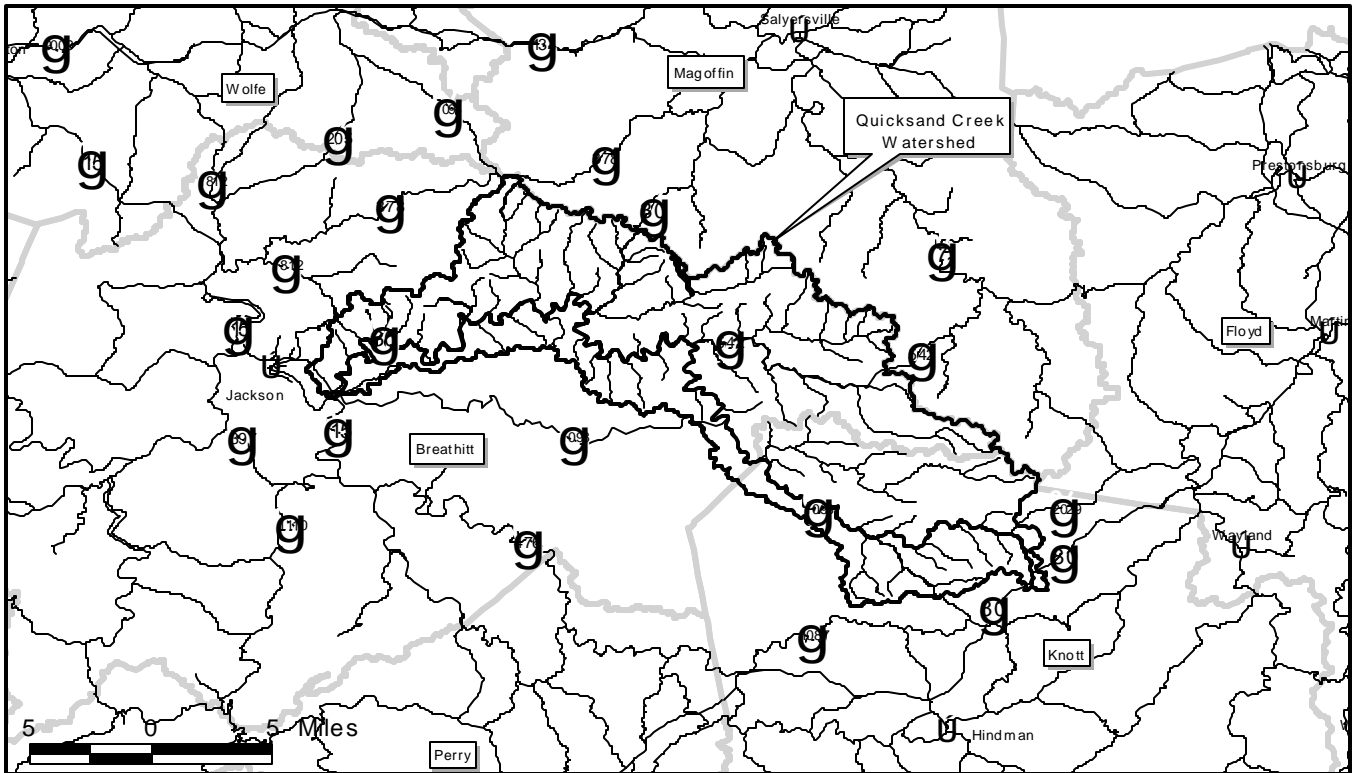


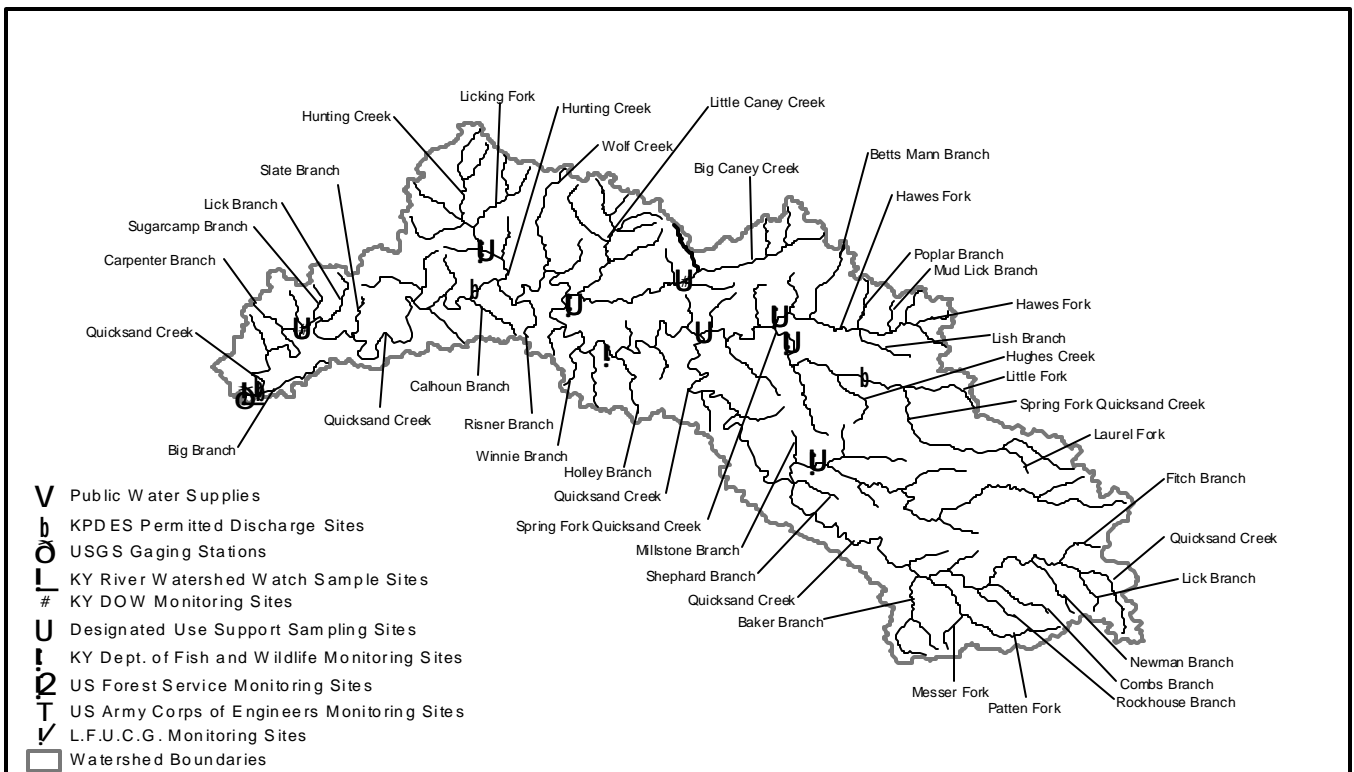
# Quicksand Creek Watershed

## Watershed Number: 05100201140

### Location Map



### Watershed Features



**Geography.** The Quicksand Creek watershed covers the northeastern part of Breathitt 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.** Quicksand Creek empties into the North Fork Kentucky River near Quicksand. Among the creeks that feed it are Big Caney Creek, Hunting Fork, Hawes Fork, Spring Fork, and Laurel Fork.

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

**Agency data assessment.** The seven assessed creek segments in this watershed include four that do not support some or all of their designated uses, based on biological and/or water-quality data. One is threatened. A variety of activities contribute to the impairment of these streams. 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 show high levels of bacteria indicative of fecal contamination in Quicksand Creek (above 200 colonies/ml). Levels of sulfate, copper, and thallium were also elevated in 1999. 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="104,548"/>	<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="70"/>
<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="1,652"/>
<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="9"/>
<i>Agricultural Area:</i>	<input type="text" value="553"/>		<input type="text" value="0.5"/>	<i>Total Wetland Area (Acres):</i>	<input type="text" value="8"/>
<i>Rural and Wooded Area:</i>	<input type="text" value="98,915"/>		<input type="text" value="94.8"/>		
<i>Other Land-use Area:</i>	<input type="text" value="4,849"/>		<input type="text" value="4.6"/>		

**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="4"/>
<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="0"/>
<i>Number of Kentucky Division of Water Sampling Sites:</i>	<input type="text" value="2"/>
<i>Number of Kentucky Dept. of Fish and Wildlife Sampling Sites:</i>	<input type="text" value="6"/>
<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="0"/>
<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 Indicators and Ranking Categories:**

Overall Watershed Ranking:

Protection Ranking

Observed Impacts

Potential Impacts

Restoration Ranking

High

Low

High

Low

High

**Protection Categories:**

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Wetland Areas	8	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	0	Acres	0 - 2951	93
U.S. Forest Service Management Areas	0	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	0.44	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	8	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	1	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	1.95	Score	1 - 3	1.31
Contamination Sites Impacting Ecological Health	1	Number of sites	0 - 71	4

**Potential Impact Categories:**

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Potential Contamination Sites	16	Number of sites	1 - 121	12
Potential Pesticide Loading	2	Est. sales in tons	0 - 45	10
Potential Fertilizer Loading	88	Est. tons applied	0 - 2747	394
Agricultural Erosion Potential	1.65	Est. tons erosion / acre	0 - 9	3.20
Livestock Operations Potential Impact	603	Animal units	55 - 43826	7,021
KPDES Discharge Violations	0	Number of violations	0 - 541	39
KY Division of Water Citizen Complaints	16	Number of complaints	0 - 53	9
Toxic Release Inventory	0	Score	0 - 11547626	231,638
Population Change Projection	-24	Number of persons	-149 - 11030	448
Population Not on Public Sewer Systems	1,143	Number of persons	12 - 4511	1,114
Mining Area	1,652	Acres	0 - 6305	355
Surface Water Runoff Potential	61.11	SCS Curve Number	60 - 79	68
KPDES Permitted Discharges	4	Number of sites	0 - 56	6

**Stream and Waterbody Use Support Summary**

<b>Total Stream Miles:</b> <div style="border: 1px solid black; padding: 2px; display: inline-block;">247.45</div>	<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>	7	48.7	21.6	0.0	19.4	7.7
<b>Designated Uses</b>						
<b>Aquatic Life:</b>	7	48.7	21.6	0.0	19.4	7.7
<b>Primary Contact:</b>						
<b>Fish Consumption:</b>						
<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>
Big Caney Creek	0.3	8	7.7	AL	Threatened
Hawes Fork	0	4.4	4.4	AL	Not Supporting
Hunting Creek	0	2.6	2.6	AL	Not Supporting
Middle Fork Quicksand Creek	0	10	10	AL	Fully Supporting
Quicksand Creek	20.8	29.4	8.6	AL	Not Supporting
Quicksand Creek	1.1	12.7	11.6	AL	Fully Supporting
Spring Fork	3.1	6.9	3.8	AL	Not 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>
Hawes Fork	0	4.4	4.4	Aquatic Life Support	Not Supporting
<b>Possible Causes of Impairment:</b>		<b>Possible Sources For Impairment:</b>			
Flow alteration, Other habitat alterations, Siltation, Turbidity		Abandoned mining, Bank or Shoreline Modification/Destabilization, Habitat Modification (other than Hydromodification), Harvesting, Restoration, Residue Management, Inactive mining, Removal of Riparian Vegetation, Resource Extraction, Silviculture, Mining			
Hunting Creek	0	2.6	2.6	Aquatic Life Support	Not Supporting
<b>Possible Causes of Impairment:</b>		<b>Possible Sources For Impairment:</b>			
Turbidity, Flow alteration, Other habitat alterations, Siltation		Abandoned mining, Bank or Shoreline Modification/Destabilization, Habitat Modification (other than Hydromodification), Harvesting, Restoration, Residue Management, Inactive mining, Removal of Riparian Vegetation, Resource Extraction, Silviculture, Mining			
Quicksand Creek	20.8	29.4	8.6	Aquatic Life Support	Not Supporting

Watershed Name: Quicksand Creek

11-Digit Watershed Identity Number: 05100201140

<i>Possible Causes of Impairment:</i> Turbidity, Siltation, Flow alteration, Other habitat alterations		<i>Possible Sources For Impairment:</i> Abandoned mining, Bank or Shoreline Modification/Destabilization, Habitat Modification (other than Hydromodification), Harvesting, Restoration, Residue Management, Inactive mining, Removal of Riparian Vegetation, Resource Extraction, Silviculture, Mining			
Spring Fork	3.1	6.9	3.8	Aquatic Life Support	Not Supporting
<i>Possible Causes of Impairment:</i> Turbidity, Siltation, Other habitat alterations, Flow alteration		<i>Possible Sources For Impairment:</i> Abandoned mining, Bank or Shoreline Modification/Destabilization, Habitat Modification (other than Hydromodification), Harvesting, Restoration, Residue Management, Inactive mining, Removal of Riparian Vegetation, Resource Extraction, Silviculture, Mining			
<i>*Abbreviations: UT - Unnamed Tributary</i>					

Watershed Name:                     Quicksand Creek                    

11-Digit Watershed Identity Number:                     05100201140                    

**Withdrawal Sites and Discharge Facilities:**

<i>KPDES Permitted Discharge Facilities</i>			<i>KPDES Site ID Number</i>
<i>Facility</i>	<i>Type of Facility</i>		
ADDINGTON ENT SKYLINE COAL PRE	BITUMINOUS COAL & LIG, SURFACE		KY0063347
BREATHITT CO BD OF ED	ELEMENTARY & SECONDARY SCHOOLS		KY0100722
KTC BREATHITT CO MAINT LOT	BUS TERMINAL & SERVICE FACILIT		KYG500006

**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>
Quicksand Creek	USGS	USGS03279700	Flow

<i>KY Division of Water Sampling Sites</i>	
<i>Stream Name</i>	<i>Type of Sampling</i>
Big Caney Creek	Physical/Chemical Monitoring
Quicksand Creek	Physical/Chemical Monitoring

<i>KY Dept of Fish and Wildlife Sampling / Assessment Sites</i>					
<i>Stream Segment</i>	<i>Upstream Description</i>	<i>Downstream Description</i>	<i>Total Length of Segment</i>	<i>Upstream Mile Point</i>	<i>Downstream Mile Point</i>
Quicksand Creek 3 - Hunting Creek	Fletcher Fork	Mouth	6.2	2.6	0
Quicksand Creek 5	Spring Fork	Big Caney Creek	38.1	29.4	20.8
Quicksand Creek 7 - Big Caney	Ball Jim Branch	Mouth	8	6.4	0
Quicksand Creek 8 - Hawes Fork	Upstream Tributary of Hawes Fork	Mouth	4.7	4.4	0
Quicksand Creek 9 - Spring Fork	Oliver Branch	Hawes Fork	15.1	6.9	3.1
Quicksand Creek 10 - Middle Fork Quicksand	Big Fire Coal Branch	Mouth	12.6	10	0

<i>KY River Watershed Watch Sampling Sites</i>		
<i>Stream Name</i>	<i>KRWW Sample ID No.</i>	<i>Site Description</i>
Quicksand Creek	K90	Off bridge on Hwy 15 next to junction with Hwy 30

**Results from 1999 KY River Watershed Watch Sampling:**

**Conventional Parameters:**

Sample ID Number: K90 Stream: Quicksand Creek

Physical Data (May):	
pH	0
Temperature	0
Dissolved Oxygen	0
Alkalinity	209
Total Hardness	466
Chlorides	5.8
Conductivity	864
Total Organic Carbon	3.6
Total Suspended Solids	

Fecal Data (July / August):		
Coliform Count	Strep Count	Coliform/Strep Ratio
July	360	2600
August	500	5000
		0.14
		0.1

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: K90 Stream: Quicksand Creek

Ammonia	0.02	Orthophosphate as Phosphate	0.021	Sulfate	276
Ammonia Nitrogen	0.02	Orthophosphate as Phosphorus	0.007		
Total Kjeldahl Nitrogen as NH3		Total Recoverable Phosphorus			
Total Kjeldahl Nitrogen as N					
Nitrate	0.1				
Nitrate Nitrogen	0.02				

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: K90 Stream: Quicksand Creek

Aluminum	0.30	Calcium	58.29	Lead		Selenium		Thallium	0.06
Antimony		Chromium		Lithium	0.008	Silicon	1.15	Vanadium	
Barium	0.06	Cobalt	0.002	Magnesium	75.85	Sodium	10.10	Zinc	0.004
Beryllium		Copper	0.01	Manganese	0.07	Strontium	0.41		
Boron	0.07	Iron	0.27	Potassium	8.73	Sulfur	68.08		

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

K90	Quicksand Creek			
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Note: All indicators are in micrograms per liter which is equivalent to parts per billion (ppb).