

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):	176,518	Acres	% of Total		
Residential Area:	11,087		6.3	Number of Mine Permits:	0
Commercial Area:	6,829		3.9	Total Permitted Mining Area (Acres):	0
Industrial Area:	980		0.6	Number of Identified Wetland Areas:	57
Agricultural Area:	153,739		87.1	Total Wetland Area (Acres):	26
Rural and Wooded Area:	3,263		1.8		
Other Land-use Area:	573		0.3		

#### Withdrawal and Discharge Sites:

Number of Public Water Supplies and Water Withdrawal Sites:	11	Number of KPDES Discharge Permits:	56
Surface Water Withdrawals:	7		
Groundwater Withdrawals:	4		
No. of Potable Water Treatment Facilities:	2		

#### Sampling Site Statistics:

Number of USGS Gaging Stations:	2
Number of Kentucky Division of Water Sampling Sites:	8
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:	3
Number of Lexington-Fayette Urban Co. Gov. Sampling Sites:	7

**Watershed Indicators and Ranking Categories:**

Overall Watershed Ranking:

Protection Ranking	Observed Impacts	Potential Impacts	Restoration Ranking
High	High	High	High

High

**Protection Categories:**

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Wetland Areas	26	Acres	0 - 106	12
Surface Drinking Water Sources	7	No. of sources	0 - 14	2
Ground Drinking Water Sources	4	No. of sources	0 - 17	1
Groundwater Sensitivity	4.16	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	936	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	2.76	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	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	1.62	Score	1 - 3	1.33
Contamination Sites Impacting Human Health	71	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	1.32	Score	1 - 3	1.31
Contamination Sites Impacting Ecological Health	71	Number of sites	0 - 71	4

**Potential Impact Categories:**

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Potential Contamination Sites	121	Number of sites	1 - 121	12
Potential Pesticide Loading	33	Est. sales in tons	0 - 45	10
Potential Fertilizer Loading	2,747	Est. tons applied	0 - 2747	394
Agricultural Erosion Potential	2.40	Est. tons erosion / acre	0 - 9	3.20
Livestock Operations Potential Impact	43,826	Animal units	55 - 43826	7,021
KPDES Discharge Violations	541	Number of violations	0 - 541	39
KY Division of Water Citizen Complaints	53	Number of complaints	0 - 53	9
Toxic Release Inventory	0	Score	0 - 11547626	231,638
Population Change Projection	2,290	Number of persons	-149 - 11030	448
Population Not on Public Sewer Systems	3,978	Number of persons	12 - 4511	1,114
Mining Area	0	Acres	0 - 6305	355
Surface Water Runoff Potential	71.93	SCS Curve Number	60 - 79	68
KPDES Permitted Discharges	56	Number of sites	0 - 56	6

**Stream and Waterbody Use Support Summary**

<b>Total Stream Miles:</b> <input type="text" value="189.12"/>	<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>	14	84.4	57.0	7.5	19.9	0.0
<b>Designated Uses</b>						
<b>Aquatic Life:</b>	11	79.4	57.0	19.4	3.0	0.0
<b>Primary Contact:</b>	8	54.4	37.5	0.0	16.9	0.0
<b>Fish Consumption:</b>	2	22.1	22.1	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>
Avon Fork	0	5.8	5.8	AL	Fully Supporting
Cane Run	6.4	9.6	3.2	PC, AL	Not Supporting
Cane Run	0	3	3	AL	Not Supporting
Dry Run	0	3.1	3.1	AL	Partially Supporting
Lanes Run	0	0.5	0.5	PC	Not Supporting
LeComptes Run	0	1.9	1.9	AL	Fully Supporting
McConnell Run	0	4.4	4.4	AL	Partially Supporting
North Elkhorn Creek	65	73.7	8.7	PC, AL	Not Supporting
North Elkhorn Creek	46.7	65	18.3	AL, PC	Fully Supporting
North Elkhorn Creek	37.8	46.7	8.9	AL, PC	Fully Supporting
North Elkhorn Creek	17.1	27.4	10.3	AL, FC, PC	Fully Supporting
North Elkhorn Creek	0	11.8	11.8	AL, FC	Fully Supporting
UT of Cane Run	0	3.5	3.5	PC	Not Supporting
UT to Dry Run	1.5	2.5	1	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

<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>
Cane Run	0	3	3	Aquatic Life Support	Not Supporting
<b>Possible Causes of Impairment:</b> Siltation			<b>Possible Sources For Impairment:</b> Agriculture, Crop-related Sources, Grazing related Sources, Hydromodification, Nonirrigated Crop Production, Pasture grazing - Riparian and/or Upland		
Cane Run	6.4	9.6	3.2	Primary Contact (Recr)	Not Supporting
Cane Run	6.4	9.6	3.2	Aquatic Life Support	Partially Supporting

Watershed Name: North Elkhorn Creek

11-Digit Watershed Identity Number: 05100205280

<p><i>Possible Causes of Impairment:</i> Nutrients, Siltation, Pathogens</p>		<p><i>Possible Sources For Impairment:</i> Agriculture, Construction, Grazing related Sources, Highway/Road/Bridge Construction, Land Disposal, Municipal Point Sources, Package Plants (Small Flows)</p>			
Dry Run	0	3.1	3.1	Aquatic Life Support	Partially Supporting
<p><i>Possible Causes of Impairment:</i> Nutrients, Siltation, Cause Unknown</p>		<p><i>Possible Sources For Impairment:</i> Agriculture, Grazing related Sources, Pasture grazing - Riparian and/or Upland, Source Unknown</p>			
Lanes Run	0	0.5	0.5	Primary Contact (Recr)	Not Supporting
<p><i>Possible Causes of Impairment:</i> Pathogens</p>		<p><i>Possible Sources For Impairment:</i> Major Municipal Point Source, Municipal Point Sources</p>			
McConnell Run	0	4.4	4.4	Aquatic Life Support	Partially Supporting
<p><i>Possible Causes of Impairment:</i> Nutrients, Siltation</p>		<p><i>Possible Sources For Impairment:</i> Agriculture, Grazing related Sources, Pasture grazing - Riparian and/or Upland</p>			
North Elkhorn Creek	65	73.7	8.7	Primary Contact (Recr)	Not Supporting
North Elkhorn Creek	65	73.7	8.7	Aquatic Life Support	Partially Supporting
<p><i>Possible Causes of Impairment:</i> Other habitat alterations, Pathogens</p>		<p><i>Possible Sources For Impairment:</i> Agriculture, Grazing related Sources</p>			
UT of Cane Run	0	3.5	3.5	Primary Contact (Recr)	Not Supporting
<p><i>Possible Causes of Impairment:</i> Pathogens</p>		<p><i>Possible Sources For Impairment:</i> Agriculture, Grazing related Sources</p>			
UT to Dry Run	1.5	2.5	1	Primary Contact (Recr)	Not Supporting
<p><i>Possible Causes of Impairment:</i> Pathogens</p>		<p><i>Possible Sources For Impairment:</i> Municipal Point Sources, Package Plants (Small Flows)</p>			
<p>*Abbreviations: UT - Unnamed Tributary</p>					

**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>
AQUASTAR SPRING WATER COMPANY, LLC	Groundwater	Water Withdrawal Site	WW1427
BARLOW HOMES/CANEWOOD GOLF COURSE	Surface Water	Water Withdrawal Site	WW1292
BARLOW HOMES/CANEWOOD GOLF COURSE	Surface Water	Water Withdrawal Site	WW1293
GEORGETOWN MUN WATER SERVICE	Groundwater	Water Withdrawal Site	1050157
GEORGETOWN MUN WATER SERVICE	Surface Water	Water Treatment Plant	1050157
GEORGETOWN MUN WATER SERVICE	Surface Water	Water Withdrawal Site	1050157
KEARNEY HILLS GOLF COURSE	Groundwater	Water Withdrawal Site	WW1014
KEARNEY HILLS GOLF COURSE	Surface Water	Water Withdrawal Site	WW1003
LONGVIEW COUNTRY CLUB	Surface Water	Water Withdrawal Site	WW1173
NALLY & GIBSON GEORGETOWN, INC.	Groundwater	Water Withdrawal Site	WW1219
STAMPING GROUND WATER DISTRICT	Surface Water	Water Treatment Plant	1050416

<i>KPDES Permitted Discharge Facilities</i>			<i>KPDES Site ID Number</i>
<i>Facility</i>	<i>Type of Facility</i>		
BROCK MCVEY CO INC	AIR HEAT & AIR-COND. EQUIP/SUP		KY0100501
CAPITAL MHP	OPER OF RES MOBILE HOME SITES		KY0073041
CENTENNIAL DISTRIBUTION	MOTOR VEHICLE PARTS & NEW SUP		KY0091693
DELAPLAIN DISPOSAL CO	LAND SUBDIVIDERS & DEV, EX CEM		KY0079049
DEMOLITION DISPOSAL SERV INC	REFUSE SYSTEMS		KY0100331
GENERAL ELECTRIC KY GLASS PLT	PRESSED & BLOWN GLASS & GWARE		KY0002739
GEORGETOWN LANDFILL	REFUSE SYSTEMS		KY0073211
GEORGETOWN STP #1	SEWERAGE SYSTEMS		KY0020150
GEORGETOWN STP #2	SEWERAGE SYSTEMS		KY0082007
H & R OIL CO INC	PETROLEUM BULK STATIONS & TERM		KY0100960
IBM CORP	OFFICE MACHINES		KY0097624
INTERNATIONAL CRANKSHAFT INC	BLAST FURN/STEEL WORKS/ROLLING		KY0100609
KTC FAYETTE CO EQUIP GARAGE	BUS TERMINAL & SERVICE FACILIT		KY0099163
KTC SCOTT CO MAINT GARAGE	BUS TERMINAL & SERVICE FACILIT		KY0099210
KY DMA BLUEGRASS STAT DIV	NATIONAL SECURITY		KY0020699
KY HORSE PARK	MUSEUMS AND ART GALLERIES		KY0048101
LEX FAY URBAN CO GOVT LANDFILL	REFUSE SYSTEMS		KY0092100
LEXMARK INTERNATIONAL INC	OFFICE MACHINES		KY0001317
LONGVIEW EST & HOMESTEAD SUBD	LAND SUBDIVIDERS & DEV, EX CEM		KY0081591
MAPLE GROVE MHP	OPER OF RES MOBILE HOME SITES		KY0083321
MARATHON ASHLAND PETROLEUM LLC	PAVING MIXTURES AND BLOCKS		KY0097632
PONDEROSA MHP	OPER OF RES MOBILE HOME SITES		KY0081221
SPEEDWAY #8511	GASOLINE SERVICE STATIONS		KY0102105
SPINDLETOP MHP	OPER OF RES MOBILE HOME SITES		KY0081213
STAMPING GROUND STP	SEWERAGE SYSTEMS		KY0050512
TOYOTA MOTOR MFG USA INC	GEN CONTRACT-INDUST. BLDGS.		KY0089508
USDA BLUEGRASS STATION	NATIONAL SECURITY		KY0101192
W T CONGLETON CO INC	READY-MIXED CONCRETE		KY0087807

Watershed Name: North Elkhorn Creek

11-Digit Watershed Identity Number: 05100205280

**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>
North Elkhorn Creek	USGS	USGS03288450	Flow
North Elkhorn Creek	USGS	USGS03288000	Flow

<i>KY Division of Water Sampling Sites</i>	
<i>Stream Name</i>	<i>Type of Sampling</i>
North Elkhorn Creek	Biological Monitoring
North Elkhorn Creek	Biological Monitoring
Dry Run	Biological Monitoring
Lecomptes Run	Biological Monitoring
Avon Fork	Biological Monitoring
Mcconnell'S Run	Biological Monitoring
North Fork Elkhorn Creek	Biological Monitoring
Cane Run	Physical/Chemical Monitoring

<i>Lexington-Fayette Urban County Government Sampling Sites</i>	
<i>Stream Segment</i>	<i>LFUCG Site ID</i>
North Elkhorn Creek	P-1
North Elkhorn Creek	L-1
North Elkhorn Creek	L-2
North Elkhorn Creek	S-1
North Elkhorn Creek	S-2
North Elkhorn Creek	S-3
Cane Run	Cane Run

<i>KY River Watershed Watch Sampling Sites</i>		
<i>Stream Name</i>	<i>KRWW Sample ID No.</i>	<i>Site Description</i>
Cane Run Ceek	K05	0.2mi upstream of 460 Bridge
North Fork Elkhorn	K16	At Great Crossings
North Fork Elkhorn Creek	K86	Switzer Bridge

Watershed Name:

North Elkhorn Creek

11-Digit Watershed Identity Number:

05100205280

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

**Conventional Parameters:**

Sample ID Number: K05 Stream: Cane Run Creek

**Physical Data (May):**

pH	8	Alkalinity	261
Temperature	19	Total Hardness	280
Dissolved Oxygen	5.2	Chlorides	77.1
		Conductivity	756
		Total Organic Carbon	41.4
		Total Suspended Solids	59

**Fecal Data (July / August):**

	Coliform Count	Strep Count	Coliform/Strep Ratio
July	2700	4200	6.4
August			

Sample ID Number: K16 Stream: North Fork Elkhorn Creek

**Physical Data (May):**

pH	7.5	Alkalinity	190
Temperature	20	Total Hardness	246
Dissolved Oxygen	6.6	Chlorides	97.9
		Conductivity	853
		Total Organic Carbon	6.3
		Total Suspended Solids	5

**Fecal Data (July / August):**

	Coliform Count	Strep Count	Coliform/Strep Ratio
July	<10	80	<0.13
August			

Sample ID Number: K86 Stream: North Fork Elkhorn Creek

**Physical Data (May):**

pH	7.5	Alkalinity	167
Temperature	21	Total Hardness	214
Dissolved Oxygen	4.4	Chlorides	62.0
		Conductivity	625
		Total Organic Carbon	5.6
		Total Suspended Solids	3

**Fecal Data (July / August):**

	Coliform Count	Strep Count	Coliform/Strep Ratio
July	<10	70	<0.14
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: K05 Stream: Cane Run Creek

Ammonia	3.88	Orthophosphate as Phosphate	0.579	Sulfate	8.1
Ammonia Nitrogen	3.19	Orthophosphate as Phosphorus	0.189		
Total Kjeldahl Nitrogen as NH3	7.65	Total Recoverable Phosphorus	1.84		
Total Kjeldahl Nitrogen as N	6.29				
Nitrate	0.4				
Nitrate Nitrogen	0.09				

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

Sample ID Number: K16 Stream: North Fork Elkhorn Creek

Ammonia	0.10	Orthophosphate as Phosphate	1.238	Sulfate	108
Ammonia Nitrogen	0.08	Orthophosphate as Phosphorus	0.404		
Total Kjeldahl Nitrogen as NH3	0.30	Total Recoverable Phosphorus	0.64		
Total Kjeldahl Nitrogen as N	0.25				
Nitrate	1.0				
Nitrate Nitrogen	0.23				

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

Sample ID Number: K86 Stream: North Fork Elkhorn Creek

Ammonia	<input type="text"/>	Orthophosphate as Phosphate	<input type="text" value="0.590"/>	Sulfate	<input type="text" value="65.8"/>
Ammonia Nitrogen	<input type="text"/>	Orthophosphate as Phosphorus	<input type="text" value="0.192"/>		
Total Kjeldahl Nitrogen as NH3	<input type="text"/>	Total Recoverable Phosphorus	<input type="text" value="0.27"/>		
Total Kjeldahl Nitrogen as N	<input type="text"/>				
Nitrate	<input type="text"/>				
Nitrate Nitrogen	<input type="text"/>				

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: K05 Stream: Cane Run Creek

Aluminum	<input type="text" value="2.22"/>	Calcium	<input type="text" value="67.70"/>	Lead	<input type="text"/>	Selenium	<input type="text" value="0.01"/>	Thallium	<input type="text" value="0.20"/>
Antimony	<input type="text"/>	Chromium	<input type="text"/>	Lithium	<input type="text" value="0.009"/>	Silicon	<input type="text" value="5.85"/>	Vanadium	<input type="text"/>
Barium	<input type="text" value="0.12"/>	Cobalt	<input type="text" value="0.006"/>	Magnesium	<input type="text" value="17.19"/>	Sodium	<input type="text" value="27.57"/>	Zinc	<input type="text" value="0.03"/>
Beryllium	<input type="text"/>	Copper	<input type="text"/>	Manganese	<input type="text" value="2.60"/>	Strontium	<input type="text" value="0.15"/>		
Boron	<input type="text" value="0.12"/>	Iron	<input type="text" value="2.28"/>	Potassium	<input type="text" value="62.15"/>	Sulfur	<input type="text" value="4.40"/>		

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

Sample ID Number: K16 Stream: North Fork Elkhorn Creek

Aluminum	<input type="text" value="0.37"/>	Calcium	<input type="text" value="80.51"/>	Lead	<input type="text"/>	Selenium	<input type="text" value="0.01"/>	Thallium	<input type="text"/>
Antimony	<input type="text"/>	Chromium	<input type="text"/>	Lithium	<input type="text" value="0.02"/>	Silicon	<input type="text" value="0.78"/>	Vanadium	<input type="text"/>
Barium	<input type="text" value="0.04"/>	Cobalt	<input type="text" value="0.004"/>	Magnesium	<input type="text" value="15.22"/>	Sodium	<input type="text" value="76.82"/>	Zinc	<input type="text" value="0.004"/>
Beryllium	<input type="text"/>	Copper	<input type="text"/>	Manganese	<input type="text" value="0.14"/>	Strontium	<input type="text" value="0.22"/>		
Boron	<input type="text" value="0.36"/>	Iron	<input type="text" value="0.10"/>	Potassium	<input type="text" value="11.10"/>	Sulfur	<input type="text" value="31.72"/>		

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

Sample ID Number: K86 Stream: North Fork Elkhorn Creek

Aluminum	<input type="text" value="1.47"/>	Calcium	<input type="text" value="73.85"/>	Lead	<input type="text" value="0.01"/>	Selenium	<input type="text" value="0.01"/>	Thallium	<input type="text" value="0.03"/>
Antimony	<input type="text"/>	Chromium	<input type="text"/>	Lithium	<input type="text" value="0.01"/>	Silicon	<input type="text" value="4.95"/>	Vanadium	<input type="text"/>
Barium	<input type="text" value="0.06"/>	Cobalt	<input type="text" value="0.003"/>	Magnesium	<input type="text" value="12.38"/>	Sodium	<input type="text" value="45.63"/>	Zinc	<input type="text" value="0.008"/>
Beryllium	<input type="text"/>	Copper	<input type="text"/>	Manganese	<input type="text" value="0.31"/>	Strontium	<input type="text" value="0.18"/>		
Boron	<input type="text" value="0.26"/>	Iron	<input type="text" value="0.52"/>	Potassium	<input type="text" value="7.58"/>	Sulfur	<input type="text" value="18.87"/>		

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
K05	Cane Run Creek	<input type="text" value="0.90"/>	<input type="text" value="0.15"/>	<input type="text" value="0.25"/>
K16	North Fork Elkhorn Creek	<input type="text"/>	<input type="text"/>	<input type="text" value="0.1"/>
K86	North Fork Elkhorn Creek	<input type="text"/>	<input type="text"/>	<input type="text" value="0.06"/>

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