

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):	95,010	Acres	% of Total		
Residential Area:	29		0.0	Number of Mine Permits:	7
Commercial Area:	361		0.4	Total Permitted Mining Area (Acres):	21
Industrial Area:	58		0.1	Number of Identified Wetland Areas:	10
Agricultural Area:	14,997		15.8	Total Wetland Area (Acres):	9
Rural and Wooded Area:	79,331		83.6		
Other Land-use Area:	95		0.1		

#### Withdrawal and Discharge Sites:

Number of Public Water Supplies and Water Withdrawal Sites:	3	Number of KPDES Discharge Permits:	15
Surface Water Withdrawals:	2		
Groundwater Withdrawals:	1		
No. of Potable Water Treatment Facilities:	2		

#### Sampling Site Statistics:

Number of USGS Gaging Stations:	0
Number of Kentucky Division of Water Sampling Sites:	6
Number of Kentucky Dept. of Fish and Wildlife Sampling Sites:	0
Number of US Forest Service Sampling Sites:	23
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

Medium

High

Medium

Medium

Medium

**Protection Categories:**

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Wetland Areas	9	Acres	0 - 106	12
Surface Drinking Water Sources	2	No. of sources	0 - 14	2
Ground Drinking Water Sources	1	No. of sources	0 - 17	1
Groundwater Sensitivity	3.27	Score	2 - 5	3.21
KY Dept. of Fish and Wildlife Management Areas	0	Acres	0 - 2951	93
U.S. Forest Service Management Areas	63,609	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	8	No. of resources	0 - 8	1
Kentucky Rivers Assessment Scores	6.17	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	1.00	Score	1 - 3	1.33
Contamination Sites Impacting Human Health	2	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	1.06	Score	1 - 3	1.31
Contamination Sites Impacting Ecological Health	2	Number of sites	0 - 71	4

**Potential Impact Categories:**

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Potential Contamination Sites	18	Number of sites	1 - 121	12
Potential Pesticide Loading	3	Est. sales in tons	0 - 45	10
Potential Fertilizer Loading	313	Est. tons applied	0 - 2747	394
Agricultural Erosion Potential	2.30	Est. tons erosion / acre	0 - 9	3.20
Livestock Operations Potential Impact	4,149	Animal units	55 - 43826	7,021
KPDES Discharge Violations	98	Number of violations	0 - 541	39
KY Division of Water Citizen Complaints	15	Number of complaints	0 - 53	9
Toxic Release Inventory	0	Score	0 - 11547626	231,638
Population Change Projection	296	Number of persons	-149 - 11030	448
Population Not on Public Sewer Systems	1,579	Number of persons	12 - 4511	1,114
Mining Area	19	Acres	0 - 6305	355
Surface Water Runoff Potential	65.54	SCS Curve Number	60 - 79	68
KPDES Permitted Discharges	15	Number of sites	0 - 56	6

**Stream and Waterbody Use Support Summary**

<b>Total Stream Miles:</b> 236.42	<b>Number of Segments</b>	<b>Stream Miles Assessed</b>	<b>Miles * Fully Supportina</b>	<b>Miles * Partially Supportina</b>	<b>Miles * Not Supportina</b>	<b>Miles * Threatened</b>
<b>Segments Assessed:</b>	14	67.5	52.2	0.0	1.5	0.0
<b>Designated Uses</b>						
<b>Aquatic Life:</b>	14	67.5	52.2	0.0	1.5	0.0
<b>Primary Contact:</b>						
<b>Fish Consumption:</b>	2	8.2	8.2	0.0	0.0	0.0
<b>Drinking Water:</b>	1	0	0	0	0	0

\* Blank values indicate no assessed segments for this category.

<b>Assessed Stream Segments and Waterbodies</b>					
<b>Stream or Waterbody Name *</b>	<b>Starting Milepoint</b>	<b>Ending Milepoint</b>	<b>Segment Length (miles)</b>	<b>Designated Uses *</b>	<b>Overall Level of Support</b>
Campton City Lake	0	0	0	AL, DW	Fully Supporting
Chimney Top Creek	0	4.4	4.4	AL	Fully Supporting
Dog Fork	0	2.3	2.3	AL	Fully Supporting
East Fork Indian creek	0	8.5	8.5	AL	Fully Supporting
Gladie Creek	0	4.3	4.3	AL, FC	Fully Supporting
Indian Creek	0	1.5	1.5	AL	Fully Supporting
Red River	59.4	65.9	6.5	AL	Fully Supporting
Red River	55.5	59.4	3.9	AL, FC	Fully Supporting
Red River	49	55.5	6.5	AL	Fully Supporting
Red River	41.1	49	7.9	AL	Fully Supporting
Rockbridge Fork	0	3.1	3.1	AL	Fully Supporting
Swift Camp Creek	0	13.8	13.8	AL	Not Assessed
UT to Swift Camp Creek	0	1.5	1.5	AL	Not Supporting
Wolfpen Creek	0	3.3	3.3	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>					
<b>Stream or Waterbody Name *</b>	<b>Starting Milepoint</b>	<b>Ending Milepoint</b>	<b>Segment Length (miles)</b>	<b>Impaired or Threatened Designated Use</b>	<b>Level of Support</b>
UT to Swift Camp Creek	0	1.5	1.5	Aquatic Life Support	Not Supporting
<b>Possible Causes of Impairment:</b>			<b>Possible Sources For Impairment:</b>		
Siltation			Erosion and Sedimentation, Habitat Modification (other than Hydromodification), Land Disposal, Removal of Riparian Vegetation, Septage Disposal, Urban Runoff/Storm Sewers		

\*Abbreviations: UT - Unnamed Tributary

Watershed Name: Red River

11-Digit Watershed Identity Number: 05100204120

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**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>
CAMPTON DOUBLE KWIK	Groundwater	Water Treatment Plant	1190402
CAMPTON WATER PLANT	Surface Water	Water Treatment Plant	1190061
CAMPTON WATER PLANT	Surface Water	Water Withdrawal Site	1190061

<i>KPDES Permitted Discharge Facilities</i>		
<i>Facility</i>	<i>Type of Facility</i>	<i>KPDES Site ID Number</i>
BOWEN ELEM SCHOOL	ELEMENTARY & SECONDARY SCHOOLS	KY0095320
CAMPTON STP	SEWERAGE SYSTEMS	KY0026069
FRENCHBURG CIVIL CON CTR	LAND, MIN, WILDLIFE/FOREST CON	KY0022047
KTC WOLFE CO MAINT LOT	BUS TERMINAL & SERVICE FACILIT	KYG500056
KTC WOLFE CO MAINT LOT	BUS TERMINAL & SERVICE FACILIT	KYG500057
PARKWAY CHEVRON	GASOLINE SERVICE STATIONS	KY0074438
SIPPLE BRICK INC	CRUSHED AND BROKEN LIMESTONE	KYG840066
THE WALKER CO OF KY INC MENIFE	CRUSHED AND BROKEN LIMESTONE	KYG840063
THE WALKER CO OF KY INC MONTGO	CRUSHED AND BROKEN LIMESTONE	KYG840065

**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>
Red River	USGS	USGS03282500	Flow
Red River	USGS	USGS03283100	Flow

<i>KY Division of Water Sampling Sites</i>	
<i>Stream Name</i>	<i>Type of Sampling</i>
Red River	Biological Monitoring
Gladie Creek	Physical/Chemical Monitoring
Wolfpen Creek	Physical/Chemical Monitoring
East Fork Indian Creek	Physical/Chemical Monitoring
Red River	Physical/Chemical Monitoring
Ut To Swift Camp Creek	Physical/Chemical Monitoring

<i>US Forest Service Sampling Sites</i>		
<i>11-Digit HUC</i>	<i>HUC Name</i>	<i>US Forest Service Site ID</i>
05100204120	Red River (upper)	0510020406018
05100204120	Red River (upper)	0510020406028
05100204120	Red River (upper)	0510020406027
05100204120	Red River (upper)	0510020406026
05100204120	Red River (upper)	0510020406016
05100204120	Red River (upper)	0510020406013
05100204120	Red River (upper)	0510020406017
05100204120	Red River (upper)	0510020406014
05100204120	Red River (upper)	0510020406003
05100204120	Red River (upper)	0510020406005

Watershed Name: Red River

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05100204120	Red River (upper)	0510020406004
05100204120	Red River (upper)	0510020406015
05100204120	Red River (upper)	0510020406012
05100204120	Red River (upper)	0510020406011
05100204120	Red River (upper)	0510020406022
05100204120	Red River (upper)	0510020406006
05100204120	Red River (upper)	0510020406010
05100204120	Red River (upper)	0510020406002
05100204120	Red River (upper)	0510020406019
05100204120	Red River (upper)	0510020406050
05100204120	Red River (upper)	0510020406051
05100204120	Red River (upper)	0510020406020
05100204120	Red River (upper)	0510020406021

***KY River Watershed Watch Sampling Sites***

<i>Stream Name</i>	<i>KRWW Sample ID No.</i>	<i>Site Description</i>
Red River	K06	Mouth of Big Branch
Swift Camp Creek	K74	At Swift Camp Creek Camp

Watershed Name:

Red River

11-Digit Watershed Identity Number:

05100204120

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

#### Conventional Parameters:

Sample ID Number: K06 Stream: Red River

##### Physical Data (May):

pH	7.25	Alkalinity	35
Temperature	0	Total Hardness	90
Dissolved Oxygen	8.4	Chlorides	5.6
		Conductivity	227
		Total Organic Carbon	3.9
		Total Suspended Solids	4

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

	Coliform Count	Strep Count	Coliform/Strep Ratio
July	<10	340	<0.029
August			

Sample ID Number: K74 Stream: Swift Camp Creek

##### Physical Data (May):

pH	7.6	Alkalinity	47
Temperature	0	Total Hardness	74
Dissolved Oxygen	8.1	Chlorides	19.5
		Conductivity	173
		Total Organic Carbon	2.0
		Total Suspended Solids	

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

	Coliform Count	Strep Count	Coliform/Strep Ratio
July	<10	300	<0.033
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: K06 Stream: Red River

Ammonia		Orthophosphate as Phosphate	0.043	Sulfate	71.3
Ammonia Nitrogen		Orthophosphate as Phosphorus	0.014		
Total Kjeldahl Nitrogen as NH3		Total Recoverable Phosphorus	0.07		
Total Kjeldahl Nitrogen as N					
Nitrate	0.2				
Nitrate Nitrogen	0.04				

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

Sample ID Number: K74 Stream: Swift Camp Creek

Ammonia		Orthophosphate as Phosphate	0.014	Sulfate	10.8
Ammonia Nitrogen		Orthophosphate as Phosphorus	0.005		
Total Kjeldahl Nitrogen as NH3		Total Recoverable Phosphorus			
Total Kjeldahl Nitrogen as N					
Nitrate	0.1				
Nitrate Nitrogen	0.02				

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: K06 Stream: Red River

Aluminum	0.21	Calcium	19.18	Lead		Selenium	0.009	Thallium	
Antimony		Chromium	0.04	Lithium		Silicon	0.89	Vanadium	
Barium	0.03	Cobalt	0.006	Magnesium	10.61	Sodium	4.84	Zinc	0.01
Beryllium	0.001	Copper		Manganese	0.17	Strontium	0.07		
Boron	0.10	Iron	0.17	Potassium	3.79	Sulfur	13.82		

Watershed Name:

Red River

11-Digit Watershed Identity Number:

05100204120

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

Sample ID Number: K74 Stream: Swift Camp Creek

Aluminum	0.23	Calcium	13.59	Lead		Selenium		Thallium	
Antimony		Chromium	0.02	Lithium		Silicon	1.30	Vanadium	
Barium	0.02	Cobalt	0.002	Magnesium	3.90	Sodium	10.47	Zinc	
Beryllium		Copper		Manganese	0.01	Strontium	0.44		
Boron	0.14	Iron	0.18	Potassium	3.13	Sulfur	2.95		

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
K06	Red River			
K74	Swift Camp Creek			

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