

Texas State Soil and Water Conservation Board
Clean Water Act §319(h) Nonpoint Source Grant Program
FY 2021 Workplan 21-06

SUMMARY PAGE			
Title of Project	Curriculum Development for Engaging Volunteers in Watershed Management		
Project Goals	<ul style="list-style-type: none"> • Develop a volunteer training curriculum focused on watershed-based planning efforts in Texas by collaborating with current CWA §319(h)-funded education program coordinators. • Work with Texas A&M AgriLife Digital Education to create online platform for the course. • Develop a list of volunteer roles and responsibilities. • Train and inform Watershed Coordinators, county Extension agents, and other related organizations about the training program, and to develop advertising materials and resources with them to help recruit and manage volunteers. • Develop training manual and reference guides for volunteers to use during and after training. 		
Project Tasks	(1) Project Administration; (2) Coordinate and Develop Volunteer Curriculum and an Online Course; (3) Watershed Coordinator and Volunteer Resource Development		
Measures of Success	<ul style="list-style-type: none"> • A curriculum and virtual course for training TWRI volunteers. • Promotional and training materials developed for Watershed Coordinators, county Extension agents, etc. • A training manual and resource kit for volunteers. • A TWRI Volunteer Website that houses training information, links to the full programs that are covered in the training, and volunteer resources • A detailed list of volunteer roles and responsibilities. • Number of meetings attended where the volunteer program is advertised. 		
Project Type	Implementation (X); Education (X); Planning (); Assessment (); Groundwater ()		
Status of Waterbody on <i>2020 Texas Integrated Report</i>	Segment ID	Parameter of Impairment or Concern	Category
	2201, 2202	Bacteria, DO, Mercury, PCBs	5c
	0612	Bacteria	5c
	1105	Bacteria	5c
	1416A	DO	5c
	0207	Bacteria	5b
	2456	Bacteria	5a
	0901	Bacteria, Dioxin, PCBs	5c, 5a
	1426	-	-
	1815	DO, Impaired fish community, Impaired macrobenthic community	5c
	2422B, 2422D	Bacteria, DO, Dioxin, PCBs	5a, 5b, 5c
	1811	Bacteria	5c
	1804A	Bacteria	5c
	0823	-	-
	0828A	Bacteria	5c
1205	-	-	

	0821 C, D	Bacteria	5c
	1217	DO	5c
	1602	Bacteria	5a
	1221	Bacteria	5c
	2102	TDS	5c
	1902, 1902C	Bacteria, DO	5b, 5c
	1202K	Bacteria	5c
	1209	Bacteria	5a
	1218	Bacteria	5c
	1810	-	-
	1301,1302	Bacteria	5c
	1501	DO	5b
	1908	Bacteria	5c
	1415_05,1415_06	-	-
	1911, 1911B, 1911C, 1911D, 1911E, 1911H, 1911I	Impaired fish and macrobenthic communities	5c
	1814	-	-
	1004, 1015	Bacteria	5a
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; and areas that receive EPA acceptance for their WPPs during the project cycle.		
Key Project Activities	Hire Staff (); Surface Water Quality Monitoring (); Technical Assistance (); Education (X); Implementation (); BMP Effectiveness Monitoring (); Demonstration (); Planning (); Modeling (); Bacterial Source Tracking (); Other ()		
2017 Texas NPS Management Program Reference	<ul style="list-style-type: none"> • Component One – LTGs 1, 2, 4 • Component One – STGs 3A, 3B, 3F • Component Two & Three 		

Project Costs	Federal	\$ 250,870	Non-Federal	\$ 116,345	Total	\$ 367,215
Project Management	<ul style="list-style-type: none"> Texas A&M AgriLife Extension Service, Texas Water Resources Institute 					
Project Period	December 1, 2021 – November 30, 2024					

Part I – Applicant Information

Applicant

Project Lead	T. Allen Berthold, PhD					
Title	Interim/Associate Director					
Organization	Texas A&M AgriLife Extension Service, Texas Water Resources Institute					
E-mail Address	taberthold@ag.tamu.edu					
Street Address	1001 Holleman Dr E					
City	College Station	County	Brazos	State	TX	Zip Code 77840
Telephone Number	979-314-2467			Fax Number	979-845-0662	

Co-PI	Lucas Gregory, PhD					
Title	Associate Director					
Organization	Texas A&M AgriLife Extension Service, Texas Water Resources Institute					
E-mail Address	lfgregory@ag.tamu.edu					
Street Address	1001 Holleman Dr E					
City	College Station	County	Brazos	State	TX	Zip Code 77840
Telephone Number	979-314-2361			Fax Number	979-845-0662	

Co-PI	Becky Bowling, PhD					
Title	Assistant Professor, Extension Specialist – Urban Water					
Organization	Texas A&M AgriLife Extension Service					
E-mail Address	bgrubbs@tamu.edu					
Street Address	17360 Coit Rd					
City	Dallas	County	Dallas	State	TX	Zip Code 75252
Telephone Number	(972) 231-5362			Fax Number	979-845-0662	

Co-PI	Dr. Vanessa Corriher-Olson					
Title	Professor & Forage Extension Specialist					
Organization	Texas A&M AgriLife Extension Service, Department of Soil & Crop Sciences					
E-mail Address	vacorriher@ag.tamu.edu					
Street Address	370 Olsen Blvd, 2474 TAMU					
City	College Station	County	Brazos	State	TX	Zip Code 77843-2474
Telephone Number	979.834.6191			Fax Number	979.845.0604	

Co-PI	Anish Jantrania, PhD						
Title	Associate Professor, Extension Specialist						
Organization	Texas A&M AgriLife Extension Service,						
E-mail Address	ajantrania@tamu.edu						
Street Address	720 E Blackland Rd						
City	Temple	County	Bell	State	TX	Zip Code	76502
Telephone Number	(254) 774-6014			Fax Number	979-845-0662		

Co-PI	Larry Redmon, PhD						
Title	Professor, Associate Department Head						
Organization	Texas A&M AgriLife Extension Service,						
E-mail Address	l-redmon@tamu.edu						
Street Address	434 Heep Center						
City	College Station	County	Brazos	State	TX	Zip Code	77843
Telephone Number	979-845-4008			Fax Number	979-845-0662		

Co-PI	James Cathey, PhD						
Title	Associate Director, Texas A&M Natural Resources Institute						
Organization	Texas A&M AgriLife Extension Service,						
E-mail Address	jccathey@tamu.edu						
Street Address	578 John Kimbrough Blvd.						
City	College Station	County	Brazos	State	TX	Zip Code	77843
Telephone Number	(979) 458-2565			Fax Number	979-845-0662		

Co-PI	Tim Hartmann, PhD						
Title	Program Specialist						
Organization	Texas A&M AgriLife Extension Service,						
E-mail Address	t-hartmann@tamu.edu						
Street Address	212 Horticulture/Forest Science Building						
City	College Station	County	Brazos	State	TX	Zip Code	77843
Telephone Number	979-847-2839			Fax Number	979-845-0662		

Project Partners	
Names	Roles & Responsibilities
Texas State Soil and Water Conservation Board (TSSWCB)	Provide state oversight and management of all project activities and ensure coordination of activities with related projects and TCEQ.
Texas A&M University Department of Soil & Crop Sciences	To assist with the development of portions of the curriculum and training materials related to the Healthy Lawns Healthy Waters, Texas Well Owner Network, Lone Star Healthy Streams, and Texas Watershed Stewards programs.
Texas A&M University Department of Biological and Agricultural Engineering	To assist with the development of portions of the curriculum and training materials related to the Texas Well Owner Network program.
Texas A&M Natural Resources Institute	To assist with the development of portions of the curriculum and training materials related to the Lone Star Healthy Streams program.
Texas A&M University Department of Horticultural Sciences	To assist with the development of portions of the curriculum and training materials related to the Earth-Kind program.

– Project Information

Project Type							
Surface Water	X	Ground-water					
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.		EPA-Accepted Watershed Protection Plans: Arroyo Colorado; Attoyac Bayou; Bastrop Bayou; Brady Creek; Buck Creek; Carancahua Bay; Cedar Bayou; Colorado River Below EV Spence; Cypress Creek; Double Bayou; Dry Comal/Comal River; Geronimo Creek; Hickory Creek; Lake Arlington/Village Creek; Lake Granbury; Lake Lavon; Lampasas River; Lavaca River; Leon River; Lower Nueces River; Mid and Lower Cibolo Creek; Mill Creek; Navasota River; Nolan Creek; Plum Creek; San Bernard; Tres Palacios Creek; Upper Cibolo Creek; Upper Llano River; Upper San Antonio River; Upper San Marcos River; West Fork of San Jacinto and Lake Creek.					
If yes, identify the agency/group that developed and/or approved the document.		[WPP Name – Agency, year EPA accepted] Arroyo Colorado - TCEQ, 2017; Attoyac Bayou – TSSWCB, 2015; Bastrop Bayou – TCEQ, 2016; Brady Creek – TCEQ, 2016; Buck Creek – TSSWCB, 2014; Carancahua Bay – TCEQ, 2019; Cedar Bayou – TSSWCB, 2016; Colorado River Below EV Spence – TCEQ, 2013; Cypress Creek – TCEQ, 2015; Double Bayou – TSSWCB, 2016; Dry Comal/Comal River – TCEQ, 2018; Geronimo Creek – TSSWCB, 2012; Hickory Creek – TCEQ, 2016; Lake Arlington/Village Creek – TCEQ, 2019; Lake Granbury – TCEQ, 2011; Lake Lavon – TSSWCB, 2017; Lampasas River – TSSWCB, 2013; Lavaca River – TCEQ, 2018; Leon River – TSSWCB, 2015; Lower Nueces River – TSSWCB, 2016; Mid and Lower Cibolo Creek – TSSWCB, 2020; Mill Creek – TSSWCB, 2016; Navasota River – TSSWCB, 2017; Nolan Creek – TCEQ, 2019; Plum Creek – TSSWCB, 2009; San Bernard – TCEQ, 2017; Tres Palacios Creek – TCEQ, 2018; Upper Cibolo Creek – TCEQ, 2013; Upper Llano River – TSSWCB, 2016; Upper San Antonio River – TCEQ, 2015; Upper San Marcos River – TCEQ, 2018; West Fork of San Jacinto and Lake Creek – TCEQ, 2019.					

Watershed Information				
Watershed or Aquifer Name(s)	Hydrologic Unit Code (12 Digit)	Segment ID	Category on 2020 IR	Size (Acres)
Arroyo Colorado	121102080700, 121102080600, 121102080100	2201, 2202	5c	1,169,920
Attoyac Bayou	120200050301 – 120200050307, 120200050401 – 120200050406,	0612	5c	354,629
Bastrop Bayou	120402050400	1105	5c	138,880
Brady Creek	120901100101, 120901100102, 120901100103, 120901100104, 120901100105, 120901100106, 120901100107, 120901100108, 120901100201, 120901100202, 120901100203, 120901100204, 120901100205, 120901100206, 120901100207, 120901100208, 120901100209, 120901100210	1416A	5c	513,000
Buck Creek	111201050204, 111201050208, 111201050303, 111201050305 – 111201050307, 111201050401 – 111201050407, 111201050501 – 111201050502	0207	5b	184,960
Carancahua Bay	121004010201-121004010205, 121004010207-121004010211	2456	5a	218,462
Cedar Bayou	120402030101, 120402030102, 120402030103, 120402030104, 120402030105, 120402030106	0901	5c, 5a	92,800
Colorado River Below EV Spence	120800080402, 120800080404, 120800080407, 120800080408, 120800080409, 120800080207, 120901010101, 120901010104, 120901010103, 120901010105, 120901010206, 120901010405, 120901010504	1426	-	1,112,710
Cypress Creek	121002030202	1815	5c	24,328
Double Bayou	120402020100	2422B, 2422D	5a, 5b, 5c	83,925
Dry Comal, Comal River	121002020106, 121002020104, 121002020105	1811	5c	38,894
Geronimo Creek	121002020110, 121002020111	1804A	5c	44,152
Hickory Creek	120301030406, 120301030506, 120301030703 - ...05, 120301030804 - ...05, 120301030901 - ...02, 120301030905 - ...06, 120301031001	0823	-	31,947

Lake Arlington	120301020401, 120301020402, 120301020403	0828A	5c	91,402
Lake Granbury	120602010601 – 0608, 120602010701 – 0706, 120602010801 – 120602010809, 120602010901 – 120602010907, 120602011001 – 120602011004, 120602011101 – 120602011110, 120602011201 – 120602011208	1205	-	1,335,138
Lake Lavon	120301060205, ...07- ...08; 120301060303 - ...07	0821 C, D	5c	492,095
Lampasas River	120702030101 – 120702030509	1217	5c	839,800
Lavaca River	121001010305, 121001010204, 121001010105, 121001010304, 121001010201, 121001010202, 121001010401, 121001010102, 121001010302, 121001010403, 121001010106, 121001010104, 121001010108, 121001010107, 121001010303, 121001010206, 121001010203, 121001010404, 121001010301, 121001010205, 121001010103, 121001010101	1602	5a	1,125,642
Leon River	120702010501 – 120702010509, 120702010601 – 120702010605, 120702010701 – 120702010705, 120702010801 – 120702010806, 120702010901 – 120702010908, 120702011002	1221	5c	871,488
Lower Nueces River	121101110701, 121101110705	2102	5c	116,862
Mid & Lower Cibolo Creek	121003040203, 121003040202, 121003040204, 121003040205, 121003040206, 121003040303, 121003040301, 121003040302, 121003040304, 121003040305, 121003040401, 121003040302, 121003040304, 121003040303, 121003040305	1902, 1902C	5b, 5c	371,480
Mill Creek	1207010402	1202K	5c	256,000
Navasota River	120701030201- 04,120701030307,120701030309, 120701030401-07,120701030501- 10,120701030601- 04,120701030701- 07,120701030801-04	1209	5a	1,002,056

Nolan Creek	120702011101, 120702011102, 120702011103, 120702011104	1218	5c	7,300
Plum Creek	110901050702, 110901050703, 111002030102, 111301050208, 111302090204, 120100040204, 120301010104, 120500030306, 120601020401, 120702010804, 120702010805, 120800020403, 121002030401 – 121002030403	1810	-	288,240
San Bernard	120904010101, 120904010102, 120904010104, 120904010109, 120904010205, 120904010207, 120904010302, 120904010304, 120904010305, 120904010306, 120904010308	1301,130 2	5c	672,000
Tres Palacios	121004010301,121004010302,121 004010303,121004010304,121004 010305,121004010306,121004010 307,121004010310	1501	5b	171,151
Upper Cibolo Creek	1210030402	1908	5c	49,210
Upper Llano	120902020107 - ...09, 120902020101 - 05, 120902020201 - ...08; 120902020301 - 06; 120902040201 - 02; 120902030101 - ..07; 120902030201- ...06; 120902030401 - ...05	1415_05, 1415_06	-	1,184,870
Upper San Antonio River	1210030306	1911, 1911B, 1911C, 1911D, 1911E, 1911H, 1911I	5c	80,000
Upper San Marcos	121002030302	1814	-	31,436
West Fork of the San Jacinto and Lake Creek	120401010401, 120401010207, 120401010402, 120401010404, 120401010301, 120401010302, 120401010303, 120401010306, 120401010307 120401010308	1004, 1015	5a	320,000

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: <i>2020 Texas Integrated Report</i> , Clean Rivers Program Basin Summary/Highlights Reports, or other documented sources.			
Segment ID	Body Name	Impairment	Code
2201, 2202	Arroyo Colorado	Bacteria, DO, Mercury, PCBs	5c
0612	Attoyac Bayou	Bacteria	5c
1105	Bastrop Bayou	Bacteria	5c
1416A	Brady Creek	DO	5c
0207	Buck Creek	Bacteria	5b
2456	Carancahua Bay	Bacteria	5a
0901	Cedar Bayou	Bacteria, Dioxin, PCBs	5c, 5a
1426	Colorado River Below EV Spence	-	-
1815	Cypress Creek	DO, Impaired fish community, Impaired macrobenthic community	5c
2422B, 2422D	Double Bayou	Bacteria, DO, Dioxin, PCBs	5a, 5b, 5c
1811	Dry Comal, Comal River	Bacteria	5c
1804A	Geronimo Creek	Bacteria	5c
0823	Hickory Creek	-	-
0828A	Lake Arlington	Bacteria	5c
1205	Lake Granbury	-	-
0821 C, D	Lake Lavon	Bacteria	5c
1217	Lampasas River	DO	5c
1602	Lavaca River	Bacteria	5a
1221	Leon River	Bacteria	5c
2102	Lower Nueces River	TDS	5c
1902, 1902C	Mid & Lower Cibolo Creek	Bacteria, DO	5b, 5c
1202K	Mill Creek	Bacteria	5c
1209	Navasota River	Bacteria	5a

1218	Nolan Creek	Bacteria	5c
1810	Plum Creek	-	-
1301,1302	San Bernard	Bacteria	5c
1501	Tres Palacios	DO	5b
1908	Upper Cibolo Creek	Bacteria	5c
1415_05,1415_06	Upper Llano	-	-
1911, 1911B, 1911C, 1911D, 1911E, 1911H, 1911I	Upper San Antonio River	Impaired fish and macrobenthic communities	5c
1814	Upper San Marcos	-	-
1004, 1015	West Fork of the San Jacinto and Lake Creek	Bacteria	5a

Water Quality Concerns			
2201, 2202	Arroyo Colorado	Chlorophyll-a, DO, Nitrate, Phosphorus	CN
0612	Attoyac Bayou	Bacteria	CN (0612F)
1105	Bastrop Bayou	DO	CS (1105_01)
1416A	Brady Creek	Chlorophyll-a, Nitrate, Phosphorus	CS (1105_01)
0207	Buck Creek	Bacteria, Chlorophyll-a, Nitrate	CN (_01, _03), CS (_04)
2456	Carancahua Bay	Chlorophyll-a, Phosphorus	CS
0901	Cedar Bayou	-	-
1426	Colorado River Below EV Spence	Chlorophyll-a, Algal bloom	CS (_01-_04), CN (_01 - _02)
1815	Cypress Creek	Impaired habitat	CS

2422B, 2422D	Double Bayou	Chlorophyll-a	CS
1811	Dry Comal, Comal River	-	-
1804A	Geronimo Creek	Nitrate	CS
0823	Hickory Creek	-	-
0828A	Lake Arlington	-	-
1205	Lake Granbury	-	-
0821 C, D	Lake Lavon	-	-
1217	Lampasas River	Bacteria, Chlorophyll-a	CN, CS
1602	Lavaca River	Phosphorus	CS
1221	Leon River	Chlorophyll-a, DO	CS
2102	Lower Nueces River	Chlorophyll-a	CS
1902, 1902C	Mid & Lower Cibolo Creek	Bacteria, Impaired habitat, Impaired macrobenthic community, Nitrate, Phosphorus	CN, CS
1202K	Mill Creek	Impaired habitat	CS
1209	Navasota River	Bacteria, Nitrate, Phosphorus	CN, CS
1218	Nolan Creek	Nitrate, Phosphorus	CS
1810	Plum Creek	Ammonia, impaired fish and macrobenthic communities, impaired habitat, Nitrate, Phosphorus	CS, CN
1301, 1302	San Bernard	DO	CS
1501	Tres Palacios	Nitrate, Chlorophyll-a	CS
1908	Upper Cibolo Creek	Phosphorus, Nitrate	CS
1415_05, 1415_06	Upper Llano	-	-
1911, 1911B, 1911C, 1911D, 1911E, 1911H, 1911I	Upper San Antonio River	Bacteria, Chlorophyll-a, Impaired habitat, Nitrate, Phosphorus	CN, CS
1814	Upper San Marcos	-	-

1004, 1015	West Fork of the San Jacinto and Lake Creek	Impaired macrobenthic community, Nitrate	CN, CS
------------	---	--	--------

Project Narrative

Problem/Need Statement

Stakeholder engagement is key to the success of developing and implementing Watershed Protection Plans (WPPs). Early in the WPP development process, stakeholders are engaged not only to ensure that WPP content is locally relevant, but to also gain buy-in and have locals take ownership of the WPP. This ownership is crucial to successfully implementing WPPs because individuals are much more likely to serve as water quality advocates if they have been involved from the beginning.

Over a decade and a half, there have been 33 WPPs developed in the State of Texas that have been accepted by EPA. In most of these watersheds during the development process, it was not uncommon to have individuals representing volunteer groups such as Texas Master Gardeners (TMG) or Texas Master Naturalists (TMN). To qualify for either of these volunteer groups, an individual must go through a rigorous training that lasts over 40 hours. Additionally, if an individual wants to become specialized then they must complete a training which lasts between 8 and 16 hours, depending on the program. As it currently stands there is either not a water component (for TMG) or the water component is limited in scope (for TMN); however, there is no curriculum that relates to protecting water quality for either of these expansive volunteer programs.

To implement all 33 WPPs across Texas is resource intensive and it can be difficult to keep stakeholders engaged, especially beyond project sponsored activities. Part of the two aforementioned program requirements is to complete a minimum number of volunteer hours which can include: giving presentations to local organizations, manning a booth at community events, organize local trash cleanups, participate in citizen science programs, etc. By engaging volunteers in implementation activities, not only would they be able to count the hours towards their requirements, but we could increase the number of local watershed advocates and leverage already limited implementation resources.

As previously mentioned, there is a limited amount of water related training for volunteers to take and therefore, a limited opportunity for watershed managers to engage volunteers. By working through the established TMN and TMG programs, volunteers will already be equipped with natural resource conservation and management knowledge, and already familiar with the Texas A&M AgriLife network of extension agents and program specialists. This allows TWRI to focus on developing curriculum that is centered around watershed protection planning. However, TWRI will not exclude any interested individuals that are not involved with TMN and TMG from participating in the training. Volunteers that complete the training will be able to assist watershed coordinators by being WPP advocates through participating in and coordinating local events, providing additional local expertise and resources, and more widely represent the WPP implementation efforts in their respective communities.

Project Narrative

General Project Description (Include Project Location Map)

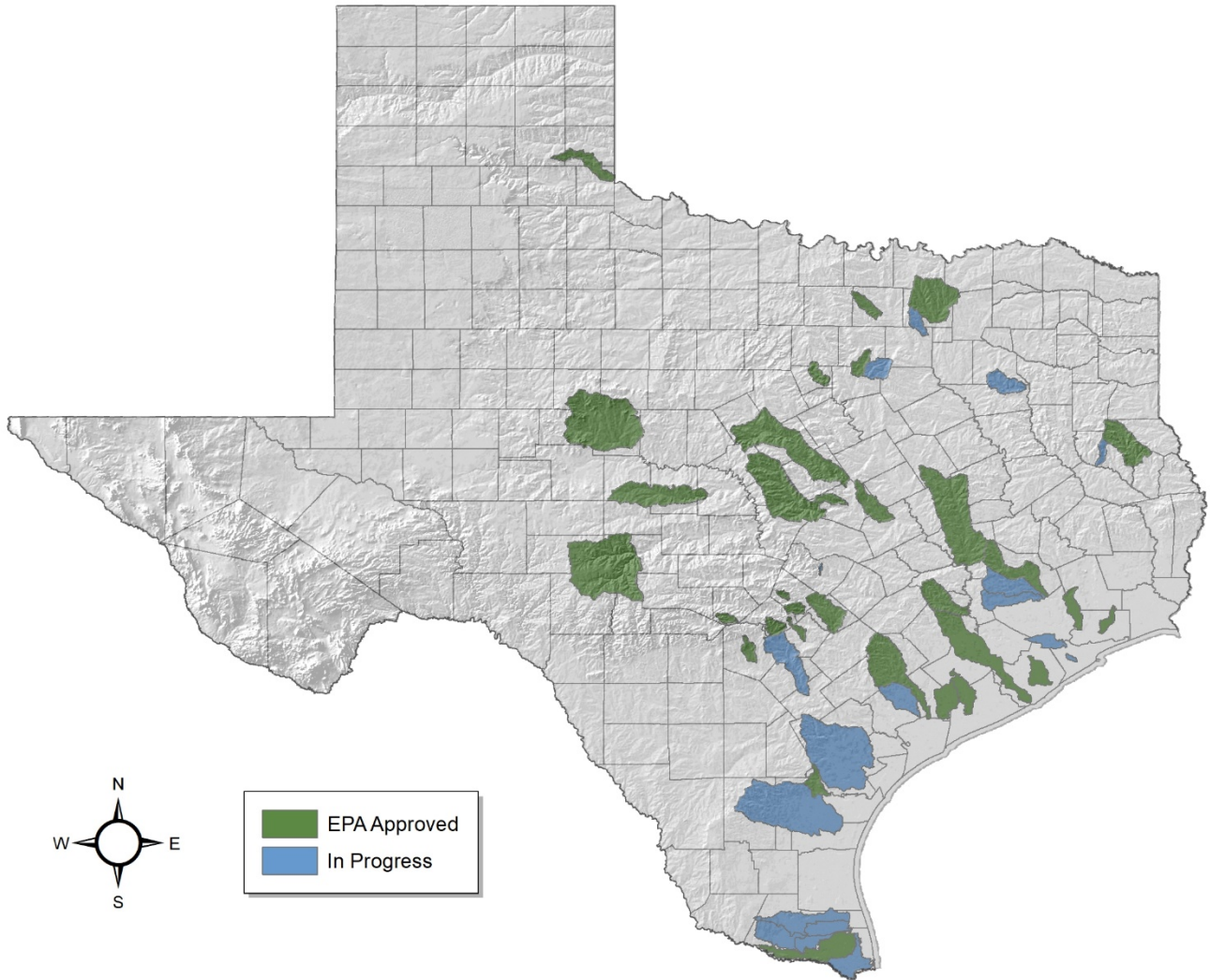
The goal of this project is to develop a training program to equip local stakeholders with watershed-based planning knowledge and educate them on common WPP management measures to better serve as WPP implementation project advocates. The Texas A&M AgriLife Extension Service currently delivers a suite of water related education program that are key components of implementing management measures within WPPs. These programs include: 1) Texas Watershed Stewards, 2) Texas Well Owner Network, 3) Healthy Lawns and Healthy Waters, 4) Texas Riparian Education, and 5) Lone Star Healthy Streams. Combining materials from all these programs makes for an in-depth, comprehensive education curriculum that can be used to educate volunteers on watershed management and implementation.

TWRI will first work with the specialists from the AgriLife programs to curate a simplified curriculum that showcases each program. The curriculum will highlight the most relevant parts of each program for general WPP implementation. After the curriculum is finalized, TWRI will work with the specialists and Texas A&M AgriLife's Digital Education team to develop virtual courses. A Volunteer Kit will be developed by TWRI that will include highlights from the course material and contact information for specialists in each area for easy sharing with other watershed stakeholders.

TWRI will work with and prepare Watershed Coordinators, County Extension Agents, and other local organizations to take advantage of the future implementation of the training program. This will include advertising the training at local events, volunteer fairs, WPP stakeholder meetings, and through local media outlets, as well as helping the agents and coordinators develop advertising materials/slides to be included in their own presentations. TWRI will also work with the Watershed Coordinators and Extension Agents to develop a list of roles and responsibilities that would be most useful for WPP implementation.

Ultimately, the successful development of the TWRI Volunteer Training program will result in volunteers trained in the major principles of watershed protection planning and implementation and serve as additional resources for Watershed Coordinators. Additionally, this program may result in interest for future WPP development in areas with impaired waterbodies that are not currently covered by WPPs and create the initial WPP work groups in those watersheds.

Watershed Protection Plans in Texas



Watershed shapefile source: TCEQ Nonpoint Source Project Viewer

<https://tceq.maps.arcgis.com/apps/webappviewer/index.html?id=8a9549c92da0426e828b32deb7c7d4aa>

Tasks, Objectives and Schedules						
Task 1	Project Administration					
Costs	Federal	\$ 12,544	Non-Federal	\$ 5,817	Total	\$ 18,361
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 Develop Volunteer Curriculum and an Online Course					
Costs	Federal	\$ 150,522	Non-Federal	\$ 69,807	Total	\$ 220,329
Objective	The objective of this task is to work with partners to develop an acceptable curriculum that can be used to train Texas Master Gardeners, Texas Master Naturalists, and other interested groups on water related topics and how to engage in local WPP implementation					
Subtask 2.1	Review of Existing Materials - TWRI will work with Extension Specialists, Extension Program Specialists, and coordinators for Texas Master Gardeners and Texas Master Naturalists to review presentations currently used for the education programs listed below.					
	<ul style="list-style-type: none"> - Texas Watershed Stewards, - Texas Well Owner Network, - Healthy Lawns, Healthy Waters, - Texas Riparian Education, - Lone Star Healthy Streams - Watershed Planning Short Course - Earth-Kind 					
	Start Date	Month 1	Completion Date	Month 3		
Subtask 2.2	Curriculum Content Development – After review of existing materials in subtask 2.1, personnel representing each of the education programs listed above will modify the existing materials to fit the needs identified for a comprehensive volunteer curriculum. In addition to the utilization of existing materials, TWRI will develop a section on how volunteers can engage WPP implementation programs. A comprehensive agenda of the training may look like the following:					
	<ul style="list-style-type: none"> i. Introduction to Watershed Protection Planning (showcasing TWS) ii. Groundwater and Wastewater (showcasing TWON) 					

	iii. Turf & Landscaping, Rainwater Harvesting (showcasing HLHW) iv. Landscape Water Conservation and Reduction of Fertilizer and Pesticide Use (Earth-Kind) v. Rural and Urban Riparian Education (showcasing Texas Riparian program) vi. Agriculture BMPs (showcasing LSHS) vii. Citizen Science viii. Local Watershed Protection Plan implementation				
	<table border="1"> <tr> <td>Start Date</td> <td>Month 1</td> <td>Completion Date</td> <td>Month 18</td> </tr> </table>	Start Date	Month 1	Completion Date	Month 18
Start Date	Month 1	Completion Date	Month 18		
Subtask 2.3	Virtual Course Development – TWRI will work with the project team as well as Texas A&M AgriLife’s Digital Education team to develop an online course with the finalized curriculum.				
	<table border="1"> <tr> <td>Start Date</td> <td>Month 6</td> <td>Completion Date</td> <td>Month 24</td> </tr> </table>	Start Date	Month 6	Completion Date	Month 24
Start Date	Month 6	Completion Date	Month 24		
Subtask 2.4	Training Manual – TWRI will develop a manual that includes the slides from the courses and additional materials that program educators include.				
	<table border="1"> <tr> <td>Start Date</td> <td>Month 3</td> <td>Completion Date</td> <td>Month 24</td> </tr> </table>	Start Date	Month 3	Completion Date	Month 24
Start Date	Month 3	Completion Date	Month 24		
Subtask 2.5	Advertise Volunteer Curriculum – TWRI will participate, when possible, in Texas Master Naturalist and Texas Master Gardener annual conferences, local chapter meetings, local WPP stakeholder meetings, and meetings with County Extension Agents targeting watersheds where a WPP has already been accepted, to help raise awareness about the new water curriculum and online course. TWRI will develop promotional materials and advertise new training at volunteer fairs, local events, social media, and local news outlets as appropriate.				
	<table border="1"> <tr> <td>Start Date</td> <td>Month 1</td> <td>Completion Date</td> <td>Month 36</td> </tr> </table>	Start Date	Month 1	Completion Date	Month 36
Start Date	Month 1	Completion Date	Month 36		
Deliverables	<ul style="list-style-type: none"> • TWRI Volunteer Training Curriculum outline • Curriculum materials including presentations and materials for training manual • Virtual course platform • Advertising materials for the training program 				

Tasks, Objectives and Schedules						
Task 3	Watershed Coordinator and Volunteer Resource Development					
Costs	Federal	\$ 87,804	Non-Federal	\$ 40,721	Total	\$ 128,525
Objective	After volunteers are trained, these materials will assist volunteers as they advocate for the WPP projects and will help Watershed Coordinators manage volunteers.					
Subtask 3.1	Volunteer Resource Kit – TWRI will create a kit for volunteers that have completed the training that contains basic watershed protection principles, water quality basics, highlights from course material, a dedicated webpage containing links to WPPs, advertising materials for promoting the training program, and other materials that may be useful for volunteers. This guide will highlight resources for easy reference for volunteers.					
	Start Date	Month 6	Completion Date	Month 24		
Subtask 3.2	Volunteer Roles – TWRI will develop a detailed description of roles and responsibilities for volunteers and develop a Skills Assessment that will help assign volunteers to those roles. These roles may include being an event coordinator for specific events like trash clean up days, riparian restoration days, etc., citizen science data manager, volunteer coordinator, media spokesperson, social media manager, or an advocate for specific WPP management measures including feral hog management, OSSF maintenance, agriculture BMPs, illicit dumping, etc.					
	Start Date	Month 1	Completion Date	Month 24		
Subtask 3.3	Train the Trainers – TWRI will work with Watershed Coordinators, County Extension Agents, and other local groups to prepare them for the upcoming training program and how they can take advantage of it once implemented in future projects. TWRI will work with Watershed Coordinators to develop materials to present to their local stakeholders about the training program.					
	Start Date	Month 1	Completion Date	Month 36		
Deliverables	<ul style="list-style-type: none"> • Volunteer Resource Kit including quick reference guides and program advertising materials for volunteers to distribute 					

- TWRI Volunteer Website
- List and description of volunteer roles and responsibilities
- Documentation of working with and program advertising materials for Watershed Coordinators, Extension Agents, and other groups

Project Goals (Expand from Summary Page)

- TWRI will work with current CWA §319(h)-funded education programs to develop a volunteer training curriculum focused on watershed-based planning efforts in Texas primarily in watersheds with EPA-accepted watershed protection plans. This training curriculum will be between 16 hours for an Advanced Training certification with Texas Master Gardeners, and 8 hours for an Advanced Training certification for Texas Master Naturalists. The curriculum will showcase the current education programs by teaching a more generalized version of the programs and will encourage volunteers to attend the full courses if interested.
- The curriculum will be developed into a virtual course with the Texas A&M AgriLife Digital Education team.
- Detailed descriptions of volunteer's roles and responsibilities will be developed to be sure volunteers understand expectations and that they can fill the role that best fits their skills and interests.
- Working with Watershed Coordinators, county Extension agents, and other related organizations to equip them to promote the program and to manage volunteers. County Extension agents will already be familiar with volunteer management, but Watershed Coordinators and others will be assisted as needed.
- A training manual with the presentations and additional materials recommended by the educators will be developed for the volunteers to use during and after training. A volunteer resource kit that includes reference guides, contact information, and additional resources will be developed for volunteers to use after the training is completed.

Measures of Success (Expand from Summary Page)

- One training curriculum for Texas Master Gardeners and a shorter version of the curriculum for Texas Master Naturalists that includes materials from current education programs and a polished virtual course for training TWRI volunteers developed with the Texas A&M AgriLife Digital Education team.
- Promotional and training materials developed for Watershed Coordinators, county Extension agents, etc. as needed to assist with advertising the program and training them for volunteer management. These can be general materials as well as customized for a certain watershed as needed.
- One training manual that includes the presentations from the course and any additional materials, and a resource kit for volunteers, including copies of watershed protection plans for their specific watershed.
- A TWRI Volunteer Website that houses training information for local stakeholders interested in receiving the training, links to the full programs that are covered in the training for those who are interested in learning more, and the volunteer resource kit.
- A detailed list of volunteer roles and responsibilities to ensure expectations are clear.
- Number of meetings attended where the volunteer program is advertised including volunteer fairs, WPP stakeholder meetings, local TMN and TMG chapter meetings, Watershed Coordinator Roundtables, etc.

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

Components, Goals, and Objectives

<p>Component 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>Component 2 – Working partnerships...to appropriate, state,...regional, and local entities, private sector groups, and federal agencies.</p>
<p>Component 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

<p>EPA State Categorical Program Grants – Workplan Essential Elements FY 2018-2022 EPA Strategic Plan Reference</p>
<p>Strategic Plan Goal – Goal 2 Protecting America’s Waters</p>
<p>Strategic Plan Objective – Objective 2.2 Protect and Restore Watersheds and Aquatic Ecosystems</p>

Part III – Financial Information

Budget Summary				
Federal	\$	250,870	% of total project 68%	
Non-Federal	\$	116,345	% of total project 32%	
Total	\$	367,215	Total 100%	
Category		Federal	Non-Federal	Total
Personnel	\$	148,031	\$ 50,719	\$ 198,750
Fringe Benefits	\$	49,837	\$ 13,606	\$ 63,443
Travel	\$	1,268	\$ -	\$ 1,268
Equipment	\$	-	\$ -	\$ -
Supplies	\$	1,111	\$ -	\$ 1,111
Contractual	\$	-	\$ -	\$ -
Construction	\$	-	\$ -	\$ -
Other	\$	17,900	\$ -	\$ 17,900
Total Direct Costs	\$	218,147	\$ 64,325	\$ 282,472
Indirect Costs (≤ 15%)	\$	32,723	\$ 19,298	\$ 52,021
Unrecovered IDC	\$	-	\$ 32,722	\$ 32,722
Total Project Costs	\$	250,870	\$ 116,345	\$ 367,215

Budget Justification (Federal)		
Category	Total Amount	Justification
Personnel	\$ 148,031	<p>TWRI Assistant Director (Berthold) \$83,118 @ 2 months: \$14,477 TWRI Assistant Director (Gregory) \$95,448 @ 0.72 months: \$5,987 TWRI Program Manager \$64,970 (TBD) @ 2 months: \$10,986 TWRI Program Specialist \$49,280 (Monroe) @ 9.6 months: \$41,215 TWRI Research Specialist \$55,278 (Escamilla) @ 3.84 months: \$18,493</p> <p>NRI Ext. Program Specialist \$51,355 (Helsel) @ 2 months: \$8,944</p> <p>SCSC Ext. Program Specialist \$65,000 (Minchillo) @ 2 months: \$11,321 SCSC Ext. Program Specialist \$62,421 (Smith) @ 2 months: \$10,872 SCSC Ext. Program Specialist \$65,000 (TBD) @ 2 months: \$10,992</p> <p>BAEN Ext. Program Specialist \$58,245 (Gerlich) @ 2 months: \$10,144</p> <p>HORT Program Specialist \$55,000 (Hartmann) @ 0.96 months: \$4,600</p> <p>*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	\$ 49,837	<p>Fringe for faculty and staff is calculated at 18.5% salary plus \$771 per month. Fringe for students is calculated at 11% salary plus \$558 per month.</p> <p>*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>
Travel	\$ 1,268	<p>Travel for Extension Program Specialists not based in College Station Texas, 2 trips total:</p> <ul style="list-style-type: none"> - NRI: 330 miles round trip * state mileage rate * 4 trips = \$660 - SCSC: 304 miles round trip * state mileage rate * 4 trips = \$608 <p>Mileage is estimated in this work plan, but the most current rate will be used for travel if needed.</p>
Equipment	\$ 0	N/A
Supplies	\$ 1,111	Office supplies include, but are not limited to paper (\$400), toner (\$400), pens (\$50), notebooks/project planners (\$261)
Contractual*	\$ 0	N/A
Construction	\$ 0	N/A
Other	\$ 17,900	<p>Printing Handbooks and additional WPPs: \$1,000 Software Licenses: \$1,400 (Camtasia, Adobe Creative Cloud) Digital Education Virtual Course development: \$5,000 TWRI Communications Services: \$10,000 Conference Registration Fees: \$500</p>
Indirect	\$ 32,723	15% total direct costs

Budget Justification (Non-Federal)		
Category	Total Amount	Justification
Personnel	\$ 50,719	Interim/Associate Director: \$103,721 @ 3.91 months: \$35,336 NRI Assistant Director (Cathey): \$171,389 @ 0.16 months: \$2,399 Professor & Forage Extension Specialist (Corriher-Olson): \$103,737.12 @ 0.46 months: \$3,962 SCSC Assistant Professor, Ext. Specialist (Bowling): \$95,865 @ 0.39 months: \$3,225 SCSC Professor, Ext. Program Leader (Redmon): \$169,172 @ 0.27 months: \$3,964 HORT Program Specialist (Hartmann): \$55,000 @ 0.39 months: \$1,833 *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.
Fringe Benefits	\$ 13,606	Fringe for faculty and staff is calculated at 18.5% salary plus \$771 per month. Fringe for students is calculated at 11% salary plus \$558 per month. *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.
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	\$ 19,298	Texas A&M AgriLife Extension Service's federally negotiated indirect cost rate (IDC) is 30% of modified total direct costs (MTDC). MTDC* includes up to \$25,000 of each subcontract and excludes tuition, facility rental and equipment over \$5,000.
Unrecovered IDC	\$ 32,722	Unrecovered IDC: 30% MTDC – 15% TDC - IDC on MTDC*: \$218,148 MTDC * 30% = \$65,444 - IDC on TDC: \$218,148 TDC * 15% = \$32,722 Total Unrecovered IDC: \$65,444– \$32,722 = \$32,722