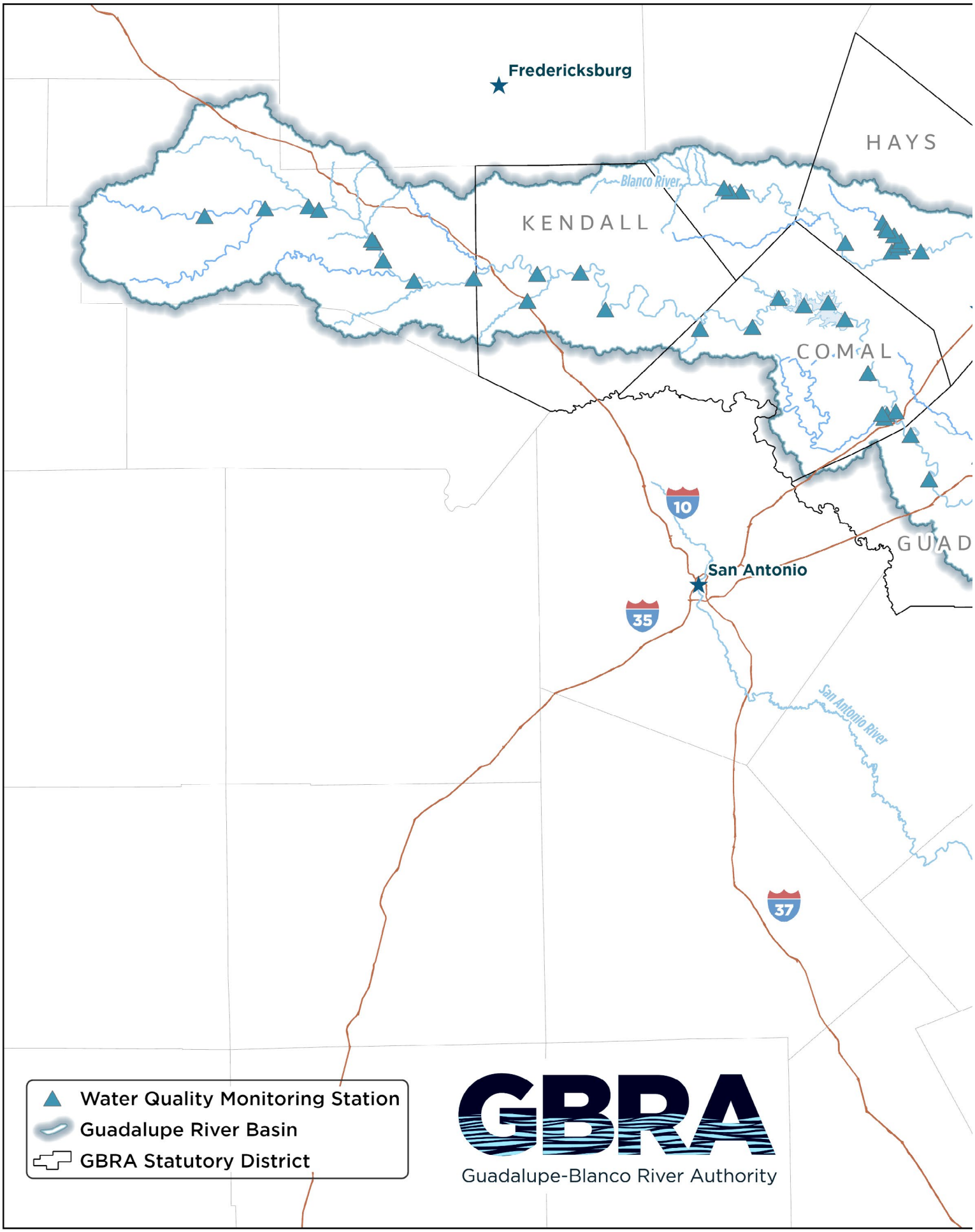
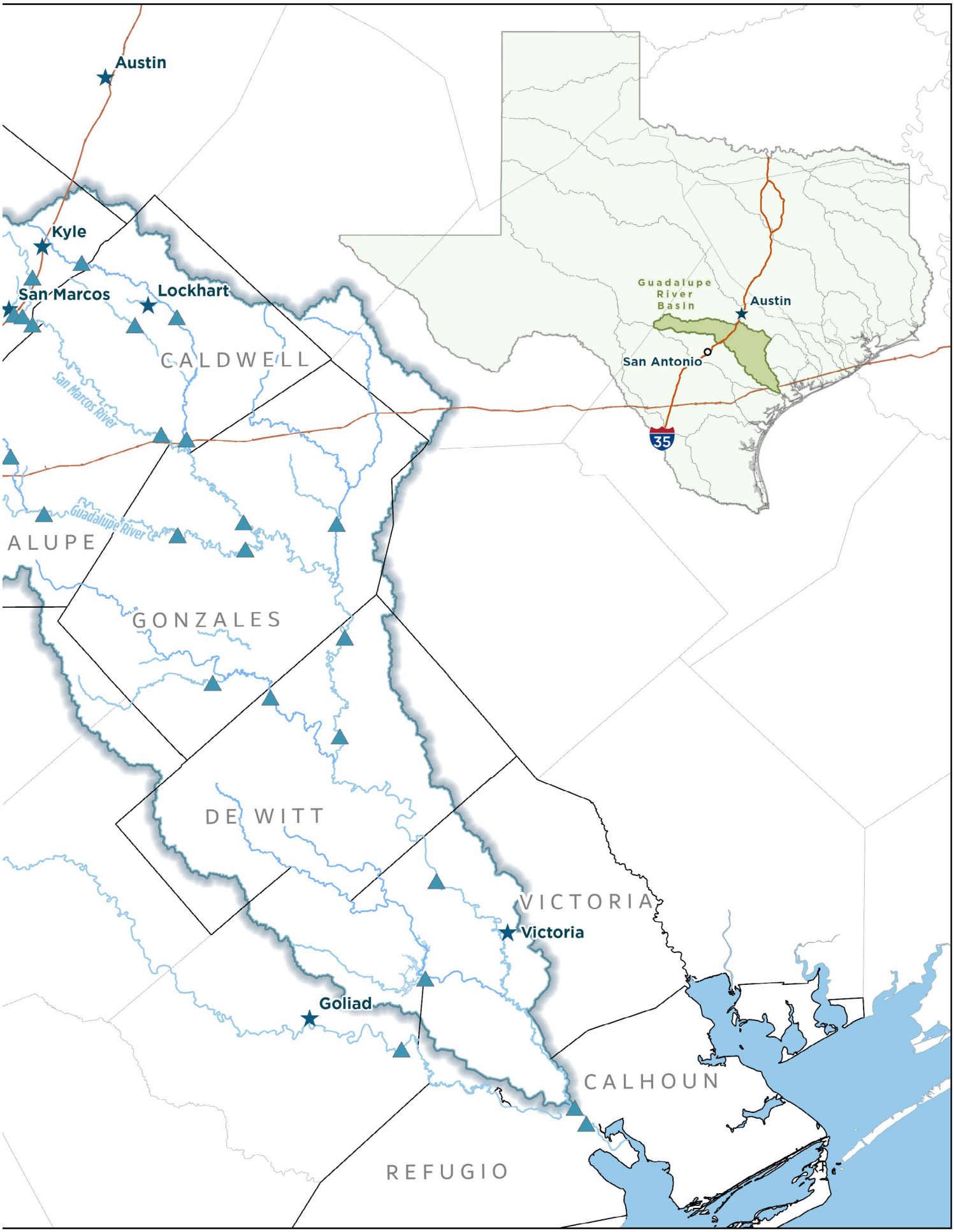
CLEAN RIVERS PROGRAM

BASIN HIGHLIGHTS REPORT 2026

Guadalupe River and Lavaca-Guadalupe Coastal Basins


Fredericksburg
HAYS
Blanco River
KENDALL
COMAL
10
GUAD
San Antonio
35
San Antonio River
37
Water Quality Monitoring Station
Guadalupe River Basin
GBRA Statutory District
GBRA
Guadalupe-Blanco River Authority


Austin
Kyle
San Marcos
Lockhart
CALDWELL
San Marcos River
Guadalupe River
ALUPE
GONZALES
DE WITT
VICTORIA
Victoria
Goliad
CALHOUN
REFUGIO
Guadalupe River Basin
Austin
San Antonio
35

CONTENTS

ABOUT

This report highlights the 2025 activities of the Guadalupe River and Lavaca-Guadalupe Coastal River Basins under the Clean Rivers Program (CRP). CRP is managed by Texas Commission on Environmental Quality (TCEQ) in accordance with the goals established by the Texas Clean Rivers Act of 1991. The Guadalupe-Blanco River Authority (GBRA), along with the Upper Guadalupe River Authority (UGRA), Meadows Center for Water and the Environment (MCWE), and Hays County, carry out water quality management efforts throughout the basin. The activities described in this report include annual highlights from project partners, water quality monitoring, a review of the 2024 Texas Integrated Report (IR) of Surface Water Quality, and public outreach and education.

Guadalupe River South of the Saltwater Barrier

On The Cover: Guadalupe River Mid-Basin.

THIS YEAR'S HIGHLIGHTS

Ongoing drought has been one of the most significant factors affecting water quality and quantity throughout the Guadalupe River Basin over the past year. Effects from the drought have arguably been greatest in the upper portion of the river that feeds into Canyon Reservoir. Streamflow on the Guadalupe River upstream of the reservoir is monitored by the United States Geological Survey (USGS) at a station near Spring Branch, TX. Although the drought in the 1950s is considered the drought of record, 2022 and 2023 marked some of the lowest annual rainfall on record for this area. Figure 1 shows annual flow at the Spring Branch gage for the last 100 years; notably, 2022, 2023, and 2024 all fall within the top 10 driest years that have been recorded at the Spring Branch gage.

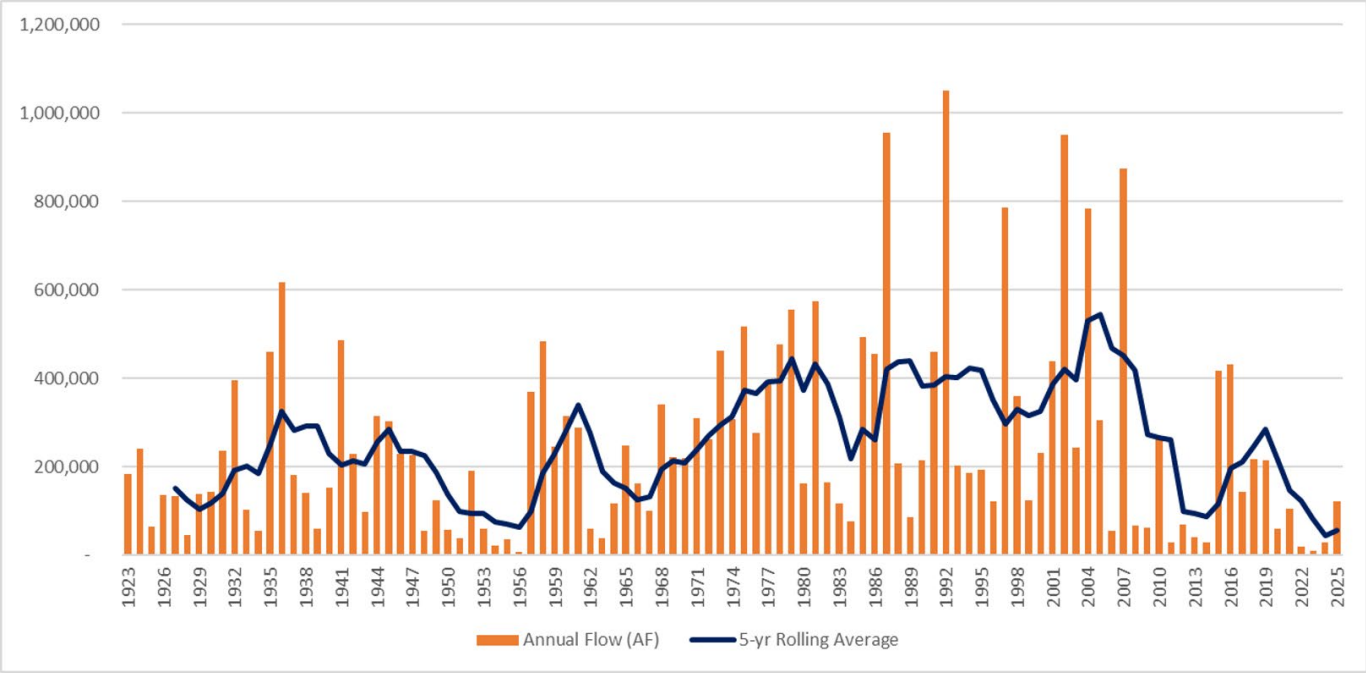


Figure 1. Streamflow metrics for the Guadalupe River at Spring Branch 1923-2025.

Canyon Reservoir, located in Comal County, is the largest impoundment on the Guadalupe River and is a major drinking water source for several communities, including New Braunfels, San Marcos, Seguin, and parts of San Antonio. Canyon Reservoir has been experiencing diminished water levels due to extreme drought conditions in the upper Guadalupe River basin and has not been full since November 2021. The reservoir saw widely fluctuating inflows and reservoir levels in 2025. Flows into Canyon Reservoir continued throughout the year, an improvement compared to recent years, like 2023, when it experienced 134 days of no inflows. However, the reservoir experienced its lowest recorded water level of 878.19 mean sea level (msl) in April of 2025. The water level in the reservoir rose over the summer, following significant rainfall in the upper basin, but as of December 2025, the water level sat at 889.11 msl and was steadily declining due to a lack of rainfall in the second half of the year. Drought conditions can affect aquatic communities and freshwater dependent species, including federally endangered species such as the Guadalupe Orb (*Cyclonaias necki*) mussel and Whooping Crane (*Grus americana*), due to habitat loss and alteration of water quality.

Whooping Crane.

Reduced flow from lack of rainfall can affect water quality in several ways. Less rainfall means less runoff, which can lead to a temporary decrease in bacteria and nutrient loading from nonpoint sources like agriculture and wildlife; however, this is often followed by spikes in bacteria and nutrient loading during subsequent rain events. Less rainfall can lead to decreased stream flow, resulting in changes to water quality. Data analysis in the 2023 Basin Summary Report at site 12677, Cypress Creek downstream of Jacobs Well Spring, showed that total dissolved solids (TDS) in the creek were increasing (Figure 2). Streamflow at this site decreased over time, resulting in a larger proportion of the flow at this site coming from groundwater out of Jacobs Well. Data from the USGS station located several feet down in Jacobs Well (Figure 3) showed strong correlation with data collected at Station 12677, which suggests that could be a contributing factor.

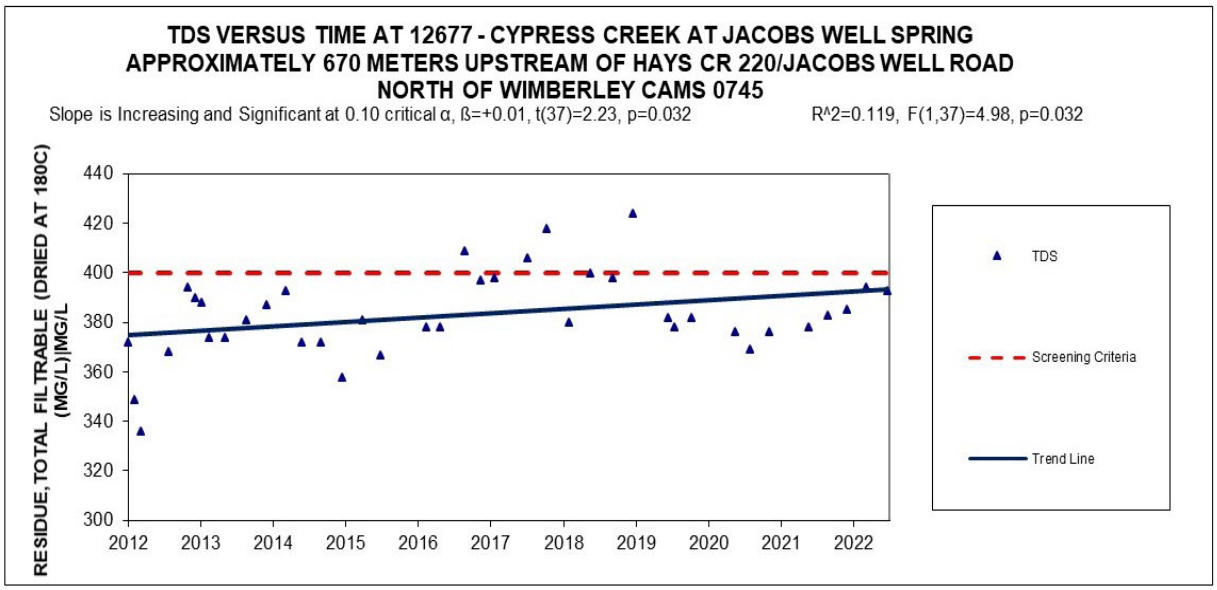


Figure 2. Total dissolved solids trend at Station 12677.

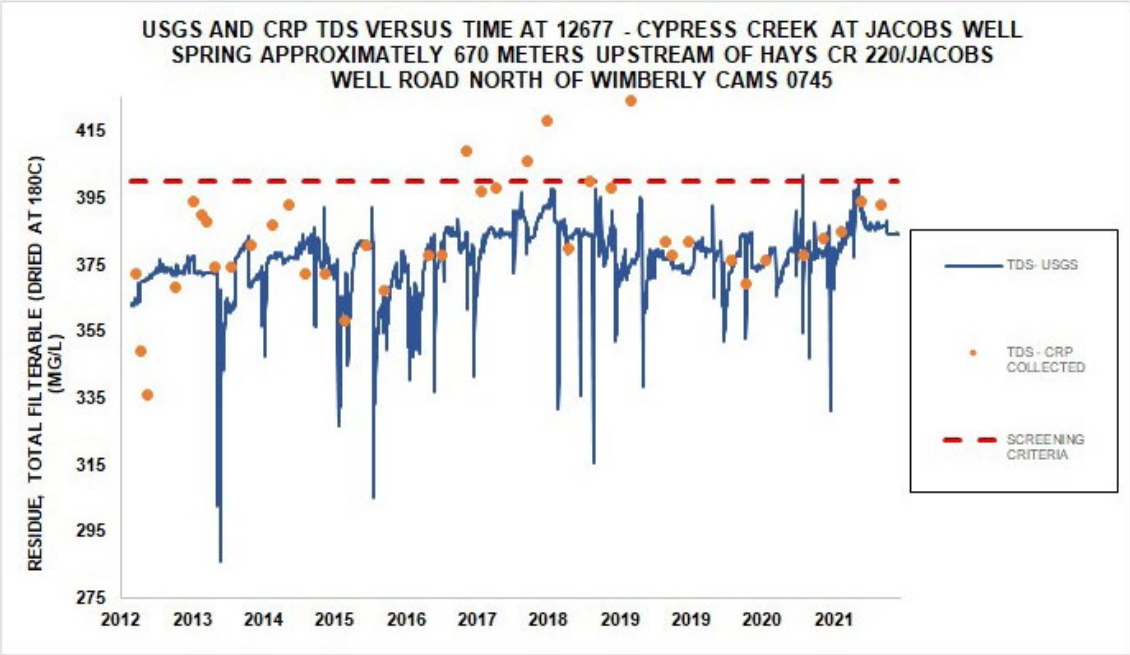


Figure 3. Total dissolved solids data compared with calculated TDS from USGS data at Station 12677.

Best Management Practice Initiatives

GBRA, in partnership with the Caldwell-Travis Soil Water Conservation District, recently implemented a feral hog trap loan program; the program launched in June 2025 to help control feral hog populations in Caldwell County. Qualifying landowners in Caldwell County can sign up to borrow a Pig Brig trap system for a three-month loan period at no cost to them. Each trap loan includes trap components, game cameras, instructional resources, and technical guidance. A public kickoff event was held on June 21, 2025, to introduce the program, demonstrate trap installation, and answer questions from prospective participants. The first traps were deployed in October 2025. More information on this program can be found at: https://plumcreekwatershed.org/water-quality/feral-hog-program/

Feral hogs.

Feral hogs in Pig Brig trap.

Service to the Community

As part of GBRA's Better Basin Days volunteer program, employees take part in multiple clean-up initiatives each year that support the health of rivers and coastal waterways throughout the Guadalupe River Basin. Each February, GBRA volunteers join the Texas Parks and Wildlife Department's (TPWD) Abandoned Crab Trap Removal Program. Authorized by Senate Bill 1410, this statewide initiative establishes a 10-day period each February for volunteers to remove lost or abandoned crab traps that can harm wildlife, boaters, and aquatic habitats. During the 2025 event, GBRA employees removed 45 abandoned traps, and have removed over 500 traps since joining the effort in 2019. Better Basin Days also includes participation in the city of New Braunfels' Adopt-a-Spot River Cleanup Program. With support from Rockin 'R' River Rides, GBRA volunteers assist in cleaning a designated stretch of the Guadalupe River by collecting trash, litter, and debris. In 2025, more than 100 pounds of trash was removed from the Adopt-a-Spot location during the spring and fall cleanup events. Through these Better Basin Days activities, GBRA employees contribute meaningful, hands-on work that supports cleaner waterways and safer natural spaces.

GBRA staff at a Better Basin Days river clean up event.

UPPER GUADALUPE RIVER AUTHORITY HIGHLIGHTS

UGRA is an active Texas CRP partner performing routine sampling at 12 sites quarterly and seven sites monthly. In addition, UGRA conducts multiple in-house sampling programs that focus on tributaries of the Guadalupe River and bacteria levels at popular recreation sites. Elevated *E. coli* bacteria levels in popular recreation areas continue to be a main water quality concern especially during recent drought years. A few swimming areas also overlap with preferred habitat for flocks of exotic waterfowl, which are a significant source of bacteria. Urban creeks around Kerrville face continued threats from nonpoint source pollution collected by surface runoff.

The largest impact on water quality in Kerr County during 2025 was the July 4th flood event. For the month following the event, UGRA suspended routine sampling programs and shifted focus to targeted reactive sampling. The sites and parameters tested during that month were based on staff experience, local needs, and recommendations from partners around the state to assess the water quality impact of the flood. While bacteria levels likely spiked immediately following the event, when UGRA staff were cleared by the Emergency Operations Center to resume sampling, bacteria and other routine parameters had returned to normal ranges. Along with typical parameters sampled for CRP, samples were also collected to test for hydrocarbons, herbicides, and pesticides. The results of these analyses were below the reporting limits.

UGRA staff collecting samples at Bear Creek Crossing in Kerr County on July 10th.

While the increased flow throughout the month of July moved many pollutants downstream quickly, UGRA staff conducted water quality investigations to address pollution concerns in isolated areas resulting from debris or damage. UGRA will continue conducting investigations for those reported instances. Texas Department of Emergency Management quickly started coordinating debris removal in Kerr County following the flood. Approximately 1.8 million cubic yards of woody debris, vegetation, and manmade debris was removed. Between debris removal and damage from the flood, there has been significant vegetation loss in the riparian area of the upper Guadalupe River. The possible impacts to water quality from this loss of vegetation will be long lasting.

As the lead water resource planning agency for the Upper Guadalupe River basin in Kerr County, UGRA partners with municipal and county governments, communities, civic groups, schools, and local citizens to preserve and protect the health of the watershed. Following the flood, UGRA and many of these local partners have been contributing to the long term recovery effort known as Kerr Together, which is organized into multiple working groups. The River Working Group efforts have included site visits with impacted landowners,

Riparian Workshop hosted by the Hill County Alliance and sponsored by UGRA. Photo by Shelby Taber, UGRA.

a series of riparian workshops, volunteer trash cleanup events in municipal parks, and distribution of native riparian seed to landowners. In the coming year, there will be more projects to actively restore riparian areas and provide assistance and resources to those affected.

UGRA routine programs dedicated to protecting local water resources have continued throughout 2025. UGRA has three projects under contract for the Water Resources Preservation Grant Program to provide cost share funding for the design and construction of stormwater management practices. The first example practice, a bioretention area at the Kerrville Public Safety Facility, has been completed. These three projects represent an investment of over $300,000 in preventing pollution from stormwater runoff from entering our waterways.

Above all, UGRA is a resource and advocate for the community on water quality, surface water, and the Guadalupe River. Central to our water monitoring programs is the nationally accredited UGRA Environmental Laboratory, a full-service laboratory serving the entire Hill Country. The laboratory is accredited according to the National Environmental Laboratory Accreditation Program and is one of the largest microbiological laboratories in the region. Please contact UGRA with comments, questions, or concerns at (830) 896-5445 or visit www.ugra.org.

MEADOWS CENTER FOR WATER AND THE ENVIRONMENT AND HAYS COUNTY HIGHLIGHTS

The Blanco Cypress Watershed Protection Plan (BCWPP) is an extension of the Cypress Creek Watershed Protection Plan that was implemented from 2014 to 2023. Funding for this work is provided by an Interlocal Partnership and water quality monitoring efforts are supported by the GBRA CRP Quality Assurance Project Plan, assuring the quality of the data. Like its predecessor, the BCWPP aims to safeguard the natural water resources of the local watershed for current and future generations to enjoy. In addition, the plan now incorporates the upper Blanco River, an essential component of the watershed. In late 2024, the first watershed coordinator was hired, and 2025 marked the first year with a full-time coordinator to oversee the BCWPP and ensure its successful implementation. This update aims to summarize the main issues observed in the watershed throughout 2025 and the measures taken to address them.

Water Quality

Data analysis at all monitoring stations on the Blanco River from September 2022 through September 2025 showed increased levels of TKN at the 3 sites located in the upper Blanco River (Figure 4). An increased presence of algae has been noted at these sites, especially at site 12668 (Blanco River at FM165). The potential causes of the elevated TKN levels are unknown, though agriculture in the area could be a contributing factor. MCWE continues to monitor these sites and has incorporated a total algae sensor into its routine monitoring to track chlorophyll levels.

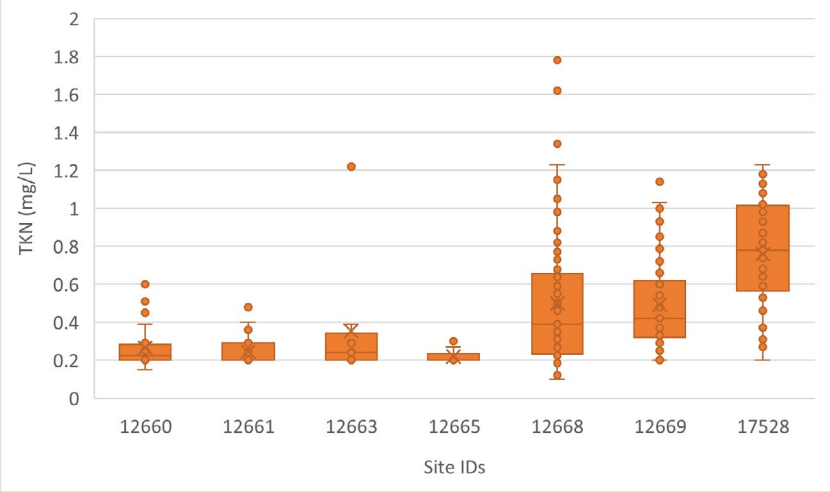


Figure 4. Distribution of Total Kjeldahl Nitrogen (TKN) concentrations by site.

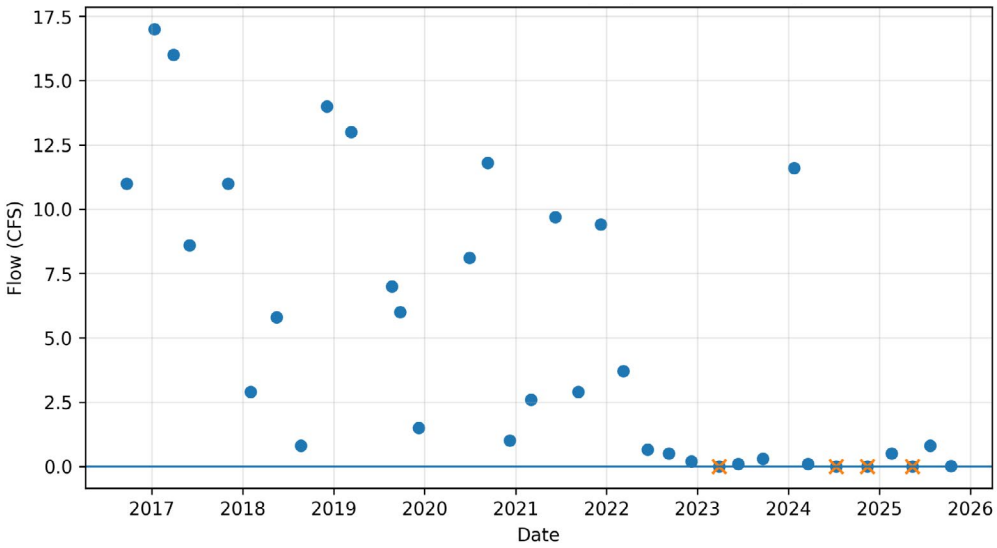


Figure 5. Flow time series at Jacobs Well (site 12677) highlighting zero-flow observations.

In Cypress Creek, flow at Jacobs Well Spring (the headwaters) shows a clear long-term decline, with higher and more variable flows prior to 2019 followed by consistently lower values in recent years (Figure 5). Since 2022, multiple observations have reached zero flow, indicating increasingly frequent no-flow conditions. These patterns suggest heightened sensitivity of the well to drought conditions, increased groundwater demand, and reduced aquifer recharge over time.

2025 Milestones

To address the issues associated with high TKN loads in the Upper Blanco River and the low flows along Cypress Creek, the BCWPP implemented ongoing initiatives:

- **Watershed Coordinator:** The first full-time BCWPP watershed coordinator was hired by Hays County, with supporting executive management by the Watershed Association and the Meadows Center. This position has proved to be valuable in continuing momentum of the original WPP, spearheading stakeholder engagement, and addressing water quality concerns. The position is currently vacant but Hays County is actively working to fill it.
- **Water Quality Dashboard:** The first phase of the development of a public facing water quality dashboard for the BCWPP began in 2025 with a proposed launch date of Spring 2026. The dashboard includes data from Clean Rivers Program, Texas Stream Team, and Wimberley Water Advisory Group monitoring activities that are conducted on a professional and volunteer basis within the watershed. The dashboard will live on the BCWPP website permanently once the website is updated this year.
- **Texas Stream Team:** Through partner collaboration, additional funding was secured to support the Wimberley Valley Texas Stream Team community scientists. The Meadows Center and San Marcos River Foundation host trainings regularly for anyone interested in getting involved.
- **One Water Hub:** The development of a Texas One Water Hub is underway to provide planning and policy resources, publications, and learning opportunities so other institutions can incorporate one water strategy in their day-to-day operation.
- **Groundwater Monitoring:** Groundwater monitoring efforts dwindled in the past, however, due to the interconnectedness of groundwater and surface water as well as the low flows at Jacobs Well, biannual groundwater monitoring was reestablished in 2025.
- **City of Blanco Wastewater Treatment Plant (WWTP):** Water quality monitoring takes place on a monthly basis up and downstream of the city of Blanco Wastewater Treatment Plant to track any potential impacts of Blanco River WWTP discharges. The city strives to avoid discharging effluent into the river except under dire circumstances. The most recent discharge was in February of 2024. A WWTP permit renewal is currently under review by TCEQ.
- **Development Collaboration:** Consultations were conducted with developers, small businesses, and water supply corporations to advance water reuse, rainwater harvesting, and other conservation practices as much as possible.
- **One Water Resolution:** Hays County and the city of Blanco joined the city of Wimberley in adopting a One Water resolution to proclaim their commitment to supporting integrated water management strategies to conserve and sustain water resources. These resolutions encourage the exploration of One Water strategies in private and public development projects, viewing all water resources – drinking, wastewater, stormwater, and gray water – as interconnected.
- **Education and Outreach:** Events and workshops were hosted for the community to learn about water conservation measures and water quality protection.

Without the diligent efforts and continued support of partners, the BCWPP could not have reached these milestones. Thanks to the efforts of the cities of Wimberley, Woodcreek and Blanco, the Watershed Association, Hays County, and the MCWE, the BCWPP has had another successful year of supporting watershed protection efforts with the goal of keeping the Blanco and Cypress Creek CLEAN, CLEAR, AND FLOWING.

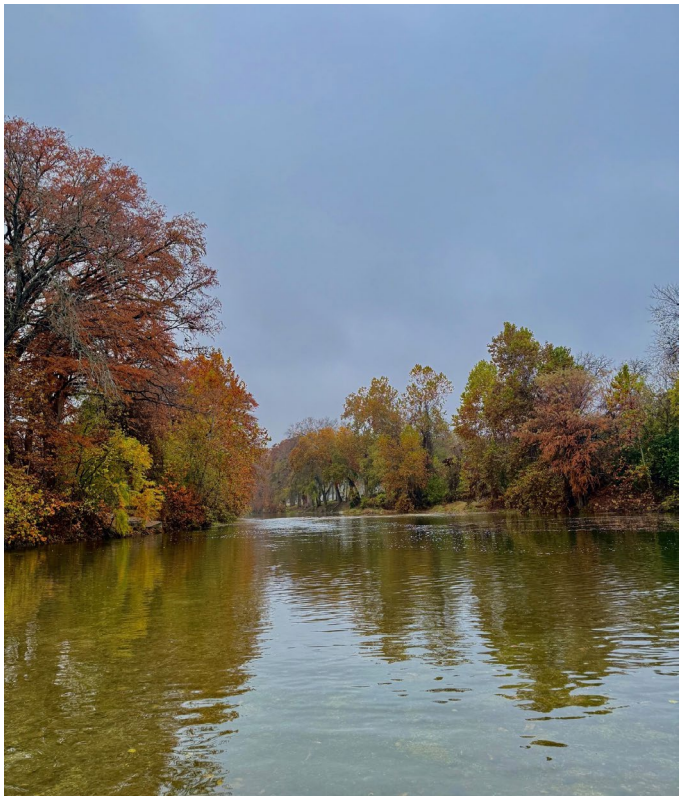
WATER QUALITY MONITORING

Below (Table 1) is the FY26 Clean Rivers Program sampling schedule for Basins 17 and 18.

Collecting Entity	Field	Conventional	Bacteria	Biological
GBRA	19 sites monthly; 13 sites quarterly;	19 sites monthly; 13 sites quarterly	19 sites monthly; 13 sites annually	1 annually
UGRA	7 sites monthly; 10 sites quarterly	12 sites quarterly; 1 site twice per year	7 sites monthly; 10 sites quarterly	1 annually
TCEQ	11 sites quarterly	11 sites quarterly	11 sites quarterly	NA
Hays County	3 sites monthly; 4 sites quarterly	3 sites monthly; 4 sites quarterly	3 sites monthly; 4 sites quarterly	NA
MCWE	6 sites quarterly	6 sites quarterly	6 sites quarterly	NA

Table 1. Monitoring Parameters in Fiscal Year 2026 (September 2025-August 2026).

Hays County, MCWE, and UGRA each play important roles in monitoring water quality throughout the Guadalupe River Basin under the GBRA CRP. In FY2026, Hays County took the place of the Watershed Association in the GBRA CRP and handles water quality data collection on the Blanco River. Hays County has supported watershed protection and nonpoint source management through partnerships on projects like the Plum Creek and Blanco-Cypress Creek Watershed Protection Plans, which address bacteria and nutrient impairments through community-based best management practices (BMP). MCWE has led major initiatives, including the Upper San Marcos and Cypress Creek Watershed Protection Plans, aquatic life assessments, dissolved oxygen studies, and outreach programs that promote stewardship of spring-fed systems. UGRA has been a key CRP partner since the first GBRA CRP contract, conducting routine monitoring, bacteria reduction planning, and education efforts in Kerr County and portions of Kendall County. Together, these organizations combine technical monitoring, local engagement, and applied research to maintain and restore the ecological health of the Guadalupe River and its tributaries.



Guadalupe River at Cypress Bend in New Braunfels, Texas.

There are approximately 115 sites monitored in the Guadalupe River (Basin 18) as of the FY2026 schedule. Additionally, GBRA monitors the San Antonio River (Basin 19) near Fannin at station 12790 monthly, and TCEQ monitors station 12536 quarterly in the Lavaca-Guadalupe Coastal Basin (Basin 17). The monitoring listed on the Coordinated Monitoring Schedule includes activities carried out under CRP, as well as monitoring through the Plum Creek and Geronimo & Alligator Creeks Watershed Protection Plans. The full schedule can be found by visiting: https://cms.lcra.org/default.aspx

Water Quality Parameters

Temperature: Affects dissolved oxygen capacity and biological activity. Warmer water holds less oxygen and can stress aquatic life.

pH: Indicates acidity or alkalinity. Extreme values affect aquatic organisms and chemical reactions; they can change due to pollution or natural processes.

Dissolved Oxygen (DO): The amount of oxygen available for aquatic organisms. Low levels can signal organic decay or excess bacteria.

Conductivity: Measures the water's ability to conduct electricity, reflecting dissolved salts like chloride and sulfate. High conductivity indicates elevated ion content.

Stream Flow: Determines dilution and transport of pollutants. Low flows reduce oxygen and can increase pollutant concentrations.

Secchi Depth / Transparency: Indicates water clarity and light penetration; affects the depth at which aquatic plants can survive.

Turbidity: Measures cloudiness caused by suspended solids or algae. High turbidity can limit light, raise temperatures, and lower oxygen levels.

Total Suspended Solids (TSS): The number of particles suspended in the water column. High levels reduce clarity and provide surfaces for toxins to attach.

Total Dissolved Solids (TDS): Sum of dissolved inorganic and organic materials. High TDS can stress aquatic life.

Total Hardness: Concentration of calcium and magnesium in the water. High hardness can reduce metal toxicity and influence buffering capacity.

Bacteria (*E. coli*): Indicator of fecal contamination from humans or animals in fresh water. Used to assess recreational safety; high levels can more readily cause illness.

Ammonia-Nitrogen: A form of nitrogen from waste or decay. Toxic to aquatic life at high concentrations, especially under warm and/or high-pH conditions.

Nitrate-Nitrogen: An essential nutrient for plants. Excess levels can cause algal blooms, oxygen depletion, and fish kills.

Total Kjeldahl Nitrogen (TKN): A combination of organic nitrogen and ammonia. Elevated levels can trigger eutrophication or excess algal activity.

Total Phosphorus: Key nutrient that supports plant and algal growth. High concentrations lead to excessive blooms, oxygen loss, and aquatic life die-offs.

Chloride: Major dissolved ion; high levels increase corrosion potential and can harm aquatic life.

Sulfate: Naturally occurring ion; high levels can contribute to acidity and aquatic health.

Chlorophyll-a: Pigment in algae used to estimate algal biomass. Elevated concentrations indicate algal blooms and possible oxygen depletion.

2024 TEXAS INTEGRATED REPORT OF SURFACE WATER QUALITY IN THE GUADALUPE RIVER BASIN AND THE LAVACA-GUADALUPE COASTAL BASIN

TCEQ uses data collected under the CRP and other water quality data collection programs to assess the status of Texas' natural waters across the state. Every two years, TCEQ compares data collected from the past seven to ten years against that waterbody's water quality standards. Each waterbody in Texas has a set of water quality standards assigned by TCEQ to protect healthy aquatic communities, support recreational opportunities, and other uses. Waterbodies that don't meet one or more water quality criteria are considered impaired. Waterbodies may also be assessed as having a concern in particular circumstances, such as when too little data exists for the assessment, but the existing data are below water quality criteria, or when standards have not yet been set for a particular parameter. TCEQ reports the results of this assessment process every two years in its IR, which is finalized after EPA approval. The IR contains several documents, including a list of all impaired waters called the 303d list, a list of waterbodies with concerns, a list of waterbodies evaluated during the assessment, and guidance on how waterbodies were assessed for the report. For more information on TCEQ's assessment process or to view the current IR, please visit https://www.tceq.texas.gov/waterquality/assessment. A summary of the 2024 IR for Basins 17 and 18 are listed below (Tables 2 and 3). Table 2 identifies all water quality impairments and concerns TCEQ identified for the Guadalupe River Basin in the 2024 Texas IR. Highlighted segments indicate new listings or re-listings as of the 2024 IR. Re-listed segments were listed as impaired on past IRs, subsequently delisted, and then relisted on the 2024 Report. Table 3 lists parameters that have been removed from the 303(d) as of the 2024 IR. The segments in table 3 may still be listed as impaired for other parameters. The full 2024 Texas Integrated Report of Surface Water Quality can be found on the TCEQ website: https://www.tceq.texas.gov/waterquality/assessment/2024-integrated-report/24txir

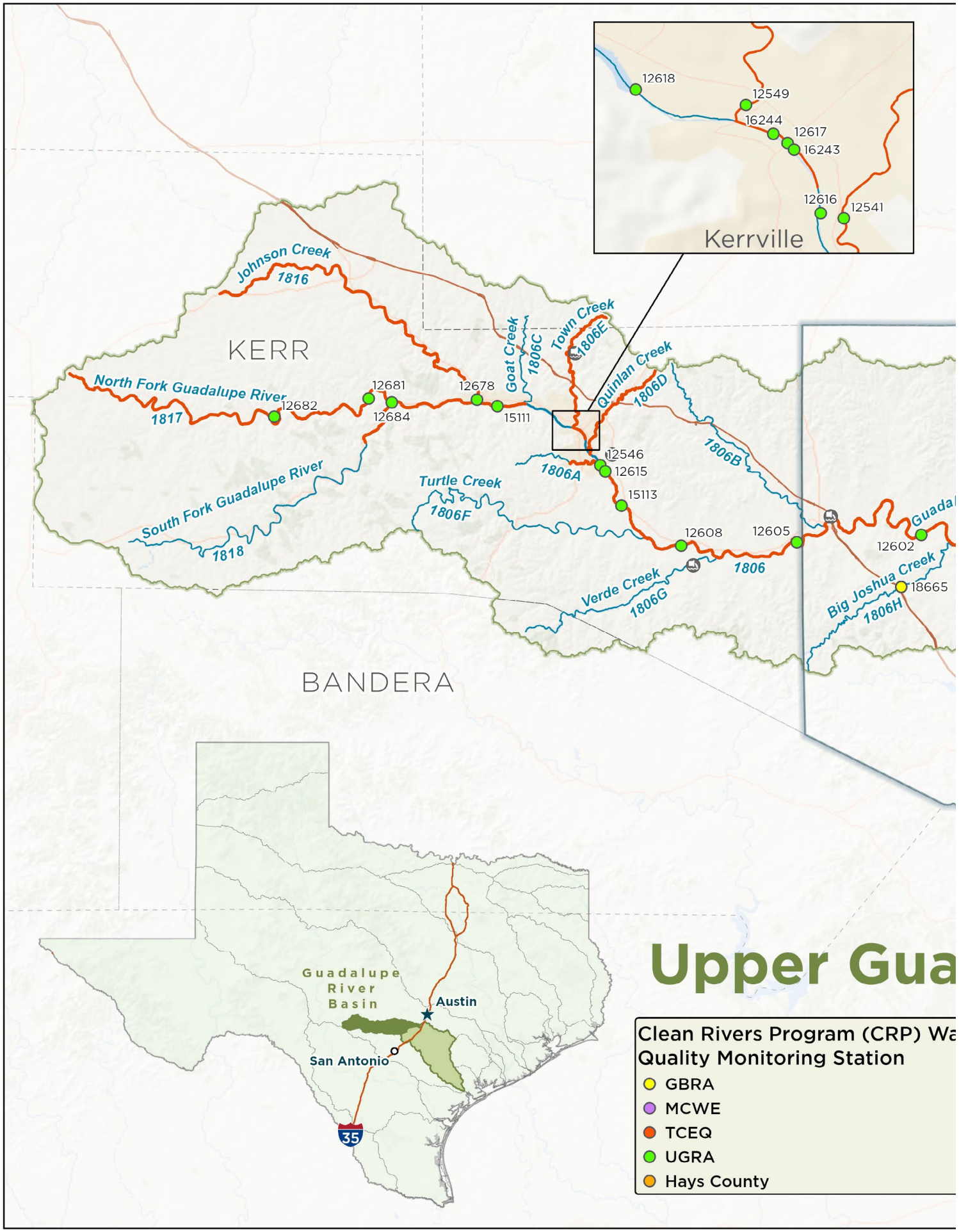
Segment	Water Body	Impairment	Concern	First Year Listed
1701	Lavaca-Guadalupe Coastal Basin	NA	Chlorophyll-a	NA
1801	Guadalupe River Tidal	Bacteria (Recreation Use)	Nitrate	2022
1802	Guadalupe River Below San Antonio River	NA	Nitrate	NA
1803	Guadalupe River Below San Marcos River	NA	Nitrate	NA
1803A	Elm Creek	NA	Bacteria (Recreation Use), Chlorophyll-a	NA
1803B	Sandies Creek	Bacteria (Recreation Use), Depressed dissolved oxygen	Depressed dissolved oxygen	2002 1999
1803C	Peach Creek	Bacteria (Recreation Use), Depressed dissolved oxygen	Chlorophyll-a, Impaired macrobenthic community, Total phosphorous	2002 2006

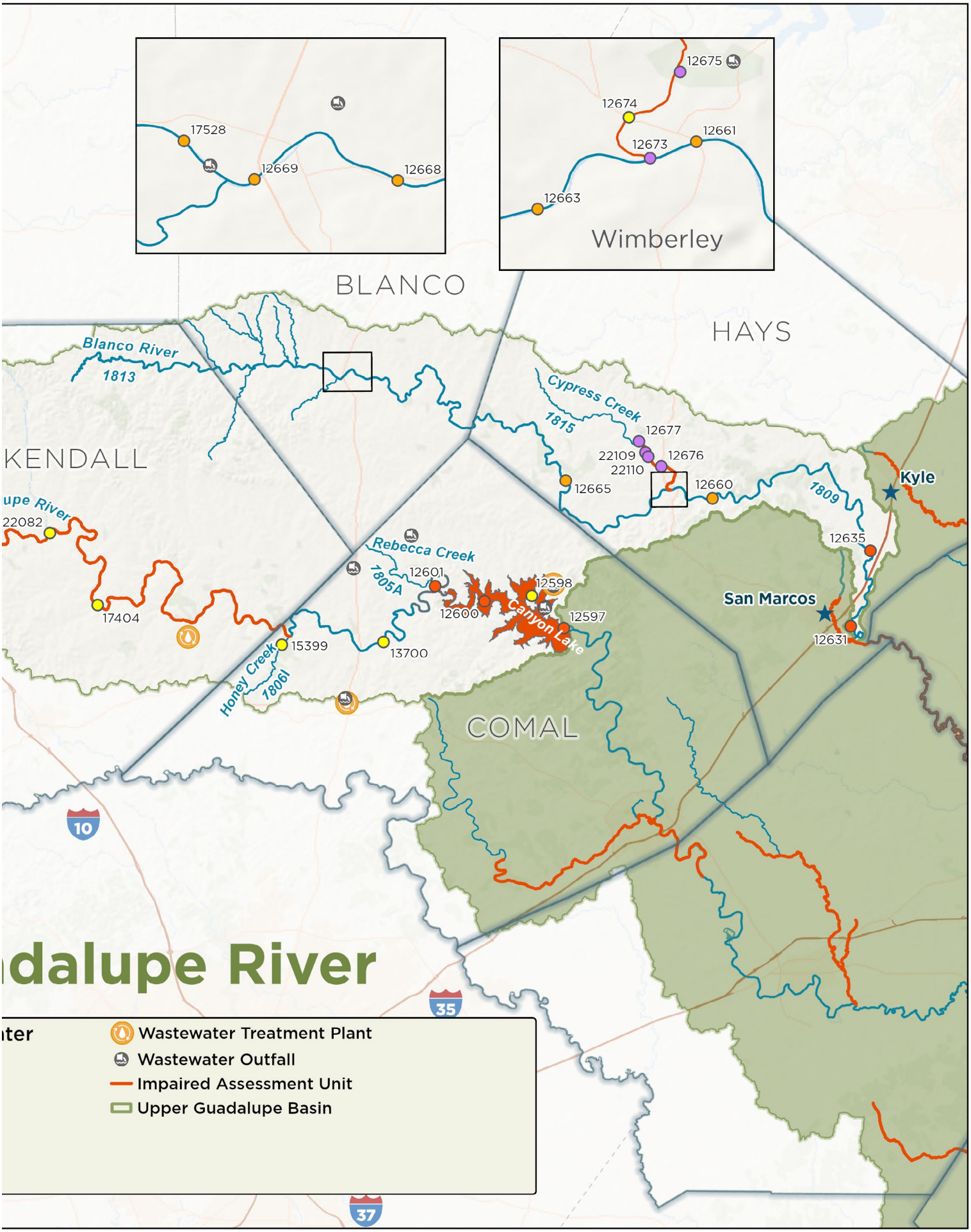
1804	*Guadalupe River Below Comal River*	*Bacteria (Recreation Use)*	NA	*2024*
1804	Geronimo Creek	Bacteria (Recreation Use)	Nitrate	2006
1804D	Bear Creek	NA	Bacteria (Recreation Use)	NA
1805	Canyon Reservoir	Mercury in edible tissue	NA	2006
1806	Guadalupe RIver Above Canyon Reservoir	Bacteria (Recreation Use)	Impaired fish community, impaired habitat	2002
1807	Coleto Creek	NA	Chlorophyll-a	NA
1808	Lower San Marcos River	NA	Bacteria (Recreation Use)	NA
1810	Plum Creek	Bacteria (Recreation Use)	Impaired fish community, impaired habitat, impaired macrobenthic community, Nitrate, Total Phosphorus	NA
1810 A	Town Branch	NA	Bacteria (Recreation Use), Depressed dissolved oxygen, Nitrate	NA
1811	Comal River	Bacteria (Recreation Use)	NA	2016
1811A	Dry Comal Creek	Bacteria (Recreation Use)	NA	2010
1814	*Upper San Marcos River*	*Total dissolved solids*	NA	2010
1815	*Cypress Creek*	*Depressed dissolved oxygen*	Impaired habitat	2020
1816	Johnson Creek	NA	Impaired habitat	NA
1817	North Fork Guadalupe River	Impaired fish community, Impaired macrobenthic community	Impaired habitat	2020 2020
1818	South Fork Guadalupe River	Impaired fish community, Impaired macrobenthic community	Impaired habitat	2020 2020

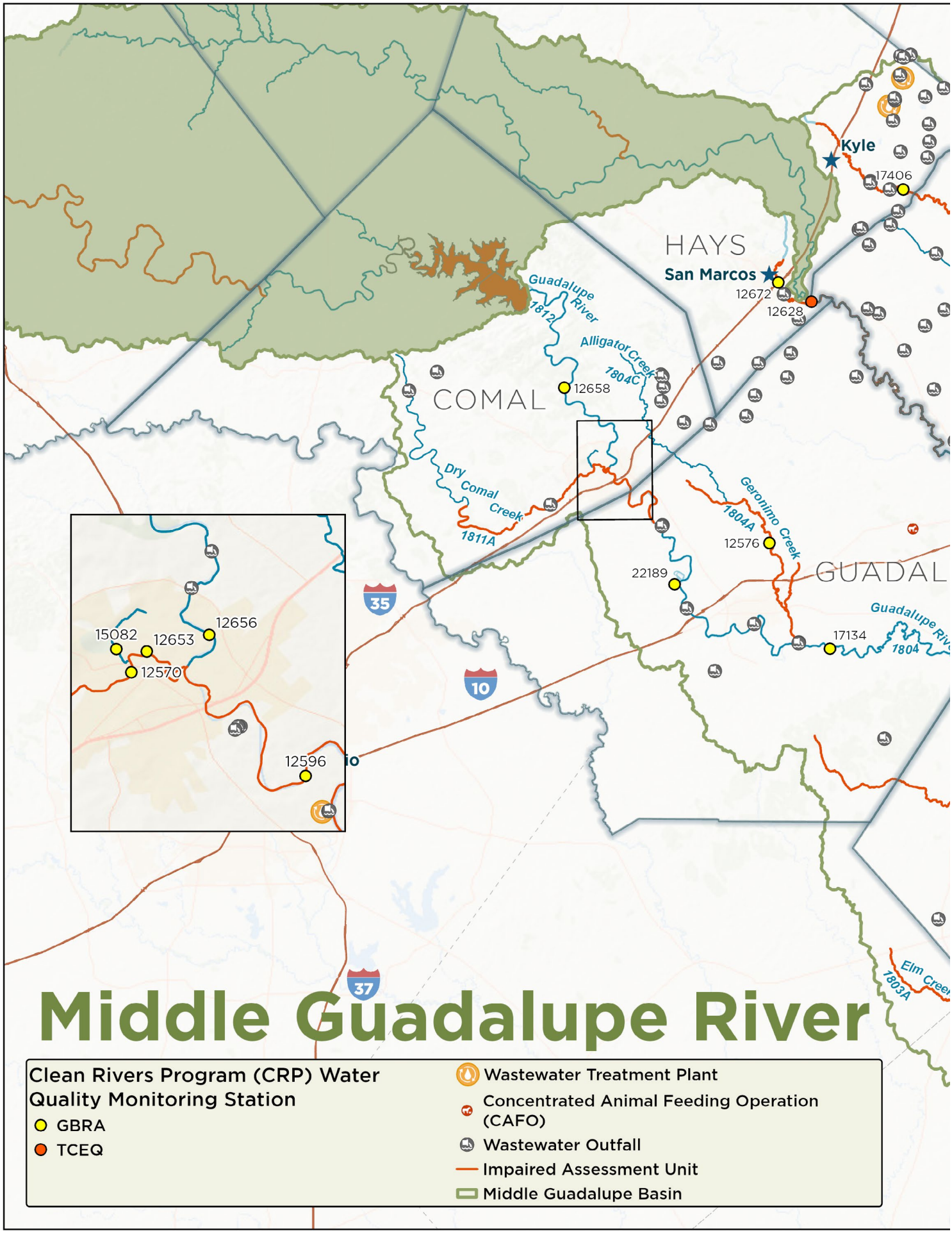
Table 2. Impaired waterbodies in the Guadalupe River and Lavaca-Coastal basins according to the 2024 Texas Integrated Report. Segments highlighted in green are new or re-listed impairments.

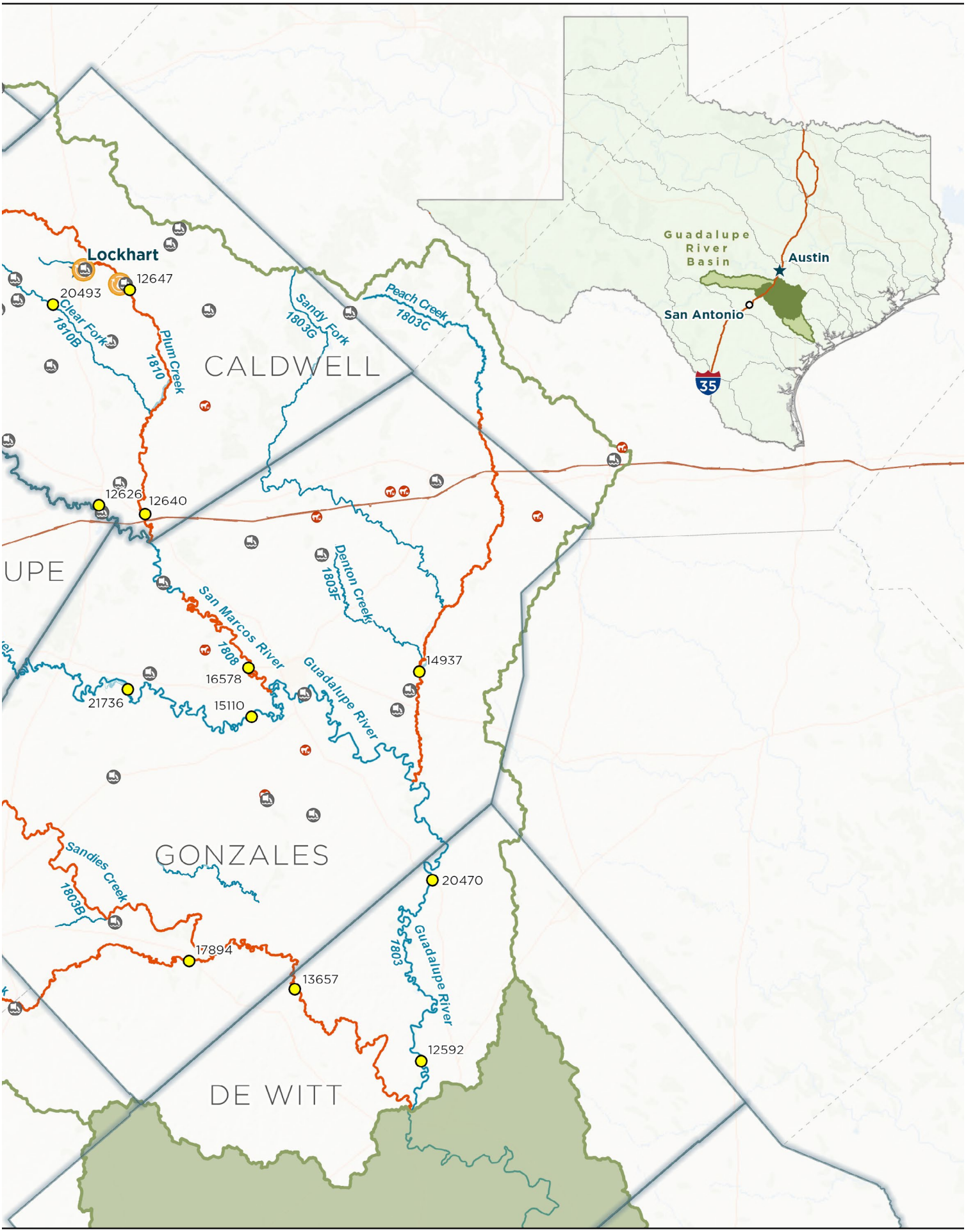
Segment	Water Body	Impairment
1830A	Elm Creek	Depressed dissolved oxygen
1803B	Sandies Creek	Depressed dissolved oxygen
1806A	Camp Meeting Creek	Bacteria

Table 3. Delisted parameters in the Guadalupe River Basin according to the 2024 Texas Integrated Report.


12618
12549
16244
12617
16243
12616
12541
Kerrville
Johnson Creek
1816
KERR
North Fork Guadalupe River
1817
12682
12681
12684
12678
15111
Goat Creek
1806C
Town Creek
1806E
Quinlan Creek
1806D
1806B
12546
12615
1806A
15113
Turtle Creek
1806F
South Fork Guadalupe River
1818
12608
12605
1806
12602
Verde Creek
1806G
Big Joshua Creek
1806H
18665
BANDERA
Guadalupe River Basin
Austin
San Antonio
35
Upper Gua
Clean Rivers Program (CRP) Wa
Quality Monitoring Station
GBRA
MCWE
TCEQ
UGRA
Hays County

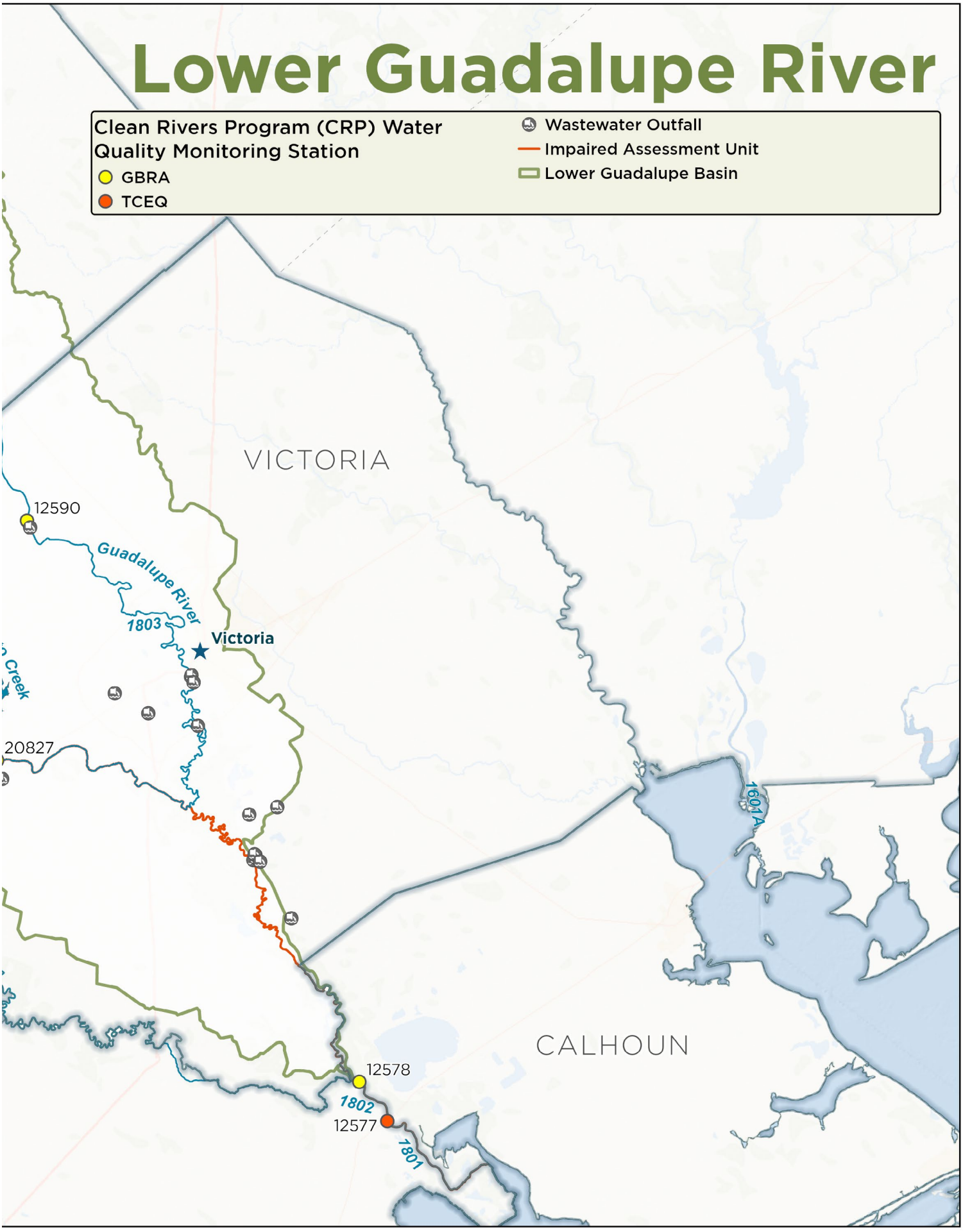

17528
12669
12668
12675
12674
12661
12673
12663
Wimberley
BLANCO
HAYS
KENDALL
COMAL
Blanco River
1813
Cypress Creek
1815
12677
22109
12676
22110
12665
12660
1809
Kyle
12635
upe River
22082
17404
Rebecca Creek
1805A
12601
12598
12600
12597
Canyon Lake
San Marcos
12631
15399
13700
Honey Creek
1806J
10
35
37
dalupe River
ter
Wastewater Treatment Plant
Wastewater Outfall
Impaired Assessment Unit
Upper Guadalupe Basin


HAYS
COMAL
GUADAL
Kyle
San Marcos
17406
12672
12628
12658
12576
22189
17134
12656
15082
12653
12570
12596
Guadalupe River
1812
Alligator Creek
1804C
Dry Comal Creek
1811A
Geronimo Creek
1804A
Guadalupe Riv
1804
Elm Creek
1803A
35
10
37
Middle Guadalupe River
Clean Rivers Program (CRP) Water Quality Monitoring Station
GBRA
TCEQ
Wastewater Treatment Plant
Concentrated Animal Feeding Operation (CAFO)
Wastewater Outfall
Impaired Assessment Unit
Middle Guadalupe Basin


Guadalupe River Basin
Austin
San Antonio
35
Lockhart
12647
20493
Clear Fork 1810B
Plum Creek 1810
Sandy Fork 1803G
Peach Creek 1803C
CALDWELL
12626
12640
UPE
Denton Creek 1803F
San Marcos River 1808
16578
21736
15110
Guadalupe River
14937
GONZALES
Sandies Creek 1803B
20470
17894
13657
Guadalupe River 1803
12592
DE WITT


DE WITT
GOLIAD
Perdido Creek
1807A
Goliad
San Antonio River
1901
12790
Guadalupe
River
Basin
Austin
San Antonio
35

Lower Guadalupe River



GUADALUPE RIVER ABOVE FLAT ROCK DAM WATERSHED

Segment 1818 - South Fork Guadalupe River

Segment 1817 - North Fork Guadalupe River

Segment 1816 - Johnson Creek

Segment 1806 - Guadalupe River Above Canyon Reservoir

North Fork Guadalupe River at Waldemar

Watershed Summary

The Guadalupe River watershed above Flat Rock Dam consists of several segments which are described below in more detail. This watershed is mostly contained within Kerr County, with a small portion in southwestern Gillespie County. Soil types in this area are typical of the Edwards Plateau ecoregion and range from dark and loamy soils over limestone substrate to loam with clay subsoils. This watershed in the Hill Country region of Texas, is characterized by hilly and rocky topography, and is the border between the American Southwest and Southeast. This watershed comprises the headwaters of the Guadalupe River, and numerous springs in the area contribute to baseflows for the river. Although this area has historically been rural, the scenic views and cool, clear rivers have led to an increase in population and urban sprawl has occurred over the years. Swimming, fishing, and kayaking are popular in this watershed. Additionally, there are several summer camps along the banks of the streams throughout this watershed. Many of these camps have low-head dams on the streams near their property that create swimming holes for the campers.

South Fork Guadalupe River (1818)

Segment Description

South Fork Guadalupe River is a 27-mile-long stream that extends from the confluence with the main stem of the Guadalupe River in Hunt to a point upstream of FM 187 in Kerr County. Segment 1818 is one of the three segments that comprise the headwaters of the Guadalupe River.

Segment Concerns

Segment 1818 has impairments for fish and macrobenthic community, and a concern for habitat, on the 2024 Texas IR.

North Fork Guadalupe River (1817)

Segment Description

North Fork Guadalupe River is a 29-mile-long stream that extends from the confluence with the main stem of the Guadalupe River in Hunt to a point upstream of Boneyard Draw in Kerr County. Segment 1817 is one of the three segments that comprise the headwaters of the Guadalupe River.

Segment Concerns

Segment 1817 has impairments for fish and macrobenthic community, and a concern for habitat, on the 2024 Texas IR.

Johnson Creek (1816)

Segment Description

Johnson Creek is a 21-mile-long stream that extends from the confluence with the main stem of the Guadalupe River near Ingram to SH 41 in western Kerr County. Segment 1816 is one of the three segments that comprise the headwaters of the Guadalupe River.

Segment Concerns

Recent data analysis from segment 1816 showed that chloride is significantly decreasing and the trend is significantly correlated with flow. Rainfall was below average during the 10-year period of this analysis, so decreased runoff could be contributing to this decrease. This segment also has a concern for impaired habitat, as of the 2024 Texas IR.

Guadalupe River Above Canyon Reservoir (1806)

Segment Description

Guadalupe River above Canyon Reservoir is a 103-mile-long segment that extends from Canyon Reservoir in Comal County upstream to the confluence of the North and South Forks in Kerr County. This summary will divide segment 1806 into two sub-watersheds: segment 1806 above Flat Rock Dam, and segment 1806 below Flat Rock Dam. For information on the lower 96 miles of this segment, refer to the 'Guadalupe River below Flat Rock Dam' section. Segment 1806 is divided into several assessment units and is monitored at multiple stations along the main stem of the river as well as its tributaries, including Camp Meeting Creek (1806A), Quinlan Creek (1806D), and Town Creek (1806E).

Segment Concerns

In 2002, segment 1806 was added to the 303(d) list of impaired waters due to bacteria levels above the screening criteria of 126 MPN/100 mL. Portions of segment 1806 contributing to the impairment were determined to be within the urbanized zones of the City of Kerrville.

Actions to Address Watershed Concerns

A total maximum daily loading (TMDL) plan was created by UGRA and TCEQ, and approved by EPA in 2007, to address the bacteria levels in this segment. The plan aims to reduce bacteria loading through the implementation of BMPs in the area. Local stakeholders, including Kerr County and the City of Kerrville, continue to partner with UGRA to implement BMPs first identified in the Bacteria Reduction Plan for the Upper Guadalupe River. More information on the plan can be found at: www.ugra.org/major-initiatives/bacteria-reduction-plan.

Segment 1806 above Flat Rock Dam is no longer impaired for bacteria. TMDL implementation and lower than average rainfall, resulting in decreased runoff, could be contributing to the reduction of bacteria levels in this segment. However, three tributaries of segment 1806 remain impaired for bacteria as of the 2024 Texas IR, including Camp Meeting Creek (1806A), Quinlan Creek (1806D), and Town Creek (1806E).

GUADALUPE RIVER BELOW FLAT ROCK DAM WATERSHED

Segment 1806 - Guadalupe River Above Canyon Reservoir

Segment Description

The Guadalupe River watershed below Flat Rock Dam includes the lower 96 miles of segment 1806, which flows from Flat Rock Dam to Canyon Reservoir. For information on the upper seven miles of Segment 1806, please refer to the preceding section of this report.

This watershed lies within the Edwards Plateau ecoregion and covers portions of Kerr, Comal, Kendall, and Blanco counties. Soil types range from dark and loamy over limestone to loam with clay subsoils. Numerous tributaries flow into this segment of the river, including Turtle Creek, Steel Creek, Verde Creek (1806G), Bluff Creek, Cypress Creek (1806B), Holliday Creek, Flat Rock Creek, Block Creek, and Joshua Creek (1806H). This segment of the Guadalupe River is wide and meandering with sections of riffles and rapids. Recreation is popular on this segment of the river; fishing and river tubing are common sights during the warmer months. Land use in this watershed is mostly rural with a few small cities, some unincorporated urban sprawl, and agriculture present.

Segment Concerns

Analysis of data in the 2023 Basin Summary at station 15113, located downstream of Flat Rock Dam in Kerr County, showed an increasing trend for *E. coli*, though it was still below the screening criteria. The Assessment Unit (AU) that this station is in, AU 1806_02, does not currently have an impairment or concern for bacteria.

AU 1806_09, which runs from Flat Rock Dam upstream to the confluence with Camp Meeting Creek in Kerrville, has a concern for bacteria as of the 2024 Texas IR. Downstream, AU 1806_08 has an impairment for bacteria and a concern for impaired habitat in water.

Actions to Address Concerns

The source of bacteria loading within AU1806_08 is unknown. Sources of bacteria loading in AU1806_09 could be stormwater runoff. In this rural area, potential contributors to bacteria loading in stormwater runoff is agriculture including livestock operations. Increased monitoring and stakeholder engagement in the area could help identify the specific sources. Decreased rainfall due to the ongoing drought could be another cause for the increased bacteria levels. Livestock could be contributing to the habitat concern; as livestock that are grazing near the river or using the river as a water source could degrade the riverbank. Keeping livestock away from the river by utilizing fencing or providing an alternate water source could help improve habitat conditions in this area.

Honey Creek at Guadalupe River State Park.

CANYON RESERVOIR WATERSHED

Segment 1805 - Canyon Reservoir

Segment Description

Segment 1805, Canyon Reservoir, serves as a major impoundment on the Guadalupe River and has a 1,432-square-mile drainage basin. Constructed by the U.S. Army Corps of Engineers in 1964, the reservoir maintains a conservation pool of approximately 382,000 acre-feet at 909 msl and spans roughly 8,200 acres with nearly 80 miles of shoreline. The reservoir sits within the Edwards Plateau, where limestone dominates the lakebed with localized loam and clay substrates near tributaries. GBRA manages water stored within the conservation pool for municipal, industrial, agricultural, and hydroelectric purposes, while U.S. Army Corps of Engineers oversees flood-control operations. Water levels fluctuate seasonally and in response to climatic conditions; recent prolonged drought resulted in a decline to 878.19 in April 2025 (≈46% capacity). Rainfall later in 2025 increased reservoir levels to 889.60 (≈63.5% capacity) by November 2025. An established invasive zebra mussel population has increased water clarity, which in turn, promotes invasive hydrilla growth. Monitoring is conducted at one GBRA station and three TCEQ stations.

Collecting secchi data at Canyon Reservoir.

Segment Concerns

Canyon Reservoir remains listed for mercury in fish tissue, initially identified in 2006, with TPWD sampling showing elevated concentrations in longnose gar and striped bass exceeding human-health screening criteria. Zebra mussels have increased water clarity, which in turn has accelerated hydrilla expansion, creating dense vegetation mats that hinder recreation and displace native aquatic vegetation. Seasonal stratification results in a naturally occurring anoxic hypolimnion during summer months, constraining available habitat for sensitive aquatic species.

Actions to Address Concerns

Ongoing monitoring of biological conditions is conducted to track long-term trends and changes in aquatic community health. Periodic fish-tissue sampling evaluates mercury concentrations and helps to determine if the impairment status should remain in place. Management of invasive species focuses on monitoring zebra mussel activity, and implementing hydrilla-control measures should be implemented where feasible. Collection of dissolved oxygen profiles throughout the year is also ongoing; this data documents stratification patterns and supports adaptive management of water-supply and downstream flow operations.

GUADALUPE RIVER BELOW CANYON RESERVOIR

Segment 1812 - Guadalupe River Below Canyon Reservoir

Segment Description

Guadalupe River upstream of River Road.

Segment 1812 includes a 23-mile reach of the Guadalupe River extending from the Canyon Dam tailrace downstream to the confluence with the Comal River in the City of New Braunfels. The watershed covers approximately 88 square miles within the Edwards Plateau, where steep limestone terrain and rocky, loamy soils shape channel form and flow dynamics. Because releases originate from the bottom of Canyon Dam, water temperatures remain cool and clarity remains high year-round. The segment contains alternating pools, runs, and whitewater rapids that support extensive contact recreation, including tubing, kayaking, and swimming. The local economy relies heavily on these activities through outfitters, campgrounds, and riverside resorts. A seasonal trout fishery is also supported through TPWD and Trout Unlimited stocking efforts. Agriculture is limited due to rugged topography, and land use is primarily recreational and residential. GBRA monitors water quality at Stations 12656 and 12658.

Segment Concerns

Data from both stations currently meet standards for dissolved oxygen, bacteria, temperature, nutrients, and chlorophyll a. However, some trends were seen in segment 1812 during the last data analysis. At Station 12656, chloride concentrations showed an increasing trend, which is likely tied to prolonged drought conditions that decrease baseflow and reduce the river's capacity to dilute mineral content. At Station 12658, turbidity shows a significant decreasing trend. While the river is naturally clear, the establishment of zebra mussels in Canyon Reservoir has intensified water clarity by reducing suspended solids and phytoplankton, influencing downstream conditions.

Actions to Address Concerns

Continued monitoring at both stations is necessary to track the observed chloride and turbidity trends and evaluate their implications for long-term water quality. Managing and documenting drought-related flow reductions can help interpret changes in chloride concentrations, while coordination with ongoing invasive species monitoring in Canyon Reservoir will support understanding of zebra mussel impacts on downstream clarity. Ongoing routine sampling, analyzing seasonal variations in water quality, and reviewing flow-related metrics will help inform adaptive management strategies as environmental conditions evolve.

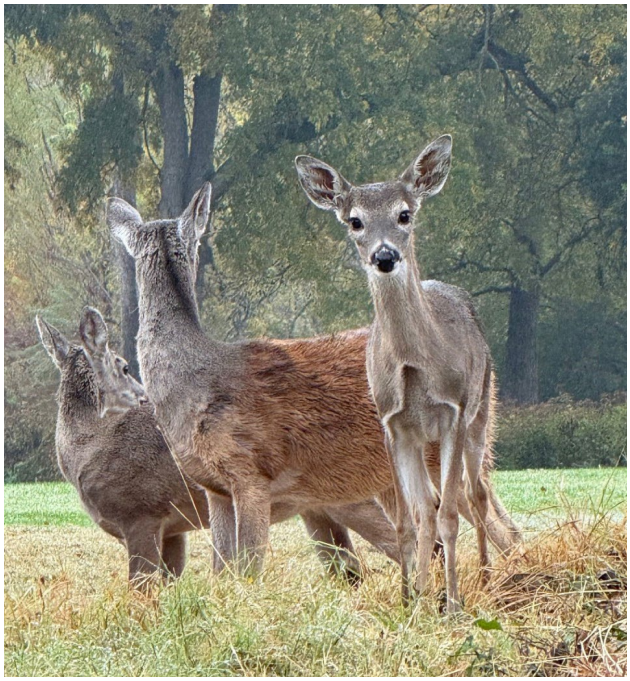
COMAL RIVER WATERSHED

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

Comal River (1811)

Segment Description

The Comal River is the shortest river in the state of Texas and is located completely within the city of New Braunfels in Comal County. This river is fed by Comal Springs, the largest natural spring in Texas based on average discharge. These springs issue from the Edwards Aquifer, which results in consistent water temperatures and high clarity in the river throughout the year. Several endangered species are found in the Comal River, including the Fountain Darter (*Etheostoma fonticola*), Comal Springs Riffle Beetle (*Heterelmis comalensis*), Comal Springs Dryopid Beetle (*Stygoparnus comalensis*), and the Peck's Cave Amphipod (*Stygobromus pecki*). The Comal River is also an extremely popular destination for river tubing, drawing an estimated 300,000 – 400,000 tourists each year during peak season, from Memorial Day through Labor Day.



Whitetail deer in Landa Park in New Braunfels, Texas.

Segment Concerns

Heavy recreational use of this river has previously caused issues with substantial litter pollution in the downstream portion of the river, which negatively impacts water quality and health of the ecosystem. In addition, the downstream section of the Comal River from the confluence with Dry Creek to the confluence with the Guadalupe River is impaired due to high *E. coli* bacteria levels. Bacteria source tracking studies performed by Texas A&M University in 2013 and 2016 suggested that the main sources of bacteria come from wildlife (including both native and non-native species) and domestic livestock, with smaller inputs from human sources.

Yellow-crowned Night Heron.

Actions to Address Concerns

In 2012, the City of New Braunfels passed an ordinance banning single use food and beverage containers on the river to reduce the amount of litter caused by heavy recreation in the area. The City of New Braunfels and stakeholders also developed and implemented a watershed protection plan for the Comal and Dry Comal to address high bacteria levels in the river, which was accepted by the EPA in 2018. Strategies for reducing bacteria levels include promoting ordinances forbidding the feeding of urban wildlife, installing and maintaining pet waste stations in public areas, and hiring professional services to pick up animal waste in locations. The city of New Braunfels additionally has implemented stormwater infrastructure, assisted with septic system management strategies, and continues to conduct educational programs to promote best practices to reduce bacteria levels in the river.

Dry Comal Creek (1811A)

Segment Description

Dry Comal Creek runs from the confluence with the West Fork Dry Comal Creek in Comal County downstream to its confluence with the Comal River in New Braunfels. This 34.8-mile stream is classified as intermittent with pools and generally dries down into several pools along the length of the creek through the dry summer months. The Dry Comal watershed predominantly contains agricultural land and is more rural than the land surrounding the Comal River. However, a portion of the Dry Comal Creek watershed lies within the City of New Braunfels, and urban development is growing in the watershed.

Peck's Cave Amphipod.

Segment Concerns

Dry Comal Creek has been impaired for bacteria since 2010. Bacteria source tracking studies performed by Texas A&M University in 2013 and 2016 suggested that the main sources of bacteria are similar to those in the Comal River; stemming from wildlife (including both native and non-native species) and domestic livestock, with smaller inputs from human sources.

Actions to Address Concerns

The City of New Braunfels and stakeholders developed and implemented a watershed protection plan for the Comal River and Dry Comal Creek to address high bacteria levels in the river, which was accepted by EPA in 2018. This Watershed Protection Plan implements many strategies to reduce bacteria loading in Dry Comal Creek. Some of these strategies include promoting ordinances forbidding the feeding of urban wildlife, implementing stormwater infrastructure, assisting with septic system management strategies, and continuing to conduct educational programs to promote best practices to reduce bacteria levels in the river.

GUADALUPE RIVER BELOW COMAL RIVER WATERSHED

Segment 1804 - Guadalupe River Below Comal River

Segment Description

The Guadalupe River below the Comal River is a 101 mile-long segment, and is one of the most ecologically diverse in the basin due to the significant hydrological and geological changes that happen throughout this watershed. Segment 1804 flows through the Edwards Plateau, Texas Blackland Prairie, and Post Oak Savannah ecoregions, and lies over the Edwards-Balcones Fault Zone and Carrizo-Wilcox aquifers. Stream flow in this segment comes from several sources: Canyon Reservoir, spring flows from the Comal River and many other smaller springs, and several tributaries, including Geronimo Creek (1804A), and wastewater inputs between New Braunfels and Seguin. The upper reaches of this segment are in New Braunfels, which is a rapidly expanding urban area. The downstream portion of this watershed is more rural with prevalent agriculture.
This segment contains a 300-foot drop in elevation as it flows south. Six hydroelectric dams were

constructed in this area, originally built in the 1920s-1930s. These are pass-through structures that do not control flood waters, allowing high velocities for water to flow through these impoundments (collectively referred to as the Guadalupe Valley Lakes). Due to the age of these structures, dewatering of all six lakes took place between 2019 and 2023. The dams for Lakes Dunlap, Placid, and McQueeney will all have new structures completed by the end of 2026. Water quality in these impoundments differs substantially from that in larger reservoirs such as Canyon Reservoir, due to their pass-through nature. Recreation, including boating, fishing, and water skiing, is extremely popular on these reservoirs.

Segment Concerns

A section of this segment running from the confluence with the Comal River downstream to Lake Dunlap was assessed as impaired due to high *E. coli* bacteria levels. This is a new impairment as of the 2024 Texas IR. Potential inputs of bacteria may include the Comal River, which is impaired due to high bacteria levels, stormwater runoff from quickly growing urban areas, and agricultural runoff. However, *E. coli* levels may also be affected by major changes to the Dunlap Dam. In 2019, this dam failed, converting the impoundment back to a more riparian state. The construction of a new dam began in May 2021 and was completed in August 2023, with impoundment levels reaching full capacity by the end of October 2023. The water quality data assessed in TCEQ's 2024 IR for this segment may have been impacted by temporary conditions, such as higher suspended sediments and bacteria inputs as new riparian areas were exposed and then later inundated again.

Actions to Address Concerns

Potential bacteria inputs from upstream are being addressed by a watershed protection plan that covers the Comal River and Dry Comal Creek. Although this watershed protection plan does not actively cover the Guadalupe River, it may still reduce bacteria inputs coming from a major tributary of this segment. GBRA is continuing to monitor bacteria levels in the Guadalupe River downstream of the Comal River. Following the completion of the new Dunlap Dam in 2023, it is expected that the increased buffering capacity realized from the impoundment will result in bacteria concentrations returning to reduced historic levels. If reduced levels of bacteria are not realized and the segment is still assessed as impaired, additional strategies to reduce bacteria loads may be considered.

Guadalupe River at H4 Dam.

GERONIMO CREEK WATERSHED

Segment 1804A - Geronimo Creek
Segment 1804C - Alligator Creek
Segment 1804D - Bear Creek

Geronimo Creek (1804A)

Segment Description

Geronimo Creek is a 17-mile-long tributary of the Guadalupe River that flows through Comal and Guadalupe counties. This stream supports year-round flow, largely due to groundwater inputs like Timmerman Springs and an unnamed spring issuing from the Leona Aquifer through alluvium substrate. Geronimo Creek exists predominantly in the extra-territorial jurisdictions of the cities of New Braunfels and Seguin and is impacted by increasing urbanization in these areas. However, a large portion of the watershed remains rural. Agriculture and ranching are common in the watershed.

Geronimo Creek near Haberle Road.

Segment Concerns

Geronimo Creek has been listed for a concern for nitrate-nitrogen in TCEQ's IR since 2000. In 2015, a study was conducted by the United States Geological Survey to characterize the sources of elevated nitrate-nitrogen concentrations on Geronimo Creek and the underlying Leona Aquifer. The report stated that the sources of the nitrates in the groundwater and springs are most likely from diffuse sources that occur in conjunction with the mixing of nitrate from fertilizer applications and septic systems.

Geronimo Creek has also been impaired due to high levels of *E. coli* bacteria since 2006. In 2019, a bacterial source tracking study was completed at two locations on Geronimo Creek. Results from this study suggest that wildlife were the largest contributors of bacteria into this stream, followed by livestock. Bacteria inputs from humans were detected at low levels and could be the result of failing septic systems in the area.

Actions to Address Concerns

A watershed protection plan was developed for Geronimo and Alligator creeks in 2009, which was accepted by the EPA in September 2012. Strategies included in this watershed protection plan include extending sewer service into areas with recurring septic system problems and providing education on BMPs to reduce bacteria and nitrates in the stream. Continued educational opportunities are offered to stakeholders, and stream cleanup events are held twice a year. For more information on stakeholder opportunities, please visit https://geronimocreekwatershed.org. Geronimo Creek is primarily monitored under the Geronimo and Alligator Creeks Watershed Protection Plan, and one additional station is monitored under CRP in this segment.

Alligator Creek (1804C)

Segment Description

Alligator Creek is a tributary of Geronimo Creek and runs from its headwaters north of New Braunfels downstream to its confluence with Geronimo Creek near Geronimo. As this stream runs through New Braunfels, it is impacted by the urbanization in this area. However, other portions of its watershed are in rural areas and are exposed to agricultural impacts. This waterbody is assessed as an intermittent stream, and much of the stream completely dries out during periods of low rainfall. Although this stream is largely dry during parts of the year, it still may influence water quality in Geronimo Creek during significant runoff events.

Segment Concerns

Alligator Creek has no impairments or water quality concerns at this time. However, water quality in Alligator Creek may affect Geronimo Creek downstream, which has more stringent water quality criteria due to its perennial flow regime.

Actions to Address Concerns

Alligator Creek is included in the Geronimo Creek watershed protection plan, which was developed to address Geronimo Creek's concern for high nitrate-nitrogen levels and recreational use impairment due to elevated *E. coli* levels. Strategies included in this watershed protection plan include extending sewer service into areas with recurring septic system issues, providing financial assistance to decommission potentially problematic septic systems, and providing education on BMPs. Alligator creek continues to be monitored as part of the watershed protection plan.

Bear Creek (1804D)

Segment Description

Bear Creek is a 4-mile-long tributary to Geronimo Creek located east of Seguin and runs from approximately 1 mile north of Highway 90 downstream to its confluence with Geronimo Creek. This stream has an intermittent with pools regime, with the stream drying down to isolated pools on a regular basis. Although this stream may be impacted by urbanization near the city of Seguin, it runs mostly through lightly developed and rural areas.

Segment Concerns

Bear Creek has a concern for recreational use due to elevated *E. coli* levels, per the 2024 Texas IR. No impairments are listed for this segment at this time.

Actions to Address Concerns

Bear Creek is monitored under the Geronimo and Alligator Creeks Watershed Protection Plan (WPP). This watershed protection plan was developed and implemented to address elevated *E. coli* and nitrate-nitrogen levels in Geronimo Creek. Strategies included in this WPP include extending sewer service into areas with recurring septic system issues, providing financial assistance to decommission potentially problematic septic systems, and providing education on BMPs.

BLANCO RIVER WATERSHED

Segment 1813 - Upper Blanco River
Segment 1809 - Lower Blanco River
Segment 1815 - Cypress Creek

Upper Blanco River (1813)

Segment Description

Meadows Center staff collecting flow on the Blanco River.

The Upper Blanco River begins in Kendall County and continues for 71 miles downstream into Hays County, where it transitions into the Lower Blanco River (segment 1809) 0.3 km upstream of Limekiln Road in Hays County. The segment's location within the Edwards Aquifer greatly impacts its hydrology and water quality. This watershed also falls within the vast landscape of karst regions (Figure 6) that cover a significant portion of central and west Texas. Karst areas are characterized by having soluble rock, like limestone or dolomite, which is easily eroded by water, creating sinkholes, caves, underground streams, and springs. The upper portion of this segment has gaining and losing stretches and therefore often goes dry, but the lower portion of the segment is spring fed and more perennial. The limestone also contains gypsum deposits, which contain high sulfate concentrations, potentially contributing to high sulfate concentrations in groundwater in the area. The Upper Blanco River contains several tributaries throughout the segment, including Cypress Creek (segment 1815). Recreation is very common in this area. Tubing, kayaking, swimming, and fishing are all popular activities on this river, especially during warmer months.

Segment Concerns

The Upper Blanco River is designated as having an exceptional aquatic life use and does not have any impairments or water quality concerns as of the 2024 Texas IR. This watershed, however, is experiencing population increase and urbanization, which could lead to more non-point source pollution from urban runoff in the future.

Actions to Address Concerns

There are no currently listed concerns or impairments for this segment. However, water quality in the Upper Blanco River is regularly monitored, which can be used to identify any future water quality concerns or trends.

Lower Blanco River (1809)

Segment Description

The Lower Blanco River starts southeast of Kyle in Hays County and flows for 16 miles before joining the San Marcos River in Hays County. Like the Upper Blanco River, the Lower Blanco River

predominantly lies within the Edwards Plateau, but the lower portion of segment 1809 transitions into the Blackland Prairie Ecoregion.

Segment Concerns

There are currently no impairments or concerns on this segment. Historically, agriculture has been common in this watershed, although there is rapid population growth in nearby cities including Kyle and San Marcos. This may increase non-point pollution associated with urban environments in the future, so continued monitoring is recommended.

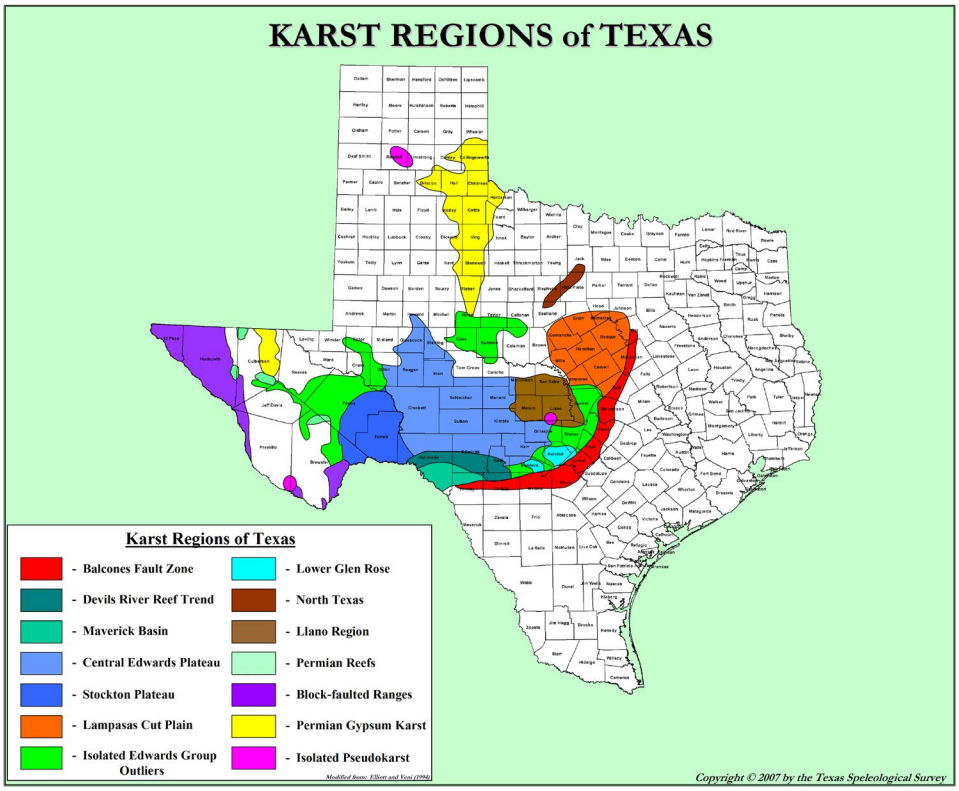


Figure 6. Karst Regions of Texas.

Actions to Address Concerns

Although there are no current concerns or impairments, TCEQ continues to perform quarterly monitoring at two locations in this segment. This continued monitoring will establish baseline conditions and identify any future changes in water quality.

Cypress Creek (1815)

Segment Description

Cypress Creek is a 15.7-mile-long tributary of the Blanco River that lies within the Edwards Plateau. This stream is spring-fed similar to other streams in this ecoregion, it is highly dependent on groundwater for continued flow and water quality. This stream is designated in the 2024 Texas IR as supporting exceptional aquatic life use, and it is very popular for recreational activities for both locals and tourists. Especially popular natural swimming holes along this creek in past years include Jacobs Well and Blue Hole. However, both of these locations have had frequent closures in the past few years for swimming due to recent drought. This stream flows through the city of Wimberley, which is rapidly expanding and developing. This community depends on water pumped from the same aquifers that feed Cypress Creek, and over pumping may also contribute to lower spring flows and swimming hole closures.

Segment Concerns

In 2020, segment 1815 was added to the 303(d) list of impaired water bodies for impaired fish community and impaired macrobenthic community. It is also listed as having a concern for aquatic habitat. Both groundwater availability and groundwater quality may potentially contribute to water quality impairments. The karst bedrock in this watershed leaves groundwater at higher risk of contamination from nonpoint source pollutants. Groundwater drawdown associated with increased development may also lower stream flows and may negatively impact aquatic communities in the stream. Although Cypress Creek is listed

as a perennial stream, the stream can dry down to isolated pools for long periods of time during periods of low rainfall and dried up entirely at some stations in 2011 and 2023. Other sources of pollution include non-point sources, such as failing septic systems and runoff from developed areas.

Although Cypress Creek is not currently listed as impaired for *E. coli*, this parameter is also a concern for many stakeholders. Sources of bacteria may include failing septic systems, urban runoff, and wildlife. A bat colony lives under the RR12 bridge in downtown Wimberley and is a potential source of bacteria in Cypress Creek at this sampling location.

Actions to Address Concerns

In addition to continued monitoring, a Watershed Protection Plan (WPP) was developed in 2014 for Cypress Creek to protect both stream flow and water quality. This WPP was originally developed before the stream was impaired in response to the rapid development in the watershed. However, it continues to address water quality issues associated with the current impairments. For more information on this WPP, please see https://www.cypresscreekproject.net/. In 2020, Jacobs Well Groundwater Management Zone was created, which can be utilized to limit new permits within this zone and better coordinate groundwater use to protect aquifer levels and resulting streamflow. The Watershed Association also acts as a regional land trust, holding conservation easements to protect groundwater levels and sustain spring flows.

SAN MARCOS RIVER WATERSHED

Segment 1814 - Upper San Marcos River
Segment 1808 - Lower San Marcos River

Upper San Marcos River (1814)

Segment Description

The headwaters of the Upper San Marcos River rise near the city of San Marcos, and the river flows downstream for 4.5 miles before it transitions into the Lower San Marcos River (segment 1808) near the confluence with the upper Blanco River (segment 1813). This segment lies completely within the Edwards Plateau region. Due to its clear, spring-fed waters and location within a city, recreational activities are extremely popular in this segment. Common recreational activities include glass-bottom boat tours, tubing, kayaking, swimming, snorkeling, and fishing. The Upper San Marcos River also provides habitat for numerous endangered and endemic species, including the Fountain Darter (*Etheostoma fonticola*), Texas Blind Salamander (*Typhlomolge rathbuni*), and Texas Wild Rice (*Zizania texana*).

Segment Concerns

In 2010, the Upper San Marcos River was listed on the 303(d) list of impaired waterbodies for total dissolved solids (TDS) that are above the screening criteria, on average. This impairment was delisted in 2014 but was recently relisted as impaired in 2024. TDS levels hover right around the water quality criteria, with the mean assessed value of 403 mg/L currently just above the 400 mg/L criteria. Analysis of data collected between 2002 and 2016 showed a significant positive correlation between TDS and flow, suggesting that increased runoff could be contributing to elevated TDS concentrations.

Actions to Address Concerns

This segment continues to receive continued quarterly monitoring at one station, located just upstream of the IH-35 bridge crossing in the city of San Marcos. A watershed protection plan (WPP) was also developed to address the TDS impairment and maintain water quality. Development of the Upper San Marcos Watershed Protection Plan (WPP) began in 2012, and the WPP was accepted by EPA in 2018. The goals of the WPP are to educate the public on water quality issues and to implement BMPs in the watershed. Projects under this WPP include erosion control and improved biofiltration ponds to improve stormwater management, restoration of natural areas in the watershed, and construction of vegetated filter strips and brush berms to reduce runoff. More information about the WPP can be found at https://www.uppersanmarcosriver.org/.

Lower San Marcos River (1808)

Segment Description

The Lower San Marcos River segment starts just upstream of the confluence with the Blanco River, southeast of San Marcos, and continues for 70 miles downstream to the confluence with the Guadalupe River. This river transitions from a clear, swift moving stream upstream to a slower, more turbid river as it crosses from the limestone substrate of the Edwards Plateau into the black clays found in the Texas Blackland Prairies Ecoregion. The upper reaches of this segment's watershed are within an urban area that is experiencing rapid population growth. However, most of this watershed lies within more rural areas of Caldwell and Gonzales counties. Agriculture, ranching, and oil and gas activities are very common.

Segment Concerns

This stream has no impairments but is listed with a concern for bacteria. Potential pollution sources in the upper portion of the watershed include runoff from urban areas that can lead to bacteria, nutrients, and other pollutant loading. Potential sources of bacteria in the downstream portions include runoff from agriculture/livestock pastures, failing septic systems, and both native and nonnative wildlife.

Actions to Address Concerns

GBRA and TCEQ continue to monitor this segment at three stations spread throughout the segment. No other known actions are being taken at this time to address water quality concerns.

Measuring flow on the San Marcos River.

PLUM CREEK WATERSHED

Segment 1810 - Plum Creek
Segment 1810A - Town Branch

Plum Creek (1810)

Segment Description

Plum Creek is a 52-mile-long tributary of the San Marcos River that spans Travis, Hays, and Caldwell counties. Plum Creek has a 389-square-mile drainage area that encompasses several cities, including Kyle, Buda, Lockhart, and Luling. This watershed encompasses many diverse ecoregions, such as the Edwards Plateau, Blackland Prairie, and Post Oak Savannah, and sits over the Carrizo-Wilcox, Leona, and Edwards Balcones Fault Zone. Because of the sandy loam soil type that is seen in this watershed, Plum Creek is prone to erosion and tends to have steep banks and a deep-set stream channel. Plum Creek is a historically intermittent stream and is fed by springs issuing from the Leona Aquifer as well as tributaries from around the watershed.

Segment Concerns

The Plum Creek Watershed has historically been dominated by rural land usage; however, like many watersheds in the Interstate 35 corridor, it is now experiencing rapid urbanization and population increase. As a result of population growth within the watershed, wastewater discharge amounts have increased, transitioning Plum Creek into a wastewater dominated perennial stream. In the 1960s and 1970s, twenty-eight flood control structures were built on several of the tributaries of Plum Creek. These structures capture and hold flood waters during normal and high flow events and allow for regulated discharge. Recreation such as fishing and kayaking is common in the watershed, and the creek is also used by agricultural producers to provide water for crops and livestock. Plum Creek is home to many native species, several of which were collected during an aquatic life monitoring event conducted in 2021, including five native mussel species. One of those, the Guadalupe Orb (*Cyclonaias necki*), was listed as federally endangered by the U.S. Fish and Wildlife Service in 2024.

Electrofishing in Plum Creek at Lockhart State Park.

Actions to Address Concerns

Plum Creek was first added to the 303(d) List of Impaired Water Bodies for bacteria in 2004. In 2006, the Texas State Soil and Water Conservation Board, GBRA, and Texas A&M AgriLife Extension began developing a Watershed Protection Plan (WPP) for Plum Creek. The WPP became the first plan in the state of Texas to be accepted by EPA, and implementation began in 2008. In 2010, TCEQ moved Plum Creek from category 5a to category 4b, removing it from the 303(d) list. While category 5a requires the development of total maximum daily loads (TMDLs), category 4b allows the WPP to attempt to address the water quality concerns through BMPs and education. BMPs

implemented under the WPP include feral hog management, promotion of proper maintenance of septic systems, and non-point source nutrient management.

There are three stations in Plum Creek monitored monthly under the Clean Rivers Program. Extensive additional monitoring is conducted under the Plum Creek Watershed Protection Plan, including seven wastewater treatment facilities, four routine sites, thirty-four weather targeted sites, and three springs.

Town Branch (1810A)

Segment Description

Town Branch (Segment 1810A) is an unclassified perennial stream in the watershed that extends from the confluence with Plum Creek upstream to the headwaters at SH 130 northwest of Lockhart.

Segment Concerns

In 2014, the Texas IR first listed this tributary of Plum Creek as having water quality concerns for excess bacteria and nitrates, and depressed dissolved oxygen. As of the 2024 Texas IR report, these concerns are still listed. In May 2016, the two-year geometric mean for *E. coli* at the routine monitoring station on Town Branch, located in Lockhart City Park, exceeded the bacteria standard of 126 CFU per 100 ml.

Actions to Address Concerns

Town Branch (1810A) is not monitored under the Clean Rivers Program but is monitored under the WPP monitoring program. This segment will continue to be monitored regularly under the Plum Creek Watershed Protection Plan. Upstream of this segment, the city of Lockhart has observed several potential contributing factors to these impairments. These are areas of invasive plant growth, channel aggradation and increasing sediment deposition, excessive algal growth, and excessive erosion. A few BMPs have been proposed to contribute to restoration, including rain gardens, removal and replacement of nonnative vegetation, grow zones, and educational signage.

LOWER GUADALUPE RIVER WATERSHED

Segment 1801 - Guadalupe River Tidal
Segment 1802 - Lower Guadalupe River Below San Antonio River
Segment 1803 - Lower Guadalupe River Below San Marcos River

Guadalupe River Tidal (1801)

Segment Description

The Guadalupe River Tidal Watershed is a 10-mile portion of the Guadalupe River stretching from the GBRA Saltwater Barrier to its junction with the Guadalupe Bay. As its name indicates, this section is influenced by tidal activity. It frequently experiences log jams, which often form near bridges, railroad crossings, and other instream obstacles. These logjams have the potential to restrict overall flow, alter flow regimes, and even create new habitats within the preexisting ecosystem. In this area, the flood plain may extend several miles beyond the stream banks.

The GBRA Saltwater Barrier helps maintain headwater elevation, divert river flow into GBRA's surface water canal system, and prevent brackish waters from moving upstream during periods of low flow. When first built in 1964, the barrier featured two water-filled rubber bladder spillway gates, each measuring 10 feet by 50 feet and anchored to concrete foundation. In early 2023, these rubber bladders were replaced with steel gates to extend the lifespan and efficiency of the barrier.

Aerial View of GBRA Saltwater Barrier.

Segment Concerns

Bacteria (*enterococcus*) in this segment has been reported above the screening criteria since 2014, however until recently, there were not enough data points to make a confident assessment for impairment. As a result, 1801 has had a concern for bacteria since the 2014 Texas IR. In 2022, this concern for bacteria was upgraded to an impairment for this segment, and it still remains a listed impairment in the 2024 IR.

Actions to Address Concerns

The Guadalupe River Tidal is monitored quarterly by TCEQ at one station (12577), located at the state highway 35 tidal bridge northeast of Tivoli. This quarterly monitoring is essential to understanding long-term impacts and trends of this bacteria impairment.

Lower Guadalupe River Below San Antonio River (1802)

Segment Description

The Lower Guadalupe River Below the San Antonio River is a 0.4-mile stretch of the Guadalupe River running from the Saltwater Barrier upstream to its confluence with the San Antonio River. This section is impounded by the saltwater barrier, but is typical of a slow moving coastal river and represents the lowest downstream portion of the Guadalupe River that is not affected by tidal forces. Located within the Western Gulf Coast Ecoregion, it features broad floodplains and low alluvial terraces. The landscape includes lowland forests dominated by elm, water oak, and ash trees, along with areas of pastureland and cultivated fields. GBRA conducts monthly monitoring of this segment at station 12578, which is situated upstream of the Saltwater Barrier.

Segment Concerns

Grab samples collected in 2024 indicated an increased level of Nitrates present in the Lower Guadalupe below the San Antonio River, and while not impaired for nitrates, this segment was listed with a concern for nitrates in the water based on exceeded values for screening.

Actions to Address Concerns

While the exact cause of this increase in nitrates is not known specifically for this segment, there are a few potential causes. Increases in nitrates can often result from point source or non-point source pollutants like agricultural runoff, wastewater effluent, livestock and cattle operations,

failures in septic systems, or industrial discharges. Continued monitoring is a best practice for a concern like nitrates in the water. Through time and continued monitoring, BMPs can be established, and a potential cause can be investigated and determined.

Lower Guadalupe River Below San Marcos River (1803)

Segment Description

The Lower Guadalupe River below the San Marcos River spans 161.5 miles, beginning west of Gonzales at its confluence with the San Marcos River and ending where it meets the San Antonio River. This stretch flows through Dewitt, Victoria, and Calhoun Counties and receives water from several tributaries, including Peach Creek and Sandies Creek. The river in this region features a broad channel and slow-moving waters with very little change in elevation, and it passes through the Southern Post Oak, Savannah, and southern Blackland Prairie ecoregions. Soils throughout the watershed vary from sandy to clay and sandy-clay compositions.

False Spike.

Two mussel species: the False Spike (*Fusconaia mitchelli*) and the Guadalupe orb (*Cyclonaias necki*) were federally listed as endangered in June 2024 and have been documented in this segment of the river. The Guadalupe Orb is endemic, or unique, to the Guadalupe River Basin, occurring nowhere else. GBRA currently monitors three stations in Segment 1803, all located in the upper half of the reach. An additional monitoring station (16579) in the lower portion was previously sampled, but monitoring ended in 2006 after the site was found to be within the mixing zone of an industrial wastewater discharge. GBRA has since been unable to identify another accessible and suitable location in that area to continue monitoring.

Segment Concerns

The 2024 Texas IR lists a concern for nitrates in the water in the Lower Guadalupe River below the San Marcos River. Recent data analysis also showed an increasing trend in nitrate-nitrogen throughout this segment over a 10-year analysis period.

Actions to Address Concerns

Nitrate levels often rise due to point or nonpoint pollution, such as agricultural runoff, wastewater effluent, livestock operations, failing septic systems, or industrial discharges. Agriculture is common in this segment and is likely contributing to the increased nitrogen. Ongoing monitoring remains the best approach for understanding nitrate concerns. Over time, continued data collection can help identify the underlying cause and guide the development of appropriate BMPs. Some ways that the agriculture community may be able to help mitigate nitrogen loading concerns are improving fertilizer management, enhancing soil health, employing conservation practices like cover crops or contour farming and terracing, or minimizing livestock access to streams. Many of these methods are widely utilized and proven effective at reducing nitrogen input into rivers, lakes, and streams.

SANDIES CREEK WATERSHED

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

Elm Creek (1803A)

Segment Description

Elm Creek is a 31-mile segment that begins west of Nixon in Wilson County and flows through Karnes and Gonzales counties before joining Sandies Creek east of Smiley. The creek has more than 15 tributaries and drains a 135-square-mile watershed. Located entirely within the Southern Post Oak Savannah Ecoregion, the area features sandy and sandy-loam soils that gradually transition into dense clay pan soils. Land use in the watershed is dominated by scrubland, with pockets of improved hay pasture and post oak forest scattered throughout.

Segment Concerns

Elm Creek is monitored quarterly by GBRA at station 17894, this station 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. In the 2024 IR, Elm Creek was delisted for depressed dissolved oxygen, however a new concern for Chlorophyll-a was listed. The likely cause of this new concern is not known.

Actions to Address Concerns

Continued monitoring of Elm Creek is recommended.

Sandies Creek (1803B)

Segment Description

Sandies Creek.

Sandies Creek is a 79-mile tributary of the Lower Guadalupe River. It begins in Guadalupe County near Nixon and winds through Gonzales and DeWitt counties before joining the Guadalupe River west of Cuero. The watershed drains approximately 711 square miles and overlies the Carrizo-Wilcox and Gulf Coast aquifers. As its name suggests, soils in the Sandies Creek watershed are predominantly sandy. The creek is fed by several tributaries, including Elm Creek (1803A), Salty Creek (1803D), Little Elm Creek, Clear Fork Creek, Five Mile Creek, and more than a dozen unnamed streams. Most of the watershed is situated within the Southern Post Oak Savannah Ecoregion, while its lower portion extends into the clay-rich Blackland Prairie. The area is largely rural, with livestock operations and farming, particularly hay production, making up the primary land uses.

The Eagle Ford Shale formation extends beneath portions of this watershed in Gonzales and

DeWitt counties. Since 2008, energy companies have drilled into the formation to extract oil and gas, primarily using hydraulic fracturing. The widespread use of this technique has raised concerns about potential effects on both groundwater and surface water. Hydraulic fracturing requires substantial water use, and its by-products can contaminate nearby water sources if not managed properly. Stakeholders, including landowners and agricultural producers, are particularly concerned about future water availability in an area already facing limited water resources.

Segment Concerns

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 1803B as of the 2024 Texas IR.

Actions to Address Concerns

In 2020 and 2021, GBRA performed additional monitoring at site 15998, located at FM 1116 east of Smiley. This additional monitoring consisted of 24-hour DO and streamflow monitoring, alongside monthly bacteria, streamflow and field parameter testing to confirm the impairments. Data collected from this site helped confirm the dissolved oxygen and bacteria impairments, an important first step in determining how best to monitor and manage these issues. This segment was previously listed for fish and macrobenthic community impairments, as well as a habitat concern; however, these were removed in the 2022 Texas IR. A use attainability analysis conducted in the watershed led to the designated aquatic life use being revised from high to intermediate in the 2018 water quality standards.

PEACH CREEK WATERSHED

Segment 1803C - Peach Creek

Segment Description

Peach Creek is a tributary of the Guadalupe River that flows east and then south through Bastrop and Fayette counties before meeting the Guadalupe River in eastern Gonzales County. The creek extends for 64 miles and is fed by numerous named and unnamed tributaries, draining a watershed of about 480 square miles. This largely rural area is dominated by undeveloped agricultural and ranch lands, with hay pastures commonly found throughout the region. The watershed lies entirely within the Post Oak Savannah ecoregion and overlies the Carrizo-Wilcox Aquifer. Sandy loam soils are prevalent, and forests of Post Oak, Blackjack Oak, and other hardwood species are widely distributed across the landscape.

Segment Concerns

Peach Creek was first added to the 303(d) List of Impaired Water Bodies in 2002 due to elevated bacteria levels. In 2006, a second impairment was identified for low dissolved oxygen. A Total Maximum Daily Load (TMDL) was adopted for the creek in 2008, calling for a 47 to 100 percent reduction in bacterial loading. As of the 2024 Texas IR, bacteria and depressed oxygen remain concerns in this segment.

Actions to Address Concerns

To date, no BMPs have been implemented. The TMDL identified nonpoint sources such as failing septic systems, livestock, and wildlife as the most likely contributors to bacterial loading.

Implementing BMPs to reduce agricultural runoff, along with programs that promote proper septic system maintenance, could help lower bacteria levels in the creek. GBRA currently collects monthly monitoring data at one station (14937) in this segment, located at the CR 353 bridge crossing in its lower reach.

Electrofishing in Peach Creek.

In 2020, GBRA conducted an aquatic life monitoring event on segment 1803C near the CR 353 bridge. Fish and macroinvertebrate samples were collected, and habitat assessments were performed twice that year. Although segment 1803C carries a high Aquatic Life Use designation, the monitoring results confirmed an ongoing concern for the macroinvertebrate community. BMPs to address the bacteria and depressed dissolved oxygen impairments in this segment could also help improve the macrobenthic community.

COLETO CREEK WATERSHED

Segment 1807 - Coleto Creek

Segment Description

Segment 1807 covers roughly 27 miles of the Guadalupe River and drains a largely rural 558-square-mile watershed spanning DeWitt, Goliad, and Victoria counties. The area is characterized by sandy loam and clay loam soils that support extensive agricultural activity, ranching, and wildlife habitat, including species such as white-tailed deer, wild turkey, and bobcats. The segment includes the 3,100-acre Coleto Creek Reservoir, which is used for power-plant cooling and public recreation. As of November 2025, the reservoir operated at approximately 80.8% capacity, slightly drawn down due to decreased rainfall upstream, but still well within functional and recreational operating ranges. The reservoir supports warm-water fisheries such as hybrid striped bass, crappie, and largemouth bass, commonly reaching five to eight pounds. Recreational visitors should remain aware of the established alligator population within the reservoir. Birdwatching and shoreline recreation are also common.

Sampling at Coleto Creek Dam.

Segment Concerns

Water quality remains generally stable and supportive of designated uses; however, the segment shows a concern for chlorophyll-a in the 2024 Texas IR. Historical patterns indicate that chlorophyll-a levels have

gradually increased over time. This trend may relate to nutrient loading from agricultural runoff during rainfall events or concentration effects during drought periods. Past evaluations also show that chloride and sulfate levels tend to decrease when reservoir elevations are higher due to increased dilution capacity. As hydrological conditions shift, the reservoir remains sensitive to changes in stage and inflow patterns.

Actions to Address Concerns

Continued monitoring of chlorophyll-a is necessary to determine whether the observed increases persist and to evaluate whether nutrient inputs are linked to land-use practices or hydrologic variability. As agricultural activity remains a dominant land use within the watershed, maintaining communication with landowners and supporting voluntary nutrient-reduction practices, such as optimized fertilizer application and erosion-control measures—can help reduce runoff-related nutrient loading. Ongoing surveillance of reservoir conditions will support adaptive management as long-term hydrologic and land-use patterns evolve.

LAVACA-GUADALUPE COASTAL BASIN

Segment 1701 - Victoria Barge Canal

Segment Description

Hynes Bay.

Segment 1701, the Victoria Barge Canal, spans approximately 35 miles and was constructed by the U.S. Army Corps of Engineers in 1968. The canal serves as a navigable connection between the Port of Victoria and the Gulf Intracoastal Waterway at San Antonio Bay, providing a stable route that avoids the shifting channels and log jams historically associated with the lower Guadalupe River. In 2002, the canal was deepened from 9 feet to 12 feet to accommodate commercial barge traffic supporting the petrochemical and manufacturing industries. Unlike natural streams, the canal receives minimal freshwater inflow, with hydrology driven largely by tidal exchange with San Antonio Bay and only minor contributions from stormwater and industrial discharges. Quarterly monitoring is conducted by TCEQ at Station 12536 near the State Highway 35 bridge.

Segment Concerns

There are no impairments listed for this segment in the 2024 Texas IR, however, there is a concern for chlorophyll-a. Elevated chlorophyll-a in this system is closely tied to reduced flushing during extended dry periods. With limited freshwater circulation and long residence times, conditions readily allow for algal growth and nutrient accumulation.

Actions to Address Concerns

Ongoing monitoring of chlorophyll-a is recommended. Because the canal lacks significant freshwater inflow, management efforts should prioritize tracking nutrient loading from industrial and stormwater sources and evaluating their influence under low-flow conditions.

STAKEHOLDER PARTICIPATION AND PUBLIC OUTREACH

Stakeholder engagement and public participation are vital components of CRP; the public plays a critical role in determining how best to protect the Guadalupe River Basin's water resources. Each year, GBRA holds a basin-wide Steering Committee meeting that is open to the public. Membership on the Steering Committee includes other CRP partners, state agencies, landowners, municipalities, counties, and industry. Meetings are held each spring; the goals of the meeting are to involve the public in the watershed planning and analysis process and to provide watershed and water quality education to the public. Topics covered at past Steering Committee Meetings include updates from Watershed Coordinators, presentations from CRP partners, special presentations on nutrient data collection in the river basin, and a Guadalupe River Habitat Conservation Plan update. Individuals interested in joining the Steering Committee can sign up for our mailing list: https://www.gbra.org/environmental/water-quality/

Watershed Protection Plans (WPP) have been approved and implemented in several watersheds within the Guadalupe River Basin, including Plum Creek, Geronimo and Alligator Creeks, Upper San Marcos River, Blanco-Cypress Creek, and Comal River and Dry Comal Creek. WPPs work to improve water quality and address impairments through stakeholder education and implementation of BMPs. Local stakeholders can get involved by joining the Steering Committee or attending meetings for these groups. Volunteer activities may also be available through these partnerships. Information on these WPPs can be found by visiting their websites:

Plum Creek Watershed Partnership

Geronimo & Alligator Creeks WATERSHED PARTNERSHIP

UPPER SAN MARCOS RIVER • EST. 2018 • WATERSHED PROTECTION PLAN

CYPRESS CREEK
Let's keep it clean, clear & flowing

City of New Braunfels

Texas Stream Team, which is housed at the Meadows Center for Water and the Environment at Texas State University, is a statewide community scientist water quality monitoring program supporting nonpoint source pollution environmental monitoring programs, watershed education, and stakeholder engagement in Texas. Volunteering with the Texas Stream Team is a great way for stakeholders to get involved with water quality monitoring in their area. After receiving training, Stream Team volunteers can monitor a wide variety of parameters, including basic water quality, including temperature, pH, and water transparency; bacteria; and bioassessments like riparian evaluation. Several Stream Team groups are active in the Guadalupe River Basin. To find out more about this program and learn how to become a citizen scientist with Team Stream Team, please visit their website: https://www.meadowscenter.txst.edu/leadership/texasstreamteam.html

Stream Team trainees. Photo by Myah Robinson.

Texas Stream Team's work in the Guadalupe River Basin in 2025 focused on expanding community science capacity while responding to a year of drought punctuated by intense flood events that stressed local waterways. Major milestones included launching the new Optical Brightener Training to help community scientists detect the potential presence of wastewater, officially rolling out the Student Leadership in Environmental Action program and the Junior Monitor Ambassador Program, and completing an intensive round of *E. coli* bacteria monitoring with basin partners to refine and streamline future bacteria sampling methods. Prolonged dry conditions followed by extreme storm events in parts of the basin heightened concerns about nonpoint source pollution from urban and rural runoff. In response, Texas Stream Team and partners continue to increase targeted trainings (27 total), currently support 506 sampling events at 60 active sites with 764 participants, and log extensive field effort to document changing conditions and maintain a high-quality volunteer dataset. The full three year renewal of the Quality Assurance Project Plan ensured that this data meets rigorous standards for use in watershed assessments, while closer collaboration with Hays County in the Blanco watershed and the addition of our new Water Quality Specialist, Tiffany Willrich, position the program to better address land–use–related water quality issues across the basin in the coming years.

GUADALUPE-BLANCO RIVER AUTHORITY WEBSITE

A variety of information about GBRA's Clean Rivers Program is available on our website. All water quality data collected by GBRA under CRP is available for download. Our quality assurance documents, past Steering Committee Meeting materials, past Basin Highlights Reports, and past Basin Summaries are also available at: https://www.gbra.org/environmental/water-quality/clean-rivers-program/

Prepared in cooperation with the Texas Commission on Environmental Quality under the authorization of the Clean Rivers Act.

Guadalupe-Blanco River Authority
2225 E. Common St. | New Braunfels, Texas | 78130
830-379-5822
gbra.org