

MAPPED KARST GROUNDWATER BASINS IN THE TOMPKINSVILLE 30 x 60 MINUTE QUADRANGLE

James C. Currans and Randall L. Paylor
Kentucky Geological Survey

Robert J. Blair
Kentucky Environmental and Public Protection Cabinet–
Division of Water

William (Bill) Walden, Monticello, Ky.

LEGEND

- Area of potential karst groundwater basin development
- Area of limited karst groundwater basin development
- Inferred perennial groundwater flow route
- Subsurface overflow (high-flow) route
- Groundwater basin catchment boundary
- Stream sink or swallet
 - Underflow spring (perennial)
 - Overflow spring (high flow)
- Karst window or sinking spring
- Cave stream
- Other tracer-injection point
- Water well
- Kentucky Division of Water AKGWA spring identification number (last four digits)
- Spring name

TOWN MILL CREEK

This map shows karst groundwater basins in the Tompkinsville 30 x 60 minute quadrangle, determined primarily by groundwater tracer studies. It 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 cited in the "References Cited" for detailed site descriptions. The data used to compile this map were obtained by numerous investigators over the last 20 years. The underflow spring draining a groundwater basin is assigned a unique identification number, referred to as the AKGWA number (Assembled Kentucky Ground Water database). Individual basins are identified by the underflow 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 thinner tributary flow lines. The locations of some groundwater basins are

Explanation

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. There are probably additional overflow routes. 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. Overflow springs discharge during high flow. Generally, names of groundwater basins are derived from these main springs (Worthington, S.R.H., 1991, Karst hydrogeology of the Canadian Rocky Mountains: Hamilton, Ontario, Canada, McMaster University, doctoral dissertation, 380 p.). Only springs involved in tracing experiments are shown because of the small map scale.

DISCLAIMER: This map is subject to revision upon receipt of new hydrologic data. The unshaded area (shown in white on the map) is karst. The shaded area (shown in light brown) is largely underlain by noncarbonate rocks and has minimal development of karst. Karst features are only shown in those areas where tracer tests have been conducted. Consult the "References Cited" for additional information.

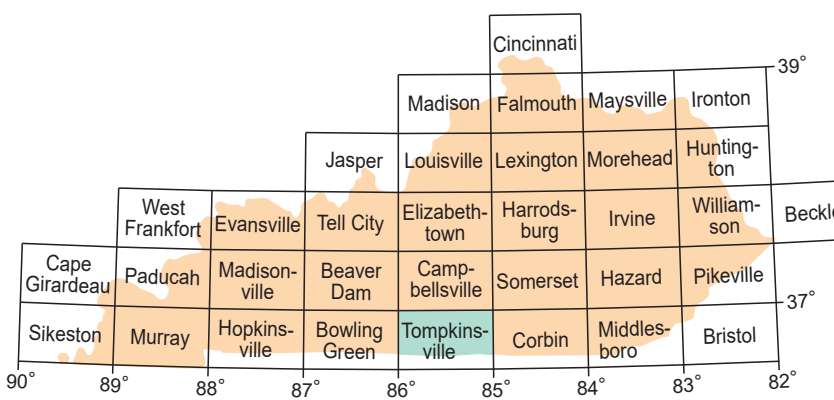
REFERENCES CITED

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Statement of Benefit

Boundaries of groundwater basins in this 30 x 60 minute quadrangle were determined from dye-tracing data. The resulting map can be used to identify the groundwater basin or spring to which a site in this quadrangle may drain.

AKGWA No.	Key		Data Source
	Spring Name		
0244	Head of Barren Fork	1	
1829	Town Mill Creek	5	
2525	McKinley	5	
2528	Doris Graham	5	
2529	Sawyers	5	
2532	Waterfall	5	
3194	Carter Cave	2	
3284	Eli Mac 1	4, 5	
3283	Eli Mac 2	4, 5	
3282	Eli Mac 3	4, 5	
3287	Coal Trace	4, 5	
3477	Scaggs Creek Cemetery	2	
3480	Combs Pond	2	
3504	Wrights Cutoff	2	
3507	Billy Millers Cave	2	
3508	Aunt Janes	2	
3509	Head of East Fork Little Barren River	2	
3582	Combs Spring Cave	2	
3587	Red Dog	2	
3589	Wrights Hollow Cave	2	
3939	Daniel	5	
3946	Cannons Mill	5	
3957	Head of Indian Creek	5	
4061	Wallace	5	
4062	Wallace Major	5	
4067	Duvall	3	
6732	Wright Water Well	2	



Locations of the 30 x 60 minute quadrangles covering Kentucky. This quadrangle, the Tompkinsville quadrangle, is highlighted in green.

Acknowledgments

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Cartography by Terry Hounshell and Emily Morris

For information on obtaining copies of this map and other Kentucky Geological Survey maps and publications call:
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