

EVALUATION OF SUSTAINABLE YIELD OF THE TRINITY AQUIFERS

In 2004, a study was concluded by District staff that was conducted to determine the sustainable yield of the Edwards Aquifer. This study led to the promulgation of rules to protect springflow and water levels from excessive lowering during periods of severe drought. A key aspect of the new rules was cessation of issuance of new historical permits and the allowance for permits for conditional use of Edwards groundwater. A similar effort is now being conducted for the Trinity Aquifers of the District. District staff have been studying the Trinity Aquifers for many years, but the efforts were increased in 2003 when we installed monitor wells to investigate the relationships between the Edwards and Trinity Aquifers.

The current Trinity study focusses on the potential for unreasonable impacts from pumping from wells or well fields. A definition for unreasonable impacts is given in District rules. These rules came about following passage of House Bill 3405 in 2015 which brought about annexation of portions of Hays County into the District. The key objectives of this study are to 1) determine potential for unreasonable impacts from localized and regional pumping on water levels, wells, and springflow, 2) evaluate the combined effects of pumping and extreme drought on water levels, wells, and springflow, and 3) provide a scientific basis for any rules that would need to be promulgated following the study.

The concepts specified in the District's rules for unreasonable impacts can be summarized as:

- Impacts from specific permit requests
- Impacts from severe drought
- Impacts from increased pumping over a broad area

Some of the hydrogeologic concepts to be evaluated are:

- Hydraulic relationships between Trinity hydrogeologic units, horizontally and vertically
- Influence of faults and other structures on groundwater flow
- Impacts of drought on water levels, spring flow, and stream flow
- Variations in transmissivity and water quality
- Surface and groundwater interactions
- Sources and magnitude of recharge
- NEW ITEM 9-25-19 Geochemistry of spring discharge water and groundwater

Much of the work to be conducted can be addressed by the following tasks:

- Water-level monitoring- synoptic measurements over a broad area and continuous water levels in key wells
- Adding more monitor wells to existing network
- Preparation of hydrographs and maps showing history of water-level measurements

- Analytical modeling for localized impacts from pumping
- Numerical modeling
 - TWDB GAM
 - Blanco River model
 - District's Trinity model
- Assessment of exempt and permitted pumping
- Water-quality sampling and analysis
- Rainfall, stream-flow measurements
- Dye-trace studies
- Field mapping
- Geophysical logging

Some of the questions to be considered by the study are:

- Do we need to end historical permitting of the Trinity?
- Do we need a non-Edwards drought trigger for the Trinity?
- Should we set a 50% pumpage reduction for extreme drought?
- Can Jacob's Well and Pleasant Valley Springs be impacted by Trinity pumping in the District?
- Are the current Desired Future Conditions (DFCs) adequately protective of the aquifers?
- NEW ITEM 7-9-19 Should we consider a separate management zone for those areas that could impact Jacob's Well? Pleasant Valley Springs?

Current partners in Trinity studies:

- Hays Trinity Groundwater Conservation District
- Edwards Aquifer Authority
- Texas State University- Meadows Center
- University of Texas at Austin
- Blanco Pedernales Groundwater Conservation District
- Hays and Travis Counties
- City of Austin

Approximate timeline:

- Draft report by March 2021 (dependent on completion of District's Trinity model)
- Review of draft report by technical advisory committee (2 months)
- Drafting of rules by District staff (2 months)
- Review of proposed rule changes by policy advisory committee (2 months)