July 22, 2021

Barton Springs/Edwards Aquifer Conservation District
1124 Regal Row
Austin, Texas 78748

Delivered via email: vescobar@bseacd.org

Subject: Environmental Defense Fund's Public Comments on Desired Future Conditions for Groundwater Management Area 10

Environmental Defense Fund (EDF) appreciates the opportunity to provide public comments on desired future conditions (DFCs) for Groundwater Management Area (GMA) 10. Founded in 1967, EDF is a leading international environmental non-profit organization representing more than 2.5 million members. Guided by science and economics, EDF focusses on strong science to inform policy and develop innovative solutions that address the most serious environmental problems.

EDF has been working collaboratively across the western United States with local water managers to advance science, tools, and policy needed to ensure the resilience of communities and natural systems to drought. In early 2020, EDF launched a water program in Texas with a specific focus on advancing sustainable groundwater management. We recognize the important and challenging job that local groundwater conservation districts (GCDs) have in managing a resource that is both privately owned but also shared – a resource that is vital to the lives and livelihoods of millions of Texans. Our goal is to be a resource to local groundwater districts and a partner in your work, helping to develop data, science, and tools that will assist districts with policy decisions.

Below we provide comments related to the statutory considerations GCDs must make when adopting DFCs that are relevant in GMA 10. Our comments are focused on GMA 10's proposed DFC for the Trinity Aquifer. We support the springflow DFC established for the Edwards Aquifer in GMA 10. We would like to emphasize that achieving *balance* is a key goal of the DFC process and groundwater management in general. In adopting a DFC, a GCD must provide a balance between the highest practicable level of groundwater production and the conservation, preservation, protection, recharging, and prevention of waste of groundwater and control of subsidence in the management area.

To achieve the balance mandated by statute, EDF urges GMA 10 to adopt a DFC for the Trinity Aquifer that is measurable and that is based on sustainability principles, where the long-term management goal for the aquifer is premised on

avoiding undesirable impacts, such as the lowering of water levels in rural wells or decreasing springflow or baseflow in rivers.

Consideration 1 – Aquifer uses or conditions within the management area, including conditions that differ substantially from one geographic area to another.

Section 36.108(d-1) of the Texas Water Code allows for the creation of different DFCs for different "subdivision[s] of an aquifer within the boundaries of the management area." Within GMA 10 aquifer conditions vary greatly from one area to another, both laterally and vertically and these variations do not appear to be adequately incorporated into DFC development. EDF recommends that GMA 10 consider establishing separate DFCs for the individual members of the Trinity Aquifer - particularly the Middle and Lower Trinity. These aquifers have repeatedly shown to be hydraulically separate aquifers that should be managed as separate units. In most areas, the majority of pumpage is from the Middle Trinity, though the Lower Trinity is becoming more important as development increases. The Lower Trinity Aquifer is not generally exposed at the surface and recharges very slowly, if at all. Water withdrawn from the Lower Trinity should be considered aquifer mining and unsustainable.

Consideration 2 – The water supply needs and water management strategies included in the state water plan.

The fact that GMA's must consider water supply needs and water management strategies that are included in the regional water plan does not necessitate the adoption of a DFC that allows for managed depletion. The important point is that the modeled available groundwater (MAG) volume that regional water planning groups utilize to develop water management strategies based on groundwater starts and ends with the DFC. It is, therefore, yet another reason that GCDs must consider local hydrogeological conditions when setting DFCs, so that the water management strategies accurately reflect local realities. As it stands now, water management strategies in the state water plan, including in GMA 10, are premised on managed depletion, ignoring the long-term impacts that this drawdown will cause. It is up to the GCDs within the GMA to define what is sustainable for their region, and then this informs the water management strategies in the regional water plan – not the other way around. A DFC that permits 25 feet of drawdown for the Trinity is unsustainable, as it will allow too much groundwater pumping over time. It is perfectly rational for GMA 10 to adopt a DFC that is more protective of groundwater levels -even if it results in less groundwater being available as a water management strategy. This is exactly what occurred after the 2011 drought of record, when the Texas Commission on Environmental Quality (TCEQ) calculated new water availability models (WAMS) in some regions, reducing the availability of surface water. This in turn had a correlating impact on the amount of surface water available for regional water supply strategies.

Consideration 3. Hydrological conditions, including for each aquifer in the management area the total estimated recoverable storage as provided by the executive administrator, and the average annual recharge, inflows, and discharge.

The varying hydrological conditions across GMA 10 are not addressed by a single managed depletion DFC. As previously stated, some areas of the GMA are dominated by artesian springs recharged in areas of karstic geology and have very active direct and indirect recharge, inflows

and discharge. These areas have significant surface water/groundwater interactions influencing inflows and outflow. A DFC based on sustainable spring flow is appropriate.

Other areas on GMA 10, have very different recharge regimes. There is very little direct or indirect recharge, few inflows and the only significant outflow is groundwater pumping. Few major springs exist. These are areas where aquifer mining is occurring, and a DFC based on minimal additional managed depletion, or in other words, a cap, should be considered.

Consideration 4 – Other environmental impacts, including impacts on spring flow and other interactions between groundwater and surface water

The majority of Trinity Aquifer springs are found in GMA 9, where the aquifer is exposed at the surface. Within GMA 10, the Trinity Aquifer is located beneath the Edwards, with little opportunity for springs to form. However, there is growing support for the connection between the Middle Trinity Aquifer in GMA 10 and springs, such as Jacob's Well and Pleasant Valley Springs located in GMA 9. Modeling performed by BSEACD of the Middle Trinity Aquifer indicated impact to spring flow at Jacob's Well and Pleasant Valley Spring due to a proposed pumping project in GMA 10.[1] Consequently, EDF recommends that the Barton Springs Edwards Aquifer Conservation District (BSEACD) consider adopting a DFC in coordination with Hays Trinity Groundwater Conservation District that maintains springflow from Jacob's Well. This is an example utilizing current advancements in science to enable coordination across shared aquifers.

Additionally, monitoring spring discharge is a key data gap that needs to be filled, coupled with more advanced surface water/groundwater models. Detailed models, such as the Blanco River Assessment Tool (BRAT) model currently under development (covering the Blanco River Watershed and parts of GMA 9 and GMA 10.) should allow for the development of more locally relevant and realistic DFCs.

Consideration 5 – The impact on subsidence.

Given the nature of the carbonate geology in GMA 10, subsidence is not typically an issue. Dewatering (or depressurizing) carbonate artesian aquifers, such as parts of the Middle Trinity and Lower Trinity, can potentially cause subsidence. Though dewatering is occurring through the managed depletion DFC, subsidence has not been recognized as an important consideration of the DFC.

Consideration 6 – Socioeconomic impacts reasonably expected to occur.

Consideration of the socioeconomic impacts that are reasonably expected to occur from the adoption of a proposed DFC unfortunately tilts towards over production of groundwater resources rather than sustainability. This is because GMA's rely on the socioeconomic impact analysis prepared by the Texas Water Development Board that is provided to regional water planning groups to use in regional water planning. This analysis is based on impacts that will result in a region if water management strategies are not met. It does not include an analysis of the socioeconomic impacts associated with planned depletion of aquifers or the failure to

[1] See BSEACD Technical Memo 2020-0930, September 2020

manage aquifers sustainably. This one-sided socioeconomic analysis prevents GCDs from achieving the balance between production and conservation as required by Chapter 36 of the Water Code

The reality is that socioeconomic impacts are expected to occur utilizing a managed depletion DFC. The streams, rivers and available groundwater of the Hill Country are major economic drivers in the form of tourism and increased property values. As an example, a 2013 study of the economy of Wimberley and Cypress Creek concluded that flowing water in Cypress Creek originating from Jacob's Well added $65 million to the local economy and significantly increased land value.[2] The same is true of any creek side community in GMA 10. Streams, springs and rivers in the Hill County are the result of surface water/groundwater interactions. Lowering of the aquifer decreases groundwater flow to springs and decreases base flow to streams and rivers. A managed depletion DFC will lower the aquifer and reduce springflow and stream flow. In these areas, DFC development should be based on management of surface water/groundwater interaction to maintain sustainable stream flow and local economies.

Consideration 7 – The impact on the interests and rights in private property, including ownership and the rights of management area landowners and their lessees and assigns in groundwater.

Lower aquifer levels in a managed depletion-based DFC can deprive landowners and their lessees of water by making less water available in the aquifer over time. Individual landowners have a private property right in the groundwater under their property, and regional declines in aquifer levels under an unsustainable managed depletion DFC scenario have the potential to impact property rights.

Consideration 8 – the feasibility of achieving the desired future condition

Chapter 36 of the Water Code requires GCDs to achieve the DFC. An achievable DFC must be measurable. A DFC based on regional drawdown in a multi-layer, stacked aquifer is difficult to measure uniformly across GCDs. A standard method for determining compliance with DFCs across all of the GCDs is needed. A method was proposed to GMA 9 to utilize a map of baseline potentiometric groundwater surfaces in comparison with current measured potentiometric levels which could be extended to GMA 10.[3] This would be a very effective method for tracking DFC compliance if separate DFCs are established for the different Trinity aquifers.

Conclusion

In closing, we think it is important to reflect on what our collective desired future for the groundwater resources in the Hill Country is. We imagine it is that groundwater is managed sustainably – that groundwater continues to provide rural landowners their source of water and that it continues to sustain the springs and rivers that make the Hill Country special. As the Hill Country becomes more arid and faces increased growth, our collective response cannot be to maintain the status quo – which will not be protective of groundwater users and groundwater

---

[2] https://wimberleywatershed.org/wp-content/uploads/2020/12/Economic-impact-of-Cypress-Creek.pdf

[3] BSEACD Technical Note 2016—0410, April 2016.

dependent surface water moving forward in this new environment. We must think proactively and rely on the best available science to guide policy.

Again, we are pleased to present these comments and welcome further discussions, not only as part of this DFC development, but also as additional data is collected, and evaluations performed to inform appropriate management of the valuable groundwater resources.

Please let us know if you have any questions or need any further information.

Respectfully,

Vanessa Puig-Williams
Director, Texas Water Program
Environmental Defense Fund
vpuigwilliams@edf.org

Dan Mueller, P.E.
Senior Manager
Environmental Defense Fund
dmueller@edf.org

cc: (via email):