Kentucky and Ohio Rivers

The confluence of the Kentucky River with the Ohio River (looking downstream) at the

Carrollton City Park. Photo by Paul Potter, University of Cincinnati.

Acknowledgments

Thanks to Terry Hounshell and Meg Smath,

Information, for base-map data.

Kentucky Geological Survey, for cartographic and editorial improvements. Thanks to Kim and

Kent Anness, Kentucky Division of Geographic

Kentucky River Lock and Dam 1, Carroll County

Looking south at the No. 1 Lock and Dam on the Kentucky River south of Carrollton.

Hickman Creek, Jessamine County

Photo by Paul Potter, University of Cincinnati.

Site Name

Irvine ramp

Camp Nelson

Paint Lick ramp

Ky. 1541 ramp

Hunters Ferry

Ky. 595 ramp

Jackson Ferry

Ford ramp

Nonesuch

Fint's ramp

River Cleanup

Friends of the Red River periodically leads cleanups of the river. In this photo,

Valley View ramp (Madison Co.)

Across from mouth of Red River

Palisade's Adventures

Clays Ferry boat dock

Oregon Road ramp

Lee's dock ramp

Boonesborough State Park

Frankfort boat dock ramp

Benson Creek boat ramp

Steele Branch ramp Still Waters boat ramp

Monterey ramp Six Mile Creek ramp

Lock No. 2 ramp

No Child Left Inside

Powell County High School students learned water-quality sampling techniques through a

Eastern Highland Rim
Hills of the Bluegrass
Inner Bluegrass

Northern Forested Plateau Escarpment
Ohio/Kentucky Carboniferous Plateau
Outer Bluegrass

Data from U.S. EPA

watershed grant project funded by the Kentucky River Authority. Students studied water

chemistry, stream habitat, macroinvertebrates, and freshwater mussels. Photo by Kim

Big Twin Creek ramp

Kentucky River Campgrounds

Valley View ramp (Jessamine Co.)

High Bridge

Frank Brown ramp

Ky. 52 east of Irvine to Ravenna; Ky. 1571 southeast of Ravenna (1 mile)

Ky. 39 north of Lancaster (13.6 miles) to Giles near mouth of Paint Lick Creek

U.S. 68 east of Harrodsburg to Kentucky River; on right before crossing river

Ky. 974 southeast of Winchester (6 miles); right on Muddy Creek Road to river

U.S. 421 north of New Castle; right on Ky. 202; right on Ky. 389 to Lockport

Ky. 22 west of Owenton to Gratz; north on Ky. 355 to bridge

Ky. 39 south of Nicholasville past Black Bridge to river; left on Ky. 1541 for 300 yards

Ky. 52 southwest of Richmond; right on Ky. 1295 to Kirksville; right on Ky. 595 to river

Ky. 169 southeast of Nicholasville to Valley View Ferry (Jessamine-Fayette County line)

Ky. 39 south of Nicholasville (1 mile); left on Ky. 1541; left on Hunter's Ferry Road

Ky. 52 west of Irvine to junction of Ky. 89; ramp on west side of bridge

U.S. 27 north of Lancaster (13.2 miles); at bridge over Kentucky Rive

Ky. 29 south of Nicholasville through Wilmore to High Bridge

Ky. 169 north of Richmond to Valley View Ferry on Kentucky River

U.S. 52 east of Richmond to Waco; left on Ky. 977 to Kentucky River

KENTUCKY

Kentucky Geological Survey

Ky. 89 southeast of Winchester (11.2 miles); right on Lamore Ferry Road to Merritt (ferry crossing)

Series XII, 2009

No 38.19691 -84.87967 No 38.20396 -84.88468 Yes 38.28526 -84.86893 No 38.29307 -84.87870 Yes 38.41741 -84.87832 No 38.43718 -84.96458 No 38.43965 -84.96287

No 38.55151 -84.99868

Ky. 627 south of Winchester; left on Old Ky. 627; left on Ford-Hampton Road U.S. 25 south of Lexington to Clays Ferry; right on Ky. 2328 to Clays Ferry boat ramp Ky. 33 south of Versailles; right on Cummings Ferry Road I-75 north of Richmond to Ky. 627 exit; north to state park U.S. 127 north of Harrodsburg to Salvisa; right on Oregon Road U.S. 62 east of Lawrenceburg; right on Ky. 1510 to ramp Ky. 1964 west of Versailles to Clifton; left onto Buck Run Road (boat ramp before marina) U.S. 127 south of Frankfort; left on Ky. 676; left on Ky. 420 (old Lawrenceburg Road) Wapping Street in Frankfort behind Paul Sawyier Library U.S. 127 in Frankfort (city limits) to Ky. 1211; turn right on Benson Valley Road U.S. 127 north of Frankfort (6.5 miles); left on Steele Branch Road U.S. 127 north of Frankfort (6.5 miles); left on Steele Branch Road to river U.S. 127 north of Frankfort (10 miles); cross Elkhorn Creek bridge; left to Still Waters Campground U.S. 127 south of Owenton to Monterey; right on Point of Rock Road; first right below Lock No. 3 U.S. 421 north of New Castle; right on Ky. 202; right on Ky. 389 to Lockport; left on Lock No. 2 road

Data from the Kentucky Department of Fish and Wildlife Resources. For boat access information throughout the basin, go to kygeonet.ky.gov/kdfwr/viewer.htm.



ject to seasonal flooding. Photo taken from the new bypass bridge near Irvine by John F. Stickney, Kentucky Rural Water Association.

Karst Hydrology—Bluegrass Region

Kentucky River bottomland in Estill County is excellent for growing crops, but is sub-



Long after the clouds have gone, the Big Sink in Woodford County retains runoff from the storms. Sinkholes in the Inner Bluegrass lead to underground channels and act as natural detention basins. The water drains slowly to underground conduits in the limestone. After journeying perhaps miles underground, the water will reemerge from a spring near a stream.

North Fork of the Kentucky River at Jackson, Breathitt County



The North Fork of the Kentucky River, seen here during the drought of 2007, provides water for Jackson Municipal Water Works. The Middle Fork of the Kentucky

River and Buckhorn Lake are also potential sources of water. Hilly to steep

Level to gently rolling Gently rolling to hilly

More Information

Boating and Fishing Access Sites, Ky. Dept. Fish and Wildlife Resources: kygeonet.ky.gov/kdfwr/ Johnson, L.R., and Parrish, C.E., 1999, Kentucky River development: The Commonwealth's waterway: U.S. Army Corps of Engineers, Louisville District, www.nandwphoto.com/Kentucky River Development.pdf Kentucky River Water Watch: www.uky.edu/OtherOrgs/KRWW/Welcome.html Kentucky River Authority:

Basin Location

Explanation

Elevation in feet

2,150-3,250

1,800-2,150

1,600–1,800

1,450–1,600

1,300-1,450

1,150-1,300

1,000-1,150

850-1,000

700-850

420-700

Sinkholes

Source Water/Groundwater

Protection Areas–Zone 1

www.water.ky.gov/watersheds/ 11-Digit Hydrologic Unit boundary, unit code, and area in square miles

Priority watershed:

Incorporated city

site (see table)

Small boat ramp

County seat **└─**ि Large boat ramp

12 Photo location County boundary

Public Water withdrawal

Treatment plant outfalls

Stream reaches not supporting

assessed uses: water.ky.gov/sw/tmdl/303d/

Special Use Waters: water.ky.gov/sw/specialwaters/

Raven Run

Raven Run Creek. Raven Run is a unique, 470-acre nature sanctuary dedicated to preserving the natural beauty of the Kentucky River Palisades and early Kentucky history. Over 10 miles of hiking trails provide access to streams, meadows, and woodlands characteristic of the area. Numerous 19th century remnants from early settlers, as well as over 600 species of plants, allow visitors to become acquainted with and appreciate the natural world. Raven Run also accommodates over 200 species of birds throughout the year. Photo by Jim Rebmann, Lexington-Fayette Urban County Government.

Lakes

Collins Blue **Grass Parkway**

www.finance.ky.gov/ourcabinet/attached+agencies/kra.htm Kentucky Division of Water: water.ky.gov Kentucky Water Resources Research Institute: www.ukv.edu/WaterResources/ U.S. Environmental Protection Agency:

Kentucky Geological Survey: www.uky.edu/kgs/water/library/ www.epa.gov/wed/pages/ecoregions/level_iv.htm Water Watch data: kgsmap.uky.edu/website/krww/ U.S. Geological Survey surface water data: water.usgs.gov/osw/ 201.0 18.9 19.9

0760030 Berea Municipal Utilities 12 0760030 Berea Municipal Utilities 13 0130208 Jackson Municipal Water Works 14 0650024 Beattyville Water Works 15 0400233 Lancaster Water Works Danville City Water Works 16 0110097 17 0330205 Irvine Municipal Utilities Commission 18 0400233 Lancaster Water Works 1190061 Campton Water Plant 0760370 Richmond Water, Gas and Sewer 0840180 Harrodsburg Municipal Water Department 22 0570495 Highbridge Spring Water Company 23 0570315 Nicholasville Utilities 24 0570010 Wilmore Water Works 25 0990281 Beech Fork Water Commission 26 0990281 Beech Fork Water Commission 27 0250473 Winchester Municipal Utilities Commission 28 0340250 Kentucky-American Water Company 29 0250473 Winchester Municipal Utilities Commission 30 0340250 Kentucky-American Water Company 0340250 Kentucky-American Water Company 1200439 Versailles Municipal Water 0030239 Lawrenceburg Water & Sewer Department 34 0370143 Frankfort Electric and Water Plant Board 1050157 Georgetown Municipal Water & Sewer 36 0940337 Owenton City Waterworks

Data from the Kentucky Infrastructure Authority (2008)

¹Public Water System Identification Number

0660204

0670462

0260737

0260737

0670279

0970184

0950036

0690417

0760030

0760030

0940337

38 0410047

Upper Silver Creek (Kale Lake) Cowbell Lake Lower Silver Creek Lake (B-Lake) Owsley Fork North Fork Kentucky River Lancaster Reservoir 1 Herrington Lake Kentucky River Pool 11 Kentucky River Pool 8 Campton Lake Kentucky River Pool 11 Kentucky River Pool 7 High Bridge Spring Kentucky River Pool 8 Kentucky River Pool 6 Red River Beech Fork Reservoir Kentucky River Kentucky River Pool 9 Carroll Ecton Reservoir East Hickman Creek Reservoir 4 West Hickman Reservoir 1 Kentucky River Pool 5 Kentucky River

Switzer Covered Bridge, Franklin County

Covered bridges were once common in Kentucky. The Switzer Covered Bridge carried KY 1262 across North Elkhorn Creek at Switzer in eastern Franklin 1906 and again in 1990. On March 1, 1997 the bridge was washed away in a flood and was restored in 1998. Photo by Brandon Nuttall, Kentucky Geological

Carr Fork Lake, Knott County

Two faces of the eastern Kentucky economy can be seen in this photo of Carr Fork Lake in Knott County. The lake's 710 acres and 24 miles of shoreline provide for swimming, fishing, boating, water sports, camping, hiking, and wildlife habitat. A coalmining operation can be seen in the background.

Kentucky River Lock and Dam 14, Lee County Lee County is blessed with an abundance of water. The North, South, and

Middle Forks of the Kentucky River meet upstream of Heidelberg, the site of Lock and Dam 14. The dam (seen from the Albert Updyke Ky. 399 Bridge) was completed in 1917 as the last in the system—begun in 1836—from Heidelberg to the Ohio River.

Hickman Creek just above its mouth at the Kentucky River. The creek drains western Jessamine and southern Fayette Counties over limestone of the Inner Bluegrass. Streams and groundwater can be polluted by development that does not recognize the karst geology.

Old U.S. 27 Bridge and Kentucky River Palisades



The main stem of the Kentucky River provides 80 million gallons of water per day to 600,000 people. It also provides boating, swimming, and fishing recreation. The Kentucky River Palisades support the highest concentration of rare plant species in the Bluegrass

Region. The valley walls, almost vertical, rise 400 or more feet above the stream.

Kentucky River Palisades



Generations of Kentuckians have mined and guarried the Camp Nelson Limestone along the Kentucky River for use in road and building construction. Photo by Richard Smath, Kentucky Geological Survey.

Lock and Dam Data

LOCK NO. Miles above mouth 96.2 139.9 17.6 Length of pool above dam (mi) 11.0 17.2 14.0 20.8 22.9 23.0 1900 Date put in operation Chamber dimensions (ft) 38x145 38x145 38x145 38x145 38x145 52x147 52x147 52x146 52x148 52x148 52x148 52x148 52x148 52x148 52x148 423.87 437.47 449.75 463.86 478.90 492.42 508.60 526.60 544.60 561.60 Lower sill, elevation 421.80 430.05 444.02 456.91 470.60 484.53 499.42 515.39 533.30 550.64 567.19 585.70 602.74 620.65 Normal pool elevation, lower Lower sill depth (ft) at normal pool 6.50 7.38 6.49 6.45 6.88 6.00 6.66 6.00 421.80 436.37 448.52 463.95 475.35 489.90 505.44 522.60 540.60 558.60 575.60 593.00 611.00 629.00 Upper sill, elevation Normal pool elevation, upper 443.97 457.13 470.35 485.35 499.30 514.60 533.26 550.60 567.60 585.60 Upper sill depth (ft) at normal pool 8.23 7.60 8.61 6.40 10.00 9.40 9.16 10.66 10.00 9.00 Lift—Normal pool to normal pool (ft) 8.23 13.92 13.11 13.44 14.75 14.77 15.18 17.87 17.30 16.96 482.1 493.22 498.32 512.42 525.4 538.94 557.2 573.1 587.4 598.75 615.0 632.25 654.0 664.6 Maximum high-water elevation Depth (ft), mean high water above normal upper pool elevation 52.07 7,471 6,477 5,730 5,290 4,200 3,847 Average annual flow (ft³/s) 6,748 6,598 6,508 5,087 7Q10 (ft³/s)** 12.6 11.2 11.2 11.1 10.0 Date of high water 1978 1978 1978 1978 1978 1978 1978 1978 1939 1929 Type of original lock stone stone stone concrete concrete concrete concrete concrete masonry Type of original dam timber timber timber crib crib crib crib crib crib crib

Lock and dam data from the Kentucky River Authority: www.finance.ky.gov/ourcabinet/attached+agencies/ld.htm ¹Zeroes of all gages are at sill elevations. All elevations are referred to Kentucky River datum and require variable corrections for conversion to U.S. Coast and Geodetic Survey 1929 general adjustment elevations. To view recent stage readings, go to waterdata.usgs.gov/ky/nwis/current/?type=flow Maximum high-water elevations at locks 5, 7, 8, 9, and 11 are based on profile data.

"Seven-day low flow that occurs, on average, once every 10 years. Flow data from U.S. Geological Survey, ftp.kymartian.ky.gov/usgs/kylowflowmeanflow.zip

The Kentucky River Basin's nearly 7,000 square miles in 42 counties contain 16,000 miles of streams. From a hill in Letcher County 3,250 feet above sea level, the Kentucky River runs down the Eastern Kentucky Coal Field, Knobs, and Bluegrass Regions to the Ohio River at 420 feet above sea level. Along the way the river washes rocks laid down as sediments over a period of 150 million years—past the 300-million-year-old sandstone, siltstone, shale, and

coal from the Pennsylvanian to the 450-million-year-old Ordovician limestones in central Kentucky. The oldest rocks exposed at the surface in Kentucky are the Camp Nelson limestones at the base of the Kentucky River Palisades in central Kentucky Residents draw about 100 million gallons of water per day from streams and reservoirs in the basin. The Kentucky River's 14 dams create 9,700 acres of pools

with over 100,000 acre-feet of storage for drinking-water supplies. On average, about 5,400 million gallons per day (mgd) flow into the Ohio, but about once every 10 years, only 9.4 mgd will flow at the mouth for a week. This variability in flow affects water users and stream life. Man-made lakes cover 8,200 acres: The largest are Herrington, 2,940 acres; Buckhorn, 1,230 acres; and Carr Fork, 710 acres. There are 33,600 acres of

lacustrine and palustrine wetlands in the basin. More than 1,125 miles of streams in the basin do not fully support designated uses for warm-water aquatic habitat, primary contact recreation, secondary contact recreation, or fish consumption. Most streams have not been assessed. The percentage of assessed streams not supporting use was: warm-water aquatic habitat (42%); fish consumption (26%); primary contact recreation (46%). More than 335 miles of streams have been declared special use waters: either exceptional

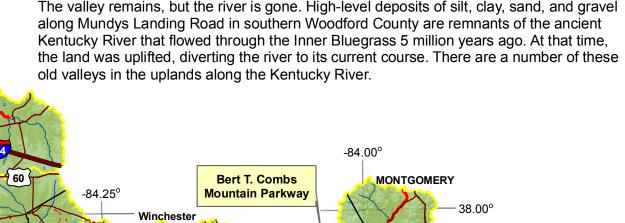
waters, or reference reaches. More than 2,075 square miles of the basin have been designated as priority watersheds, impacted by pathogens, nutrients, habitat alterations, siltation, low dissolved oxygen, and metals.

North Elkhorn Creek, Scott County

volunteers use canoes and kayaks to collect discarded tires from the river for proper disposal. Photo by Russ Miller. Turtles sunbathe at this quiet bend on North Elkhorn Creek in Scott County. Elkhorn Creek has some of the best smallmouth bass fishing in the state. Maintaining water quality for recreation and wildlife presents special problems in karst regions such as

Ancient Kentucky River Deposits, Woodford County

The valley remains, but the river is gone. High-level deposits of silt, clay, sand, and gravel along Mundys Landing Road in southern Woodford County are remnants of the ancient Kentucky River that flowed through the Inner Bluegrass 5 million years ago. At that time,



Scale = 1:316,800 1 inch equals 5 miles

Goose Creek, Clay County

Source

Middle Fork Kentucky River

Goose Creek and other streams throughout the basin offer scenes of quiet beauty.

Public Water Withdrawals

Hyden-Leslie County Water District

Manchester Water Works

Manchester Water Works

Hazard Water Department

Booneville Water and Sewer

Stanford Water Commission

Berea Municipal Utilities

Berea Municipal Utilities

Owenton City Waterworks

Bullock Pen Water District

Fleming-Neon Water Company

Letcher County Water And Sewer District Kentucky River Bert Combs Lake Goose Creek Shea Fork Mine North Fork Kentucky River South Fork Kentucky River Rice Lake North Fork Kentucky River Pool 14

> Kentucky River Pool 4 Royal Spring Severn Creek Thomas Lake

Bullock Pen Lake

Hal Rogers Parkway

County. It is a 120 foot long Howe truss design built in 1855 and restored in