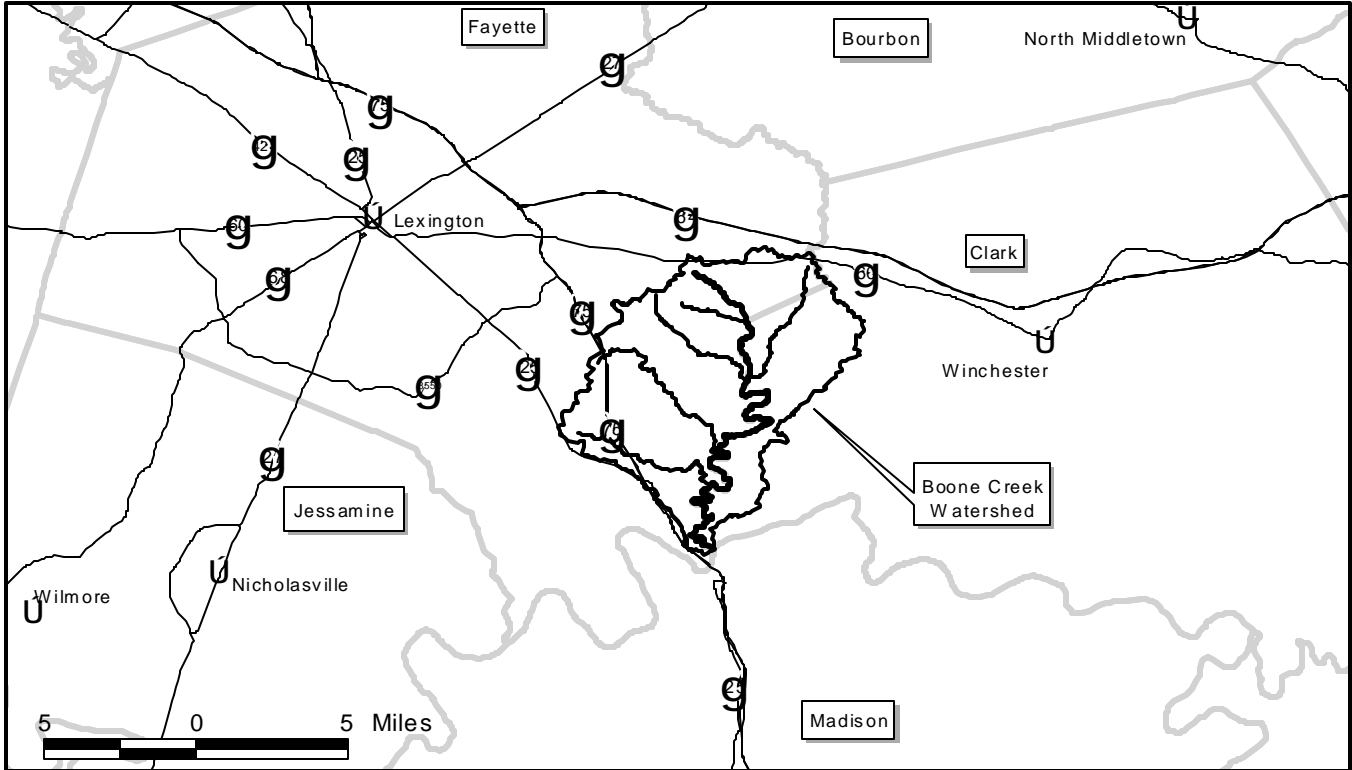


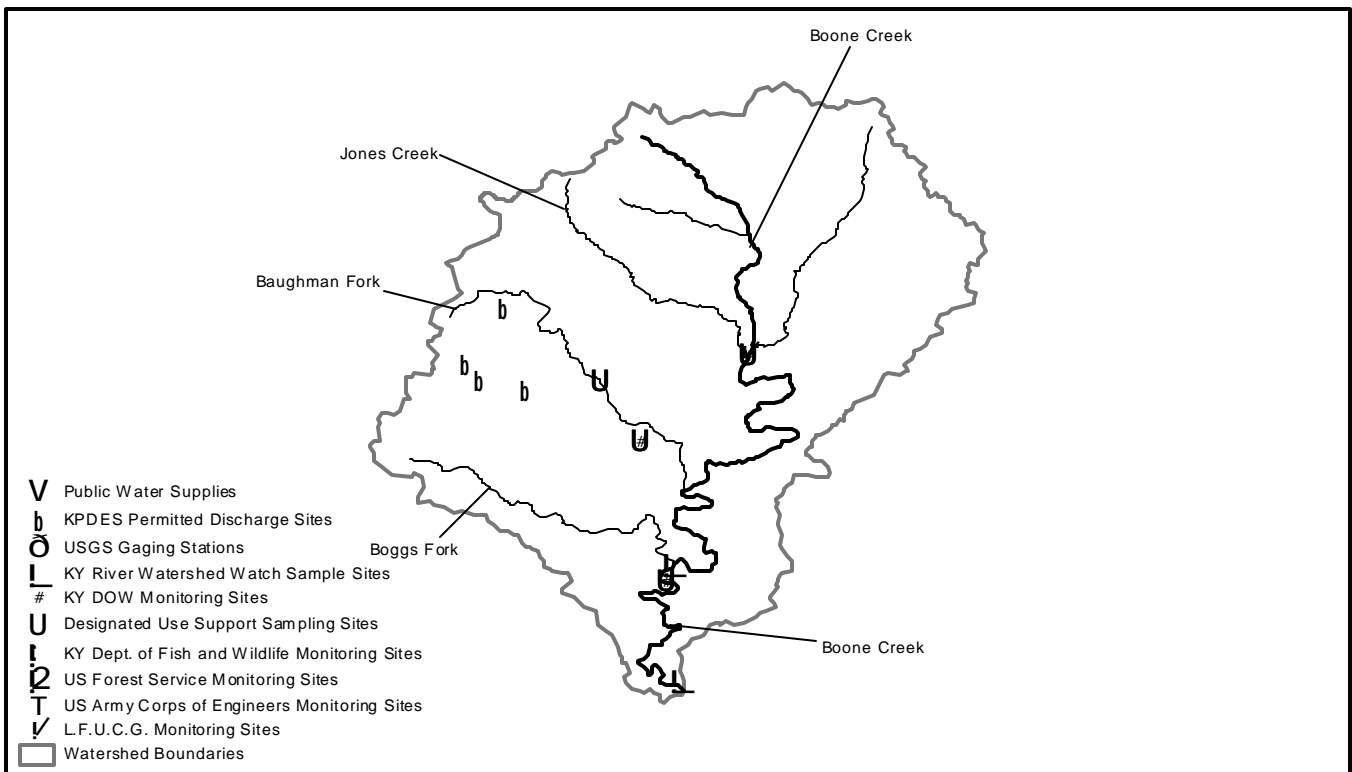
Boone Creek Watershed

Watershed Number: 05100205070

Location Map



Watershed Features



Geography. The Boone Creek watershed lies along the boundary between Fayette County and Clark County. The land is in the inner subregion of the Bluegrass physiographic region, characterized by undulating terrain and moderate rates of both surface runoff and groundwater drainage. The watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology.

Waterways. Boone Creek empties into the Kentucky River just north of Clays Ferry and Interstate 75. Among the creeks that feed it are Baughman Fork, Jones Creek, and Mary Reynolds Creek.

Land and water use. Land in the watershed is mainly agricultural. Four 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 that does not support its designated uses, based on biological and/or water-quality data. Two other segments only partially support designated uses. Nutrients and pathogens from agricultural and municipal sources and from sewage package plants contribute to the impairment of these streams. A TMDL (total maximum daily load) plan for Baughman Fork has reached the preliminary draft stage. 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. There are two volunteer sites on Boone Creek. 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:

Total Land Area (Acres):	28,168	Acres	% of Total		
Residential Area:	383		1.4	Number of Mine Permits:	0
Commercial Area:	570		2.0	Total Permitted Mining Area (Acres):	0
Industrial Area:	14		0.0	Number of Identified Wetland Areas:	18
Agricultural Area:	26,412		93.8	Total Wetland Area (Acres):	11
Rural and Wooded Area:	771		2.7		
Other Land-use Area:	0		0.0		

Withdrawal and Discharge Sites:

Number of Public Water Supplies and Water Withdrawal Sites:	0	Number of KPDES Discharge Permits:	4
Surface Water Withdrawals:	0		
Groundwater Withdrawals:	0		
No. of Potable Water Treatment Facilities:	0		

Sampling Site Statistics:

Number of USGS Gaging Stations:	0
Number of Kentucky Division of Water Sampling Sites:	3
Number of Kentucky Dept. of Fish and Wildlife Sampling Sites:	0
Number of US Forest Service Sampling Sites:	0
Number of US Army Corps of Engineers Sampling Sites:	0
Number of Kentucky River Watershed Watch Sampling Sites:	2
Number of Lexington-Fayette Urban Co. Gov. Sampling Sites:	1

Watershed Name:

Boone Creek

11-Digit Watershed Identity Number:

05100205070

Watershed Indicators and Ranking Categories:

Overall Watershed Ranking:

Protection Ranking
High

Observed Impacts
High

Potential Impacts
Medium

Restoration Ranking
High

High

Protection Categories:

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Wetland Areas	11	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	4.64	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	42	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	2.30	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	2	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	3.00	Score	1 - 3	1.33
Contamination Sites Impacting Human Health	17	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	1.57	Score	1 - 3	1.31
Contamination Sites Impacting Ecological Health	17	Number of sites	0 - 71	4

Potential Impact Categories:

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Potential Contamination Sites	28	Number of sites	1 - 121	12
Potential Pesticide Loading	45	Est. sales in tons	0 - 45	10
Potential Fertilizer Loading	338	Est. tons applied	0 - 2747	394
Agricultural Erosion Potential	1.59	Est. tons erosion / acre	0 - 9	3.20
Livestock Operations Potential Impact	7,905	Animal units	55 - 43826	7,021
KPDES Discharge Violations	73	Number of violations	0 - 541	39
KY Division of Water Citizen Complaints	8	Number of complaints	0 - 53	9
Toxic Release Inventory	0	Score	0 - 11547626	231,638
Population Change Projection	338	Number of persons	-149 - 11030	448
Population Not on Public Sewer Systems	622	Number of persons	12 - 4511	1,114
Mining Area	0	Acres	0 - 6305	355
Surface Water Runoff Potential	70.72	SCS Curve Number	60 - 79	68
KPDES Permitted Discharges	4	Number of sites	0 - 56	6

Stream and Waterbody Use Support Summary

Total Stream Miles: <input type="text" value="40.04"/>	<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:	4	17.8	2.5	10.1	5.2	0.0
Designated Uses						
Aquatic Life:	4	17.8	7.7	10.1	0.0	0.0
Primary Contact:	1	5.2	0.0	0.0	5.2	0.0
Fish Consumption:	3	12.6	12.6	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>
Baughman Fork	3.4	5.9	2.5	AL, FC	Fully Supporting
Baughman Fork	0	2.7	2.7	FC, AL	Partially Supporting
Boone Creek	7.4	12.6	5.2	AL, PC	Not Supporting
Boone Creek	0	7.4	7.4	FC, 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

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>
Baughman Fork	0	2.7	2.7	Aquatic Life Support	Partially Supporting
<i>Possible Causes of Impairment:</i> Nutrients, Organic enrichment/Low DO			<i>Possible Sources For Impairment:</i> Agriculture, Grazing related Sources, Municipal Point Sources, Package Plants (Small Flows), Pasture grazing - Riparian and/or Upland		
Boone Creek	0	7.4	7.4	Aquatic Life Support	Partially Supporting
<i>Possible Causes of Impairment:</i> Nutrients			<i>Possible Sources For Impairment:</i> Agriculture, Grazing related Sources, Municipal Point Sources, Package Plants (Small Flows)		
Boone Creek	7.4	12.6	5.2	Primary Contact (Recr)	Not Supporting
<i>Possible Causes of Impairment:</i> Pathogens			<i>Possible Sources For Impairment:</i> Agriculture, Grazing related Sources		

*Abbreviations: UT - Unnamed Tributary

Applicable Total Maximum Daily Load (TMDL) Reports:

Watershed Name: Boone Creek

11-Digit Watershed Identity Number: 05100205070

<i>Stream or Waterbody</i>	<i>TMDL Report Status</i>
Baughman Fork	Preliminary draft complete

Watershed Name: Boone Creek

11-Digit Watershed Identity Number: 05100205070

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>
BLUE SKY SEWER SERVICE	LAND SUBDIVIDERS & DEV, EX CEM	KY0027286
BOONES TRACE LLC	LAND SUBDIVIDERS & DEV, EX CEM	KY0102067
BOONESBORO MANOR	OPER OF NONRESIDENTIAL BLDGS	KY0027294
SAFETY KLEEN CORP	BUSINESS SERVICES, NEC	KY0093921

Gaging Stations and Sampling Sites:

<i>KY Division of Water Sampling Sites</i>	
<i>Stream Name</i>	<i>Type of Sampling</i>
Boone Creek	Biological Monitoring
Boone Creek	Biological Monitoring
Baughman Fork	Biological Monitoring

<i>Lexington-Fayette Urban County Government Sampling Sites</i>	
<i>Stream Segment</i>	<i>LFUCG Site ID</i>
Baughman Fork	Boone Creek

<i>KY River Watershed Watch Sampling Sites</i>		
<i>Stream Name</i>	<i>KRWW Sample ID No.</i>	<i>Site Description</i>
Boone Creek	K58	Mouth of Boone Creek
Boone Creek	K46	By Iriquois Hunt Club

Results from 1999 KY River Watershed Watch Sampling:

Conventional Parameters:

Sample ID Number: K46 Stream: Boone Creek

Physical Data (May):	
pH	7.5
Temperature	0
Dissolved Oxygen	8.5
Alkalinity	
Total Hardness	
Chlorides	
Conductivity	
Total Organic Carbon	
Total Suspended Solids	

Fecal Data (July / August):		
Coliform Count	Strep Count	Coliform/Strep Ratio
July	350	*
August		

Sample ID Number: K58 Stream: Boone Creek

Physical Data (May):	
pH	7.5
Temperature	0
Dissolved Oxygen	8.3
Alkalinity	
Total Hardness	
Chlorides	
Conductivity	
Total Organic Carbon	
Total Suspended Solids	

Fecal Data (July / August):		
Coliform Count	Strep Count	Coliform/Strep Ratio
July		
August		

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: K46 Stream: Boone Creek

Ammonia		Orthophosphate as Phosphate		Sulfate	
Ammonia Nitrogen		Orthophosphate as Phosphorus			
Total Kjeldahl Nitrogen as NH3		Total Recoverable Phosphorus			
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).

Sample ID Number: K58 Stream: Boone Creek

Ammonia		Orthophosphate as Phosphate		Sulfate	
Ammonia Nitrogen		Orthophosphate as Phosphorus			
Total Kjeldahl Nitrogen as NH3		Total Recoverable Phosphorus			
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: K46 Stream: Boone Creek

Aluminum		Calcium		Lead		Selenium		Thallium	
Antimony		Chromium		Lithium		Silicon		Vanadium	
Barium		Cobalt		Magnesium		Sodium		Zinc	
Beryllium		Copper		Manganese		Strontium			
Boron		Iron		Potassium		Sulfur			

Watershed Name: Boone Creek

11-Digit Watershed Identity Number: 05100205070

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

Sample ID Number: K58 Stream: Boone Creek

Aluminum	<input type="text"/>	Calcium	<input type="text"/>	Lead	<input type="text"/>	Selenium	<input type="text"/>	Thallium	<input type="text"/>
Antimony	<input type="text"/>	Chromium	<input type="text"/>	Lithium	<input type="text"/>	Silicon	<input type="text"/>	Vanadium	<input type="text"/>
Barium	<input type="text"/>	Cobalt	<input type="text"/>	Magnesium	<input type="text"/>	Sodium	<input type="text"/>	Zinc	<input type="text"/>
Beryllium	<input type="text"/>	Copper	<input type="text"/>	Manganese	<input type="text"/>	Strontium	<input type="text"/>		
Boron	<input type="text"/>	Iron	<input type="text"/>	Potassium	<input type="text"/>	Sulfur	<input type="text"/>		

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
K46	Boone Creek	<input type="text"/>	<input type="text"/>	<input type="text"/>
K58	Boone Creek	<input type="text"/>	<input type="text"/>	<input type="text"/>

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