



Texas State Soil and Water Conservation Board
Clean Water Act §319(h) Nonpoint Source Grant Program
FY 2022 Workplan 22-08

SUMMARY PAGE	
Title of Project	Statewide Delivery of Riparian and Ecosystem Education Program IV
Project Goals	<ul style="list-style-type: none"> • Facilitate the promotion of healthy watersheds and improve water quality through the delivery of riparian and stream ecosystem education programs with a focus on priority watersheds. • Increase citizen awareness, understanding, and knowledge about the nature and function of riparian zones, their benefits, and BMPs to protect them and minimize NPS pollution. • Connect landowners with local technical and financial resources to improve management and promote healthy watershed and riparian areas on their land.
Project Tasks	(1) Project Administration; (2) Coordinate and Deliver Riparian Education Programs; (3) TFS Participation in Riparian Team and Program Delivery; (4) Evaluate the Effectiveness of the Riparian Education Trainings; (5) Coordinate Online Riparian and Stream Ecosystem Training Program
Measures of Success	<ul style="list-style-type: none"> • Deliver a minimum of 24 riparian education programs in prioritized watersheds • Coordinate 2 statewide riparian conferences • Increase knowledge and understanding of riparian function and implementation of BMPs by individuals participating in the program, as measured by pre-/post-tests and post follow-up evaluation
Project Type	Implementation (X); Education (X); Planning (); Assessment (); Groundwater ()

Status of Waterbody on 2020 Texas Integrated Report	<u>Segment ID</u>	<u>Parameter of Impairment or Concern</u>	<u>Category</u>
	0818	pH	5c
	1103	Bacteria/Depressed DO	5a/5a
	1103A	Bacteria	5a
	1103B	Bacteria	5a
	1103C	Bacteria/Depressed DO	5a/5c
	1103D	Bacteria	5c
	1103E	Bacteria	5b
	1104	Bacteria/Depressed DO	5a/5c
	1804A	Bacteria	5c
	1428C	Bacteria	4a
	1217B	Depressed DO	5c
	1217D	Depressed DO	5b
	1009E	Bacteria	5a
	2311	Depressed DO	5c
	1810	Bacteria	4a
	1301	Bacteria	5c
	1302	Bacteria	5b
	1302A	Bacteria	5b
	1302B	Bacteria/Depressed DO	5b/5c
	2485	Bacteria/Dissolved Oxygen	5a/5c
	2485A	Bacteria	5a
	0805	Bacteria	4a
	0841	Dissolved Oxygen	4a
	0822	pH	4a
	1245	Bacteria	4a
	2107	Bacteria/Dissolved Oxygen	5a/5b
	1416A	Dissolved Oxygen	5c
	1416B	Dissolved Oxygen	5c
	1416C	Dissolved Oxygen	5c
	1202K	Bacteria	5b
	1210A	Bacteria	5b
	1221	Bacteria/Dissolved Oxygen	5a/5a
	1421	Bacteria	5c
	1423A	Dissolved Oxygen	5c
	1423B	Macrobenchics	5c
	1424	Bacteria	5c
	1425	Dissolved Oxygen	5c
	1425A	Macrobenchics	5c
	1913	Bacteria	5b
	1902	Dissolved Oxygen	5c
	1803C	Bacteria	5a
	1901	Bacteria	4a
	1815	Dissolved Oxygen	CS
	1101	Bacteria	5a

	1101B	Bacteria	5a			
	1101D	Bacteria	5c			
	1102	Bacteria	5a			
	1102A	Bacteria	5c			
	1102B	Bacteria	5a			
	1102C	Bacteria	5c			
	1102D	Bacteria	5c			
	1102E	Bacteria	5c			
	0837	Dissolved Oxygen	CS			
	0814	Chlorophyll- <i>a</i>	CS			
	0836	Nutrients	CS			
Project Location (Statewide or Watershed and County)	Statewide with priorities for the following: Buck Creek - Childress, Collingsworth and Donley Counties; Cedar Creek - Henderson, Kaufman, Rockwall and Van Zandt Counties; Dickinson Bayou - Brazoria and Galveston Counties; Geronimo Creek - Guadalupe and Comal Counties; Gilleland Creek - Travis County; Hickory Creek - Denton County; Lampasas River - Bell, Burnet, Coryell, Hamilton, Lampasas, Mills, and Williamson Counties; Little Cypress Creek - Harris County; Pecos River in Texas - Crane, Crockett, Pecos, Reeves, Terrell, Upton, and Ward Counties; Plum Creek - Caldwell, Hays, and Travis Counties; San Bernard River - Austin, Colorado, Wharton, Fort Bend, and Brazoria Counties; Upper Llano River - Edwards, Kerr, Kimble, Menard, Real, and Sutton Counties; Oso Creek/Bay - Nueces County; Adams and Cow Bayou - Orange, Jasper, and Newton Counties; Upper Oyster Creek - Fort Bend County; Atascosa River - Atascosa, Bexar, Frio, Live Oak, McMullen, Medina, Wilson Counties; Brady Creek - McCulloch, Concho, Menard, and San Saba Counties; Mill Creek in Van Zandt County; Navasota River - Brazos, Grimes, and Washington Counties; Leon River - Comanche, Coryell, Erath, Hamilton, Mills Counties; Concho River - Irion, Runnels, Sterling, Coke, Reagan, Tom Green, Schleicher, Concho Counties; Lower/Mid Cibolo Creek - Bexar, Guadalupe, Karnes, and Wilson Counties; Peach Creek - Bastrop, Caldwell, Fayette, Gonzales Counties; Lower San Antonio River - DeWitt, Goliad, Karnes, Refugio, Victoria Counties; Cypress Creek - Hays County; Clear Creek - Brazoria, Fort Bend, Galveston, and Harris Counties; Richland Chambers Reservoir - Navarro and Freestone counties					
Key Project Activities	Hire Staff (X); Surface Water Quality Monitoring (); Technical Assistance (); Education (X); Implementation (X); BMP Effectiveness Monitoring (); Demonstration (); Planning (); Modeling (); Bacterial Source Tracking (); Other ()					
2017 Texas NPS Management Program Reference	<ul style="list-style-type: none"> • Element One – LTGs 1, 2, 4 • Element One – STGs 3A, 3B, 3F • Elements Two & Three 					
Project Costs	Federal	\$341,924	Non-Federal	\$227,949	Total	\$569,873
Project Management	<ul style="list-style-type: none"> • Texas A&M AgriLife Research, Texas Water Resources Institute 					
Project Period	October 3, 2022 – September 30, 2025					

Part I – Applicant Information

Applicant							
Project Lead	Dr. Lucas Gregory						
Title	Associate Director						
Organization	Texas A&M AgriLife Research, Texas Water Resources Institute						
E-mail Address	LFGregory@ag.tamu.edu						
Street Address	1001 Holleman Dr East; 2118 TAMU						
City	College Station	County	Brazos	State	TX	Zip Code	77840-2118
Telephone Number	979-314-2361			Fax Number			

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 overall program management including project coordination, submission of quarterly and final reports, marketing, registrations, delivery of riparian education programs, website development and management, and evaluation of program effectiveness.
Texas A&M Forest Service (TFS)	Riparian Team Member: Assist with program development, marketing, and delivery; assist with information on quarterly and final reports.
Texas A&M AgriLife Research and AgriLife Extension	Riparian Team Members: Assist with program development, marketing and delivery.
Texas Parks and Wildlife Department (TPWD)	Riparian Team Member: Assist with program development, marketing and delivery.
USDA-Natural Resource Conservation Service (NRCS)	Riparian Team Member: Assist with program development, marketing, and delivery.
Texas Riparian Association (TRA)	Host website; Riparian Team Member: Assist with program development, marketing, and delivery.
Independent Contractor: Nikki Dictson (IC)	Provide technical expertise and assistance with program planning, development, marketing, registrations, and delivery of the annual riparian symposia.

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 <i>Texas Coastal NPS Pollution Control Program</i> ; or (f) the <i>Texas Groundwater Protection Strategy</i> ?				Yes	X	No	
If yes, identify the document.		<p>Draft Buck Creek Watershed Protection Plan; Eight Total Maximum Daily Loads for Indicator Bacteria in Dickinson Bayou and Three Tidal Tributaries; Draft Geronimo and Alligator Creeks Watershed Protection Plan; Implementation Plan for One Total Maximum Daily Load for Bacteria in Gilleland Creek; Report for Task 2, Watershed Protection Plan, of the Grant Entitled Control of Nonpoint Source Loads in the Hickory Creek Sub-basin of the Lake Lewisville Watershed as a Component of a Watershed-Based Water Quality Trading Program; Fifteen TMDLs for Indicator Bacteria in Watersheds of the Lake Houston Area; A Watershed Protection Plan for the Pecos River in Texas; Plum Creek Watershed Protection Plan; San Bernard River Watershed Protection Plan; Oso Bay and Oso Creek – A TMDL Project for Bacteria; Three Total Maximum Daily Loads for Chloride, Sulfate, and Total Dissolved Solids, Petronila Creek Above Tidal, Segment 2204; Lower Nueces River Source Water Protection Plan; Upper San Antonio River Watershed Protection Plan; Orange County Watersheds – A TMDL Project for Bacteria, Dissolved Oxygen and pH; Upper Oyster Creek – A TMDL Project for Bacteria and Dissolved Oxygen; Lampasas and Navasota Rivers: Evaluating Water Quality for Recreational Uses; Implementation Plan for Seventeen Total Maximum Daily Loads for Bacteria in the Greater Trinity River Region; Atascosa River - A TMDL Project for Bacteria; One Total Maximum Daily Load for Bacteria in the Leon River Below Proctor Lake; Concho River Watershed Protection Plan; One Total Maximum Daily Load for Bacteria in Peach Creek; Lower San Antonio: A TMDL Project to Protect Recreational Uses; Cypress Creek Watershed Protection Plan; Clear Creek TMDLs: Bacteria. Arroyo Colorado Watershed Protection Plan; Attoyac Bayou Watershed Protection Plan; Brady Creek Watershed Protection Plan; Carancahua Bay Watershed Protection Plan; Cedar Bayou Watershed Protection Plan ; Double Bayou Watershed Protection Plan; Dry Comal/Comal River Watershed Protection Plan; Lake Arlington/Village Creek Watershed Protection Plan; Lake Granbury Watershed Protection Plan; Lake Lavon Watershed Protection Plan; Lavaca River Watershed Protection Plan; Mill Creek Watershed Protection Plan; Nolan Creek Watershed Protection Plan; Tres Palacios Creek Watershed Protection Plan; Upper Cibolo Creek Watershed Protection Plan; Upper Llano River Watershed Protection Plan; West Fork of San Jacinto and Lake Creek Watershed Protection Plan; Mid and Lower Cibolo Creek WPP</p>					

If yes, identify the agency/group that developed and/or approved the document.		Year Developed	
	<p>Buck Creek Watershed Partnership facilitated by Texas Water Resources Institute and TSSWCB; TCEQ, University of Houston, and CDM; The Geronimo and Alligator Creeks Watershed Partnership facilitated by GBRA, Texas AgriLife Extension Service and TSSWCB; TCEQ and the Lower Colorado River Authority; The City of Denton in cooperation with CH2M HILL, Texas A&M University, and the University of North Texas; TCEQ and James Miertschin & Associates, Inc.; Landowners and entities in the Pecos River watershed, facilitated by AgriLife Extension, TWRI and TSSWCB; Plum Creek Watershed Partnership facilitated by Texas AgriLife Extension Service and TSSWCB; Houston-Galveston Area Council and TCEQ; Center for Coastal Studies at Texas A&M University, Corpus Christi and TCEQ; Nueces River Authority and TCEQ; Nueces River Authority, City of Corpus Christi Water Department, and TSSWCB; San Antonio River Authority, Bexar Regional Watershed Management Partnership, and TCEQ; Sabine River Authority and TCEQ; TCEQ, TSSWCB, Houston-Galveston Area Council; Texas AgriLife Blackland Research and Extension Center and TCEQ; North Central Texas Council of Government's Environment and Development Department and TCEQ; Arroyo Colorado Watershed Protection Plan by TCEQ; TWRI and TSSWCB; Upper Colorado River Authority and TCEQ; TWRI and TMDL; Houston Galveston Area Council and TSSWCB; Houston Advanced Research Center and TSSWCB; City of New Braunfels and TCEQ; Trinity River Authority and TCEQ; Brazos River Authority and TCEQ; North Texas Municipal Water District and TSSWCB; TWRI and TMDL; Texas AgriLife Extension Service and TSSWCB; TIAER and TCEQ; TWRI and TMDL; City of Boerne and TCEQ; South Llano Watershed Alliance and TSSWCB; Houston Galveston Area Council and TCEQ; TWRI and TSSWCB</p>		<p>2012; 2012, 2012, 2007, 2008; 2011; 2008; 2008; 2011; 2006; 2007; 2012; 2006; 2007; 2014; 2008; 2013; 2014; 2016; 2020; 2015; 2016; 2018; 2019; 2011; 2017; 2018; 2016; 2019; 2013; 2016; 2019; 2020</p>

Watershed Information				
Watershed or Aquifer Name(s)	Hydrologic Unit Code (12 Digit)	Segment ID	Category on 2020 IR	Size (Acres)
Buck Creek	111201050204, ...0208, ...0303, ...0305 – 0307, ...0401 – 0407, ...0501 & 0502	0207A	2	187,270
Cedar Creek	120301070101 – 0111; ...0201 – 0206; ...0301 - 310	0818	5c	675,788
Dickinson Bayou	120402040200	1103	5a	63,287
Geronimo Creek (including its tributary, Alligator Creek)	121002020110 & ...0111	1804A	5c	44,152
Gilleland Creek	120903010106	1428C	4a	52,866
Hickory Creek – Tributary to Lewisville Lake	120301030804	0823	Not Assessed	110,634
Lampasas River (Lampasas River above Stillhouse Hollow Lake, Rocky Creek, Sulphur Creek, Simms Creek)	120702030101 – 120702030509	1217 1217A 1217B 1217C	5c 2 2 2	839,800
Little Cypress Creek	120401020105	1009E	5a	34,687

<p>Pecos River</p>	<p>130700010201 - 0207; ...0301 - 0305; ...0401 - 0408; ...0503 - 0506; ... 0601 - 0605; ...0701 - 0705; ...0801 - 0803; ...0901 - 0906; ...1001 - 1006</p> <p>130700030101 - 0106; ...0201 - 0204; ...0301 - 0308; ...0401 - 0403;</p> <p>130700040101 - 0106; ...0301 - 0305; ...0401 - 0406; ...0501 - 0506; ...0601 - 0605; ...0701 - 0705; ...0801 - 0806;</p> <p>130700050101 - 0106; ...0201 - 0205; ...0301 - 0304</p> <p>130700060101 - 0105; ...0201 - 0206; ...0301 - 0306; ...0401 - 0405; ...0501 - 0506; ...0601 - 0605</p> <p>130700070206 - 0209; ...0507 - 0510; ...0601 - 0607; ...0701 - 0706; ...0801 - 0807; ...0901 - 0903; ...1001 - 1006; ...1101 - 1102; ...1201 - 1202; 1301 - 1305; ...1401 - 1406; ...1501 - 1506; ...1601 - 1603; ...1701 - 1709;</p>	<p>2311</p>	<p>5c</p>	<p>8,958,079</p>
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	...1801 - 1806; ...1901 - 1904; ...2001 - 2008; ...2101 - 2106 130700080101 - 0109; ...0201 - 0208; ...0301 - 0308; ...0401 - 0405; ...0501 - 0508; ...0601 - 0604; ...0701 - ...0703 130700090101 - 0109; ...0201 - 0210; ...0301 - 0307			
Plum Creek	110901050702 & 0703, 111002030102, 111301050208, 111302090204, 120100040204, 120301010104, 120500030306, 120601020401, 120702010804, 120702010805, 120800020403, 121002030401 - 0403	1810	4b	288,240
San Bernard River	120904010101, 0102, 0104, 0109 120904010205 & 0207 120904010302, 0304 -0306, 0308	1301 1302 1302A 1302B	5c 5a 5c 5c	672,000
Upper Llano	120902020101 - 0109; 0201 -0206	1415	1	1,209,850

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.

Segment ID	Body Name	Impairment	Code
0818	Cedar Creek Reservoir	pH	5c
1103	Dickinson Bayou Tidal	Bacteria	5a
		Depressed DO	5a
1103A	Bensons Bayou	Bacteria	5a
1103B	Bordens Gully	Bacteria	5a
1103C	Geisler Bayou	Bacteria	5a
		Depressed DO	5c
1103D	Gum Bayou	Bacteria	5c
1103E	Cedar Creek	Bacteria	5b
1104	Dickinson Bayou Above Tidal	Bacteria	5a
		Depressed DO	5c
1804A	Geronimo Creek	Bacteria	5c
1428C	Gilleland Creek	Bacteria	4a
1009E	Little Cypress Creek	Bacteria	5a
2311	Upper Pecos River	Depressed DO	5c
1810	Plum Creek	Bacteria	4b
1217D	North Fork Rocky Creek	Depressed DO	5b
1301	San Bernard River Tidal	Bacteria	5c
1302	San Bernard River Above Tidal	Bacteria	5b
1302A	Gum Tree Branch	Bacteria	5b
1302B	West Bernard Creek	Bacteria	5b
		Depressed DO	5c
2485	Oso Creek/Oso bay	Bacteria	5a
		Dissolved Oxygen	5a
2204	Petronila Creek	Chloride	SI
		Sulfate	SI
		Total Dissolved Solids	SI
2102	Lower Nueces	Clorophyll- <i>a</i>	4a
1911	Upper San Antonio	Bacteria	4a
0508	Adams Bayou Tidal	Bacteria	4a
		Dissolved Oxygen	4a
0511	Cow Bayou Tidal	pH	4a
		Dissolved Oxygen	4a
1245	Upper Oyster Creek	Bacteria	4a
1209	Navasota River Below Lake Limestone	Bacteria	5b
0805	Upper Trinity River	Bacteria	5a
0822A and 0822B	Cottonwood Branch and Grapevine Creek	Bacteria	5a
0841	Lower West Fork Trinity River	Bacteria	5a

Water Quality Concerns			
0207A	Buck Creek	Nitrate	CS
1103	Dickinson Bayou Tidal	Chlorophyll-a	CS
		Depressed DO	CS
1103B	Bordens Gulley	Depressed DO	CS
1103C	Geisler Bayou	Depressed DO	CS
1103D	Gum Bayou	Bacteria	CN
1103E	Cedar Creek	Depressed DO	CS
1104	Dickinson Bayou Above Tidal	Depressed DO	CS
1804A	Geronimo Creek	Nitrate	CS
1428C	Gilleland Creek	Bacteria	CN
		Nitrate	CS
		Orthophosphorus	CS
1009E	Little Cypress Creek	Nitrate	CS
		Orthophosphorus	CS
		Total phosphorus	CS
1217B	Sulphur Creek	Depressed DO	CS
2311	Upper Pecos River	Bacteria	CN
		Chlorophyll-a	CS
		Depressed DO	CS
		Golden alga	CN
1810	Plum Creek	Depressed DO	CS
		Nitrate	CS
		Orthophosphorus	CS
		Total phosphorus	CS
1301	San Bernard River Tidal	Chlorophyll-a	CS
1302	San Bernard River Above Tidal	Depressed DO	CS
1302A	Gum Tree Branch	Bacteria	CN
		Depressed DO	CS
1302B	West Bernard Creek	Depressed DO	CS
Special Interest			
0207A	Buck Creek	Bacteria	WAP
-	Hickory Creek	-	WAP
1217	Lampasas River Above Stillhouse Hollow Lake	Bacteria	WAP
1415	Upper Llano		WAP

Project Narrative

Problem/Need Statement

Riparian degradation is a major threat to water quality, in-stream habitat, terrestrial wildlife, aquatic species, and overall stream health. Conversely, proper management, protection, and restoration of riparian areas decrease bacteria, nutrient, and sediment loadings to water bodies; lower in-stream temperatures; improve dissolved oxygen levels; improve aquatic habitat; and ultimately improves macrobenthos and fish community integrity. In Texas, the water quality assessment indicates NPS pollution contributes to approximately 45 percent of the water quality impairments to rivers and streams and 48 percent of the water quality impairments to lakes in Texas. The continuation of the *Texas Riparian and Stream Ecosystem Education* program (TSSWCB #18-06, #12-07 and #15-04) would continue outreach across Texas through online methods, landowner workshops, conferences, and professional trainings. Beginning in September 2020, an online version of the Riparian & Stream Ecosystem Training has been offered on the AgriLife Extension Online Course website. This online program covers the same information as the in-person training, offers CEUs, and helps increase participation and therefore overall knowledge of NPS pollution, water quality, and the importance of riparian areas.

To improve the management of these sensitive and vital ecosystems, riparian education programs are needed regarding the nature and function of riparian zones, their benefits, and BMPs for protecting them. This will not only reduce NPS pollution, it will provide tremendous ecosystem service benefits and direct economic benefits to communities.

The State of Texas has more than 192,000 miles of rivers and streams that, along with closely associated floodplain and upland areas, comprise corridors of great economic, social, cultural, and environmental value. The health of riparian systems is paramount to stream health. Proper management of riparian areas will protect banks and reduce erosion rates of stream banks and sediment into the streams and reservoirs. Riparian vegetation functions to slow down the overland flow, capture sediment, nutrients, other pollutants and organic matter as well as allow for increased infiltration in the flood plain/riparian area. Higher levels of runoff increase the chances for pesticides, fertilizers, and fecal matter to reach streams and worsen water quality (TWDB, 2013). When management activities leave very little or no vegetation, stream banks become more susceptible to incision and/or widening of the stream during storm and high runoff events (Zygo, 1997). As a stream incises, it may become disconnected and flood the riparian area less frequently or not at all, greatly affecting the ability for water to infiltrate and deposit sediment and nutrients. This results in a loss of forage production, wildlife habitat, and recreational value. In-stream habitat for fish and other aquatic species is also lost as these creeks deepen and widen. In addition, landowners may suffer as more land erodes and falls into the stream, ultimately causing acreage loss and affecting their property value and future economic opportunities.

Changes within a surrounding ecosystem (e.g., watershed) will impact the physical, chemical, and biological processes occurring within a stream corridor. Stream systems normally function within natural ranges of flow, sediment movement, temperature, and other variables, in “dynamic equilibrium.” Over the years, human activities have contributed to changes in the dynamic equilibrium of stream systems. The cumulative effects of these activities result in significant direct and indirect changes, not only to stream corridors, but also to the ecosystems or watersheds they are located in. The direct changes include degradation of water quality, decreased water storage and conveyance capacity, loss of habitat for fish and wildlife, and decreased recreational and aesthetic values. While the indirect changes are harder to quantify, such as air quality, decomposition of wastes, and other ecosystem services we all take for granted, there are direct economic benefits that can be calculated.

Streams and riparian zones reflect the sum of impacts of natural and man-induced disturbances of drainage areas or watersheds. Management of the land, streams, and riparian zones affects not only individual landowners, but also livestock, wildlife, aquatic life and ecosystem services for everyone downstream. By understanding the processes, key indicators and impacts of disturbances, activities that hinder recovery, landowners and other citizen-stakeholders can evaluate these systems and improve their management to produce desired conditions.

Benefits of healthy riparian/stream systems:

- High quality habitat for both aquatic and riparian species
- Dissipation of flood energy and reduced downstream flood intensity and frequency

- Higher, longer lasting and less variable baseflow between storm events
- Deposition of sediment in the floodplain, stabilizing it and maintaining downstream reservoir capacity longer
- Debris and nutrient use and filtering in the floodplain to improve water quality and dissolved oxygen levels in the aquatic system
- Riparian vegetation canopies to shade streams and reduce their temperatures, providing a food base for aquatic and riparian fauna
- Fewer invasions of exotic undesirable riparian species
- Higher biodiversity than terrestrial uplands
- “Stabilized” banks, which reduce erosion and protect ownership boundaries
- Increased economic value through wildlife, livestock, timber, and recreational enterprises
- Improved rural land aesthetics and real estate values

This program has held workshops across the state in priority watersheds. Over 55 workshops across the state have had a range of 30-100 attendees for over 2,600 attendees impacting more than 929,000 acres of managed land. Feedback from these workshops has been very positive. Further, TPWD has initiated a statewide riparian education effort targeting areas where there are additional habitat programs. This program will continue to coordinate closely with TPWD on both delivery and content to ensure landowners throughout the state are provided a consistent message of riparian enhancement and protection.

In addition, TWRI has coordinated a Riparian Team with agencies and experts across the state that are working on riparian issues and/or conducting trainings so that there is some coordination to reach more landowners and other interested parties across the large state of Texas. The Riparian Team has linked agencies and universities across the state in partnership and a cohesive effort. This program will continue to implement a riparian education program to support and enhance riparian management and water quality protection efforts by all agencies and organizations actively engaged in watershed planning across Texas.

Project Narrative

General Project Description (Include Project Location Map)

TWRI will continue to coordinate the Riparian Team for this project that is composed of TFS, TPWD, NRCS, TRA, NRA, TSSWCB, TCEQ, TRWD, AgriLife Research and Extension and others to assist with program development, marketing, and delivery. TWRI will continue conducting riparian trainings in targeted watersheds and providing access to the program through web-based outreach and tools, including the addition of an online training program. TWRI will organize instructor teams for each event, composed of members of the Riparian Team, contractors, and others as needed to deliver the Riparian Education Programs.

Riparian workshops will continue to partner with and have expert instructors from the Riparian Team at each training program. The program framework developed and refined in previous projects (TSSWCB #12-07, #15-04 and #18-06) will be used and expanded upon where possible. The trainings will begin with registration and a pre-test followed by indoor classroom style presentations that discuss the nature and function of streams and riparian areas. Local presentations may be added to the schedule to discuss watershed planning efforts or other local issues and efforts. After indoor presentations, attendees will go outside to a stream location where participants can see firsthand the vegetation and functions they learned in the classroom. One group will perform the stream walk instruction and the other will have additional discussions/presentations about stream functions and dynamics, flooding, wild pigs, etc. Each group will then switch and conduct the other task.

The program will be adapted as needed to meet local needs such as addressing riparian issues in watersheds dominated by agriculture, forestry, urban, or a combination thereof. Relevant expertise will be integrated as appropriate into programs to address local needs and may include USDA NRCS, TFS, river authorities, universities, local soil and water conservation districts (SWCDs), county Extension agents (CEAs), and particularly the TPWD Riparian Programs and

TWRI/AgriLife's Urban Riparian and Stream Restoration Program among others to provide needed expertise. An online program has also been developed and will be maintained throughout the project. This will allow people who may not traditionally be able to attend an in person workshop due to scheduling or living outside a priority watershed to take the course at their own pace and expand program reach.

To help market the program, presentations of varying length (15/30/45/60 min.) will be updated as needed and delivered to audiences throughout the state through county Extension programs, watershed stakeholder meetings, Clean Rivers Program Basin steering committees, and other venues. These presentations will be available for delivery by anyone on the Riparian Team. Additionally, key elements and messages will be incorporated into presentations delivered by the TFS Program Coordinator, TWRI, and others on the Riparian Team throughout the state to generate greater interest in riparian protection efforts and increasingly expand requests for the program and its resources. It is anticipated that this will continue to greatly increase program momentum and concurrently initiate implementation of riparian protection concepts by landowners, setting the stage for greater improvements in riparian habitat, stream stability, and water quality.

Riparian Landowner Trainings. Riparian landowner trainings will focus on the nature and function of riparian zones (fluvial geomorphology, hydrology, vegetation), the benefits and direct economic impacts from ecological services of healthy riparian zones, BMPs for enhancing and protecting riparian zones, and technical and financial resources and incentives available for implementing riparian BMPs and riparian protection measures. Riparian education programs will introduce riparian principles, watershed processes, basic hydrology, erosion/deposition principles, riparian vegetation, potential causes of degradation and possible resulting impairment(s), and available local resources including technical assistance and tools that can be employed to prevent and/or resolve degradation. Existing resources and guides will be used for these trainings. Where possible, supplemental regional information and curriculum will be developed. The goal is for participants to better understand and relate to riparian and watershed processes, the benefits that healthy riparian areas provide, and the tools that can be employed to prevent and/or resolve degradation and improve water quality. Participants will be educated on the importance of riparian protection activities and encouraged to implement riparian BMPs. Training will emphasize the need for watershed planning that supports maintenance of a natural hydrograph. Restoration of riparian areas degraded by changes to the natural hydrologic regime must be conducted in concert with efforts to remedy those upstream disturbances. Participants will receive a certificate of completion.

TWRI and the Riparian Team will work in coordination with state and local organizations to select and schedule riparian education program locations. Priority will be given to agencies and organizations currently involved in WPP or TMDL processes and those planning future watershed efforts (Fig. 1). Subsequently, additional watersheds will be selected based on impairment status, environmental sensitivity, and/or other priority issues. Due to the size of many watersheds in the state and in an effort to enhance outreach, riparian education programs, in both urban and rural settings, may be offered multiple times and at different locations within prioritized watersheds. In coordination with project partners, approximately eight workshops will be offered each year in the highest priority watersheds for 24 total. Online programs will be available to take year-round for anyone interested in riparian education and can help increase public awareness of the importance of healthy riparian areas.

Coordinate Two Statewide Riparian Conferences. Two conferences will be held to provide additional riparian information to those interested. These may be held in conjunction with TRA, professional societies, river authorities, etc. Conferences will springboard from the momentum at the Riparian Symposiums hosted with the Texas Riparian Association. The Urban Riparian Symposium is held every other year in Texas cities.

Evaluation and Assessment. Trainings (online and in person) will include an evaluation component to assess program effectiveness and inform modifications and enhancements to curriculum content. A two-stage evaluation approach will be used to measure both knowledge and behavior changes in program participants.

Stage 1. A pre-/post-test evaluation strategy will be implemented at the beginning and end of both the face-to-face educational program and web-based training program. The pre-test will ask knowledge-based questions and post-test will measure the same knowledge-based questions to determine participant knowledge increase. The post-test will also include 'satisfaction' questions and 'intentions to change or adopt' questions.

Stage 2. A post follow-up assessment instrument will be sent to participants approximately 6 months post-program, via email, to ascertain what practices were actually adopted 6 months after participating in the program.

Results will be summarized in a project final report. Briefs may also be developed to document and enhance the success of future riparian education and similar training programs.

Tasks, Objectives and Schedules						
Task 1	Project Administration					
Costs	Federal	\$13,677	Non-Federal	\$9,118	Total	\$22,795
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 st 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 1		Completion Date	Month 36	
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	Coordinate and Deliver Riparian Education Programs					
Costs	Federal	\$ 222,250	Non-Federal	\$ 148,167	Total	\$ 370,417
Objective	Deliver riparian education programs to targeted watersheds to promote healthy riparian areas and watersheds by increasing citizen awareness, understanding, and knowledge about the nature and function of riparian zones, their benefits, and BMPs for protecting them and minimizing NPS pollution.					
Subtask 2.1	TWRI will coordinate the existing Riparian Team to direct this synergistic project. The Riparian Team includes TWRI, TFS, TPWD, NRCS, TRA, AgriLife, TRWD and others. The Riparian Team will continue to assist with program development, marketing, and delivery. It will also serve as the primary pool of instructors to deliver the Riparian Education Program. The Riparian Team will meet as needed, likely quarterly in year 1 and semi-annually in years 2-3.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 2.2	TWRI will work in coordination with TSSWCB, TCEQ, TPWD, NRCS, TFS, and other state and local organizations to select locations for the riparian education training events. This project will deliver riparian education programs to targeted watersheds across the state. Priority watersheds will be selected in collaboration with TSSWCB, and with input from TCEQ and others, and primarily represent those with approved WPPs or TMDLs and those developing or planning development of WPPs or TMDLs. Other watersheds may be selected based on need and in response to collaborations with other groups and organizations, including river authorities, SWCDs, local citizen groups/watershed associations, etc. Watersheds will be selected consistent with the State’s implementation of the Texas NPS Management Program. Additional watersheds will be selected based on impairment status, environmental sensitivity, and/or other priority issues. TWRI and TSSWCB will periodically make collaborative decisions to re-prioritize and add to/remove from the list of watersheds.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 2.3	The TWRI and Riparian Team will continue establishing/maintaining CEU credits for the riparian education programs to encourage participation by landowners and water resource professionals.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 2.4	TWRI, with assistance of the Riparian Team, will actively market riparian education trainings through news releases (AgriLife News and local media outlets), internet postings, listserv, Facebook, newsletter announcements, public/conference presentations, flyers, etc., to enhance awareness and utilization. TSSWCB will review all project-related content in any materials prior to distribution.					
	Start Date	Month 3	Completion Date	Month 36		
Subtask 2.5	TWRI, with assistance of the Riparian Team, will deliver 24 riparian education training events in prioritized watersheds (Subtask 2.2 during the project period.) Certificates of completion will be provided to all participants in the trainings.					
	Start Date	Month 6	Completion Date	Month 36		
Subtask 2.6	TWRI in collaboration with the Riparian Team will update a series of riparian education presentations of various lengths (15/30/45/60 min.) and provide them to a variety of audiences and venues statewide including Extension programs, landowner workshops, SWCD programs, and other suitable venues. Further, key elements of the program will be incorporated into presentations delivered by TFS, TWRI, and others on the Riparian Team and delivered to a variety of audiences throughout the state.					
	Start Date	Month 3	Completion Date	Month 36		
Subtask 2.7	TWRI will coordinate two statewide riparian conferences in coordination with the Texas Riparian Association, professional organizations, river authorities, or other entities annual meetings.					
	Start Date	Month 6	Completion Date	Month 36		
Deliverables	<ul style="list-style-type: none"> • Summaries of Riparian Team meetings and action items • Standardized presentations of various lengths • CEU credits for the daylong riparian program • Periodically updated list of specific watersheds where riparian education trainings have been and will be implemented 					

	<ul style="list-style-type: none"> Schedules, agendas, and attendance lists for riparian education trainings, agency trainings, and statewide conferences Collection of press releases, newspaper articles, newsletters, public information statements, etc., as developed and disseminated
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Tasks, Objectives and Schedules						
Task 3	TFS Participation in Riparian Team and Program Delivery					
Costs	Federal	\$ 45,647	Non-Federal	\$ 30,431	Total	\$ 76,078
Objective	Participate on Riparian Team and assist with planning program development, marketing, and delivery of riparian landowner programs, annual conferences, and other trainings as appropriate.					
Subtask 3.1	TFS will participate on the Riparian Team by attending meetings/conference calls and reviewing program materials.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 3.2	TFS will assist with development, marketing, and delivery of riparian landowner programs, annual conferences, and other trainings.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 3.3	TFS will assist by providing information for quarterly progress reports, annual reports, and final reports.					
	Start Date	Month 1	Completion Date	Month 36		
Deliverables	<ul style="list-style-type: none"> TFS will participate on Riparian Team. TFS will be participation as an instructor as appropriate and assist with marketing trainings TFS will assist with reporting. 					

Tasks, Objectives and Schedules						
Task 4	Evaluate the Effectiveness of the Riparian Education Trainings					
Costs	Federal	\$ 13,677	Non-Federal	\$ 9,118	Total	\$ 22,795
Objective	To measure both knowledge and behavior changes of individuals participating in the program.					
Subtask 4.1	TWRI will conduct pre- and post-training evaluations to assess increased knowledge of participants regarding the nature and function of riparian zones, their benefits, and BMPs for protecting them and minimizing NPS pollution; to evaluate participant's program satisfaction; and to evaluate participant's intentions to change their behavior as a result of the program. Additionally, TWRI will deliver a follow-up assessment via email post follow-up to ascertain behavior changes actually adopted by participants.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 4.2	TWRI will analyze pre-/post-tests and post 6-month follow-up assessment results using descriptive, correlational, and analysis of variances statistical procedures. Results will inform periodic riparian educational program material evaluation and modification and will be summarized in the final report.					
	Start Date	Month 1	Completion Date	Month 36		
Deliverables	<ul style="list-style-type: none"> Pre-/post-test evaluations for the watershed education programs Six-month follow-up assessments for the watershed Results from the evaluations 					

Tasks, Objectives and Schedules						
Task 5	Coordinate Online Riparian and Stream Ecosystem Training Program					
Costs	Federal	\$ 46,673	Non-Federal	\$ 31,115	Total	\$ 77,788
Objective	To increase reach of the Riparian and Stream Ecosystem training by offering an online program available to anyone interested in riparian principles and evaluate participant's knowledge and behavior changes.					
Subtask 5.1	TWRI will offer an online training program on the AgriLife Extension Online Course webpage. A maximum of 1,500 users will be able to take the program for free annually. TWRI will track the number of users who complete the online course. Demographic data will be asked on a pre-course questionnaire.					
	Start Date	Month 1		Completion Date	Month 36	
Subtask 5.2	TWRI will continue to establish and maintain CEU credits for the online program to encourage participation by landowners and water resource professionals.					
	Start Date	Month 1		Completion Date	Month 36	
Subtask 5.3	TWRI will offer pre-/post-tests and post 6-month follow-up assessment using descriptive, correlational, and analysis of variances statistical procedures specifically for the online program. Results will inform periodic riparian educational program material evaluation and modification and will be summarized in the final report and compared to outcomes of in-person trainings.					
	Start Date	Month 1		Completion Date	Month 36	
Deliverables	<ul style="list-style-type: none"> • Number of users completing the online program • CEUs obtained • Pre-/post-test evaluations for the watershed education programs • Six-month follow-up assessments for the watershed • Results from the evaluations 					

Project Goals (Expand from Summary Page)
<ul style="list-style-type: none"> • Facilitate the promotion of healthy watersheds and improve water quality through the delivery of Riparian and Stream Ecosystem Education programs with a focus on priority watersheds via group trainings. • To increase citizen awareness, understanding, and knowledge about the nature and function of riparian zones, their benefits, and BMPs to protect them and minimize NPS pollution. • To connect landowners with local technical and financial resources to improve management and promote healthy watershed and riparian areas on their land.

Measures of Success (Expand from Summary Page)
<ul style="list-style-type: none"> • Deliver a minimum of 24 riparian education programs in prioritized watersheds • Coordinate 2 statewide riparian conferences • Track participation in the online riparian course • Increased knowledge and understanding of riparian function and implementation of BMPs by individuals participating in the program, as measured by pre-/post-tests and 6-month follow-up assessment.

2017 Texas NPS Management Program Reference (Expand from Summary Page)

Components, Goals, and Objectives

<p>Element 1 – Explicit short- and long-term goals, objectives and strategies that protect surface...water LTG: To protect and restore water quality from NPS pollution through assessment, implementation and education</p> <ol style="list-style-type: none"> 1. Focus NPS abatement efforts ...and 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. 4. Increase overall public awareness of NPS issues and prevention activities. <p>STG Three – Education: Conduct education and technology transfer activities to help increase awareness of NPS pollution and prevention activities contributing to the degradation of waterbodies... by NPS.</p> <ul style="list-style-type: none"> ● 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 F – Implement public outreach and education to maintain and restore water quality in water bodies impacted by NPS pollution.
<p>Element 2 – Working partnerships...to appropriate, state,...regional, and local entities, private sector groups, and federal agencies.</p>
<p>Element 3 – Balanced approach that emphasizes both statewide NPS programs and on-the-ground management of individual watersheds</p>

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

N/A

**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

Budget Summary				
Federal	\$	341,924	% of total project	60%
Non-Federal	\$	227,949	% of total project	40%
Total	\$	569,873	Total	100%
Category		Federal	Non-Federal	Total
Personnel	\$	116,642	\$ 37,339	\$ 153,981
Fringe Benefits	\$	43,435	\$ 10,459	\$ 53,894
Travel	\$	17,939	\$ 0	\$ 17,939
Equipment	\$	0	\$ 0	\$ 0
Supplies	\$	2,400	\$ 0	\$ 2,400
Contractual	\$	53,229	\$ 54,919	\$ 108,148
Construction	\$	0	\$ 0	\$ 0
Other	\$	63,680	\$ 0	\$ 63,680
Total Direct Costs	\$	297,325	\$ 102,717	\$ 400,042
Indirect Costs (≤ 15%)	\$	44,599	\$ 125,232	\$ 169,831
Total Project Costs	\$	341,924	\$ 227,949	\$ 569,873

Budget Justification (Federal)		
Category	Total Amount	Justification
Personnel	\$ 116,642	<p>Research Assistant: \$54,000 annually @ 5.07 months – \$23,507 TBD Program Manager: \$64,970 annually @ 3 months – \$16,728 TBD, Program Specialist: \$48,000 annually @ 18 months – \$76,407 *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.</p>
Fringe Benefits	\$ 43,435	<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. *(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.</p>
Travel	\$ 17,939	<p>Travel to 24 trainings statewide throughout the 3-year project duration for 1-2 people including 2 days per diem and 1-day lodging at the GSA state rates; mileage @ state rate and Concur travel fees. Estimates are based on rates for Austin, Corpus Christi, Dallas, Houston, Junction, Waco and the standard rate for areas not known. (\$16,566)</p> <ul style="list-style-type: none"> - Per diem – \$6,084 - Lodging – \$5,856 - Mileage – \$4,434 - Concur fees – \$192 <p>Travel to 2 annual conferences, end of project 3-day advanced training (\$1,373)</p> <ul style="list-style-type: none"> - One conference estimated at San Marcos for one person, 3 days, 2 nights- per diem and lodging (GSA rate) and 131 miles round-trip at state rate plus an \$8 Concur fee – \$579 - One conference estimated at Dallas for one person, 3 days, 2 nights- per diem and lodging (GSA rate) and 483 miles round-trip at state rate plus an \$8 Concur fee – \$794
Equipment	\$ 0	N/A
Supplies	\$ 2,400	General project supplies, including, but not limited to nametags, paper, pens, folders, etc. for program materials
Contractual*	\$ 53,229	<p>Subawards:</p> <ul style="list-style-type: none"> - Texas A&M Forest Service: \$37,114 - Nikki Dictson: \$16,115
Construction	\$ 0	N/A

Other	\$ 63,680	Communications Services (\$12,000) Scholarships for Online riparian program: 500 users/yr @ \$1/user (\$1,500) Printing costs for Riparian Books: 280 books/yr @ \$3,000/yr (\$9,000) Software licenses including Adobe Creative Suite & Pro, SPSS, GIS (\$650) Conferences fees for 2 people to Urban Riparian Symposium in year 1 and 3 (\$1,600) Speaker Fees \$8,000/yr. @ 3 years (\$24,000) Speaker Fees \$5,000/yr. @ 2 years (\$10,000) Facility Rental Fees (\$3,600) Annual website hosting fee \$360/year (\$1,080) Mailing of materials (\$250)
Indirect	\$ 44,599	Per the RFP requirements, indirect costs are limited at 15% of total direct costs. $\$297,325 \text{ Total Direct Costs} * 15\% = \$44,599$

Budget Justification (Non-Federal)		
Category	Total Amount	Justification
Personnel	\$ 37,339	TWRI Associate Director: \$101,261 annually, 4.17 mos. – \$37,339 *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	\$ 10,459	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. *(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	\$ 0	N/A
Equipment	\$ 0	N/A
Supplies	\$ 0	N/A
Contractual*	\$ 54,919	Subaward: <ul style="list-style-type: none"> - Texas A&M Forest Service: \$38,804 - Nikki Dictson: \$16,115
Construction	\$ 0	N/A
Other	\$ 0	N/A

Indirect	\$ 125,232	<p>Texas A&M AgriLife Research's federally negotiated indirect cost (IDC) rate is 51.5% 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:</u> MTDC * 51.5% in yr 1; MTDC * 52.5% in yr 2&3</p> <ul style="list-style-type: none"> - \$15,449 MTDC * 51.5% = \$7,956 (yr 1) - \$32,349 MTDC * 52.5% = \$16,983 (yr 2&3) <p><u>Unrecovered IDC on federal funds:</u> 51.5% MTDC – 15% TDC in yr 1; 52.5% MTDC – 15% TDC in yr 2&3</p> <ul style="list-style-type: none"> - IDC on MTDC yr 1: \$106,372 MTDC * 51.5% = \$54,782 - IDC on MTDC yr 2&3: \$171,639 MTDC * 52.5% = \$90,110 - IDC on TDC: \$297,325 TDC * 15% = \$44,599 <p>Total Unrecovered IDC: \$144,892 - \$44,599 = \$100,293</p>
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Budget Justification (Federal) – Texas A&M Forest Service

Category	Total Amount	Justification
Personnel	\$21,156	TFS Water Resources Forester (0.10% FTE at \$51,522.00/year) TFS Water Resources Forester (0.05% FTE at \$37,999.92/year)
Fringe Benefits	\$6,347	Fringe is calculated at 30% of salary
Travel	\$2,520	TFS Travel Includes: - 6 events per year in various locations throughout the state including professional trainings and conferences. Estimated costs include per diem at standard states rates for the areas (\$990) and hotel cost at the state rate for the areas (\$1,530) = \$2,520
Equipment	\$0	N/A
Supplies	\$750	Fuel
Contractual*	\$0	N/A
Construction	\$0	N/A
Other	\$1,500	Employee registration, exhibit at professional riparian conferences
Indirect	\$4,841	15% of Total Direct Costs

Budget Justification (Non-Federal) – Texas A&M Forest Service

Category	Total Amount	Justification
Personnel	\$19,792	TFS Program Leader (0.09 FTE @ \$73,302.72/year)
Fringe Benefits	\$6,333	Fringe is calculated at 30% of salary
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	\$12,679	Texas A&M Forest Service' negotiated indirect cost rate is 30% - 30% of non-federal modified total direct costs (\$7,838) - 15% of unrecovered indirect costs on federal funds (\$4,841)

Budget Justification (Federal) – Nikki Dictson		
Category	Total Amount	Justification
Personnel	\$12,000	Owner/Manager, \$85,000 @ 1.69 months
Fringe Benefits	\$0	
Travel	\$2,650	Travel to Texas for 2 Riparian Symposia, Airfare est. @ \$400 ea: (\$800); rental car, parking and fuel @ \$335 ea: (\$670); 6 hotel nights: (\$780); 8 days per diem @ \$50/day (\$400)
Equipment	\$0	
Supplies	\$0	
Contractual*	\$0	
Construction	\$0	
Other	\$0	
Indirect	\$1,465	10% of Total Direct Federal Costs

Budget Justification (Non-Federal) – Nikki Dictson		
Category	Total Amount	Justification
Personnel	\$14,650	Owner/Manager, \$85,000 @ 2.07 months
Fringe Benefits	\$0	
Travel	\$0	
Equipment	\$0	
Supplies	\$0	
Contractual*	\$0	
Construction	\$0	
Other	\$0	
Indirect	\$1,465	10% of Total Direct Federal Costs