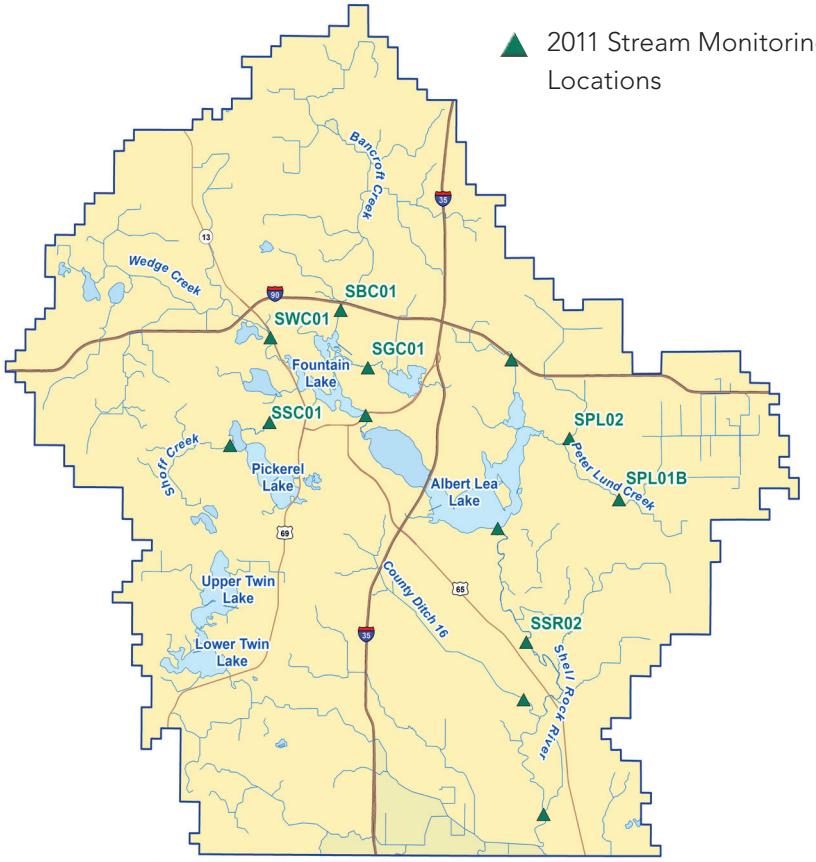
2011 Stream Monitoring Report
Shell Rock River Watershed District

The Shell Rock River Watershed District (the District) contains a vast network of ditches and creeks, in addition to the Shell Rock River. Many of these waterways flow into area lakes, transporting pollutants from the upstream watershed. The District monitors many of the streams within the watershed; the 2011 monitoring stations are shown in green on the map to the right.

What information is collected?
The streams within the District are monitored for flow; physical characteristics such as temperature, dissolved oxygen, and pH; and several water quality parameters such as turbidity, phosphorus, and total suspended solids.

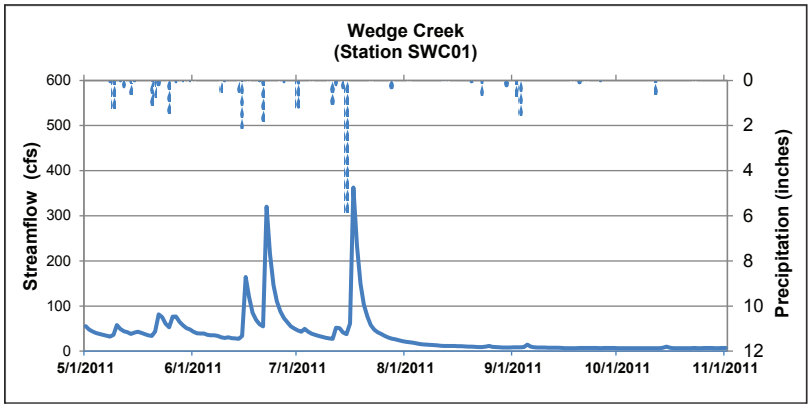
How is the stream monitoring data used?
The stream monitoring data is used to determine the amount of runoff, sediment, and pollutants being transported to downstream waterbodies.

The data is also used to assess long-term water quality trends, determine achievable water quality management goals, and track the District's progress toward those goals.



Flow

Flow is measured using automated gages at 10 locations throughout the watershed. The monitored flow is used to estimate the amount of runoff from the watershed. The graph at right shows the continuous streamflow measurements from Wedge Creek during the 2011 monitoring season (dark blue line). The daily precipitation is also shown from the top of the graph.



As seen in the figure, flows in Wedge Creek generally ranged from 0 to 100 cubic feet per second (cfs). Thunderstorms in June and July resulted in high flows of over 300 cfs. Rainfall was well below normal from August through October, causing flow in Wedge Creek and the other District streams to drop almost to zero. Smaller creeks such as Goose Creek actually ran dry during this time.

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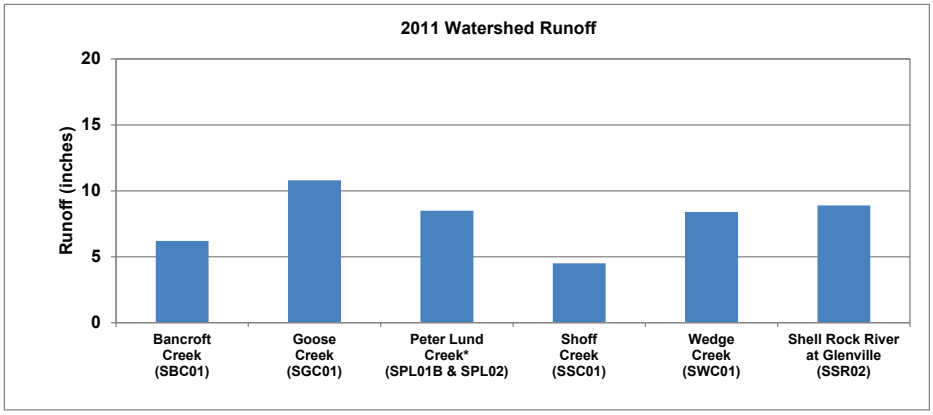
2011 Stream Monitoring Summary

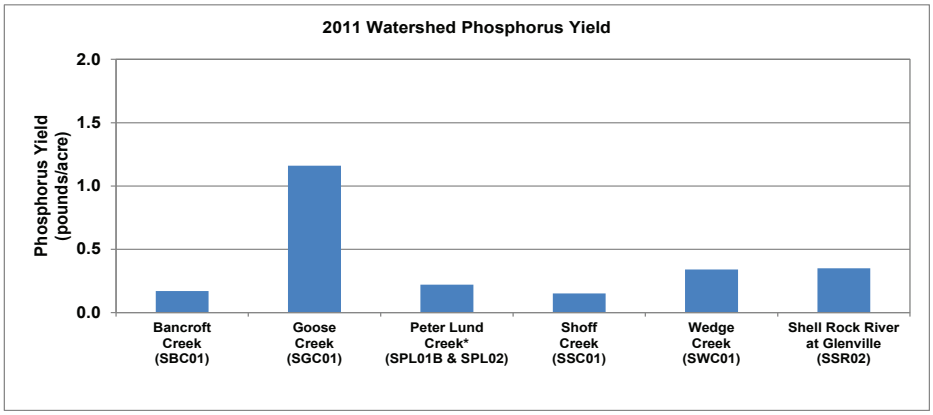
Watershed Runoff

Continuous streamflow monitoring conducted by the District is used to estimate the amount of runoff from the land. The estimated runoff from the 2011 monitoring period (April to November) ranged from 4.5 to 10.8 inches, depending on factors such as the amount of developed land, soil characteristics, crop patterns, storage in upstream waterbodies, and precipitation patterns. The Goose Creek watershed had the highest runoff yield, due to the amount of developed land in the watershed. The increased impervious surface area results in more stormwater runoff.



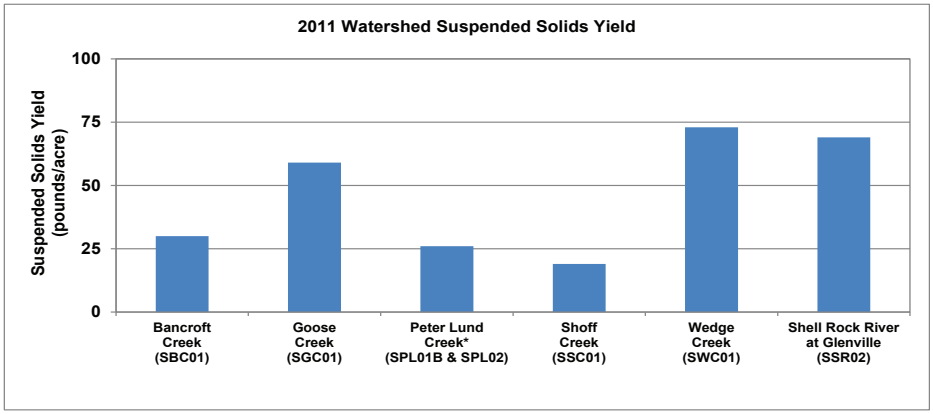
Phosphorus Yield

Stormwater runoff carries pollutants such as phosphorus from the landscape to downstream waterbodies. The average amounts of phosphorus carried in the monitored streams, reported in pounds of phosphorus per acre of contributing land, were estimated based on the 2011 water samples and flow data collected throughout the monitoring period (see graph at right). Goose Creek had the highest average phosphorus yield at about 1.2 pounds per acre. The high phosphorus yield is typical for this location, and is primarily due to high phosphorus concentrations in Goose Lake.



Suspended Solids Yield

The average amounts of suspended solids carried in the monitored streams, reported in pounds of suspended solids per acre of contributing land, were estimated based on the 2011 water samples and flow data collected throughout the monitoring period (see graph at right). Major suspended sediment sources differ from site to site; the solids measured in Goose Creek and the Shell Rock River are largely composed of algae from upstream lakes, while the solids measured in Wedge Creek are a result of soil erosion, particularly during intense June and July storms (see front page).



*Represents the average concentrations from the two monitoring stations.

Shell Rock River Watershed District
Working Together to Improve Water Quality