

**Texas State Soil and Water Conservation Board  
 Clean Water Act §319(h) Nonpoint Source Grant Program  
 FY 2022 Workplan 22-05**

| SUMMARY PAGE  |  |   |   |
|---|--|---|---|
| Title of Project                                    | Tracking Success of Agricultural Management Measures in Four Texas Watersheds  |   |   |
| Project Goals                                       | <ul style="list-style-type: none"> <li>Promote and track the implementation of agricultural best management practices (BMPs) in targeted watersheds</li> <li>Facilitate expanded implementation of agricultural management measures identified in the project area's Watershed Protection Plans (WPPs)</li> <li>Conduct a digital agricultural demonstration to better illustrate to the agricultural community the value, benefits, and protection that the featured BMPs can have on their land</li> <li>Coordinate and/or conduct water resources and related environmental outreach/education efforts across the project watersheds</li> </ul> |   |   |
| Project Tasks                                       | (1) Project Administration; (2) Development and Distribution of Outreach and Educational Materials; (3) Facilitation and Participation in Educational Programs; (4) Demonstration of Stocking Strategies on Forage Production  |   |   |
| Measures of Success                                 | <ul style="list-style-type: none"> <li>Facilitate and promote WPP implementation regarding agricultural management measures</li> <li>Deliver educational materials to key stakeholders across the four watersheds</li> <li>Increase in the number of Conservation Plans and Water Quality Management Plans adopted</li> <li>Increase watershed stewardship among stakeholders</li> </ul>   |   |   |
| Project Type  | Implementation (X); Education (X); Planning ( ); Assessment ( ); Groundwater ( )   |   |   |
| Status of Waterbody on 2020 Texas Integrated Report | <u>Leon Watershed Segment ID</u><br>Leon River<br>1221<br><br><u>Mission/Aransas Segment ID</u><br>2001_01<br>2003_01<br><br><u>Arroyo Colo Watershed Segment ID</u><br>Arroyo Colorado<br>2201<br>2202  | <u>Parameter of Impairment or Concern</u><br><br>Bacteria<br><br><br>Enterococcus<br>Enterococcus<br><br>Bacteria, dissolved oxygen, mercury, PCBs<br>Bacteria, mercury, PCBs | <u>Category</u><br><br>5c<br><br><br>4a<br>4a<br><br>5c, 5a (PCBs)<br>5c, 5a (PCBs) |

|  | <u>Baffin Bay Watershed Segment ID</u><br>Petronila Creek Tidal 2203<br><br>Petronila Creek Above Tidal 2204<br><br>San Fernando Creek 2492A   | <u>Parameter of Impairment or Concern</u><br>bacteria (geomean)<br>pH<br>Total Phosphorus<br>Chlorophyll-a<br><br>TDS<br>Chloride<br>Sulfate<br>Chlorophyll-a<br><br>Bacteria<br>Chlorophyll-a<br>Total Phosphorus<br>Nitrate | <u>Category</u><br>5c<br>CN<br>CN<br>CN<br><br>4a<br>4a<br>4a<br>CS<br><br>5a<br>CS<br>CS<br>CS |           |              |           |
|--|--|---|---|-----------|--------------|-----------|
| <b>Project Location</b><br>(Statewide or Watershed and County) | Leon River: Hamilton, Coryell, Comanche, Mills, Erath, and McClennan counties<br>Mission/Aransas Rivers: Bee, San Patricio, Refugio, and Goliad counties<br>Baffin Bay Watershed: Jim Wells, Nueces, Kleberg, and Duvall counties<br>Arroyo Colorado: Cameron, Hidalgo, and Willacy counties |   |   |           |              |           |
| <b>Key Project Activities</b>                                  | Hire Staff ( ); Surface Water Quality Monitoring ( ); Technical Assistance ( );<br>Education (X); Implementation (X); BMP Effectiveness Monitoring ( );<br>Demonstration (X); Planning ( ); Modeling ( ); Bacterial Source Tracking ( ); Other ( )   |   |   |           |              |           |
| <i>2017 Texas NPS Management Program Reference</i>             | <ul style="list-style-type: none"> <li>• Component 1 LTG 1, Objectives 1, 3, 6, 7</li> <li>• STG 2, Objective D</li> <li>• STG 3, Objective A, B, D, G</li> </ul>  |   |   |           |              |           |
| <b>Project Costs</b>   | <b>Federal</b>   | \$317,294   | <b>Non-Federal</b>  | \$211,529 | <b>Total</b> | \$528,823 |
| <b>Project Management</b>                                      | <ul style="list-style-type: none"> <li>• Texas A&amp;M AgriLife Extension Service, Texas Water Resources Institute</li> </ul>  |   |   |           |              |           |
| <b>Project Period</b>  | September 1, 2022 – August 31, 2025  |   |   |           |              |           |

## Part I – Applicant Information

| Applicant        |  |        |        |            |              |          |            |
|------------------|--|--------|--------|------------|--------------|----------|------------|
| Project Lead     | T. Allen Berthold, PhD   |        |        |            |              |          |            |
| Title            | Associate Director   |        |        |            |              |          |            |
| Organization     | AgriLife Extension, Texas Water Resources Institute                |        |        |            |              |          |            |
| E-mail Address   | <a href="mailto:taberthold@ag.tamu.edu">taberthold@ag.tamu.edu</a> |        |        |            |              |          |            |
| Street Address   | 578 John Kimbrough Blvd., 2260 TAMU                                |        |        |            |              |          |            |
| City             | College Station  | County | Brazos | State      | TX           | Zip Code | 77843-2260 |
| Telephone Number | 979-845-2028   |        |        | 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 Extension Service, Texas Water Resources Institute (TWRI) | TWRI will manage the project, develop and distribute educational resources, participate in in-person educational programs, and coordinate the production of a field day and produce it digitally. |
| Texas A&M AgriLife Research & Extension Center at Overton                    | Faculty at the Overton Center will assist with the development and distribution of educational materials as a product of their ongoing efforts to provide education on proper grazing practices.  |

## 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> ? |                                     |  |                          | <table border="1"> <tr> <td>Yes</td> <td><input checked="" type="checkbox"/></td> <td>No</td> <td><input type="checkbox"/></td> </tr> </table> | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> |
| Yes   | <input checked="" type="checkbox"/> | No   | <input type="checkbox"/> |  |     |                                     |    |                          |
| If yes, identify the document.  |                                     | Mission and Aransas River Watersheds Watershed Protection Plan, Watershed Protection Plan for the Leon River Below Proctor Lake and Above Belton Lake, A Watershed Protection Plan for the Arroyo Colorado Phase I |                          |  |     |                                     |    |                          |
| If yes, identify the agency/group that developed and/or approved the document.  |                                     | Mission/Aransas: TWRI<br>Leon: Brazos River Authority<br>Arroyo: TCEQ  | Year Developed           | 2021<br>2015<br>2007   |     |                                     |    |                          |

| Watershed Information                 |   |   |                     |              |
|---------------------------------------|---|---|---------------------|--------------|
| Watershed or Aquifer Name(s)          | Hydrologic Unit Code (12 Digit)   | Segment ID                                    | Category on 2020 IR | Size (Acres) |
| Mission and Aransas Rivers            | 121004050201;<br>121004050202;<br>121004060301;<br>121004060303;<br>121004060306;<br>121004060307;<br>121004070305;<br>121004070402;<br>121004070404;<br>121004070404;<br>121004050205;     | 2001, 2003                                    | 4a                  | 1,363,933    |
| Leon River                            | 120702010501 –<br>120702010509,<br>120702010601 –<br>120702010605,<br>120702010701 –<br>120702010705,<br>120702010801 –<br>120702010806,<br>120702010901 –<br>120702010908,<br>120702011002 | 1221, 1221A,<br>1221B, 1221C,<br>1221D, 1221F | 5c                  | 871,488      |
| Arroyo Colorado                       | 121102080700<br>121102080600<br>121102080100  | 2201, 2202                                    | 5c                  | 1,500,160    |
| Petronila Creek Above Tidal Watershed | 121102050501-<br>0506; 0601-0608  | 2204  | 5b                  | 357,994      |

|                                 |   |       |    |         |
|---------------------------------|---|-------|----|---------|
| San Fernando Creek              | 121102040101 - 0109; 0201 - 0206; 0301- 0310; 0401-0409 | 2492A | 5a | 814,144 |
| Petronila Creek Tidal Watershed | 121102050808  | 2203  | 5c | 10,918  |

### 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.

#### Leon River

| Impairment Description(s) | Category | Year Segment First Listed |
|---------------------------|----------|---------------------------|
|---------------------------|----------|---------------------------|

|  |    |      |
|--|----|------|
| Bacteria in water (Recreation Use)   | 5c | 1996 |
| 1221_06 From confluence with South Leon Creek upstream to confluence with Walnut Creek |    |      |

| Impairment Description(s) | Category | Year Segment First Listed |
|---------------------------|----------|---------------------------|
|---------------------------|----------|---------------------------|

|  |    |      |
|--|----|------|
| Bacteria in water (Recreation Use)   | 5b | 2004 |
| 1221A_01 Portion of Resley Creek from confluence with Leon River upstream to conf. with unnamed tributary (NHD RC 12070201007823), approx. 1.0 mi N. of Comanche County Line |    |      |
| 1221A_02 Portion of Resley Creek from confluence with unnamed tributary (NHD RC 12070201007823), upstream to headwaters in Erath County.                                     |    |      |

| Impairment Description(s) | Category | Year Segment First Listed |
|---------------------------|----------|---------------------------|
|---------------------------|----------|---------------------------|

|  |    |      |
|--|----|------|
| Depressed dissolved oxygen in water  | 5b | 2006 |
| 1221A_01 Portion of Resley Creek from confluence with Leon River upstream to conf. with unnamed tributary (NHD RC 12070201007823), approx. 1.0 mi N. of Comanche County Line |    |      |

SegID: 1221D Indian Creek

Perennial stream from the confluence of the Leon River to the headwaters approximately 7.5 km west of Comanche in Comanche County

| Impairment Description(s) | Category | Year Segment First Listed |
|---------------------------|----------|---------------------------|
|---------------------------|----------|---------------------------|

|   |    |      |
|---|----|------|
| Bacteria in water (Recreation Use)  | 5b | 2006 |
| 1221D_01 From confluence with Leon River, upstream to confluence with Armstrong Creek   |    |      |
| 1221D_02 Perennial stream from the confluence with Armstrong Creek approximately 1.5 km downstream of SH 36 upstream to the confluence with an unnamed tributary approximately 0.1 km upstream of US 377; |    |      |

SegID: 1221G Coryell Creek

Coryell Creek from the confluence of the Leon River west of Gatesville upstream to headwater at Coryell CR 219 north of Gatesville

| Impairment Description(s) | Category | Year Segment First Listed |
|---------------------------|----------|---------------------------|
|---------------------------|----------|---------------------------|

|   |    |      |
|---|----|------|
| Bacteria in water (Recreation Use)  | 5c | 2020 |
| 1221G_01 Coryell Creek from the confluence of the Leon River west of Gatesville upstream to headwater at Coryell CR 219 north of Gatesville |    |      |

#### Mission and Aransas Rivers

Segment 2001: From the confluence with Mission Bay in Refugio County to a point 7.4 km (4.6 mi) downstream of US 77 in Refugio County

| Assessment Unit  | Impairment                | Category |
|--|---------------------------|----------|
| 2001_01: From the confluence with Mission Bay in Refugio County to a point 7.4 km (4.6 mi) downstream of US 77 in Refugio County | Chlorophyll-a<br>Bacteria | CS<br>NS |

2003\_01: From the confluence with Copano Bay in Aransas/Refugio County to a point 1.6 km (1.0 mi) upstream of US 77 in Refugio/San Patricio County

Chlorophyll-a CS  
 Bacteria NS

**Baffin Bay**

**Segment 2203:** Petronila Creek Tidal: From the confluence of Chiltipin Creek in Kleberg County to a point 1 km (0.6 miles) upstream of private road crossing near Laureles Ranch in Kleberg County

**Segment 2204:** Petronila Creek Above Tidal: From a point 1 km (0.6 miles) upstream of private road crossing near Laureles Ranch in Kleberg County to the confluence of Agua Dulce and Banquete Creeks in Nueces County

*AU ID 2204\_01:* From downstream end of segment to the confluence with 2204A, unnamed drainage ditch tributary to Petronila Creek at N-97.7, W27.65 approximately 32.5 km (20.2 mi) upstream

*AU ID 2204\_02:* From the confluence with 2204A, unnamed drainage ditch tributary of Petronila Creek at N-97.7, W-27.65 to the upstream end of segment at the confluence with Agua Dulce and Banquete Creeks approximately 31.6 km (19.6 mi) upstream

**Segment 2492A:** San Fernando Creek: From the Cayo Del Grullo confluence in Kleberg County upstream to the confluence with Chiltipin Creek and San Diego Creek in Jim Wells County

|                                    | <u>Impairment</u> | <u>Category</u> | <u>Year Listed</u> |
|------------------------------------|-------------------|-----------------|--------------------|
| 2203 : Petronila Creek Tidal       | bacteria          | 5c              | 2010               |
| 2204 : Petronila Creek Above Tidal | bacteria          | 5c              | 2016               |
| 2492A: San Fernando Creek          | bacteria          | 5a              | 2006               |

**Concerns**

**Level of Support**

|                             |                                      |
|-----------------------------|--------------------------------------|
| 2204_01: Chlorophyll-a      | CS (Concern screening levels)        |
| 2204_02: Chlorophyll-a      | CS (Concern screening levels)        |
| 2203_01: pH                 | CN (Concern for near non-attainment) |
| 2203_01: Chlorophyll-a      | CS (Concern screening levels)        |
| 2492A_01: Chlorophyll-a     | CS (Concern screening levels)        |
| 2492A_01: Nitrate           | CS (Concern screening levels)        |
| 2492A_01: Total phosphorous | CS (Concern screening levels)        |

**Sources**

**Petronila Creek Tidal: Segment ID 2203**

*Enterococcus, pH, Chlorophyll-a*

Point sources: Unknown

Non-point sources: Unknown

**Petronila Creek Above Tidal: Segment ID 2204, AU IDs 2204\_01 and 2204\_02**

*Chloride, Sulfate, Total Dissolved Solids*

Point sources: Unknown

Non-point sources: Petroleum/natural gas production activities (permitted)

*E. coli, Chlorophyll-a*

Point sources: Unknown

Non-point sources: Unknown

**San Fernando Creek: Segment ID 2492A**

*Total phosphorous, nitrate, chlorophyll-a*

Point sources: municipal point source discharges

Non-point sources: Unknown

**Segment ID: 2201 Arroyo Colorado Tidal**

2201\_01, 2201\_02, 2201\_03 **Parameters:** Nitrate, Bacteria, Chlorophyll-a **Sources:** NPS - Crop Production (Irrigated); NPS – Urban Runoff/Storm Sewers; PS - Municipal Point Source Discharges

2201\_04 **Parameters:** DO, Chlorophyll-a, Nitrate, tPhosphorus, Bacteria **Sources:** NPS - Urban Runoff/Storm Sewers; PS - Municipal Point Source Discharges; UNK - Source Unknown

2201\_05 **Parameters:** DO, tPhosphorus, bacteria, Chlorophyll-a, consumption, Nitrate **Sources:** NPS - Crop Production (Irrigated); NPS - Non-Point Source; NPS - Urban Runoff/Storm Sewers; PS - Industrial Point Source Discharge; UNK - Source Unknown Municipal Point Source Discharges

**Segment ID: 2202 Arroyo Colorado Above Tidal**

2202\_01, 2202\_02, 2202\_03, 2202\_04 **Parameters:** Chlorophyll-a, Nitrate, tPhosphorus, bacteria, consumption **Sources:** NPS - Crop Production (Irrigated); NPS – Urban Runoff/Storm Sewers; PS - Municipal Point Source Discharges

**Project Narrative**

**Problem/Need Statement**

The water quality issues vary slightly from one project area to another. However, the main issues are elevated bacteria concentrations, depressed dissolved oxygen, and elevated nutrient levels. Therefore, contact recreation use is not supported, excessive nutrients are possibly contributing to high levels of Chlorophyll-a, and in some instances the microbenthic community is impaired. In the absence of nutrient criteria for these waters, the elevated nutrient levels are listed as concerns.

TWRI has been involved in all the project areas for multiple years and have assisted stakeholders with development of their WPPs. Through the WPP development process, potential sources of the impairments were identified through input from stakeholder groups, review of available data, and modeling the potential sources of impairments. A common potential source of loading in all the projects are bacteria, nutrients, and oxygen depleting substances found in runoff from agricultural operations. Management measures to address these potential loadings were developed and integrated in all the WPPs. Since completion of the WPPs, TWRI has been working with stakeholders in all the project watersheds to get on-the-ground implementation of agricultural BMPs.

A major component of each of these agricultural management measures includes education and outreach about proper stocking strategies, practices that can be adopted to improve grazing, and sources of technical and financial assistance for these practices. The most common method of delivering education and outreach has been through traditional in-person programs, but as agricultural producer demographics begin to change and shift, there is a need to reach them through various methods, including digital. More agricultural producers are using digital sources of information now more than at any time in our history, and there has been an overall cultural shift to using digital resources in response to Covid-19. To effectively reach them, we must create digital media that they can easily access on their desktop computers, tablets, and mobile devices. Additionally, we need to deliver information that is easy to digest using a method that is proven to facilitate behavioral change.

Rogers (2003) describes a process, the Innovation-Decision Process, that all individuals go through when they are deciding whether to adopt an innovation or practice. The stages of this process are 1) Knowledge, where an individual first learns of an innovation, 2) Persuasion, where several attributes persuade an individual to adopt, 3) Decision, where

an individual decides to adopt or not, 4) Implementation, where an individual implements the practice if they have decided to adopt, and 5) Confirmation, where an individual decides to continue the practice or go back to a method that they were operating before.

As watershed managers, we can only influence the first two stages of Rogers Innovation-Decision Process. We make agricultural producers aware of practices by first raising awareness and introducing an innovation in an area of their operation. Following this, we can help in persuading producers to adopt practices by showing them that 1) it is better than what they were doing before, 2) it fits within the current method of operation, 3) it is easy to adopt, 4) they can try it on a partial basis before deciding to fully adopt, and 5) they can see that it works, which often times comes through field demonstrations.

Following these key attributes to encourage producers to adopt BMPs that improve water quality is crucial to WPP implementation success. Grazing management practices are similar from one watershed to the other, so a cost-effective approach would be to use the same content across watersheds and have that content follow a proven behavior change theory.

As such, TWRI proposes to develop content that facilitates behavior change amongst the grazing community and deliver that content in various places where agricultural producers receive information to increase a positive impact, not only in the watersheds of interest, but across the state.

Rogers, E. M. (2003). *Diffusion of innovations*. New York: Free Press.

## Project Narrative

### General Project Description (Include Project Location Map)

TWRI will facilitate collaborative efforts among project partners to implement agricultural management measures for the project watersheds. Until now, a common approach to implementation of agricultural management measures has been to approach each project watershed independently of other watersheds. Currently, individual watershed coordinators assist stakeholders with development of the WPP, and then enter implementation. Though watershed coordinators frequently share information, efforts to implement agricultural management measures have been solely at the discretion of each watershed coordinator. This new approach/method will be at a larger, coordinated multiple-watershed scale that, once developed, could be used a statewide tool or approach to greater implementation of agricultural BMPs.

The majority of the WPPs that TWRI is currently engaged in all have increased implementation of agriculture management measures as a requirement for successfully addressing a contact recreation impairment or nutrient concerns.

Successful and long-lasting implementation of agricultural BMPs requires completion of multiple steps. Following Roger's Diffusion of Innovation Theory, the steps necessary for successful implementation of BMPs should address the relative advantage, compatibility, complexity, trialability, and observability of the management practices. The proposed new approach is a full package that addresses each of the key steps for successful implementation. TWRI, with the assistance of project partners, will utilize educational materials developed in the TSSWCB project titled *Implementing and Tracking Success of Agricultural Management Measures in Four Texas Watersheds* and customize them for use in these new project areas. Then, through cooperative outreach methods, the materials will be distributed and marketed specifically to the agricultural producers. The culmination of the project will be the distribution of the educational field day, or demonstration day, developed in the project previously referenced. In this way, the producers across all the watersheds, will have the opportunity to see the implementation of these BMPs in a digital format. It is believed that this process will have the greatest impact on greater implementation of BMPs and a resulting impact on the receiving streams water quality.



This project is for a multi-faceted approach. Key components include education, outreach, and demonstration.

The education component will involve the customization of educational materials that will describe the BMPs, estimated cost of initial implementation, available financial/technical assistance, profitability estimates, and maintenance costs.

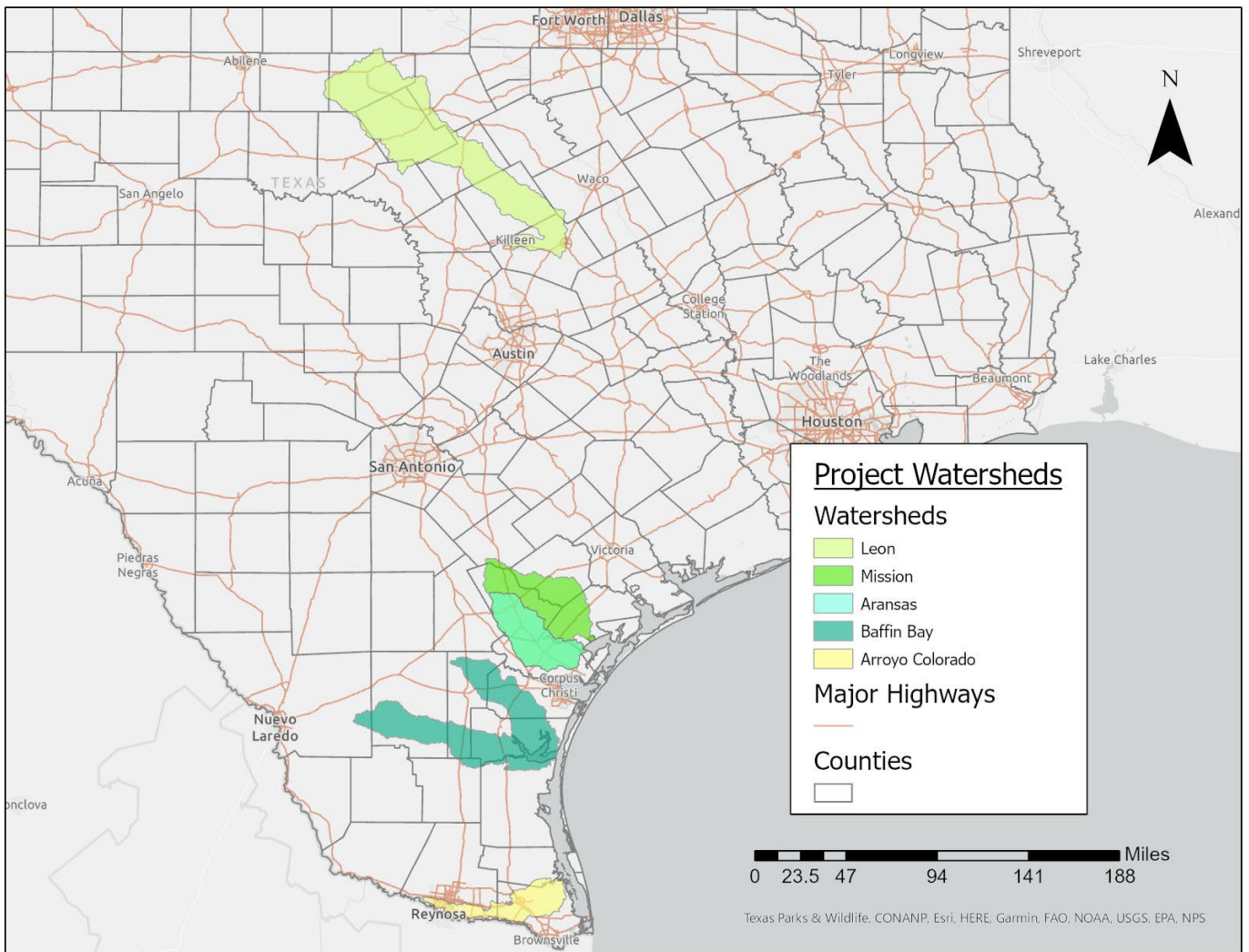
Outreach will consist of the methods used to contact the agricultural community utilizing the educational materials developed. This will include:

- Direct mailings
- Newspaper
- Videos
- Social media

TWRI will work with project partners to organize one education program in each watershed per year that discusses stocking strategies and grazing management. The program may include elements of riparian education, beef cattle management and production, or other ranching topics. Visual demonstrations will be provided with these trainings, such as a rainfall simulation/runoff demonstration, to better illustrate the effects of BMP utilization.

Finally, demonstration of the BMPs will be showcased during the Digital Field Day. This event will be conducted as part of the TSSWCB project titled *Implementing and Tracking Success of Agricultural Management Measures in Four Texas Watersheds (#21-12)* and customized and distributed in the new project areas. This will be the culmination of extensive coordination with project partners, especially faculty at the Texas A&M AgriLife Research and Extension Center in Overton. The Overton Center has the distinct honor of currently conducting the longest continuous stocking experiment in the United States. Through this Digital Field Day, producers will be able to see the value of rotational grazing and the potential to improve forage production, ultimately improving water quality. To extend the reach and impact of this event, it will be produced in an online, digital format, that can be viewed on desktop computers, tablets, and mobile devices.

See map of the project watersheds on the following page.



| Tasks, Objectives and Schedules |   |          |             |                 |          |          |
|---------------------------------|---|----------|-------------|-----------------|----------|----------|
| Task 1                          | Project Administration  |          |             |                 |          |          |
| Costs                           | Federal   | \$15,865 | Non-Federal | \$10,576        | Total    | \$26,441 |
| 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 1 <sup>st</sup> of January, April, July and October. QPRs shall be distributed to all Project Partners.  |          |             |                 |          |          |
|                                 | Start Date  | Month 1  |             | Completion Date | Month 36 |          |
| 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 36 |          |
| 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 36 |          |
| 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 24 |             | Completion Date | Month 36 |          |
| Deliverables                    | <ul style="list-style-type: none"> <li>• QPRs in electronic format</li> <li>• Reimbursement Forms and necessary documentation in hard copy format</li> <li>• Final Report in electronic and hard copy formats</li> </ul>  |          |             |                 |          |          |

| Tasks, Objectives and Schedules |  |           |             |           |       |           |
|---------------------------------|--|-----------|-------------|-----------|-------|-----------|
| Task 2                          | Development and Distribution of Outreach and Educational Materials   |           |             |           |       |           |
| Costs                           | Federal  | \$158,647 | Non-Federal | \$105,765 | Total | \$264,412 |
| Objective                       | To raise awareness amongst the agricultural community on grazing management strategies and BMPs that improve land management (as well as sources for technical and financial assistance), ultimately improving water quality, through the use of materials across all watersheds in a method consistent with behavioral change theory. |           |             |           |       |           |

|              |   |                 |          |                 |          |
|--------------|---|-----------------|----------|-----------------|----------|
| Subtask 2.1  | <p>TWRI will distribute outreach materials with the goal of raising awareness about grazing BMPs that can be adopted to improve water quality as well as technical and financial resources for these practices. Materials may include the following that will be developed by using content from materials developed from the TSSWCB project #21-12. These include:</p> <ul style="list-style-type: none"> <li>- direct mailing post cards – one post card with consistent messaging</li> <li>- newspaper articles – up to three</li> <li>- short videos – up to six</li> <li>- social media schedules – 10 per year</li> </ul> <p>All materials will be produced on a general level such that they can be used across multiple project watersheds. However, local contact information to SWCD/NRCS offices will be included and specific to the county where materials are being distributed. Number of contacts will be reported in quarterly progress reports.</p> <p>To reach as many landowners as possible in a cost-efficient manner, TWRI will coordinate with local stakeholders to develop a schedule of delivery for outreach materials within a given year. However, over the course of the project, materials will be distributed using the schedule below for each of the four watersheds. Number of contacts will be reported in quarterly progress reports (see Task 1).</p> <p>Year 1</p> <ul style="list-style-type: none"> <li>- direct mailing post cards – delivered three times</li> <li>- newspaper article – one article</li> <li>- short videos distributed via social media – six videos total</li> <li>- grazing BMP social media schedules – 10 per year</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>- direct mailing post cards – delivered once</li> <li>- newspaper article – one article</li> <li>- short videos distributed via social media – six videos total</li> <li>- grazing BMP social media schedules – 10 per year</li> </ul> <p>Year 3</p> <ul style="list-style-type: none"> <li>- direct mailing post cards – delivered once</li> <li>- newspaper article – one article</li> <li>- short videos distributed via social media - six videos total</li> <li>- grazing BMP social media schedules – 10 per year</li> <li>- distribution of demonstration video across four watersheds</li> </ul> |                 |          |                 |          |
| Subtask 2.2  | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; text-align: center;">Start Date</td> <td style="width: 25%; text-align: center;">Month 1</td> <td style="width: 25%; text-align: center;">Completion Date</td> <td style="width: 25%; text-align: center;">Month 36</td> </tr> </table> <p>TWRI will work with local watershed coordinators and NRCS/SWCDs to measure success of the outreach effort and will report on an annual basis. Metrics may include number conservation plans/WQMPs (henceforth called plans) developed, site visits by local technicians/conservationists, number of practices implemented, web analytics, and social media views and engagements.</p>   | Start Date      | Month 1  | Completion Date | Month 36 |
| Start Date   | Month 1   | Completion Date | Month 36 |                 |          |
| Deliverables | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; text-align: center;">Start Date</td> <td style="width: 25%; text-align: center;">Month 1</td> <td style="width: 25%; text-align: center;">Completion Date</td> <td style="width: 25%; text-align: center;">Month 36</td> </tr> </table> <ul style="list-style-type: none"> <li>• Educational Videos – 6 total</li> <li>• Direct mailing post card – 1 total</li> <li>• newspaper articles – 1 annually</li> <li>• 10 social media schedules/yr – submitted quarterly</li> <li>• Measures of success – submitted annually</li> </ul>  | Start Date      | Month 1  | Completion Date | Month 36 |
| Start Date   | Month 1   | Completion Date | Month 36 |                 |          |

| <b>Tasks, Objectives and Schedules</b> |   |           |             |                 |          |           |
|--|---|-----------|-------------|-----------------|----------|-----------|
| Task 3                                 | Facilitation and Participation in Educational Programs  |           |             |                 |          |           |
| Costs                                  | Federal   | \$142,782 | Non-Federal | \$95,188        | Total    | \$237,970 |
| Objective                              | To deliver in-person programs as well as demonstrate to agricultural producers the benefits of good grazing management and the impacts to runoff under various pasture scenarios, demonstrating additional phases of behavioral change theory   |           |             |                 |          |           |
| Subtask 3.1                            | TWRI will work with collaborating entities to organize one education program in each watershed per year that discusses stocking strategies and grazing management. The program may include but is not limited to 1) Riparian Education and 2) Lone Star Healthy Streams (Beef Cattle component). In addition, a rainfall simulation/runoff demonstration will be given to better illustrate the effects of BMP utilization. |           |             |                 |          |           |
|  | Start Date  | Month 1   |             | Completion Date | Month 36 |           |
| Subtask 3.2                            | Using a rainfall simulation/runoff demonstration as described in subtask 3.1 as well as other materials, TWRI will participate in at least one in-person county extension program per watershed per year about grazing management to help landowners make the connection between good grazing management and water quality.   |           |             |                 |          |           |
|  | Start Date  | Month 1   |             | Completion Date | Month 36 |           |
| Subtask 3.3                            | TWRI will assist education program leads in the administration of program evaluations that may determine intentions to adopt, knowledge gained, anticipated monetary gain, or other metrics that may be useful to enhance future programs.  |           |             |                 |          |           |
|  | Start Date  | Month 1   |             | Completion Date | Month 36 |           |
| Deliverables                           | <ul style="list-style-type: none"> <li>• Press releases, agendas, and other materials available for programs</li> <li>• Program evaluations</li> </ul>  |           |             |                 |          |           |

**Project Goals (Expand from Summary Page)**

The primary goal of the proposed project is to increase landowner adoption of best management practices through a cost-effective approach that aligns with changing landowner and producer demographics as well as the Covid-19 era. To achieve this goal, TWRI will develop and deliver educational materials directly to landowners through mail, newspaper, radio, social media, and in person. The 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 receive information through just one method of outreach and education.

**Measures of Success (Expand from Summary Page)**

Overall, this project will be successful when educational materials are delivered to key stakeholders across the four watersheds. 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 (Expand from Summary Page)**

**Components, Goals, and Objectives**

Long-Term Goal One– Protect and restore water quality affected by NPS pollution through assessment, implementation, and education.

- Objective 1 – Focus NPS abatement efforts, implementation strategies, and available resources in watersheds and aquifers identified as impacted by nonpoint source pollution.
- Objective 3 – Support the implementation of state, regional, and local programs to reduce NPS pollution, such as the implementation of strategies defined in TMDL I-Plans, WPPs, and other water planning efforts in the state.
- Objective 6 – Develop partnerships, relationships, memoranda of agreement, and other instruments to facilitate collective, cooperative approaches to manage NPS pollution.

Objective 7 – Increase overall public awareness of NPS issues and prevention activities.

Short-Term Goal Two – Implementation

- Objective D – Implement TMDL I-Plans, WPPs, and other state, regional, and local plans developed to restore and maintain water quality in water bodies identified as impacted by NPS pollution.

Short-Term Goal Three – Education

- Objective A – Enhance existing outreach programs at the state, regional, and 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 by NPS pollution.

**EPA State Categorical Program Grants – Workplan Essential Elements  
 FY 2022-2026 EPA Strategic Plan Reference**

Strategic Plan Goal – 5.0 Ensure Clean and Safe Water for All Communities

Strategic Plan Objective – 5.2 - Protect and Restore Waterbodies and Watersheds

This workplan supports Goal 5 (Ensure Clean and Safe Water for All Communities) and Objective 5.2 (Protect and Restore Waterbodies and Watersheds) by funding the Texas State and Soil Water Conservation Board's NPS Program for state and local planning, education, assessments, watershed restoration and protection, best management practices, and related water quality activities.

**Part III – Financial Information**

| <b>Budget Summary</b>  |    |         |                    |            |
|------------------------|----|---------|--------------------|------------|
| Federal                | \$ | 317,294 | % of total project | 60%        |
| Non-Federal            | \$ | 211,529 | % of total project | 40%        |
| Total                  | \$ | 528,823 | Total              | 100%       |
| Category               |    | Federal | Non-Federal        | Total      |
| Personnel              | \$ | 145,245 | \$ 98,123          | \$ 243,368 |
| Fringe Benefits        | \$ | 48,292  | \$ 27,319          | \$ 75,611  |
| Travel                 | \$ | 7,263   | \$ 0               | \$ 7,263   |
| Equipment              | \$ | 0       | \$ 0               | \$ 0       |
| Supplies               | \$ | 600     | \$ 0               | \$ 600     |
| Contractual            | \$ | 0       | \$ 0               | \$ 0       |
| Construction           | \$ | 0       | \$ 0               | \$ 0       |
| Other                  | \$ | 74,508  | \$ 0               | \$ 74,508  |
| Total Direct Costs     | \$ | 275,908 | \$ 125,442         | \$ 401,350 |
| Indirect Costs (≤ 15%) | \$ | 41,386  | \$ 86,087          | \$ 127,473 |
| Total Project Costs    | \$ | 317,294 | \$ 211,529         | \$ 528,823 |

| <b>Budget Justification (Federal)</b> |                     |  |
|---------------------------------------|---------------------|--|
| <b>Category</b>                       | <b>Total Amount</b> | <b>Justification</b>   |
| Personnel                             | \$ 145,245          | <p>TWRI Assistant Director: \$83,118 annually @ 3 months (8.33% per year) – \$22,042<br/>           Extension Forage Specialist: \$101,736 annually @ 1.44 months (4% per year) – \$12,956<br/>           TBD Program Manager \$64,970 annually @ 3 months (8.33% per year) – \$16,728<br/>           Program Specialist IV: \$77,500 annually @ 9 months (25% per year) – \$61,683<br/>           Program Specialist: \$40,000 annually @ 9 months (25% per year) – \$31,836<br/>           *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<br/>           *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.<br/>           *cell phone allowances for project calls/emails during &amp; after business hours &amp; travel are occasionally factored into salaries &amp; fringe, but again, will not exceed overall dollar amount.</p> |
| Fringe Benefits                       | \$ 48,292           | <p>Fringe for faculty and staff is calculated at 18.8% salary plus \$825 per month. Fringe benefits for eligible students is calculated at 11% salary plus \$560 per month.<br/>           *(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.)<br/>           *cell phone allowances for project calls/emails during &amp; after business hours &amp; travel are occasionally factored into salaries &amp; fringe, but again, will not exceed overall dollar amount.</p>  |
| Travel                                | \$ 7,263            | <p>TWRI travel to watersheds to participate in programs<br/>           - State vehicle mileage for 12 trips at an average of 520.5 miles round trip per trip @ \$0.50 per mile (\$3,123)<br/>           - Per diem at \$55/day for, 1 person, 24 days (\$1,320)<br/>           - Lodging at \$95/day for, 1 person, 12 nights (\$1,140)<br/>           Overton travel to field days, regional conferences and planning meetings @ 6 trips for 1 person<br/>           - Per diem for 12 days at \$55/day (\$660)<br/>           - Lodging for 6 nights at \$96/night (\$576)<br/>           - Rental car for 12 days at \$37/day (\$444)</p>   |
| Equipment                             | \$ 0                | N/A  |
| Supplies                              | \$ 600              | Project supplies, including, but not limited to printer, paper, pens, toner, fuel, etc.  |
| Contractual*                          | \$ 0                | N/A  |
| Construction                          | \$ 0                | N/A  |



|          |           |   |
|----------|-----------|---|
| Other    | \$ 74,508 | Printing: 35,740 cards @ 0.16 ea for 5 mailings total – \$28,592<br>Postage: 35,740 cards @ 0.18 ea for 5 mailings total – \$32,166<br>Rainfall Simulator – \$3,250<br>Facility Rental – \$3,000<br>Communications Services – \$7,500: <ul style="list-style-type: none"> <li>- Social Media planning and developing publishing schedule and setup for events 16 hours @ \$75/hour = \$1,200</li> <li>- Actual scheduling of the posts once per month 2 hours per post @ 10 posts/year @ \$75/hour = \$4,500</li> <li>- News Articles: One article per year per area, thus 4 articles per year (12 total), 2 hours per article * 12 articles * \$75/hour = \$1,800</li> </ul> |
| Indirect | \$ 41,386 | Per the RFP requirements, indirect costs are limited at 15% of total direct costs.<br>\$275,908 Total Direct Costs * 15% = \$41,386   |

| Budget Justification (Non-Federal) |              |   |
|------------------------------------|--------------|---|
| Category                           | Total Amount | Justification   |
| Personnel                          | \$ 98,123    | Associate Director: \$103,721 annually @ 2.64 months (22% per year) – \$72,211<br>Extension Forage Specialist: \$101,736 annually @ 0.96 months (8% per year) – \$25,912<br>*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<br>*(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.)<br>*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                    | \$ 27,319    | Fringe for faculty and staff is calculated at 18.8% salary plus \$825 per month. Fringe benefits for eligible students is calculated at 11% salary plus \$560 per month.<br>*(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.)<br>*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                             | \$ 0         | N/A   |
| Equipment                          | \$ 0         | N/A   |
| Supplies                           | \$ 0         | N/A   |
| Contractual*                       | \$ 0         | N/A   |
| Construction                       | \$ 0         | N/A   |
| Other                              | \$ 0         | N/A   |

|          |           |   |
|----------|-----------|---|
| Indirect | \$ 86,087 | <p>Texas A&amp;M AgriLife Extension Service’s federally negotiated indirect cost rate (IDC) is 32% of modified total direct costs (MTDC). MTDC includes personnel, fringe benefits, travel, supplies, other and up to \$25,000 of each subcontract; it excludes tuition, facility rental and capital equipment over \$5,000.</p> <p><u>IDC on non-federal funds: MTDC * 32%</u><br/>       - \$125,442 MTDC * 32% = \$40,142</p> <p><u>Unrecovered IDC on federal funds: 32% MTDC – 15% TDC</u><br/>       - IDC on MTDC: \$272,908 MTDC * 32% = \$87,331<br/>       - IDC on TDC: \$275,908 TDC * 15% = \$41,386<br/>       Total Unrecovered IDC: \$87,331- \$41,386 = \$45,945</p> |
|----------|-----------|---|