

MAPPED KARST GROUNDWATER BASINS IN THE SOMERSET 30 X 60 MINUTE QUADRANGLE

James C. Currens and Randall L. Paylor*
Kentucky Geological Survey

Joseph A. Ray (retired) and Robert J. Blair
Kentucky Energy and Environment Cabinet—
Division of Water

LEGEND

Near-surface geologic units composed mainly of soluble lithologies

Near-surface geologic units composed mainly of insoluble lithologies

Inferred perennial groundwater flow route

Mapped perennial groundwater flow route

---→ Subsurface overflow (high-flow) route

Surface overflow (high-flow) route

Groundwater basin catchment boundary

Groundwater basin catchment sub-boundary

✓ ✓ Stream sink or swallet

Underflow spring (perennial)Overflow spring (high flow)

Karst window or sinking spring

Cave streamOther tracer-injection point

©058) Kentucky Division of Water AKGWA spring identification number

THE BOILS Spring name

EXPLANATION

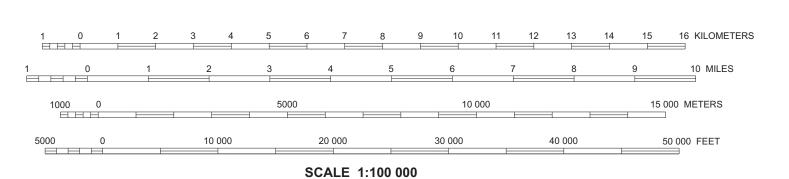
This map shows karst groundwater basins in the Somerset quadrangle, determined primarily by groundwater tracer studies. The map can be used to quickly identify the groundwater basins and springs to which a site may drain. Major springs and the relative size of their catchment areas can be evaluated for potential as water supplies. The map also serves as a geographic index to literature on karst groundwater in the area. This map is designed for regional and preliminary hydrologic investigations. Features such as springs and swallets are much too small to precisely locate on this map with a scale small enough to show regional relationships. See the literature for detailed site descriptions. The data used to compile this map were obtained by numerous investigators over the last 25 years. The perennial spring draining a groundwater basin is assigned a unique identification number, referred to as the AKGWA number (Assembled Kentucky GroundWater database). Individual basins are identified by the perennial spring name and AKGWA number. The authors of tracer data are identified by number in the "Data Source" column of the key, and are listed in "References Cited" in order of publication or research date.

Although groundwater flow routes shown here have been established by tracer studies, with the exception of mapped cave streams, the precise flow paths are unknown and are inferred or interpreted using water-level data, geologic structure, or surface features. Arrows show the direction of groundwater flow and tracer recovery locations. Conduit flow is illustrated as either thick trunk-flow lines or thin tributary-flow lines. The locations of some groundwater basins are inferred, based on the existence of a significant spring system and the delineation of adjacent basins. The position of groundwater basin boundaries should be considered approximate because of the map's scale and because boundaries can shift during high-water conditions. Also, excess flow may exit or enter a basin via surface or subsurface overflow routes. Additional overflow routes probably exist. Although most of the groundwater-tracing results shown on this map were obtained during moderate- or high-flow conditions, the groundwater basins are illustrated in base flow because base flow is the most common flow condition. The main spring draining the basin is assumed to be an underflow spring that preferentially drains base flow (Worthington, S.R.H., 1991, Karst hydrogeology of the Canadian Rocky Mountains: Hamilton, Ontario, McMaster University, doctoral dissertation, 380 p.). Generally, names of groundwater basins are derived from these main springs. Not all additional springs are shown because of the small map scale.

DISCLAIMER: This map is subject to revision upon receipt of new hydrologic data. Furthermore, areas on the map showing no karst features may actually be areas where tracer tests have not yet been conducted. Consult the cited references or authors for additional information. This map, completed December 5, 2011, replaces and supersedes Map and Chart 18, series 11, 1998.

ACKNOWLEDGMENTS

We thank the many karst investigators who have contributed data for this map. Without their cooperation, this map would not have been possible.



universal transverse Mercator projection, zone 16: 1927 North American datum

TOPOGRAPHIC CONTOUR INTERVAL 20 METERS

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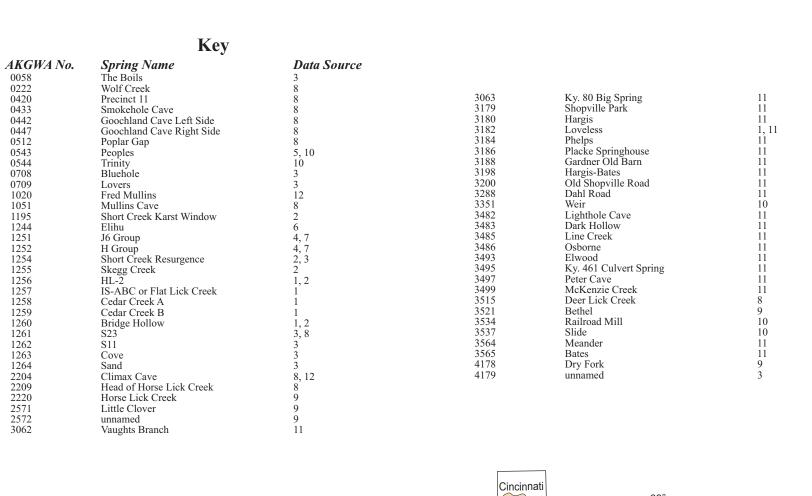
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Cartography by Terry Hounshell

Jasper Louisville Lexington Morehead Huntington

West Frankfort Evansville Tell City Elizabeth-town Harrods-burg Irvine William-son

Cape Girardeau Paducah Madison- Beaver Ville Dam Bellsville Somerset Hazard Pikeville Sikeston Murray Hopkins- Ville Green Ville Green Ville Borio Bristol Por 89° 88° 87° 86° 85° 84° 83° 82°

Locations of the 30 x 60 minute quadrangles covering Kentucky. The Somerset quadrangle is highlighted in green.

