Chapter 3: Groundwater Vegetation Interactions

Groundwater Vegetation Interactions Summaries

Water Budget Analysis Summary

This study task develops a hydrologic model for a river-reach and floodplain area of the Cosumnes River for estimating water budget components, including channel, vadose zone, and bank storage, riparian evapotranspiration, and aquifer recharge. The hydrologic model was designed to establish the presence of perched aquifer systems at the Cosumnes River that may function to buffer near stream ecosystems from drought. The model provides quantitative analyses of many of the key characteristics governing perched groundwater hydrology, providing insights about processes as well as the foundation for future studies.

[.html version of complete summary](http://baydelta.ucdavis.edu/reports/final/?q=reports/final/chapter3/groundwater)  
[.pdf version of complete summary](http://baydelta.ucdavis.edu/files/crg/reports/Groundwater_Summary.pdf)

Evapotranspiration Analysis Summary

The intent of this study task was to measure riparian evapotranspiration at two different sites within the Cosumnes watershed. In conjunction with the groundwater and hydrology group, this study estimated the amount of water lost from the hydrologic budget via evapotranspiration and likewise observe the effect of groundwater availability on riparian ecosystem evapotranspiration.

[.html version of complete summary](http://baydelta.ucdavis.edu/reports/final/?q=reports/final/chapter3/evapotranspiration)  
[.pdf version of complete summary](http://baydelta.ucdavis.edu/files/crg/reports/ET_Summary.pdf)

Documents

* Groundwater
  + [Simulation Modeling and Ecological Significance of Perched System Hydrology, Niswonger, R.J., Dissertation](http://baydelta.ucdavis.edu/files/crg/reports/Niswonger_Dissertation_2006.pdf)
  + [Managing Surface Water-Groundwater to Restore Fall Flows in the Cosumnes River (Jan Fleckenstein, Michael Anderson, Graham Fogg, and Jeffrey Mount)](http://baydelta.ucdavis.edu/files/crg/reports/Fleckenstein_WRPM_2004.pdf)
  + [River-Aquifer Interactions, Geologic Heterogeneity, and Low Flow Management, Fleckenstein, Fogg, and Niswonger (Ground Water 2006).](http://baydelta.ucdavis.edu/files/crg/reports/pubs/GW-Fleckenstein_et_al.pdf)
  + [Perched Aquifer Hydrology: Ecological Implications, CalFed 2004, Niswonger, et al.](http://baydelta.ucdavis.edu/files/crg/reports/pubs/Niswonger_Calfed2004_talk.pdf)
* Evapotranspiration
  + [Final Report: Evapotranspiration Analysis (KyawTha Paw U, John Kochendorfer)](http://baydelta.ucdavis.edu/files/crg/reports/ET_Summary.pdf)
  + [Extended Abstract: Biomicrometeorological Measurement of Riparian Vegetation Evapotranspiration (John Kochendorfer, KyawTha Paw U)](http://baydelta.ucdavis.edu/files/crg/reports/Kochendorfer_Abstract.pdf)
* [Chapter 3: Groundwater Summary](http://baydelta.ucdavis.edu/reports/final/chapter3/groundwater)
* [Chapter 3: Evapotranspiration in a Riparian Canopy](http://baydelta.ucdavis.edu/reports/final/chapter3/evapotranspiration)