



The Cow Creek Quarterly

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SECTION 1- RECHARGE 101

The land of 1,100 springs is down to 99 and counting. Water tables are dropping daily. How do we replenish the aquifers and help those springs to flow once more? Dr. Weldon Hammond, Director of the Center for Water Research, UTSA wrote the book on the Trinity Group Aquifers. *Recharge* is the first installment of a series on water related issues by Dr. Hammond. Click here for the full story...(<http://www.ccgcd.org/Reports/Recharge.pdf>)

SECTION 2 – BEGINNERS GUIDE TO MODELING

Modeling is fascinating. Not clay sculptures or the sultry strolls of the fashion industry, but groundwater models designed to give a snap shot of our current understanding of how water enters an aquifer system; flows through an aquifer system; and leaves an aquifer system.

Modeling is the most valuable tool available for an aquifer manager in determining the possible outcomes of various management strategies. Only one strategy can be implemented. The solution better be the correct answer. The model allows the pros and cons of each management strategy to be tested under a set of assumptions that are a simple version of the real system.

After defining the boundaries of the aquifer system, data entered into the computer model specify the ways in which the aquifer system is recharged along with an estimate of the magnitude of recharge as it varies from place to place. Topography, soil layers, permeability for water (hydraulic conductivity), porosity and storage capacity are included in the parameters of the model.

Then the fun begins. With all this information and the computer software to handle it, the aquifer manager can do model runs based on “what if” analysis. What if the population doubles in ten years? What if no significant rainfall occurs for two years? What if a flood occurs once a year for the next five years? How do you want the aquifer to function 20-50 years from now? And, what management strategy is best to maintain the aquifer at a desired condition?

The real value of a model is the ability to recalibrate on a regular basis with new information and additional data collection. Model runs are repeated to compare results. Management strategies are adjusted as the accuracy of the model improves with the details and accuracy of the data.

Texas Water Development Board (TWDB) Report 353, September, 2000 is a baseline model of the Trinity Group Aquifers in the Texas Hill Country. The report can be view online at: <http://www.twdb.state.tx.us/publications/reports/GroundWaterReports>.

Report 353 is the first groundwater availability (GAM) study by TWDB. The study initiated a statewide program and is an integral part of statewide water planning. Currently, a draft version of the recalibrated report on the Hill Country portion of the Trinity Aquifer Groundwater Availability Model (GAM) has been posted on the TWDB GAM website (http://www.twdb.state.tx.us/gam/trnt_h/trinity.htm) for review and comments by the public. This is an update to the original version of the model that includes the Lower Trinity Aquifer and a reassessment of recharge.

Section 3 facts

- Texans use about 16.5 million acre-feet of water annually.
- Nine aquifers supply almost 97 percent of groundwater used in the state
- Groundwater accounts for about 60 percent of Texas usage
- Eighty percent of groundwater is used for irrigation.
- Sixty-five percent of surface water is used for municipal and industrial purposes

SECTION 4 QUOTES TO REMEMBER

“Each new generation tend to forget—until it confronts the sobering reality—that dryness has always been the normal condition in the western half of the state. Wet years are the exceptions”.....*The Time It Never Rained*, Elmer Kelton

SECTION 5 GROUNDWATER RELATED CONFERENCES

A presentation of Trinity Aquifer Groundwater Availability Model (GAM) will be made at the upcoming meeting of Groundwater Management Area 9 to be held at 10:00 A.M. on Monday, August 17, 2009 at the Upper Guadalupe River Authority Auditorium, located at 125 Lehmann Dr. Kerrville, Texas.

As part of its annual conference series and its Initiative for Watershed Excellence program, the River Systems Institute will host Land, Water, People 2009 on November 16-18, 2009 at the San Marcos Convention Center. For complete details visit:

<http://www.rivers.txstate.edu/projects/conferences/Land-Water-People-09.html>

ADDITIONAL INFORMATION

Cow Creek Groundwater Conservation District regular meetings are held at 6:00 P.M. on the second (2nd) Monday of each month at 216 Market Ave. Ste. 105, Boerne, TX 78006. All meetings are posted and open to the general public.

For CCGCD agendas, minutes, and reports: www.ccgcd.org

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