How Much Water is Really Available from the Mahomet Aquifer?

George Roadcap
Allen Wehrmann
David Larson
Vernon Knapp

Illinois State Water Survey
Prairie Research Institute
University of Illinois
Champaign, IL
www.sws.uiuc.edu
Groundwater Demand

Total Pumpage in 2005:
210 million gallons per day (MGD)
1544 large-capacity wells
Observation Well Network

Snicarte

Petro North
Potentiometric Surface – July 2009
Saturated Thickness
Head Above the Top of the Aquifer
Groundwater Flow Modeling
Recharge Rates (in/yr)
Variable Rates Listed For: 1930 – 2005 – 2050
Other Rates are Constant

Recharge to Sand
0.4 13-20-21 8.7

Recharge to Drained Till
2.2

Upper Layers inactive
0.35

Flowing Artesian
0.08 0.35

Inactive Area
0.9-4.3-6.7 5.3-10-12 1.3
Drawdown 1930-2005
Drawdown 2005-2050

Baseline Case

More Resource Intensive Case
Groundwater Elevation at Petro North Observation Well near Champaign

3 feet of drawdown per 1 MGD of pumpage
Predicted Water Level at the Petro North Observation Well
Aquifer Budget

Graph showing the supply, available supply, and demand of groundwater from 2005 to 2050.

- Supply: Increasing trend from 700 mgd in 2005 to approximately 900 mgd in 2050.
- Available Supply: Lower than supply, with a similar increasing trend from 600 mgd in 2005 to around 800 mgd in 2050.
- Demand: Steady increase from 200 mgd in 2005 to about 300 mgd in 2050.
Potential For Development of High-Capacity Wellfields

- Limited Impacts
- Potential impacts on baseflow
- Significant impacts on groundwater levels
The Drought of 2012
Sangamon River Flow at Monticello

USGS 05572000 SANGAMON RIVER AT MONTICELLO, IL

DAILY Discharge, cubic feet per second

2006 2007 2008 2009 2010 2011 2012

Daily mean discharge
Period of approved data
Estimated daily mean discharge
Period of provisional data
Drawdown at the Decatur Wellfield
8/6/2012 – 8/30/2012
Groundwater Levels near Dewey in Northern Champaign County
Seasonal Drawdown in Champaign County 2012
Conclusion

The water supply glass not half full or half empty, it is getting bigger.