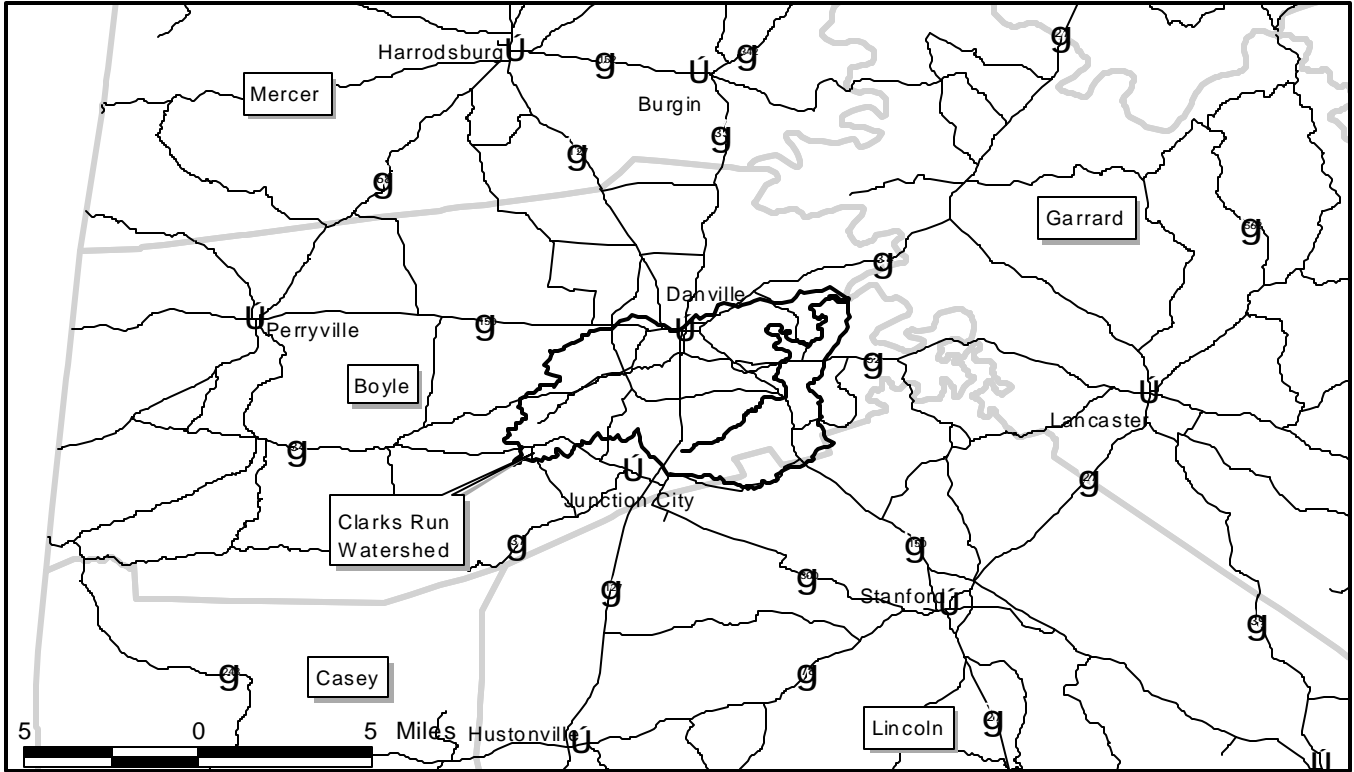


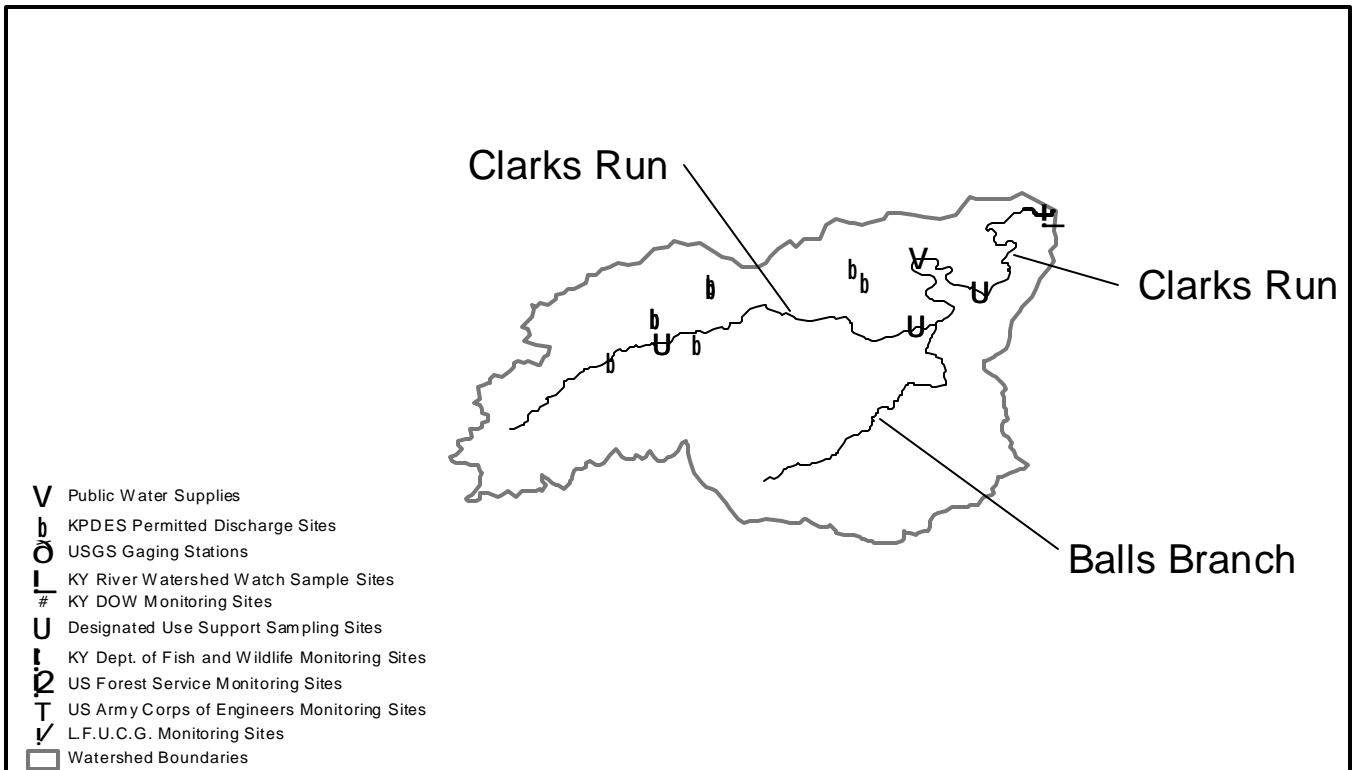
# Clarks Run Watershed

## Watershed Number: 05100205190

Location Map



Watershed Features



**Geography.** The Clarks Run watershed is in southeastern Boyle 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 partly above fractured shales through which groundwater can easily move but which stores very little water. Other parts lie over interbedded clay shales and siltstones. There are also areas of interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale) and areas of interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** Clarks Run empties into the Dix River east of Danville, near Little Needmore. Among the creeks that feed it is Balls Branch.

**Land and water use.** Land in the watershed is more than 80% agricultural. It includes the southern half of Danville, and therefore is about 8% residential, and about 8% commercial or industrial. Five businesses and organizations hold permits for discharges into the creeks. See tables for details.

**Agency data assessment.** Three assessed segments of Clarks Run include one that does not support its designated uses, based on biological and/or water-quality data. One fully supports its uses, and one only partially supports its uses. Organic enrichment from municipal point sources, urban runoff, and storm sewers contribute to the impairment of these streams. Pesticides from urban runoff also contribute in the nonsupporting segment. 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 lowest 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 Clarks Run (above 200 colonies/ml). A significant amount of the triazine herbicide atrazine was detected (>1 microgram per liter); however, the concentration of atrazine was well below the EPA's maximum contaminant level of 3 micrograms per liter. See tables for details.

Watershed Name:

Clarks Run

11-Digit Watershed Identity Number:

05100205190

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):	<input type="text" value="18,223"/>	Acres	% of Total		
Residential Area:	<input type="text" value="1,441"/>		<input type="text" value="7.9"/>	Number of Mine Permits:	<input type="text" value="0"/>
Commercial Area:	<input type="text" value="1,201"/>		<input type="text" value="6.6"/>	Total Permitted Mining Area (Acres):	<input type="text" value="0"/>
Industrial Area:	<input type="text" value="180"/>		<input type="text" value="1.0"/>	Number of Identified Wetland Areas:	<input type="text" value="6"/>
Agricultural Area:	<input type="text" value="14,959"/>		<input type="text" value="82.1"/>	Total Wetland Area (Acres):	<input type="text" value="4"/>
Rural and Wooded Area:	<input type="text" value="288"/>		<input type="text" value="1.6"/>		
Other Land-use Area:	<input type="text" value="146"/>		<input type="text" value="0.8"/>		

#### Withdrawal and Discharge Sites:

Number of Public Water Supplies and Water Withdrawal Sites:	<input type="text" value="1"/>	Number of KPDES Discharge Permits:	<input type="text" value="10"/>
Surface Water Withdrawals:	<input type="text" value="1"/>		
Groundwater Withdrawals:	<input type="text" value="0"/>		
No. of Potable Water Treatment Facilities:	<input type="text" value="0"/>		

#### Sampling Site Statistics:

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

**Watershed Indicators and Ranking Categories:**

Overall Watershed Ranking:

Protection Ranking

Observed Impacts

Potential Impacts

Restoration Ranking

Medium

Low

High

Low

Low

**Protection Categories:**

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Wetland Areas	4	Acres	0 - 106	12
Surface Drinking Water Sources	1	No. of sources	0 - 14	2
Ground Drinking Water Sources	0	No. of sources	0 - 17	1
Groundwater Sensitivity	3.78	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	0.00	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	1	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	1.64	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	8	Number of sites	1 - 121	12
Potential Pesticide Loading	17	Est. sales in tons	0 - 45	10
Potential Fertilizer Loading	399	Est. tons applied	0 - 2747	394
Agricultural Erosion Potential	3.41	Est. tons erosion / acre	0 - 9	3.20
Livestock Operations Potential Impact	8,035	Animal units	55 - 43826	7,021
KPDES Discharge Violations	18	Number of violations	0 - 541	39
KY Division of Water Citizen Complaints	3	Number of complaints	0 - 53	9
Toxic Release Inventory	1,000	Score	0 - 11547626	231,638
Population Change Projection	798	Number of persons	-149 - 11030	448
Population Not on Public Sewer Systems	524	Number of persons	12 - 4511	1,114
Mining Area	0	Acres	0 - 6305	355
Surface Water Runoff Potential	73.84	SCS Curve Number	60 - 79	68
KPDES Permitted Discharges	10	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;">17.28</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>
<b>Segments Assessed:</b>	3	13.9	7.3	4.3	2.3	0.0
<b>Designated Uses</b>						
<b>Aquatic Life:</b>	3	13.9	7.3	4.3	2.3	0.0
<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>
Clarks Run	6.6	13.9	7.3	AL	Fully Supporting
Clarks Run	4.3	6.6	2.3	AL	Not Supporting
Clarks Run	0	4.3	4.3	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>
Clarks Run	0	4.3	4.3	Aquatic Life Support	Partially Supporting
<i>Possible Causes of Impairment:</i>			<i>Possible Sources For Impairment:</i>		
Organic enrichment/Low DO			Major Municipal Point Source, Municipal Point Sources, Urban Runoff/Storm Sewers		
Clarks Run	4.3	6.6	2.3	Aquatic Life Support	Not Supporting
<i>Possible Causes of Impairment:</i>			<i>Possible Sources For Impairment:</i>		
Organic enrichment/Low DO, Pesticides			Major Municipal Point Source, Municipal Point Sources, Urban Runoff/Storm Sewers		

*\*Abbreviations: UT - Unnamed Tributary*

Watershed Name:                     Clarks Run                    

11-Digit Watershed Identity Number:                     05100205190                    

*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>
DANVILLE COUNTRY CLUB	Surface Water	Water Withdrawal Site	WW1146

<i>KPDES Permitted Discharge Facilities</i>			<i>KPDES Site ID Number</i>
<i>Facility</i>	<i>Type of Facility</i>		
DANVILLE WTP	WATER SUPPLY		KY0090182
DANVILLE WTP	WATER SUPPLY		KYG640084
KTC BOYLE CO MAINT GARAGE	BUS TERMINAL & SERVICE FACILIT		KY0100170
MATSUSHITA APPLIANCE CORP	HOUSEHOLD APPLIANCES, NEC		KY0001139
PHILIPS LIGHTING CO	PRESSED & BLOWN GLASS & GWARE		KY0002607
R R DONNELLEY & SONS CO	COMMERCIAL PRINT, LITHOGRAPHIC		KY0080616

*Gaging Stations and Sampling Sites:*

<i>KY River Watershed Watch Sampling Sites</i>		
<i>Stream Name</i>	<i>KRWW Sample ID No.</i>	<i>Site Description</i>
Clarks Run	K14	N37 38' 21" W 84 43' 19"

Watershed Name:

Clarks Run

11-Digit Watershed Identity Number:

05100205190

Results from 1999 KY River Watershed Watch Sampling:

Conventional Parameters:

Sample ID Number: K14 Stream: Clarks Run

Physical Data (May):

pH	8.5	Alkalinity	
Temperature	17	Total Hardness	
Dissolved Oxygen	11.5	Chlorides	
		Conductivity	
		Total Organic Carbon	
		Total Suspended Solids	

Fecal Data (July / August):

	Coliform Count	Strep Count	Coliform/Strep Ratio
July	1100	500	2.2
August	580	890	0.65

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: K14 Stream: Clarks Run

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: K14 Stream: Clarks Run

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

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

K14	Clarks Run			1.05
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Note: All indicators are in micrograms per liter which is equivalent to parts per billion (ppb).