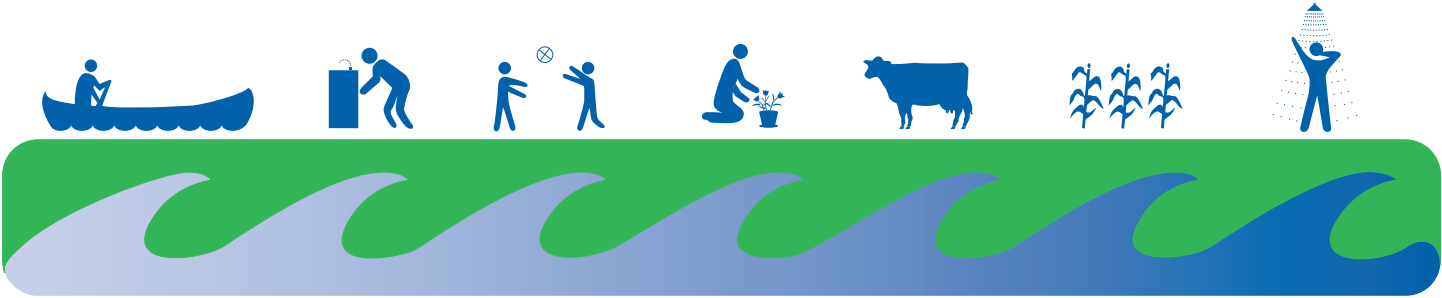


# Watershed Connections



## Water Resources of Pike County, Indiana

By Jane R. Frankenberger,  
Extension Agricultural Engineer

### Introduction

Water is a vital resource for all citizens of Pike County. Water is essential for agriculture and industry, as well as for recreation and drinking. A healthy environment and economy requires clean water and healthy watersheds. This publication gives basic information about surface and ground water resources of Pike County, and discusses human activities that may be affecting those water resources.

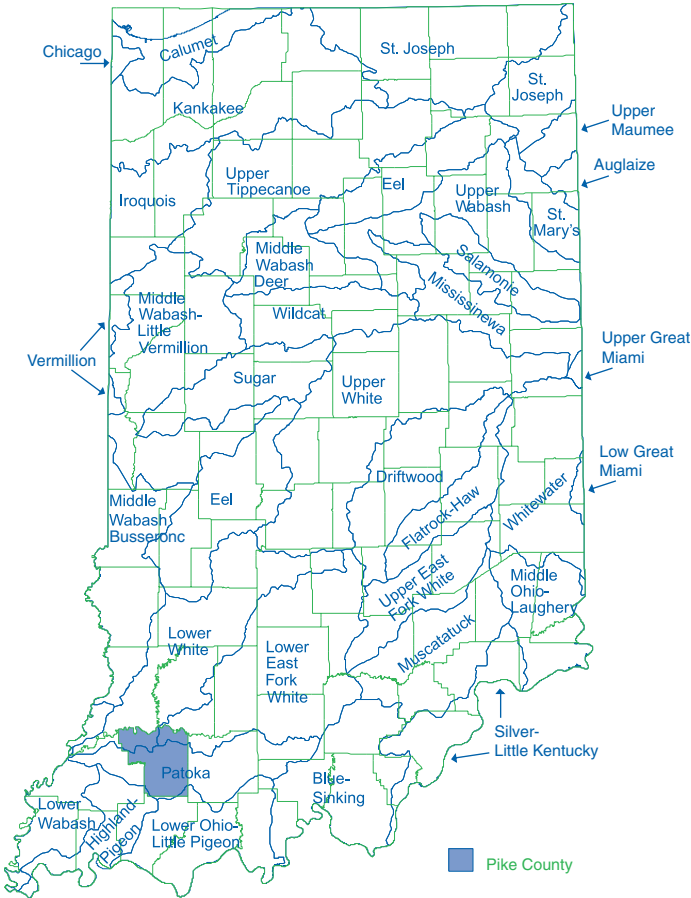
Pike County has an area of 336 square miles or 215,040 acres. The population in 1990 was 12,509. The elevation ranges from 408 to 660 feet above sea level. The Pike County climate is temperate, with average monthly temperatures ranging from 29°F in January to 77°F in July. The average high temperature in July is 88°F.

### Pike County Streams and Watersheds

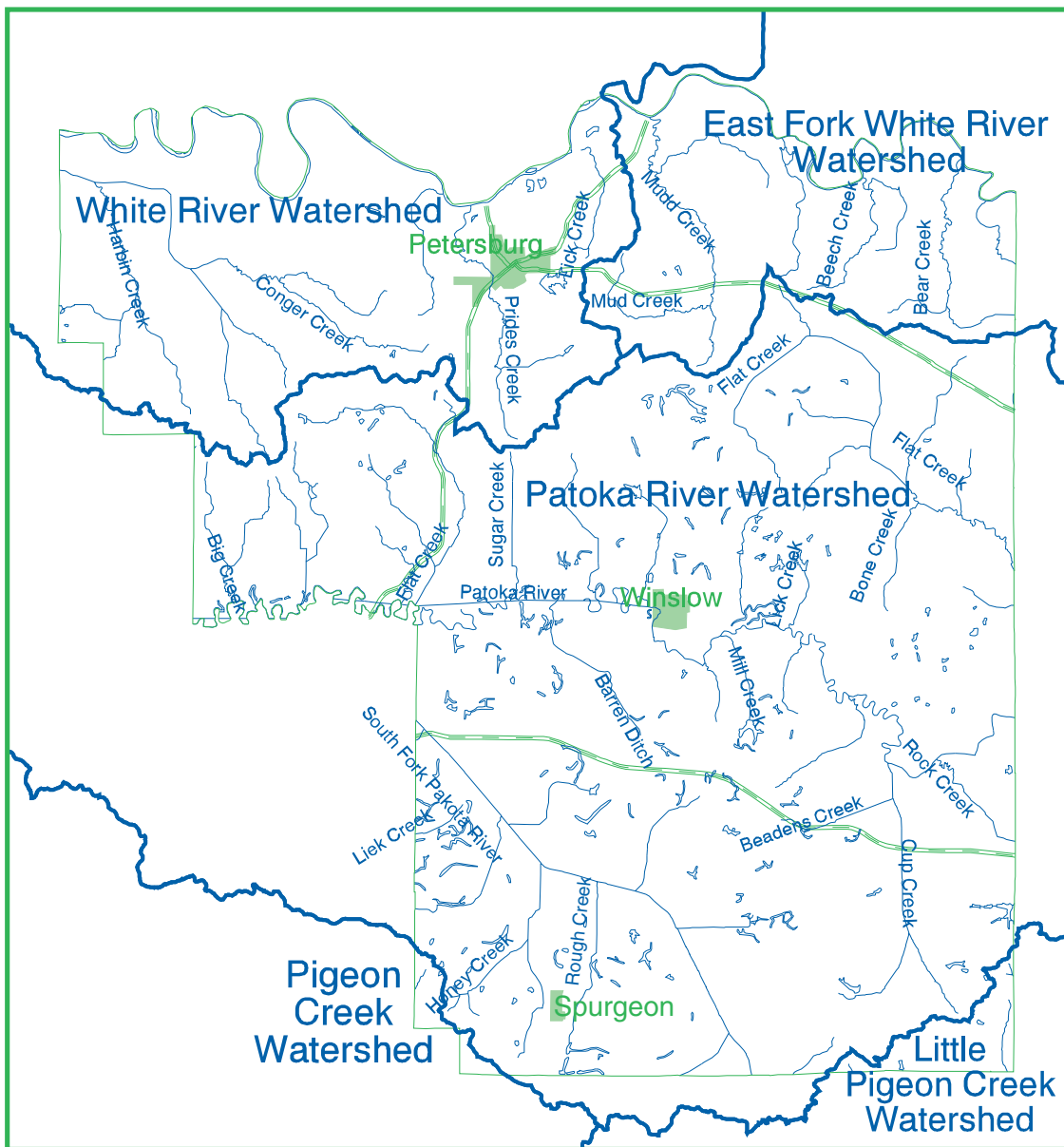
A *watershed* is a region of land that drains into a lake, stream, or river. Watersheds are important because human activity within a watershed can affect the lake or river into which it drains. The quantity and quality of our water is affected not only by what might be dumped in the river, but by everything we do on the land in the watershed.

Watersheds can be any size. Even a few acres of land that drain into a pond form a watershed. If that pond drains into a stream, those acres, along with many others, are part of the watershed for the stream. Small watersheds are part of larger watersheds, just as small streams flow into larger streams.

Indiana has been divided into 37 major watersheds, as shown in Figure 1. Pike County is located mostly within three of these major watersheds: the White River, East Fork White River, and Patoka River.



**Figure 1. Major Watersheds of Indiana. Pike County is in the White, East Fork White, and Patoka River watersheds.**



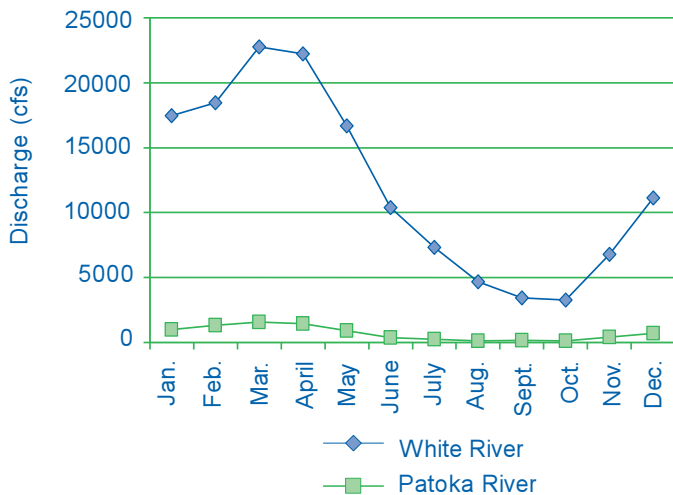
**Figure 2: Pike County Streams and Watersheds.**

The streams and watersheds of Pike County are shown in Figure 2. The **East Fork White River Watershed** is located in the northeastern part of the county. The **White River Watershed** starts downstream from the point where the East Fork White River joins the West Fork. The White River is approximately 630 feet wide at this point. Most of the southern two-thirds of the county lies within the **Patoka River Watershed**. Cup Creek and South Fork Patoka River flow into the Patoka River in Pike County, while Flat Creek drains some of Pike County but flows east into the Patoka River in Dubois County. **Pigeon Creek** and **Little Pigeon Creek** drain small areas in the southwest and southeast part of the county.

All of the watersheds drain into the Ohio River, and eventually to the Mississippi River and the Gulf of Mexico.

### **Stream Discharge**

*Discharge* for a stream or river is the amount of water that flows per unit of time. A typical unit for measuring discharge is cubic feet per second (cfs). Five *gauging stations*, where discharge is measured continuously in a stream or river, are run by the U.S. Geological Survey in Pike County. These five stations are located at the White River above Petersburg and at Petersburg, Flat Creek near Otwell, Patoka River at Winslow, and South Fork of the Patoka River near Spurgeon.



**Figure 3: Average monthly flows in the White River and Patoka River in Pike County.**

The average monthly discharge for two of these rivers is shown in Figure 3. Highest flows generally occur in February to April while low flows usually occur in August to October, a pattern that is typical for most streams in Indiana.

Flow in the Patoka River is regulated by Patoka Lake upstream. Flood peaks are decreased by holding water in the lake, while during drought periods some water is released which dilutes pollution in the river.

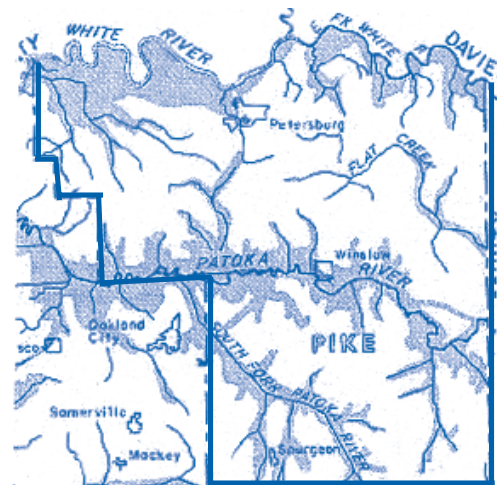
The White River has higher discharge rates than the Patoka River because it drains a much larger area.

### Floods and Floodplains

Maximum daily flows during floods can be much higher, and low flows during droughts can be much lower than the monthly averages. Peak flows (which may last only a short time) can be much higher than maximum daily flows. For example, the peak flow for the White River at Petersburg was 235,000 cfs in 1913 and the peak flow for the Patoka River at Winslow was 15,500 cfs in 1964. The White River floods nearly every year.

*Floodplains* are low areas adjacent to river or stream channels that have flooded in the past and will flood again in the future. Flooding is an important concern in Pike County, because more than 20% of the total area is classified as “frequently flooded” in the Pike County Soil Survey. This means that those areas can be expected to flood more than once in two years. Flooding also increases when an area is developed and more pavement and parking lots increase runoff, unless good planning such as requiring stormwater basins is part of the development process.

Floodplains have been delineated for Pike County, and a very general map of floodplains is shown in Figure 4. The Pike County Assessor’s Office and the Natural Resources Conservation Service have maps that show detailed boundaries of floodplains, which should be viewed before planning any development that may coincide with a floodplain. Permission to build in a flood plain is required from the Indiana Department of Natural Resources or from the local floodplain management agency, depending on which part of the floodplain the building will be in.



**Figure 4: Floodplains in Pike County.**

### Pike County Lakes and Wetlands

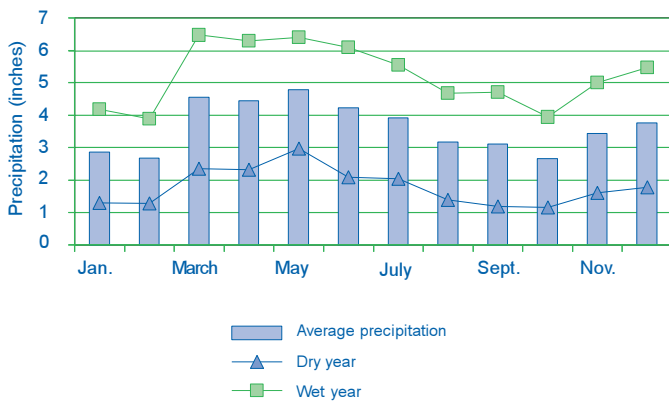
Lakes in Pike County include Augusta Lake, Enos Lake, White Oak Lake, Lake Helmerich, Prides Creek, and Seven Lakes. There are also many strip mine pits. Prides Creek Lake, which is widely used for recreation, has been monitored by the Indiana Department of Environmental Management. The *Trophic State Index*, an index of lake clarity, was found to be 33 for Prides Creek Lake (on a scale of 0 to 75), which means that the lake is moderately clear.

*Wetlands* are areas that have the soil and hydrology necessary to support wetland vegetation. They do not always have water, but help maintain the quality of surface and ground water by removing potential pollutants such as sediment, nutrients, and pesticides from the water. Wetlands have many other benefits including providing habitat for wetland flora and fauna, providing services to humans such as aesthetics, hunting, fishing, and recreation, and reducing peak flood flows. Approximately 85 % of Indiana wetlands have been lost since the 1700s. In Pike County there are currently 20,510 acres of wetlands, according to the National Wetlands Inventory carried out in the 1980s, or about 10% of the total area in the county.

The **Patoka River National Wildlife Refuge and Management Area** will protect 12,700 acres of existing wetlands. It was established in 1994 and will encompass 30 miles of the Patoka River. It will protect one of the most significant bottomland hardwood forests remaining in Indiana and support over 380 species of wildlife, including the threatened bald eagle and endangered Indiana bat. It provides habitat for waterfowl and other wildlife, protects biodiversity, and provides public opportunities for outdoor recreation and environmental education.

## Pike County Precipitation

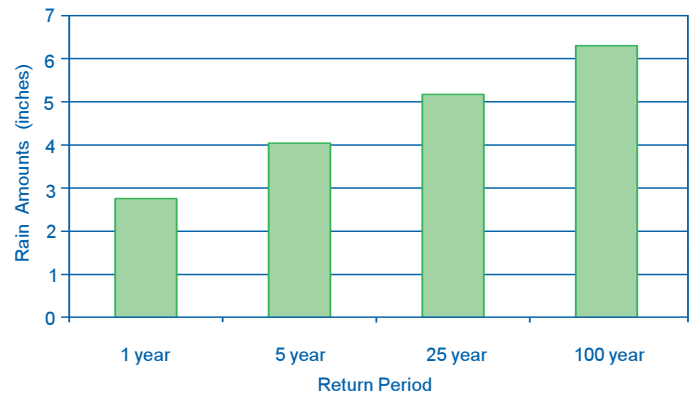
The average yearly precipitation (rain, snow, sleet, and hail) in Pike County is approximately 44 inches. Precipitation is relatively constant throughout the year, as shown in Figure 5. Average monthly precipitation is about 3.7 inches, but monthly highs and lows can vary considerably. The bars show average monthly precipitation, while the lines show the wettest year and driest year expected once in 5 years.



**Figure 5: Average monthly precipitation in Pike County.**

Precipitation from a single storm can be important in causing flooding. Precipitation records over many years have been analyzed to assess the probability of various storms occurring. Precipitation probability for a single storm is generally expressed in terms of a return period, which means the expected number of years between storms of a given size.

A “5-year storm” has a 20% chance of occurring in any one year, so it is likely to occur about every 5 years on the average. However, it is possible for a 5-year storm to occur many years in a row or even several times in a single year. A 100-year storm has a 1% chance of occurring in any year. The 100-year storm is particularly important, because the area that is expected to be flooded by the 100-year storm is generally considered to be the “floodplain” (shown in Figure 4.) Figure 6 shows the expected 24 hour rainfall for Pike County for various return periods.



**Figure 6: Rainfall expected in 24 hours for storm events.**

## Pike County Water Use

Pike County citizens and industry use water for many purposes. The largest single use of water in Pike County is for thermoelectric power generation at Pike County’s two large power plants, which supply electricity to Indianapolis and several neighboring counties. At these plants, large volumes of water from the White River are used for cooling. The water passes through a heat exchange process which causes the water temperature to rise about 20 degrees F but does not add any chemicals or other substances to the water. The mining industry is the second largest water user in Pike County. In mining, water is primarily used for the cleaning and preparation of coal. Using water for coal preparation enables the industry to produce a more marketable product. The other users are mainly households, which use water either from one of the public water supplies or from their own wells for drinking, washing, flushing toilets, and watering gardens. Water use is shown in Table 1.

**Table 1: Water use in Pike County.**

	Water use (millions of gallons per day)
Thermoelectric power	513.21
Mining	7.67
Public water supply	1.33
Industrial	0.26
Home wells	0.24
Agricultural	0.18
Commercial	0.15

## Pike County Drinking Water

Seven public water supply systems supply water to about 75% of the citizens of Pike County, and the number is rapidly increasing. Petersburg Water Corporation and Otwell Water Corporation use ground water (wells) for a water source, while the remaining suppliers use surface water or purchase water from another system.

Sources of water used by all Pike County water supply systems, as well as the number of customers they serve, are given in Table 2. Figure 8 shows a map of the areas served by each of these public water supply systems. For more information, contact the nearest water supplier.

All community water suppliers using ground water are required to develop a *wellhead protection plan* by 2002. To do this, each system must form a local planning team and identify the area that provides recharge to the well (the wellhead protection area). The wellhead protection area for Petersburg is shown in Figure 7. The team must then identify potential sources of contamination within this area, develop a management plan to minimize risk from these sources, and develop a contingency to cope with possible emergencies. Community involvement is an important component of this plan. Contact your public water supply, the Indiana Department of Environmental Management, or Purdue Extension for more information.

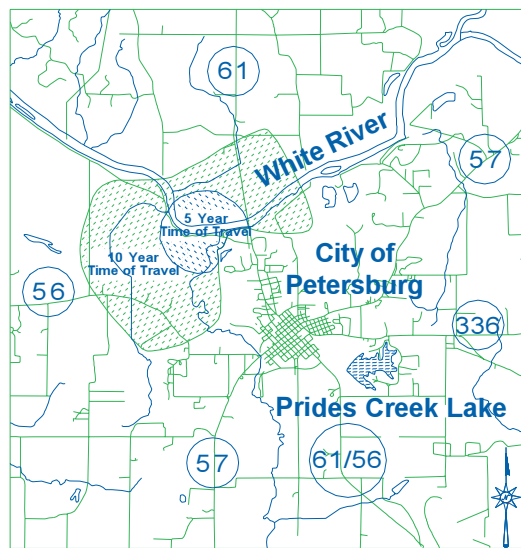


Figure 7: Petersburg Wellhead Protection Area.

If you drink water supplied by a public system, you can find out about the quality of your drinking water. The Safe Drinking Water Act requires that all water suppliers test water regularly and report the results to consumers. You should receive an annual water quality report from your water supplier (beginning in 1999) that reports levels of various contaminants including

- microbial contaminants such as bacteria
- volatile organic compounds such as gasoline or solvents
- pesticides and other organic compounds
- lead, nitrate, and other inorganic substances

If you do not receive a water quality report, or if you wish to know more about the quality of your tap water, contact your water supplier.

Citizens using private water supplies (about 25% of the population in Pike County) must make a greater effort to monitor their own well water quality, since no testing on private wells is required or carried out by government agencies. Contaminants like those listed above are persistent threats to private water wells and can cause illness and impair human health if not discovered and treated. This is particularly important if there are infants or small children drinking from these wells.

## Pike County Water Quality

### Surface Water Quality

Surface water quality in the United States has greatly improved since enactment of the Clean Water Act in 1972. Sewage treatment plants and industries, which previously discharged untreated waste into streams, are now required to have permits for all discharges. However, many rivers in Pike County still barely support aquatic life, often due to acid mine drainage.

Several river sections in Pike County are listed as “impaired” by the Indiana Department of Environmental Management. These rivers, which include the Patoka River, South Fork Patoka River, and the White River from the confluence of the West Fork and East Fork all the way to the Wabash River, will require special measures to restore them.

A \$5 million reclamation effort by the Indiana Department of Natural Resources is currently underway on the South Fork of the Patoka River. Numerous smaller reclamation projects are ongoing in the region under the joint efforts of the IDNR and the Patoka South Fork Watershed Steering Committee.

Fish in the West Fork of the White River in Pike County, and some fish in the Patoka River are contaminated by PCBs or mercury, according to the 1999 Fish Consumption Advisory. Fish in those rivers should be consumed rarely, and channel catfish more than 25 inches in length should not be consumed at all. Carp anywhere in Indiana can be contaminated with both PCBs and mercury and should be consumed rarely. (PCBs are no longer used, but often remain in sediments from widespread use in insulation many years ago. Mercury is mainly deposited from the air, caused by the burning of fossil fuels and the incineration

**Table 2: Pike County Water & Sewer Information.**

**Water**

Utility Name	Service Area and Source(s) of Water
Pike-Gibson Water Corporation (812) 749-4916	Supplies water to 700 customers with Petersburg addresses and 850 customers with Winslow addresses. Also supplies water to the Spurgeon Water Company. Buys water from Petersburg Water Co. (420,000 gallons per day) & Patoka Lake (245,466 gallons per day).
Patoka Lake Regional Water & Sewer District (812) 678-5781	Sells water from Patoka Lake to Pike-Gibson Water (245,466 gallons per day) and to Otwell Water (75,000 gallons per day).
Otwell Water Corporation (812) 354-2256	Serves 998 residential customers. Pumps water from wells (72,000 gallons per day) and buys water from Petersburg Water Company (47,000 gallons per day) and Patoka Lake (75,000 gallons per day).
Petersburg Water Corporation (812) 354-8707	Serves 1,486 customers (450,000 gallons per day) and sells 600,000 gallons per day to Pike-Gibson and Otwell Water Corporations. Pumps from Petersburg wells.
Winslow Water Corporation (812) 789-2207	Serves 545 Winslow customers (72,000 gallons per day). Pumps 6 hours per day from the Patoka River.
Spurgeon Water Corporation (812) 721-3373	Buys all of its water (30,000 gallons per day) from the Pike-Gibson Water Corporation. Serves 200 Spurgeon customers.
Holland Water Utility (812) 536-3640	Buys from Patoka Lake and pumps from Holland Lake. Serves 125 Stendal area customers (24,000 gallons per day).

**Sewer**

Utility Name	Current Information and Capacity
Jefferson Township Regional Sewer (Otwell) (812) 354-2256	37,000 gallons of sewage is pumped/moved from its 200 residential customers each day.
Petersburg Sewer (812) 354-8707	300,000 to 400,000 gallons of sewage are generated each day from 1,020 residential customers. Additional water leaks into the combined sewer system, so that 600,000 to 1 million gallons of water & sewage are treated each day.
Winslow Sewer (812) 789-2207	100,000 gallons of sewage, surface and subsurface water treated each day.

# Pike County Water Suppliers

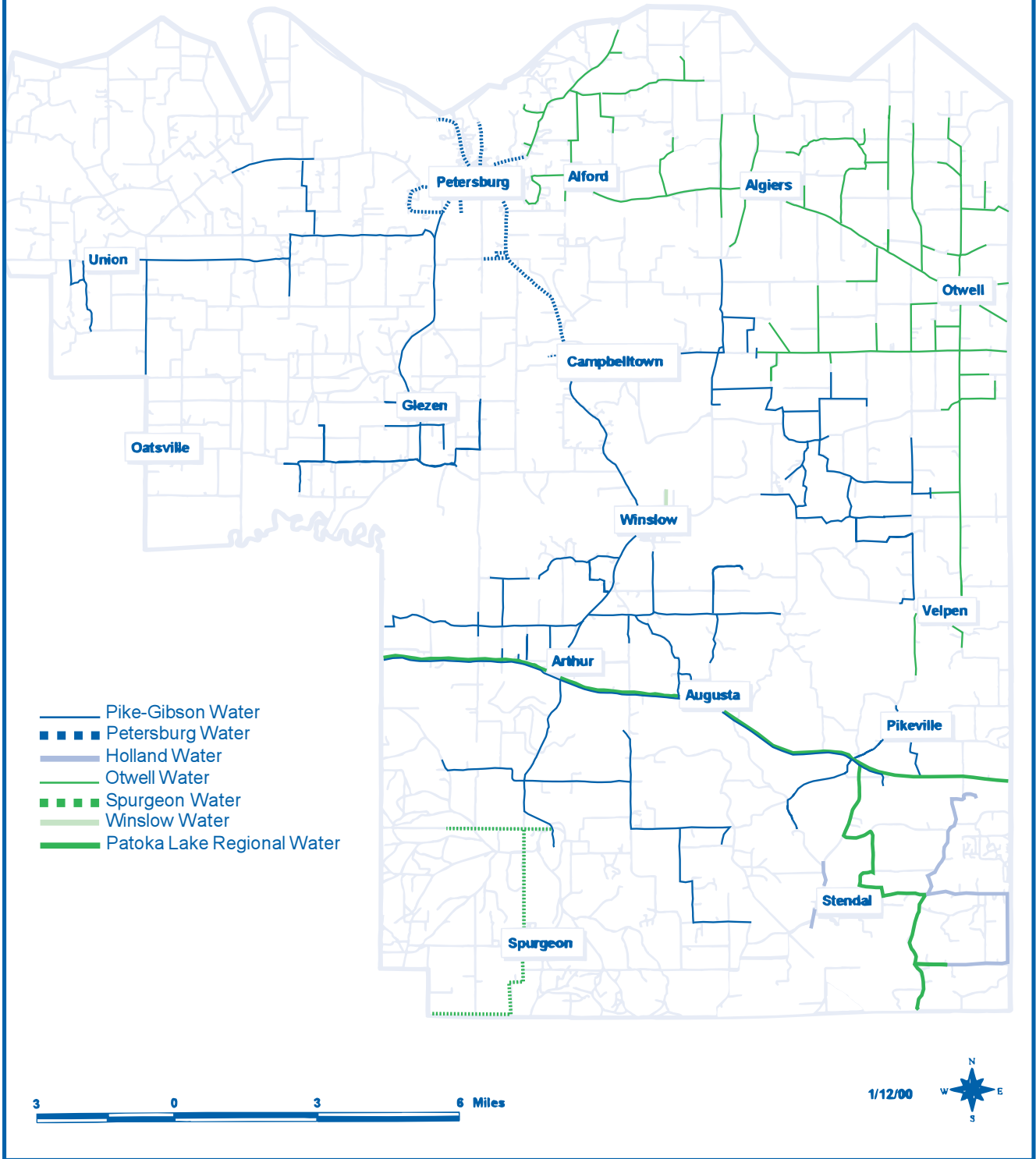


Figure 8: Pike County Water Suppliers.

of waste.) PCBs and mercury accumulate in the human body, causing nervous and immune system disorders and other illnesses. Monitoring our intake of fish from these waterways is critical. These recommendations are particularly important for women who are pregnant or breastfeeding, women who plan to have children, and children under the age of 15. For more information, consult the most recent Indiana Fish Consumption Advisory. (See “Sources of Information” section.)

### Ground Water Quality

Ground water is only plentiful in Pike County in areas near the river. Because of this scarcity, little data is available on ground water quality in Pike County. In Indiana, the most common pollutants in ground water are volatile organic compounds (gasoline and other petroleum products), bacteria, and nitrate. Many private wells are contaminated from nearby septic systems. Purdue Extension recommends that well water be tested every 1 to 3 years. Call the Pike County Health Department or the Pike County office of Purdue Extension for information on how you can have your water tested for potential contaminants.

### Potential Sources of Pollution in Pike County

Water quality in Pike County is impacted by pollution from a variety of sources. Pollutants can be separated into two categories, point source and nonpoint source, depending on how they get into the water. *Point source pollution* refers to contaminants that enter the water directly, usually through a pipe. Examples are sewage treatment plants and industrial facilities, which have permits to discharge prescribed quantities of potential contaminants into a specific stream. *Nonpoint source pollution*, by contrast, originates across the watershed and enters the water at location that cannot be easily identified. Examples of nonpoint source pollution include sediments, nutrients, pesticides, oil, and other chemicals. Point and nonpoint source pollution are illustrated in Figure 9. Nonpoint source pollution, which is not regulated, is currently the primary cause of water quality degradation in the U.S.

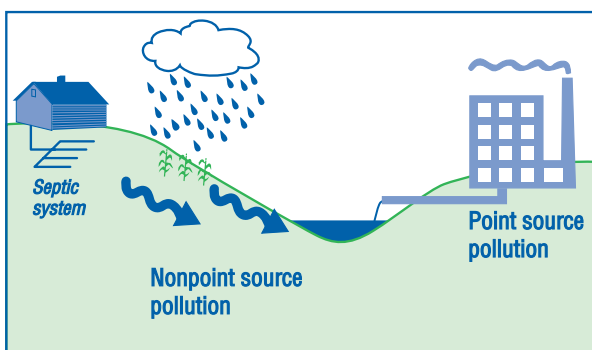


Figure 9: Point source and nonpoint source pollution.

### Potential Point Source Pollution

Because point source discharges require permits, excellent information is available about potential point sources discharging in Pike County. Twenty-five facilities are permitted to discharge wastes into Pike County’s water. The largest dischargers are Indianapolis Power and Light (Petersburg Generating Station) and Hoosier Energy Rural Electric Co-op (Frank Ratts Station). Other dischargers include Blackfoot Landfill, eleven mining sites, Pike Central Middle and High School, and municipal sewage treatment plants and water treatment plants.

### Potential Nonpoint Source Pollution

Potential nonpoint source pollution exists everywhere in the watershed, including urban and rural areas. Pollution can result from normal home and farm operations as well as accidents or spills.

### Urban and Residential Nonpoint Sources

Septic systems have the potential of leaching nutrients into the ground water, and can also contaminate surface water if the system is not functioning properly. According to the 1990 census, of the 5,487 households in Pike County, 79% use a septic system for waste disposal, while the other 21% are connected to the public sewer system. Most soils in Pike County are not suitable for septic systems. According to the Pike County Soil Survey, only 10 soil mapping units, representing about 9% of total area, are considered suitable for conventional septic system absorption fields. This means that septic systems should not be built without special measures to protect water quality in more than 91% of the county. Nevertheless there are close to 4,000 septic systems in the county, and little information is available on how well they are performing.

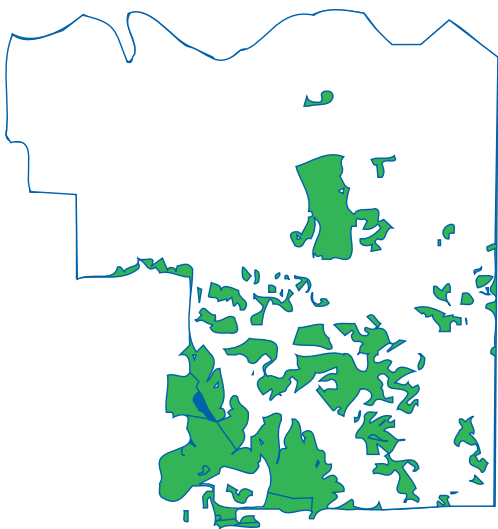


Used motor oil, antifreeze, fertilizers and pesticides, and road salt are other examples of household and municipal products that when washed off by rain water can enter the watershed as pollutants. The U.S. Environmental Protection Agency (EPA) estimates that over 200 million gallons of used motor oil are improperly disposed of by Americans each year, polluting our waters and soil. No figures are available on urban lawn chemicals and runoff, which may be significant sources of pollution from residential areas.



### **Mining Nonpoint Sources**

More than 20,000 acres in Pike County were surface-mined and left abandoned and unreclaimed between the 1920s and the 1970s. Acid mine drainage from surface coal mining is responsible for the eradication of fish in long stretches of the Patoka River, the entire 17-mile length of the South Fork tributary, and many wetland areas. Current surface mining requires reclamation. Surface mining areas are shown in Figure 10.



**Figure 10: Surface mining areas in Pike County.**

Abandoned oil and gas wells also present a potential direct source of pollutants to ground water. In the process of extraction, oil-related problems such as salt water and oil spills have impaired water and soil quality. The Southwest Indiana Brine Coalition (789-1066) helps landowners with brine damage from old wells by testing soil salinity and suggesting remediation actions for contaminated soil. There are 4,026 oil and gas wells (including abandoned and open wells) in Pike County.

### **Agricultural Nonpoint Sources**

Agriculture can also contribute to nonpoint source pollution. Sediment, nutrients, and pesticides can be transported by water from cropped fields and land where manure is applied. Roughly 76,559 acres or 36% of Pike County is used for planting crops. About 51% of cropped fields were in corn in 1994, while approximately 43% of fields were cropped with soybeans, and the remainder with mainly small grains.

More than 5,000 tons of fertilizer were sold in Pike County in 1996. Manure from livestock may also contribute nutrients to ground and surface water. Livestock in 1994 included more than 3,900 cattle and 14,400 hogs. Pike County is located downstream from Dubois County, one of the largest livestock-producing counties in the State. Large livestock facilities are permitted by the Indiana

Department of Environmental Management, which requires certain measures to protect water quality. More information is available from IDEM (See Sources of Information).

No statistics are available for pesticide use or runoff in Pike County. Indiana Agricultural Statistics tracks pesticide use statewide and this information could be assumed to represent Pike County. In Indiana the most widely used pesticides are the herbicides atrazine, alachlor, and metolachlor. Large-scale studies carried out in Indiana and elsewhere have shown that typically about 1% of applied pesticides end up in lakes or rivers.

Many farmers are changing their practices to protect water resources. Erosion and chemical runoff from fields can often be reduced by using conservation tillage, defined as any tillage or planting system that covers 30 percent or more of the soil surface with crop residue. Conservation tillage was used on 57% of the cropland of Pike County in 1995. Many farmers test their soils to ensure that crops only receive the amount of fertilizer that is needed, and some have installed grass waterways and buffer strips to protect water quality and provide habitat for wildlife.

## **Protecting the Water**

There are many things you can do to protect surface and ground water quality.

### **1. Be Informed**

This publication gives you a start in becoming familiar with water issues that affect Pike County. You can obtain further information such as the Water Quality series of publications from the Pike County Cooperative Extension Office at 354-6838. Pike County Soil and Water Conservation District, Natural Resources Conservation Service, and Indiana Department of Natural Resources - Soil Conservation can provide information and technical assistance to any Pike County resident (354-6120). Pike County Solid Waste District (354-2924) provides information on disposing of household wastes. Many web sites listed in the "Sources of Information" section can provide additional information.

## 2. Be Responsible



You can take actions in your own home and yard to protect water quality. For example, keep litter, pet waste, leaves, and grass clippings out of gutters and storm drains. Never dispose of any household, automotive, or gardening wastes in a storm drain or on the ground. Keep your septic system in good working order by having it inspected and pumped regularly. In your yard, determine whether additional nutrients are needed before you apply fertilizers. If you own or manage stream-side land, protect the stream banks by planting buffer strips of native vegetation.

Always follow directions on labels for use and disposal of household chemicals. The Pike County Solid Waste Management District provides citizens with safe disposal alternatives for residential hazardous wastes. Used motor oil, oil filters, antifreeze and household batteries are accepted for free from residents at all six

Pike County Recycling Sites. The District also offers free collection of paints, solvents, pesticides and chemicals, fluorescent bulbs, vehicle batteries, mercury and a variety of other materials at the Petersburg recycling Site on the second Saturday of each month from 9 am to 1 pm. For further information, contact the Pike County Solid Waste Management District at 354-2924.

## 3. Be Involved

As a citizen, one of the most important things you can do is find out how your community protects water quality, and speak out if you see problems. Opportunities for citizen involvement in protecting water quality in Pike County exist through the local Wellhead Protection Programs and the Patoka South Fork Watershed Steering Committee. For more information about wellhead protection in Petersburg contact the Petersburg Water Corporation at 354-8707. The goal of the Patoka South Fork Watershed Steering Committee is the improvement of the environment and the water quality of the Patoka South Fork Watershed, one of the most heavily impacted watersheds in Indiana. For more information contact the Patoka South Fort Watershed Steering Committee at 3728 E. State Rd. 64, Winslow IN 47598, Email: [psfws@sigecom.net](mailto:psfws@sigecom.net).

Pike County's water resources are plentiful, of generally good quality, and are critical for health and prosperity. Everyone's help is needed to protect these vital water resources.

## Contributors and Reviewers

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**Bruce Heeke**, *Patoka Lake Regional Water and Sewer District*  
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**Ernie Hume**, *Pike County Emergency Management*  
**Heidi Reller**, *Pike County Soil and Water Conservation District*  
**Jerry Tislow**, *Holland Water Department*  
**Jim Shultz**, *Pike-Gibson Water Corporation*  
**Ron Wilson**, *Hoosier Energy Corporation*  
**Mike Owen**, *Solar Sources*

## Sources of Information

### Pike County Offices

- Purdue Extension (812) 354-6838
- Farm Service Center (NRCS, SWCD, IDNR): (812) 354-6120
- Solid Waste Management District: (812) 354-2924
- Emergency Management: (812) 354-6776

### Introduction

- *Area:* Pike County land area report from the U.S. Census at <http://govinfo.library.orst.edu>
- *Elevation:* [Soil Survey of Pike County, Indiana](#). USDA Soil Conservation Service, 1987.
- *Population:* Pike County summary report from the U.S. Census at <http://govinfo.kerr.orst.edu/usaco-stateis.html>
- *Temperatures:* <http://shadow.agry.purdue.edu>

### Pike County Streams and Watersheds

- Gauging stations and discharge: Water Resources Data - Indiana, Water Year 1994. U.S. Geological Survey Water - Data Report IN-94-1 and the Indiana Water Data Web site at <http://waterdata.usgs.gov/nwis-w/IN/>
- Floodplains: The Indiana Water Resource: Availability, Uses, and Needs. Governor's Water Resource Study Commission, State of Indiana, G.D. Clark, Editor, 1980.
- Soil Survey of Pike County, Indiana. USDA Soil Conservation Service, 1987.

### Pike County Lakes and Wetlands

- The Indiana Water Resource: Availability, Uses, and Needs. Governor's Water Resource Study Commission, State of Indiana, 1980.
- Clean Lakes Report, Indiana Department of Environmental Management.
- Patoka River National Wildlife Refuge and Management Area Web site at <http://www.fws.gov/r3pao/patoka>.
- Indiana 305(b) Report, Indiana Department of Environmental Management, Office of Water Management. 1994-1995.

### Precipitation

- Amount of Precipitation: Soil Survey of Pike County.
- Storm Information: Rainfall Frequency for Indiana. Department of Natural Resources, Division of Water. Sept. 1994.

### Pike County Water Use

- 1995 data from U.S. Geological Survey Water web page at: <http://water.usgs.gov/public/watuse>

### Pike County Drinking Water

- U.S. Geological Survey Water Use web page
- IDEM Office of Water Management, Drinking Water Branch
- Petersburg Water Corporation and Wellhead Protection Committee

### Pike County Water Quality

- Indiana 305(b) Report, Indiana Department of Environmental Management, Office of Water Management. 1994-1995.
- 1999 Indiana Fish Consumption Advisory. Indiana State Department of Health, Environmental Epidemiology Section. Obtain a copy at (317) 233-7808 or at <http://www.state.in.us/doh/html/fish/fishtoc.html>.
- 303(d) list of impaired waters, Indiana Department of Environmental Management. <http://www.state.in.us/idem/owm/planbr/wqs/303d.html>

### Potential Sources of Pollution in Pike County

- Point Source Pollution: "Envirofacts" Permit Compliance System of the U.S. Environmental Protection Agency at: [http://www.epa.gov/enviro/html/pcs/pcs\\_query\\_java.html](http://www.epa.gov/enviro/html/pcs/pcs_query_java.html) and toxic release information at: <http://www.epa.gov/enviro/html/tris/>
- Septic Systems: The U.S. Housing Census at site <http://sasquatch.kerr.orst.edu/stateis.html>
- Crops and Tillage: Crop Residue Management Survey results from Conservation Technology Information Center at <http://www.ctic.purdue.edu/CRM/CRMOptions.html>
- Fertilizer: Indiana Fertilizer Tonnage Report. Office of Indiana State Chemist, Purdue University, 1996.
- Livestock: Agricultural Census at <http://govinfo.kerr.orst.edu/ag-stateis.html>
- Mining: "Patoka South Fork Watershed Steering Committee" brochure

### Other Sources of information

EPA Safe Drinking Water Hotline (800) 426-4791

• IDEM Environmental Helpline (800) 451-6027

The wellhead protection map (Figure 7) was provided by Mike Owen of Solar Sources. The map of water supply areas (Figure 8) was developed by Chuck Froehle, Natural Resources Conservation Service. The map of surface mining areas (Figure 10) was provided by Tom Mosley of the Patoka South Fork Watershed Steering Committee. The photo on p. 10 was provided by Susan Haislip of the Pike County Solid Waste Management District.

Rachel Arst and Anne Marie Smrchek of Purdue University assisted with research and graphics.



Purdue Extension  
Pike County

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