

# USGS River Gage Records 100 Years of Data

## Neosho River near Iola, Kansas--established by USGS July 20, 1895

### Timeline

1895	Gage established-staff gage
1904	Gage discontinued
1917	Recording gage established
1936	First recorded no flow
1951	Highest daily flow recorded- July 13
1963	John Redmond Reservoir built
1983	Real-time data started
2005	Gage moved to highway 54 near Iola

The Iola streamgage was established in 1895 with funds from the USGS Cooperative Water Program and the Kansas Board of Irrigation and Experiment that became the Division of Water Resources, Kansas Department of Agriculture. Current funding is provided by the Kansas Water Office, the U. S. Army Corps of Engineers, Tulsa District, and the USGS.

Real-time streamflow data is available for the Iola gage and 169 other gages at <http://waterdata.usgs.gov/ks/nwis/rt>.

### Streamgage Information Uses

- National Weather Service flood forecast point-streamflow data used by NWS to issue flood warnings to protect lives and reduce property damage
- One of 32 streamgages in Kansas with State required Minimum Desirable Streamflow-monitored by the Kansas Department of Agriculture-Division of Water Resources
- Critical to operation of the John Redmond Reservoir system-U.S. Army Corps of Engineers, Tulsa District
- Used for administration of water rights by Kansas Department of Agriculture-Division of Water Resources
- Flood and drought frequency statistics



Neosho River near Iola streamgage

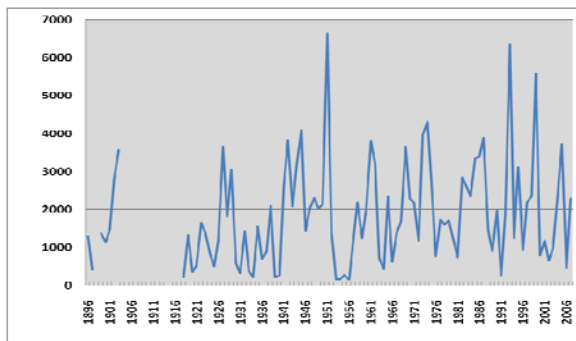


Location of Neosho River Iola streamgage

## Benefits of Long-Term Streamflow Records

Users of streamgage information benefit from long-term records. Long-term gage information is essential for National Weather Service River Forecast Centers (RFCs) to calibrate rainfall-runoff models that are the basis for flood warnings. A long-term historical record that includes extreme wet and dry periods allows forecasters to define watershed parameters that govern the watershed's response to a full range of hydrologic conditions. Real-time streamflow data allows forecasters to adjust models to match observed flows for better forecasting during floods.

The USGS uses historical high-flow records to develop flow frequency curves for design of bridges and culverts, bridge scour analysis, and stream stability measures. Flood frequency analyses are sensitive to both streamgage record length and the consistency of station records over the period of gage operation. Long records and consistent measurement techniques provide a higher degree of accuracy in design estimates.



Average annual flow for Iola streamgage (cubic feet per second)

Because the Iola streamgage has been in operation for a long period of time, data has been collected during several historic floods and droughts. For example, the highest river

stage and associated discharge before John Redmond Reservoir was constructed occurred on July 13, 1951 (43.00 river stage and discharge 436,000 cubic feet per second). The highest river stage and streamflow after John Redmond was constructed occurred on October 3, 1987 (31.78 river stage and 64,100 cubic feet per second discharge). The Iola streamgage first recorded no flow on August 19, 1936. The first discharge measurement was made at the Iola gage on October 29, 1917.

Five highest average annual streamflows		Five lowest average annual streamflows	
1951	6635	1956	141
1993	6351	1953	146
1999	5580	1954	166
1974	4312	1918	209
1945	4099	1934	228
Streamflows in cubic feet per second			

Highest and lowest average annual streamflows at Neosho River Iola



Iola streamgage in 1917

