



Nueces River Authority
Steering Committee and Stakeholder Update #4
(4th Quarter of FY 2016-17)
June - August 2016



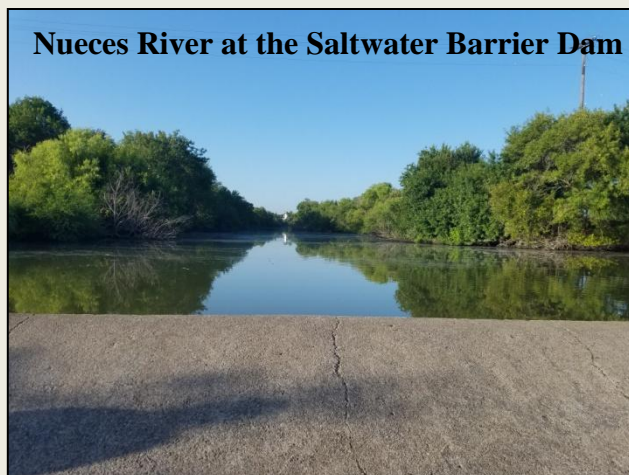
September 22th, 2016

Routine Clean Rivers Program (CRP) Monitoring

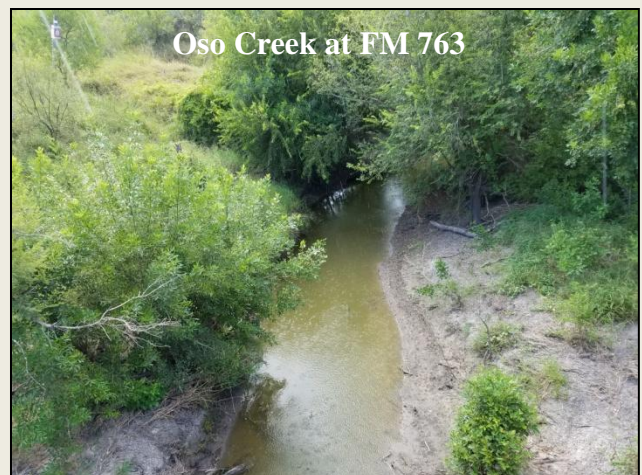
The Nueces River Authority (NRA) conducted routine quarterly water quality monitoring at 9 coastal stations and 37 river stations. No 24 hour dissolved oxygen monitoring was conducted due to flooding at the stations. Monitoring on Oso Bay (station ID 13440) preceded a spectacular water spout by approximately ten minutes. The image (below, right) was courtesy of the Corpus Christi Police Department Blotter.



NRA added a number of new quarterly monitoring stations in the Nueces River Basin in Q4. Sites added include: the Nueces River at the Saltwater Barrier Dam (Station ID 21815), Oso Creek at FM-763 (Station ID 13029), Sabinal River at I-90 (Station ID 12993), Seco Creek at CR-111 (Station ID 13013), and the Atascosa River at FM-541 (Station 20764). Funding to monitor the additional sites was provided by the TCEQ Regional Office in Austin. Monitoring will be funded through the end of NRA's funding cycle which ends in August 2017.

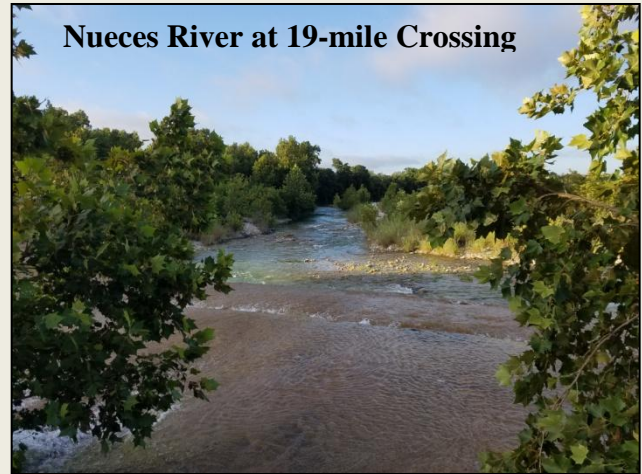


Nueces River at the Saltwater Barrier Dam



Oso Creek at FM 763

NRA resumed quarterly sampling on the Nueces River at Barksdale in the Upper Basin (Station ID 13005). Station 13005 was discontinued in fiscal year 2015 in favor of a historical site downstream at the 19-mile Crossing (Station ID 17604). Both sites are being monitored now. Specific conductance was 425 μ mhos in Barksdale and 436 μ mhos at the 19-mile crossing. Bacteria concentrations were 4cfu/100mL and 51 cfu/100mL respectively; the standard there is 126 cfu/mL.



Water appearance on the Sabinal River (Station ID 12993) below the bridge at I-90 was less than inviting due to an abundance of floating algae. Dissolved oxygen values were a little low (3.5mg/L, 42.0% saturation). A man walking his dog nearby mentioned that the alga had been “pretty bad recently”. Floating algae was not observed on a subsequent trip out in late August. Bacteria concentrations were a little high though (308 cfu/100mL); the standard there is 126 cfu/100mL.

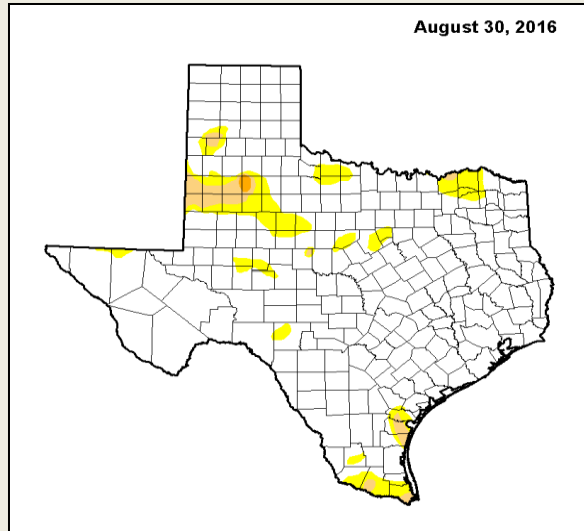
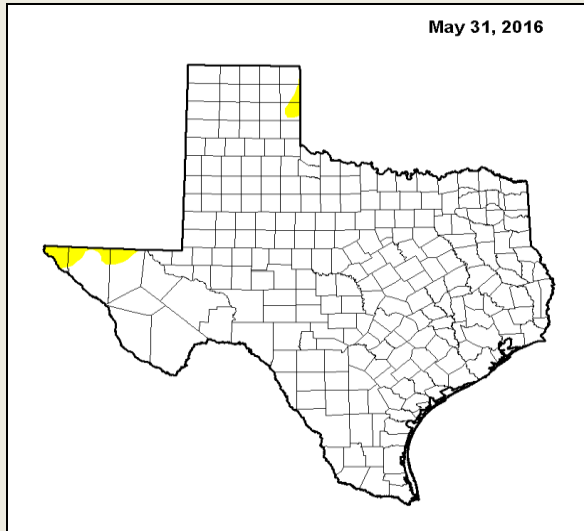


NRA field staff also picked up a sampling station on Seco Creek at County Road 111 (Station ID 13013). The clear water creek station, located down a long caliche road, is just downstream of the USGS stream gauge (Station 08201500). Water temperature was on the warm side compared with other hill country spring fed creeks (31.5 °C/88.7°F). Specific conductance was 402 μ mhos. The bacteria concentration was 99 cfu/mL; the standard there in 126cfu/mL.

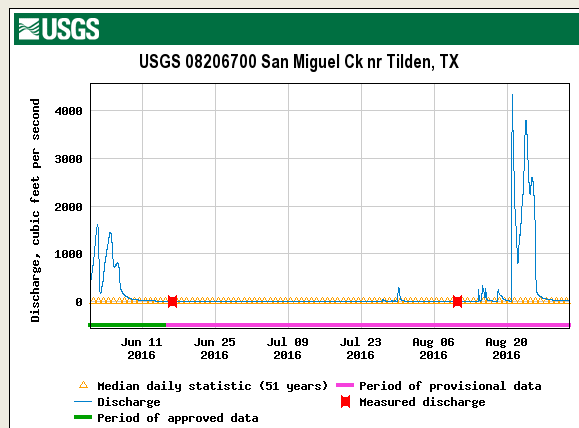
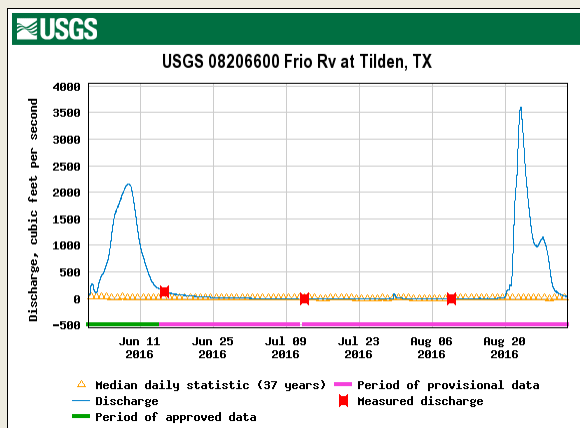
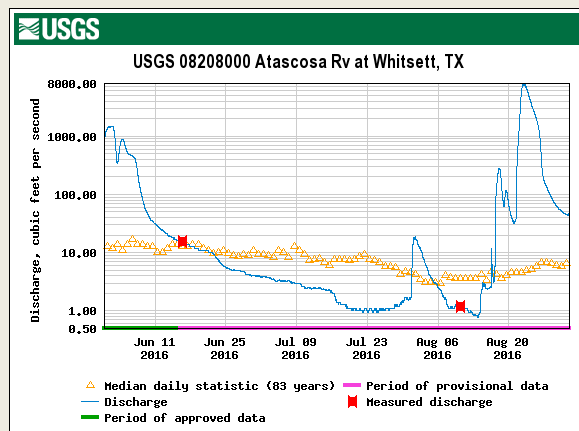
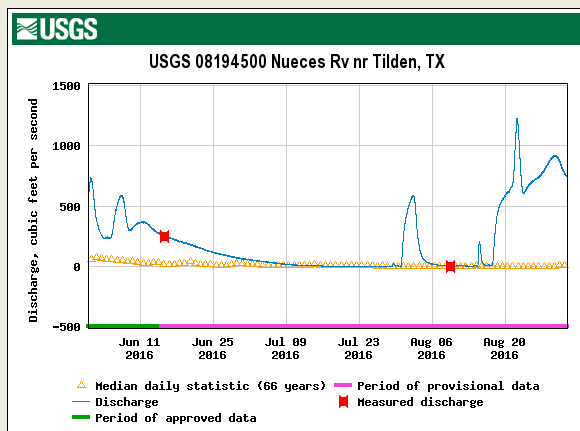


Drought Status in the Nueces River Basin

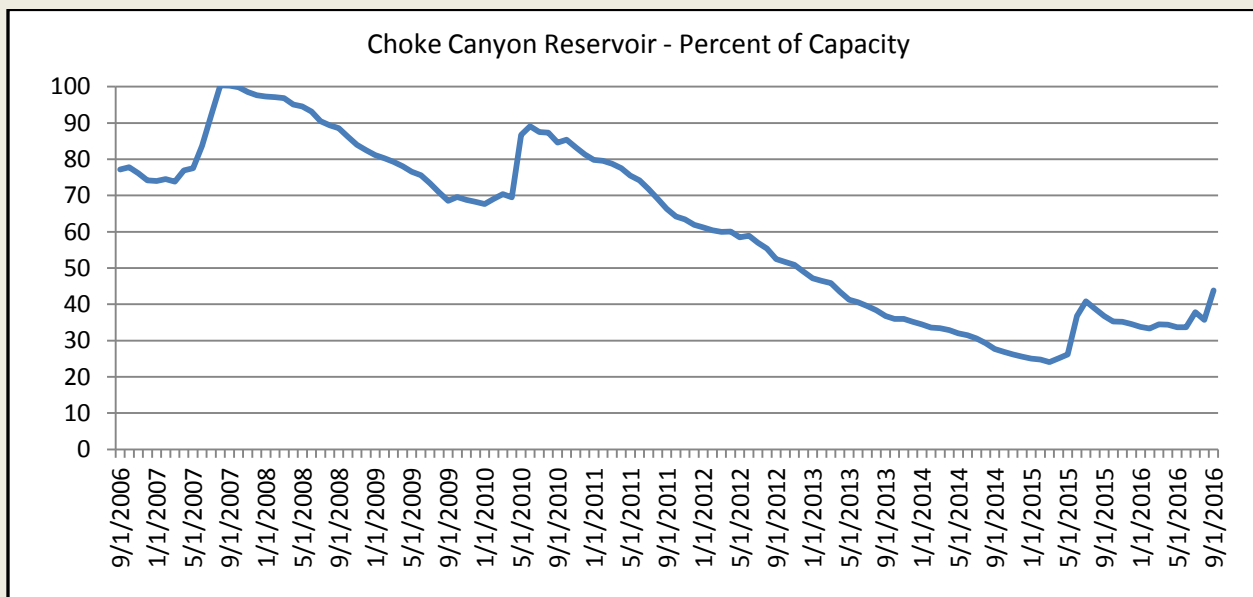
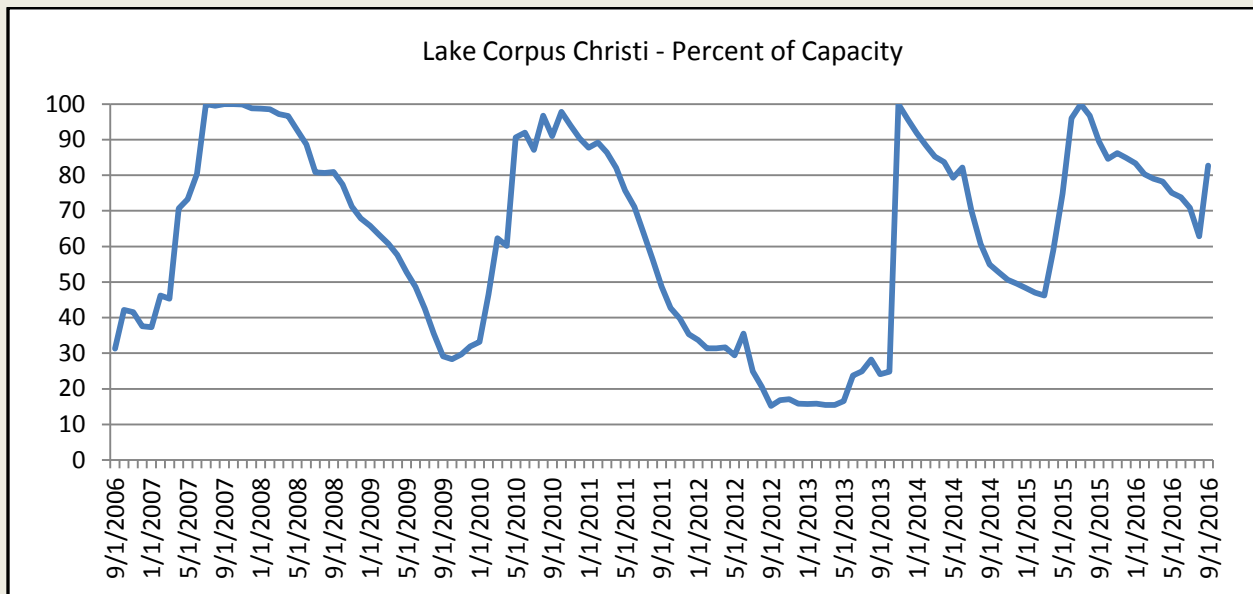
Much of the Nueces River Basin and adjoining basins were rapidly returning to drought conditions in the fourth quarter (June – August 2016) during the first half of the quarter, however, the rains did come. The drought index (The US Drought Monitor for Texas) shows the location of drought conditions in Texas compared with the beginning of the quarter.



A significant precipitation event in the Nueces River Watershed occurred in August sending river levels rising. The Atascosa River, which flows into Lake Corpus Christi, recorded the greatest flow rates (around 8,000 cfs).

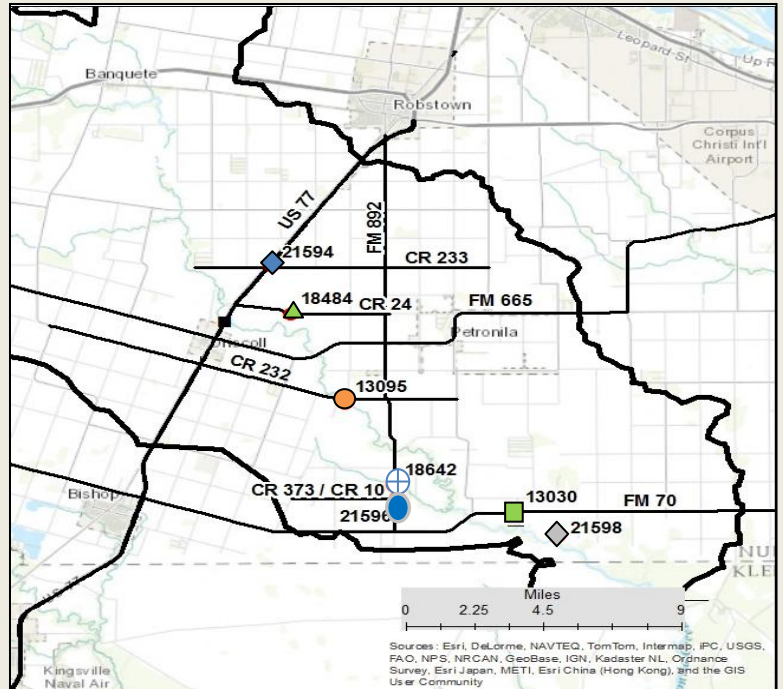


Lake levels responded to the August rain event with an increase in storage of approximately 10% from 44.6% to 54.2% of combined capacity (Choke Canyon + Lake Corpus Christi). Total inflows to the Reservoir System were 114,371 acre-feet in August. For the Daily Reservoir System and Pass-Thru Status Report, please visit the website <https://www.nueces-ra.org/CP/CITY/passthru/index.php>.

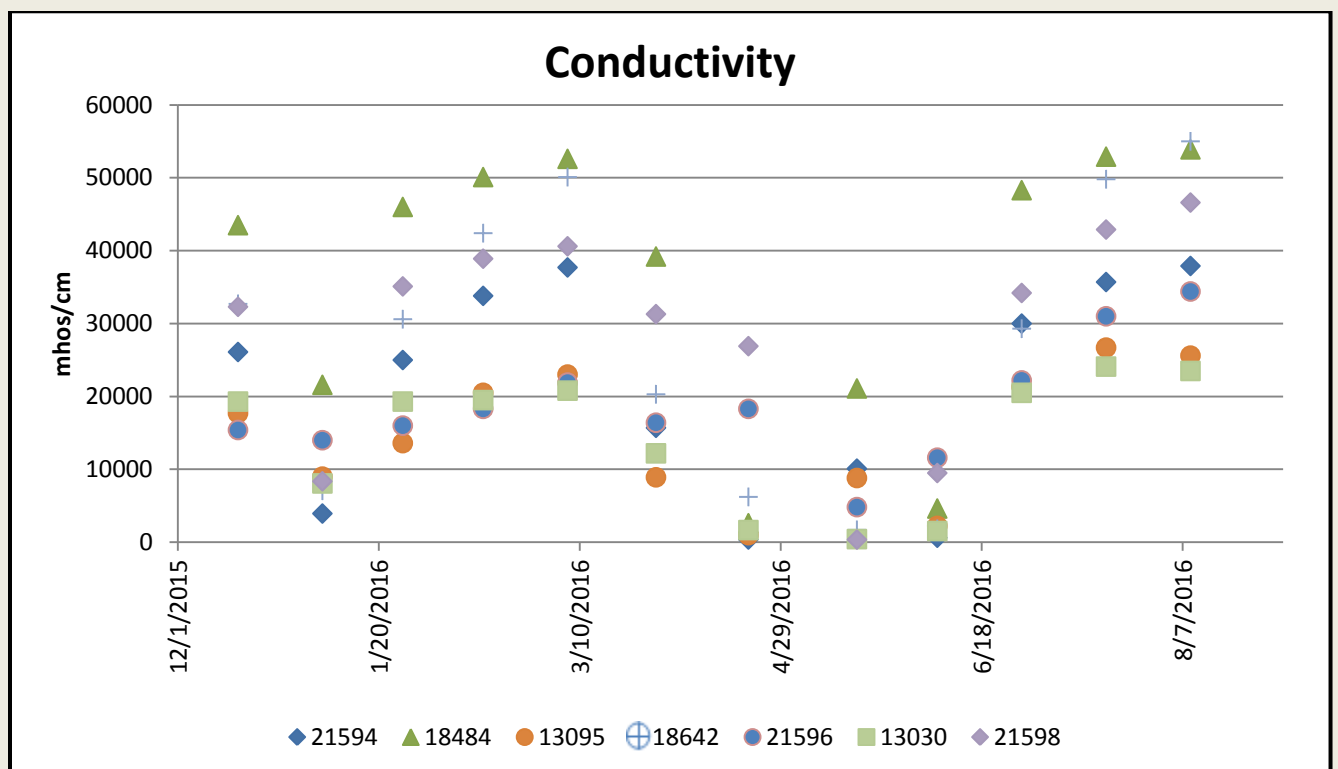


Petronila Creek Tributary Study

Petronila Creek (Segment 2204) was listed on the 2000 Texas 303(d) list of impaired water bodies for exceeding the standards for chloride (1,500 mg/l), sulfate (500 mg/l), and total dissolved solids (TDS) (4,000 mg/l). In support of the Implementation Plan (I-Plan) for Petronila Creek, NRA began a monthly monitoring project back in September 2014 that examines the amount of chloride, sulfate, and TDS present in surface waters of the creek and many of its tributaries. Field investigations identified that excessive chloride, sulfate, and TDS concentrations occur in the downstream section of the creek, southeast of US 77, in an area where man-made nonpoint sources such as produced water, brine pits, and brine injection wells, related to oil and gas production, are most numerous.



Phase 2 of the Petronila Creek Tributary Study, which analyzes chloride, sulfate, and TDS at seven sites, was completed in August 2016. Specific Conductance trends over the course of the yearlong study are summarized in the chart below.



Descriptions of the study sites are included below. Pictures are upstream (right) and downstream (left).

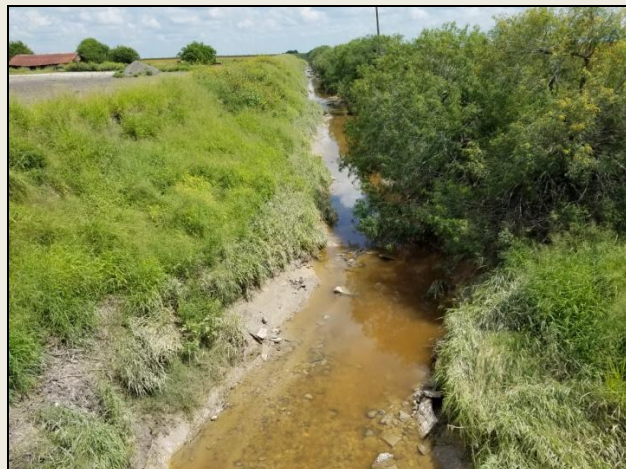
Station 21594

Station 21594 is a tributary to Petronila Creek located just east of US77 and north of Driscoll on County Road 233. The site is bordered by farmland. Water depth is approximately 0.2m during low flow conditions and has a muddy bottom. Colorful algal mats have been observed just upstream of the crossing on numerous occasions. Riparian vegetation is restricted to small herbaceous plants and grasses along the straightened and channelized drainage.



Station 18484

Station 18484 is a tributary to Petronila Creek located just east of US77 and north of Driscoll on County Road 24. The site is approximately 2 miles down an unpaved road which is bordered by farmland and a farmhouse. Water depth is approximately 0.1m during low flow conditions and has a muddy/gravel bottom. Water color at this site during low flow conditions is orange/brown but with low turbidity. Riparian vegetation is limited to the area adjacent to the drainage and includes grasses along with mesquite and huisache.



Station 13095

Station 13095 is located at the bridge crossing at Petronila Creek on County Road 232. The creek is narrow and winding in this area and subject to flooding. Water depth at this site is approximately 0.3m during low flow conditions with a firm but muddy bottom. The riparian vegetation consists mainly of tall grasses and huisache trees. This location is also used for illegal dumping.



Station 18642

Station 18642 is a tributary to Petronila Creek located at a bridge crossing off FM 892 just south of the crossing of Petronila Creek on the same road. The site is recognizable due to a large stand of river cane on the upstream side of the bridge crossing; downstream, a scoured out pool exists. Water depth under the bridge is approximately 0.2m and rocky (medium to large limestone rocks). This site is commonly used as a dumping ground for carcasses and household items.



Station 21596

Station 21596 is a tributary to Petronila Creek located at a bridge crossing off FM 892 just south of Station 18642. There is a small pool located just downstream of the bridge. The stream channel under the bridge is lined with brick that has some erosion on the downstream portion. Upstream, shoal grass (*Halodule wrightii*) and surface floating algae proliferates during low flow conditions. Riparian vegetation consists of grasses, mesquite, retama, huisache and herbaceous plants.



Station 13030

Station 13030 is a tributary to Petronila Creek located on FM 70 just east of the crossing at Petronila Creek. This site is a fairly dangerous site to conduct bridge sampling so field staff sample from the base of the bridge. Bottom sediments are fine silts. Water depth is approximately 0.3m just downstream from the base of the bridge. Riparian vegetations include river cane, retama, and grasses.



Station 21598

Station 21598 is a tributary to Petronila Creek located on FM 70. NRA staff travel approximately 1 mile from FM 70 on a dirt road that is owned and maintained by the City of Corpus Christi. Monitoring takes place just upstream from a concrete-lined ditch relief culvert. The confluence of the tributary and Petronila Creek is approximately 30m downstream of the culvert. Water depth is approximately 0.1m during low flow conditions. NRA field staff has documented shoal grass (*Halodule wrightii*) in the streambed just upstream from the grate (bottom left photo). Riparian vegetation consists of grasses, herbaceous vegetation and salt cedar (downstream of the culvert).



Arroyo Colorado Watershed Partnership

NRA attended the Arroyo Colorado Watershed Partnership Steering Committee meeting on June 23rd. The group has been updating the Watershed Protection Plan for the Arroyo Colorado and was soliciting feedback from the group. For more information please e-mail Jaime Flores at jjflores@ag.tamu.edu.

Oso Bay Total Maximum Daily Load

Since 2002, Oso Creek (Segment 2485A), 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 studies of bacteria sources and quantities in the Oso Creek



watershed. Based on the results of those studies, a TMDL 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.

The Implementation Plan (I-Plan) Coordination Committee Meeting was held on July 28th at the South Texas Botanical Gardens and Nature Center. The community led stakeholder group convened to discuss the creation of the I-Plan. 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>:

Riparian Assessment of Oso Creek

In Support of the I-Plan, Nueces River Authority began conducting a riparian evaluation to determine the state of the vegetated land adjacent to the creek. Riparian buffers are well documented as being beneficial to the function and quality of streams by allowing nutrients and stream energy to be absorbed. Benefits can include a reduction of erosion and pathogen concentrations while providing shade that improves dissolved oxygen concentrations for aquatic life. The wider and more continuous a functional riparian area is, the better it has been shown to be for water quality.

Riparian conditions along Oso Creek (2485A), West Oso Creek (2485D) and two unnamed tributaries were observed by helicopter on July 19th, 2016. The aerial survey identified the present state of the riparian corridor, potential sites to conduct ground level evaluations and identify areas where riparian areas could possibly be expanded. NRA will partner with the Coastal Bend Regional Stream Team to monitor up to three, ground level, visual assessment sites on a regular basis.



Oso Creek Riparian Workshops

NRA hosted 2 riparian workshops in Corpus Christi in August. Mateo Scoggins, from the City of Austin, Watershed Protection Department, gave a talk on urban riparian buffers on August 25th. Steven Nelle, a noted riparian expert, gave a talk for rural interests on the 30th. A new edition of the field guide, which includes an owner's manual, is available for purchase and is great for the botanically inclined. Visit the site remarkableriparian.org for more info.

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

The final version of the Lower Nueces River WPP was completed in April, 2016. For those that haven't yet read it, it is available at <http://www.nuecesriverpartnership.org/pubs.php>.

The Nueces River watershed Partnership Steering Committee Business Meeting was held on August 31st at the Hilltop Community Center located at 11425 Leopard St. in Corpus Christi. The meetings will be conducted on a quarterly basis going forward. Topics of discussion included Water quality Management Plans

(WQMPs), the purchase of properties along the river, the creation of Municipal Utility districts (MUD) and Public Utility Districts (PUD), and applying for Nonpoint Source (NPS) grants to connect homes along the river to existing wastewater mains.

OSSF Repair and Replacement

TCEQ selected to fund an OSSF inspection and replacement project that NRA submitted in response to their FY 2016 319(h) NPS RGA. The project will take place between November 2016 and October 2019. It will provide for up to 100 inspections and up to 10 replacements. An OSSF workshop, funded under NRA's current contract with TSSWCB, for homeowner is scheduled for October 29, 2016. Participants at this workshop will be eligible to sign up for free inspections. Ms. Freund is also looking for volunteers to serve on a workgroup to develop the eligibility criteria to be considered for the OSSF replacements.

Solid Waste Transfer Stations

The steering committee believes that implementation of the transfer stations would go a long way in reducing the amount of illegally dumped trash and debris.

Pet Waste Collection Stations

The CBBEP selected to fund this project that NRA submitted for their FY 2017 Workplan. The project will fund the installation of 5 stations and supplies for one year.

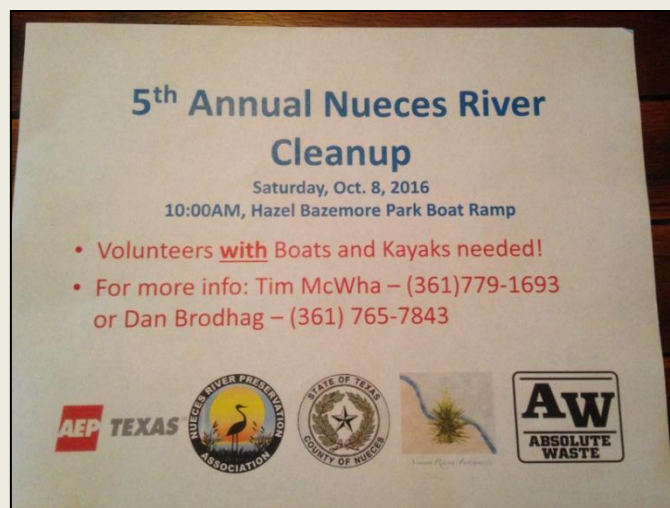
Large Debris Removal

The CBBEP funded the large debris removal management measure that was completed in April 2016. Ten partially submerged boats and one collapsed pier were removed from the river by J. M. Davidson, Inc. (JMD).

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

Volunteer Clean ups

The Nueces River Preservation Association will be hosting the 5th annual Nueces River Clean up on October 8, 2016. The clean up takes place on the Lower Nueces River at Hazel Bazemore Park. Volunteers are encouraged to bring kayaks and/or boats as much of the trash is located in the river or along the banks outside of the confines of the park. Up2U bags will be provided along with lunch for volunteers. Gloves are also recommended.



Up2U

Volunteers along the Frio River near Concan love the river and it shows. They removed an incredible amount of trash from the river using the Up2U bags! Pictures were found on the Uvalde County River Cleanup's Facebook page. A big thank you goes out to all the volunteers that participated in these clean ups.



Nueces River Basin

NRA Monitoring Stations

◆ NRA Stations



San Antonio-Nueces Coastal Basin



Nueces-Rio Grande Coastal Basin

Monitoring Stations

◆ NRA

