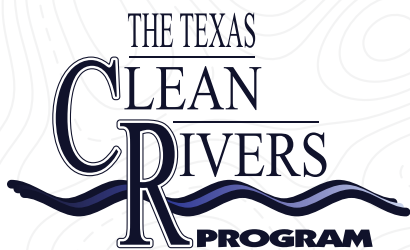


# San Antonio River 2022 Basin Highlight Update Report

PREPARED BY THE SAN ANTONIO RIVER AUTHORITY



Figure 1: Warmouth captured and released at a biological event at station 12870 Salado Creek at Gemblar Road.



*The preparation of this report was financed through grants from and in cooperation with the Texas Commission on Environmental Quality.*

The preparation of this report was financed through grants from and in cooperation with the Texas Commission on Environmental Quality. An accessible version of the 2022 Clean Rivers Program San Antonio River Basin Highlight Update Report is posted on The River Authority's Clean Rivers Program website.

# Basin Overview

The San Antonio River basin is in south central Texas. While the San Antonio River Authority's (River Authority) political jurisdiction is comprised of four counties (Bexar, Wilson, Karnes and Goliad), the actual basin consists of all or part of 14 counties. The basin extends north into the Texas Hill Country in the lower portion of Kerr County and continues southeast to the Guadalupe River about 10 miles from San Antonio Bay. Most of the basin is rural, except Bexar County, which is in the center of the basin and consists of the City of San Antonio and various smaller municipalities. Five major perennial streams contributing to the San Antonio River are the Cibolo Creek, Leon Creek, Medina River, Medio Creek, and Salado Creek. In the Texas Commission on Environmental Quality 2020 Integrated Report (IR) there were 13 classified and 23 unclassified stream segments (tributaries) assessed in the San Antonio River basin. A total of 16 impairments were identified in the classified stream segments and a total of 18 impairments were identified in the unclassified stream segments of the San Antonio River basin. Elevated levels of *E. coli* remain the primary water quality issue and major cause of impairments in the basin. Of the 36 waterbodies assessed in the San Antonio River basin, 58% are considered impaired based on *E. coli* concentrations above the primary contact recreation standard allowed under the Texas Surface Water Quality Standards (TSWQS). Limited bacteria source tracking conducted in Bexar, Wilson, Karnes and Goliad Counties indicate that just over half the *E. coli* bacteria are from wildlife. Extensive sampling conducted through the CRP and other programs indicate in almost all instances, *E. coli* levels increase dramatically when the rivers and streams are influenced by stormwater runoff.

As a result of polychlorinated biphenyls (PCBs) in fish tissue, the Texas Department of Health issued a fish consumption advisory for the Lower Leon Creek extending from Old U.S. Highway 90 Bridge downstream to the Loop 410 bridge in South Bexar County. It is believed that this is a legacy pollutant that persists in the environment.

Major events and activities that had the potential to affect the water quality and aquatic ecology of the river in 2021 included:

**Winter Freeze:** The high air temperature for February 13, 2021 was 32 °F (0 °C) and did not get above freezing until February 17, 2021. Low water temperatures ranged from 55.4°F (13.0 °C) to 56.8°F (13.8 °C) at the San Antonio River at Elmendorf USGS gage south of San Antonio. After the freeze, hundreds of fish died in the San Antonio area. Most of the dead fish collected were invasive species such as Blue Tilapia and Plecostomus which can't survive cold temperatures.

**Don't Let Litter Trash Your River Initiative:** In September 2021, the San Antonio River Authority launched the public outreach initiative to educate the public of the harmful effects of trash on our creeks and San Antonio River. Through various forms of print and digital media, the goal is to encourage the public to reduce their litter impact including messaging about illegal dumping in the southern basin counties.

**River Symposium:** Cleaning, Protecting, and taking Pride in our Waterways: The San Antonio River Authority along with the San Antonio River Foundation hosted the inaugural River Symposium. The symposium provided participants with presentations and tours regarding initiatives and efforts of the River Authority. The event also included a litter clean up as part of National Public Lands Day and resulted in 1,000 pounds of trash picked up. The goal of the symposium was to inspire attendees to become good stewards of the San Antonio River and its tributaries.

**River Authority Environmental Investigators** participated in helicopter surveys, looking for potential sources of pollutions along the San Antonio River and its tributaries. The River Authority Investigators work with city, county, and state agencies to protect and remediate pollution in the basin. In addition to the surveys, investigators responded to pollution incidences including:

- A fuel spill in Martinez Creek (a tributary of Cibolo Creek) due to a vehicle accident. Accident was cleaned up by Bexar County.
- A fuel spill that occurred in Espada Remnant (just off the San Antonio River) when a vehicle drove into the remnant. Booms deployed by River Authority staff captured the fuel.
- Chemical spill occurred at a bar ditch west of the San Antonio River. The aluminum chloride hydroxide was remediated by Texas Department of Transportation's consultant.
- Crude oil spill on Elm Creek (tributary of Medina River). Bexar County oversaw the cleanup.

The San Antonio River Authority keeps spill kits throughout the basin with booms and other absorbent material to provide River Authority staff and local governments with the resources to quickly respond to spills.

# The Texas Clean Rivers Program

Texas Clean Rivers Program, Senate Bill 818 (SB 818), known as the Texas Clean Rivers Act, was enacted in 1991 by the 72nd Legislature to ensure the comprehensive regional assessment of water quality in each watershed and river basin of the state. This program is administered by the Texas Commission on Environmental Quality (TCEQ) and is very different from any other monitoring program in Texas.

The Texas Clean Rivers Program (CRP) creates a partnership with river authorities and local agencies to generate a network of monitoring stations that report data to the TCEQ. Partnering with other agencies created an atmosphere of cooperation and built bonds and communication between the agencies. Another aspect of the CRP was the early use of stakeholders to guide the program. Currently, the River Authority uses an Environmental Advisory Committee (EAC) made up of stakeholders from various geographical areas within the basin who represent a variety of professional interests. This group meets quarterly and is routinely contacted through email. The EAC serves as the River Authority's CRP Steering Committee and provides input to the CRP and a variety of other River Authority projects and programs that have an environmental component.

Perhaps the most unique aspect of the CRP is the attention to quality assurance. Early on, the CRP provided quality control and data management training to its partners as part of its program. By 1996, all work performed under a TCEQ contract involving the acquisition, generation and collection of environmental data was conducted in accordance with a TCEQ-approved Quality Assurance Project Plan (QAPP).

## Why Monitor?

Water quality monitoring is used to alert us to ongoing and emerging problems, to determine compliance with TSWQS, and to protect other beneficial uses of water throughout the San Antonio River basin. Assessments based on the physical, chemical, biological, and microbiological characteristics of a waterbody help the TCEQ measure the effectiveness of water policies, determine if water quality and riverine communities are getting better or worse, and formulate new policies to better protect human health and the environment.

The San Antonio River basin is a dynamic ecosystem that drains over 4,194 square miles and contains over 8,800 miles of streams. The rivers, creeks, and streams have varying water characteristics, land uses, geology, and ecoregions. To remain adaptable to economic and environmental changes, each year the River Authority conducts a Coordinated Monitoring Meeting (CMM)

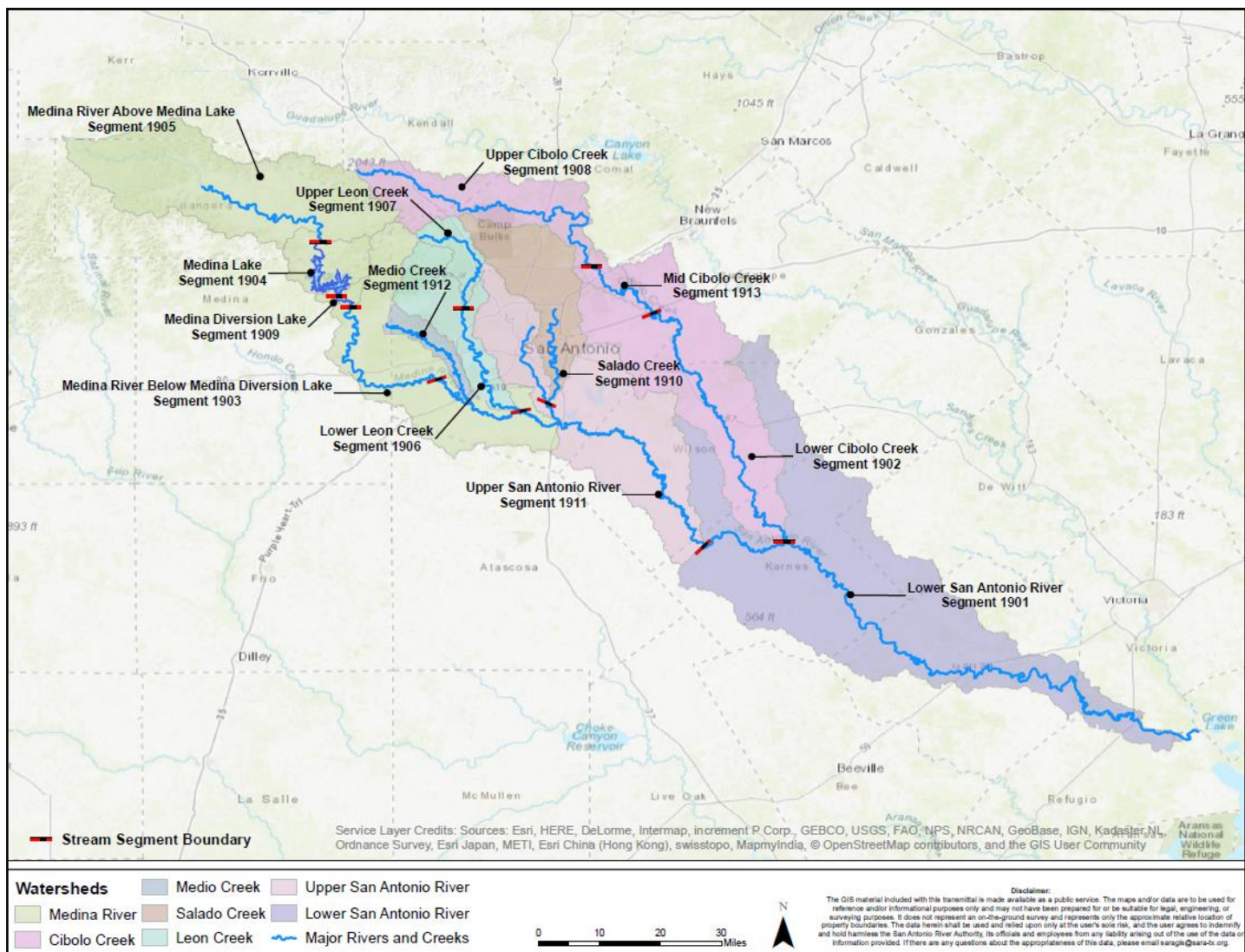
Current QAPPs must meet all applicable TCEQ requirements in a formal document that comprehensively details the required quality assurance and quality control (QA/QC) and other technical activities that must be implemented to ensure the results of the work performed will satisfy the stated performance criteria. The QAPP must provide a project-specific "blueprint" for obtaining the type and quality of environmental data needed for TCEQ regulatory decisions and assessments. The QAPP should identify:

- The technical and quality objectives.
- The sampling and analytical methods and acceptable criteria to meet the project objectives.
- Measurement(s) or information describing environmental processes, sampling locations and frequencies, and ecological conditions.
- All technical and quality aspects of a project, including planning, implementation, and assessment.
- How QA/QC is used to assure the results obtained are of the type and quality needed and expected.

As the data generated from the CRP is used in support of TCEQ Integrated Reports, Texas Surface Water Quality Standards (TSWQS), and stream water compliance decisions, the program operates under a TCEQ-approved CRP QAPP. Adherence to the QAPP ensures the water quality data generated is of known and documented quality. Information on the River Authority's CRP efforts and QAPPs can be viewed at [website sariverauthority.org/crp](http://www.sariverauthority.org/crp)

with the TCEQ and other basin monitoring partners. The CMM is a working meeting that addresses stakeholder concerns, comments, new and existing cooperative efforts, and emerging priorities in the basin. During the meeting, the upcoming annual Coordinated Monitoring Schedule (CMS) is reviewed and evaluated, segment by segment, station by station. This process ensures that basin monitoring remains effective and viable, and prevents duplication, while maximizing the monitoring resources in the basin. The CMS identifies sampling locations, associated maps, frequency of collections, parameters to be analyzed, and any relevant comments for sampling.

As a follow-up to the CMM, a "Summary of Changes" is produced. The summary reflects what decisions were made during the meeting, why a site was dropped or added, why the frequency was altered, why a parameter



**Figure 2: Major perennial streams contributing to the San Antonio River: Cibolo Creek, Leon Creek, Medina River, Medio Creek, and Salado Creek**

was dropped or added, why a monitoring need was unable to be addressed, and any future monitoring recommendations.



**Figure 3: Aquatic Biologist Zoe Nichols, Channel Catfish captured and released during a biological event at Station 12870 Salado Creek at Gemblor Road**

Participants in the CMS process continue to communicate schedule changes until the schedule is finalized. Once the CMS is finalized, the information is incorporated into a TCEQ-approved QAPP. Past and current monitoring schedules are located at the Coordinated Monitoring Schedule website. In 2021, water quality monitoring was conducted at 89 routine stations throughout the San Antonio River basin. In addition to routine monitoring, 26 biological monitoring surveys were also collected. Biological monitoring includes the collection of aquatic system information on habitat, fish, and benthic macroinvertebrates. The CRP with additional funding from the River Authority along with the Bandera County River Authority and Groundwater District (BCRADG), City of Boerne, and TCEQ monitoring efforts, are the primary programs for the collection of water quality data in the San Antonio River basin. Data generated from these programs are used in TCEQ assessments and compliance decisions.

# Educational & Awareness Initiatives

The River Authority manages and completes projects in a wide range of activities including water quality, scientific studies, park improvements, major infrastructure initiatives for flood control, stormwater management, and community amenities. Although the River Authority does contribute funding towards projects, the majority of funding comes from community partners, notably the City of San Antonio and Bexar County. Additional funding through federal, state, and local grants helps support the River Authority's mission of safe, clean, enjoyable creeks and rivers. Many of the River Authority's projects also support CRP goals to educate, maintain, and improve the quality of water within each watershed in the San Antonio River basin through an ongoing partnership involving the TCEQ, other agencies, regional entities, local governments, industry, and citizens. The CRP's watershed management approach identifies and evaluates water quality issues, establishes priorities for corrective action, works to implement those actions, and adapts to changing priorities.



**Figure 4: The Gloria Galt River Landing San Antonio Museum of Art, San Antonio River Museum Reach**

River Authority's Learning Modules: The River Authority has many resources on the website for educational needs regarding topics including Sustainability, Flood Risk, River Health, Parks and Trails, Ecosystems, and Bays and Estuaries. Additional information can be found at the links below.

- Green Infrastructure Master Plan
- Stream Restoration
- Mission Reach Ecosystem Restoration
- How can you help improve the health of the river
- River Health

- Parks and Paddling Trails
- River Recreation website
- Ecosystems of the San Antonio River Watershed
- Protecting the Whooping Crane

Parks and Paddling Trails: The Goliad Paddling Trail is officially designated as a Texas Inland Paddling Trail, due to its deep Texas history, and it is now close to 20 miles long with the addition of the Riverdale access point. Paddlers can see lush woodlands, migratory birds, and countless species of wildlife on this rural and incredibly scenic route. With the addition of a new access point at the Riverdale location, paddling enthusiasts will have almost 12 miles of paddling to the Hwy 59 access point. The original paddling trail then runs from Hwy 59 to the Goliad State Park, which is just under 7 miles long and has a mid-point access location at Ferry Street. Feel free to stop off at the Ferry Street access point and enjoy a break at Branch River Park, which is near the Goliad town square. Keep in mind, if paddling all the way to the final access point at Goliad State Park, users must pay a minimal day-use fee to access the state park.

The lower San Antonio River is rural with few bridge crossings. River Authority staff regularly visit the road crossings but are only occasionally on the river away from bridge crossings. The more people are out enjoying the river, and keeping watch of the river, the more people can let the River Authority know if there are pollution sources or encroachment on the river. Canoe Trail Goliad also provides trash bags to participants and asks them to pick up any trash they see for their spring flotilla.



**Figure 5: From left to right, River Authority Goliad County Board Member Alicia Lott Cowley, Goliad County Commissioner Alonzo Morales, and Clare Barnhart of Canoe Trail Goliad at the Riverdale Access Ribbon Cutting Ceremony**

Mission Reach Ecosystem Restoration, Reintroduction of the Guadalupe Bass: Under a National Fish and Wildlife Foundation Grant, the River Authority, Texas Parks and Wildlife Department (TPWD) and Texas State University (TxST) began reintroducing Guadalupe Bass (*Micropterus treculi*) into the Mission Reach of the Upper San Antonio River. During the project over 60,000 Guadalupe Bass were reintroduced into the river. The Guadalupe Bass were raised at the TPWD Heart of the Hills Fisheries Science Center in Mountain Home, Texas. Reintroduction and establishment of the Guadalupe Bass into the Mission Reach may provide an opportunity to validate ecological improvements as a result of the San Antonio River Improvements Project as well as provide a valued economic and recreational resource to the community. As a result of the effort, a total of 84,000 Guadalupe Bass were stocked across four sites on the Upper San Antonio River. River Authority biologists continue to monitor the population and genetics information to verify that the Guadalupe Bass in the Upper San Antonio River, Mission Reach area is pure, self-sustaining, and spawning.



**Figure 6: Reintroduction of the Guadalupe Bass, Mission Reach Ecosystem Restoration Project**

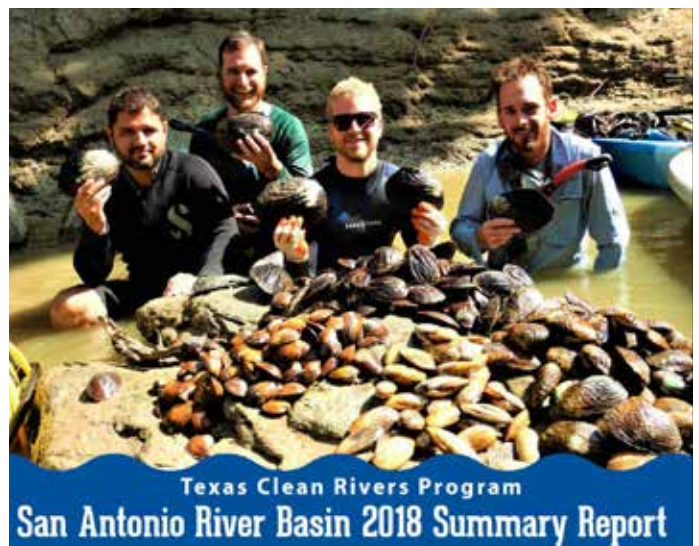
The River Authority provides multiple opportunities for the public to become involved in protecting and improving our creeks and rivers. The River Warriors are a volunteer group of individuals 15 years and older who donate their time to support the River Authority's mission for safe, clean, and enjoyable creeks and rivers. They provide an important volunteer work force for many efforts and are given special educational opportunities to learn about the ecology of the river.

Currently there are approximately 1500 volunteers who provide service and who have participated in virtual training. Activities they are involved in include:

- Trash clean up.
- Invasive species removal of apple snails.
- Species diversity data study using iNaturalist.
- Stream Team monitoring of water quality at 22 sites.
- Stream restoration using post-assisted log structures (colloquially known as beaver dams) to reduce erosion.

To get more information of the River Authority's River Warriors or to sign up, please visit [sariverauthority.org/volunteer](http://sariverauthority.org/volunteer).

The Environmental Advisory Committee (EAC) acts as the Texas Clean Rivers Program Steering Committee. The EAC was established to serve as a comprehensive public participation group that reviews and provides input on environmental studies and programs at the River Authority. The EAC meets quarterly and is open to the public for participation. It is designed to include representatives from academia, agriculture, bay and estuary, recreation, business, industry, and environmental. If you would like to learn more about the EAC or participate in the next meeting, please go to the [www.sariverauthority.org](http://www.sariverauthority.org) website or click here to find out more about the EAC.



**Figure 7: San Antonio River Basin 2018 Summary Report**

# Assessment of the San Antonio River Basin

Every five years, the River Authority publishes a Basin Summary Report as required by the CRP. This report, last conducted in 2018, provides a detailed review of parameters analyzed, designated uses, and associated water quality concerns and impairments in the San Antonio River basin. The 2018 summary report and past highlight reports are available at [sariverauthority.org/crp](http://sariverauthority.org/crp).

Water quality data, habitat assessments, and fish and macrobenthic communities are assessed every two years in even-numbered years by the TCEQ. Results of the assessments are published in the Texas Integrated Report of Surface Water Quality. The Texas Integrated Report evaluates the quality of surface waters in the state and provides resource managers with a tool for making informed water quality decisions. The Texas Integrated Report describes the status of Texas' natural waters based on historical data and the extent to which they meet the Texas Surface Water Quality Standards. The Texas Integrated Report satisfies the requirements of the federal Clean Water Act Sections 305(b) and 303(d). The 303(d) List must be approved by the EPA before it is final.

The purpose of this basin highlights update report is to provide a brief discussion on the 2020 TCEQ

Integrated Report and on basin activities that occurred during the 2021 year. Water quality monitoring events include physicochemical, biological, and hydrological information from waterbodies throughout the San Antonio River basin. Smaller unclassified waterbodies are also monitored to evaluate and define water quality and to respond to perceived risk for pollution. CRP parameters collected in the field include pH, dissolved oxygen, conductivity, water temperature, stream flow, and field observations such as trash, feral pig wallows or any other information observed that may help explain the analytical results. CRP parameters analyzed in the laboratory include total suspended solids, sulfate, chloride, nitrate, nitrite, *E. coli*, ammonia, total Kjeldahl nitrogen, and total phosphorus. At selected stations, metals in water and sediment, 24-hour diel measurements, nekton (fish), benthic macroinvertebrate, and habitat information are also collected.

The information in this section and in the table at the end of this report summarizes the impairments and concerns in each of the 13 watersheds in the San Antonio River basin as identified in the 2020 TCEQ Integrated Report. If an impairment or concern is listed below it means a portion or portions of the segment was identified in the Texas Integrated Report.

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## LOWER SAN ANTONIO RIVER – SEGMENT 1901

The Lower San Antonio River - from the confluence with the Guadalupe River in Refugio/Victoria County to a point 600 meters (660 yards) downstream of FM 791 at Mays crossing near Falls City in Karnes County.

- Impairments - bacteria and fish community
- Concerns - bacteria, fish community, habitat, nitrate, total phosphorus, and chlorophyll-a

### Unclassified stream segments of the Lower San Antonio River include:

- o Segment 1901A Escondido Creek – bacteria impairment; concerns for nitrate and total phosphorus
- o Segment 1901B Cabeza Creek – bacteria impairment
- o Segment 1901E Manahuilla Creek – bacteria concern
- o Segment 1901F Ecleto Creek – bacteria and dissolved oxygen impairments; concerns for chlorophyll-a and dissolved oxygen



**Figure 8: 2021 Mike Gonzales Intern Lily Bemporad, American Eel captured and released during a biological event at Station 16580 Conquista Crossing, in the Lower San Antonio River**

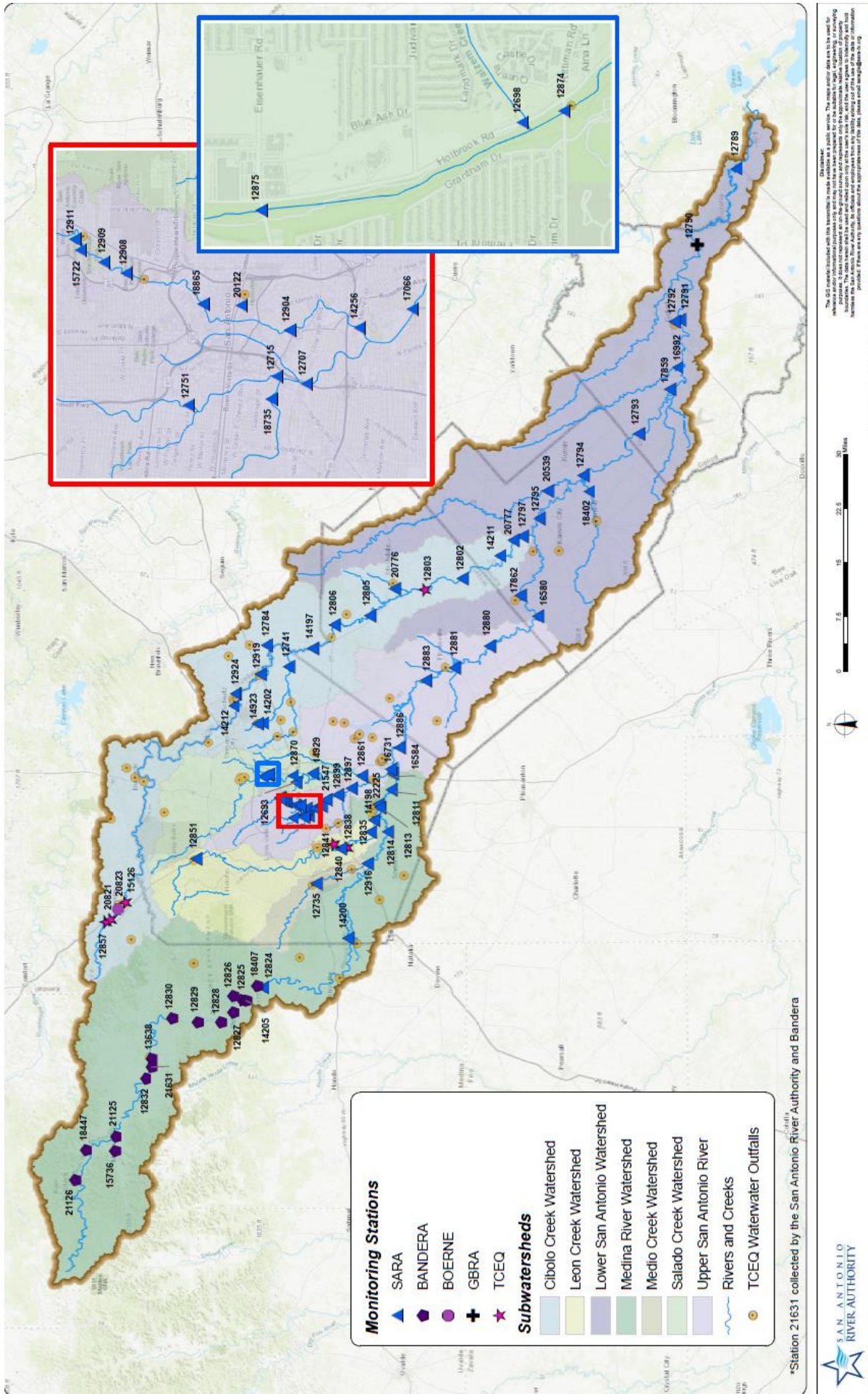


Figure 9: 2021 Monitoring Stations in the San Antonio River basin



## LOWER CIBOLO CREEK – SEGMENT 1902

The Lower Cibolo Creek extends from the confluence with the Lower San Antonio River in Karnes County to a point 100 meters (110 yards) downstream of IH-10 in Bexar/Guadalupe County.

- Impairment - bacteria
- Concerns - macrobenthic community, habitat, nitrate, total phosphorus, and bacteria

### Tributaries of the Lower Cibolo Creek include:

- o Segment 1902A Martinez Creek – bacteria impairment; concerns for bacteria, nitrate, and total phosphorus
- o Segment 1902B Salitrillo Creek - concerns for ammonia, nitrate, and total phosphorus
- o Segment 1902C Clifton Branch – bacteria and dissolved oxygen impairments; concerns for dissolved oxygen and total phosphorus
- o Segment 1902D Alum Creek – no impairments or concerns`



**Figure 10: Texas Logperch captured and released during a biological event at Station 12802 Lower Cibolo Creek at FM 541 West of Kosciusko**

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## MEDINA RIVER BELOW MEDINA DIVERSION LAKE – SEGMENT 1903

The Medina River below Medina Lake extends upstream from its confluence with the San Antonio River in southeast Bexar County to the Medina Diversion Dam in Medina County.

- Impairment – bacteria
- Concerns – nitrate and total phosphorus

**Figure 11: Sailfin Molly captured and released during a biological event at Station 14200 Medina River at CR484**



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## MEDINA LAKE – SEGMENT 1904

Medina Lake extends from Medina Lake Dam in Medina County to a point immediately upstream of the confluence of Red Bluff Creek in Bandera County, up to the normal pool elevation of 1072 feet. No impairments or concerns have been identified.

**Figure 12: Medina Lake Walton Island**



## MEDINA RIVER ABOVE MEDINA LAKE – SEGMENT 1905

The Medina River above Medina Lake extends from a point immediately upstream of the confluence of Red Bluff Creek in Bandera County to the confluence of the North Prong Medina River and West Prong Medina River in Bandera County.

- Impairment - bacteria
- Concerns - fish community and habitat

### Tributary of the Upper Medina River

Segment 1905A North Prong Medina River extends from the confluence with the Medina River upstream to the headwaters approximately 3.5 km east of RM 187 in Bandera County. No impairments or concerns have been identified.



**Figure 13: Aquatic Biologist Angelica Rapacz, Channel Catfish captured and released during a biological event at Station 21631 Medina River at the Mayan Ranch**

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## LOWER LEON CREEK – SEGMENT 1906

Lower Leon Creek extends from the confluence with the Medina River in Bexar County to a point 100 meters (110 yards) upstream of State Highway 16 northwest of San Antonio in Bexar County.

- Impairments - fish consumption advisory (PCBs in edible tissue), do not consume any species of fish from the Lower Leon Creek
- Concerns - bacteria, dissolved oxygen, chlorophyll-a, and silver in sediment

**Figure 14: Aquatic Biologist Christopher Vaughn, American Eel captured and released during a biological event at Station 14198 Leon Creek Upstream of the Leon Creek Wastewater Treatment Plant**



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## UPPER LEON CREEK – SEGMENT 1907

The Upper Leon Creek extends from a point 110 yards upstream of SH-16 (Bandera Road) northwest of San Antonio in Bexar County to a point 9.0 km (5.6 miles) upstream of Scenic Loop Road north of Helotes in Bexar County. No impairments or concerns have been identified.

**Figure 15: Station 12851 Upper Leon Creek at Raymond Russell Park**



## UPPER CIBOLO CREEK – SEGMENT 1908

The Upper Cibolo Creek starts a little more than 10 miles northwest of the City of Boerne, approximately one mile upstream of the confluence of Champee Springs in Kendall County and ends at the Missouri-Pacific Railroad Bridge west of Bracken, Texas.

- Impairment - bacteria
- Concerns – nitrate and total phosphorus

**Figure 16: The Cibolo Preserve in the Upper Cibolo Creek Watershed**



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## MEDINA DIVERSION LAKE – SEGMENT 1909

Medina Diversion Lake in Medina County extends from Medina Diversion Dam to Medina Lake Dam and reaches the normal pool elevation of 926.5 feet (impounding the Medina River). No impairments or concerns have been identified.

**Figure 17: Water Quality Monitoring in Medina Diversion Lake**



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## SALADO CREEK – SEGMENT 1910

Salado Creek extends from the confluence with the San Antonio River in Bexar County to the confluence of Beitel Creek in Bexar County.

- Impairments - bacteria, fish and macrobenthic communities, and dissolved oxygen
- Concern - dissolved oxygen

### **Tributaries of Salado Creek include:**

- o Segment 1910A Walzem Creek – bacteria impairment; nitrate concern
- o Segment 1910C Salado Creek Tributary – bacteria concern
- o Segment 1910D Menger Creek – bacteria impairment
- o Segment 1910F Upper Salado Creek - concern for chlorophyll-a and dissolved oxygen



**Figure 18: Aquatic Biologists Austin Davis and Zoe Nichols, Biological Monitoring at Station 12870 Salado Creek at Gambler Road**

## UPPER SAN ANTONIO RIVER – SEGMENT 1911

The Upper San Antonio River extends from a point 600 meters (660 yards) downstream of FM 791 at Mays Crossing near Falls City in Karnes County to a point 100 meters (110 yards) upstream of Hildebrand Avenue in San Antonio in Bexar County.

- Impairments – bacteria, fish and macrobenthic communities
- Concerns – nitrate, total phosphorus, habitat, bacteria, chlorophyll-a

### Tributaries of the Upper San Antonio River include:

- o Segment 1911B Apache Creek – bacteria impairment; concern for nitrate
- o Segment 1911C Alazan Creek – bacteria impairment
- o Segment 1911D San Pedro Creek – bacteria impairment; concern for nitrate
- o Segment 1911E Sixmile Creek – bacteria impairment
- o Segment 1911H Picoso Creek – impairments for dissolved oxygen
- o Segment 1911I Martinez Creek - bacteria impairment
- o Segment 1911J Pajarito Creek – bacteria concern
- o Segment 1911K Seguin Branch – bacteria concern
- o Segment 1911L Unnamed tributary of Upper San Antonio River – concern for dissolved oxygen



**Figure 19: Aquatic Biologists Zoe Nichols and Steven Bittner, Channel Catfish captured and released during a biological event at Station 12908 Upper San Antonio River at Woodlawn**

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## MEDIO CREEK – SEGMENT 1912

Medio Creek extends upstream from its confluence with the Medina River in southwest Bexar to a point 1.0 Kilometer (0.6 miles) upstream of IH 35 in San Antonio in Bexar County.

- Impairment – bacteria
- Concerns – nitrate and total phosphorus

### Tributaries of Medio Creek:

- o Segment 1912A Upper Medio Creek - concerns for nitrate and total phosphorus

**Figure 20: Aquatic Biologist Zoe Nichols, Gray Redhorse captured and released during a biological event at Station 12916 Medio Creek at Hidden Valley Campground**



## MID CIBOLO CREEK – SEGMENT 1913

Mid Cibolo Creek begins at the Missouri-Pacific Railroad Bridge west of the City of Bracken and ends 110 yards downstream of IH-10.

- Impairments - concerns for nitrate and total phosphorus



Figure 21: Aquatic Biologist Christopher Vaughn, Mid Cibolo Creek Watershed



Figure 22: Aquatic Biologist Angelica Rapacz Texas Logperch captured and released during the Intensive Nekton Study, San Antonio River Mission Reach Downstream of Espada Dam

**Table 1: 2020 TCEQ Integrated Report San Antonio River Basin Impairments and Concerns**

Segment	Segment Description	Parameters of Impairment	Parameters of Concern
1901	Lower San Antonio River	Bacteria and fish community	Bacteria, fish community, habitat, nitrate, total phosphorus, chlorophyll- <i>a</i>
1901A	Escondido Creek	Bacteria	Nitrate and total phosphorus
1901B	Cabeza Creek	Bacteria	No Concerns
1901E	Manahuilla Creek	No Impairments	Bacteria
1901F	Ecleto Creek	Bacteria and dissolved oxygen	Chlorophyll- <i>a</i> and dissolved oxygen
1902	Lower Cibolo Creek	Bacteria	Macrobenthic Community, habitat, nitrate, total phosphorus, bacteria
1902A	Martinez Creek	Bacteria	Nitrate, total phosphorus, bacteria
1902B	Salitrillo Creek	No Impairments	Ammonia, nitrate, total phosphorus
1902C	Clifton Branch	Bacteria and dissolved oxygen	Dissolved oxygen and total phosphorus
1902D	Alum Creek	No Impairments	No Concerns
1903	Medina River Below Medina Diversion Lake	Bacteria	Nitrate and total phosphorus
1904	Medina Lake	No Impairments	No Concerns
1905	Medina River Above Medina Lake	Bacteria	Habitat and fish community
1905A	North Prong Medina River	No Impairments	No Concerns
1906	Lower Leon Creek	Fish Consumption Advisory	Bacteria, dissolved oxygen, chlorophyll- <i>a</i> , silver in sediment
1907	Upper Leon Creek	No Impairments	No Concerns
1908	Upper Cibolo Creek	Bacteria	Nitrate and total phosphorus
1909	Medina Diversion Lake	No Impairments	No Concerns
1910	Salado Creek	Bacteria, fish and macrobenthic communities, dissolved oxygen	Dissolved oxygen
1910A	Walzem Creek	Bacteria	Nitrate
1910C	Salado Creek Tributary	No Impairments	Bacteria
1910D	Menger Creek	Bacteria	No Concerns
1910F	Upper Salado Creek	No Impairments	Chlorophyll- <i>a</i> and dissolved oxygen
1911	Upper San Antonio River	Bacteria, fish and macrobenthic communities	Nitrate, total phosphorus, habitat, bacteria, chlorophyll- <i>a</i>
1911B	Apache Creek	Bacteria	Nitrate
1911C	Alazan Creek	Bacteria	No Concerns
1911D	San Pedro Creek	Bacteria	Nitrate
1911E	Sixmile Creek	Bacteria	No Concerns
1911H	Picosa Creek	Dissolved oxygen	No Concerns
1911I	Martinez Creek	Bacteria	No Concerns
1911J	Pajarito Creek	No Impairments	Bacteria
1911K	Seguin Branch	No Impairments	Bacteria
1911L	Unnamed tributary of Upper San Antonio River	No Impairments	Dissolved oxygen
1912	Medio Creek	Bacteria	Nitrate and total phosphorus
1912A	Upper Medio Creek	No Impairments	Nitrate and total phosphorus
1913	Mid Cibolo Creek	No Impairments	Nitrate and total phosphorus
End of Table			



SAN ANTONIO  
RIVER AUTHORITY

85  
years