

Segments

- Segment 1803A - Elm Creek
- Segment 1803B - Sandies Creek

Segment Summary
Elm Creek (1803A)

Elm Creek is a 31-mile-long segment that begins west of Nixon in Wilson County and flows through Karnes and Gonzales counties before joining with Sandies Creek east of Smiley. Elm Creek has more than 15 different tributaries, and its watershed covers 135-square-miles. Lying completely within the Southern Post Oak Savannah Ecoregion, this watershed is characterized by sand and sandy loam soils that transition to dense clay pan soils. Land use in the watershed is primarily scrubland, with some improved hay pasture and post oak forest scattered throughout.

Elm Creek is monitored quarterly by GBRA at station 17894, but data at this station were not analyzed for trends because the period of record for this site is too short to produce trends. Station 17894 was added in 2020 to confirm the impairment for dissolved oxygen. Elm Creek has been listed on the 303(d) List of Impaired Water Bodies since 1999 for depressed dissolved oxygen levels and for bacteria since 2002.

Station ID	Dissolved Oxygen	Biologicals	Bacteria	Temperature	Nutrients	Chlorophyll a
17894	I	M	I	M	M	M

M - Meets water quality criteria
I - Impaired for water quality criteria

Table 22: Summary of the 2022 Texas Integrated Report / Segment 1803A

Sandies Creek (1803B)



Sandies Creek

Sandies Creek is a 79-mile-long tributary of the Lower Guadalupe River. Originating in Guadalupe County near Nixon, the creek meanders through Gonzales and DeWitt counties before joining up with the main stem of the Guadalupe River west of the town of Cuero. This watershed has a 711-square-mile drainage area and lies above the Carrizo-Wilcox and Gulf Coast aquifers. As the name would suggest, the soils in the Sandy Creek watershed are comprised mainly of sandy substrate. This creek has several tributaries including Elm Creek (1803A), Salty Creek (1803D), Little Elm Creek, Clear Fork Creek, Five Mile Creek, and fourteen or more other unnamed tributaries. The watershed lies mostly within the Southern Post Oak Savannah Ecoregion, with the lower end of the watershed in the Blackland Prairie which has more clay-like substrate. This

watershed is largely rural; livestock and farming dominate the land uses with hay production being one of the primary types of agriculture.

The Eagle Ford Shale formation lies under this watershed in Gonzales and DeWitt counties. Since 2008, companies have been drilling into the Eagle Ford to extract oil and gas, mainly through the process of hydraulic fracturing. The extensive use of this process in the region has led to concerns over its potential impacts on groundwater and surface water. Hydraulic fracturing requires large amounts of water, and the by-products of the process have the potential to contaminate nearby water sources if not properly handled. Stakeholders, including landowners and agricultural producers, main concern is the future availability of water in the already water-scarce area.

GBRA monitors Sandies Creek monthly at one station (13657) which is located at the Cheapside Road bridge crossing in northeast DeWitt County. Sandies Creek has been listed on the 303(d) List of Impaired Water Bodies since 1999 for depressed dissolved oxygen levels and for bacteria since 2002; these impairments are still listed for segment 1803B as of the 2022 Texas Integrated Report. In 2020 and 2021, GBRA conducted additional monitoring at site 15998, located at FM 1116 east of Smiley. Data from this site was used to confirm the DO and bacteria impairments. This segment also previously had impairments for fish community and macrobenthic community and a concern for habitat; however, those were not included in the 2022 Texas Integrated Report. A use attainability analysis was performed in the watershed, and the designated aquatic life use was subsequently changed from high to intermediate in the 2018 Texas Surface Water Quality Standards.

Station ID	Dissolved Oxygen	Biologicals	Bacteria	Temperature	Nutrients	Chlorophyll a
13657	I	M	I	M	M	M

M - Meets water quality criteria

I - Impaired for water quality criteria

Table 23: Summary of the 2022 Texas Integrated Report / Segment 1803B

Data analyzed from station 13657 showed an increasing trend in sulfate over time (Figure 47). Increased runoff from oil field activity in the area could be a cause of this increase.

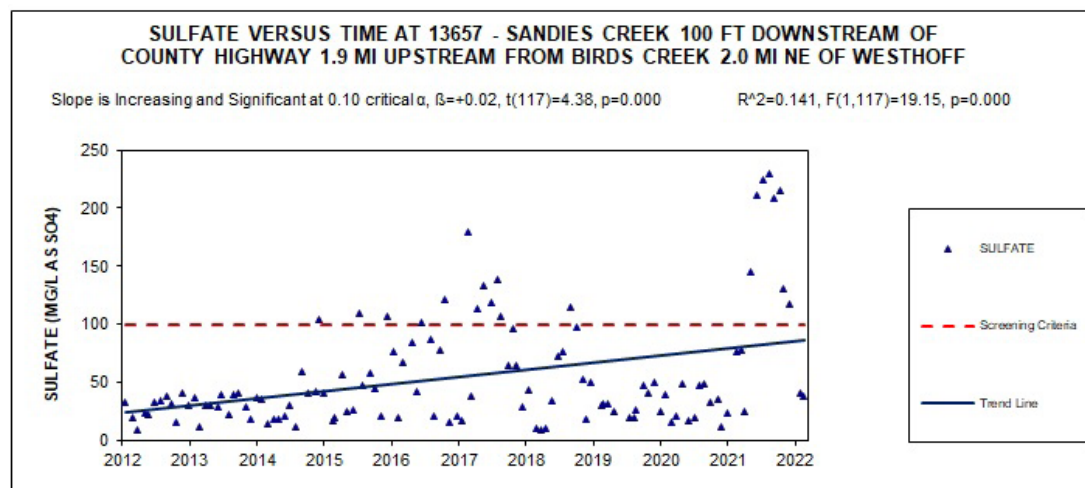


Figure 47: Sulfate trend at Station 13657