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**Inside this issue:**

Upper Solomon Working Group Update	1
Upper North and Upper South Fork Solomon Model Results	2
Kansas Department of Agriculture Newsletters	3

## Upper Solomon Working Group Update

*by Darci Paull*

The Solomon Working Group met Tuesday, May 5, at the Kansas Department of Agriculture’s Division of Water Resources field office in Stockton. The meeting was to review the Upper South Fork model results. Currently, both the Upper North and South Fork models are complete and have been presented to the working group.

The next step is to write, complete and present a hydrologic report of the Upper Solomon Subbasin. This report includes information regarding the geology, modeling, precipitation, streamflow, water levels and water use. The Basin Management Team is currently drafting the report.

When the hydrologic report is complete, the Basin Management Team will present it on our website. The results also will be presented at a Solomon Basin Advisory Committee meeting hosted by the Kansas Water Office and possibly other venues. The Basin Management Team hopes to expand the working group to include irrigators and other water users, both upstream and downstream of Kirwin and Webster reservoirs, to discuss management options.

The next six months will provide opportunity for water users to be involved in making decisions about the Upper Solomon subbasin’s management.

For more information about the models and previous meetings, visit the Basin Management Team website at [www.ksda.gov/subbasin/content/202/cid/1430](http://www.ksda.gov/subbasin/content/202/cid/1430).

Check back for updates on data analyses and for upcoming meetings.

**Get Involved!**

The next six months will provide opportunity for water users to be involved in making decisions about the Upper Solomon subbasin’s management.

**Check Back Soon!**

Check back at our website for updates and any upcoming meetings!

# Upper North and Upper South Fork Solomon Model Results

by Andrew Lyon

Groundwater models for the alluvial aquifers of the Upper North and Upper South Fork subbasins of the Solomon River have been developed and calibrated to historical groundwater levels and stream baseflows. These models quantify historical groundwater recharge that represent the magnitude and variation in groundwater supply that occurred in the past and can be expected in the future.

After the model calibration process was completed, the model was used to evaluate alternate groundwater response scenarios in both subbasins. This task included developing a 50-year scenario of future hydrologic conditions representative of historical conditions that may occur again in the future. Future groundwater response scenarios were designed to evaluate hydrologic conditions and response to pumping. They are not proposed management strategies.

Evaluating six alternate future groundwater response scenarios illustrated several important conclusions regarding future groundwater conditions in the subbasins:

1. Groundwater levels in the alluvial aquifers in areas where baseflow is sustained (eastern parts of model areas) are not significantly affected by variations in assumed future pumping conditions.
2. Groundwater levels in areas where baseflows are not sustained (western parts of model areas) are projected to decline significantly in the future, primarily as a result of continued groundwater storage depletion associated with regional groundwater pumping.
3. The impact of future pumping within the model domains is reduced stream baseflow (eastern parts of model area) and increased groundwater storage depletion (western parts of model area), in approximately equal proportions to the amount of pumping.
4. Potential evapotranspiration salvage associated with future pumping is relatively small. However, the impact of reducing future evapotranspiration is increasing baseflow by almost equal amounts.
5. Years of anomalously high precipitation provide a significant increase in groundwater recharge and groundwater supply, although the effect tends to dissipate within a few years.
6. Eliminating pumping in areas of marginal soils has a small impact on future groundwater levels and baseflows, due to small acreage of marginal soils under irrigation.

For more information on the groundwater models, including the final model report or prior meeting materials, please visit our website at [www.ksda.gov/subbasin/content/202](http://www.ksda.gov/subbasin/content/202).



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**www.ksda.gov**

**Basin Management Team Mission Statement**

*To analyze aquifers and stream systems in targeted areas and collaborate with stakeholders to develop and assess water resource management tools and strategies to protect water rights and improve water resource sustainability.*

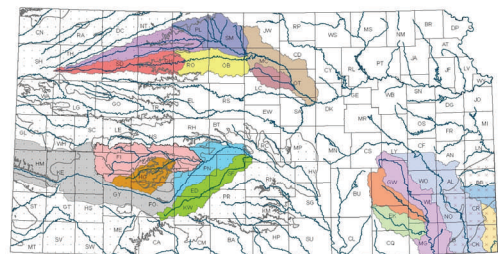
**Kansas Department of Agriculture Newsletters**

The Basin Management Team provides bi-annual publications with the latest news and events for each of the targeted project areas. Targeted areas currently include Upper and Middle Arkansas River subbasins, Pawnee-Buckner, Rattlesnake Creek, Solomon River Basin, Ogallala-High Plains aquifer and the Ozark Plateau aquifer systems. To receive these bi-annual publications, visit our website at [www.ksda.gov/subbasin/mailling\\_list](http://www.ksda.gov/subbasin/mailling_list).

Also, the Division of Water Resources publishes a quarterly newsletter called DWR Currents that provides information on Kansas’ water resources. You can view current and past newsletters, and sign-up to receive them electronically, at [www.ksda.gov/dwr/](http://www.ksda.gov/dwr/).

The Kansas Department of Agriculture recently started a quarterly newsletter called the KDA Connection. You can sign up for this newsletter at [www.ksda.gov/mailling\\_list/](http://www.ksda.gov/mailling_list/).

The newsletters are distributed electronically, or they can be viewed online.



<b>Legend</b>	High Plains Aquifer	Ozark Aquifer
— Rivers	Lower North Fork	Elk River
Buckner Creek	Lower South Fork	Fall River
Pawnee River	Salt Creek	Marmaton River
Rattlesnake Creek	Solomon River	Spring River
Middle Arkansas River	Upper North Fork	Verdigris River
Upper Arkansas River	Upper South Fork	Neosho River

Basin Management Team Project Areas