TEXAS STATE
Soil & Water
CONSERVATION BOARD

Texas State Soil and Water Conservation Board
Clean Water Act §319(h) Nonpoint Source Grant Program
FY 2021 Workplan 21-03

SUMMARY PAGE		
Title of Project	Texas Silvicultural BMP Implementation and Water Resource Protection Project	
Project Goals	• Deliver effective education, outreach, and technical assistance • Improve water quality • Assess silvicultural BMP implementation • Effectively coordinate project activities	
Project Tasks	(1) Project Administration; (2) Education, Training and Outreach; (3) Technical Assistance; (4) Evaluating Forest Operations for BMP Implementation; (5) Collaboration with Local, State and Regional Partners	
Measures of Success	• Increase Forestry BMP Implementation • Increase in Load Reductions and Soil Savings • Estimate Riparian Conservation Resulting from BMP Implementation • Conduct a Minimum of 6 Educational/Training Workshops per Year • Expand Utilization of Innovative Technical Assistance Delivery Tools • Organize and Participate in Effective Coordination Meetings with Critical Partners	
Project Type	Implementation (X); Education (X); Planning ( ); Assessment ( ); Groundwater ( )	
Status of Waterbody on *2020 Texas Integrated Report*	Segment ID	Parameter of Impairment or Concern	Category
	0403	DO, pH	4a, 5c
	0508	Bacteria, DO	4a, 4a
	0511	Bacteria, DO, pH	4a, 4a, 4a, 4a
	0612	Bacteria	5c
	1008	Bacteria	4a
	1209	Bacteria	5a
	1213	Bacteria	5c
	1217D	DO	5c
	1221	Bacteria	5c
	1804A	Bacteria	5c
	1810	Bacteria	4b
	2422B	Bacteria, DO, Dioxin, PCB	5c, 5b, 5a, 5a

Project Location (Statewide or Watershed and County)	**Counties**: Anderson, Angelina, Atascosa, Austin, Bandera, Bastrop, Bell, Bexar, Blanco, Borden, Bosque, Bowie, Brazoria, Brazos, Brown, Burleson, Burnet, Caldwell, Callahan, Camp, Cass, Chambers, Cherokee, Coke, Coleman, Colorado, Comal, Comanche, Concho, Coryell, Crockett, Dallas, Delta, De Witt, Eastland, Edwards, Ellis, Erath, Falls, Fannin, Fayette, Fisher, Fort Bend, Franklin, Freestone, Frio, Galveston, Gillespie, Glasscock, Goliad, Gonzales, Gregg, Grimes, Guadalupe, Hamilton, Hardin, Harris, Harrison, Hays, Henderson, Hill, Hood, Hopkins, Houston, Howard, Hunt, Irion, Jackson, Jasper, Jefferson, Johnson, Jones, Karnes, Kaufman, Kendall, Kerr, Kimble, Kinney, Lamar, Lampasas, Lavaca, Leon, Lee, Liberty, Limestone, Llano, Madison, Marion, Mason, Matagorda, McClennan, McCulloch, Medina, Menard, Milam, Mills, Mitchell, Montgomery, Morris, Nacogdoches, Navarro, Newton, Nolan, Orange, Palo Pinto, Panola, Parker, Polk, Rains, Reagan, Real, Red River, Robertson, Rockwall, Runnels, Rusk, Sabine, San Augustine, San Jacinto, San Saba, Schleicher, Scurry, Shackelford, Shelby, Smith, Somervell, Stephens, Sterling, Sutton, Tarrant, Taylor, Titus, Tom Green, Travis, Trinity, Tyler, Upshur, Uvalde, Val Verde, Van Zandt, Victoria, Walker, Waller, Washington, Wharton, Williamson, Wilson, Wood, Zavala **Watersheds**; Amistad Reservoir, Aransas Bay, Atascosa, Austin-Oyster, Austin-Travis Lakes, Beals, Bois D'arc-Island, Bosque, Brady, Buchanan-Lyndon B. Johnson, Buffalo-San Jacinto, Caddo Lake, Cedar, Central Matagorda Bay, Chambers, Cibola, Colorado Headwaters, Concho, Cowhouse, Denton, Double Mountain Brazos Fork, Dry Devils, East Fork San Jacinto, East Fork Trinity, East Galveston Bay, East Matagorda Bay, East San Antonio Bay, Elm-Sycamore, Elm Fork Trinity, Hondo, Howard Draw, Hubbard, Jim Ned, Johnson Draw, Lake Fork, Lake O' the Pines, Lampasas, Lavaca, Leon, Little, Little Cypress, Llano, Lower Angelina, Lower Brazos, Lower Brazos – Little Brazos, Lower Colorado, Lower Colorado-Cummings, Lower Devils, Lower Frio, Lower Guadalupe, Lower Neches, Lower Nueces, Lower Pecos, Lower Sabine, Lower San Antonio, Lower Sulphur, Lower Trinity, Lower Trinity-Kickapoo, Lower Trinity-Tehuacana, Lower West Fork Trinity, Lozier Canyon, Medina, Middle Brazos-Lake Whitney, Middle Brazos-Palo Pinto, Middle Colorado, Middle Colorado-Elm, Middle Concho, Middle Guadalupe, Middle Neches, Middle Sabine, Mission, Mustang Draw, Navasota, Navidad, North Bosque, North Concho, North Galveston Bay, North Llano, Nueces Headwaters, Pecan Bayou, Pedernales, Pine Island Bayou, Richland, Sabine Lake, San Bernard, San Gabriel, San Marcos, San Miguel, San Saba, South Concho, South Llano, Spring, Sulphur Headwaters, Sulphur Springs Draw, Toledo Bend Reservoir, Turkey, Upper Angelina, Upper Clear Fork Brazos, Upper Colorado, Upper Devils, Upper Frio, Upper Guadalupe, Upper Neches, Upper Nueces, Upper Sabine, Upper San Antonio, Upper Trinity, Upper West Fork Trinity, Village, West Fork San Jacinto, West Galveston Bay, West Matagorda Bay, West Nueces, West San Antonio Bay, White Oak Bayou, Yegua
Key Project Activities	Hire Staff (X); Surface Water Quality Monitoring ( ); Technical Assistance (X); Education (X); Implementation (X); BMP Effectiveness Monitoring ( ); Demonstration (X); Planning ( ); Modeling ( ); Bacterial Source Tracking ( ); Other ( )
2017 Texas NPS Management Program Reference	• Component 1 – LTG 1, 2, 3, 7 • Component 1 – STG A, B, C, D • Component 2, 3, 6
Project Costs	Federal $398,250 Non-Federal $286,851 Total $685,101
Project Management	• Texas A&M Forest Service
Project Period	April 25, 2022 – August 31, 2025

Part I – Applicant Information

Applicant

Project Lead	Julia Schmidt
Title	Water Resources Forester
Organization	Texas A&M Forest Service
E-mail Address	**Julia.Schmidt@tfs.tamu.edu**
Street Address	200 Technology Way, Suite 1281

City	College Station	County	Brazos	State	TX	Zip Code	77845
Telephone Number	(979) 458-6650			Fax Number	(979) 458-6655		

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 Forest Service (TFS)	Provide leadership and direction for overall project implementation, management, administration, and coordination of activities with partners.
Texas Forestry Association (TFA)	Assist with education, training, provide framework for organization of cooperators, provide communication within forestry community
Texas Logging Council (TLC)	Assist with education and training, support program efforts

Part II – Project Information

Project Type

Surface Water	X	Groundwater		

Does the project implement recommendations made in: (a) a completed WPP; (b) an adopted TMDL; (c) an approved I-Plan; (d) a Comprehensive Conservation and Management Plan developed under CWA §320; (e) the *Texas Coastal NPS Pollution Control Program*; or (f) the *Texas Groundwater Protection Strategy*?	Yes	X	No	

If yes, identify the document.	Lake O' The Pines TMDL Implementation Plan Adams and Cow Bayou TMDL Implementation Plan Plum Creek WPP Leon River WPP Lampasas River WPP Geronimo Creek WPP Upper Llano River WPP Attoyac Bayou WPP Double Bayou WPP Cedar Bayou Double Bayou		

If yes, identify the agency/group that developed and/or approved the document.	Lake O' the Pines – NETMWD/TCEQ Plum Creek – TAES/TSSWCB Leon River – BRA/TSSWCB Geronimo Creek – GBRA/TSSWCB Lampasas River – TAES/TSSWCB Adams and Cow Bayou – SRA/TCEQ Attoyac Bayou – TTU/TSSWCB Upper Llano River – TWRI/TSSWCB Double Bayou – HARC/TSSWCB Cedar Bayou – HGAC/TSSWCB Double Bayou – HARC/TSSWCB Navasota River – TWRI/TSSWCB	Year Developed	2008 2008 2012 2012 2013 2015 2015 2016 2016 2015 2016 2017

Watershed Information				
Watershed or Aquifer Name(s)	Hydrologic Unit Code (12 Digit)	Segment ID	Category on 2014 IR	Size (Acres)
Lake O' The Pines	111403050401 111403050405 111403060101	0403	4a	157,313
Attoyac Bayou	120200050301 120200050307 120200050401 120200050406 120200050501	0612	5b	205,032
San Jacinto River Basin	120401020206 120401020208 120401021305 120401021309 120401021312	1008 1008A		115,579
Lampasas River	120702030101 120702030509	1217 1217D	5c	839,800
Leon River	120702010501 120702010509 120702010601 120702010605 120702010701 120702010705 120702010801 120702010806 120702010901 120702010908 120702011002	1221	5b	886,277
Upper Llano River	120902020101 120902020109 120902020201 120902020208 120902020301 120902020306 120902030101 120902030108 120902030201 120902030206 120902030301 120902030305 120902030401 120902030405	1415-05 1415-06	1 1	510,148
Geronimo Creek	121002020110 121002020111	1804A	5c	44,152
Plum Creek	121002030401 121002030407 121002030409 121002030410	1810	4b	213,830

Double Bayou	12040202	2422B		30,000

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.

2020 Texas Integrated Report

SegID	Name	Impairment	Code
0403	Lake O' the Pines	Depressed DO	4a
		pH	5c
0508	Adams Bayou Tidal	Bacteria	4a
		Depressed DO	4a
0508A	Adams Bayou Above Tidal	Depressed DO	4a
0511	Cow Bayou Tidal	Bacteria	4a
		Depressed DO	4a
		pH	4a
0511A	Cow Bayou Above Tidal	Depressed DO	4a
0612	Attoyac Bayou	Bacteria	5c
1008	Spring Creek	Bacteria	4a
1009	Cypress Creek	Bacteria	4a
1217D	North Rocky Creek	Depressed DO	5c
1221	Leon River	Bacteria	5c
1804A	Geronimo Creek	Bacteria	5c
1810	Plum Creek	Bacteria	4b
2422B	Double Bayou	Bacteria	5c
		Depressed DO	5b
		Dioxin in edible tissue	5a
		PCBs in edible tissue	5a

Water Quality Concerns

SegID	Name	Impairment	Code
0403	Lake O' the Pines	Chlorophyll-a	CS
		Depressed DO	CS
		Nitrate	CS
0508	Adams Bayou Tidal	Depressed DO	CS
		pH	CN

0511	Cow Bayou Tidal	Depressed DO	CS
0511A	Cow Bayou Above Tidal	Depressed DO	4a
0612	Attoyac Bayou	Ammonia	CS
		Depressed DO	CS
1008	Spring Creek	Depressed DO	CS
		Impaired Fish Community	CN
		Nitrate	CS
		Total Phosphorous	CS
1009	Cypress Creek	Bacteria	NS
1217 B	Sulphur Creek	Depressed DO	CS
1221	Leon River	Chlorophyll-a	CS
		Depressed DO	CS
		Nitrate	CS
		Total Phosphorous	CS
1804A	Geronimo Creek	Nitrate	CS
1810	Plum Creek	Depressed DO	CS
		Impaired habitat	CS
		Nitrate	CS
		Total phosphorous	CS
2422B	Double Bayou	Chlorophyll-a	CS
		Depressed DO	CS

Special Interest

1217	Lampasas River above Stillhouse	Bacteria	WAP
1415	Upper Llano		WAP

Project Narrative

Problem/Need Statement

Numerous waterbodies throughout the state have been placed on the 2020 Texas Integrated Report. While forests produce the cleanest water of any land use, improperly conducted management operations can contribute to water quality declines, making it critical to implement silvicultural best management practices (BMPs). The TSSWCB is the lead agency for planning, implementing, and managing programs for preventing agricultural and silvicultural nonpoint source pollution, and collaborates with TFS to target NPS pollution resulting from forest operations. TFS coordinates with numerous organizations to implement the agency's water resources program.

Through a successful partnership with TSSWCB, TFS has developed expertise in addressing water issues in East Texas, which, with slight modification, can be applied throughout the state to mitigate nonpoint source pollution. The same principles and concepts that are effective in the commercial forestlands of the Pineywoods can also be implemented in the woodlands of the Hill Country. Sound land stewardship, conservation planning, and riparian management are potential solutions to water quality concerns in Central Texas. Urban forests can reduce stormwater runoff and improve water quality in streams and bayous in metropolitan areas. Non-traditional partnerships are necessary to develop innovative solutions to address complex water resource issues across the state.

Several waterbodies already have approved TMDL Implementation Plans (Adams and Cow Bayou, Lake O' the Pines) or EPA accepted Watershed Protection Plans (Attoyac Bayou, Double Bayou, Geronimo Creek, Mill Creek, Navasota River, Plum Creek, Lampasas River, Leon River, Upper Llano, West Fork San Jacinto River). Other waterbodies have plans currently in development (Lufkin Area Watersheds, Neches River, Lavon Lake, etc.) to address their impairment or threat. In coordination with these efforts, TFS will conduct training, education, and outreach programs that promote land stewardship, BMP implementation, and water resource protection in these priority watersheds. To measure the effectiveness of the educational component of this project in East Texas, TFS will also monitor BMP implementation on forest operations. Lastly, TFS will continue to participate and support plan development and implementation for these priority areas. The efforts of this project will play an integral role in ensuring that an improvement in water quality is achieved.

Past TFS projects funded by TSSWCB (15-08,12-03 and 18-03) have resulted in significant gains in land stewardship, BMP implementation, NPS pollution mitigation, and water resource protection. For example, the *My Land Management Connector* web application assists landowners in connecting with BMP trained vendors among others that can provide land management services. The *Plan My Land Operation* web application provides users with detailed planning maps, operational reports, and BMP recommendations tailored to the local site conditions found on a user-defined area of interest. The *Texas Forestry BMPs* smartphone application adds increased functionality and accessibility to the Texas Forestry BMP Handbook. Riparian educational programs for landowners and stewardship training workshops for land contractors are also very effective outreach methods.

The continuation of a strong, statewide presence through education, training, outreach and demonstration is necessary. This is especially important given the rate at which land is transferred to new owners, many of which may be unaware of BMPs. BMP implementation evaluations are the best measure of success for the non-regulatory program. This project will continue to offer educational programs to numerous audiences, including absentee landowners. A comprehensive approach with continuing interagency coordination and public involvement will also be crucial.

Project Narrative

General Project Description (Include Project Location Map)

This project will minimize impacts to water quality from silvicultural NPS pollution by providing technical assistance, education, outreach, and training on BMPs. Project activities will be coordinated with numerous cooperators to help ensure project success. It will also aim to address water resource issues throughout the state, drawing largely on the principles, concepts, and experience gained through almost three decades of mitigating NPS pollution in East Texas.

Results from BMP implementation monitoring provide a clear assessment of project effectiveness, as well as identify where future efforts should be targeted. Based on previously conducted monitoring, focused BMP workshops have been developed. As a result, BMP implementation in these areas has improved. This project will monitor voluntary BMP implementation by conducting 150 assessments of randomly selected silvicultural operations. Results will be shared through a final report and interactive web application.

Sediment and nutrient load reduction methods will continue to be evaluated and refined to determine the most appropriate approach to quantify the effectiveness of silvicultural BMPs. Potential models include APEX, SWAT, RUSLE, WEPP, and others. The Forest Land Erosion Evaluation for East Texas, developed by George Dissmeyer, USDA Forest Service will also be used to maintain consistency with past efforts. Results of this methodology are derived from a comparison of estimated sedimentation, assuming current levels of BMP implementation, compared to zero levels. This method draws from average erosion rates and recovery periods for various soil disturbances developed by Dissmeyer using the Modified Universal Soil Loss Equation on over 9,000 silvicultural sites in the South.

Educational programs will be an integral part of this project. BMP workshops and educational exhibits will be delivered, both in person (if permissible) and virtually, that focus on the land stewardship, sustainable forestry, water resource protection, and BMP implementation. Workshops and informative newsletters will target forest and woodland owners. GIS based story maps, infographics, and interactive videos will also be used to increase communication, interaction, and facilitate technology transfer to natural resource professionals, landowners, and the public.
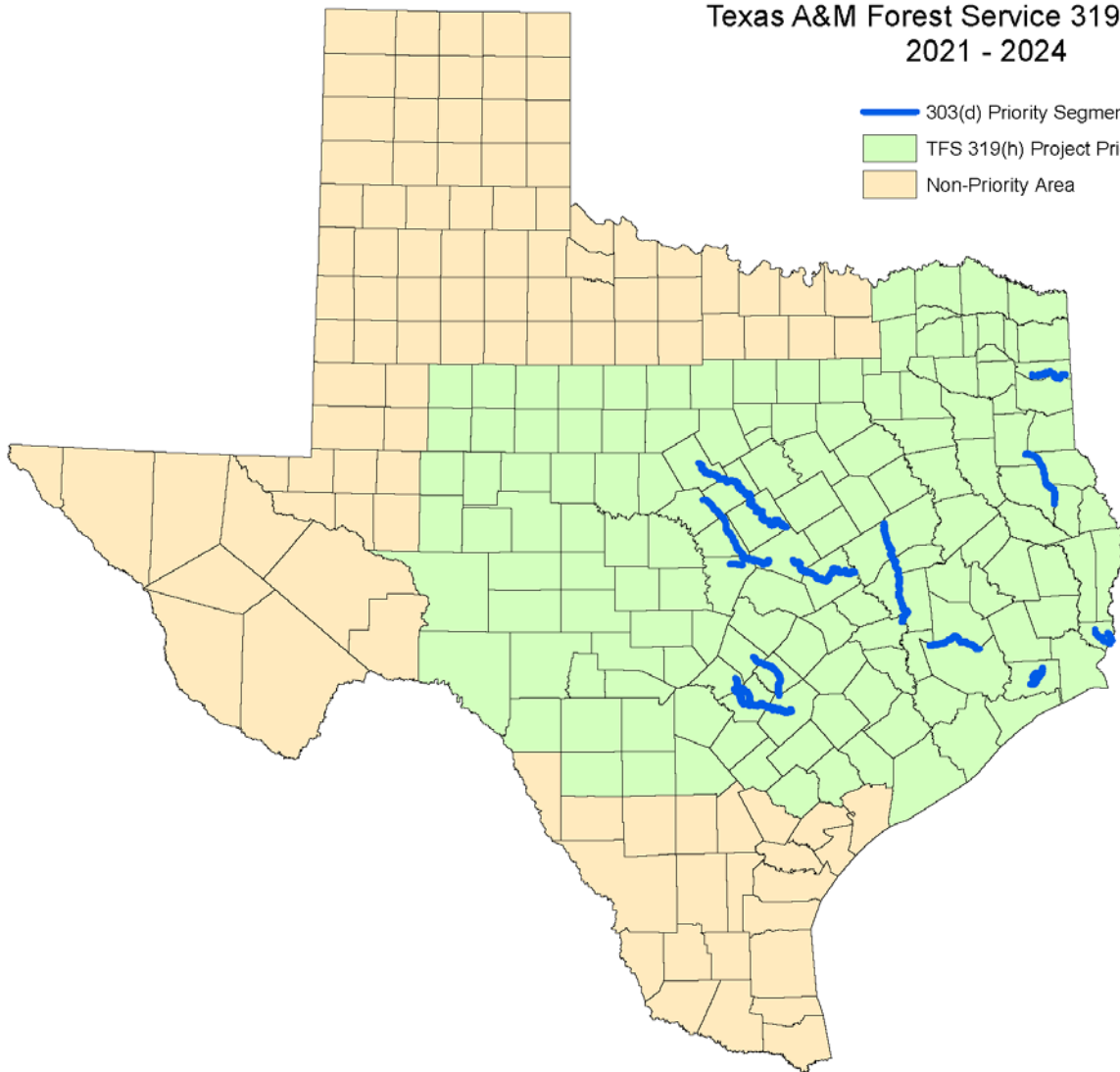
TFS will continue to provide technical assistance through this project. Training workshops will be targeted to loggers, farm and ranch contractors, drainage districts, TFS personnel and other natural resource professionals. Online training modules will be developed to provide on-demand training on a wide variety of BMP and forest watershed management topics. This will be especially important if restrictions on in person gatherings remain. Widely popular web (Plan My Land Operation) and mobile (Texas Forestry BMPs) applications will be updated to enhance functionality and effectiveness. TFS will continue cooperating with the proposed Texas Water Resources Institute/TSSWCB project "*Statewide Delivery of Riparian and Ecosystem Education Program IV,*" helping landowners understand the importance of riparian restoration and management. These types of interactions are vital to increasing BMP implementation and protecting water resources.

A major focus of this project will be on priority watersheds. TFS will help facilitate the education, outreach, training, and monitoring outlined in TMDL Implementation and Watershed Protection Plans. Land stewardship in Central Texas is imperative due to the explosive population growth this area is experiencing. Staff will work closely with landowners and managers to implement BMPs in this region. Forest canopy in developing watersheds can reduce stormwater runoff and nonpoint source pollution. TFS will work with watershed coordinators to continue incorporating the iTree Hydro model in appropriate watershed protection plans.

TFS will lead and coordinate this project. Effective collaboration will be facilitated through the Wetland / BMP coordinating committee, SGSF Water Resources committee, water conferences, and many other watershed based meetings. Local media will be used to promote project goals.

Texas A&M Forest Service 319(h) Project
2021 - 2024

303(d) Priority Segment
TFS 319(h) Project Priority Area
Non-Priority Area

S. Harrington
September 2020

Tasks, Objectives and Schedules					
Task 1	Project Administration				
Costs	Federal	$39,825	Non-Federal	$28,185	Total	$68,010
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	TFS will prepare electronic quarterly progress reports (QPRs) for submission to the TSSWCB. QPRs shall document all activities performed within a quarter and shall be submitted by the 1st of January, April, July and October. QPRs shall be distributed to all Project Partners.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 1.2	TFS will perform accounting functions for project funds and will submit appropriate Reimbursement Forms to TSSWCB at least quarterly.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 1.3	TFS 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. TFS will develop lists of action items needed following each project coordination meeting and distribute to project personnel.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 1.4	TFS 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 01	Completion Date	Month 41	
Deliverables	• QPRs in electronic format • Reimbursement Forms and necessary documentation in hard copy format • Final Report in electronic and hard copy formats				

Tasks, Objectives and Schedules					
Task 2	Education, Training, and Outreach				
Costs	Federal	$79,650	Non-Federal	$56,370	Total	$136,020
Objective	To increase water resource / NPS pollution / BMP / and riparian forest awareness to landowners, natural resource professionals, and the general public in Texas. Specifically, TFS will focus on the following priority watersheds: Lake O' the Pines, Adam's and Cow Bayou, Alligator Creek, Attoyac Bayou, Double Bayou, Lampasas River, Navasota River, Plum Creek, Geronimo Creek, Upper Llano River, and Leon River.				
Subtask 2.1	TFS, in cooperation with project partners, will conduct 4 BMP/water resource/stewardship training workshops per year. Trainings may include, but are not limited to: Texas Pro Logger Training Program, TFS Emergency Responder Academy, Farm and Ranch Contractor Stewardship, Municipal Urban Planners, County Drainage Districts, Sustainable Forest Land Retention Project and other appropriate workshops that promote BMP implementation and water resource protection.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 2.2	TFS will publish quarterly newsletters (4/year) to forest landowners (*Texas Water Source*) in select priority watersheds and natural resource professionals (*Forest Stewardship Briefings*) across the state providing information on sustainable forestry and water resource protection. TSSWCB must approve all project-related content in any informational materials and promotional publications prior to distribution.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 2.3	TFS, in cooperation with project partners, will coordinate a minimum of 2 landowner workshops per year to promote sustainable forestry, water resource protection, and riparian management.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 2.4	TFS will participate and display educational exhibits at relevant meetings, conferences, and educational events.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 2.5	TFS will develop and provide educational information to absentee forest landowners and general public on sustainable forestry, water resource protection, and riparian management. Activities may include, but are not limited to: out of state, absentee landowner newsletter, presentations at landowner association and civic group meetings, TexasForestInfo.com, GIS based story maps, videos, infographics, and appropriate use of social media. TSSWCB must approve all project-related content in any informational materials and promotional publications prior to distribution.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 2.6	TFS will develop an online training portal that will provide on-demand training classes for landowners, natural resource managers and general public on various watershed management topics. This will provide a virtual learning center for attendees through which they will better understand their role in protecting watersheds.				
	Start Date	Month 01	Completion Date	Month 41	
Deliverables	• Conduct 4 BMP training workshops per year • Publish quarterly newsletters • Conduct two landowner workshops per year • Educational materials for absentee landowners • List of events where TFS exhibit was displayed • Publish online virtual training portal providing on-demand watershed management training				

Tasks, Objectives and Schedules					
Task 3	Technical Assistance				
Costs	Federal	$79,650	Non-Federal	$56,370	Total	$136,020
Objective	To provide technical assistance to foresters, natural resource professionals, landowners, contractors, and other interested groups on BMPs and water resource protection programs.				
Subtask 3.1	TFS will deliver technical assistance on forestry BMPs, source water protection, riparian management and watershed management efforts leveraging federal Farm Bill programs and initiatives.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 3.2	TFS will maintain and enhance mobile/online planning tools (e.g. Plan My Land Operation, Texas Forestry BMPs app) with additional information and functionality.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 3.3	TFS will work with partners to develop new innovative ways to provide BMP guidance to landowners and land managers.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 3.4	TFS will work with watershed coordinators to incorporate the iTree Hydro model in appropriate watershed protection plans. This model simulates the impact of varying canopy levels on stormwater runoff volume, sediment, and nutrient concentrations.				
	Start Date	Month 01	Completion Date	Month 41	
Deliverables	• Summary of updates made to online and smartphone BMP applications • Provide technical BMP guidance to landowners and land managers • List of watersheds and results of iTree Hydro model simulations				

Tasks, Objectives and Schedules					
Task 4	Evaluating Forest Operations for BMP Implementation				
Costs	Federal	$139,387	Non-Federal	$98,648	Total	$238,035
Objective	To assess the voluntary adoption of Texas' recommended BMPs by forest landowners, managers, and contractors and quantify resulting load reductions.				
Subtask 4.1	TFS will identify silvicultural operations in East Texas to randomly select for BMP implementation monitoring.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 4.2	TFS will conduct 150 BMP implementation evaluations on tracts in East Texas that meet suitability criteria.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 4.3	TFS will prepare and distribute a BMP Implementation Monitoring Report to landowners and other interested entities. Results will also be available on TexasForestInfo.com				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 4.4	TFS will quantify sediment and nutrient load reductions resulting from BMP implementation.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 4.5	TFS will develop a geo-spatial web application to host historical BMP implementation data. This tool can help identify areas that could benefit from additional educational and outreach efforts.				
	Start Date	Month 01	Completion Date	Month 41	
Deliverables	• Identify at least 500 forest operations to select for potential monitoring • Conduct 150 BMP implementation evaluations • BMP Implementation Monitoring Report and online results summary • Load reductions resulting from BMP implementation				

Tasks, Objectives and Schedules					
Task 5	Collaboration with Local, State, and Regional Partners				
Costs	Federal	$59,737	Non-Federal	$47,278	Total	$107,015
Objective	To effectively coordinate project activities with natural resource agencies and project participants				
Subtask 5.1	TFS will host annual Wetland / BMP coordinating committee meetings.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 5.2	TFS will work with local media outlets and social media platforms to promote project activities and success stories.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 5.3	TFS will participate and assist in the coordination of relevant water resources and/or watershed management conferences and meetings throughout the Western Gulf Region (AR, LA, OK, TX).				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 5.4	TFS will actively participate in the Southern Group of State Foresters Water Resources Committee.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 5.5	TFS will attend and participate in meetings in order to communicate and coordinate project goals, activities, and accomplishments to interested parties. Such meetings may include, but not limited to, Clean Rivers Program Basin steering committees, TMDL and Watershed Protection Plan stakeholder meetings, NPS management, SWCD meetings, professional and trade associations, and other appropriate meetings of critical watershed stakeholders groups.				
	Start Date	Month 01	Completion Date	Month 41	
Subtask 5.6	TFS will promote the link between forests and water resources. Activities may include, but are not limited to: forest - water partnership meetings, coastal forest management, urban forest watershed management, ecosystem services, and other appropriate related outreach efforts.				
	Start Date	Month 01	Completion Date	Month 41	
Deliverables	• Host 2 Wetland/BMP Coordinating Committee meetings • Publish and distribute at least 4 articles per year to various local media sources • Coordinate and attend 1 Western Gulf Four State Forestry BMP Conference. • Participate in two SGSF WRC meetings • Attend at least 3 watershed protection or TMDL stakeholder meetings per year • Conduct 3 partnership meetings focused on the forest-water connection				

Project Goals (Expand from Summary Page)

1) To improve water quality in Texas and the 303(d)-listed segments' watersheds through the implementation of forestry BMPs, sustainable forestry practices, land stewardship, and riparian management.

2) To provide effective technical assistance to landowners, contractors, natural resource professionals, and local government

3) To increase the awareness and general understanding of water resource protection measures to landowners, natural resource professionals and the general public through educational workshops, training courses, media outreach, and innovative technology transfer applications that encourage land stewardship, BMP implementation, and water resource protection.

4) To assess silvicultural BMP implementation in Texas through a statistically sound, technically defensible, and objective approach, providing a clear assessment of the effectiveness of the project's educational efforts and identifying areas to target for improvement.

5) To effectively coordinate project activities and build successful and collaborative partnerships.

Measures of Success (Expand from Summary Page)

Increase forestry BMP implementation
The numerous education, training, outreach, and technical assistance that will be provided throughout the course of this project will increase voluntary BMP implementation to 95%.

Increase in Load Reductions and Soil Savings
An increase to show over 70,000 tons of soil savings (erosion) and 10,000 tons of sedimentation prevention will show the success of this project. Appropriate methodologies for load reductions other than the Forest Land Erosion Evaluation for East Texas tool will be investigated for applicability, including APEX, SWAT, the SGSF/VT cooperative project, and the USDA Forest Service *i-Tree* software package.

Estimate Riparian Conservation Resulting from BMP implementation
BMP implementation, especially near streams and other waterbodies, can positively impact riparian areas and aquatic habitat. BMP monitoring data (SMZ implementation) and forest statistics will be used to estimate the area of riparian conservation resulting from the efforts of this project.

Conduct a Minimum of 6 Educational/Training Workshops per Year
Delivering, high quality, effective educational / training workshops is critical to promoting BMP implementation, land stewardship, and water resource protection. Educational workshops for landowners will focus on sustainable forestry and water resource protection. Training workshops will target both traditional forestry and non-traditional land contractors and natural resource professionals. These workshops will include regular "core" BMP workshops, focused sessions on stream crossings, forest roads, streamside management zones, online refresher courses, and land stewardship.

Expand Utilization of Innovative Technical Assistance Delivery Tools
Innovative web and mobile applications have the ability to greatly increase the awareness, understanding, and adoption of BMPs and land stewardship principles. These tools allow users to develop better operational plans in the office and then confirm those plans while in the field. Virtual and on-demand technical assistance platforms are critical in today's world. Increasing the use of Plan My Land Operation, Texas Forestry BMPs, online training modules, and other applications by 100% over current levels will show success of this project.

Organize and Participate in Effective Coordination Meetings with Critical Partners
Effective collaboration is critical to ensuring sustained success in water resource protection. Regional, state, and local coordination meetings will be organized and conducted in a manner that generates active participation from attendees

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

Components, Goals, and Objectives

Component 1 – Explicit short- and long-term goals, objectives and strategies that protect surface and groundwater

Short-Term Goal Three: Education: Conduct education and technology transfer activities to increase awareness of NPS pollution and activities which contribute to the degradation of waterbodies, including aquifers, by NPS.

Objectives
   A. Enhance existing outreach programs at the state, regional, and local levels to maximize the effectiveness of NPS education.
   B. Administer programs to educate citizens about water quality and their potential role in causing NPS pollution.
   C. Expedite development of technology transfer activities to be conducted to increase BMP implementation
   D. Implement public outreach and education to maintain and restore water quality in waterbodies impacted by NPS pollution.

Long-Term Goal: Protect and restore water quality from NPS pollution through assessment, implementation and education

Objectives
   1. Focus NPS abatement efforts, implementation strategies, 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, implementation, and education.
   3. Support the implementation of state, regional, and local programs to reduce NPS pollution, such as the implementation of strategies defined in state-approved TMDL Implementation Plans and Watershed Protection Plans.
   7. Increase overall public awareness of NPS issues and prevention activities.

Component 2 – Working partnerships and linkages to appropriate State, interstate, Tribal, regional, and local entities, private sector groups, and Federal agencies.

Component 3 – Balanced approach that emphasizes both statewide NPS programs and on-the-ground management of individual watersheds.

Component 6 – Implement all NPS program components required by CWA 319(b) and establish flexible, targeted, and iterative approaches to achieve and maintain beneficial uses of water as expeditiously as practical.

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

The education, outreach, training, and technical assistance components of this project will result in increased forestry BMP implementation in East Texas (primarily improved forest roads, stream crossings, and streamside management zones) resulting in substantial sediment load reductions. New methodologies (APEX, SWAT) will continue to be evaluated and refined to quantify sediment and nutrient load reductions resulting from forestry BMP implementation. In order to maintain consistency with previous projects, the Forest Land Erosion Evaluation Tool for East Texas will be used. Using this approach, it is anticipated that the adoption of forestry BMPs will result in the following pollutant load reductions be:

- 11,000 tons prevented from entering East Texas streams, lakes, and rivers

- 70,000 tons prevented from eroding from East Texas forestlands

Other methodologies for determining load reductions outside of East Texas will also be investigated. The *i-Tree* software, created by the USDA Forest Service, may be able to determine load reductions resulting from increases in urban forest canopy.

EPA State Categorical Program Grants – Workplan Essential Elements
FY 2018-2022 EPA Strategic Plan Reference

Strategic Plan Goal – Goal 1 Core Mission: Deliver a cleaner, safer, and healthier environment for all Americans and future generations by carrying out the Agency's core mission.

Strategic Plan Objective – Objective 1.2 Provide for Clean and Safe Water to ensure waters are clean through improved water infrastructure and, in partnership with states and tribes, sustainably manage programs to support drinking water, aquatic ecosystems, and recreational, economic, and subsistence activities.

Part III – Financial Information

Budget Summary

Federal	$ 398,250	% of total project		58%
Non-Federal	$ 286,851	% of total project		42%
Total	$ 685,101	Total		100%

Category	Federal	Non-Federal	Total
Personnel	$ 221,475	$ 135,000	$ 356,475
Fringe Benefits	$ 68,657	$ 41,850	$ 110,507
Travel	$ 14,672	$ 0	$ 14,672
Equipment	$ 0	$ 0	$ 0
Supplies	$ 6,500	$ 0	$ 6,500
Contractual	$ 0	$ 0	$ 0
Construction	$ 0	$ 0	$ 0
Other	$ 35,000	$ 5,000	$ 40,000
Total Direct Costs	$ 346,304	$ 181,850	$ 528,154
Indirect Costs (≤ 15%)	$ 51,946	$ 53,055	$ 105,001
Indirect (15% unrecovered)		$ 51,946	$ 51,946
Total Project Costs	$ 398,250	$ 286,851	$ 685,101

Budget Justification (Federal)		
Category	Total Amount	Justification
Personnel	$ 221,475	TFS Water Resources Forester (0.45 FTE @ $51,000/year for 3.25 years) ($74,588) TFS Water Resources Forester (0.25 FTE @ $51,000/year for 2.5 years) ($31,875) TFS Water Resources Forester (0.25 FTE @ $51,000/year for 1.49 years) ($19,008) TFS Water Resources Forester (0.25 FTE @ $61,560/year for 3.25.years) ($50,018) TFS Biologist (0.25 FTE @ $70,435/year for 2 years) ($35,218) TFS Department Head (0.05 FTE @ $107,680/year for 2 years) ($10,768)
Fringe Benefits	$ 68,657	Fringe benefits are estimated at 31% of federal personnel costs.
Travel	$ 14,672	In state- $10,872 (Approximately 6 trips per year x 4 staff x 3 years). Lodging and meals at state rate. Out of state -$3,800 (Approximately 5 total trips. Federal GSA rates for lodging and meals.) • SGSF WRC Annual Meeting • Western Gulf Water Conferences
Equipment	$ 0	N/A
Supplies	$ 6,500	Office supplies include binders, folders, paper, cartridges, calendars, janitorial, and computer software & hardware ($6,000); Handheld GPS ($500)
Contractual*	$ 0	N/A
Construction	$ 0	N/A
Other	$ 35,000	Newsletters - $10,200 (12 TWS @ $700/newsletter; 3 FLB @ $600/newsletter) Educational/Technical Assistance materials - $5,000 Mileage, rental vehicle and/or fuel expenses, and maintenance - $13,800 Employee Training – $6,000 ($500/employee/year x 4 employees x 3 years)
Indirect	$ 51,946	Recovered indirect cost (15%) of modified total direct federal costs (Personnel, Fringe, Travel, Supplies, Other)

Budget Justification (Non-Federal)		
Category	Total Amount	Justification
Personnel	$ 135,000	TFS Department Head (0.05 FTE @ $107,680/year for 2 years) ($10,768) TFS Water Resources Forester (0.36 FTE @ $51,000/year for 3.25 years) ($60,346) TFS Water Resources Forester (0.25 FTE @ $51,000/year for 2.5 years) ($31,875) TFS Water Resources Forester (0.16 FTE @ $61,560/year for 3.25 years) ($32,011)
Fringe Benefits	$ 41,850	Fringe benefits are estimated at 31% of federal personnel costs
Travel	$ 0	N/A
Equipment	$ 0	N/A
Supplies	$ 0	N/A
Contractual*	$ 0	N/A
Construction	$ 0	N/A
Other	$ 5,000	Telecom, utilities, rental, and other services estimated at $122/month for 41 months.

Indirect	$	53,055	TAMU system indirect cost @ 30% modified total direct costs
Unrecovered IDC	$	51,946	Unrecovered federal indirect cost @ 15%