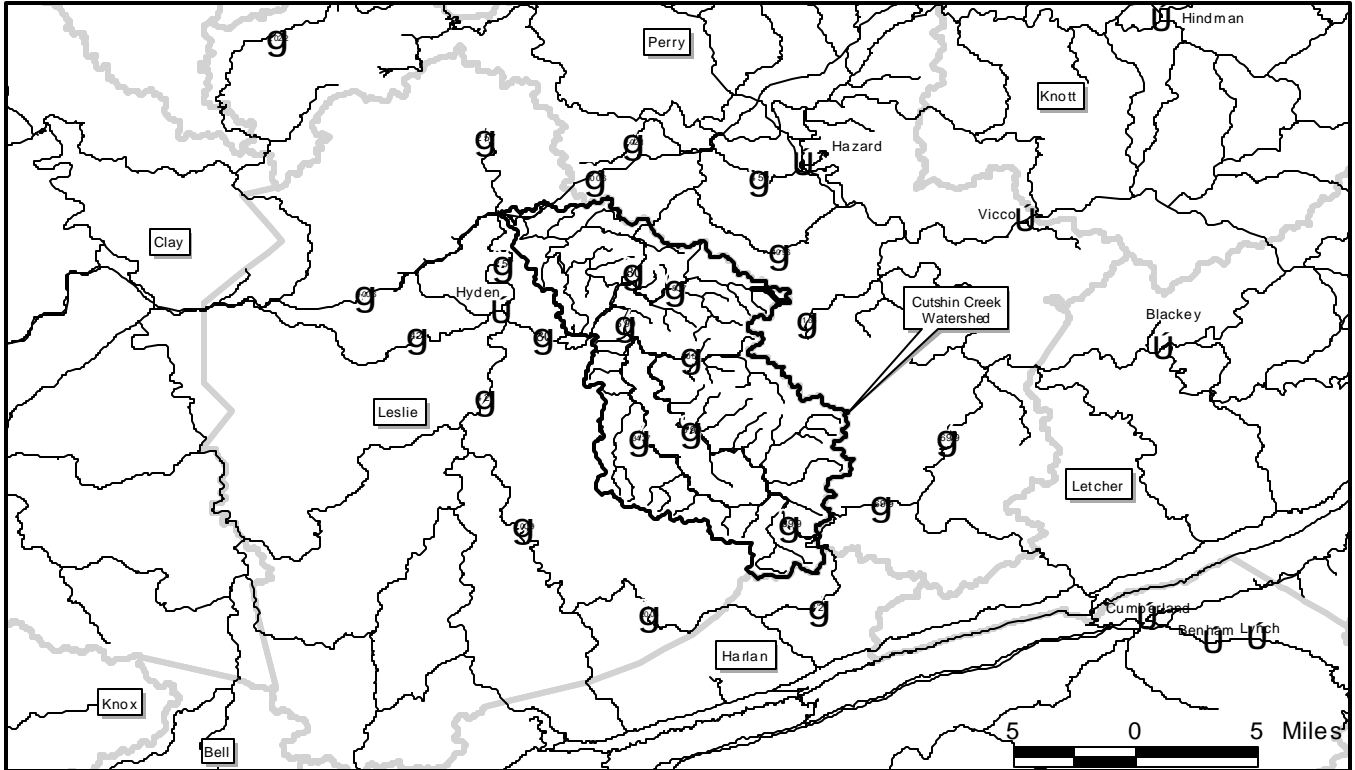


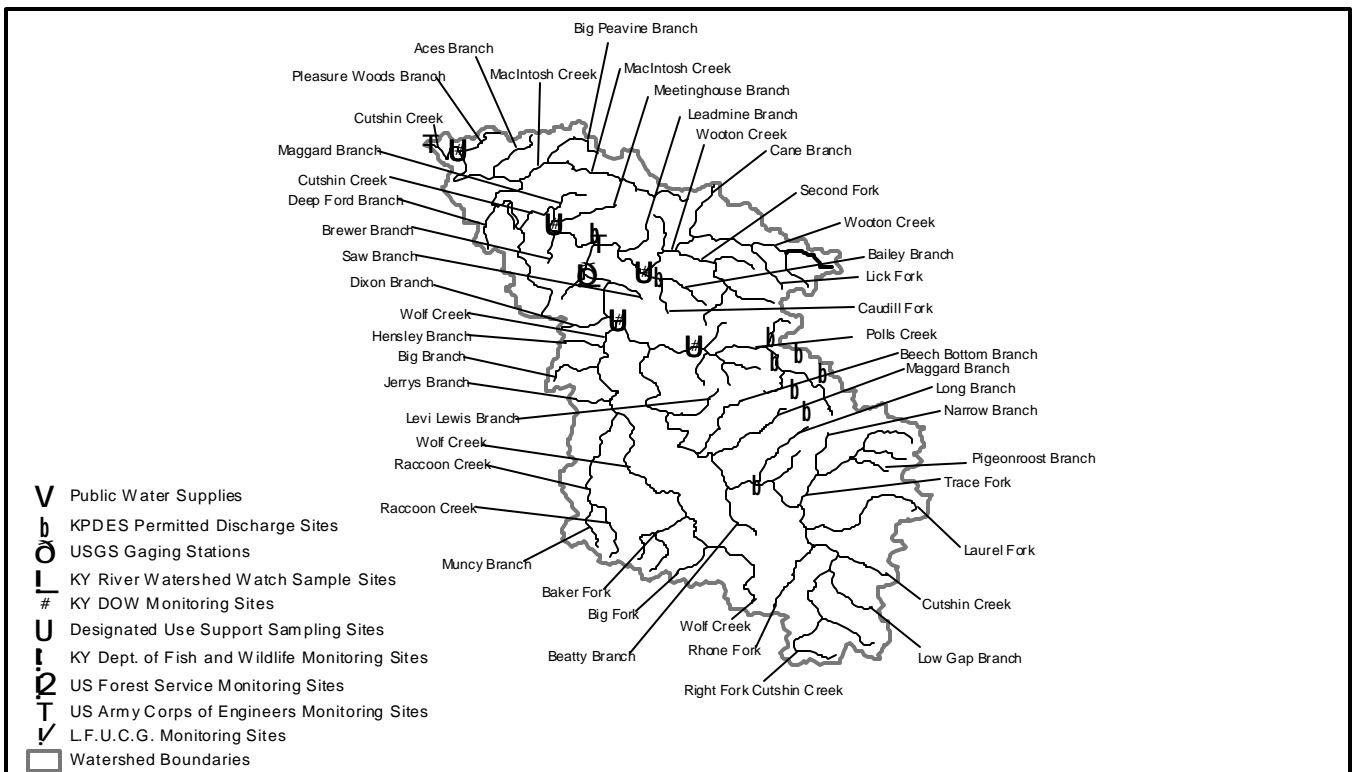
# Cutshin Creek Watershed

## Watershed Number: 05100202020

### Location Map



### Watershed Features



**Geography.** The Cutshin Creek watershed covers eastern Leslie County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of groundwater drainage. The watershed is underlain by coals, sandstones, and shales: this geology is generally conducive to productive wells, although water quality may be low for wells that draw from coal layers.

**Waterways.** Cutshin Creek empties into the Middle Fork Kentucky River at Dryhill (near the Boone Parkway). Among the creeks that feed it are Polls Creek, Wolf Creek, Raccoon Creek, Wooton Creek, and MacIntosh Creek.

**Land and water use.** Land in the watershed is rural and wooded. Ten businesses and organizations hold permits for discharges into the creeks. See tables for details.

**Agency data assessment.** The assessed creek segments in this watershed include one (Wooton Creek) that only partially supports its designated uses, based on biological and/or water-quality data. One (Polls Creek) is categorized as threatened. See tables for details.

**Watershed rankings.** The ranking formula provides a preliminary ranking by synthesizing a broad spectrum of watershed characteristics, current conditions, and threats. This watershed ranks in the group with the highest need for protection and/or restoration. This rating is for the watershed on average: particular sites and particular waters within the watershed may vary widely. See tables for details.

**Volunteer data.** Data for Cutshin Creek show high levels of bacteria indicative of fecal contamination (above 200 colonies/ml). Cutshin Creek also exhibited elevated levels of several metals: antimony, chromium, and selenium. See tables for details.

This report was prepared by the Kentucky Water Research Institute as a product of the statewide Kentucky Watershed Management process. Information presented in this report was collected from many sources. Reasonable attempts were made to ensure that information and figures are as accurate as possible, but no representation or guarantee is made as to either the correctness or suitability of information for particular purposes. All critical information should be independently verified. Please address questions or corrections to Basin Coordinator, KWRI, Rm. 233 Mining and Minerals Resources Building, University of Kentucky, Lexington, Kentucky 40506-0107.

**Summary of Basin Characteristics and Facilities**

**General Land-use Characteristics:**

<i>Total Land Area (Acres):</i>	<input type="text" value="59,059"/>	<i>Acres</i>	<i>% of Total</i>		
<i>Residential Area:</i>	<input type="text" value="0"/>		<input type="text" value="0.0"/>	<i>Number of Mine Permits:</i>	<input type="text" value="66"/>
<i>Commercial Area:</i>	<input type="text" value="0"/>		<input type="text" value="0.0"/>	<i>Total Permitted Mining Area (Acres):</i>	<input type="text" value="1,872"/>
<i>Industrial Area:</i>	<input type="text" value="0"/>		<input type="text" value="0.0"/>	<i>Number of Identified Wetland Areas:</i>	<input type="text" value="0"/>
<i>Agricultural Area:</i>	<input type="text" value="0"/>		<input type="text" value="0.0"/>	<i>Total Wetland Area (Acres):</i>	<input type="text" value="0"/>
<i>Rural and Wooded Area:</i>	<input type="text" value="57,002"/>		<input type="text" value="96.7"/>		
<i>Other Land-use Area:</i>	<input type="text" value="1,937"/>		<input type="text" value="3.3"/>		

**Withdrawal and Discharge Sites:**

<i>Number of Public Water Supplies and Water Withdrawal Sites:</i>	<input type="text" value="0"/>	<i>Number of KPDES Discharge Permits:</i>	<input type="text" value="10"/>
<i>Surface Water Withdrawals:</i>	<input type="text" value="0"/>		
<i>Groundwater Withdrawals:</i>	<input type="text" value="0"/>		
<i>No. of Potable Water Treatment Facilities:</i>	<input type="text" value="0"/>		

**Sampling Site Statistics:**

<i>Number of USGS Gaging Stations:</i>	<input type="text" value="1"/>
<i>Number of Kentucky Division of Water Sampling Sites:</i>	<input type="text" value="5"/>
<i>Number of Kentucky Dept. of Fish and Wildlife Sampling Sites:</i>	<input type="text" value="0"/>
<i>Number of US Forest Service Sampling Sites:</i>	<input type="text" value="0"/>
<i>Number of US Army Corps of Engineers Sampling Sites:</i>	<input type="text" value="2"/>
<i>Number of Kentucky River Watershed Watch Sampling Sites:</i>	<input type="text" value="1"/>
<i>Number of Lexington-Fayette Urban Co. Gov. Sampling Sites:</i>	<input type="text" value="0"/>

Watershed Name:

Cutshin Creek

11-Digit Watershed Identity Number:

05100202020

**Watershed Indicators and Ranking Categories:**

Overall Watershed Ranking:

Protection Ranking

Observed Impacts

Potential Impacts

Restoration Ranking

High

Medium

High

High

High

**Protection Categories:**

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Wetland Areas	0	Acres	0 - 106	12
Surface Drinking Water Sources	0	No. of sources	0 - 14	2
Ground Drinking Water Sources	0	No. of sources	0 - 17	1
Groundwater Sensitivity	3.00	Score	2 - 5	3.21
KY Dept. of Fish and Wildlife Management Areas	490	Acres	0 - 2951	93
U.S. Forest Service Management Areas	58,941	Acres	0 - 155253	12,600
Kentucky State Park Areas	0	Acres	0 - 1928	42
Nature Preserves Commission Areas	0	Acres	0 - 1430	32
Nature Conservancy Areas	0	Acres	0 - 2473	28
Reference Reach Watersheds	0.00	Score	0 - 100	3.08
Outstanding Resource Watersheds	0.00	Score	0 - 0	0.00
Recognized Stream Resources	0	No. of resources	0 - 8	1
Kentucky Rivers Assessment Scores	0.32	Score	0 - 11	1.80

**Observed Impact Categories:**

*Human Health Impact Categories:*

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Flood Declarations	9	Number since 1970	0 - 10	4
Water Supply Inadequacy	0.00	Score	0 - 2	0.22
Observed Impacts to Surface Drinking Water	1.00	Score	1 - 1	1.00
Observed Impacts to Fish Consumption	1.00	Score	1 - 1	1.00
Observed Impacts to Primary Water Contact	1.00	Score	1 - 3	1.33
Contamination Sites Impacting Human Health	0	Number of sites	0 - 71	4

*Ecological Health Impact Categories:*

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Observed Impacts to Aquatic Life	1.21	Score	1 - 3	1.31
Contamination Sites Impacting Ecological Health	0	Number of sites	0 - 71	4

**Potential Impact Categories:**

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Potential Contamination Sites	6	Number of sites	1 - 121	12
Potential Pesticide Loading	0	Est. sales in tons	0 - 45	10
Potential Fertilizer Loading	3	Est. tons applied	0 - 2747	394
Agricultural Erosion Potential	9.79	Est. tons erosion / acre	0 - 9	3.20
Livestock Operations Potential Impact	258	Animal units	55 - 43826	7,021
KPDES Discharge Violations	0	Number of violations	0 - 541	39
KY Division of Water Citizen Complaints	7	Number of complaints	0 - 53	9
Toxic Release Inventory	0	Score	0 - 11547626	231,638
Population Change Projection	14	Number of persons	-149 - 11030	448
Population Not on Public Sewer Systems	1,430	Number of persons	12 - 4511	1,114
Mining Area	1,872	Acres	0 - 6305	355
Surface Water Runoff Potential	60.47	SCS Curve Number	60 - 79	68
KPDES Permitted Discharges	10	Number of sites	0 - 56	6

Watershed Name: Cutshin Creek

11-Digit Watershed Identity Number: 05100202020

### Stream and Waterbody Use Support Summary

<b>Total Stream Miles:</b> <input type="text" value="138.45"/>	<i>Number of Segments</i>	<i>Stream Miles Assessed</i>	<i>Miles * Fully Supportina</i>	<i>Miles * Partially Supportina</i>	<i>Miles * Not Supportina</i>	<i>Miles * Threatened</i>
<b>Segments Assessed:</b>	4	19.2	11.5	3.0	0.0	4.7
<b>Designated Uses</b>						
<b>Aquatic Life:</b>	4	19.2	11.5	3.0	0.0	4.7
<b>Primary Contact:</b>						
<b>Fish Consumption:</b>	2	11.5	11.5	0.0	0.0	0.0
<b>Drinking Water:</b>						

\* Blank values indicate no assessed segments for this category.

<b>Assessed Stream Segments and Waterbodies</b>					
<i>Stream or Waterbody Name *</i>	<i>Starting Milepoint</i>	<i>Ending Milepoint</i>	<i>Segment Length (miles)</i>	<i>Designated Uses *</i>	<i>Overall Level of Support</i>
Cutshin Creek	9.7	12.8	3.1	AL, FC	Fully Supporting
Cutshin Creek	1.3	9.7	8.4	AL, FC	Fully Supporting
Polls Creek	0	4.7	4.7	AL	Threatened
Wooten Creek	0	3	3	AL	Partially Supporting

\*Abbreviations: AL - Aquatic Life Support, PC - Primary Contact Recreation, SC - Secondary Contact Recreation, FC - Fish Consumption, DW - Drinking Water Supply, UT - Unnamed Tributary

<b>Causes for Nonsupport or Impairment of Designated Uses</b>					
<i>Stream or Waterbody Name *</i>	<i>Starting Milepoint</i>	<i>Ending Milepoint</i>	<i>Segment Length (miles)</i>	<i>Impaired or Threatened Designated Use</i>	<i>Level of Support</i>
Wooten Creek	0	3	3	Aquatic Life Support	Partially Supporting
<i>Possible Causes of Impairment:</i>			<i>Possible Sources For Impairment:</i>		
Cause Unknown			Source Unknown		

\*Abbreviations: UT - Unnamed Tributary

Watershed Name:                     Cutshin Creek                    

11-Digit Watershed Identity Number:                     05100202020                    

**Withdrawal Sites and Discharge Facilities:**

<i>KPDES Permitted Discharge Facilities</i>		
<i>Facility</i>	<i>Type of Facility</i>	<i>KPDES Site ID Number</i>
LESLIE CO BD OF ED	ELEMENTARY & SECONDARY SCHOOLS	KY0101575
MELTONS MHP	OPER OF RES MOBILE HOME SITES	KY0083593
SWENTON, MICHAEL J	CRUDE PETROLEUM & NATURAL GAS	KY0081302
W B MUNCY ELEM SCHOOL	ELEMENTARY & SECONDARY SCHOOLS	KY0093386

**Gaging Stations and Sampling Sites:**

<i>US Geological Survey and US Army Corps of Engineers Stream Gaging Stations</i>			
<i>Stream Location</i>	<i>Agency</i>	<i>Station ID Number</i>	<i>Sampling Parameter</i>
Cutshin Creek	USGS	USGS03280700	Flow

<i>KY Division of Water Sampling Sites</i>	
<i>Stream Name</i>	<i>Type of Sampling</i>
Cutshin Creek	Biological Monitoring
Cutshin Creek	Biological Monitoring
Wooten Creek	Biological Monitoring
Cutshin Creek	Physical/Chemical Monitoring
Polls Creek	Physical/Chemical Monitoring

<i>US Army Corps of Engineers Sampling Sites</i>		
<i>11-Digit HUC</i>	<i>HUC Name</i>	<i>Stream Segment</i>
05100202020	Cutshin Creek	Cutshin Creek
05100202020	Cutshin Creek	Wooton Creek

<i>KY River Watershed Watch Sampling Sites</i>		
<i>Stream Name</i>	<i>KRWW Sample ID No.</i>	<i>Site Description</i>
Cutshin Creek	K42	At gaging station at Wooton, KY

Watershed Name:

Cutshin Creek

11-Digit Watershed Identity Number:

05100202020

Results from 1999 KY River Watershed Watch Sampling:

Conventional Parameters:

Sample ID Number: K42 Stream: Cutshin Creek

Physical Data (May):

pH	7.6	Alkalinity	152
Temperature	0	Total Hardness	202
Dissolved Oxygen	8.8	Chlorides	20.2
		Conductivity	607
		Total Organic Carbon	2.7
		Total Suspended Solids	5

Fecal Data (July / August):

	Coliform Count	Strep Count	Coliform/Strep Ratio
July	700	1100	0.64
August	1000	360	2.8

Note: Most indicators are in milligrams per liter (mg/L) which is equivalent to parts per million (ppm). Temperature is in Celsius degrees. Alkalinity and hardness are as mg/L of calcium carbonate. Bacterial counts are in colonies per 100 milliliters. Conductivity units are micro-mhos per centimeter.

Nutrient Parameters:

Sample ID Number: K42 Stream: Cutshin Creek

Ammonia		Orthophosphate as Phosphate	0.050	Sulfate	141
Ammonia Nitrogen		Orthophosphate as Phosphorus	0.016		
Total Kjeldahl Nitrogen as NH3		Total Recoverable Phosphorus	0.07		
Total Kjeldahl Nitrogen as N					
Nitrate					
Nitrate Nitrogen					

Note: All indicators are in milligrams per liter (mg/L) which is equivalent to parts per million (ppm).

Metals and Mineral Parameters:

Sample ID Number: K42 Stream: Cutshin Creek

Aluminum	0.36	Calcium	42.07	Lead		Selenium	0.009	Thallium	
Antimony	0.08	Chromium	0.03	Lithium	0.02	Silicon	1.55	Vanadium	
Barium	0.06	Cobalt	0.002	Magnesium	21.52	Sodium	40.48	Zinc	0.009
Beryllium	0.001	Copper		Manganese	0.09	Strontium	0.44		
Boron	0.09	Iron	0.49	Potassium	4.77	Sulfur	30.68		

Note: All indicators are in milligrams per liter (mg/L) which is equivalent to parts per million (ppm).

Pesticide/Herbicide Parameters:

Sample ID No. Stream 2,4-D Chlorpyrifos Triazines

K42	Cutshin Creek			
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Note: All indicators are in micrograms per liter which is equivalent to parts per billion (ppb).