Drainage class (natural) refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil.



Seven classes of natural soil drainage are recognized–excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the “Soil Survey Manual.”

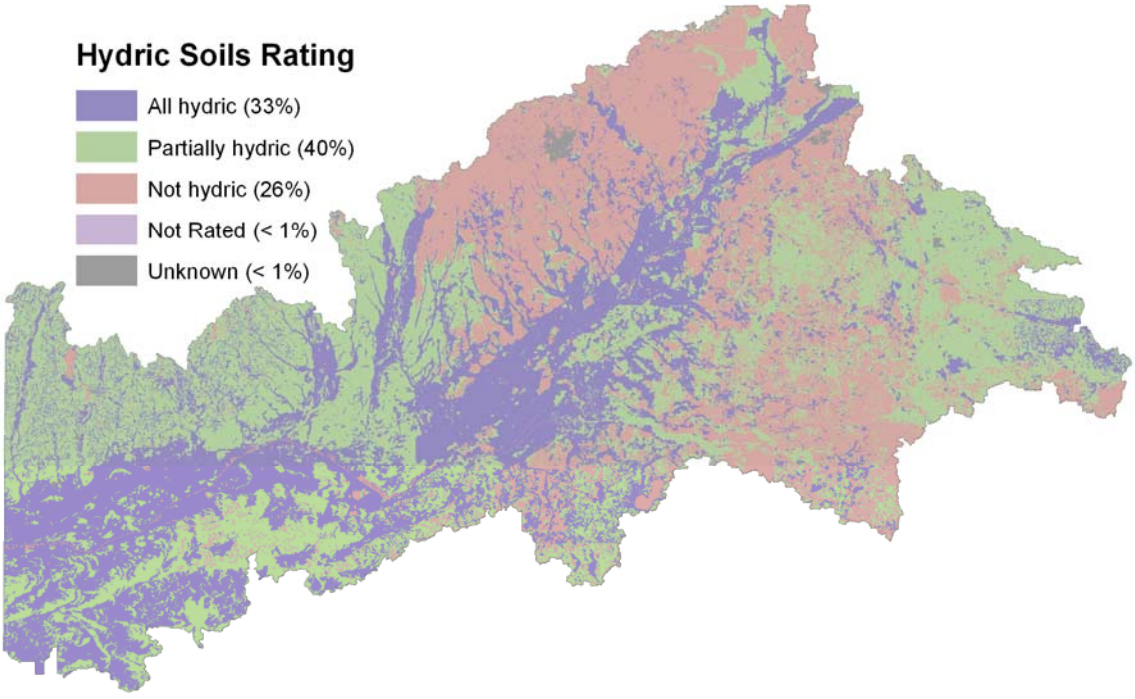
Farmland Classification Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. Farmland classification identifies the location and extent of the most suitable land for producing food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the Federal Register, Vol. 43, No 21, January 31, 1978.



*Hydric Soils*This rating provides an indication of the proportion of the map unit that meets criteria for hydric soils. Map units that are dominantly made up of hydric soils may have small areas, or inclusions of non-hydric soils in the higher positions on the landform, and map units dominantly made up of non–hydric soils may have inclusions of hydric soils in the lower positions on the landform.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make on site determinations of hydirc soils are specified in “Field Indicators of Hydric Soils in the United States” (Hurt and others, 2002).

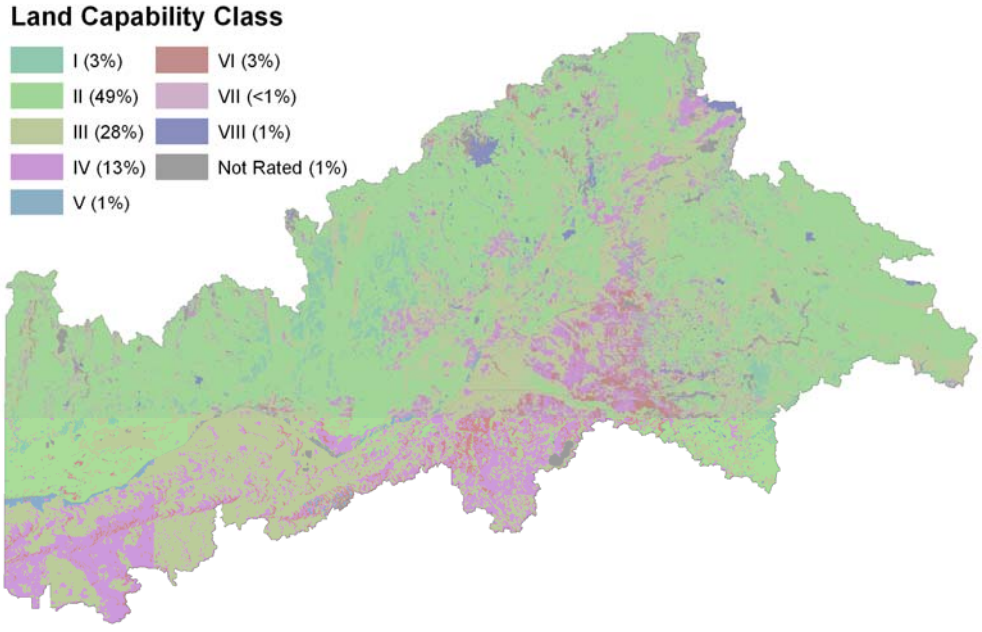


Highly Erodible Land (HEL)

A soil map unit with an erodibility index (EI) of 8 or greater is considered to be highly erodible land (HEL). The EI for a soil map unit is determined by dividing the potential erodibility for the soil map unit by the soil loss tolerance (T) value established for the soil in the FOTG as of January 1, 1990. Potential erodibility is based on default values for rainfall amount and intensity, percent and length of slope, surface texture and organic matter, permeability, and plant cover. Actual erodibility and EI for any specific map unit depends on the actual values for these properties.

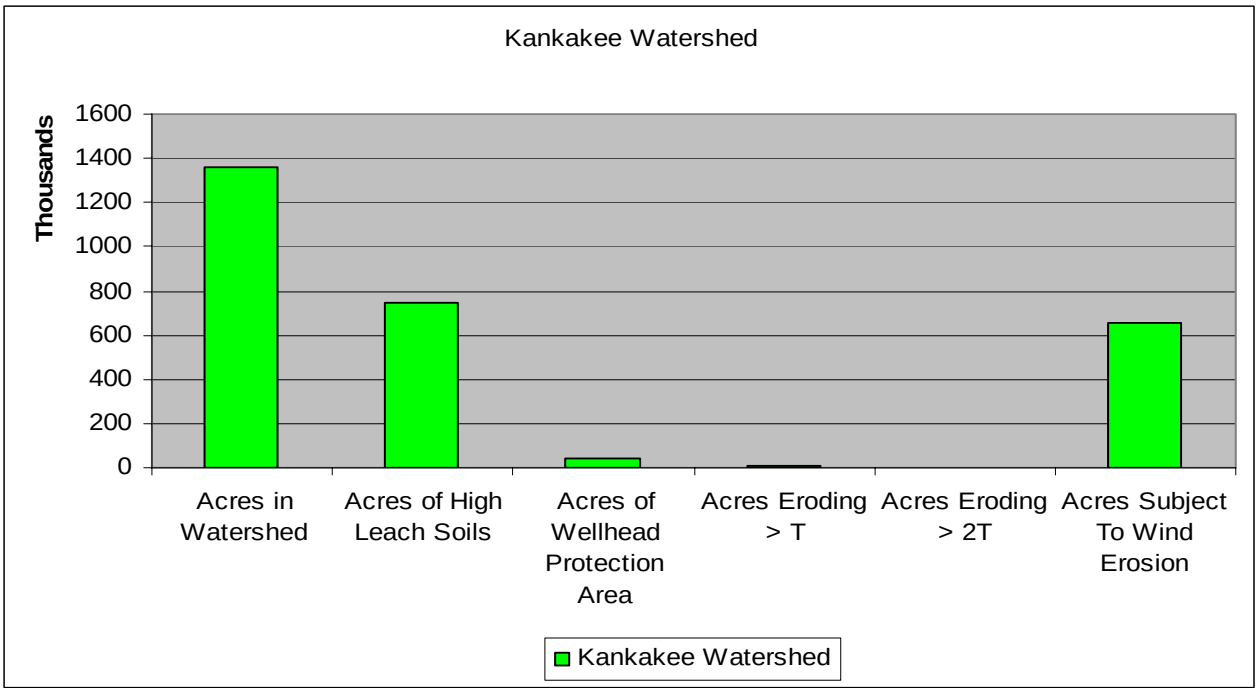
Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive land forming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.



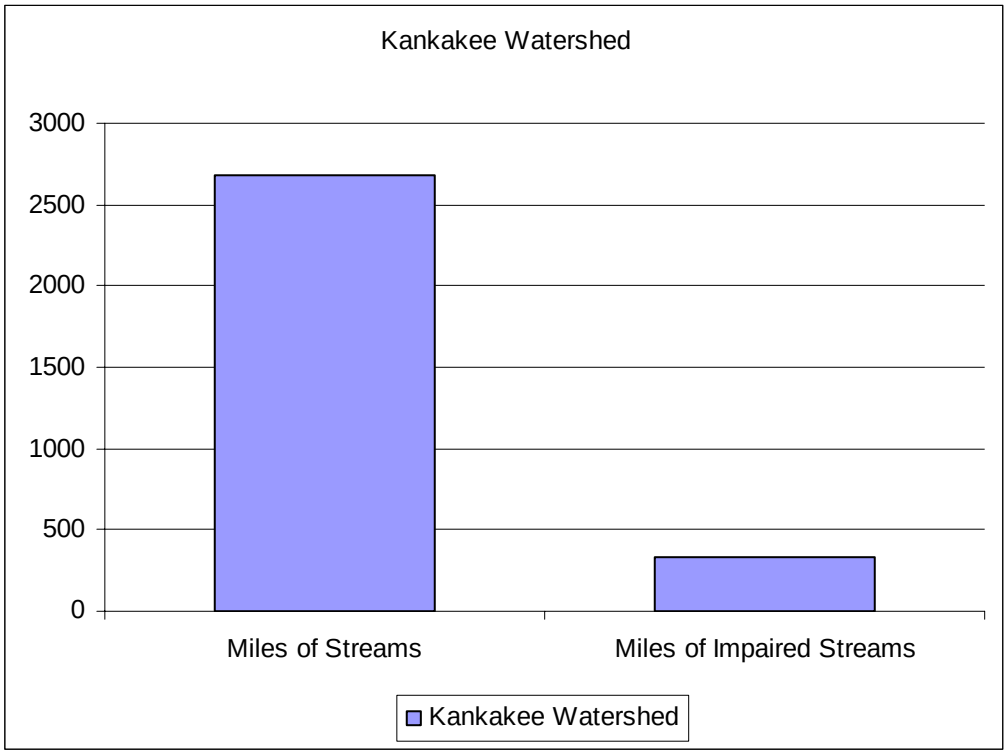
Resource Concerns
Stakeholders and electronic analysis have been identified the following resource concerns as being the top priority:

- Soil Quality – The watershed has over 659,000 acres of soils subject to soil erosion. The vast majority of this is acreage; over 650,000 acres are subject to wind erosion. There are over 8,000 acres currently eroding over the tolerable limit, or "T", from water erosion. These totals represent some 48 percent of the watershed.



- Ground Water Quality - The watershed has in excess of 745,600 acres of soils with high leaching index (> 10) which allows containments on the land surface to be carried easily into the ground water from infiltrating water. Because of this condition, non–point pollutants such as fertilizers, pesticides, and livestock waste have the potential to contaminate the ground water aquifer.

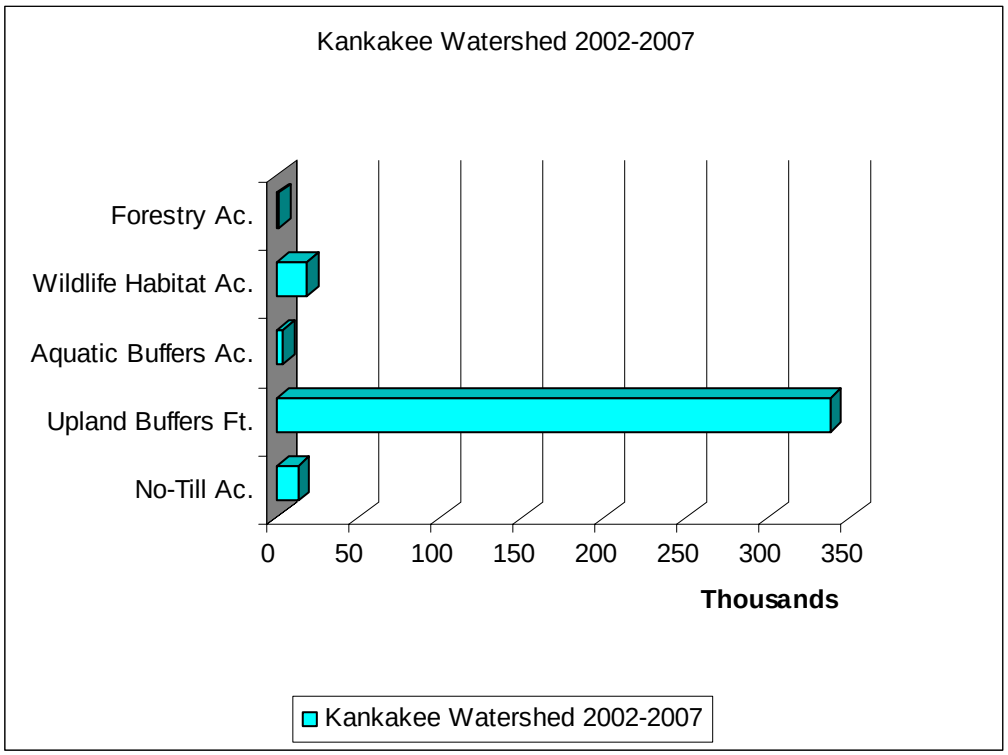
- Surface Water Quality – There is approximately 11 percent of the streams within the watershed that have identified impairments. Excessive amounts of sediments, nutrients, and bacteria degrade the water quality causing an unbalanced fish community with depressed populations and limited diversity.



- Threatened & Endangered Species – Just over 17 percent of the 1,361,300 acres in the watershed lie within the range of know Threatened and Endangered Species.
- Air Quality – 56.3 percent of the watershed has been identified by the Environmental Protection Agency as have an air quality concern.

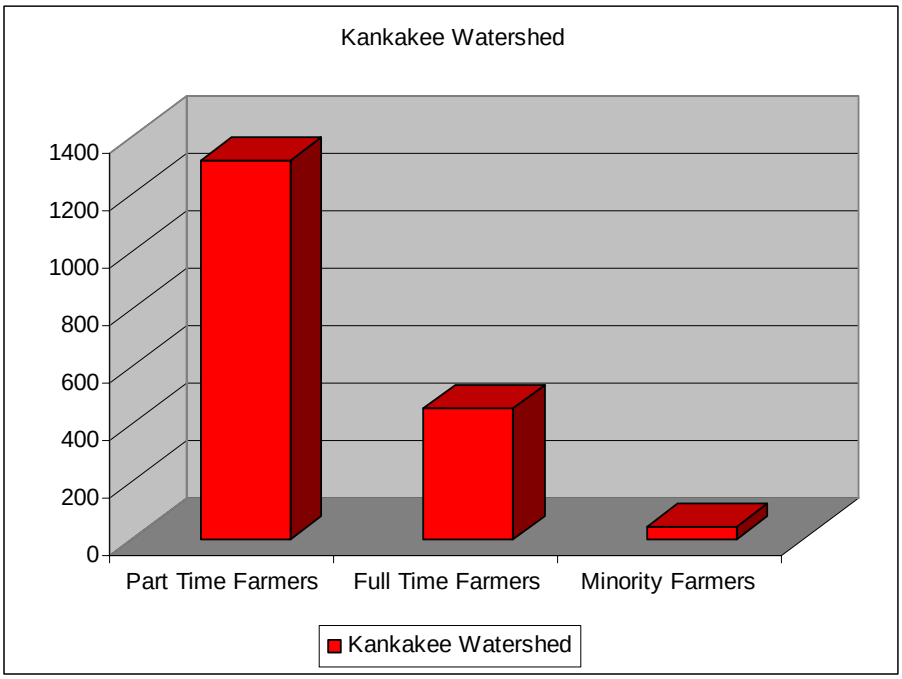
Performance Results System and Other Data

The producers within the watershed have implemented a variety of conservation practices over the past five years. Since 2002 through 2007 landowners have implemented over 13,100 acres of No-Till, approximately 338,200 feet of upland buffers, and just over 3,600 acres of aquatic buffers. Wildlife habitat has been improved or established on more than 18,100 acres within the watershed and just less than 1,740 acres of forestry practices have been applied.

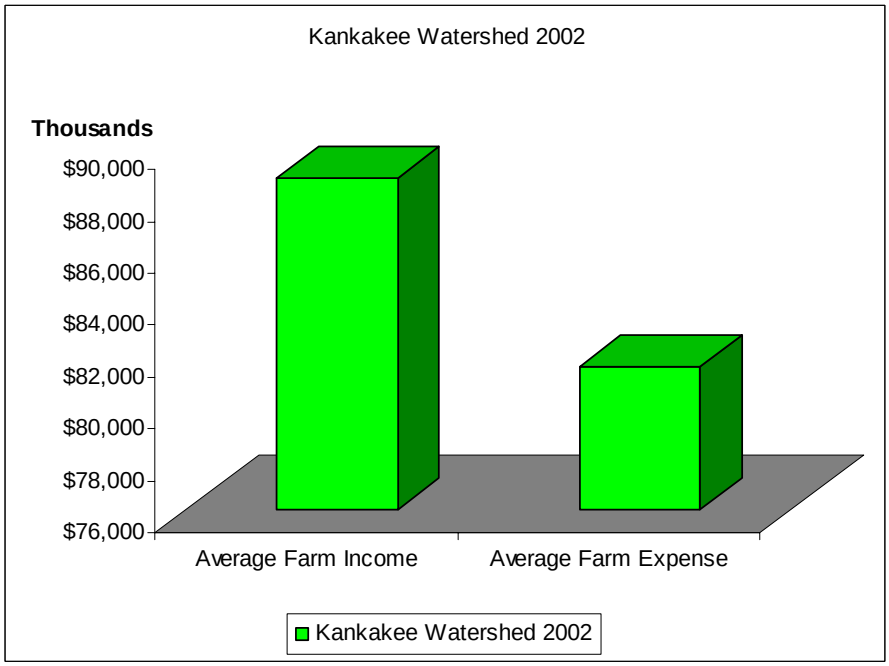


Census and Social Data (Relevant)

There are over 7,800 farms in the watershed that average approximately 282 acres in size. There are approximately 1,314 part time farmers, 452 full time farmers and 40 minority farmers.



The 2002 average farm total income for all the Indiana Counties was $88,798,000 while average expense was $81,516,000.



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Data Sources:

Indiana Common Resource Area (CRA) Map delineations are defined as geographical areas where resource concerns, problems, or treatment needs are similar. It is considered a subdivision of an existing Major Land Resource Area (MLRA) map delineation or polygon. Landscape conditions, soil, climate, human considerations, and other natural resource information are used to determine the geographic boundaries of a CRA.

Indiana Agricultural Statistics 2003 – 2004 Indiana Agricultural Statistics, 1435 Win Hentshcel Blvd., Suite B105, West Lafayette

Major Land Resource Area Map Tool Indiana NRCS Soils Page - http://www.in.nrcs.usda.gov/mlra11/soils.html

Indiana Hydrologic Units Indiana geodata

Indiana Watershed Action Strategy Plan

Indiana Rapid Watershed Assessment (Electronic Data Sets – Web based application.

Indiana 2006 303d List – Indiana Department of Agriculture, Division of Natural Resources