

# BASIN HIGHLIGHTS REPORT

# 2021

For the Upper Portion of the Neches River Basin  
Angelina & Neches River Authority



ANGELINA & NECHES RIVER AUTHORITY



Cover Photos:  
Front: Biloxi Creek at CR 216  
Back: Angelina River at FM 1798

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10538-West Mud Creek @ FM 3052



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# INTRODUCTION

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## About the Basin Highlights Report

The 2021 Basin Highlights Report is intended to provide a brief overview of the previous year's events and ongoing programs in the upper and middle portions of the Neches River Basin that are relevant to the Clean Rivers Program (CRP). Activities described in this report include the surface water quality monitoring activities of the Angelina & Neches River Authority (ANRA), events that could affect water quality, and special projects in the basin. Additionally, the report identifies impaired water bodies in the basin, as well as public education and outreach efforts.

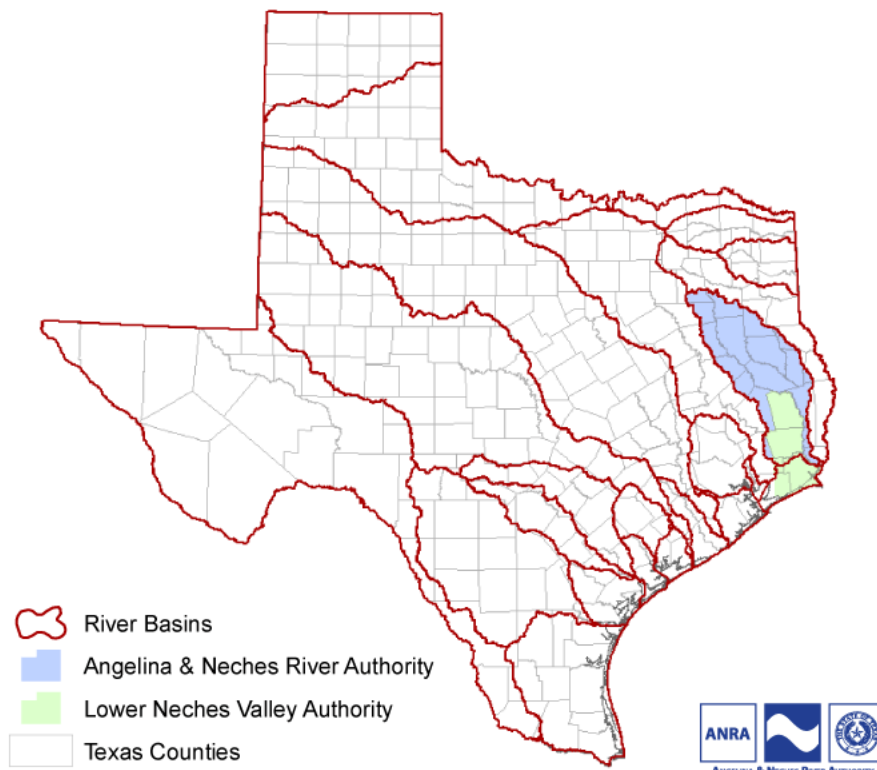
## About the Clean Rivers Program

The mission of the Clean Rivers Program (CRP) is to maintain and improve the quality of water within each river basin in Texas through an ongoing partnership involving the Texas Commission on Environmental Quality (TCEQ), river authorities, other agencies, regional entities, local governments, industries, and citizens. The Clean Rivers Program utilizes a watershed management approach to identify and evaluate water quality issues. CRP funds for the Neches River Basin are shared equally among ANRA and the Lower Neches Valley Authority (LNVA). Those funds are used primarily to provide quality-assured data to TCEQ for use in water quality decision making, to identify and evaluate water quality issues, promote cooperative watershed planning, and inform and engage stakeholders.

## About the Angelina & Neches River Authority

The Angelina & Neches River Authority (ANRA) was created in 1935 by the Texas legislature as a conservation and reclamation district. ANRA's office is located in Lufkin, Texas. ANRA's territorial jurisdiction consists of 8,500 square miles that lie wholly or in part of the following counties: Van Zandt, Smith, Henderson, Newton, Cherokee, Anderson, Rusk, Houston, Nacogdoches, San Augustine, Shelby, Angelina, Trinity, Sabine, Polk, Jasper, and Orange.

The Angelina & Neches River Authority has the responsibility for monitoring, protecting, and enhancing water resources in the Neches River Basin. ANRA's functions in the basin include water quality monitoring, drinking water and wastewater analysis, on-site sewage facility permitting, water and wastewater utilities, water resources development, regional wastewater/composting facilities, and other regional planning efforts.



# THIS YEAR'S HIGHLIGHTS

## Effects of the COVID 19 Pandemic

In early 2020, a Public Health Emergency was declared by the Trump Administration in response to the COVID-19 outbreak. The outbreak was eventually declared a pandemic by mid-March and was also declared a statewide emergency for the State of Texas at this time. This brought forth travel bans, stay-at-home orders, quarantines, mandatory facial coverings, and a host of other mandates and precautions.

Due to these new requirements, there was a change in the way that daily activities were conducted, nationwide. For the Clean Rivers Program, there was a direct affect on surface water quality monitoring, public meetings, and many other activities, including public education and outreach. ANRA's CRP field staff used caution when conducting surface water quality monitoring by maintaining social distance, wearing masks in public, taking separate vehicles when necessary, limiting stops at public places while in the field, and by practicing good hygiene. ANRA also established a pre-screening station at the entrance to their Central Office Facilities in which all employees underwent a health screening each morning prior to entry into to the facility. Public, in-person meetings shifted to virtual meetings using online platforms to avoid large groups and potential exposure to the virus. ANRA hosted it's annual Basin Steering Committee Meeting on July 22, 2020, via Webex, an online webconferencing/videoconferencing tool and has plans to host the 2021 Steering Committee Meeting online as well.

By March of 2021, one year after the pandemic was declared, businesses in Texas were allowed to reopen at 100% capacity, and the mask mandate was lifted. Precautions are still being taken to ensure the safety of ANRA personnel and stakeholders. Meetings are still held via online platforms, but are likely to shift back to being held in-person towards the end of 2021.

## COVID-19 Cases and Fatalities by County (as of 04/29/2021 at 10:45 am)

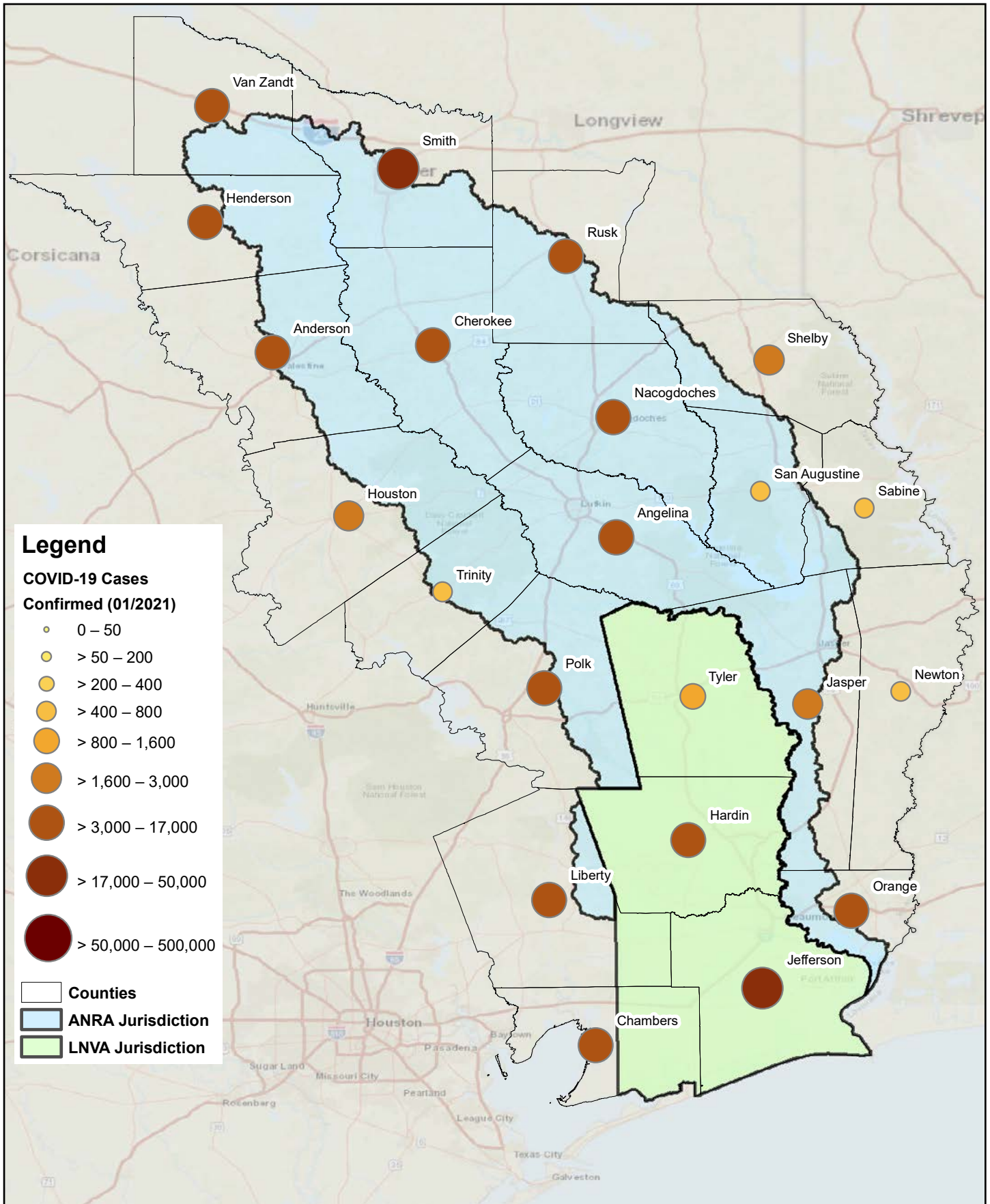
County	Confirmed Cases	Probable Cases	Fatalities
Anderson	4,732	1,342	118
Angelina	4,882	3,612	279
Cherokee	2,252	1,901	138
Hardin	2,660	2,987	110
Henderson	3,885	1,933	184
Houston	902	728	52
Jasper	979	1,479	88
Jefferson	19,547	0	420
Liberty	5,894	1,817	180
Nacogdoches	3,375	1,117	168
Newton	300	318	35
Orange	4,104	4,296	146
Polk	1,459	1,759	112
Rusk	2,217	1,713	107
Sabine	167	351	44
San Augustine	330	238	32
Shelby	931	741	67
Smith	11,691	8,387	465
Trinity	523	221	25
Tyler	596	716	38
Van Zandt	2,641	1,597	117
<b>Total</b>	<b>2,319,893</b>	<b>397,229</b>	<b>46,281</b>

Source: Texas Department of State Health Services



ANRA Daily Health Screening at Central Office Facilities

### Confirmed COVID-19 Cases By County(as of 04/2021)

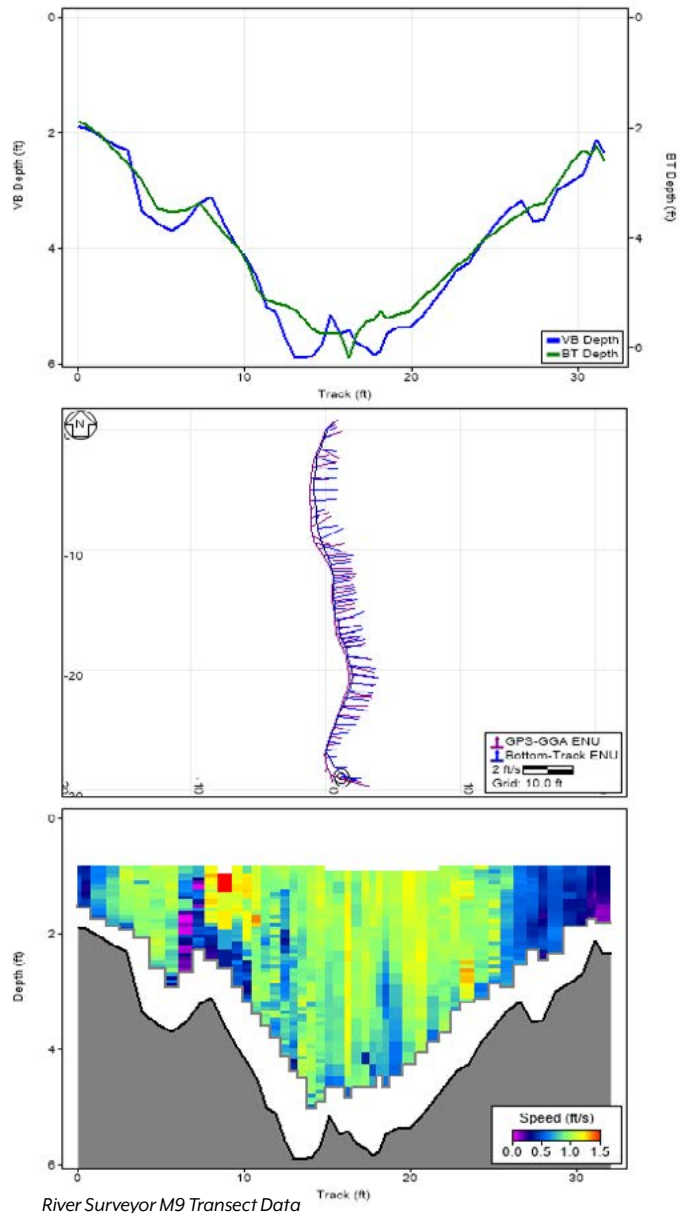




### New Field Monitoring Equipment

ANRA conducts water quality monitoring for the Angelina Watershed Characterization project in the Angelina River Watershed. The goals of this project are to evaluate existing water quality and watershed data in order to identify and characterize potential sources of pollution in the watershed. Monthly monitoring for this project takes place on Mud and West Mud Creeks, stations 18302, 10538, 14477, and 10532 (See sampling map on page 10). This project funded the purchase of a SonTek RiverSurveyor M9. This equipment allows ANRA staff to collect flow data in streams where we normally would not be able to collect due to safety and access issues, reducing the need to conduct flow estimates. This equipment also gives ANRA the ability to develop a profile of the stream bed using GPS and the Bottom-Track technology.

*The Angelina Watershed Characterization Project is a partnership between the Angelina & Neches River Authority, Texas Water Resources Institute, and the Texas State Soil and Water Conservation Board (TSSWCB) and is funded by the TSSWCB through a Clean Water Act, Section 319(h) grant from the U.S. EPA.*



River Surveyor M9 Transect Data



River Surveyor M9 Trial Run



River Surveyor M9 - West Mud Creek at FM 3052



## ANRA Environmental Laboratory- Bringing Chlorophyll-a and Pheophytin-a Analyses In-House

For water samples collected by ANRA, analysis of conventional and bacteriological parameters is performed by the ANRA Environmental Laboratory. The ANRA Environmental Laboratory is certified by the National Environmental Laboratory Accreditation Program (NELAP) for the chemical and microbiological analysis of potable and non-potable water. The laboratory performs analyses on drinking water, wastewater, and surface water samples for numerous entities and private individuals in the basin, including the Clean Rivers Program.

In early FY 2020, in order to mitigate rising costs of outsourcing, and data losses due to shipping delays, the ANRA laboratory began working through the steps needed to bring Chlorophyll-a and Pheophytin-a analyses in house. CRP funds were used to purchase the needed equipment, and initial supplies

ANRA began method development procedures by becoming familiar with the fluorometer, developing the Standard Operating Procedure (SOP), and creating the associated forms for documentation. ANRA was able to obtain the first working calibration on the fluorometer, establish both the Instrument Detection Limit (IDL) and Estimated Detection Limit (EDL), as well as complete the Acidification Proficiency for the first analyst, all in October 2020. The first analyst's Initial Demonstration of Capability (IDOC) was completed in late December 2020, and the Linear Dynamic Range (LDR) was established in January 2021. In February of 2021, the ANRA Laboratory conducted a comparison study to ensure data quality. ANRA CRP staff collected double Chlorophyll samples at 5 sites. The ANRA Laboratory analyzed one set of samples and sent the second set to a subcontract laboratory. In-house results were compared with the results obtained from the subcontract laboratory on the same sample set. The results were comparable and the study was determined to be a success. The QAPP Amendment was fully executed on February 5, 2021, and distributed to participants on February 8, 2021. ANRA is now certified to perform CRP Chlorophyll-a and Pheophytin-a analyses in-house.

For more information regarding the ANRA Environmental Laboratory, including services offered by the Laboratory, please contact:

### Melissa Garcia

*Laboratory Services Director*

Angelina & Neches River Authority

2901 North John Redditt Dr

Lufkin, TX 75904

Phone: (936) 632-7795

Email: mgarcia@anra.org



Fluorometer, grinder, and centrifuge used for Chlorophyll & Pheophytin testing

## ANRA Special Projects: A Response to Impairments in the Neches River Basin

Although not funded by the Clean Rivers Program, ANRA is taking part in multiple special projects in the basin that are funded in part by Clean Water Act funds from EPA, as well as funds from the TCEQ, and the TSSWCB. The focus of these projects is to bring stakeholders in diverse watersheds together to address water quality issues. Project tasks include: data collection and interpretation, education and outreach, implementation of best management practices, assistance for low income households, and more.

Active projects include:

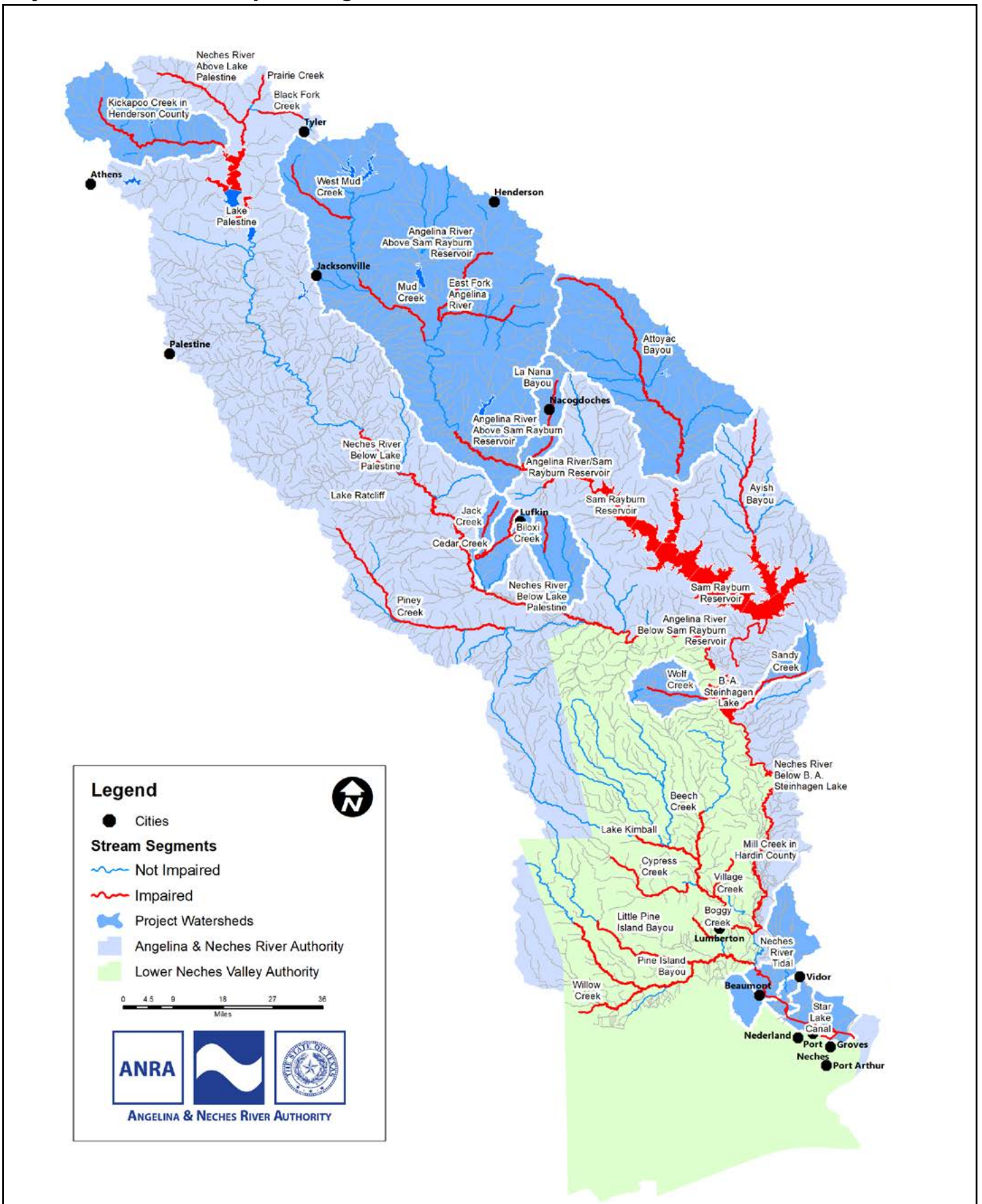
- **Watershed Characterizations-** Project goals involve the investigation of current water quality in a specific watershed through an assessment of existing water quality data, collection of additional data, and the analysis of that water quality data. There are two ongoing watershed characterizations in the Neches River Basin. These projects take place in the Kickapoo Creek and Angelina River Watersheds and routine water quality monitoring is conducted monthly.
- **Total Maximum Daily Load (TMDL)-** These projects are stakeholder driven with a goal of identifying pollutants and their potential sources and allocation loads. Implementation plans are then developed to outline the steps needed for reducing the specific pollutant load and identify management measures and actions that can be taken by stakeholders. There are two TMDL projects ongoing in the Neches River Basin with a focus on bacterial impairments. Water bodies included in these projects are located in the middle and lower portions of the Neches River Watershed. Implementation plans are being developed at this time for each watershed.
- **Watershed Protection Plan-**Watershed protection plans (WPP) are holistic, stakeholder-driven plans that address water quality in a specific watershed. These plans will identify pollutants and their potential sources and provide a framework for coordinated implementation of protection and restoration activities. All impairments are taken into consideration when developing a watershed protection plan. There are two WPPs in the developmental phase for the Neches River Basin: La Nana Bayou and Kickapoo Creek. The Attoyac Bayou WPP was approved in 2014 by the EPA. There are two ongoing projects in the basin that support this WPP, in which project goals include OSSF repair and replacement and Best Management Practice (BMP) effectiveness monitoring.



Monitoring for the Kickapoo Watershed Characterization (Photo Courtesy of TIAER)



**Project Watersheds and Impaired Segments in the Neches River Basin**



# WATER QUALITY IN THE NECHES RIVER BASIN

## Water Quality Monitoring Activities

As a part of the Clean Rivers Program, ANRA performs routine surface water quality monitoring at thirty seven stations per quarter. Routine water quality monitoring includes analysis of field parameters, conventional parameters, bacteria and flow. ANRA also performs targeted 24-hour dissolved oxygen monitoring at two stations, five times per year. Dissolved oxygen monitoring includes analysis of field parameters only.

ANRA performs water quality monitoring on **five classified segments**:

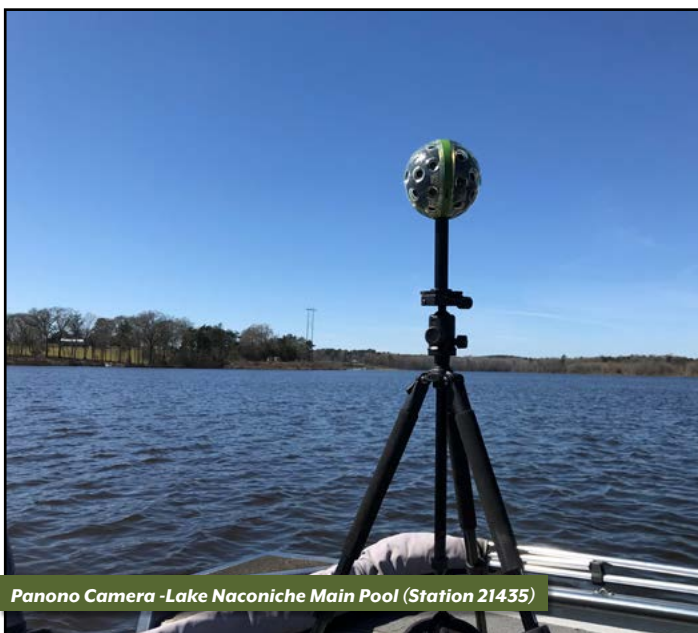
- **0604**: Neches River Below Lake Palestine
- **0610**: Sam Rayburn Reservoir
- **0611**: Angelina River Above Sam Rayburn Reservoir
- **0612**: Attoyac Bayou
- **0615**: Riverine Portion of Sam Rayburn Reservoir

These segments are deemed classified due to their protection by site-specific criteria described in the Texas Surface Water Quality Standards. Classified segments include most rivers (and their major tributaries) and major reservoirs. These segments are listed and described in Appendices A and C of Chapter 307.10 of the Texas Administrative Code.

ANRA also monitors water quality on **fifteen unclassified water bodies**:

- **0604A**: Cedar Creek
- **0604B**: Hurricane Creek
- **0604C**: Jack Creek
- **0604D**: Piney Creek
- **0604M**: Biloxi Creek
- **0604N**: Buck Creek
- **0604T**: Lake Ratcliff
- **0610A**: Ayish Bayou
- **0610P**: Bayou Carrizo
- **0611B**: La Nana Bayou
- **0611C**: Mud Creek
- **0611Q**: Lake Nacogdoches
- **0611R**: Lake Striker
- **0612F**: West Creek
- **0612G**: Lake Naconiche

These segments are deemed unclassified due to having no site-specific water quality standards assigned to them and are generally smaller streams. These water bodies are protected by general standards that apply to all water bodies in the State of Texas.



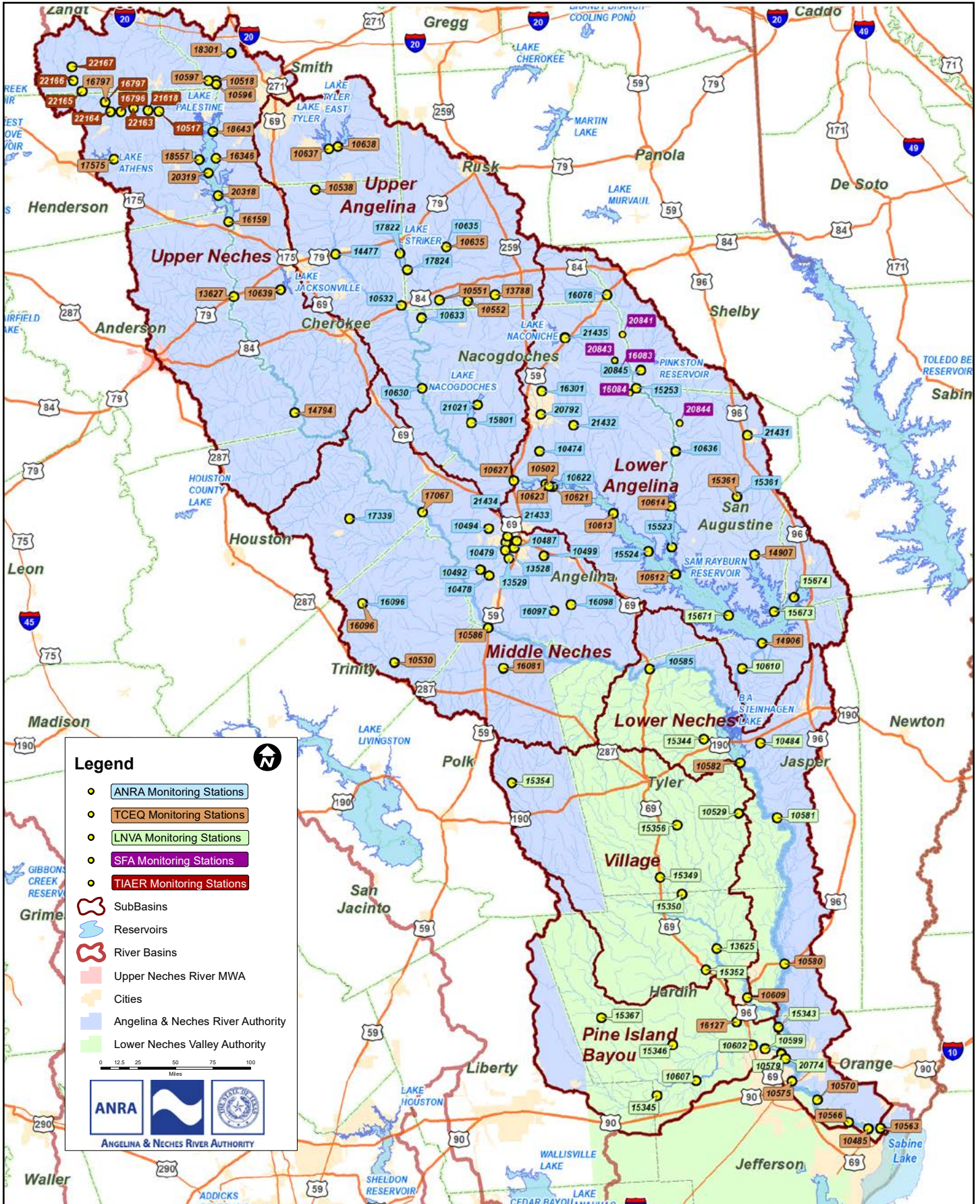
Panono Camera - Lake Naconiche Main Pool (Station 21435)

## FY 2021 Monitoring Sites in the Neches River Basin

Sampling Entity	Number of Monitoring Sites
ANRA	43
TCEQ-Region 5 (Tyler)	45
TCEQ-Region 10 (Beaumont)	23
LNVA	24
SFASU	5
Texas Institute for Applied Environmental Science (TIAER)	9



FY 2021 Surface Water Quality Monitoring Stations in the Neches River Basin



## Water Quality Monitoring Parameters

As a part of ANRA's Routine Quarterly Monitoring, ANRA collects and analyzes for field parameters, conventional parameters, bacteriological parameters and flow. Other agencies may monitor for different parameters depending on their data needs or objectives. ANRA collects and performs the following analyses.

**Field Parameters** are collected on-site by direct monitoring in the water body using field instrumentation, multi-probe sondes, and doppler surveying equipment. **Conventional Parameters** are analyzed for water samples collected during routine water quality monitoring events. These parameters include nutrients, minerals, and particulates. ANRA's Environmental Laboratory conducts all analyses of conventional parameters, with the exception of TKN and Nitrate-plus-Nitrite. **Bacteriological Parameters** are also collected for laboratory analysis during routine water quality monitoring events to determine if the water is contaminated with fecal material. In freshwater systems, **Escherichia Coli (E. coli)** is the organism used to assess the level of fecal contamination.

## Parameters for Quarterly Monitoring

Field Parameters	Conventional Parameters	Bacteriological Parameters
Dissolved Oxygen	Ammonia-N	<i>Escherichia Coli (E. coli)</i>
Days Since Last Significant Rainfall	Chloride	
Water Temperature	Chlorophyll-a	
Flow Severity	Total Kjeldahl Nitrogen (TKN)	
Instantaneous Stream Flow	Nitrate-N	
pH	Nitrite-N	
Present Weather	Pheophytin-a	
Secchi Transparency	Sulfate	
Specific Conductivity	Total Phosphorus	
Total Water Depth	Total Suspended Solids (TSS)	

## Impairments and Concerns in the Neches River Basin

Every two years, TCEQ produces the Texas Integrated Report. This report summarizes the quality of the states surface waters. Impaired water bodies are placed on the Texas 303 (d) list. In general, historical and current water quality data of the Neches River Basin includes elevated bacteria levels, depressed dissolved oxygen, and dioxin and mercury in edible fish tissue.

### Bacteria

Bacteria impairments are the most common reason for water bodies in the upper and middle portions of the Neches River Basin to be listed on the state's list of impaired water bodies.(303(d))List). Three classified segments (Neches River Above Lake Palestine, Angelina River Above Sam Rayburn Reservoir, and Attoyac Bayou) have a bacterial impairment listed in the 2020 Texas Integrated Report. Additionally, fourteen unclassified segments have impairments or concerns for E. coli bacteria.

### Dissolved Oxygen

Depressed Dissolved Oxygen levels are apparent in two of the classified segments and five of the unclassified segments in the Basin. These impairments and concerns are most likely due to a combination of low flows and elevated nutrient levels.

### Nutrients

Numerous segments have concerns for nutrients, particularly Ammonia, Nitrate and Total Phosphorus. Classified segments have concerns for Chlorophyll-a (0604), Nitrate (0606) and Total Phosphorus (0606 and 0611).

### Mercury and Dioxins in Edible Fish Tissue

Fish consumption advisories issued by the Texas Department of State Health Services (DSHS) cover several water bodies in the Neches Basin. Lake Ratcliff has a fish consumption advisory issued in 2012 due to mercury found in fish tissue, while an advisory for mercury and dioxin in fish tissue, issued in 2014, covers the Neches River Below Lake Palestine, Sam Rayburn Reservoir, and B.A. Steinhagen.



**Summary of Impairments and Concerns in the Neches River Basin  
(from the 2020 Integrated Report)**

Segment ID and Name	Bacteria	Nutrients	Dissolved Oxygen	pH	Mercury & Dioxins in Edible Fish Tissue	Other
<b>0604- Neches River below Lake Palestine</b>		CS			NS	
0604A- Cedar Creek	NS	CS	NS			
0604B- Hurricane Creek	NS					
0604C- Jack Creek	NS	CS				
0604D- Piney Creek	NS	CS	NS			
0604M- Biloxi Creek	NS	CS	NS			
0604T- Lake Ratcliff					NS	
<b>0605- Lake Palestine</b>				NS		Manganese in Sediment
0605A- Kickapoo Creek	NS		NS			
<b>0606- Neches River above Lake Palestine</b>	NS	CS	NS			Zinc in Water
0606A- Prairie Creek	NS	CS				
0606D- Black Fork Creek	NS					
<b>0609- Angelina River below Sam Rayburn Reservoir</b>					NS	Iron and Manganese in Sediment
<b>0610- Sam Rayburn Reservoir</b>					NS	
0610A- Ayish Bayou	NS					
0610P- Bayou Carrizo	CN					
<b>0611- Angelina River above Sam Rayburn</b>	NS	CS				
0611A- East Fork Angelina River	NS					
0611B- La Nana Bayou	NS	CS				
0611C- Mud Creek	NS					
0611D- West Mud Creek	NS	CS				
0611V- Bowles Creek			CS			
<b>0612- Attoyac Bayou</b>	NS					
0612F- West Creek	CS					
<b>0615-Angelina River/Sam Rayburn Reservoir</b>			NS		NS	
0615A- Paper Mill Creek	NS					

FS = Fully Supporting, NC = No Concern, CN = Concern for Near Non-Attainment, CS = Concern for Screening Level, NS = Not Supporting, NA = Not Assessed



Litter on surface of water -Hurricane at SH 324 (Station13529)

# PUBLIC INVOLVEMENT

Although ANRA has always promoted public involvement in the Upper Neches Basin through numerous operations and departments, in late 2019, a new, dedicated education and outreach program was initiated to improve public awareness and involvement in water quality and environmental stewardship in the Neches River Basin. Since the initiation of this program, ANRA has participated in many educational events and activities related to water quality throughout the basin. Activities include career days, trainings, public meetings, stream cleanups, production of original education and outreach materials and launching an alligator snapping turtle awareness campaign. These activities and events have allowed ANRA many additional opportunities to educate the public of the importance of water quality to humans, animals, and the environments in which they reside.

## Basin Steering Committee

The Basin Steering Committee gives stakeholders in the Neches River Basin the opportunity to be directly involved with the Clean Rivers Program by allowing them to influence monitoring and management priorities for water bodies. The Steering Committee is made up of individuals from the public, government agencies, industries, local business, and agricultural and environmental groups. Committee meetings are held annually, allowing stakeholders to voice their water quality concerns and be updated on what ANRA's Clean Rivers Program is doing to address those concerns. ANRA's Clean Rivers Program has the ability to investigate water quality concerns, coordinate efforts to address water quality issues, support local watershed action efforts, and distribute education and outreach materials. For questions regarding the Steering Committee, please contact ANRA's Clean Rivers Program Manager, Carla Ethridge, at [cethridge@anra.org](mailto:cethridge@anra.org).

## ANRA Attends Career Day

In March of 2020, prior to the COVID-19 outbreak, ANRA attended Huntington ISD Elementary Career Day. This event allowed ANRA staff to share their expertise with students. The students were eager to ask questions and to learn all about the efforts of the Clean Rivers Program to keep Texas' waters healthy and clean.



ANRA Staff Demonstrating a Panoramic Camera

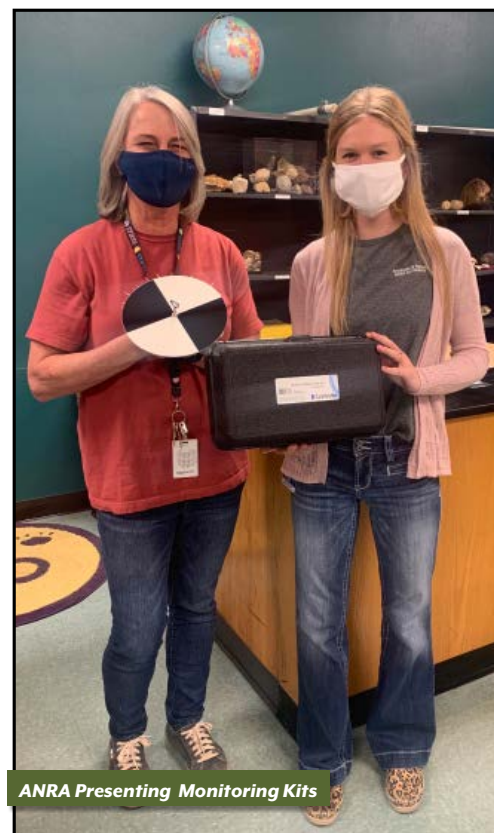


### ANRA Supplies Lufkin ISD with Texas Stream Team Kits

At the beginning of the 2020-2021 school year, ANRA supplied Lufkin Independent School District with two Texas Stream Team Standard Core Monitoring kits. The kits were delivered to the Aquatic and Environmental Science teacher for use in their classroom. These kits include equipment needed to collect dissolved oxygen, specific conductivity, pH, temperature, and turbidity. Students will now have a unique, hands-on opportunity to conduct tests to monitor the quality of the pond and creek on the Lufkin High School campus.

### ANRA Attends Texas Stream Team Training in San Marcos

ANRA staff traveled to San Marcos in October 2020 to attend a standard core monitoring training, hosted by the San Marcos River Rangers. This training session was the first phase of three phases required to become a Texas Stream Team Certified Trainer. As a certified trainer, ANRA staff will be able to train teachers, students, and community members to conduct water quality testing using the Standard Core Monitoring Kits.



ANRA Presenting Monitoring Kits



Testing Dissolved Oxygen on the San Marcos River



THE MEADOWS CENTER  
FOR WATER AND THE ENVIRONMENT

TEXAS STATE UNIVERSITY

TEXAS STREAM TEAM

### ANRA Hosts Texas Stream Team Training

ANRA, along with the San Marcos River Rangers, hosted a training event in mid December 2020. It was held at the Lufkin Wetland Garden at Morris Frank Park. San Marcos River Rangers' personnel conducted the first session of the training, with ANRA personnel conducting the second session. Citizen Scientists were trained on how to use the Standard Core Monitoring Kits to monitor water quality. This two-part training event concluded the remaining phases needed for ANRA to become a certified Texas Stream Team Trainer. In order to maintain its certification, ANRA plans to host a Stream Team Training event annually.

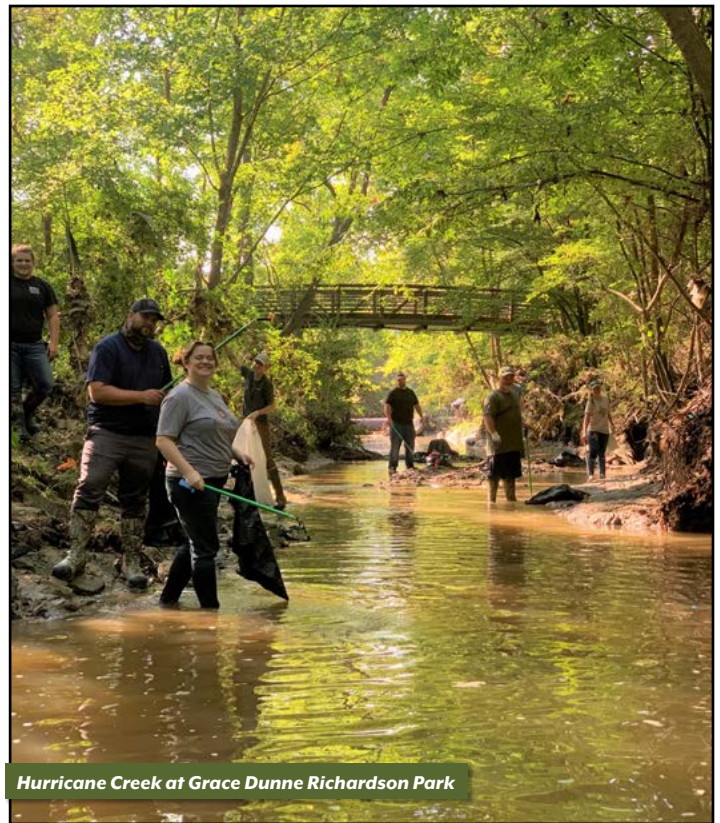


Training with Standard Core Monitoring Kit



### ANRA Hosts Stream Cleanups

ANRA has partnered with local organizations to clean up streams in the Neches River Basin, starting with, Angelina County. Three stream cleanups have been hosted thus far, each taking place on Hurricane Creek (Segment 0604B). Pickup & Picnic was the first stream cleanup event, held in June of 2020. This event was a partnership between ANRA, the Young Professionals Network (YPN), and Angelina Beautiful/Clean (AB/C). About a dozen volunteers gathered at Kiwani's Park, ANRA's CRP monitoring site 21433. The second stream cleanup, held in September of 2020, was also a partnership with YPN and A B/C. It was held at Grace Dunne Richardson Park, upstream of ANRA CRP monitoring site 10487, and thirteen volunteers were in attendance. In November of 2020, ANRA partnered with Lufkin High School's Science Technology Engineering and Math (STEM) Students as well as A B/C to host it's third stream clean up event. sixteen volunteers gathered at Hurricane Creek at US 59. This portion of the stream is located between CRP monitoring stations 21433 and 10487. As a result of these stream cleanup events, ANRA, its partners, and about forty one volunteers have successfully removed approximately fifty three bags of trash, six tires, and various other objects out of Hurricane Creek this year. ANRA plans to participate in and host a stream cleanup event quarterly.



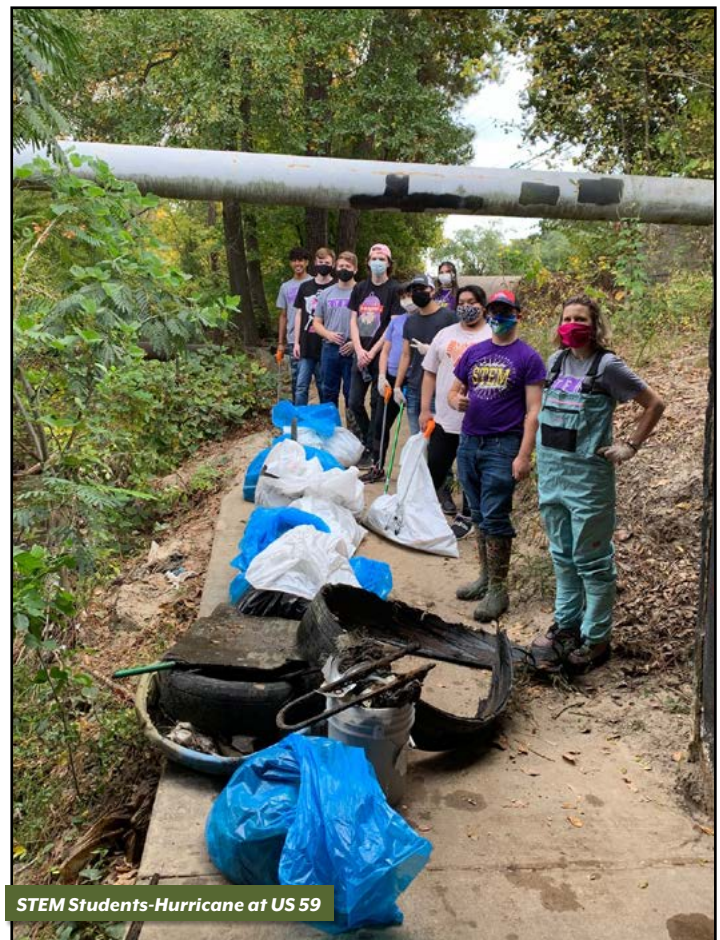
Hurricane Creek at Grace Dunne Richardson Park



Volunteers- Hurricane Creek at Grace Dunne Richardson Park



Volunteers- Hurricane Creek at Kiwani's Park



STEM Students-Hurricane at US 59



## ANRA Publishes Education and Outreach Materials

ANRA's Clean Rivers Program set a goal for 2020 and 2021 to create education and outreach materials for school children throughout the basin, in order to educate them on the importance of water quality and the efforts of the Clean Rivers Program. ANRA drafted two different workbooks and was able to have a small meeting with Huntington ISD teachers from various grade levels to determine what age groups to target. ANRA then began tailoring the materials to suit elementary and middle school students. ANRA was able to hire a local artist to create original artwork for the books.

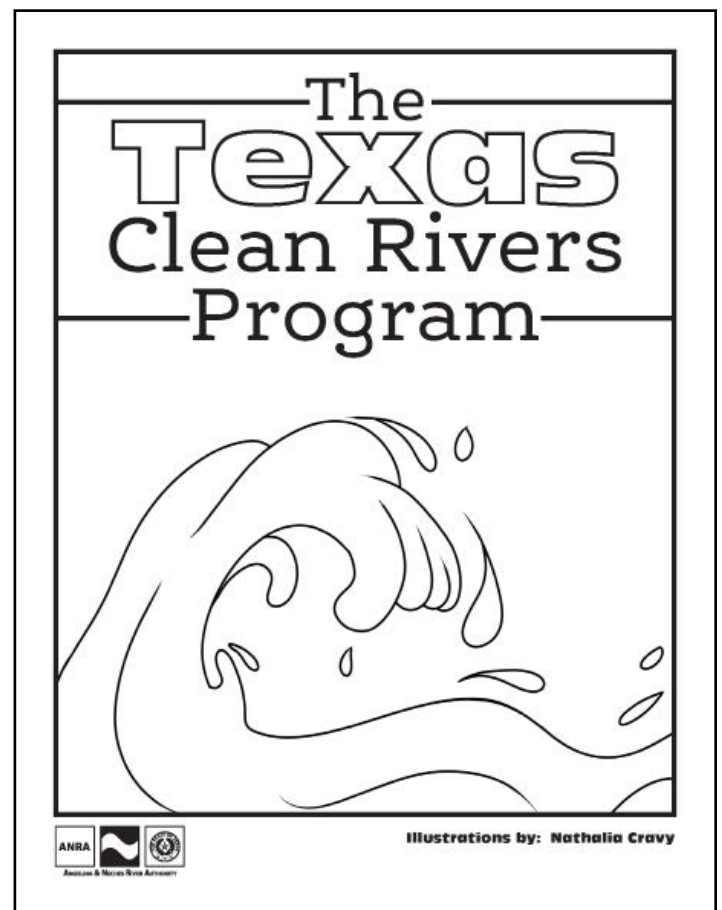
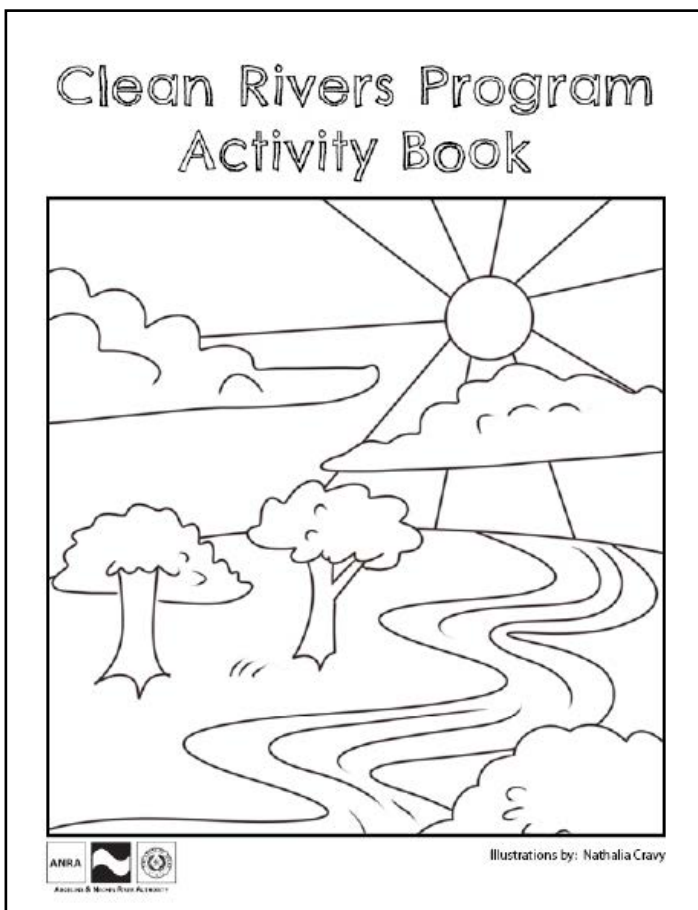
The **Clean Rivers Program Activity book** is recommended for elementary school classrooms. It provides a fun and interactive way for children to learn about the importance of water quality through the following activities:

- Introduction to CRP field tools
- Texas Clean Rivers Program Word Search
- Dot-to-dot activity showing the location of the Neches River Basin in Texas
- Introduction to species found within the Neches River Basin
- Other fun activities including a maze, word scramble, and space to draw a clean river scene.

Please contact ANRA for copies, or visit ANRA's website to download and print: [https://www.anra.org/divisions/water\\_quality/crp/current\\_activities.html#activitybooks](https://www.anra.org/divisions/water_quality/crp/current_activities.html#activitybooks)

The **Texas Clean Rivers Program** book is recommended for middle school classrooms. It provides education on ANRA's Clean Rivers Program through the following topics:

- River Basins and their importance
- Texas Clean Rivers Program
- Ways to keep Texas' water clean
- Fun Facts about the Neches River Basin
- Vocabulary Terms
- Other educational activities



## ANRA Launches Alligator Snapping Turtle Campaign

Endangered species awareness has become a focus of ANRA's this past year. ANRA's first campaign targeting a species of concern began in September of 2020, with a focus on the alligator snapping turtle. The purpose of this campaign is to raise awareness about the listing status of the alligator snapping turtle, while simultaneously collecting potential species data from the public. This campaign also increases stakeholder involvement in the basin.

ANRA partnered with Texas Parks and Wildlife Department (TPWD) to strategically place awareness signs at twenty boat ramps located throughout the Neches River Basin. ANRA began placing signs in September of 2020 and completed sign placement in December of 2020. The signs direct the public to report general observations for documentation purposes. Observations requested include the date of the potential sighting, approximate time of sighting, approximate size of the individual sighted (length, weight, etc.), and approximate location of the sighting.

Sightings are added to an online East Texas Species of Concern database, created by partner organizations in East Texas. This database is a multi-species database in which data for the alligator snapping turtle, the western chicken turtle, and freshwater mussels of concern are reported.

To report potential alligator snapping turtle sightings, please contact ANRA at [wildlife@anra.org](mailto:wildlife@anra.org).

# HAVE YOU SEEN THIS TURTLE?



Alligator snapping turtles are a threatened species and protected in Texas. We are asking for help reporting sightings of these turtles. Alligator snapping turtles have a large triangular head and three distinct ridges on their shell.

**IT IS ILLEGAL TO INTENTIONALLY KILL, INJURE, OR HARASS THESE TURTLES.**

If you accidentally catch one, it should be returned to its habitat, as close as possible to the spot where it was caught.

Report alligator snapping turtle sightings (live or dead) along with a photo, GPS coordinates, and any measurements to the Angelina & Neches River Authority at:

[www.anra.org](http://www.anra.org)

[wildlife@anra.org](mailto:wildlife@anra.org)

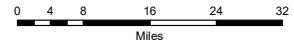
[tpwd.texas.gov](http://tpwd.texas.gov)





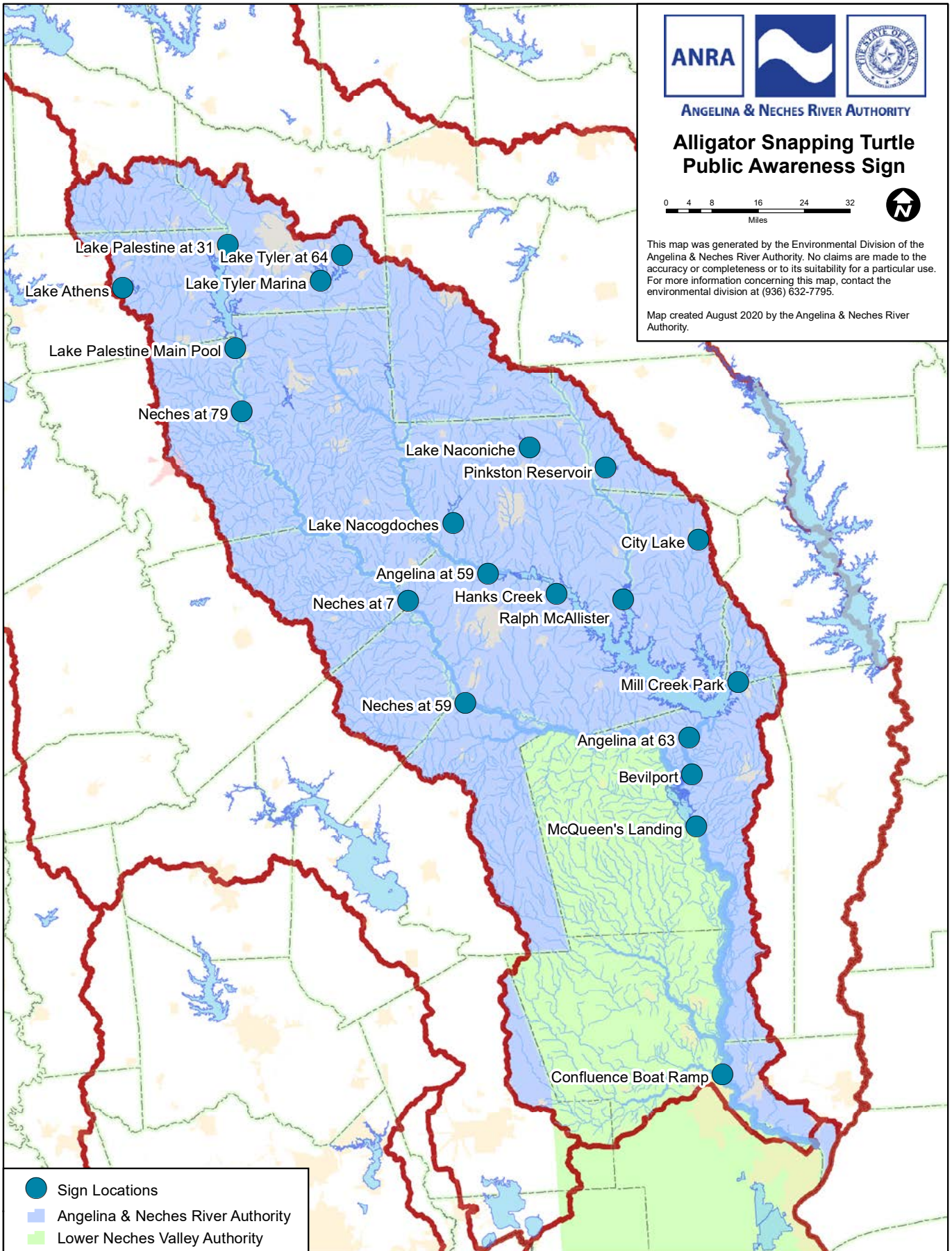
ANGELINA & NECHES RIVER AUTHORITY

### Alligator Snapping Turtle Public Awareness Sign



This map was generated by the Environmental Division of the Angelina & Neches River Authority. No claims are made to the accuracy or completeness or to its suitability for a particular use. For more information concerning this map, contact the environmental division at (936) 632-7795.

Map created August 2020 by the Angelina & Neches River Authority.



- Sign Locations
- Angelina & Neches River Authority
- Lower Neches Valley Authority





*Vicia villosa* on Roadway at Piney Creek-CR 358



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## ADDITIONAL RESOURCES

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### The Texas Commission on Environmental Quality

[www.tceq.texas.gov](http://www.tceq.texas.gov)

### The Texas Clean Rivers Program

<https://www.tceq.texas.gov/waterquality/clean-rivers/>

### Clean Rivers Program Guidance

[www.tceq.texas.gov/waterquality/clean-rivers/guidance/](http://www.tceq.texas.gov/waterquality/clean-rivers/guidance/)

### Coordinated Monitoring Schedule

[cms.lcra.org](http://cms.lcra.org)

### 2020 Texas Integrated Report for the Clean Water Act

<https://www.tceq.texas.gov/waterquality/assessment>

### Texas Surface Water Quality Standards

[www.tceq.texas.gov/waterquality/standards/eq\\_swqs.html](http://www.tceq.texas.gov/waterquality/standards/eq_swqs.html)

### Clean Rivers Program Map Tool

<https://www80.tceq.texas.gov/SwqmisWeb/public/crpmmaps.html>

### Clean Rivers Program Data Tool

<https://www80.tceq.texas.gov/SwqmisWeb/public/crpweb.faces>

### Surface Water Quality Monitoring Procedures

[www.tceq.texas.gov/waterquality/monitoring/swqm\\_guides.html](http://www.tceq.texas.gov/waterquality/monitoring/swqm_guides.html)

### Attoyac Bayou Watershed Protection Plan (WPP) Project

[attoyac.tamu.edu](http://attoyac.tamu.edu)

### TIAER RUAA

<https://www.tarleton.edu/tiaer/ruaa/>

### Texas Stream Team

<https://www.meadowscenter.txstate.edu/Leadership/TexasStreamTeam.html>

### Texas Invasives

[www.texasinvasives.org](http://www.texasinvasives.org)

### Texas Department of State Health Services Fish Consumption Advisories

<https://www.dshs.texas.gov/seafood/advisories-bans.aspx>

### EPA's Surf Your Watershed

[cfpub.epa.gov/surf/locate/](http://cfpub.epa.gov/surf/locate/)

### USGS The National Map Streamer

[nationalmap.gov/streamer](http://nationalmap.gov/streamer)

### US Drought Monitor

[droughtmonitor.unl.edu/](http://droughtmonitor.unl.edu/)

### Texas Flood Watch

<https://txpub.usgs.gov/floodwatch>

### Hurricane Harvey

<https://www.usgs.gov/special-topic/hurricane-harvey>



Birds on Buoys at Shirley Creek Marina-Sam Rayburn Reservoir



## 2021 Upper Neches Basin Highlights Report

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The 2021 Basin Highlights Report was prepared by the Angelina & Neches River Authority in cooperation with the Texas Commission on Environmental Quality (TCEQ) under the authorization of the Texas Clean Rivers Act.

