TEXAS STATE
Soil & Water
CONSERVATION BOARD

Texas State Soil and Water Conservation Board
State Nonpoint Source Grant Program
FY 2019 Workplan 19-53

SUMMARY PAGE			
Title of Project	Attoyac Bayou Watershed Protection Plan Implementation Effectiveness Monitoring and Facilitation Continuation		
Project Goals	• To facilitate and support effective implementation of the Attoyac Bayou WPP • To conduct provide updates on implementation progress, keep stakeholders engaged and seek input on future implementation activities • To support future funding acquisition, track management implementation, and encourage BMP adoption • Evaluate progress made toward achieving WPP implementation milestones • Coordinate and conduct relevant outreach and education activities in and around the watershed Monitor water quality in the Attoyac Bayou watershed to show BMP implementation effectiveness		
Project Tasks	(1) Project Administration; (2) Quality Assurance; (3) Support and Facilitate WPP Implementation and Tracking; (4) Outreach and Education Coordination and Delivery; (5) Implementation Effectiveness Monitoring		
Measures of Success	• Watershed partnership engagement maintained and WPP implementation promotion continued • WPP implementation documented and progress toward implementation goals quantified • Knowledge of watershed and resource management enhanced through education and outreach program delivery • Potential funding sources identified and sought Water quality monitoring to measure the effects of WPP implementation carried out		
Project Type	Implementation (X); Education ( ); Planning ( ); Assessment (X); Groundwater ( )		
Status of Waterbody on *2014 Texas Integrated Report*	Segment ID Attoyac Bayou (0612): Segments 0612_01, 0612_02, 0612_03	Parameter of Impairment or Concern Bacteria DO Ammonia	Category 5b CS CS
Project Location (Statewide or Watershed and County)	The Attoyac Bayou Watershed upstream of Sam Rayburn Reservoir in San Augustine, Nacogdoches, Shelby and Rusk Counties.		
Key Project Activities	Hire Staff ( ); Surface Water Quality Monitoring (x); Technical Assistance ( ); Education (x); Implementation (x); BMP Effectiveness Monitoring x); Demonstration ( ); Planning ( ); Modeling ( ); Bacterial Source Tracking ( ); Other ( )		
2017 Texas NPS Management Program Reference	• Component 1: LTG Objectives 1, 2, 3, 6, STG 1 Obj. B, E; STG 2 Obj. B, D; STG 3 Obj. A, B, D, G • Component 2 • Component 3 • Component 4 • Component 6 Milestones: Priority Watershed Milestones (Ch. 2): Stakeholder Participation, Water Quality Monitoring		
Project Costs	$221,388		
Project Management	• Texas A&M AgriLife Research, Texas Water Resources Institute		
Project Period	June 1, 2019 – May 31, 2021		

Part I – Applicant Information

Applicant							
Project Lead	Dr. Lucas Gregory						
Title	Senior Research Scientist & Quality Assurance Officer						
Organization	Texas A&M AgriLife Research, Texas Water Resources Institute						
E-mail Address	LFGregory@ag.tamu.edu						
Street Address	578 John Kimbrough Blvd.; Ste. 145 2260 TAMU						
City	College Station	County	Brazos	State	TX	Zip Code	77843-2260
Telephone Number	979-845-1851			Fax Number	979-845-8554		

Project Partners	
Names	Roles & Responsibilities
Texas State Soil and Water Conservation Board (TSSWCB)	Provide state oversight and management of all project activities and ensure coordination of activities with related projects and TCEQ.
Texas A&M AgriLife Research, Texas Water Resources Institute (TWRI)	Provide project management, project oversight and lead reporting. Provide assistance to the watershed coordinator in stakeholder relations and education/outreach coordination. Maintain project website. Support funding acquisition.
Angelina & Neches River Authority (ANRA)	Serve as watershed coordinator, lead stakeholder engagement efforts. Track WPP implementation progress. Provide updates on implementation and monitoring to watershed stakeholders. Perform water quality analysis for effectiveness monitoring. Seek future funding sources.
Pineywoods RC&D	Collaborate with the watershed coordinator to provide updates on implementation and monitoring to watershed stakeholders; provide input and support for seeking future funding sources.
Stephen F. Austin State University Water for East Texas Center (SFA WET)	Collaborate with the watershed coordinator to provide updates to on BMP effectiveness monitoring occurring in the watershed. Conduct instream water quality monitoring to measure the effectiveness of WPP implementation.

Part II – Project Information

Project Type							
Surface Water	X	Groundwater					
Does the project implement recommendations made in (a) a completed WPP, (b) an adopted TMDL, (c) an approved I-Plan, (d) a Comprehensive Conservation and Management Plan developed under CWA §320, (e) the *Texas Coastal NPS Pollution Control Program*, or (f) the *Texas Groundwater Protection Strategy*?				Yes	X	No	
If yes, identify the document.	Attoyac Bayou Watershed Protection Plan						
If yes, identify the agency/group that developed and/or approved the document.	Attoyac Bayou Watershed Partnership			Year Developed	2014		

Watershed Information				
Watershed or Aquifer Name(s)	Hydrologic Unit Code (12 Digit)	Segment ID	Category on 2012 IR	Size (Acres)
Attoyac Bayou	120200050301 – 0307; 0401 – 0406; 0501	0612	5b	354,629

Water Quality Impairment

Describe all known causes (i.e., pollutants of concern) and sources (e.g., agricultural, silvicultural) of water quality impairments or concerns from any of the following sources: *2014 Texas Integrated Report*, Clean Rivers Program Basin Summary/Highlights Reports, or other documented sources.

IMPAIRMENTS (*2014 Texas Water Quality Inventory and 303(d) List*)

Segment 0612: Attoyac Bayou: From a point 2.4 miles downstream of Curry Creek in Nacogdoches/San Augustine Counties to FM 95 in Rusk County

Listed	Impairment	Category	Year
0612_01: Lower boundary upstream to Polly Branch confluence	bacteria	5b	2004
0612_02: From Polly Branch upstream to Bear Bayou	bacteria	5b	2004
0612_03: Bear Bayou to upper boundary at FM 95	bacteria	5b	2004

CONCERNS (*2014 Texas Water Quality Inventory*)

0612_02 & 03	ammonia and depressed DO	CS	(concern screening levels)

SOURCES (2014 Texas Water Quality Inventory)

Bacteria: nonpoint sources and municipal point source discharges; **Ammonia:** unknown sources; **Dissolved Oxygen:** unknown sources

2013 Upper Neches Basin Highlights Report; Angelina-Neches River Authority

Point Sources: numerous point sources including WWTFs for the City of Garrison and Martinsville ISD. Several municipal solid waste sites also reside within the basin.

Non-Point Sources: OSSFs are prevalent in the watershed and may be a contributing factor to bacterial impairments. Livestock and poultry may also be contributors; however, bacterial source tracking results suggest that their contributions are minimal compared to other nonpoint sources. The likelihood of contributions from wildlife and feral hogs are significant.

Project Narrative

Problem/Need Statement

The Attoyac Bayou, Segment 0612, is one sub-watershed within the Upper Neches River Watershed that is considered impaired due to excessive levels of monitored fecal indicator bacteria. The Bayou extends approximately 82 miles from its headwaters in Rusk County and flows through Nacogdoches, San Augustine and Shelby Counties before emptying into Sam Rayburn Reservoir. The watershed contains several named communities including Chireno, Attoyac, Martinsville, Grigsby, Garrison and others; however, these are small rural communities. The remainder of the area is predominantly managed for agricultural (cattle and poultry), silvicultural, recreational and wildlife uses and contains many rural residents and four known permitted wastewater discharges totaling a maximum of 338,000 gallons per day.

In 2009, the Attoyac Bayou Watershed Partnership was formed to address the noted bacteria impairment. Using technical support from the Angelina & Neches River Authority (ANRA), Stephen F. Austin State University, Texas A&M University and the Texas Water Resources Institute (TWRI) and funding from TSSWCB (Project 09-10) through a project entitled *Development of a Watershed Protection Plan for Attoyac Bayou*, the Attoyac Bayou Watershed Protection Plan (WPP) was completed. This plan outlines an appropriate strategy to address bacteria source contributions in this rural watershed and describes practices that when implemented, will reduce loading contributions to the watershed. EPA accepted the WPP in the spring of 2015.

As noted in the WPP, needed load reductions to meet current water quality standard for *E. coli* in the Attoyac Bayou under high streamflow conditions reach 3.73E+14 colony forming units of *E. coli* per year. No single management measure is expected to achieve this level of reduction, thus an integrated approach to bacteria management in the watershed needs to be implemented to work toward this water quality goal. The WPP also notes the need for technical and financial assistance to both encourage and support participation of landowners in programs to address bacteria source contributions in the watershed. This need will primarily be address through the role of the watershed coordinator as they continue to engage watershed stakeholders and provide needed assistance.

Recently, the ANRA is addressing one of the highest priority needs identified in the WPP; failing on-site sewage facilities (OSSFs). Through an FY 2013 CWA Section 319(h) grant funding provided by TCEQ, ANRA administered the project entitled *Lake Sam Rayburn OSSF Program Support and Attoyac Bayou OSSF Remediation.* The project developed a database to house information on OSSFs in a portion of the Attoyac Bayou watershed, collected and digitized OSSF data and locations for existing and new OSSFs, and identified and replaced 26 failing or non-existent OSSFs, and conducted water quality monitoring to document BMP effectiveness at five locations. This project was completed June, 2018. Building up this project's success, a subsequent effort led by TWRI, ANRA, Pineywoods RC&D and SFASU is underway to repair or replace 20 additional OSSFs in the watershed by March of 2020.

Education and outreach programs are another aspect of WPP implementation that has and continues to occur. In the past, the *Texas Watershed Steward* Program has been delivered in Nacogdoches (September 2010 and February 2014) and a Feral Hog Control Program (June 2012) have been delivered with the Attoyac Bayou watershed as a specific focus. Other Extension programs including the annual Pineywoods Cattle Congress, the East Texas Regional Forage Conference and the East Texas Pasture Management Conference also deliver relevant information to area producers. Topics at these events routinely focus on grazing management, forage production, nutrient management, pesticide management and more. Future educational program delivery will include the *Lone Star Healthy Streams* and *Texas Riparian and Stream Ecosystem Education* programs, and additional feral hog management will be delivered. There is also a need for education regarding OSSFs at multiple levels: homeowner, service providers and elected officials.

Coordinating the delivery of these programs and tracking the successful implementation of the WPP requires a concerted effort. The WPP states that the watershed coordinator "will be tasked with maintaining stakeholder support in the years to come; identifying and securing needed funds to implement pieces of the WPP; coordinating and organizing efforts to implement portions of the WPP; tracking the success of WPP information; reporting implementation

outcomes; and working to effectively implement adaptive management into the long-term WPP implementation process. Simply put, the Watershed Coordinator is the catalyst who keeps WPP implementation on track."

Project Narrative

General Project Description (Include Project Location Map)

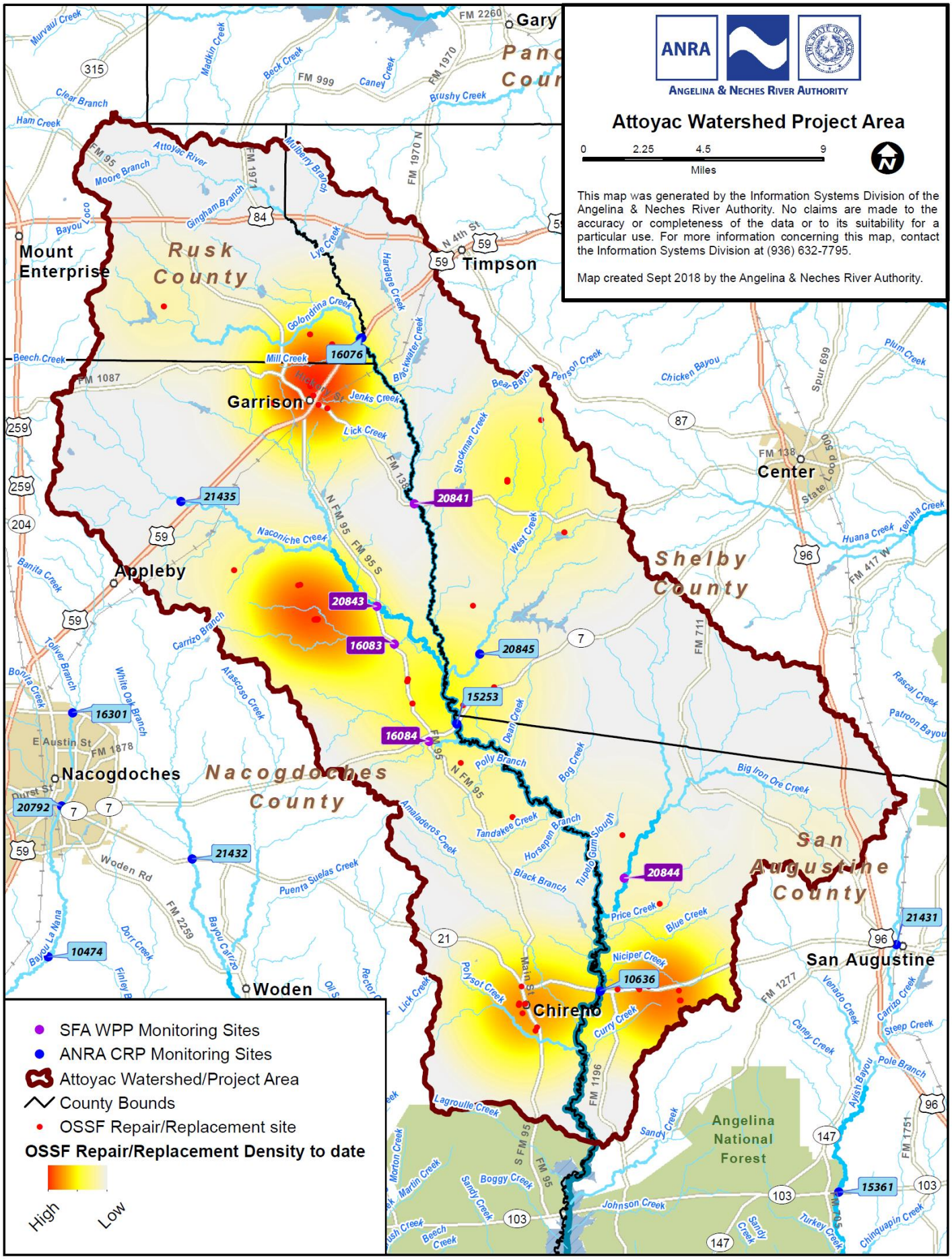
TWRI and ANRA will work in close cooperation with the Pineywoods RC&D to continue engaging watershed stakeholders in the Attoyac Bayou watershed and partner agencies to implement the Attoyac Bayou WPP. As stated in the WPP, this will occur through continuing to organize and host periodic public meetings and needed educational events and by meeting with focused groups of stakeholders to seek out and secure implementation funds. The coordinator will also provide content to maintain and update the project website, track WPP implementation progress and participate in local events to promote watershed awareness and stewardship.

The watershed coordinator will also focus on facilitating and supporting effective implementation of the WPP. This will be accomplished by continuing to work with watershed stakeholders to identify specific implementation needs across the watershed. Support will also be provided to assist stakeholders acquire the needed funds to implement the plan. Maintaining contact with parties implementing aspects of the WPP and documenting implementation success will also be critical. This successful implementation of the plan will be relayed to watershed stakeholders and agencies alike.

Coordinating the delivery of education and outreach programming will also be carried out. The watershed coordinator will work with local entities to schedule programs such that they do not oversaturate stakeholders with information at any specific time. Evolving educational needs will also be noted and efforts will be made to address those needs if possible. When pertinent, news releases, newsletters, and email updates will be provided to update stakeholders on implementation progress being made across the watershed.

In support of other WPP implementation activities funded with separate resources; instream water quality monitoring will be conducted to document BMP implementation effectiveness; specifically, OSSF repair and replacements. The SFASU WET Center will coordinate with ANRA to continue conducting targeted water quality monitoring across the watershed to document implementation impacts on instream water quality that complements existing Clean Rivers Program monitoring. Monthly monitoring will be carried out at five locations across the watershed where SFASU has monitored in the past (SFASU WPP Monitoring Sites in map provided). Water samples collected will be delivered to ANRA for Nitrate-N, Nitrite-N, Ammonia-N, Total Phosphorus, Chloride, Sulfate, Total Suspended Solids, and *E. coli*. Field parameters including pH, dissolved oxygen, temperature, conductivity and stream flow volume will also be collected during each sampling event.

Lastly, the watershed coordinator will also evaluate the overall progress made toward WPP implementation. In the final year of this project, an implementation report will be developed and the WPP will be updated as needed through the adaptive management process. These documents will describe all activities carried out through this and other implementation projects and will serve as the project final report.


ANRA
Angelina & Neches River Authority
Attoyac Watershed Project Area
0 2.25 4.5 9
Miles
This map was generated by the Information Systems Division of the Angelina & Neches River Authority. No claims are made to the accuracy or completeness of the data or to its suitability for a particular use. For more information concerning this map, contact the Information Systems Division at (936) 632-7795.
Map created Sept 2018 by the Angelina & Neches River Authority.
Mount Enterprise
Rusk County
Timpson
Garrison
Appleby
Nacogdoches
Nacogdoches County
Woden
Chireno
Center
Shelby County
San Augustine
San Augustine County
Angelina National Forest
16076
21435
20841
20843
16083
20845
15253
16084
16301
20792
21432
10474
20844
10636
21431
15361
SFA WPP Monitoring Sites
ANRA CRP Monitoring Sites
Attoyac Watershed/Project Area
County Bounds
OSSF Repair/Replacement site
OSSF Repair/Replacement Density to date
High
Low

Tasks, Objectives and Schedules				
Task 1	Project Administration			
Costs	$ 22,139			
Objective	To effectively administer, coordinate and monitor all work performed under this project including technical and financial supervision and preparation of status reports.			
Subtask 1.1	TWRI will prepare electronic quarterly progress reports (QPRs) for submission to the TSSWCB. QPRs shall document all activities performed within a quarter and shall be submitted by the 15th of December, March, June and September. QPRs shall be distributed to all Project Partners.			
	Start Date	Month 1	Completion Date	Month 24
Subtask 1.2	TWRI will perform accounting functions for project funds and will submit appropriate Reimbursement Forms to TSSWCB at least quarterly.			
	Start Date	Month 1	Completion Date	Month 24
Subtask 1.3	TWRI will host coordination meetings or conference calls, at least quarterly, with Project Partners to discuss project activities, project schedule, communication needs, deliverables, and other requirements. TWRI will develop lists of action items needed following each project coordination meeting and distribute to project personnel.			
	Start Date	Month 1	Completion Date	Month 24
Subtask 1.4	TWRI will develop a Final Report that summarizes activities completed and conclusions reached during the project and discusses the extent to which project goals and measures of success have been achieved.			
	Start Date	Month 1	Completion Date	Month 24
Deliverables	• QPRs in electronic format • Reimbursement Forms and necessary documentation in hard copy format • Final Report in electronic and hard copy formats			

Tasks, Objectives and Schedules				
Task 2	Quality Assurance			
Costs	$11,069			
Objective	To develop data quality objectives (DQOs) and quality assurance/control (QA/QC) activities to ensure data of known and acceptable quality are generated through this project.			
Subtask 2.1	TWRI will develop a QAPP for activities in Task #5 consistent with the most recent versions of *EPA Requirements for Quality Assurance Project Plans (QA/R-5)* and the *TSSWCB Environmental Data Quality Management Plan*. All monitoring procedures and methods prescribed in the QAPP shall be consistent with the guidelines detailed in the *TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue (RG-415)* and *Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data (RG-416)*. [Consistency with Title 30, Chapter 25 of the Texas Administrative Code, *Environmental Testing Laboratory Accreditation and Certification*, which describes Texas' approach to implementing the National Environmental Laboratory Accreditation Conference (NELAC) standards, shall be required where applicable.]			
	Start Date	Month 1	Completion Date	Month 2
Subtask 2.2	TWRI will implement the approved QAPP. TWRI will submit revisions and necessary amendments to the QAPP as needed.			
	Start Date	Month 2	Completion Date	Month 24
Deliverables	• QAPP approved by TSSWCB in both electronic and hard copy formats • Approved revisions and amendments to QAPP, as needed • Data of known and acceptable quality as reported through Task #5			

Tasks, Objectives and Schedules				
Task 3	Support and Facilitate WPP Implementation and Tracking			
Costs	$ 61,989			
Objective	To ensure and track the successful implementation of the Attoyac Bayou WPP through Continued Stakeholder Engagement and Coordination.			
Subtask 3.1	ANRA with support from other project partners will facilitate public participation and stakeholder involvement by organizing and facilitating partnership meetings as needed where stakeholder feedback is received and information on implementation progress is relayed to the group. Announcements, notices, and agendas will be developed and distributed prior to these meetings. Meeting materials and minutes will also be developed and distributed. TSSWCB will review all meeting documents prior to public dissemination.			
	Start Date	Month 1	Start Date	Month 24
Subtask 3.2	ANRA with support from other project partners will evaluate and track progress toward achieving milestones established in the WPP; and will work as appropriate to assess water quality data collected through the Clean Rivers Program and other data collection efforts in relation to achieving load reductions.			
	Start Date	Month 1	Start Date	Month 24
Subtask 3.3	ANRA with support from other project partners will work to assist governmental and non-governmental entities in the watershed in the identification and will assist them in making attempts to acquire funds. Efforts will also be made to bring technical and financial assistance resources to the watershed.			
	Start Date	Month 1	Start Date	Month 24
Subtask 3.4	ANRA will work with project partners to maintain communication with the Attoyac Bayou watershed partnership and other watershed stakeholders utilizing appropriate communication mechanisms. These can include where appropriate: direct mailings, email, project website, mass media, flyers, brochures, letters, factsheets, and news releases.			
	Start Date	Month 1	Start Date	Month 24
Subtask 3.5	ANRA and other project partners as appropriate will participate in other public meetings hosted by other entities such as county commissioner's court meetings, Clean River Program meetings, local soil and water conservation district meetings, to communicate project goals, activities and accomplishments.			
	Start Date	Month 1	Start Date	Month 24
Subtask 3.6	ANRA and other project partners as appropriate will provide information for inclusion in the Clean Rivers Program Basin Summary Report and Basin Highlights Report regarding WPP implementation progress.			
	Start Date	Month 1	Completion Date	Month 24
Deliverables	• Notices, agendas, meeting materials, attendance lists, and summaries from Partnership meetings • Documentation of resource opportunities identified, applied for, and resources obtained to support plan implementation • List of other meetings attended and dates with brief summary of topics discussed and action needed included in QPRs • Information provided to Clean Rivers Program for publication materials • Educational and promotional materials, as developed and disseminated, including press releases and presentation made to interested groups			

Tasks, Objectives and Schedules				
Task 4	Outreach and Education Coordination and Delivery			
Costs	$ 26,567			
Objective	To promote stakeholder involvement, provide information transfer and encourage participation in the Attoyac Bayou WPP implementation efforts.			
Subtask 4.1	ANRA and TWRI will work in partnership with other project partners to coordinate education and outreach activities as identified in the Attoyac Bayou WPP. Project partners will support, promote, and participate in, as appropriate, any field days, demonstrations, site tours, or education events sponsored by Texas A&M AgriLife Extension Service, USDA-NRCS, and/or SWCDs for the Attoyac Bayou watershed.			
	Start Date	Month 1	Completion Date	Month 24
Subtask 4.2	ANRA and TWRI will work to coordinate and deliver water resources and related environmental outreach and education efforts within and around the watershed as identified in the Attoyac Bayou WPP. Coordination between collaborating entities will be carried out to select the appropriate mix of programs to deliver in and around the watershed. Potential programs to be delivered over the course of the project include: • Lone Star Healthy Streams workshop • Intro to Septic Systems for Homeowners • Aerobic system operation and maintenance workshops for homeowners • Riparian Management Workshops for landowners and land managers • Texas Watershed Steward Program • Texas Well Owner Network trainings and well screening events • Texas Stream Team volunteer monitoring trainings • Feral Hog Management Workshop The project's goal is to cumulatively deliver at least 3 programs throughout the course of the project. Knowledge gained by program attendees and practices implemented/planned to be implemented as a result of programming will allow loading reduction estimates to be calculated based on accepted calculation methods such as those described in Appendix D of the Attoyac Bayou WPP. <http://attoyac.tamu.edu/media/459079/attoyac-bayou-wpp_finalreduced.pdf>			
	Start Date	Month 1	Completion Date	Month 24
Subtask 4.3	ANRA and TWRI will collaborate with other project partners to develop and distribute news releases, flyers, emails and other materials as appropriate to promote planned education and outreach events.			
	Start Date	Month 1	Completion Date	Month 24
Subtask 4.4	ANRA and other project partners as appropriate will deliver invited presentations on general water quality and the Attoyac Bayou when possible.			
	Start Date	Month 1	Completion Date	Month 24
Deliverables	• Notices, agendas, meeting materials, and summaries from workshops, field tours, demonstrations, site tours, or educational events attended • Copies of invited presentations given • Educational and promotional materials, as developed and disseminated			

Tasks, Objectives and Schedules				
Task 5	Implementation Effectiveness Monitoring			
Costs	$ 99,624			
Objective	To conduct instream water quality monitoring that will continue to document water quality over time from the WPP development period into the implementation phase.			
Subtask 5.1	SFASU WET Center will conduct routine, monthly, ambient water quality monitoring at 5 locations throughout the Attoyac Bayou watershed over the course of to document WPP implementation impacts on water quality. Sampling will include routine field parameters (Temp, pH, DO, conductivity, flow) and collection of water samples of the volume required by the QAPP. Water samples will be delivered to ANRA's NELAP certified lab within the appropriate holding time for bacteriological and nutrient analysis (these analyses will include ammonia-N, nitrate-N, nitrite-N, Total P, Total Suspended Solids, Total, Chloride, Sulfate, and *E. coli* enumeration utilizing the IDEXX method).			
	Start Date	Month 3	Completion Date	Month 24
Subtask 5.2	ANRA's NELAP certified lab will receive and process water samples received from SFASU WET Center for the analysis listed above.			
	Start Date	Month 3	Completion Date	Month 24
Subtask 5.3	ANRA will review, verify and validate water quality data to ensure its consistency with the project QAPP and will submit data to TCEQ for inclusion in SWQMIS semi-annually.			
	Start Date	Month 6	Completion Date	Month 24
Subtask 5.4	SFASU WET Center, with assistance from ANRA and TWRI will evaluate water quality data collected through this project and that available in SWQMIS to determine the impacts of WPP implementation on instream water quality through statistical analyses and trend analysis as appropriate for inclusion in the project final report.			
	Start Date	Month 6	Completion Date	Month 24
Subtask 5.5	In support of ongoing OSSF repair and replacement efforts in the Attoyac Bayou outside of this project, ANRA will process effluent samples from inspected systems prior to and post repair/replacement to quantify load reductions achieved through the repair/replacement. Analytes will include *E. coli*, TSS, and BOD.			
	Start Date	Month 3	Completion Date	Month 24
Deliverables	• Data of known and acceptable quality produced, formatted and included in SWQMIS • Water quality analyses completed and described for inclusion in the project final report			

Project Goals (Expand from Summary Page)

- To facilitate and cultivate support to effectively implement the Attoyac Bayou WPP through the continued engagement of watershed stakeholders, Cities, counties, TSSWCB, SWCDs, NRCS and others as appropriate
- To conduct periodic stakeholder meetings that provide updates on Attoyac Bayou WPP implementation progress, to keep stakeholders engaged in efforts to implement the WPP to and seek input from stakeholders on future implementation activities
- To support future funding acquisition by working with local stakeholders, entities and agencies to identify specific funding needs, identify specific funding sources, assisting in efforts to acquire those funds
- To track and document implementation of the Attoyac Bayou WPP and convey this progress to watershed stakeholders, entities and agencies
- Evaluate progress made toward achieving WPP implementation milestones by reporting implementation milestones included in the WPP and actual implementation achieved by the end of this project
- To coordinate and conduct relevant outreach and education activities in and around the watershed to support Attoyac Bayou WPP implementation and encourage BMP adoption
- To continue monitoring water quality in the Attoyac Bayou watershed to show BMP implementation effectiveness on instream water quality

Measures of Success (Expand from Summary Page)

- Continued watershed partnership engagement and WPP implementation promotion as documented through the number of meetings held and updates provided to the partnership
- WPP implementation documented and progress toward achieving implementation goals quantified
- Knowledge of watershed and resource management enhanced through education and outreach program delivery
- Technical and financial assistance provided to the partnership through identification of resources, attempts to acquire resources
- An additional 22 months of water quality monitoring completed to measure the effects of WPP implementation completed

***2017 Texas NPS Management Program* Reference (Expand from Summary Page)**
Components, Goals, and Objectives
Component 1 - Explicit short- and long-term goals, objectives and strategies that protect surface … water. **Long-Term Goal** – Protect and restore water quality affected by NPS pollution through assessment and education. Objectives • 1 – Focus NPS abatement efforts, implementation strategies and available resources in watersheds identified as impacted by NPS pollution in the latest state approved Texas Water Quality Inventory and 303(d) List. • 2 – Support the implementation of state, regional and local programs to prevent NPS pollution through… implementation and education. • 3 - Support the implementation of state, regional, and local programs to reduce NPS pollution, such as the implementation of strategies defined in WPPs and other water planning efforts in the state • 6 – Develop partnerships, relationships… to facilitate collective, cooperative approaches to manage NPS pollution. • 7 – Increase overall public awareness of NPS issues and prevention activities. • 8 – Enhance public participation and outreach by providing forums for citizens and industry to contribute their ideas and concerns about the water quality management process **Short-term Goals** Goal One – Data Collection and Assessment: Coordinate with appropriate federal, state, regional and local entities and stakeholder groups to target water quality assessment activities in high priority, NPS-impacted watersheds… • Objective B – Ensure that monitoring procedures meet quality assurance requirements and are in compliance with EPA-approved … TSSWCB Quality Management Plans • Objective E – Conduct monitoring to determine effectiveness of …WPPs and BMP implementation Goal Two – Implementation: Implement … WPPs… to reduce NPS pollution by targeting implementation activities to the areas identified as impacted … by NPS pollution. • Objective D – Implement…WPPs…to restore and maintain water quality in water bodies identified as impacted by NPS pollution Goal Three – Education: Conduct education… activities to increase awareness of NPS pollution and activities which contribute to the degradation of water bodies…by NPS pollution • Objective A – Enhance existing outreach programs at…local levels to maximize the effectiveness of NPS education • Objective B – Administer programs to educate citizens about water quality and their potential role in causing NPS pollution • Objective D – Conduct outreach through the CRP, AgriLife Extension, SWCDs, and others to enable stakeholders and the public to participate in decision making and provide a more complete understanding of water quality issues and how they relate to each citizen • Objective G – Implement public outreach and education to maintain and restore water quality in water bodies impacted by NPS pollution
Component 2 – Working partnerships and linkages with appropriate state, … regional, and local entities, private sector groups and Federal agencies.
Component 3 –Balanced approach that emphasizes both statewide NPS programs and on the ground management of individual watersheds.
Component 6 – Implement all NPS program components required by CWA §319(b) and establish strategic approaches and adaptive management to achieve and maintain water quality standards as expeditiously as practicable.

Estimated Load Reductions Expected (Only applicable to Implementation Project Type)

Load reductions expected from this project include those quantified through pre- and post-tests given at educational programs. These will vary depending on the actual programs delivered in the watershed and will be quantified in the project final report based on accepted calculation methods such as those described in Appendix D of the Attoyac Bayou WPP. <http://attoyac.tamu.edu/media/459079/attoyac-bayou-wpp_finalreduced.pdf>

Effectiveness monitoring will also allow for pollutant load reductions to be quantified. Water quality data collected through this project can be compared to previously collected data through appropriate statistical analysis to determine if water quality has improved since WPP implementation began.

Part III – Financial Information

Budget Summary		
Category	**Costs**	
Personnel	$	38,406
Fringe Benefits	$	12,653
Travel	$	750
Equipment	$	0
Supplies	$	200
Contractual	$	138,202
Construction	$	0
Other	$	2,300
Total Direct Costs	$	192,511
Indirect Costs (≤15%)	$	28,877
Total Project Costs	$	221,388

Budget Justification		
Category	Total Amount	Justification
Personnel	$ 38,406	TWRI Sr. Research Scientist: $84,256 @ 1.5 months ($11,011) TWRI Extension Program Specialist: $43,500 @ 4.8 months ($17,661) TWRI TBD Program Manager: $57,564 @ 2 months ($9,734) *named salaries include a 3% increase in all years; TBD positions include a 3% increase annually after year 1) (Salary estimates are based on average monthly percent effort for the contract. Actual percent effort may vary between months, but in the aggregate will not exceed the total percent effort estimates for the entire project period.)
Fringe Benefits	$ 12,653	Salary * 16.8% + $747/mo. (Fringe benefits are estimated based on salary estimates above. Actual fringe benefits will vary between months with percent effort variations but will not exceed the overall estimated amount.)
Travel	$ 750	5 trips to the watershed @ 300 miles each and $0.50/mile
Equipment	$ 0	N/A
Supplies	$ 200	Miscellaneous meeting supplies: paper, toner, pens, note pads, etc.
Contractual*	$ 138,202	ANRA: $70,303 SFASU: $67,899
Construction	$ 0	N/A
Other	$ 2,300	TWRI Communication Services: 2,000 Computer software licenses: 300
Indirect	$ 28,877	15% of MTDC

Budget Justification (Federal): Angelina & Neches River Authority		
Category	Total Amount	Justification
Personnel	$ 31,735	Administration Division Mgr.: $66,250 @ 0.48 months: $2,650 Information Resources Manager: $61,175 @ 2.4 months: $12,235 Administrative Assistant $21,387 @ 1.2 months: $2,139 CRP Coordinator: $43,412 @ 2.4 months: $8,683 QA Officer: $60,275 @ 1.2 months: $6,028
Fringe Benefits	$ 8,886	28% of Salaries
Travel	$ 253	10 meetings in watershed @ 44 mi. ea. @ $.575 per mile
Equipment	$ 0	N/A
Supplies	$ 2,630	water sample containers: 110 @ $10.00 ea = 1,100 water sample filters: 110 @ $13.00 ea = 1,430 lab supplies (gloves, labels, detergents, etc.) = $100
Contractual*	$ 0	N/A
Construction	$ 0	N/A
Other	$ 23,625	**ANRA Laboratory Analysis - Surface Water Quality Monitoring** Ammonia-N: Cost $25.00, QTY 110, Total $2,750 Nitrate-N: Cost $25.00, QTY 110, Total $2,750 Nitrite-N: Cost $25.00, QTY 110, Total $2,750 Total Phosphorus: Cost $30.00, QTY 110, Total $3,300 Chloride: Cost $25.00, QTY 110, Total $2,750 Sulfate: Cost $25.00, QTY 110, Total $2,750 E. coli Enumeration: Cost $30.00, QTY 110, Total $3,300 Total Suspended Solids: Cost $15.00, QTY 110, Total $1,650 **ANRA Laboratory Analysis - OSSF Inspection Samples** Biochemical Oxygen Demand: Cost $30.00, QTY 15, Total $450 Total Suspended Solids: Cost $15.00, QTY 15, Total $225 E. coli Enumeration: Cost $30.00, QTY 15, Total $450 **Postage**: $500.00
Indirect	$ 3,174	10% of personnel

Budget Justification (Federal): SFASU WET Center		
Category	Total Amount	Justification
Personnel	$ 49,400	TBD Graduate Student: $20,400 @ 24 months: $40,800 TBD Student Worker: $10/hr., 10 hr./wk.: 86 wks.: $8,600
Fringe Benefits	$ 5,314	Graduate Fringe = salary * 2% + ($360.54/mo. *0.5) Student Worker Fringe = salary * 2%
Travel	$ 2,593	30 watershed trips: 149 mi ea. @ state rate
Equipment	$ 0	N/A
Supplies	$ 1,735	SWQM Sampling Supplies ($1,735)
Contractual*	$ 0	N/A
Construction	$ 0	N/A
Other	$ 0	N/A
Indirect	$ 8,857	15% of Modified Total Federal Direct