

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):	43,793	Acres	% of Total		
Residential Area:	3,383		7.7	Number of Mine Permits:	0
Commercial Area:	922		2.1	Total Permitted Mining Area (Acres):	0
Industrial Area:	0		0.0	Number of Identified Wetland Areas:	6
Agricultural Area:	26,800		61.2	Total Wetland Area (Acres):	4
Rural and Wooded Area:	12,512		28.6		
Other Land-use Area:	187		0.4		

#### Withdrawal and Discharge Sites:

Number of Public Water Supplies and Water Withdrawal Sites:	4	Number of KPDES Discharge Permits:	5
Surface Water Withdrawals:	2		
Groundwater Withdrawals:	2		
No. of Potable Water Treatment Facilities:	3		

#### Sampling Site Statistics:

Number of USGS Gaging Stations:	0
Number of Kentucky Division of Water Sampling Sites:	1
Number of Kentucky Dept. of Fish and Wildlife Sampling Sites:	2
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:	0

**Watershed Indicators and Ranking Categories:**

Overall Watershed Ranking:

Protection Ranking

Observed Impacts

Potential Impacts

Restoration Ranking

Low

Low

Low

High

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	2	No. of sources	0 - 14	2
Ground Drinking Water Sources	2	No. of sources	0 - 17	1
Groundwater Sensitivity	2.32	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	0.02	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	0	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	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	1.71	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	11	Number of sites	1 - 121	12
Potential Pesticide Loading	7	Est. sales in tons	0 - 45	10
Potential Fertilizer Loading	322	Est. tons applied	0 - 2747	394
Agricultural Erosion Potential	5.06	Est. tons erosion / acre	0 - 9	3.20
Livestock Operations Potential Impact	8,557	Animal units	55 - 43826	7,021
KPDES Discharge Violations	26	Number of violations	0 - 541	39
KY Division of Water Citizen Complaints	7	Number of complaints	0 - 53	9
Toxic Release Inventory	0	Score	0 - 11547626	231,638
Population Change Projection	895	Number of persons	-149 - 11030	448
Population Not on Public Sewer Systems	1,471	Number of persons	12 - 4511	1,114
Mining Area	0	Acres	0 - 6305	355
Surface Water Runoff Potential	75.77	SCS Curve Number	60 - 79	68
KPDES Permitted Discharges	5	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;">64.34</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>
<i>Segments Assessed:</i>	5	15.2	4.4	10.8	0.0	0.0
<i>Designated Uses</i>						
<i>Aquatic Life:</i>	5	15.2	4.4	10.8	0.0	0.0
<i>Primary Contact:</i>						
<i>Fish Consumption:</i>						
<i>Drinking Water:</i>	1	0	0	0	0	0

\* 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>
Arnolds Creek	0	10.8	10.8	AL	Partially Supporting
Boltz Lake	0	0	0	AL	Fully Supporting
Bullock Pen Creek	0	1.5	1.5	AL	Fully Supporting
Bullock Pen Lake	0	0	0	AL, DW	Fully Supporting
Ten Mile Creek	0	2.9	2.9	AL	Fully 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>
Arnolds Creek	0	10.8	10.8	Aquatic Life Support	Partially Supporting
<i>Possible Causes of Impairment:</i>			<i>Possible Sources For Impairment:</i>		
Siltation			Agriculture, Bank or Shoreline Modification/Destabilization, Crop-related Sources, Habitat Modification (other than Hydromodification), Nonirrigated Crop Production		

*\*Abbreviations: UT - Unnamed Tributary*

Watershed Name: Tenmile Creek

11-Digit Watershed Identity Number: 05100205390

**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>
BULLOCK PEN WATER DISTRICT	Surface Water	Water Treatment Plant	0410047
BULLOCK PEN WATER DISTRICT	Surface Water	Water Withdrawal Site	0410047
FAR-VUE FARM	Groundwater	Water Treatment Plant	0392658
I 75 CAMPERS VILLAGE CAMPGROUN	Groundwater	Water Treatment Plant	0412092

<i>KPDES Permitted Discharge Facilities</i>			<i>KPDES Site ID Number</i>
<i>Facility</i>	<i>Type of Facility</i>		
EAGLE CREEK COUNTRY CLUB	PHYSICAL FITNESS FACILITIES	KY0080403	
GRANTLAND ESTATES SUBD	LAND SUBDIVIDERS & DEV, EX CEM	KY0074284	
KOA CAMPGROUND	SPORTING & RECREATIONAL CAMPS	KY0080080	
LLOYD MULLINS WILDLIFE MGMT	LAND, MIN, WILDLIFE/FOREST CON	KY0088901	
SIMPSON MHP	OPER OF RES MOBILE HOME SITES	KY0083283	

**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>
Tenmile Creek	USGS	USGS03291490	Flow

<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>
Ten Mile Creek 5 (Arnold's Creek)	Upstream of Arnold's Creek	Mouth	13.2	10.8	0
Ten Mile Creek 3 (Bullock Pen Creek)	Upstream tributary of Bullock Pen Creek	Mouth	3	1.4	0

<i>KY River Watershed Watch Sampling Sites</i>		
<i>Stream Name</i>	<i>KRWW Sample ID No.</i>	<i>Site Description</i>
Ten Mile Creek	K30	0.5mi upstrm of Verona Mt Zion Rd.
Ten Mile Creek	K10	0.25mi upstream of mouth of Eagle Creek

Watershed Name:

Tenmile Creek

11-Digit Watershed Identity Number:

05100205390

Results from 1999 KY River Watershed Watch Sampling:

Conventional Parameters:

Sample ID Number: K10 Stream: Ten Mile Creek

Physical Data (May):

pH	<input type="text"/>	Alkalinity	<input type="text"/>
Temperature	<input type="text"/>	Total Hardness	<input type="text"/>
Dissolved Oxygen	<input type="text"/>	Chlorides	<input type="text"/>
		Conductivity	<input type="text"/>
		Total Organic Carbon	<input type="text"/>
		Total Suspended Solids	<input type="text"/>

Fecal Data (July / August):

	Coliform Count	Strep Count	Coliform/Strep Ratio
July	<input type="text"/>	<input type="text"/>	<input type="text"/>
August	<input type="text"/>	<input type="text"/>	<input type="text"/>

Sample ID Number: K30 Stream: Ten Mile Creek

Physical Data (May):

pH	<input type="text"/>	Alkalinity	<input type="text"/>
Temperature	<input type="text"/>	Total Hardness	<input type="text"/>
Dissolved Oxygen	<input type="text"/>	Chlorides	<input type="text"/>
		Conductivity	<input type="text"/>
		Total Organic Carbon	<input type="text"/>
		Total Suspended Solids	<input type="text"/>

Fecal Data (July / August):

	Coliform Count	Strep Count	Coliform/Strep Ratio
July	<input type="text"/>	<input type="text"/>	<input type="text"/>
August	<input type="text"/>	<input type="text"/>	<input type="text"/>

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: K10 Stream: Ten Mile Creek

Ammonia	<input type="text"/>	Orthophosphate as Phosphate	<input type="text"/>	Sulfate	<input type="text"/>
Ammonia Nitrogen	<input type="text"/>	Orthophosphate as Phosphorus	<input type="text"/>		
Total Kjeldahl Nitrogen as NH3	<input type="text"/>	Total Recoverable Phosphorus	<input type="text"/>		
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).

Sample ID Number: K30 Stream: Ten Mile Creek

Ammonia	<input type="text"/>	Orthophosphate as Phosphate	<input type="text"/>	Sulfate	<input type="text"/>
Ammonia Nitrogen	<input type="text"/>	Orthophosphate as Phosphorus	<input type="text"/>		
Total Kjeldahl Nitrogen as NH3	<input type="text"/>	Total Recoverable Phosphorus	<input type="text"/>		
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: K10 Stream: Ten Mile 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"/>		

Watershed Name: Tenmile Creek

11-Digit Watershed Identity Number: 05100205390

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

Sample ID Number: K30 Stream: Ten Mile 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
K10	Ten Mile Creek	<input type="text"/>	<input type="text"/>	<input type="text"/>
K30	Ten Mile 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).