# Nueces River Authority Steering Committee and Stakeholder Update #8 (8<sup>th</sup> Quarter of FY 2018-2019) June - August 2019

### August 28th, 2019

### **Routine Clean Rivers Program Monitoring**

It was a busy Summer for field staff from the Nueces River Authority. In addition to quarterly water quality monitoring at 43 river/reservoir and coastal stations, flowing water on the Nueces River allowed for numerous 24-hour dissolved oxygen measurements. 24 Hour dissolved oxygen monitoring events occurred on the Nueces and Atascosa rivers; DO parameters were all in the healthy range. NRA staff also assisted TCEQ and TPWD with Aquatic Life Monitoring (ALM) of the Middle Nueces River near Tilden and upstream of Three Rivers to assess fish and benthic macroinvertebrate communities.



### **End of the Fiscal Year**

August 2019 marks the end of the biennial fiscal year (FY) for the Clean Rivers Program. Next quarter, NRA staff will add a couple of new monitoring stations. One will be a tidal station located in the San Martin Lake System off the Brownsville Ship Channel down in the Lower Rio Grande Valley. The other site is also a tidal station located off Ocean Drive over Oso Bay. Our 2019 Program Update is completed and available at: <u>https://www.nueces-ra.org/CP/CRP/pdfs/2019\_BHR.pdf</u>

# 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 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.





The Mission River at US 77 in Refugio (Station 12944) was monitored in early June. Water quality parameters were all in the healthy range. Bacteria concentrations were low, and the riparian vegetation looked very healthy.

### **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.



### Lake Levels

The lack of significant rainfall in the Nueces River Watershed this Summer had river levels quickly receding since the June flows. Combined lake levels for the reservoir system dropped from 67.2% to 60.9% by the end of the quarter. For the Daily Reservoir System and Pass-Thru Status Report, please visit the website <a href="https://www.nueces-ra.org/CP/CITY/passthru/index.php">https://www.nueces-ra.org/CP/CITY/passthru/index.php</a>.





### **Nueces River Preservation Association Cleanup**

The 8<sup>th</sup> Annual Nueces Preservation Association Cleanup along the Lower Nueces River (Segment 2102 – Nueces River below Lake Corpus Christi) was held on July 13<sup>th</sup> at Hazel Bazemore Park. Volunteers in boats, kayaks, and canoes took to the water to clean up that stretch of river. Justin Morin and his group of volunteers did a great job organizing the event. Staff from Nueces River Authority was in attendance as well and enjoyed doing their part to help keep the river clean. For more details and pictures, check out their Facebook page.



### **The Sabinal River**

The Sabinal River flows 75 miles from its source in Bandera County to the confluence with the Frio River in Uvalde County. The river is comprised of two segments. The Upper Sabinal (Segment 2111) and the Lower Sabinal (Segment 2110). The Lower Sabinal River was first listed in the Texas Integrated Report and 303(d) List for elevated nitrate levels in the 2000 Assessment. The impairment resulted in a TMDL and Implementation Plan that called for the construction of a new wastewater treatment plant (WWTP) for the City of Sabinal. The new WWTP was in operation by July 2011. Nitrate levels declined due to the new facility and the status of the water body was changed from "not supporting" to "of concern" by the 2014 Assessment.



Lately, water quality has been the topic of discussion with some residents of the City of Sabinal after a series of elevated bacteria concentrations at the sampling location (Station ID 12993) at the bridge crossing at US 90 in Sabinal. Residents are concerned about excessive nutrients and the source of bacteria following a reading of more than 800 colony forming units/100mL (the standard is 126 cfu/100mL) in May. Elevated bacteria levels are associated with an increased risk of gastrointestinal illness. At the request of the residents of Sabinal, NRA will be conducting some additional water quality monitoring in the river.

# Middle Nueces River Aquatic Life Monitoring (ALM)

Aquatic Life Monitoring (ALM) is a type of monitoring that's used to derive baseline data on fish communities, benthic macroinvertebrate communities, and physical habitat to determine if designated or presumed aquatic life uses are being attained. An ALM sampling event occurred on the Middle Nueces River (Segment 2104) in late July/early August to address the impairements for fish and benthic macroinvertebrate communities as listed in the Texas Intergrated Report. Nueces Authority Field Staff assisted TCEQs Surface Water Quality Monitoring (SWQM) team and TPWD in conducting the ALM at the crossing of FM 1042 (Station 12972 - Simmons Crossing) and SH-16 South of Tilden (Station 12973). Activities included fish and aquatic invertebrate

collection, habitat assessment, 24-hour dissolved oxygen data collection, and water chemistry analysis. This effort is the second of two ALM monitoring efforts that were scheduled to be conducted on the segment for assessment purposes.



### Algae in the Middle Nueces River

While out conducting the ALM, Nueces River Authority field staff observed an interesting algae specimen along the banks of the Nueces River at FM 1042 (Station 12972). A sample was obtained and taken to the Center for Coastal Studies at Texas A&M-CC for identification. Dr. Zimba identified the algae to be a filamentous cyanobacteria called *Phormidium* (a blue green algae). Dr. Zimba took a few photos of the cyanobacteria under the microscope to show the filaments and sheath. *Phormidium* is found in streams and rivers of all sorts of water quality.



# 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 July 16<sup>th</sup> approximately 2 weeks following a major flooding event. Evidence of the flood was apparent at station 22003. (Disclaimer – Data has not been validated or input into the SWQMIS Database.)

Site	E. coli	Ammonia	TKN	Total Phos	Nitrate	Nitrite
13079	170 MPN	< 0.1 mg/L	1.5 mg/L	0.52 mg/L	2.38 mg/L	0.06 mg/L
22003	2,200 MPN	0.26 mg/L	2.1 mg/L	0.23 mg/L	0.03 mg/L	0.02 mg/L
22004	130 MPN	0.2 mg/L	1.6 mg/L	0.19 mg/L	0.64 mg/L	0.11 mg/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 eighth quarter (June - August) is summarized below:



Site #	June (µmhos)	July (µmhos)	August (µmhos)	
21594	<b>21594</b> 5,830		3,520	
18484	<b>18484</b> 24,800		34,700	
13032	4,870	dry	dry	
13096	4,840	20,000	23,300	
13095	5,740	20,800	23,100	
21931	11,700	dry	dry	
13094	6,600	21,600	24,400	
18642	11,300	dry	dry	
21596	3,150	dry	8,160	
13093	2,800	8,260	16,700	
13030	5,000	18,100	33,100	
21929	35,600	41,700	65,800	
21598	30,200	64,000	67,300	

## **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 (Segment 2492)

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 July 16<sup>th</sup>. The creek lives up to its name (Salty Lagoon) with salinity values around the 60 PSU range. Nutrient and bacteria concentrations were very high for this limited circulation and shallow waterbody. (Disclaimer – Data has not been validated or input into the SWQMIS Database.)

Site	E. coli	Ammonia	TKN	<b>Total Phos</b>	Nitrate	Nitrite
13034	>2,400 MPN	0.2 mg/L	11.0 mg/L	0.34mg/L	0.13 mg/L	<0.02 mg/L



#### **Baffin Bay Riparian Evaluation**

NRA's *Riparian Evaluation Report: Tributaries of Baffin Bay* is in its final stage of completion. The work was funded using Federal and State dollars through the Coastal Bend Bays and Estuaries Program's Water and Sediment Quality Implementation Team (WSQIT) grant process. The report identifies areas of opportunity for riparian improvements that could benefit water quality in Baffin Bay. A total of 385 riparian stream miles were evaluated using the Bull's-Eye Riparian Evaluation Method. Due to limited accessibility in portions of the watershed, approximately half of the surveys were evaluated by helicopter.





