

Nueces River Authority
Steering Committee and Stakeholder Update #7
(7th Quarter of FY 2018-2019)
March– May 2019

June 4th, 2019

Routine Clean Rivers Program Monitoring

Field staff from the Nueces River Authority conducted routine quarterly water quality sampling at all 43 river/reservoir and coastal stations in the seventh quarter. 24 Hour Dissolved Oxygen monitoring occurred at the Nueces River at Asherton; dissolved oxygen levels were at healthy levels. Dissolved oxygen levels at bridge crossing of FM99 over Choke Canyon Reservoir (Station ID 17389) were very low this quarter. Warming water combined with an abundance of decaying organic matter from a recent rise in the reservoir was likely to blame. Dissolved oxygen levels ranged from 3.0 mg/L at 1 foot below the surface to 0.2 mg/L at 1 foot from the bottom. This has been observed many times as inflows from the Frio River subside.



Coordinated Monitoring Meeting

NRA hosted the annual Coordinated Monitoring Meeting for Basins 20, 21, 22, and portions of 24 & 25 on March 20th in Corpus Christi. A number of changes were made to the monitoring schedule for NRA and TCEQ Region 14 (Corpus Christi). For FY 2020 monitoring, NRA discussed adding 3 new sites for fiscal year 2020 (Oso Bay at NAS bridge, San Martin Lake System in the Lower Rio Grande Valley, and Aransas Creek near Skidmore). TCEQs Corpus Christi Office (Region 14) agreed to add back historical stations in Baffin Bay and on Petronila Creek Tidal at the request of Baffin Bay Stakeholders. TCEQ Region 13 - San Antonio, Region 15 - Harlingen, Region 16 – Laredo, and Bandera County River Authority and Groundwater District had no monitoring changes.

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 and Poesta Creek. Tidal portions of the Mission and Aransas rivers have been impaired for the contact recreation standard, bacteria, since the 2004 Assessment. The above tidal portion of Aransas River and Poesta Creek will likely be listed for the same parameter in the 2016 Assessment as it becomes finalized.



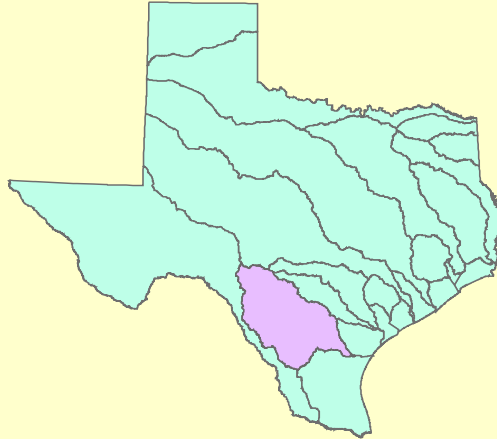
Avast ye parrot feather!

While out on Poesta Creek in March, NRA field staff observed an aquatic plant growing in the stream during the site visit. The plant was identified as belonging to the watermilfoil family (Haloragaceae) by members of a Facebook page called Texas Flora. The species is likely known as Parrot feather (*Myriophyllum aquaticum*) but a positive identification is likely needed. Non-native Parrot feather typically grows in warmer water with high nutrient content which is typical at Poesta Creek. We'll keep an eye out for it on our next site visit.



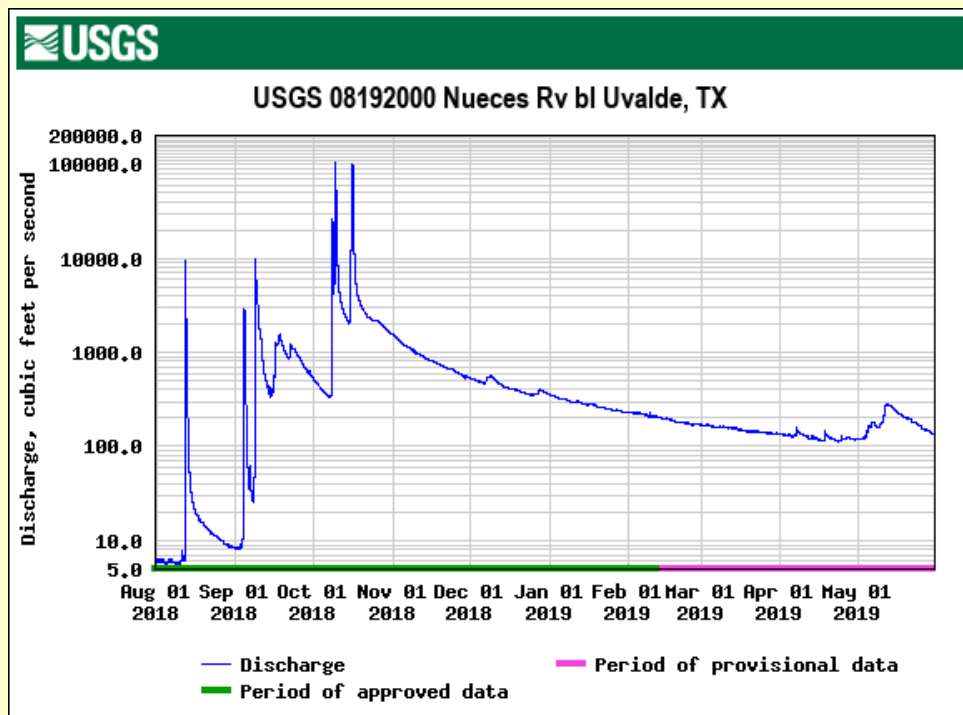
Basin 21 - Nueces River Basin

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, located near Corpus Christi. The Nueces River is joined by the Frio and Atascosa rivers near the town of Three Rivers.



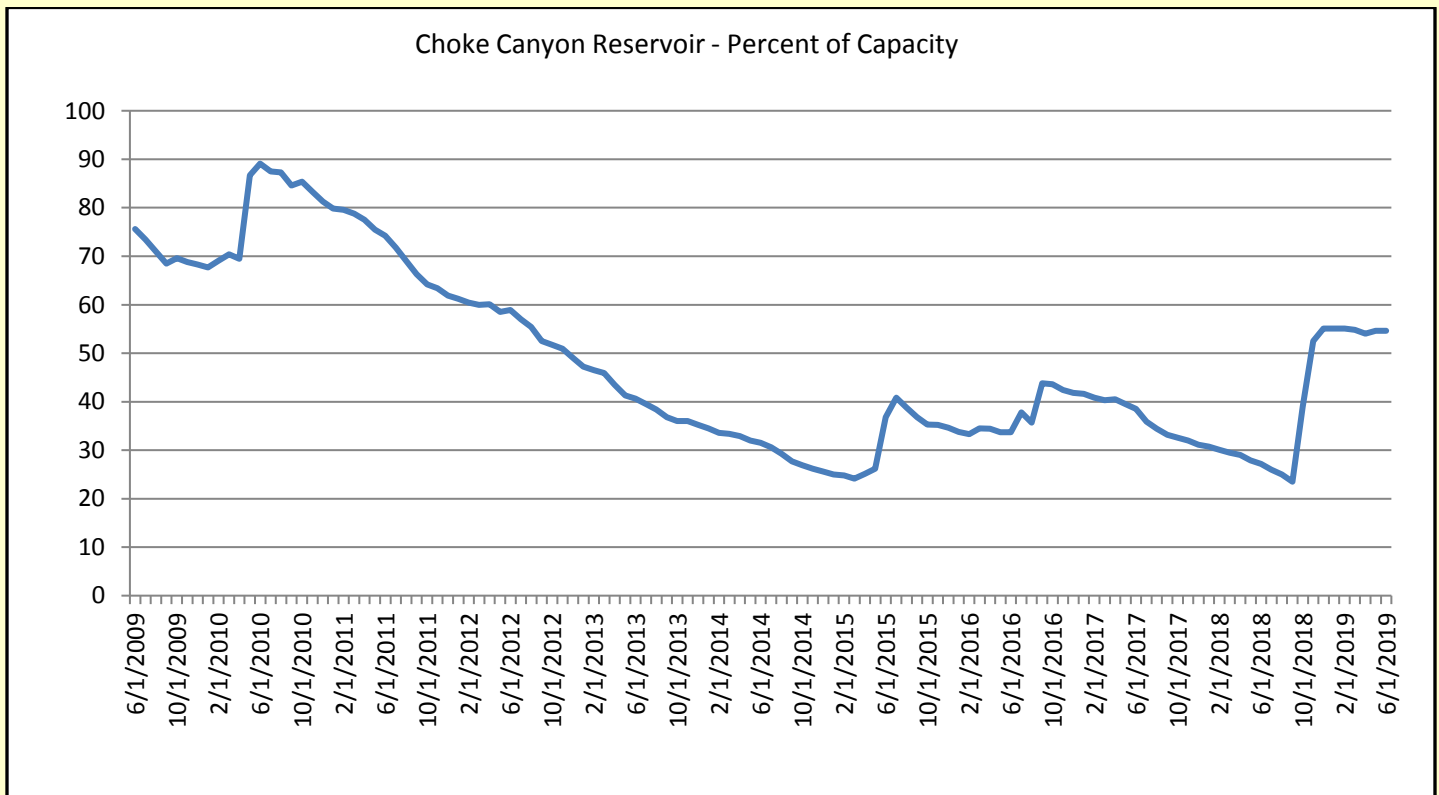
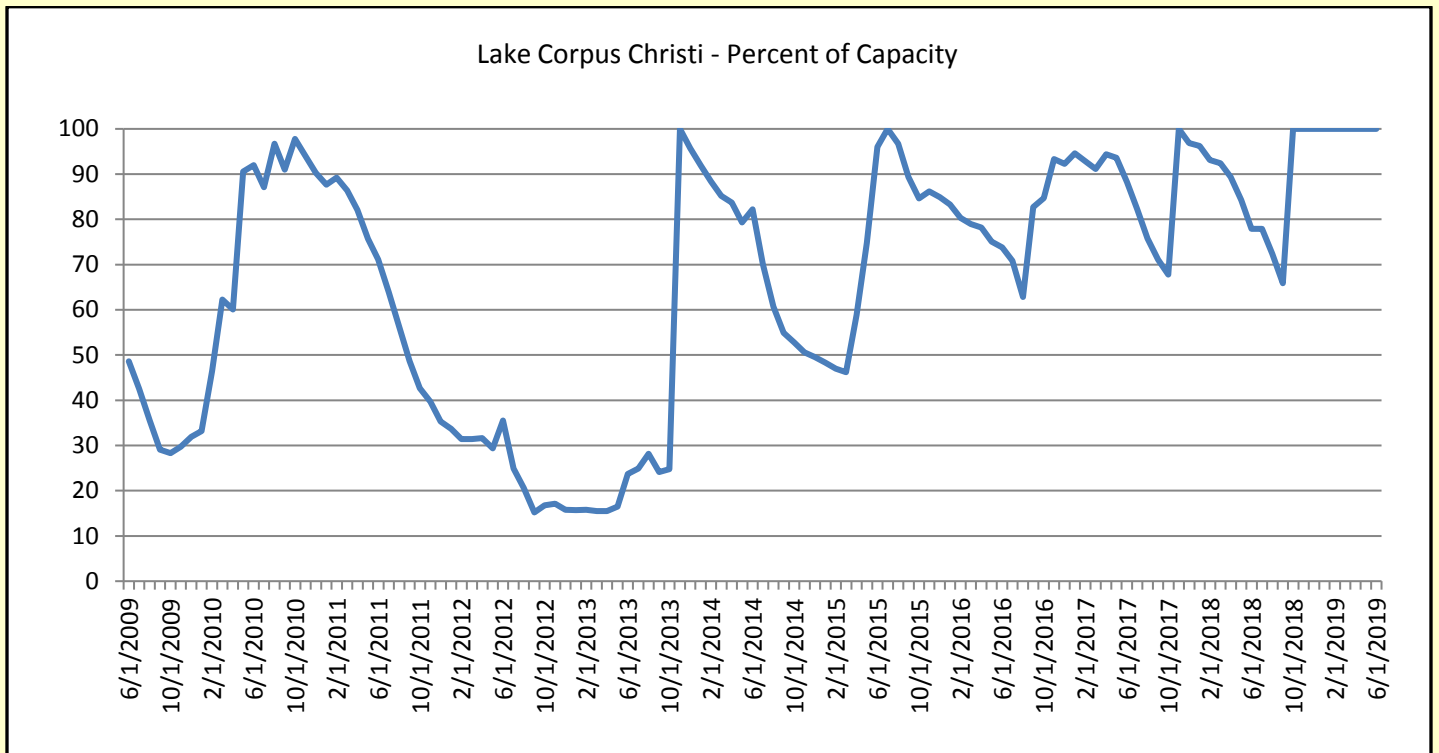
That's one for the record books

Following a wet Summer/Fall, the Nueces River has been flowing continuously from the Upper Basin through 315 river miles to its end in Nueces Bay near Corpus Christi. Typically, flows from the headwaters only travel this distance during and subsequent to floods but due to multiple floods in the headwaters from August to October 2018, baseflow has been continuous. In response, Lake Corpus Christi reached full capacity on October 29th, 2018 and has had the longest stretch of being at 100% of capacity since its construction in 1958 (219 days as of June 5th). The previous record was in 1976 at 216 days which was before the construction of Choke Canyon Reservoir. The longest stretch of 99%+ stands at 346 days between 1976 and 1977.



Lake Levels

Combined lake levels for the reservoir system held constant throughout the quarter at 67.2%. For the Daily Reservoir System and Pass-Thru Status Report, please visit the website <https://www.nueces-ra.org/CP/CITY/passthru/index.php>.



Nueces River Watershed Partnership – Implementation of the Lower Nueces River Watershed Protection Plan (WPP)

Funding for the NRA, as watershed coordinator to seek funding for and initiate implementation of the WPP, is provided by the TSSWCB through a §319(h) grant from EPA.

Trash Collection Event

NRA is planning to hold a trash collection event in the watershed this fall. Please contact us if you would like to help.

OSSF Repair and Replacement

As of April 2019, 47 OSSFs within the watershed have been pumped out and inspected. Fourteen were found to be in good working order. Of the remaining 33 systems, 21 need to be completely replaced and 12 need some repair work. Fourteen replacements and 11 repairs have been completed. Two additional replacements were begun in May. The program, funded by the TCEQ through a §319(h) grant from EPA, will continue through February 2020 or until the budgeted funds are spent.

NRA is working with TCEQ on a proposal to continue implementation of this program. If the 319(h) Nonpoint Source Grant is approved for funding by the U.S. EPA, it will begin in September 2019. In anticipation of approval, the NRA will continue to accept applications so that the additional work can commence as soon as possible.

OSSF Conversion

The City of Corpus Christi continues its evaluation of the feasibility of converting homes in the River Forest subdivision in Calallen from OSSFs to the City's wastewater collection system. A second stakeholder meeting to present the results will be scheduled for some time between September 23 and October 4, 2019.

Environmental Education

Texas AgriLife and Extension Service will be holding a Texas Watershed Steward Workshop on October 8, 2019. Details to follow.

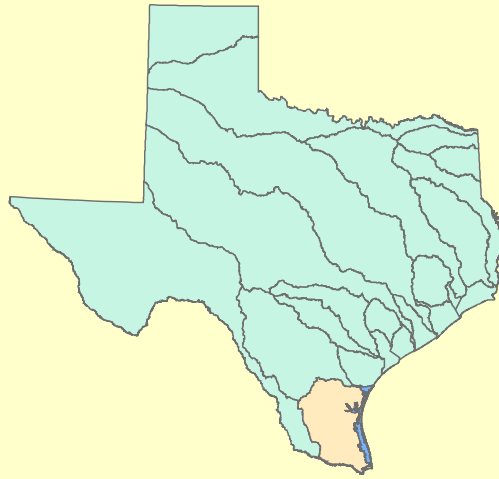
Website Update

The Partnership's website, <http://www.nuecesriverpartnership.org>, has been revamped. Contact us if there is any additional information you would like to see added to the site.

For more information about the Partnership and the WPP, visit [the website](http://www.nuecesriverpartnership.org), or contact Rocky Freund at (361) 653-2110 or rfreund@nueces-ra.org.

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.



Rio Grande Valley Monitoring – Segment 2202

For FY2019, NRA is monitoring three sites down in the Rio Grande Valley (see page 11 for the map of stations). Station 13079 is located on the above tidal portion of the Arroyo Colorado (Segment 2202) at the US-77 Bridge in Harlingen. The other two stations, the Hidalgo and Raymondville drains, are tributaries of the Laguna Madre (Segment 2491). All three sites were visited on April 2nd during cool (59°F) and cloudy weather. (Disclaimer – Data has not been validated or input into the SWQMIS Database.)

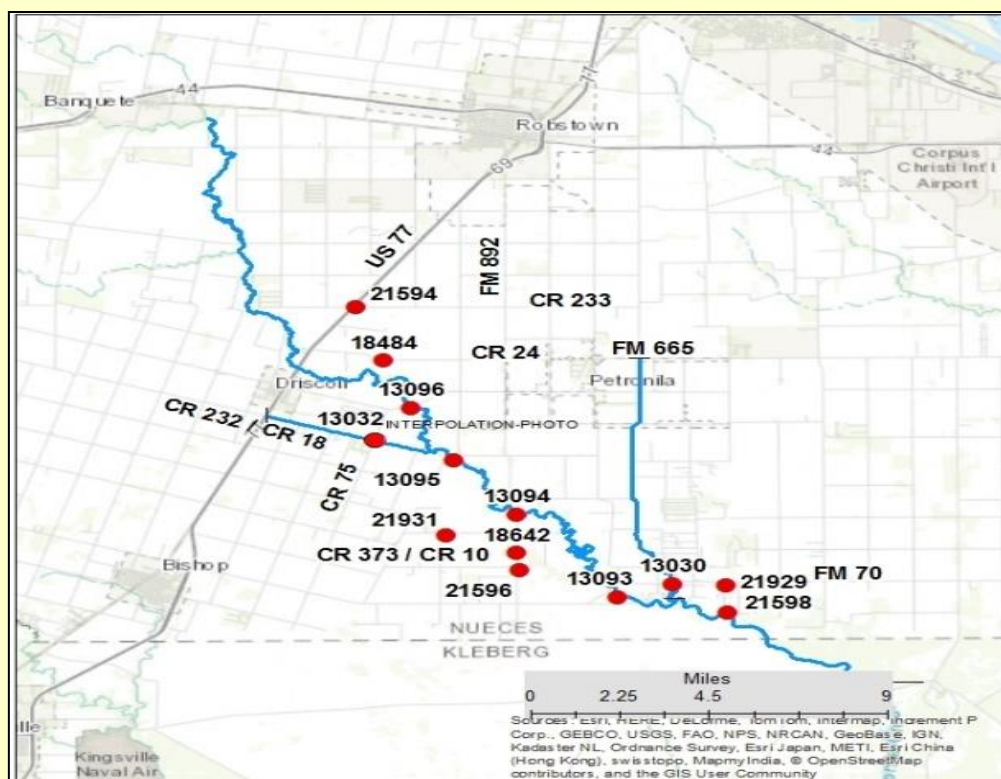
Site	E. coli	Ammonia	TKN	Total Phos	Nitrate	Nitrite	Chlorophyll a
13079	2400 MPN	0.2 mg/L	1.3 mg/L	0.83 mg/L	3.55 mg/L	0.10 mg/L	56 µg/L
22003	1400 MPN	0.2 mg/L	1.4 mg/L	0.78 mg/L	4.02 mg/L	0.06 mg/L	27 µg/L
22004	2400 MPN	0.4 mg/L	1.7 mg/L	0.44 mg/L	1.34 mg/L	0.08 mg/L	67 µg/L



Petronila Creek Tributary Study – Segment 2204

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 2019, NRA is conducting monthly monitoring at 13 sites. Four sites are located on the main stem of Petronila Creek (13096, 13095, 13094, and 13093 – data is in bold on the graph). (Disclaimer – Data has not been validated or input into the SWQMIS Database.)

Monitoring in the seventh quarter (March - May) is summarized below, Sampling in April and May were split out into multiple weeks due to storm events and quarterly sampling on the creek.



Site #	March (µmhos)	April (µmhos)	May (µmhos)
21594	11,600	3,360	22,800
18484	29,900	9,720	35,800
13032	33,100	6,110	20,500
13096	15,400	1,950	1,650
13095	17,200	2,270	2,360
21931	39,500	9,140	11,000
13094	19,200	1,110	2,820
18642	42,800	7,800	18,600
21596	26,500	3,950	7,850
13093	20,200	1,680	1,960
13030	35,500	2,990	6,670
21929	34,400	21,000	23,100
21598	38,200	8,870	23,400

Riparian Plants in the Petronila Creek Watershed

Petronila Creek, with its high conductivity water during baseflow conditions, presents a challenge to riparian vegetation that typically resides on the banks of freshwater streams. Although a number of native halotolerant plant species exist, few native species are capable of withstanding the erosive forces of high flow events. Trees commonly observed include huisache (*Vachellia farnesiana*), honey mesquite (*Prosopis glandulosa*), and the invasive salt cedar (*Tamarix*). Commonly observed grasses include native species such as gulf cordgrass (*Spartina spartinae*) and saltgrass (*Distichlis spicata*) as well as non-native bluestem species (KR bluestem *Bothriochloa ischaemum* and Kleberg bluestem *Dichanthium annulatum*) and invasive species such as Carrizo cane (*Arundo donax*) that resides near a few of the bridge crossings.



In the foreground, native Yellow Dock (*Rumex crispus*) is commonly observed growing adjacent to the brackish waters of the tributaries of Petronila Creek. Docks and sorrels are a genus of about 200 species in the buckwheat family Polygonacea. *Rumex* species are used as food plants by the larvae of butterflies. Black caterpillars were observed feeding on them during our March site visit. We'll include more information about riparian plants of Petronila Creek in future reports.

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. Nueces River Authority 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.

Los Olmos Creek

Los Olmos Creek runs 71 miles from southern Duval County to its confluence with Laguna Salada, and inlet of Baffin Bay. The creek is a new site (Station ID 13034) for FY2019, located at the bridge crossing at US 77 near Riviera. NRA field staff visited the site on April 2nd during a relatively cool (67°F) and cloudy day. Dissolved oxygen levels were on the high side at 13.6 mg/L and 160.8% dissolved oxygen saturation. Supersaturation of dissolved oxygen (above 100% saturation) can occur due to photosynthesis activity, rapid aeration, and rapidly rising water temperatures. The water column at the site is very shallow (2 feet) and combined with nutrient loads, can result in supersaturation during the day. (Disclaimer – Data has not been validated or input into the SWQMIS Database.)

Site	E. coli	Ammonia	TKN	Total Phos	Nitrate	Nitrite	Chlorophyll a
13034	1700 MPN	0.15 mg/L	4.3 mg/L	0.18 mg/L	<0.025 mg/L	0.06 mg/L	79.2 µg/L



Oso Bay & Oso Creek TMDL and IP – Segments 2485 and 2485A

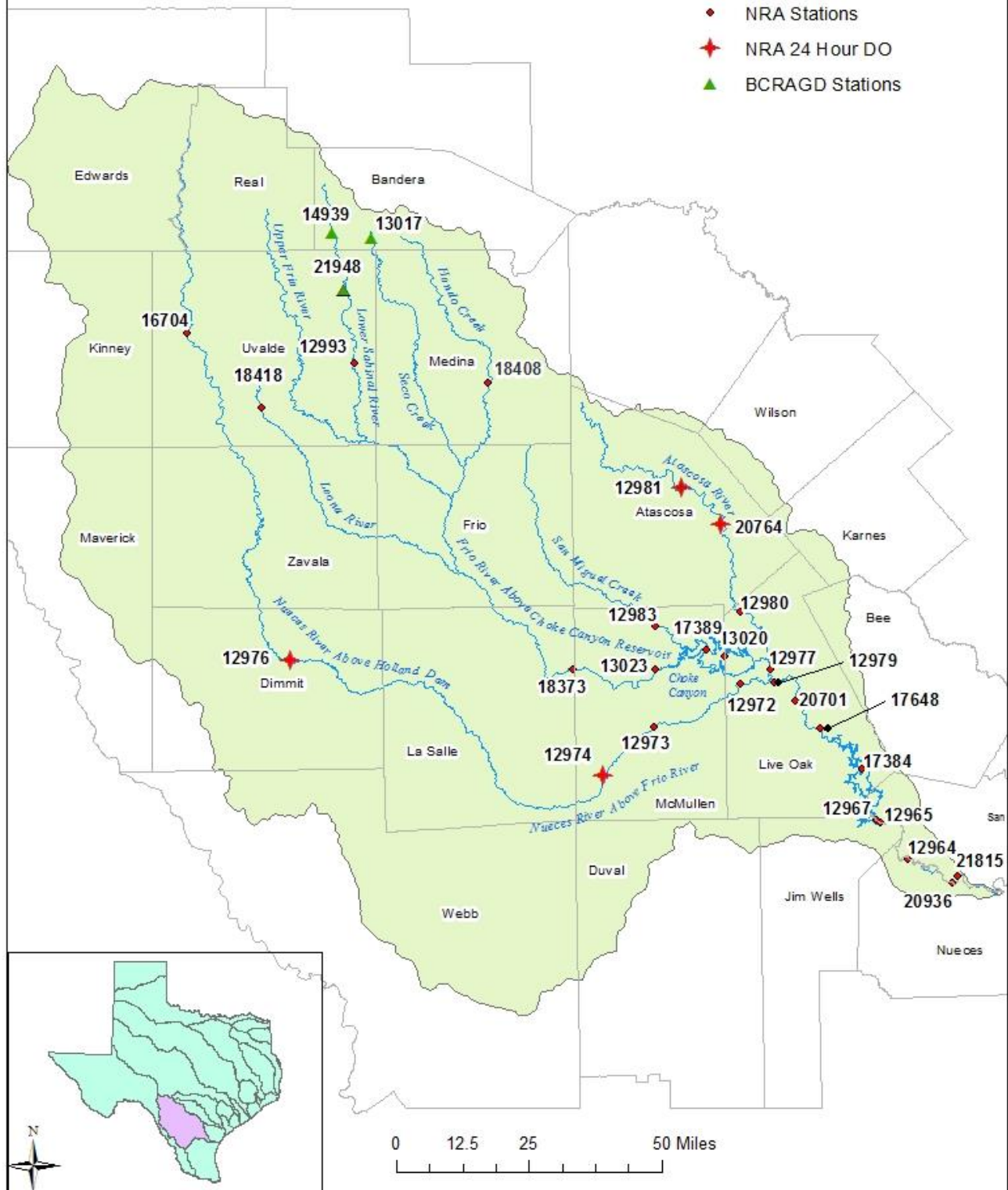
Since 2002, Oso Creek, which flows 28 miles to the confluence of Oso Bay in Nueces County has been identified as being impaired for having bacteria concentrations that exceed state water quality standards. Since 2003, the TCEQ and the TSSWCB have conducted numerous studies of bacteria sources and quantities in the Oso Creek watershed. Based on the results of those studies, a Total Maximum Daily Load (TMDL) and an Implementation Plan (IP) for Oso Creek is being developed to address the contact recreation impairment. Staff from the Center for Coastal Studies at Texas A&M University – Corpus Christi and the Coastal Bend Bays Foundation is disseminating information to the public.

You can learn more about the Oso Bay TMDL and/or the Oso Creek Watershed Public Outreach at the TCEQ project page: <http://www.tceq.texas.gov/waterquality/tmdl/67-osobaybacteria.html>;

Nueces River Basin

NRA Monitoring Stations

- ◆ NRA Stations
- ◆ NRA 24 Hour DO
- ▲ BCRAGD Stations



San Antonio-Nueces Coastal Basin

• NRA Routine Stations



Nueces-Rio Grande Coastal Basin

Monitoring Stations

• NRA Routine Stations

