

# *Clean Rivers Program Quarterly Newsletter*

**Quarter #1, September - November 2021**

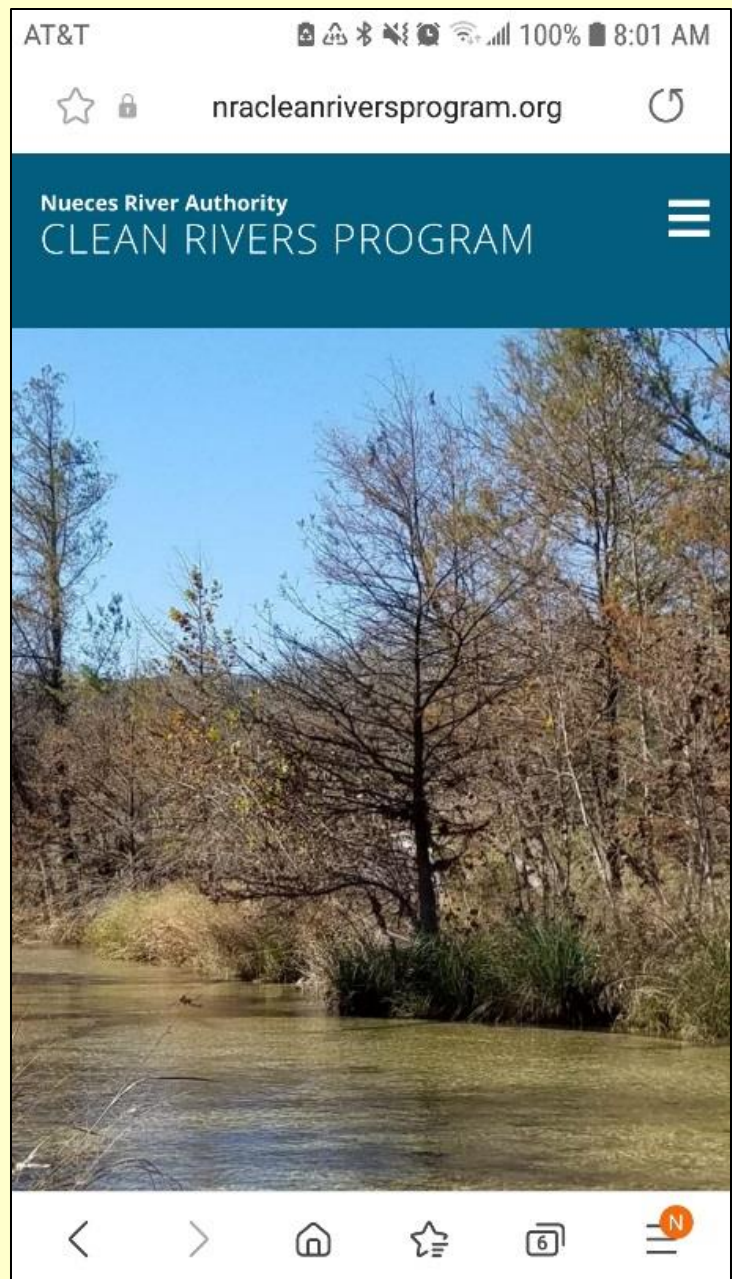
## **New Fiscal Year**

September 1<sup>st</sup> marks the beginning of the new biennium for the Texas Clean Rivers Program (CRP). The CRP is a partnership between the Texas Commission on Environmental Quality (TCEQ) and regional water authorities.

## **New CRP Website**

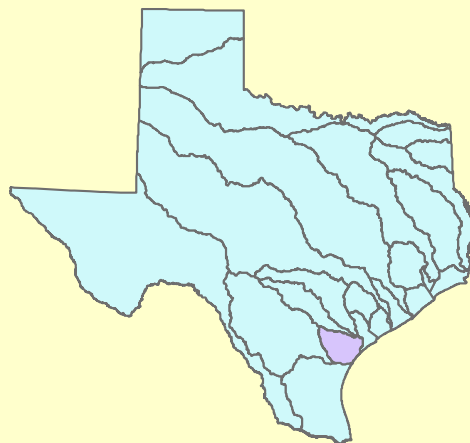
At the beginning of the new fiscal year, the Nueces River Authority officially released a Clean Rivers Program (CRP) website. The new site was designed by WaterPR and includes features such as a clickable map (Data Map Viewer) that can access Texas CRP/TCEQ SWQM station data. The site also provides links to water quality studies throughout the area and water quality information. To see the new website at:

<https://nracleanriversprogram.org/>



## Basin 20 - San Antonio-Nueces Coastal Basin

The San Antonio-Nueces Coastal Basin covers approximately 3,100 square miles, draining to Copano and St. Charles bays. The basin is largely rural, with the dominant industries being crop farming and cattle rearing. Monitoring sites in Basin 20 are located on the tidal and above tidal portions of the Mission and Aransas rivers, Poesta Creek, and the tidal portion of Chiltipin Creek.



## Basin 20 Sampling

Nueces River Authority conducts routine water quality monitoring at 7 locations in the basin. For FY2022, sampling stations remained the same as in FY2021.

Water quality monitoring on the Mission and Aransas rivers occurred on September 29<sup>th</sup>. Chiltipin Creek was monitored on September 29<sup>th</sup>. Elevated bacteria concentrations were encountered on all locations. Heavy rains during the sampling event likely attributed to elevated bacteria concentrations due to non-point source runoff.

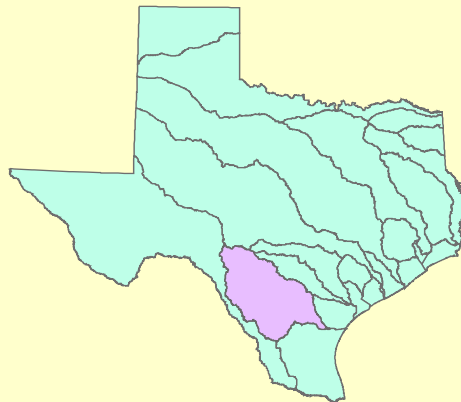


Station 12952 – Aransas Creek east of Skidmore



## Basin 21 - Nueces River Basin

The Nueces River Basin covers approximately 17,000 square miles in South-Central Texas. The Nueces River winds 315 miles from its source in the Edwards Plateau near Rock Springs (elevation 2,402) through the brush country of the South Texas Plains to its end in Nueces Bay near Corpus Christi. The Nueces River is joined by the Frio and Atascosa rivers near the town of Three Rivers. Nueces River Authority conducts routine water quality monitoring at 25 locations throughout the Nueces River Basin (see map on page 14).



A long hot summer has finally concluded in the Nueces River Basin. The passage of a cold front in late October was a welcome sight as was a chance for rain in the watershed. Unfortunately, not much rain was encountered in the river basin in the first quarter. River flows that nearly filled up Lake Corpus Christ (Lake Mathis) since April 2021 have all dissipated and the downtrend of lake levels has resumed. River levels basin-wide were in decline as the pictures will show. The Frio River System (Leona, Frio, and Sabinal rivers, and Hondo and Seco creeks) have been in a 15-year drought as defined by the last time that Choke Canyon Reservoir was last at 100% of capacity.



Cold front moving across south Texas on FM 624



## Basin 21 Sampling



Station 12973 – Nueces River at SH-16 south of Tilden



Station 18373  
Frio River at Fowlerton



Station 18418  
Leona River at FM 140

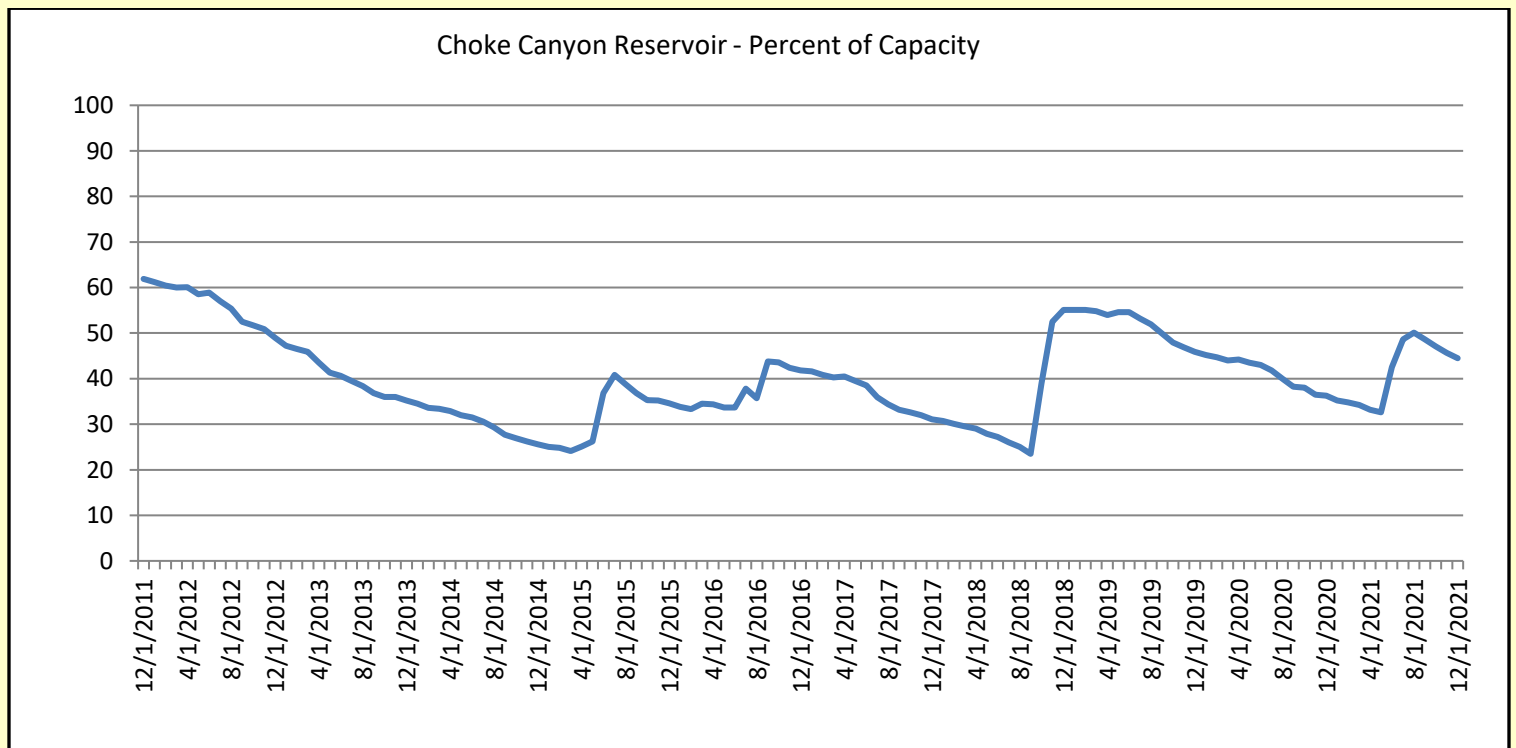
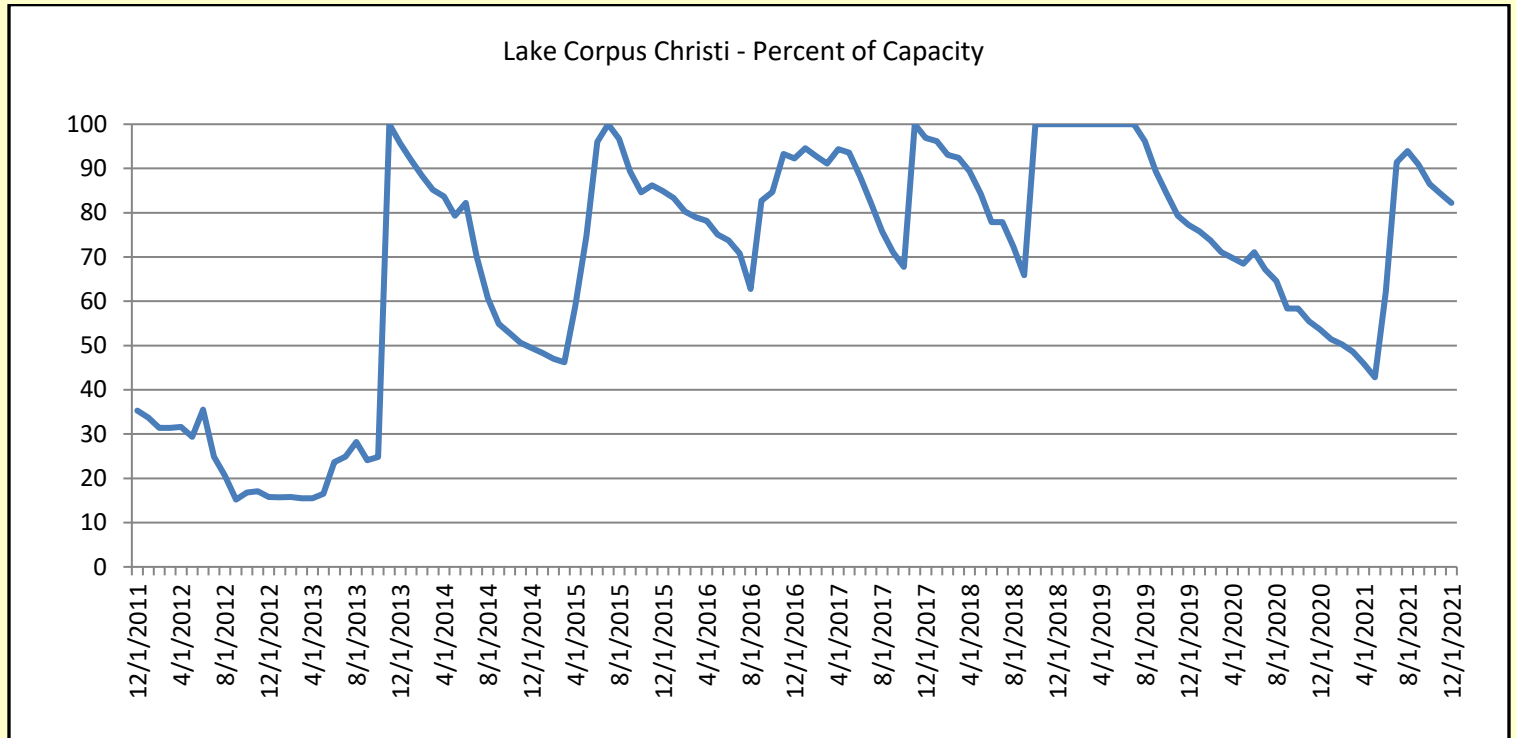


Station 16704  
Upper Nueces at 19-mile bridge



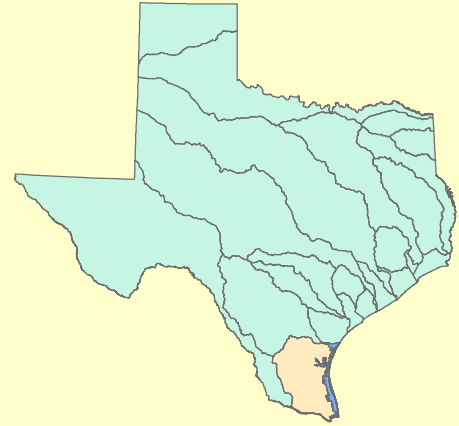
## Lake Levels

Combined lake levels for the reservoir system dropped from 43.9% to 40.6% by the end of the quarter. A rain event in late November added about 2 inches to Lake Corpus Christi and approximately 1 inch to Choke Canyon Reservoir in direct precipitation. Streamgages located upstream of the reservoir system remain unchanged following the rain event. For the Daily Reservoir System and Pass-Thru Status Report, please visit the website <https://www.nueces-ra.org/CP/CITY/passthru/index.php>.



## Basin 22 – Nueces-Rio Grande Coastal Basin

The Nueces-Rio Grande Coastal Basin covers approximately 10,400 square miles in South Texas and includes streams such as the Arroyo Colorado Tidal (Segment 2201) and above tidal (Segment 2202) in the Rio Grande Valley and Petronila Creek Tidal (Segment 2203) and above tidal (Segment 2204), which is a tributary to Alazan Bay located on the northern arm of Baffin Bay.



### Arroyo Colorado Above Tidal (Segment 2202)

Station 13079 is located on the above tidal portion of the Arroyo Colorado (Segment 2202) at the US-77 Bridge in Harlingen. Water quality at Station 13079 was monitored on October 26<sup>th</sup>. Bacteria levels (204 MPN) were above the standard (126 MPN) during the site visit. Nitrate concentrations were highly elevated (6.75 mg/L) compared with the screening level of 1.95 mg/L. Total phosphorus was 0.23 mg/L, below the screening limit of 0.69 mg/L. Chlorophyll-*a* concentrations (12.4 µg/L) were just under the screening level of 14.1 µg/L. Bacteria concentrations were highly elevated at 2,000 CFU/100 mL (*E. coli* standard of 126 CFU/100mL) following an approximate 1.5 inches of rain 3 days prior to the site visit (*E. coli* standard of 126 CFU/100mL). Flow was 140 CFS according to the USGS stream gage.



Station 13079 - Arroyo Colorado at US 77 in Harlingen



## Petronila Creek Tributary Study – Segment 2204

Petronila Creek is a tributary to Baffin Bay. Since FY 2013-2014, the TCEQ has contracted with NRA to conduct monthly water quality monitoring to identify chloride, sulfate, and TDS contributions from tributaries of Petronila Creek, including drainage ditches. For FY 2022, NRA is conducting monthly monitoring at 13 sites, the same location as the past 4 years. Four sites are located on the main stem of Petronila Creek (13096, 13095, 13094, and 13093 – data is in bold on the graph). Monitoring for September through November is summarized below. (Disclaimer – Data has not been validated or input into the SWQMIS Database.)

Site #	Sep 22 (µmhos)	Oct 13 (µmhos)	Nov 3 (µmhos)
21594	1,610	1,360	2,170
18484	18,500	39,200	44,500
13032	17,500	21,500	15,100
13096	<b>19,200</b>	<b>18,800</b>	<b>20,000</b>
13095	<b>20,200</b>	<b>17,000</b>	<b>18,900</b>
21931	24,000	21,600	No flow
13094	<b>21,500</b>	<b>16,400</b>	<b>19,300</b>
18642	33,500	28,700	27,100
21596	21,700	18,800	21,100
13093	<b>16,700</b>	<b>3,400</b>	<b>7,160</b>
13030	35,500	9,200	15,100
21929	33,000	12,200	30,200
21598	42,100	15,200	33,300



Station 13093 – Petronila Creek at FM 70

### **San Martin Lake (Segment 2494C)**

San Martin Lake system is located off the Brownsville Ship Channel in the Lower Rio Grande Valley. NRA field staff rented a boat from UTRGV to travel up the shallow waterway on October 26<sup>th</sup>. Nutrient parameters were very low, well below the screening levels with nitrate being below the detection limit of 0.025 mg/L. Total phosphorus was 0.23 mg/L, below the screening limit of 0.69 mg/L. Chlorophyll-*a* concentrations were slightly elevated at 19.5 µg/L. Bacteria concentrations were highly elevated at 2,000 CFU/100 mL following an approximate 1.5-inch rain 3 days prior to the site visit. If you would learn more about water quality projects in the Lower Laguna Madre/Brownsville Ship Channel (LLMBSC), visit the Cameron County website: <http://www.co.cameron.tx.us/llmbsc/>



Station 22170 - San Martin Lake System



## **Basin 24 –Bays and Estuaries**

The Bays and Estuaries region of Texas covers approximately 2,002 square miles along the entire Texas Coast. There are 48 classified estuarine segments that are monitored by several River Authorities and TCEQ regional offices. NRA monitors water quality in 5 of the coastal segments including: Copano/Port/Mission Bay (Segment 2472), Redfish Bay (Segment 2483), Oso Bay (Segment 2485), Laguna Madre (Segment 2491), and Baffin Bay/Alazan Bay/Cayo del Grullo/Laguna Salada (Segment 2492) which includes Los Olmos and San Fernando creeks.

### **Hidalgo Main and Raymondville Drain (Segment 2491C)**

The Hidalgo Main (Station ID 22003) and Raymondville Drains (Station ID 22004) are tributaries of the Lower Laguna Madre (Segment 2491). These two sites are located east of US-77 and were added to the CRP Monitoring Schedule back in 2018. Both sites were visited on October 14<sup>th</sup>. The Hidalgo Drain had a floating mat of vegetated debris across the drain and the Raymondville Drain sampling site had an active bee colony under the bridge during the site visit. No flow measurements were recorded at the Raymondville Drain. Bacteria levels on the Hidalgo Main and Raymondville Drain were 200 MPN and 610 MPN (standard is 126 MPN) respectively. (Disclaimer – Data has not been validated or input into the SWQMIS Database.)



**Los Olmos Creek (Segment 2492B)**

Los Olmos Creek runs 71 miles from southern Duval County to its confluence with Laguna Salada, an inlet of Baffin Bay. The creek was a new site (Station ID 13034) for FY2019, located at the bridge crossing at US 77 south of Riviera. NRA field staff visited the site on October 6<sup>th</sup>, 4 days after the area received approximately 8 inches of rain. Salinity values dropped to the 32 PSU range (seawater is around 35 PSU) after the flow event. Bacteria concentrations were very high on the site visit ( $>2,400$  MPN), same as the last 4 quarters. Nutrient concentrations were extremely elevated with nitrate (36.5 mg/L) values well above the screening level of 1.10 mg/L for nitrate. Chlorophyll-*a* concentrations were relatively low at 6.6  $\mu\text{g/L}$  compared to the screening level of 21.0  $\mu\text{g/L}$ . Total phosphorus levels (0.31 mg/L) were within the screening level of 0.66 mg/L.



Station 13034 – Los Olmos Creek Tidal at US 77 south of Riviera



## ↑2U

Late September was a busy month for the ↑2U Program. Nueces River Authority staff attended the Nueces River Preservation's annual clean-up on the Lower Nueces River at Hazel Bazemore Park. What a great way to show the love of river and community. Thanks to all that attended.





# San Antonio-Nueces Coastal Basin

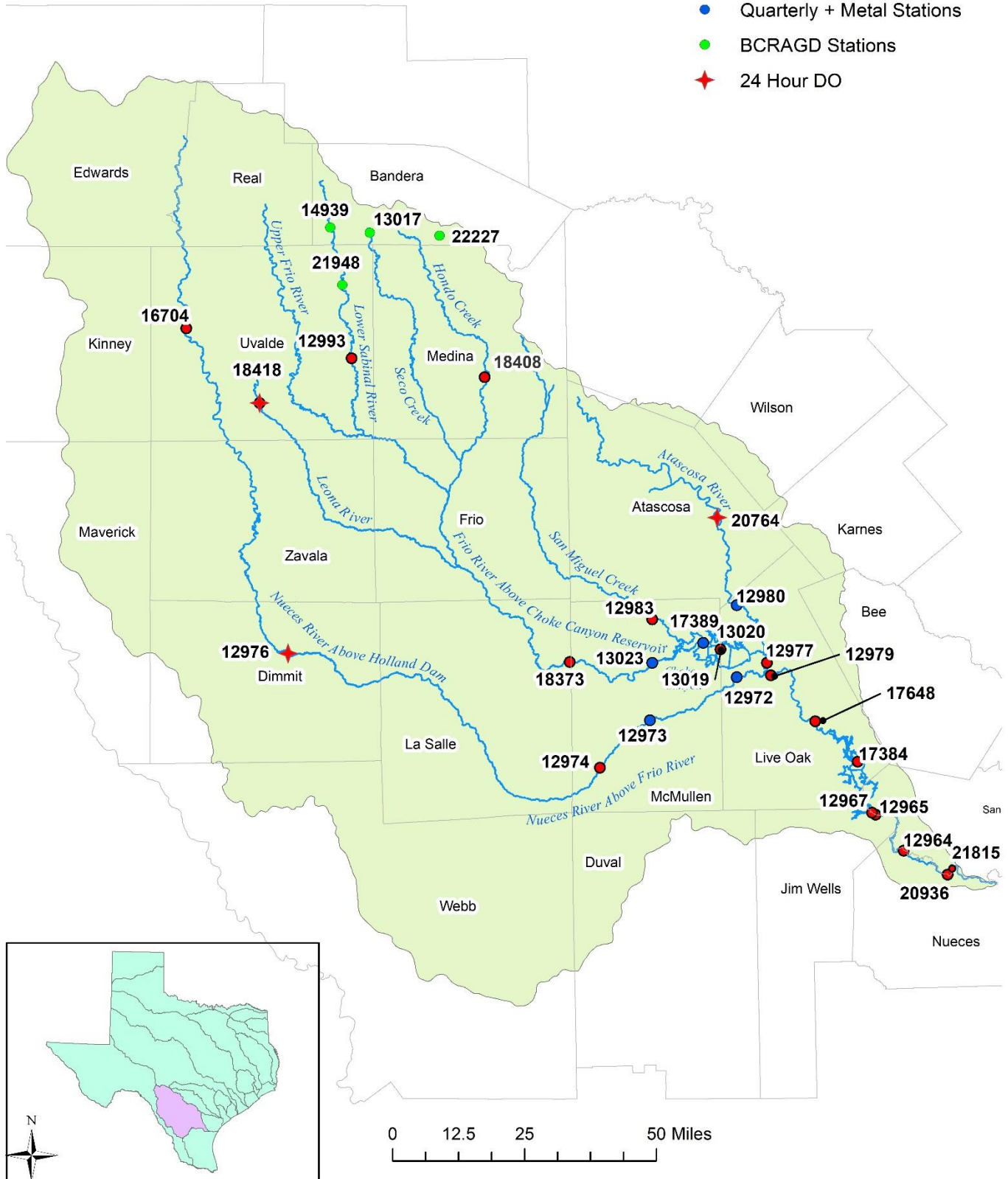




# Nueces River Basin

## NRA Monitoring Stations

- Quarterly Stations
- Quarterly + Metal Stations
- BCRAGD Stations
- ★ 24 Hour DO



# Nueces-Rio Grande Coastal Basin

## Monitoring Stations

- NRA Routine Stations

