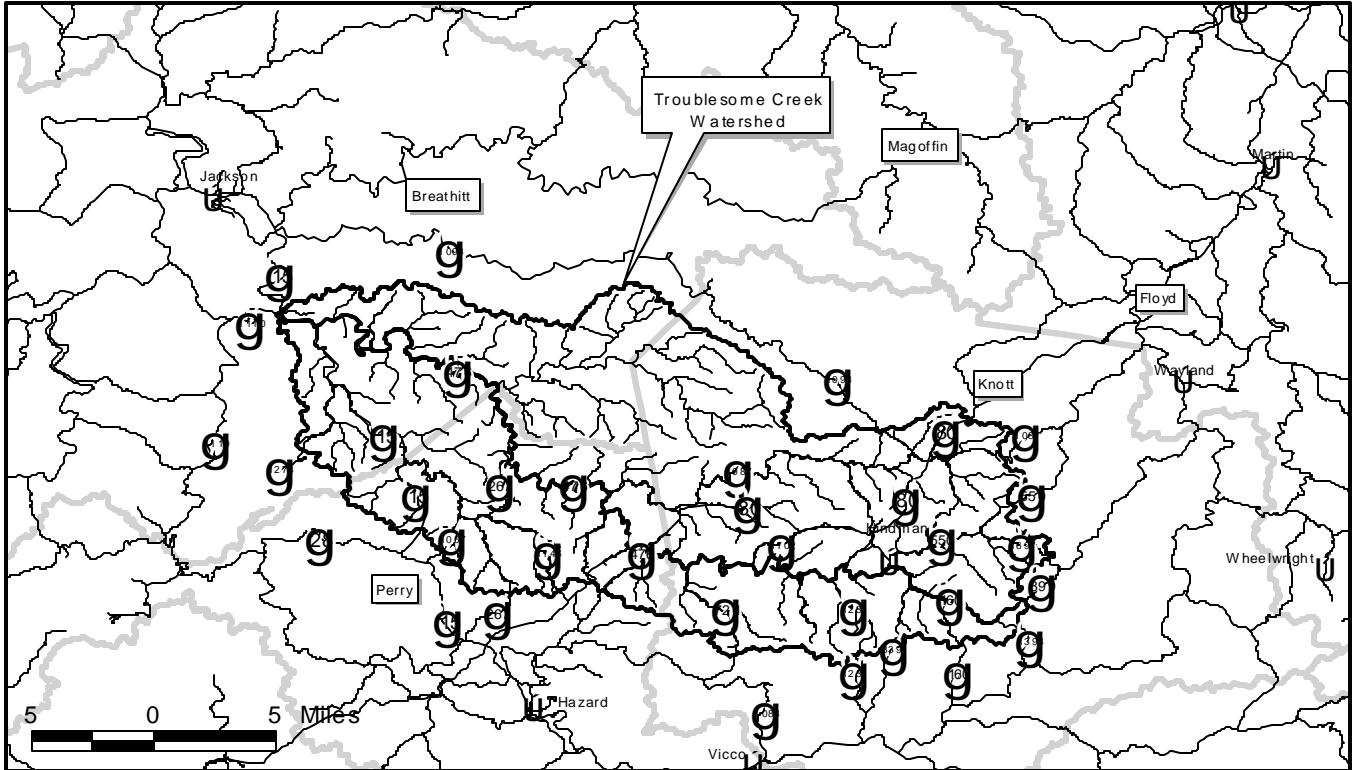


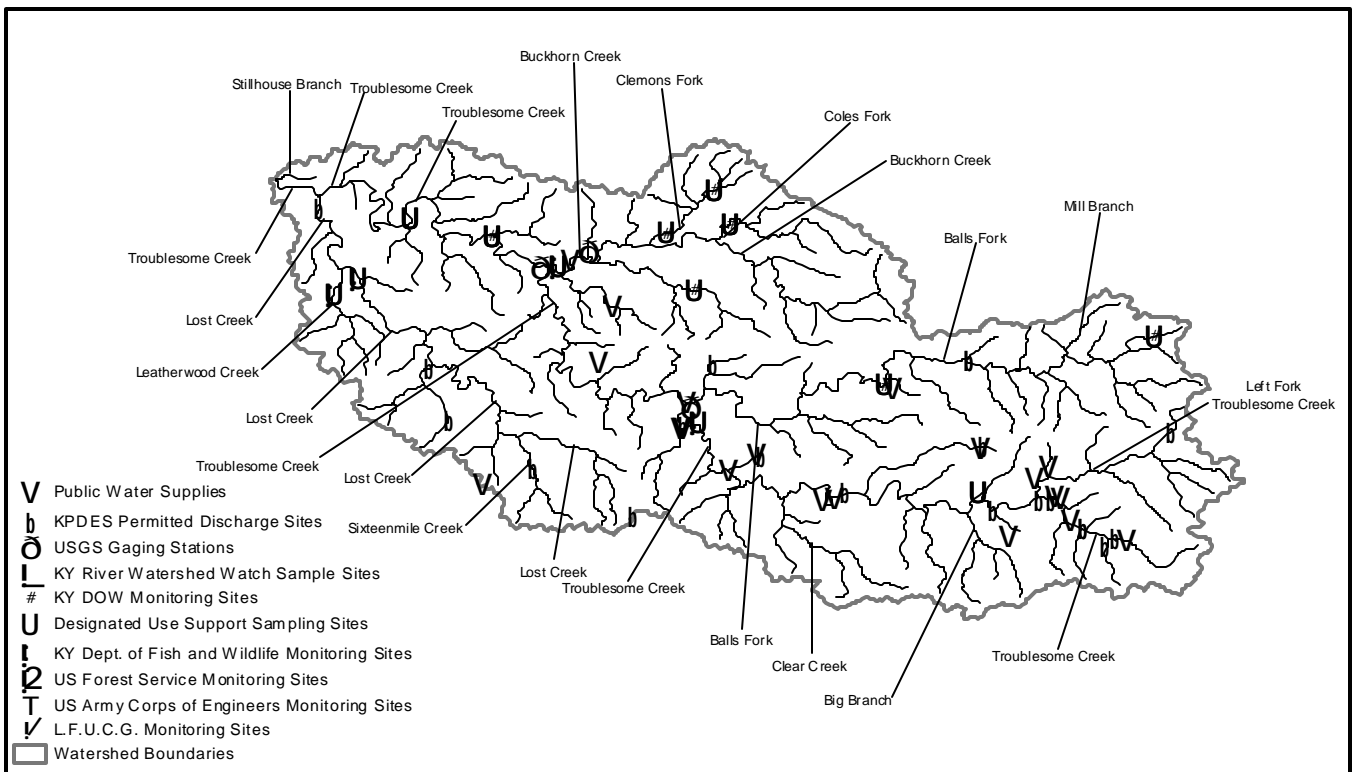
Troublesome Creek Watershed

Watershed Number: 05100201120

Location Map



Watershed Features



Geography. The Troublesome Creek watershed covers large areas of Perry, Knott, and Breathitt Counties. 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. Troublesome Creek empties into the North Fork Kentucky River at Haddix. Among the creeks that feed it are Lost Creek, Buckhorn Creek, and Balls Fork.

Land and water use. Land in the watershed is mainly rural and wooded. Groundwater in the watershed supplies the drinking water for the municipal system in Hindman. Twenty businesses and organizations hold permits for discharges into the creeks. See tables for details.

Agency data assessment. The twelve assessed creek segments in this watershed include five that do not support some or all of their designated uses, based on biological and/or water-quality data. Pathogens, siltation, and salinity from a variety of sources 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. No volunteer data were collected in this watershed in 1999.

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="157,868"/>	<i>Acres</i>	<i>% of Total</i>		
<i>Residential Area:</i>	<input type="text" value="54"/>		<input type="text" value="0.0"/>	<i>Number of Mine Permits:</i>	<input type="text" value="125"/>
<i>Commercial Area:</i>	<input type="text" value="111"/>		<input type="text" value="0.1"/>	<i>Total Permitted Mining Area (Acres):</i>	<input type="text" value="3,972"/>
<i>Industrial Area:</i>	<input type="text" value="36"/>		<input type="text" value="0.0"/>	<i>Number of Identified Wetland Areas:</i>	<input type="text" value="5"/>
<i>Agricultural Area:</i>	<input type="text" value="498"/>		<input type="text" value="0.3"/>	<i>Total Wetland Area (Acres):</i>	<input type="text" value="2"/>
<i>Rural and Wooded Area:</i>	<input type="text" value="145,427"/>		<input type="text" value="92.3"/>		
<i>Other Land-use Area:</i>	<input type="text" value="11,389"/>		<input type="text" value="7.2"/>		

Withdrawal and Discharge Sites:

<i>Number of Public Water Supplies and Water Withdrawal Sites:</i>	<input type="text" value="20"/>	<i>Number of KPDES Discharge Permits:</i>	<input type="text" value="20"/>
<i>Surface Water Withdrawals:</i>	<input type="text" value="3"/>		
<i>Groundwater Withdrawals:</i>	<input type="text" value="17"/>		
<i>No. of Potable Water Treatment Facilities:</i>	<input type="text" value="15"/>		

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="7"/>
<i>Number of Kentucky Dept. of Fish and Wildlife Sampling Sites:</i>	<input type="text" value="4"/>
<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="0"/>
<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
High

Observed Impacts
High

Potential Impacts
High

Restoration Ranking
High

High

Protection Categories:

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Wetland Areas	2	Acres	0 - 106	12
Surface Drinking Water Sources	3	No. of sources	0 - 14	2
Ground Drinking Water Sources	17	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	36,278	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	11.00	Score	0 - 100	3.08
Outstanding Resource Watersheds	0.00	Score	0 - 0	0.00
Recognized Stream Resources	7	No. of resources	0 - 8	1
Kentucky Rivers Assessment Scores	1.15	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	1.00	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	2.85	Score	1 - 3	1.33
Contamination Sites Impacting Human Health	3	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	1.58	Score	1 - 3	1.31
Contamination Sites Impacting Ecological Health	3	Number of sites	0 - 71	4

Potential Impact Categories:

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Potential Contamination Sites	37	Number of sites	1 - 121	12
Potential Pesticide Loading	1	Est. sales in tons	0 - 45	10
Potential Fertilizer Loading	72	Est. tons applied	0 - 2747	394
Agricultural Erosion Potential	2.33	Est. tons erosion / acre	0 - 9	3.20
Livestock Operations Potential Impact	960	Animal units	55 - 43826	7,021
KPDES Discharge Violations	107	Number of violations	0 - 541	39
KY Division of Water Citizen Complaints	37	Number of complaints	0 - 53	9
Toxic Release Inventory	0	Score	0 - 11547626	231,638
Population Change Projection	314	Number of persons	-149 - 11030	448
Population Not on Public Sewer Systems	4,157	Number of persons	12 - 4511	1,114
Mining Area	3,978	Acres	0 - 6305	355
Surface Water Runoff Potential	61.30	SCS Curve Number	60 - 79	68
KPDES Permitted Discharges	20	Number of sites	0 - 56	6

Stream and Waterbody Use Support Summary

Total Stream Miles: <div style="border: 1px solid black; padding: 2px; display: inline-block;">351.77</div>	<i>Number of Seaments</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>
Segments Assessed:	12	52.2	22.7	3.0	26.5	0.0
Designated Uses						
Aquatic Life:	12	52.2	34.9	3.0	13.3	1.0
Primary Contact:	3	15.5	0.0	2.3	13.2	0.0
Fish Consumption:	3	19.4	19.4	0.0	0.0	0.0
Drinking Water:						

* Blank values indicate no assessed segments for this category.

Assessed Stream Segments and Waterbodies					
<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>
Balls Fork	8.3	11.3	3	AL	Partially Supporting
Bolen Branch	0	2.1	2.1	AL	Fully Supporting
Buckhorn Creek	0	2.3	2.3	AL, PC	Not Supporting
Clemons Fork	3	4.7	1.7	AL, FC	Fully Supporting
Clemons Fork	0	3	3	AL	Fully Supporting
Coles Fork	0	5.5	5.5	AL, FC	Fully Supporting
Leatherwood Creek	0	4.2	4.2	AL	Fully Supporting
Long Fork	0	4.6	4.6	AL	Not Supporting
Lost Creek	3.8	10.2	6.4	AL	Not Supporting
Troublesome Creek	41.1	42.1	1	PC, AL	Not Supporting
Troublesome Creek	25.2	31.4	6.2	AL	Fully Supporting
Troublesome Creek	1.9	14.1	12.2	AL, FC, PC	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*

Causes for Nonsupport or Impairment of Designated Uses					
<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>
Balls Fork	8.3	11.3	3	Aquatic Life Support	Partially Supporting
Possible Causes of Impairment:			Possible Sources For Impairment:		
Siltation			Agriculture, Crop-related Sources, Erosion and Sedimentation, Grazing related Sources, Nonirrigated Crop Production, Pasture grazing - Riparian and/or Upland, Urban Runoff/Storm Sewers		
Buckhorn Creek	0	2.3	2.3	Primary Contact (Recr)	Partially Supporting
Buckhorn Creek	0	2.3	2.3	Aquatic Life Support	Not Supporting

Watershed Name: Troublesome Creek

11-Digit Watershed Identity Number: 05100201120

<p><i>Possible Causes of Impairment:</i> Flow alteration, Other habitat alterations, Pathogens, Siltation, Turbidity</p>		<p><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</p>			
Long Fork	0	4.6	4.6	Aquatic Life Support	Not Supporting
<p><i>Possible Causes of Impairment:</i> Salinity/TDS/chlorides</p>		<p><i>Possible Sources For Impairment:</i> Resource Extraction</p>			
Lost Creek	3.8	10.2	6.4	Aquatic Life Support	Not Supporting
<p><i>Possible Causes of Impairment:</i> Flow alteration, Other habitat alterations, Siltation, Turbidity</p>		<p><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</p>			
Troublesome Creek	1.9	14.1	12.2	Primary Contact (Recr)	Not Supporting
<p><i>Possible Causes of Impairment:</i> Pathogens</p>		<p><i>Possible Sources For Impairment:</i> Agriculture, Intensive Animal Feeding Operations</p>			
Troublesome Creek	41.1	42.1	1	Primary Contact (Recr)	Not Supporting
Troublesome Creek	41.1	42.1	1	Aquatic Life Support	Threatened
<p><i>Possible Causes of Impairment:</i> Pathogens</p>		<p><i>Possible Sources For Impairment:</i> Minor Municipal Point Source, Municipal Point Sources</p>			
<p>*Abbreviations: UT - Unnamed Tributary</p>					

<p>Applicable Total Maximum Daily Load (TMDL) Reports:</p>	
<i>Stream or Waterbody</i>	<i>TMDL Report Status</i>
Troublesome Creek	First priority - not yet started

Withdrawal Sites and Discharge Facilities:

<i>Public Water Supplies and Water Withdrawal</i>			
<i>Facility</i>	<i>Origin of Source</i>	<i>Type of Facility</i>	<i>Permit ID Number</i>
ADDINGTON, INC.	Surface Water	Water Withdrawal Site	WW1342
ADDINGTON, INC.	Surface Water	Water Withdrawal Site	WW1348
ADDINGTON, INC.	Surface Water	Water Withdrawal Site	WW1349
BECKHAM COMBS ELEM SCH	Groundwater	Water Treatment Plant	0602286
CAMP NATHANIEL	Groundwater	Water Treatment Plant	0602422
CHANEY'S RESTAURANT	Groundwater	Water Treatment Plant	0972349
EMMALENA ELEMENTARY SCHOOL	Groundwater	Water Treatment Plant	0602280
HINDMAN ELEMENTARY SCHOOL	Groundwater	Water Treatment Plant	0602281
HINDMAN WATER DEPT	Groundwater	Water Treatment Plant	0600198
HINDMAN WATER DEPT	Groundwater	Water Withdrawal Site	0600198
HOLLY HILLS SHOPPING CENTER	Groundwater	Water Treatment Plant	0602175
HOMEPLACE CLINIC	Groundwater	Water Treatment Plant	0972612
HWY 80 MOTEL	Groundwater	Water Treatment Plant	0603404
JAMESTOWN VILLAGE MHP	Groundwater	Water Treatment Plant	0600129
JAMESTOWN VILLAGE MHP	Groundwater	Water Withdrawal Site	0600129
KNOTT CNTY BOARD OF ED BUILD	Groundwater	Water Treatment Plant	0602282
LISA SHORT DENTAL OFFICE	Groundwater	Water Treatment Plant	0603353
LOST CREEK SCHOOL	Groundwater	Water Treatment Plant	0972696
ROBINSON ELEMENTARY SCHOOL	Groundwater	Water Treatment Plant	0972312
SID PRATT DENTAL OFFICE	Groundwater	Water Treatment Plant	0603240

<i>KPDES Permitted Discharge Facilities</i>			<i>KPDES Site ID Number</i>
<i>Facility</i>	<i>Type of Facility</i>		
BECKHAM COMBS ELEM SCHOOL	ELEMENTARY & SECONDARY SCHOOLS	KY0087921	
BREATHITT CO BD OF ED	ELEMENTARY & SECONDARY SCHOOLS	KY0100722	
BUCKHORN PROCESSING CO	COAL MINING SERVICE	KY0097993	
CLEMONS WHISKEY STORE	WINE & DIST ALCOHOLIC BEVERAGE	KY0097926	
HANDSHOE APTS	OPERATORS OF APART BUILDINGS	KY0092606	
HIGHWAY 80 MOTEL & RESTAURANT	HOTELS AND MOTELS	KY0080560	
HINDMAN STP	SEWERAGE SYSTEMS	KY0027685	
HINDMAN WTP	WATER SUPPLY	KY0073024	
HOLLY HILLS PLAZA SHOPPING CTR	OPER OF DWELL OTHER THAN APART	KY0074594	
JAMESTOWN VILLAGE INC MHP	OPER OF RES MOBILE HOME SITES	KY0090832	
KNOTT CO BD OF ED	ELEMENTARY & SECONDARY SCHOOLS	KY0101818	
KTC KNOTT CO MAINT GARAGE	BUS TERMINAL & SERVICE FACILIT	KY0098809	
LOST CREEK ELEM SCHOOL	ELEMENTARY & SECONDARY SCHOOLS	KY0093548	
ROBINSON ELEM SCHOOL	ELEMENTARY & SECONDARY SCHOOLS	KY0093572	
STAR FIRE MINING CO	COAL MINING SERVICE	KY0098019	
TRUS JOIST MACMILLAN	RECONSTITUTED WOOD PRODUCTS	KY0099571	

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>
Bear Branch	USGS	USGS03278000	Flow

Watershed Name: Troublesome Creek

11-Digit Watershed Identity Number: 05100201120

Troublesome Creek	USGS	USGS03278500	Flow
Troublesome Creek	USGS	USGS03277915	Flow

KY Division of Water Sampling Sites

<i>Stream Name</i>	<i>Type of Sampling</i>
Clemons Fork	Physical/Chemical Monitoring
Clemons Fork	Physical/Chemical Monitoring
Coles Fork	Physical/Chemical Monitoring
Troublesome Creek	Biological Monitoring
Long Fork	Physical/Chemical Monitoring
Bolen Branch	Physical/Chemical Monitoring
Balls Fork	Physical/Chemical Monitoring

KY Dept of Fish and Wildlife Sampling / Assessment Sites

<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>
Troublesome Creek 4 - Leatherwood Creek	Little Leatherwood Creek	Mouth	2	2	0
Troublesome Creek 6 - Lost Creek	Rockhouse Fork	Leatherwood Creek	10.2	10.2	3.8
Troublesome Creek 5 - Buckhorn Creek	Long Fork	Mouth	13.9	2.3	0
Troublesome Creek 9	Clear Creek	Pigeonroost Branch	43.6	31.4	25.2