



## Gaining and Losing Streams

Streams that maintain flow essentially year-round and have flows that are well-sustained or increase in a downstream direction are called **gaining streams**. The **water table** along gaining streams is generally at or above stream level, and ground water generally moves toward and into the stream. **Losing streams** are just the opposite. Losing streams are those that lose a significant part of their flow into the groundwater system. Like **sinkholes**, they are **discrete recharge** features that allow surface water to rapidly enter the subsurface. The water table along losing streams is below stream elevation. The water is generally lost into the subsurface through solution-enlarged openings beneath the streambed, openings that may be covered by gravel, sand, or other **alluvial** materials.



Some losing streams lose only part of their water.



Some losing streams are essentially dry all of the time from headwaters to mouth.

Unlike sinkholes, losing streams do not necessarily direct all of the water flowing in them into the subsurface. Also, a given stream can contain both gaining and losing reaches. Some streams have perennial or year-round flow in the upstream reaches while the valley farther downstream contains a losing reach and is typically dry. Other streams may lose flow in the upstream reaches but are perennial in the downstream reaches. A few losing streams have well-sustained flows throughout the losing reaches, but lose only part of the water. Some are essentially dry all of the time from **headwaters** to **mouth**. Few if any losing streams channel all of the runoff underground. Most losing streams will carry some flow after

heavy, prolonged precipitation. However, even after very heavy rainfall, the flows of most losing streams decrease rapidly to zero within a few days after the precipitation ends. From the stand-point of **hydrology**, both losing streams and sinkholes can be thought of as the upstream ends or entry points of **karst** drainage systems.

## Glossary of Terms

**Alluvial:** Made up of or found in the materials that are left by the water of rivers, floods, etc.

**Discrete recharge:** Groundwater recharge that flows rapidly through soil layers via sinkholes.

**Gaining stream:** A stream that receives water emerging from a submerged spring, or other groundwater seepage, which adds to its overall flow.

**Headwaters:** The high ground where precipitation first collects and flows downhill in tiny trickles too small to create a permanent channel.

**Hydrology:** A science dealing with the properties, distribution, and circulation of water on and below the earth's surface and in the atmosphere.

**Karst:** An area of limestone terrane characterized by sinkholes, caves, springs, and losing streams.

**Losing stream:** A stream that loses water as it flows downstream. The water infiltrates into the ground recharging the local groundwater because the water table is below the bottom of the stream channel.

**Mouth:** The point where a river enters a lake, larger river, or the ocean.

**Sinkhole:** A cavity in the ground, especially in limestone bedrock, caused by water erosion or by the collapse of a cave and providing a route for surface water to disappear underground.

**Water table:** The highest underground level at which the rocks and soil in a particular area are completely under water.

### For more information:

DNR Youth Education and Interpretation  
P.O. Box 176  
Jefferson City, MO 65102-0176  
1-800-361-4827 or (573) 522-2656 office  
e-mail: [naturalresources.ed@dnr.mo.gov](mailto:naturalresources.ed@dnr.mo.gov)  
<http://dnr.mo.gov/education>

