

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):	53,487	Acres	% of Total		
Residential Area:	267		0.5	Number of Mine Permits:	14
Commercial Area:	154		0.3	Total Permitted Mining Area (Acres):	83
Industrial Area:	70		0.1	Number of Identified Wetland Areas:	1
Agricultural Area:	5,932		11.1	Total Wetland Area (Acres):	1
Rural and Wooded Area:	46,660		87.4		
Other Land-use Area:	314		0.6		

Withdrawal and Discharge Sites:

Number of Public Water Supplies and Water Withdrawal Sites:	6	Number of KPDES Discharge Permits:	5
Surface Water Withdrawals:	4		
Groundwater Withdrawals:	2		
No. of Potable Water Treatment Facilities:	4		

Sampling Site Statistics:

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

High

Protection Categories:

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Wetland Areas	1	Acres	0 - 106	12
Surface Drinking Water Sources	4	No. of sources	0 - 14	2
Ground Drinking Water Sources	2	No. of sources	0 - 17	1
Groundwater Sensitivity	3.00	Score	2 - 5	3.21
KY Dept. of Fish and Wildlife Management Areas	0	Acres	0 - 2951	93
U.S. Forest Service Management Areas	166	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	1	No. of resources	0 - 8	1
Kentucky Rivers Assessment Scores	4.54	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	7	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	3.00	Score	1 - 3	1.33
Contamination Sites Impacting Human Health	0	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	1.00	Score	1 - 3	1.31
Contamination Sites Impacting Ecological Health	0	Number of sites	0 - 71	4

Potential Impact Categories:

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Potential Contamination Sites	9	Number of sites	1 - 121	12
Potential Pesticide Loading	2	Est. sales in tons	0 - 45	10
Potential Fertilizer Loading	77	Est. tons applied	0 - 2747	394
Agricultural Erosion Potential	3.33	Est. tons erosion / acre	0 - 9	3.20
Livestock Operations Potential Impact	624	Animal units	55 - 43826	7,021
KPDES Discharge Violations	3	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	75	Number of persons	-149 - 11030	448
Population Not on Public Sewer Systems	1,115	Number of persons	12 - 4511	1,114
Mining Area	86	Acres	0 - 6305	355
Surface Water Runoff Potential	60.77	SCS Curve Number	60 - 79	68
KPDES Permitted Discharges	5	Number of sites	0 - 56	6

Stream and Waterbody Use Support Summary

Total Stream Miles: <input type="text" value="123.83"/>	<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>
Segments Assessed:	4	16.9	12.4	0.0	4.5	0.0
Designated Uses						
Aquatic Life:	4	16.9	16.9	0.0	0.0	0.0
Primary Contact:	1	4.5	0.0	0.0	4.5	0.0
Fish Consumption:						
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>
North Fork Kentucky River	44.7	49.2	4.5	AL, PC	Not Supporting
North Fork Kentucky River	35.4	44.7	9.3	AL	Fully Supporting
Panbowl Lake	0	0	0	AL	Not Supporting
War Creek	0	3.1	3.1	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

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>
Panbowl Lake	0	0	0	Aquatic Life Support	Not Supporting
<i>Possible Causes of Impairment:</i> Organic enrichment/Low DO			<i>Possible Sources For Impairment:</i> Internal nutrient cycling (primarily lakes), Land Disposal, Septage Disposal		
North Fork Kentucky River	44.7	49.2	4.5	Primary Contact (Recr)	Not Supporting
<i>Possible Causes of Impairment:</i> Pathogens			<i>Possible Sources For Impairment:</i> Land Disposal, Onsite Wastewater Systems (Septic Tanks)		

*Abbreviations: UT - Unnamed Tributary

Watershed Name: North Fork Kentucky River

11-Digit Watershed Identity Number: 05100201150

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>
BEATTYVILLE WATER WORKS	Surface Water	Water Treatment Plant	0650024
BEATTYVILLE WATER WORKS	Surface Water	Water Withdrawal Site	0650024
JACKSON MUNICIPAL WATER WORKS	Surface Water	Water Treatment Plant	0130208
JACKSON MUNICIPAL WATER WORKS	Surface Water	Water Withdrawal Site	0130208
KY MTN BIBLE COLLEGE	Groundwater	Water Treatment Plant	0132994
MT CARMEL HIGH/BOARDING SCHOOL	Groundwater	Water Treatment Plant	0130949

<i>KPDES Permitted Discharge Facilities</i>			<i>KPDES Site ID Number</i>
<i>Facility</i>	<i>Type of Facility</i>		
BEATTYVILLE WTP	WATER SUPPLY	KY0090948	
BEATTYVILLE WTP	WATER SUPPLY	KYG640092	
JACKSON STP	SEWERAGE SYSTEMS	KY0021288	
MT CARMEL HIGH SCHOOL	ELEMENTARY & SECONDARY SCHOOLS	KY0083305	
P & A PROPERTIES INC BP #1	PETROLEUM BULK STATIONS & TERM	KY0097888	

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 Fork Kentucky River	USGS	USGS03280500	Flow
North Fork Kentucky River	US COE	USNWS15-4196-44	Flow
North Fork Kentucky River	USGS	USGS03280000	Flow

<i>KY Division of Water Sampling Sites</i>	
<i>Stream Name</i>	<i>Type of Sampling</i>
North Fork Ky River	Biological Monitoring
Walker Creek	Physical/Chemical Monitoring

<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>
North Fork KY River - War Creek	Spicewood Fork	Mouth	6.2	3.1	0

<i>KY River Watershed Watch Sampling Sites</i>		
<i>Stream Name</i>	<i>KRWW Sample ID No.</i>	<i>Site Description</i>
North Fork KY River	K48	Martha Lane Collins Br (KY 541)

Results from 1999 KY River Watershed Watch Sampling:

Conventional Parameters:

Sample ID Number: K48 Stream: North Fork KY River

Physical Data (May):	
pH	0
Temperature	0
Dissolved Oxygen	0
Alkalinity	145
Total Hardness	668
Chlorides	20.2
Conductivity	1316
Total Organic Carbon	2.7
Total Suspended Solids	10

Fecal Data (July / August):		
Coliform Count	Strep Count	Coliform/Strep Ratio
July	110	230
August		0.48

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: K48 Stream: North Fork KY River

Ammonia	0.09	Orthophosphate as Phosphate	0.026	Sulfate	620
Ammonia Nitrogen	0.07	Orthophosphate as Phosphorus	0.008		
Total Kjeldahl Nitrogen as NH3	0.08	Total Recoverable Phosphorus			
Total Kjeldahl Nitrogen as N	0.07				
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).

Metals and Mineral Parameters:

Sample ID Number: K48 Stream: North Fork KY River

Aluminum	0.14	Calcium	107.40	Lead		Selenium		Thallium	0.02
Antimony	0.16	Chromium		Lithium	0.02	Silicon	1.63	Vanadium	
Barium	0.07	Cobalt	0.009	Magnesium	92.05	Sodium	48.88	Zinc	0.006
Beryllium		Copper		Manganese	0.12	Strontium	1.23		
Boron	0.11	Iron	0.37	Potassium	9.53	Sulfur	128.21		

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

K48	North Fork KY River			
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Note: All indicators are in micrograms per liter which is equivalent to parts per billion (ppb).