



Photo 6: Riffle Beetle

Photo 7: Fountain Darter

Segments

Segment 1811 - Comal River Segment 1811A - Dry Comal Creek

Segment Summary

At 2.5 miles-long, the Comal River (1811) is the shortest river in the state of Texas and is located entirely within the city limits of New Braunfels in Comal County. This river is fed by Comal Springs, the largest natural spring in Texas based on average discharge, and draws water from the Edwards Aquifer. These springs result in consistent water temperatures, high clarity in the river throughout the year, and provide habitat for several endangered species including the Fountain Darter (*Etheostoma fonticola*, Photo 7), Comal Springs Riffle Beetle (*Heterelmis comalensis*, Photo 6), Comal Springs Dryopid Beetle (*Stygoparnus comalensis*), and



the Peck's Cave Amphipod (*Stygobromus pecki*). Dry Comal Creek (1811A) is a 34.8-milelong intermittent creek with several pools along the length of the creek. Although a portion of the Dry Comal Creek watershed lies within the City of New Braunfels, the watershed predominantly contains agricultural land and is more rural than land surrounding the Comal River.

In recent years, the Comal River has become an extremely popular destination for river tubing (referred to locally as 'toobing', Photo 8), drawing an estimated 300,000 – 400,000 tourists each year from Memorial Day through Labor Day. This heavy recreational use of the



Photo 8: 'Toobers' on the Comal River

river resulted in intense litter pollution in the downstream portion of the river, which was negatively impacting water quality and the ecosystem. This led the city to pass an ordinance banning single use food and beverage containers on the river, which is still currently in effect.

Dry Comal Creek and the lower portion of the Comal River have been impaired for bacteria since 2010 and 2016, respectively. In 2014, the City of New Braunfels secured Clean Water Act 319 funding to develop a Watershed Protection Plan (WPP) for Dry Comal Creek and Comal River to address this impairment. Load duration curves for this watershed recommend a 50% reduction in bacteria loading on the Comal River and a 34% reduction on Dry Comal Creek. A bacterial source tracking study was subsequently performed; results showed that the majority of bacteria in both waterbodies came from wildlife, with additional contributions from livestock, pets, and humans. Following the study, the City of New Braunfels began implementing best management practices (BMPs) in an attempt to reduce bacteria loading. Those BMPs include a city ordinance banning the feeding of wildlife, campaigns to educate residents on the importance of picking up pet waste, and removal of wildlife feces in targeted locations near the river. More information on the WPP is available at: <u>https://newbraunfels.gov/wpp</u>.

GBRA monitors the Comal River at two monitoring stations and the Dry Comal Creek at one monitoring station.

Station ID	Dissolved Oxygen	Biologicals	Bacteria	Temperature	Nutrients	Chlorophyll a
15082	М	М	M	М	М	М
12653	М	М	l I	М	М	М
12570	М	М	l I	М	М	М

M - Meets water quality criteria

I - Impaired for water quality criteria

Table 10: Summary of the 2022 Texas Integrated Report / Segment 1811 & 1811A

Trend analyses performed at station 12653 showed a decreasing trend in sulfate over time (Figure 17), which is inversely correlated with flow. Improving flow rates following the end of the drought of 2011 could be a contributing factor to the decrease.



Figure 17: Sulfate trend at Station 12653

Figure 18: Dissolved oxygen trend at Station 12653

A decreasing trend in dissolved oxygen was also found at Station 12653 (Figure 18). Decreasing dissolved oxygen in this segment is typically correlated with a decrease in flow; however, that is not the case here. The reason for this observed decrease in dissolved oxygen is unknown.

At station 12570 (1811A), data analysis shows that nitrate is significantly increasing (Figure 19), which could be due to increased non-point source runoff from agriculture in the watershed.



Figure 19: Nitrate trend at Station 12570

No significant increasing or decreasing trends were identified for E. coli data collected at any of the monitoring stations. However, grab samples collected at station 12570 are consistently reported at or above the screening criteria level of 126 MPN (Figure 20).



Figure 20: E.coli at Station 12570