

# Hays Trinity Groundwater Conservation District: Trinity Recharge in the Northern portion of Hays County Report 2020-1021



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One of the objectives of the Hays Trinity Groundwater Conservation District is to preserve recharge to the Trinity Aquifer. The recharge component of the water budget is generally the most significant variable influencing the amount of water entering and determining the amount of water available in the Trinity Aquifer system.

The surface geology of the north-eastern portion of Hays County is predominately the Upper Glen Rose Formation with outcropping Edwards units on hilltops. The Upper Glen Rose consists of alternating carbonates, shales, and marls. The shale and marl can act as confining units and impede groundwater from percolating to the Middle Trinity. Groundwater then accumulates and develops shallow perched systems that generally have a horizontal flow, potentially discharging as seep springs where the confining units are exposed on hillsides. These seep springs are often the source of baseflow to Barton, Bear, and Flat Creeks and others in northern Hays County.

Multiple synoptic flow events have been conducted for Barton creek from the headwaters in Hays County to the confluence with the Colorado River in Travis County<sup>1,2</sup>. These studies indicated losing segments near the confluence that recharge the Edwards Aquifer and contribute to Cold and Barton Springs<sup>2</sup>.

Due to these two ideas, precipitation infiltrating the ground within the Barton Creek watershed will provide a minimal amount of recharge to the Middle Trinity but may contribute to the Edwards Aquifer.

The vast majority of groundwater wells between Bear Creek and Hamilton Pool Road near the Hays-Travis County line are producing from the Lower Trinity Aquifer. This is due to the Middle Trinity consisting of poor water quality and unreliable availability. The Lower Trinity has shown continuous water level declines over the past 50-years that will only be exacerbated if the increasing amount of Lower Trinity wells continues<sup>2</sup>.

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<sup>1</sup> Wierman D.A., Broun, A.S., and Hunt, B.B., 2010, *Hydrogeologic Atlas of the Hill Country Trinity Aquifer: Blanco, Hays, and Travis Counties, Central Texas*, Prepared by Hays-Trinity, Barton Springs/Edwards Aquifer, and Blanco Pedernales Groundwater Conservation District.

<sup>2</sup> Hunt, B.B., Cockrell, L.P., Gary, R.H., Vay, J.M., Kennedy, V., Smith, B.A., Camp, J.P., 2020, *Hydrogeologic Atlas of Southwest Travis County, Central Texas*, Prepared by BSEACD and Travis County, BSEACD Report of Investigations 2020-0429, 80 p.