

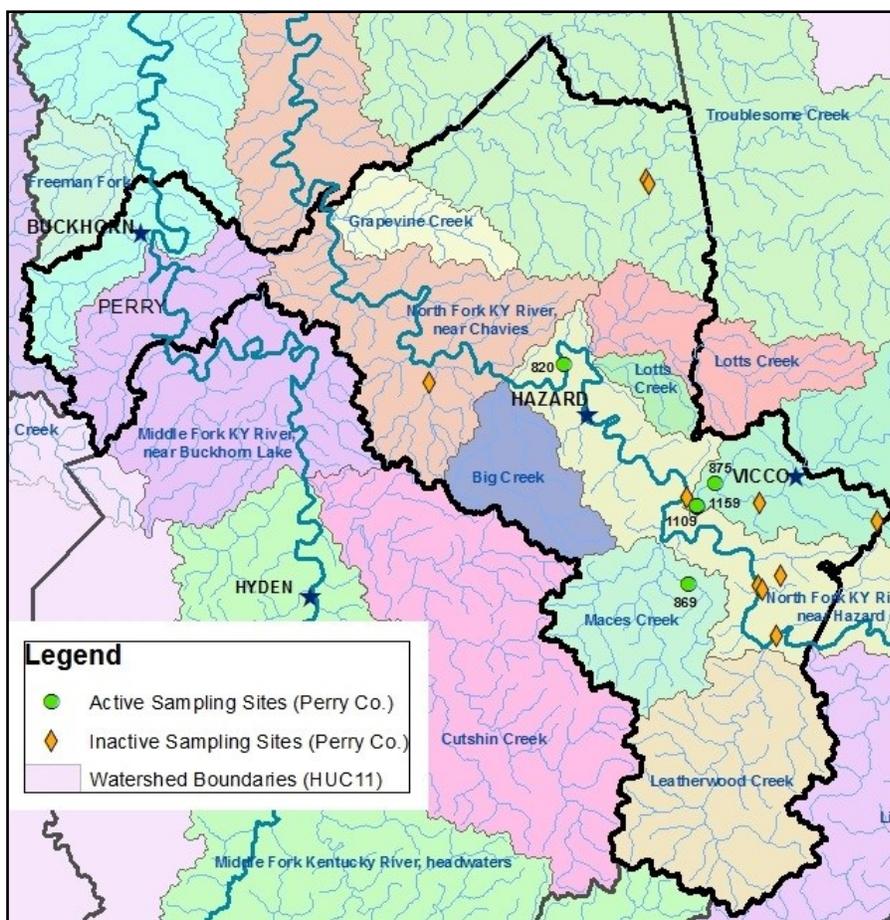


# Watershed Watch in Perry County

Prepared by Kentucky River Watershed Watch, May 2016

## Volunteer Monitoring of Streams

Since 1999, Kentucky River Watershed Watch volunteers have been sampling Perry County streams and rivers, in order to learn more about water quality in the area. There are currently 5 active sampling sites in Perry County, 3 of which were sampled in the past year (2015). These 5 active sites are located on Maces Creek (869), Carr Fork (1109, 1159), Right Fork Carr Creek (875) and the North Fork of the Kentucky River (820).



## What is Watershed Watch?

Kentucky River Watershed Watch is part of a statewide organization, Watershed Watch in Kentucky. The goal of the organization is to coordinate a citizen monitoring effort to improve and protect water quality by raising community awareness and supporting implementation of the goals of the Clean Water Act. The organization hopes to encourage people to venture out into the Kentucky River Basin to see, first-hand, the condition of their local streams and rivers.

More information about Kentucky River Watershed Watch is available at [www.krwww.org](http://www.krwww.org).

*This report provides general water quality observations and is a working document, open for discussion and further interpretation. This is not a legal document.*

## Results of Perry County Sampling Efforts

From 1999 to 2015, samplers have tested for various indicators to determine the quality of the water in Perry County streams. These results have allowed assessments of pesticides, pathogens, nutrients, metals and aquatic chemistry in the water. In the Kentucky River Basin, we frequently see concerns with pathogens, nitrogen and phosphorus, and conductivity. These water quality indicators are explained below, along with average results found at the Perry County sites.

**Nitrogen and phosphorus** are major nutrients used by plants. However, when they are overly abundant, they can lead to increased algae growth. As the algae dies off, crucial oxygen supplies are consumed, making it difficult for fish and other aquatic animals to survive. Possible sources of nitrogen and phosphorus in streams include sewage, feed lot runoff, animal wastes (manure), runoff from fertilized agricultural fields and lawns, and discharges from car exhausts.

**The recommended nitrogen limit for healthy aquatic life is 3.0 mg/L. The recommended phosphorus limit for aquatic life is 0.3 mg/L.**

**Pathogens** levels are measured by testing for an indicator bacterium, E. coli. E. coli is commonly found in the intestines of humans and animals. The presence of this bacterium indicates fecal contamination and the potential for waterborne disease. Sources may include failing septic systems, leaking sewer lines, livestock manure, and pet and wildlife wastes.

High pathogen levels can cause excessive nutrients in the stream and human health issues.

**The regulated limit of E. coli levels for safe swimming and wading is 240 cfu/100m.**

**Conductivity** is a water quality measurement that helps assess the amount of dissolved material in water, as shown by it's ability to carry an electrical current. High conductivity values can indicate problematic levels of a variety of pollutants from a variety of sources, including sewage, oil and gas wells and mining. High conductivity levels can make it very difficult for aquatic plants and animals to survive, and can affect the suitability of water for industrial, agricultural and domestic uses. **Conductivity levels between 300 and 800 have been shown to have negative impacts, but there is no official water quality standard for the state of Kentucky.**

### Summary of Perry County KRWV Sampling Results for Nutrients & Pathogens

Sample size in parentheses next to result.

Site ID#	Stream Name	Nitrogen (Avg mg/L)	Phosphorus (Avg mg/L)	E coli (Geometric mean of cfu/100 ml)	Conductivity (Average uS/cm)
<b>Water Quality Benchmarks:</b>		<b>3.0 for Aquatic Life Protection</b>	<b>0.3 for Aquatic Life Protection</b>	<b>240 for Safe Swimming</b>	<b>500 for Aquatic Life Protection</b>
<i>North Fork Kentucky River near Hazard</i>					
819	Kentucky River	0.24 (4)	0.07 (7)	291 (4)	914 (7)
820	North Fork Ky River	0.57 (8)	0.64 (12)	995 (12)	811 (11)
821	Lotts Creek	0.13 (3)	0.044 (5)	344 (1)	1,541 (6)
<i>Maces Creek Watershed</i>					
869	Maces Creek	0.44 (4)	0.034 (5)	322 (5)	960 (5)
<i>Carr Creek Watershed</i>					
875	Right Fk Carr Creek	0.49 (8)	0.06 (9)	814 (14)	890 (11)
1109	Carr Fork	0.43 (2)	0.03 (2)	226 (1)	850 (2)
1158	Carr Fork	0.17 (3)	0.04 (3)	346 (2)	830 (3)
1159	Carr Fork	0.28 (4)	0.035 (4)	142 (3)	789 (5)
1330	Right Fk Carr Creek			1732 (1)	
<i>Troublesome Creek Watershed</i>					
876	North Fork Troublesome Creek	0.47 (1)	0.02 (1)	316 (2)	1584 (1)

Water Quality Ratings:

Good

Fair

Poor

## **PATHOGENS**

### **Possible Actions to Reduce Pathogen Levels:**

- Conduct outreach/education campaign about proper septic (onsite sewage) system care.
- Check for municipal sewer system leaks and repair where possible.
- Reduce livestock access to waterways.
- Eliminate straight piping of sewage to waterways.
- Encourage residents to pick up pet waste.

## **CONDUCTIVITY**

Because conductivity is a general measurement of the presence of dissolved materials in the water, it is not specific enough to determine appropriate management practices for addressing high readings. Instead, it is recommended that more thorough, focused sampling be conducted to check for possible pollutants associated with land uses in the area. Examples of what might be causing high conductivity levels include:

- Bacteria (E. coli) from animal waste
- Metals from bedrock or mining activities
- Salts from oil or gas drilling wastewater
- Nitrogen and phosphorus from fertilizer runoff

Waterways will have a normal, background conductivity level, so it is also important to check for fluctuations or spikes in conductivity and try to identify what could have caused them.

## **GENERAL**

### **Next Steps and/or Recommendations for Improving Water Quality:**

- Focused Sampling Effort to sample water quality at additional sites in areas of high readings.
- Present results to local officials and community groups.
- Submit article or findings to local paper or radio station.
- Discuss any concerns with relevant local agencies, such as health department, sewer agency, or Natural Resources Conservation Service (NRCS). See next page for agency contacts.

**Contact Kentucky River Watershed Watch  
for more information.**

[www.krww.org](http://www.krww.org)

Phone: 800-928-0045



## **Helpful Contacts in Perry County:**

### **Conservation District Office** (agricultural assistance)

**310 Morton Boulevard, Hazard, KY 41702**

**Phone/E-mail:** (606)435-1725 or Jeff Chandler at [jeff.chandler@ky.gov](mailto:jeff.chandler@ky.gov)

Each county in Kentucky is represented by a local conservation district, consisting of seven elected supervisors. These conservation districts assist the landowners in each county with creating and implementing practices to protect the soil and water quality. The conservation districts help conserve Kentucky's resources by helping local people match their needs with technical and financial resources.

### **Kentucky River District Health Department** (septic system assistance)

**441 Gorman Hollow Road, Hazard, KY 41701**

**Phone/E-mail:** (606)439-2361 or Jeffrey Cornett at [JeffreyD.Cornett@ky.gov](mailto:JeffreyD.Cornett@ky.gov)

Each county has a health department with a dedicated "Environmentalist" staff member to oversee septic system permitting and installation, as well as follow up on citizen complaints related to septic system issues. These individuals are also knowledgeable about septic system function and maintenance and can help ensure that a system is working properly.

### **Eastern Kentucky PRIDE**

**Contact:** Brandy Boggs, Perry County/City of Hazard PRIDE Coordinator, (606)439-0149

The PRIDE initiative promotes Personal Responsibility In a Desirable Environment in 42 counties in Southern and Eastern Kentucky. Eastern Kentucky PRIDE's mission is to contribute to the economic and cultural growth of southern and eastern Kentucky by improving water quality, cleaning up solid waste problems, and advancing environmental education, in order to improve living conditions for its residents while enhancing the potential for tourism industry growth in the region.

### **Kentucky Division of Water**

**Website:** [www.water.ky.gov](http://www.water.ky.gov)

For environmental emergencies such as spills of gas, oil or other substances, contact the **Environmental Response Team** at 502-564-2380 or 1-800-928-2380. You may also contact the **Division of Water** (DOW) at 502-564-3410, or the **Frankfort Regional Office** at 502-564-3358, and inform the operator that you wish to report a concern or complaint. Please be prepared to explain the nature of the problem and give the location of the problem, including directions to the site. You do not have to give your name; however, if you wish DOW to either contact you during the investigation or provide you with the results of the investigation, you must leave your name and contact information.

The Division of Water's **Water Health Portal** ([watermaps.ky.gov/WaterHealthPortal](http://watermaps.ky.gov/WaterHealthPortal)) is a helpful online resource for learning more about the water quality status of local waterways and learning more about what is being done to protect Kentucky's waters.