



Texas State Soil and Water Conservation Board
State Nonpoint Source Grant Program
FY 2022 Workplan 22-51

SUMMARY PAGE			
Title of Project	Deer and Pond Creeks Continued Surface Water Quality Monitoring and Education Effectiveness		
Project Goals	<ul style="list-style-type: none"> • Supplement existing water data through targeted sample collection • Coordinate and/or conduct water resources and related environmental outreach/education efforts across the project watersheds 		
Project Tasks	(1) Project Administration; (2) Quality Assurance; (3) Continued Surface Water Quality Monitoring for Deer and Pond Creeks; (4) Distribution of Education Materials and Effectiveness Evaluation		
Measures of Success	<ul style="list-style-type: none"> • Collection and analysis of quality assured data from sampling sites in two watersheds • Informational materials distributed to agricultural producers in the watershed and effectiveness of these materials documented 		
Project Type	Implementation (); Education (X); Planning (); Assessment (X); Groundwater ()		
Status of Waterbody on 2020 Texas Integrated Report	<u>Segment ID</u> Pond Creek; 1242F	<u>Parameter of Impairment or Concern</u> Bacteria, Nitrate	<u>Category</u> 5c, CS
	Deer Creek; 1242J	Bacteria, Nitrate, impaired macrobenthic community	5c, CS, CN
Project Location (Statewide or Watershed and County)	Deer Creek watershed in Falls, McLennan, and Bell counties Pond Creek watershed in Falls, Milam, and Bell counties		
Key Project Activities	Hire Staff (); Surface Water Quality Monitoring (X); Technical Assistance (); Education (X); Implementation (); BMP Effectiveness Monitoring (); Demonstration (); Planning (); Modeling (); Bacterial Source Tracking (); Other ()		
2017 Texas NPS Management Program Reference	<ul style="list-style-type: none"> • LTG 1, 2, 3 • STG 1A, 1B, 3A, 3B, 3G • Components 1, 2, 3, 7 		
Project Costs	\$130,831		
Project Management	<ul style="list-style-type: none"> • Texas A&M AgriLife Research, Texas Water Resources Institute 		
Project Period	April 1, 2022 – March 31, 2024		

Part I – Applicant Information

Applicant							
Project Lead	Lucas Gregory, Ph.D.						
Title	Associate Director						
Organization	Texas A&M AgriLife Research, Texas Water Resources Institute						
E-mail Address	lucas.gregory@ag.tamu.edu						
Street Address	578 John Kimbrough Blvd., 2118 TAMU						
City	College Station	County	Brazos	State	TX	Zip Code	77843-2260
Telephone Number	979-314-2361			Fax Number	979-845-0662		

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	Provide project oversight and reporting, QA/QC, conduct water sample collection and analysis.

Part II – Project Information

Project Type								
Surface Water	<input checked="" type="checkbox"/>	Groundwater	<input type="checkbox"/>					
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 <i>Texas Coastal NPS Pollution Control Program</i> ; or (f) the <i>Texas Groundwater Protection Strategy</i> ?						Yes	No	X
If yes, identify the document.		N/A						
If yes, identify the agency/group that developed and/or approved the document.			N/A		Year Developed	N/A		

Watershed Information				
Watershed or Aquifer Name(s)	Hydrologic Unit Code (12 Digit)	Segment ID	Category on 2020 IR	Size (Acres)
Pond Creek	120701010401-120701010405	1242F	5c, CS	146,758
Deer Creek	120701010109-120701010111	1242J	5c, CS, CN	73,476

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: *2020 Texas Integrated Report*, Clean Rivers Program Basin Summary/Highlights Reports, or other documented sources.

IMPAIRMENTS (2020 Integrated Report)

SegID: 1242F: Pond Creek: Perennial stream from the confluence of the Brazos River in Milam County upstream to headwaters 0.18 km north of FM 935 in Bell County

<u>Parameter</u>	<u>Category</u>	<u>Year</u>
Bacteria	5c	2010

1242F_01: From the Brazos confluence upstream to Live Oak Creek confluence

SegID: 1242J: Deer Creek: Perennial stream from the confluence of the Brazos River upstream to the confluence of Dog Branch northwest of Lott

<u>Parameter</u>	<u>Category</u>	<u>Year</u>
Bacteria	5c	2006

1242J_01: Deer Creek an Appendix D perennial stream from the confluence of the Brazos River upstream to the confluence of Dog Branch northwest of Lott

CONCERNS (2020 Integrated Report)

SegID: 1242F: Pond Creek: Perennial stream from the confluence of the Brazos River in Milam County upstream to headwaters 0.18 km north of FM 935 in Bell County

<u>Assessment Unit</u>	<u>Concern</u>	<u>Level of Support</u>
1242F_01	Nitrate	CS (Concern screening levels)

SegID: 1242J: Deer Creek: Perennial stream from the confluence of the Brazos River upstream to the confluence of Dog Branch northwest of Lott

<u>Assessment Unit</u>	<u>Concern</u>	<u>Level of Support</u>
1242J_01	Macrobenthic Community	CN (Concern for near non-attainment)
1242J_01	Nitrate	CS (Concern screening levels)

SOURCES (2020 Texas Integrated)

Pond Creek: Segment ID 1242F, AU ID 1242F_01

E. coli & Nitrate
 Point sources: Unknown
 Non-point sources: Unknown

Deer Creek: Segment ID 1242J, AU ID 1242J_01

E. coli, Nitrate, Macrobenthic Community
 Point sources: Unknown
 Non-point sources: Permitted runoff from confined animal feeding operations (CAFOs)

Project Narrative

Problem/Need Statement

Water quality in Deer & Pond Creeks currently exceeds recreational use standards and, as a result, Recreational Use Attainability Analysis' were conducted for both watersheds in 2012. The report shows that primary contact recreation occurs "frequently" on the waterbody (Tables 4&7):

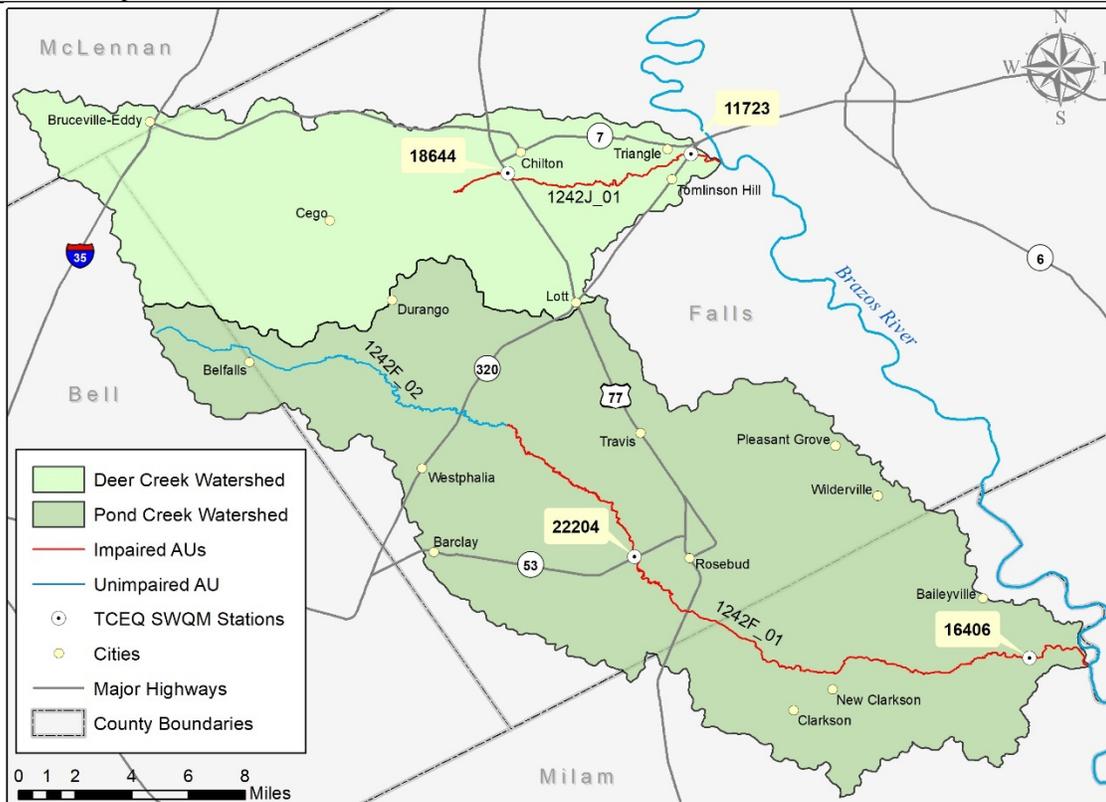
<https://www.tceq.texas.gov/assets/public/waterquality/standards/ruaa/brazos5/Brazos5Report.pdf> indicating that standards will not change.

Due to a lack of water quality data available for Deer Creek and Pond Creek, additional surface water quality monitoring data is necessary to provide a good foundation for future watershed planning and implementation activities. Additionally, expanded data collection will allow for a more accurate assessment of the waterbodies' conditions and aid in identifying potential causes and sources of pollution. It is through monitoring and adequate data that watershed managers will be able to get a true assessment of water quality and water quality inhibitors. To fully understand and appreciate the scope of the impairment, it is imperative that monthly sampling occurs within the watersheds.

TWRI has also been working with stakeholders in other the project watersheds to get on-the-ground implementation of agricultural BMPs. As such, TWRI proposes to distribute previously developed educational content that facilitates behavior change amongst the grazing community in the Deer and Pond Creeks watersheds.

Project Narrative

General Project Description



Through this project, supplemental water quality monitoring will be conducted with a focus on *E. coli* concentration data. Data will be collected at four sites monthly including TCEQ monitoring stations 11723 and 18644 in Deer Creek and 22204 and 16406 in Pond Creek. Flow data will be collected as well at the Pond Creek sites. Monthly sampling will allow data gaps to be filled and will improve analysis in the watersheds.

Additionally, existing water quality data collected through the Texas Clean Rivers Program will be retrieved and summarized in conjunction with data generated through this project. Existing water quality findings and trends will be discussed. Such data is crucial in understanding bacterial loads throughout the watershed and can be used in future LDC development and loading reduction estimates.

One of the goals of this project is to increase adoption of best management practices by landowners by reaching out to them through direct delivery of education and outreach materials. To accomplish this goal, TWRI will work with county appraisal districts to acquire landowner data. This data will be sorted to remove parcels that fall within city limits, remove parcels that do not qualify for agricultural tax exemptions and remove duplicates, providing a final contact list. The educational materials will describe best management practices, a call to action, and local experts that can provide financial and technical assistance. Using the contact list generated, TWRI will mail the educational materials to each landowner once in each county.

To determine if the education campaign was effective, TWRI will work with local SWCDs and NRCS in counties within the Deer and Pond Creeks watersheds. Residents that fall within one of the counties will be the group that receives the educational materials. TWRI will provide the SWCD and NRCS a contact list and the district will track the number of landowners that inquire about a plan as well as the number of landowners that adopt plans. Due to privacy rules currently in place, the SWCD and NRCS will only provide TWRI with a total number of inquiries and plans developed during the project period. Similarly, TWRI will work with a SWCD and NRCS office where the educational campaign was not implemented. A contact list for that county will also be provided to the local offices and inquiries and plans developed will be provided to TWRI as an aggregate. Using the difference in inquiry and plan numbers between the two counties, TWRI will determine whether the educational campaign was more successful than traditional approaches to encouraging the agricultural community to inquire about and adopt practices.

TWRI will also administer a post-evaluation within the counties selected for the project. The purpose of the evaluation will be to measure knowledge gained through the educational campaign as well as the intention to adopt. Prior to administration of the evaluation, TWRI will secure Institutional Review Board approval to protect participants from harm. TWRI will analyze results in the Final Report to TSSWCB.

Tasks, Objectives and Schedules			
Task 1	Project Administration		
Costs	\$19,624		
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 1st of March, June, September and December. 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	<ul style="list-style-type: none"> • 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	\$5,235			
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 3 consistent with the most recent versions of <i>EPA Requirements for Quality Assurance Project Plans (QA/R-5)</i> and the <i>TSSWCB Environmental Data Quality Management Plan</i> . All monitoring procedures and methods prescribed in the QAPP shall be consistent with the guidelines detailed in the <i>TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue (RG-415)</i> and <i>Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data (RG-416)</i> . [Consistency with Title 30, Chapter 25 of the Texas Administrative Code, <i>Environmental Testing Laboratory Accreditation and Certification</i> , 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 4
Subtask 2.2	TWRI will implement the approved QAPP. TWRI will submit revisions and necessary amendments to the QAPP as needed.			
	Start Date	Month 1	Completion Date	Month 4
Deliverables	<ul style="list-style-type: none"> • QAPP approved by TSSWCB and EPA 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 3 			

Tasks, Objectives and Schedules				
Task 3	Continued Surface Water Quality Monitoring for Deer and Pond Creeks			
Costs	\$90,272			
Objective	To continue collecting surface water quality and flow data for future watershed-based planning efforts.			
Subtask 3.1	TWRI will conduct monthly ambient water quality monitoring at two sites in each of the Deer and Pond Creek watersheds. Sampling will include routine field parameters (temperature, pH, DO, conductivity) and collection of water samples of the volume required by the QAPP in Task 2. Flow data will also be collected for both Pond Creek sites. Water samples will be delivered to Aqua-Tech Laboratories Inc. within the appropriate holding time for analysis. Water samples returned to the lab will be analyzed for <i>E. coli</i> bacteria.			
	Start Date	Month 5	Completion Date	Month 23
Subtask 3.2	Water Quality Monitoring – Upon QAPP approval, TWRI will conduct monthly ambient water quality monitoring. Sampling will include basic field parameters (temperature, pH, DO, conductivity, and flow where conditions allow) and grab sample collection. Water samples will be delivered to a NELAP accredited laboratory within the appropriate holding time for bacterial analysis.			
	Start Date	Month 5	Completion Date	Month 23

Deliverables	<ul style="list-style-type: none"> • Documentation of sampling events in QPRs • Quarterly data submissions (data summary and checklist, event and result files, and validator report) after successful upload into SWQMIS test environment
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Tasks, Objectives and Schedules				
Task 4	Distribution of Education Materials and Effectiveness Evaluation			
Costs	\$15,700			
Objective	Identify landowners within project watersheds where the adoption of grazing practices are likely to have the largest impact and evaluate the effectiveness of an educational campaign in increasing adoption of best management practices and increasing water quality.			
Subtask 4.1	TWRI will work with County Appraisal Districts within the watersheds to acquire landowner contact information for targeting distribution of educational materials. A database of landowner contact information will be developed by removing landowners that fall within city boundaries as well as removing duplicates.			
	Start Date	Month 1	Completion Date	Month 6
Subtask 4.2	TWRI will use existing educational brochures/pamphlets for distribution in the project watersheds. Content of the materials will include information on water quality, best management practices, a call to action and contact information for local SWCD and NRCS offices.			
	Start Date	Month 1	Completion Date	Month 6
Subtask 4.3	TWRI will mail educational materials to landowners identified in subtasks 4.1 to encourage them to adopt WQMPs, Conservation Plans and appropriate BMPs. Mailing will occur once in the first year of the project.			
	Start Date	Month 6	Start Date	Month 18
Subtask 4.4	TWRI will work with local SWCDs and NRCS offices to track the number of plans that have been implemented within the counties identified by the project team (one county per watershed). Data shared by SWCDs and NRCS will be aggregate data and no individual information will be shared.			
	Start Date	Month 1	Start Date	Month 24
Subtask 4.5	TWRI will conduct post-evaluations within the watersheds to assess knowledge gained and response to messaging. Upon completion of the delivery of educational materials, post-evaluations will be administered.			
	Start Date	Month 1	Start Date	Month 24
Deliverables	<ul style="list-style-type: none"> • Database of landowner contact information • Educational materials to be mailed • Proposed mailing schedule • Estimated number of plans and practices implemented • Draft and final post-evaluations • Post-evaluation results 			

Project Goals
<p>TWRI will acquire and summarize existing surface water quality data from the watershed. Existing data will be supplemented through monthly water quality monitoring at sites identified from site recon and the QAPP. New data will be submitted to SWQMIS. Existing and new data will be summarized and analyzed in the project final report to evaluate water quality trends.</p> <p>Another goal of this project is to increase landowner adoption of best management practices through a more cost-effective approach than traditional education programs. To achieve this goal, TWRI will deliver educational materials directly to landowners through mail. The targeted educational material will include concise and relevant information for landowners explaining why program participation is important and how to participate. We estimate that this project will repeatedly put best practice information directly in the hands of high priority landowners that may otherwise not attend existing workshops, meetings or information sessions.</p>

Measures of Success

This project will be considered successful upon collection of 18 months' worth of monthly ambient water quality data. Progress will be reported in quarterly progress reports and results will be provided in a final report. Another measure of success would be when educational materials are delivered to key stakeholders. Through the distribution of the educational materials to the stakeholders, we anticipate that the number of Conservation Plans and Water Quality Management Plans will increase.

2017 Texas NPS Management Program Reference

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, ...available resources in watersheds identified as impacted by NPS pollution
- 2 – Support the implementation of state, regional and local programs to prevent NPS pollution through assessment... and education.
- 3 – Support the implementation of state, regional, and local programs to reduce nonpoint source pollution, such as the implementation of strategies defined in TMDL I-Plans, WPPs, and other water quality planning efforts in the state.
- 7 – Increase overall public awareness of NPS issues and prevention activities

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...and areas where additional information is needed.

- Objective A – Identify surface water bodies...from the IR... that need additional information to characterize non-attainment of designated uses and water quality standards.
- Objective B – Ensure that monitoring procedures meet quality assurance requirements and are in compliance with EPA-approved TSSWCB Quality Management Plans.

Goal Three – Education: Conduct education... activities to help increase awareness of NPS pollution and prevent activities, which contribute to the degradation of water bodies... by NPS pollution.

- Objective A – Enhance existing outreach programs at the ... regional and local level 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 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 7: Manage and implement the NPS program efficiently and effectively, including necessary financial management.

Estimated Load Reductions Expected

Loading reductions are not anticipated to result from this project.

Part III – Financial Information

Budget Summary			
Total	\$ 130,831	Total	100%
Personnel	\$	71,456	
Fringe Benefits	\$	25,423	
Travel	\$	1,716	
Equipment	\$	0	
Supplies	\$	600	
Contractual	\$	0	
Construction	\$	0	
Other	\$	14,571	
Total Direct Costs			
	\$	113,766	
Indirect Costs (≤ 15%)			
	\$	17,065	
Total Project Costs			
	\$	130,831	

Budget Justification		
Category	Total Amount	Justification
Personnel	\$ 71,456	Associate Director: \$98,312 annually, 0.48 mo. (2% per year) – \$4,111 Research Specialist II: \$55,762 annually, 7.2 mo. (30% per year) – \$34,977 Research Associate: \$40,000 annually, 1.76 mo. (7.33% per year) – \$6,118 TBD Program Manager: \$71,467 annually, 2 mo. (8.33% per year) – \$12,085 TBD QA Officer: \$75,000 annually, 0.96 mo. (4% per year) – \$6,045 TBD Research Assistant: \$45,000 annually, 2.14 mo. (8.89% per year) – \$8,120 *named positions are budgeted with a 3% annual pay increase in all years; TBD positions and graduate students are budgeted with a 3% pay increase in years after year 1 *(Salary estimates are based on average monthly percent effort for the entire contract. Actual percent effort may vary more or less than estimated between months; but in aggregate, will not exceed total effort estimates for the entire project.) *cell phone allowances for project calls/emails during & after business hours & travel are occasionally factored into salaries & fringe, but again, will not exceed overall dollar amount.
Fringe Benefits	\$ 25,423	Fringe for faculty and staff is calculated at 18.8% salary plus \$825 per month. *(Fringe benefits estimates are based on salary the estimates listed. Actual fringe benefits will vary between months coinciding with percent effort variations; but in aggregate, will not exceed the overall estimated total.) *cell phone allowances for project calls/emails during & after business hours & travel are occasionally factored into salaries & fringe, but again, will not exceed overall dollar amount.
Travel	\$ 1,716	Monitoring Mileage: 18 trips * 160 miles per trip * \$0.50 per mile = \$1,440 SWCD Meeting Mileage: 3 trips * 184 miles * \$0.50 per mile = \$276
Equipment	\$ 0	N/A
Supplies	\$ 600	General project supplies, including, but not limited to: paper, pens, sharpies, clipboard, towels, storage bins, batteries & housing, binders, labels - \$600
Contractual*	\$ 0	N/A
Construction	\$ 0	N/A
Other	\$ 14,571	Communication Services at \$75/hour: \$1,200 Analysis costs at 72 samples × \$54 per sample: \$3,888* Equipment Rental/User fees: \$5,300 BMP Postcard Mailer: \$620 Survey: \$2,324 Survey Notification and Reminder: \$1,239 *Lab analysis costs are estimated at \$54 per sample. Actual costs may vary from the estimated amount.
Indirect	\$ 17,065	Per the RFP requirements, indirect costs are limited at 15% of total direct costs. \$113,766 Total Direct Costs * 15% = \$17,065