Issue: Discharging Treated Effluent into Hill Country Streams and Creeks Myths and Truths

Photo by: Sky Lewey

I'M FOR THE Hill Country

HCA is a passionate community caring for the unique features, spring-fed streams, heritage ranch lands, spectacular beauty and vibrant culture of the Texas Hill Country for the benefit of future generations.

What is HCA?

The Hill Country Alliance is a nonprofit organization whose purpose is to raise public awareness and build community support around the need to preserve the natural resources and heritage of the Texas Hill Country. We create resources, conversations and forums for landowners, neighbors, elected officials and all concerned citizens.

Interested in staying connected to this and other land, water and scenic beauty issues in the Hill Country? Please visit www.hillcountryalliance.org and click "subscribe" to receive our weekly newsletter with news, events and updates.

Iconic swimming holes from Jacob's Well to Barton Springs start from stored groundwater reserves below and go on to supply some of the most beautiful treasures of the Hill Country – our crystal-clear rivers and their networks of rocky streams and creeks.

These beautiful natural resources are just as enticing to new development as they are sensitive to change. As development expands into pristine sections of the Hill Country our water needs will follow. Freshwater must be supplied, and our sewage must be treated and either disposed of or reused. Because new development is often too dense to rely on septic tanks as a solution, wastewater is most often treated through sewage treatment plants. Sewage treatment plants then are faced with the decision to either use wastewater effluent produced by our communities on-site for irrigation or to simply discharge treated wastewater into a neighboring stream.

At this time, we are seeing a proliferation of permit applications across the Hill Country to discharge treated effluent directly into Hill Country waterbodies. The Texas Commission on Environmental Quality's (TCEQ) range of treatment and disposal permit standards are suitable for most of the state's waterways, but do not take into account the inability of our smaller Hill Country rivers and streams to process added levels of nutrients - including algae-producing phosphates and nitrates - found in even highly treated effluent.

Myth #1 **Modern sewage treatment plants scrub all contaminants out of effluent and discharged, treated water is cleaner than the water in the stream.**

TRUTH: Treated effluent may look cleaner because modern sewage treatment plants do a good job of scrubbing the suspended particulates that make dirty water cloudy. However, even effluent treated to drinking water standards has more nutrients - like phosphorus and nitrogen (which are notorious for producing algae blooms) – than what many of our clear, rocky-bottomed streams can handle. Furthermore, current drinking water standards do not require the removal of pharmaceuticals, micro-plastics, and personal healthcare residuals that are found in treated effluent.

Myth #2 **The State of Texas regularly tests effluent from treatment plants to make sure that it is in compliance.**

TRUTH State agents inspect sewage treatment plants for mechanical compliance only infrequently or in response to complaints. Treatment plants are required to self-test to ensure they are complying with TCEQ permit requirements, but the only time the TCEQ makes water quality tests is when a downstream property owner files an odor or water pollution complaint. Usually, repairs are only completed after a stream has been overloaded with improperly treated sewage.

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While water resources are among the Hill Country's most beloved assets, they are also among the most fragile and at-risk. Thousands of free-flowing springs feed our creeks and rivers with clean, cool water — contributing to the long-term health, quality of life, and economic vitality of this region. As more people move to the Texas Hill Country, it is important to dispel common and long-held misperceptions relating to Central Texas' water resources and to keep our attention on the importance of clean, flowing water.

Myth #3 Rivers and streams are self-cleaning, or, "Dilution is the Solution to Pollution."

TRUTH Many streams across the country are to some degree "self-cleaning" due to adequate flow throughout the year and riparian environments capable of processing nutrients. However, the Hill Country has few rivers or streams with the capacity to remove added organic contaminants, since most of our creeks and streams do not flow for many months at a time and lack the biological capability to provide natural clean-up services. Additionally, no streams in the Hill Country are capable of "cleaning" non-organic pollutants like petroleum, pharmaceuticals, and other non-organic chemicals without adverse impacts to aquatic life. It is also important to note that while large rainfall events deliver contaminants to water bodies, they do so sporadically; effluent discharges occur every day, even when streams may have little or no natural flow.

Myth #4 Our aquifers and water wells are safer when effluent is discharged because we are keeping treated effluent off of the ground and out of the soils.

TRUTH Many of our Hill Country creeks and streams act as direct recharge conduits to our aquifers, which supply our drinking water. In the case of at least one Hill Country sewage treatment plant, the discharge pipe is less than a mile upstream from an aquifer recharge feature in the bed of the creek. These streambed recharge features often provide a more direct path to groundwater than the soil surrounding our wells. Furthermore, soils can provide an additional filtration opportunity when treated effluent is used for irrigation purposes. When effluent is applied to the land there is more opportunity for soil, sunlight, plants, and microbes to further reduce contaminants and nutrients in effluent before they come directly in contact with our streams and aquifers.

Myth #5 Discharging effluent into creeks provides beneficial nutrients to fish and wildlife.

TRUTH Most of our smaller Hill Country streams are highly oxygenated and have less than perceptible organic nutrient loads. That is why they are so clear and fresh. The majority of our native flora and fauna thrive in these creeks due to millions of years of evolutionary adaptation. The contamination of our creeks with even the minimum TCEQ allowable nutrient loads create an environment ripe for damaging algae blooms that degrade water quality and limit access to streams for both humans and wildlife. Algal blooms deplete oxygen levels in our streams and result in fish and other aquatic biota die-offs, which throw natural biological systems out of order. These malfunctioning biological systems can be an open invitation to harmful invasive species.

Myth #6 Modern sewage treatment plants are designed to be free of malfunction.

TRUTH Recent research of EPA databases show that between 2016 and 2018, of the 48 Hill Country sewage treatment plants, there were 411 violations. TCEQ reported a recent dump of concentrated effluent sludge into the South San Gabriel River that caused a massive 3.6-mile-long algae bloom that resulted in fish kills downstream.[1] Sewage treatment plants regularly malfunction due to mechanical failure or operations error. Some waterways are better equipped to dilute and assimilate those spills than others, but the majority of our Hill Country streams do not have the capacity to quickly recover.

Myth #7 The permitting process at the TCEQ is designed to be open and accessible for neighboring property owners to participate.

TRUTH Affected property owners have the right to submit written comments to the TCEQ in order to state their objections or concerns. However, because there is no disclosure or notification requirement, many property owners are not aware of the discharge until permits have been issued and the treatment plant is built. If a property owner is affected by a proposed discharge, they may file a contested case hearing at the State's Office of Administrative Hearing (SOAH) Court. Even after this lengthy legal process, the TCEQ Commissioners are not required to follow SOAH Court rulings and may overturn the ruling in favor of the discharger.

Myth #8 Discharge alternatives are prohibitively expensive and discourage viable growth.

TRUTH Some of the fastest growing and most prosperous areas of the Hill Country already prohibit the discharge of any effluent into streams or rivers. The TCEQ created and enforces specific, no-discharge rules to protect both the Highland Lakes and the recharge zones of the Edwards Aquifer in order to allow growth while also protecting valuable water resources. While these rules cover the recharge zone, they do not extend to the contributing zone of the Edwards Aquifer – despite the fact that water quality in the contributing zone directly impacts the quality of water recharging the aquifer.

A Final TRUTH: In most sections of the Hill Country the best solution for managing treated effluent is by beneficially reusing that water for purposes that do not require potable, or pure drinking water. As wholesale prices for water in some parts of the Hill Country explode, utilities are beginning to understand that any grade of water is too valuable to release down the river as "waste." Many are reusing or re-selling their treated effluent to ranchers for pasture crops or to municipalities for parks and common area irrigation. These willing buyers are aware of the cost benefit of paying less than drinking water prices for appropriate, non-potable uses.[2,3]

1 Statesman Online September 25, 2018: https://www.statesman.com/news/20180719/report-sludge-dumped-into-river-by-wastewater-plant-caused-algae
2 Texas Public Radio: Texas Water Symposium November 9, 2018: https://www.tpr.org/post/balancing-population-growth-and-healthy-rivers-texas
3 Texas Public Radio: Texas Water Symposium November 22, 2019: https://www.tpr.org/post/one-water-projects-motion

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