

What's the science say?

The Little River Basin includes two major headwater tributaries, the South Fork Little River (SFLR) and the North Fork Little River (NFLR), both of which have been listed by the Kentucky Division of Water in the 303(d) List of Waters for Kentucky Report to Congress as impaired by pathogens (fecal contamination), nutrients (phosphorus and nitrogen), and sediment.

The high levels of pathogens in the waters result in impairment for the primary contact recreation use (*i.e.* swimming). The high levels of nutrients and sediment contribute to impairment of the streams as warmwater aquatic habitat (*i.e.* aquatic life).

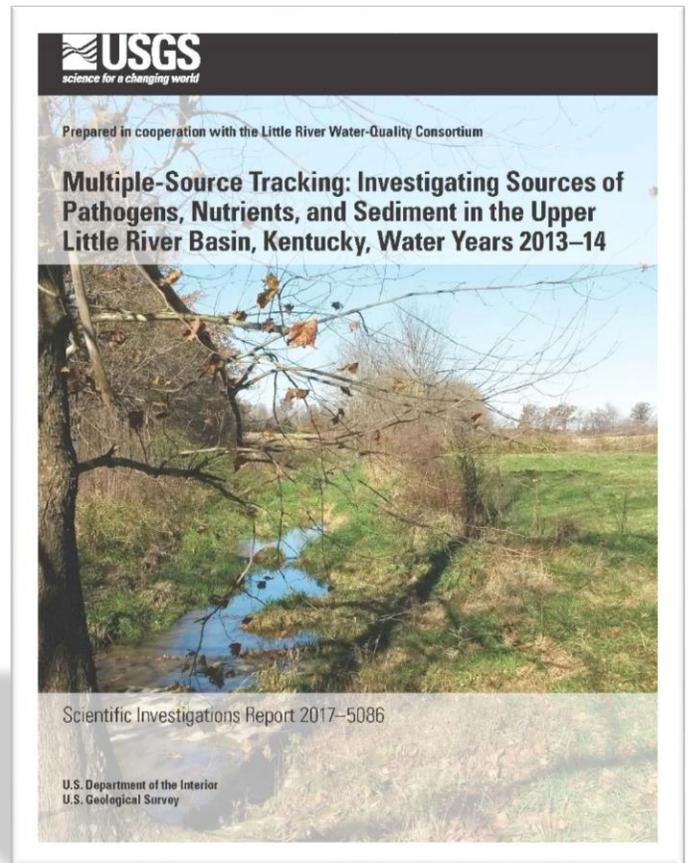
In 2009, the Kentucky Division of Water developed a pathogen Total Maximum Daily Load (TMDL) for the Little River Basin including the SFLR and NFLR tributaries. Future nutrient and suspended-sediment TMDLs are planned once nutrient criteria and suspended-sediment protocols have been developed for Kentucky.

In cooperation with the Little River Water Quality Consortium and Kentucky Division of Water, the United States Geological Survey (USGS) conducted a three-year study in the Upper Little River Basin.

The objective was to aid in understanding the occurrence and distribution of pathogens, nutrients, and sediment and their potential sources within the headwaters of the Little River Basin.

The SFLR was the primary focus of the study because of the higher percentage of cropland and increasing number of small dairy operations in the basin.

The SFLR watershed is a 67.4 square mile (43,200 acres) watershed located primarily in Christian county, but partially extending into Todd county. The watershed contains developed areas of Hopkinsville, extensive agricultural areas, and some forested land.



USGS utilized advanced scientific techniques to determine the relative pollutant contributions of different sources. The findings were published in September 2017 and are summarized as follows:

- *During high flow conditions*, nitrogen in soils was the dominant source of nitrogen in streams; *during low flow conditions*, manure and human waste were the dominant source.
- Stream bank erosion contributes the largest proportion of fine sediment to streams in the SFLR basin, followed by cropland and riparian-zone areas, respectively.
- Ruminant sources (cows and horses) were the most prominent source of pathogens in streams, but humans and dogs were also contributors.

For more information or to view the entire USGS Report, visit www.thirdrockconsultants.com/lrwqc.