

Category: Water Quantity

Indicator: Groundwater Use Relative to Management Restrictions

Methodology

Groundwater Use Relative to Management Restrictions is an indicator of the volume of groundwater pumped from Texas aquifers compared to adopted management targets. It compares current pumping volumes to the Modeled Available Groundwater (MAG) values resulting from the Groundwater Management Area (GMA) process.

As defined in Chapter 36 of the Texas Water Code, “Modeled Available Groundwater” is the estimated average amount of water that may be produced annually to achieve desired future condition and accounts for permitted and exempt uses. Through the GMA process, the groundwater conservation districts determine their Desired Future Conditions (DFCs) for the aquifer(s) in their area. The Texas Water Development Board (TWDB) then uses groundwater models to estimate the maximum volume of water that could be pumped and still allow these DFCs to be met. This volume is the MAG and these values are available by county and aquifer.

To calculate this indicator, we compared the TWDB’s estimated total pumping and pumping by water use sector for 2011 to the MAG for each county and for every aquifer with a MAG defined for that county. Methods for estimating water use and pumping based on water use surveys are described at: <http://www.twdb.texas.gov/waterplanning/waterusesurvey/faq.asp>. We calculated the percent of the MAG pumped and the volume of MAG “remaining” (i.e., difference between the MAG volume and volume pumped). These values were calculated for all published MAGs, from 2010 to 2060, but the comparison of the 2011 pumping to 2010 MAG is presented in the map viewer. We also summarized the county-level analysis to the aquifer level by summing values of pumping and MAG and calculating the same metrics. Maps for both county and aquifer level percent of 2010 MAG pumped in 2011 are provided in the online tool, and the downloadable attribute table includes values for the other MAGs.

Data Sources

Texas Water Development Board. Historical groundwater pumping estimates, county and aquifer scales. Provided to TNC June 2, 2014.

<http://www.twdb.texas.gov/waterplanning/waterusesurvey/historical-pumpage.asp>

Texas Water Development Board. Modeled Available Groundwater values for all counties and all aquifers. Provided by to TNC June 2, 2014.