

Texas State Soil and Water Conservation Board
Clean Water Act §319(h) Nonpoint Source Grant Program
FY 2022 Workplan 22-04

SUMMARY PAGE	
Title of Project	Agricultural Education and Outreach Implementation of the Arroyo Colorado Watershed Protection Plan
Project Goals	<ul style="list-style-type: none"> • Implement management measures identified in the Arroyo Colorado Watershed Protection Plan (WPP) Update. • Encourage voluntary agricultural practice implementation to minimize nonpoint source pollution. • Increase the number of producers participating in incentive programs and installing BMPs. • Translate existing best management practice (BMP) educational materials for agricultural producers, focused on technical and financial information into Spanish to be distributed to underserved farmers in the watershed • Host field tours and demonstrations for agricultural producers to observe the effects of BMPs.
Project Tasks	(1) Project Administration; (2) Conduct Landowner Education and Outreach to Increase Program Participation; (3) Support and Facilitation of ACWPP Update Implementation and Coordination
Measures of Success	<ul style="list-style-type: none"> • Education of agricultural producers • Increased participation in incentive programs • Increased adoption of BMPs • Steering Committee and Workgroup meetings and involvement • Coordination with critical watershed groups, including meetings and other communication • Annual newsletters • Success will be evaluated on the number of contacts made during the project
Project Type	Implementation (X); Education (X); Planning (); Assessment (); Groundwater ()

Status of Waterbody on <i>2020 Texas Integrated Report</i>	<u>Segment ID</u>	<u>Parameter of Impairment or Concern</u>	<u>Category</u>			
	2201 Arroyo Colorado Tidal	Bacteria	5c			
		DDE in edible tissue	5c			
		Depressed dissolved oxygen	5a (04) & 5c (05)			
		Mercury in edible tissue	5c			
		PCBs in edible tissue	5a			
	2201B Unnamed Drainage Ditch Tributary (B) in Cameron County Drainage District #3	Bacteria	5b			
	2202 Arroyo Colorado Above-Tidal	Bacteria	5b			
	DDE in edible tissue	4a				
	Mercury in edible tissue	5c				
	PCBs in edible tissue	5a				
2202A Donna Reservoir	PCBs in edible tissue	4a				
2491 Laguna Madre	Bacteria	5c				
	Depressed dissolved oxygen	5b				
2491OW Laguna Madre (Oyster Waters)	Bacteria	5c				
Project Location (Statewide or Watershed and County)	Arroyo Colorado Watershed; Cameron, Hidalgo, and Willacy counties					
Key Project Activities	Hire Staff (); Surface Water Quality Monitoring (); Technical Assistance (); Education (X); Implementation (X); BMP Effectiveness Monitoring (); Demonstration (); Planning (); Modeling (); Bacterial Source Tracking (); Other ()					
<i>2017 Texas NPS Management Program Reference</i>	<ul style="list-style-type: none"> • Component 1 <ul style="list-style-type: none"> • Long Term Goal Objectives: 1, 2, 3, 5, 6, 7, 8 • Short Term Goal, Objective 2 Implementation: B, D • Short Term Goal, Objective 3 Education: A, B, C, D, F, G • Component 2 • Component 3 • Component 4 • Milestone/Measurement: ST3/C,D Watershed Training; ST3/A,B,F,G Watershed Education; ST2/A,C Watershed Coordination; ST2/D Implement WPPs 					
Project Costs	Federal	\$200,970	Non-Federal	\$133,980	Total	\$334,950
Project Management	<ul style="list-style-type: none"> • Texas A&M AgriLife Research, Texas Water Resources Institute 					
Project Period	February 7, 2023 – January 31, 2026					

Part I – Applicant Information

Applicant							
Project Lead	Dr. Lucas Gregory						
Title	Assistant Director						
Organization	Texas A&M AgriLife Research, Texas Water Resources Institute						
E-mail Address	LFGregory@ag.tamu.edu						
Street Address	578 John Kimbrough Blvd., 2260 TAMU						
City	College Station	County	Brazos	State	TX	Zip Code	77843-2260
Telephone Number	979-845-7869			Fax Number	979-845-8554		

Project Partners	
Names	Roles & Responsibilities
Texas State Soil and Water Conservation Board (TSSWCB)	Provide state oversight and management of all project activities and ensure coordination of activities with related projects and TCEQ.
Texas A&M AgriLife Research, Texas Water Resources Institute (TWRI)	Project oversight and administration, coordination, and facilitation of the Arroyo Colorado Watershed Partnership, technical assistance to the Watershed Steering Committee and stakeholders, continue to collect data on WPP management measure implementation, develop final report.
Texas A&M AgriLife, District 12 Research and Extension Center	Work with TWRI in planning and delivering educational programming as appropriate.
Texas State Soil and Water Conservation Board, Harlingen Regional Office (HRO)	Work with and assist soil and water conservation districts (SWCDs) in the development, implementation, and maintenance of water quality management plans (WQMPs). Responsible for technical review and certification of WQMPs. Provide information to AgriLife Extension to coordinate related education programs and assist with demonstration field tour.
Southmost Soil and Water Conservation District #319 and Hidalgo Soil and Water Conservation District #350 (SWCD)	Lead cost-share program and provide information to AgriLife Extension to coordinate related education programs and assist with demonstration field tour.

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.		Update to the Arroyo Colorado Watershed Protection Plan 2017					
If yes, identify the agency/group that developed and/or approved the document.		Arroyo Colorado Watershed Partnership, facilitated by TWRI and TCEQ; approved by TCEQ and EPA		Year Developed	2017		

Watershed Information				
Watershed or Aquifer Name(s)	Hydrologic Unit Code (12 Digit)	Segment ID	Category on 2020 IR	Size (Acres)
Lower Arroyo Colorado	121102080700	2201	5c 5c 5a 5c 5a	83,558
Unnamed Ditch, CCDD#3		2201B	5b	
Middle Arroyo Colorado	121102080600	2202	5b 5c 5a	105,412
Upper Arroyo Colorado	121102080100	2202	5b 5c 5a	109,630
Donna Reservoir		2202A	4a	
Laguna Madre		2491	5c 5b	
Laguna Madre Oyster Waters		2491OW	5c	

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.		
<u>Impairments</u>		
SegID 2201: Arroyo Colorado Tidal: From the confluence with Laguna Madre in Cameron/Willacy County to a point 100 meters (110 yards) downstream of Cemetery Road south of Port Harlingen in Cameron County		
Parameter	Category	Year
Bacteria	5c	2006
2201_01: From the downstream end of the segment to the confluence with San Vicente Drainage Ditch		
2201_02: From the confluence with San Vicente Drainage Ditch to the confluence with an unnamed drainage ditch with NHD RC 12110108005353 at point N-97.53, W 26.31		

2201_03: From the confluence with an unnamed drainage ditch with NHD RC 12110108005353 at point N-97.53, W 26.31 to the confluence with Harding Ranch Ditch tributary

2201_04: From the confluence with Harding Ranch Ditch tributary to just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186

2201_05: From just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186 to the upstream end of the segment

<u>Parameter</u>	<u>Category</u>	<u>Year</u>
DDE in edible tissue	5c	2010

2201_05: From just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186 to the upstream end of the segment

<u>Parameter</u>	<u>Category</u>	<u>Year</u>
Depressed dissolved oxygen	5a	1996

2201_04: From the confluence with Harding Ranch Ditch tributary to just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186

2201_05: From just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186 to the upstream end of the segment

<u>Parameter</u>	<u>Category</u>	<u>Year</u>
Mercury in edible tissue	5c	2008

2201_05: From just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186 to the upstream end of the segment

<u>Parameter</u>	<u>Category</u>	<u>Year</u>
PCBs in edible tissue	5a	2008

2201_05: From just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186 to the upstream end of the segment

SegID 2201B: Unnamed Drainage Ditch Tributary (B) in Cameron County Drainage District #3 (unclassified water body) From the confluence with the Arroyo Colorado in Cameron County in the Rio Hondo turning basin at -97.6, 26.196 decimal degrees to a point 17.6 km upstream at the FM 510 crossing.

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

2201B_01: Entire Water Body

SegID 2202: Arroyo Colorado Above Tidal: From a point 100 meters (110 yards) downstream of Cemetery Road south of Port Harlingen in Cameron County to FM 2062 in Hidalgo County

<u>Parameter</u>	<u>Category</u>	<u>Year</u>
Bacteria	5b	1996

2202_01: From the downstream end of segment to the confluence with Little Creek just upstream of State Loop 499.

2202_02: From the confluence with Little Creek to the confluence with La Feria Main Canal just upstream of Dukes Highway.

2202_03: From the confluence with La7 Feria Main Canal just upstream of Dukes Highway to the confluence with La Cruz Resaca just downstream of FM 907

2202_04: From the confluence with La Cruz Resaca to the upper end of segment at FM 2062

<u>Parameter</u>	<u>Category</u>	<u>Year</u>
Mercury in edible tissue	5c	2008

2202_01: From the downstream end of segment to the confluence with Little Creek just upstream of State Loop 499.

2202_02: From the confluence with Little Creek to the confluence with La Feria Main Canal just upstream of Dukes Highway.

2202_03: From the confluence with La Feria Main Canal just upstream of Dukes Highway to the confluence with La Cruz Resaca just downstream of FM 907

2202_04: From the confluence with La Cruz Resaca to the upper end of segment at FM 2062

<u>Parameter</u>	<u>Category</u>	<u>Year</u>
PCBs in edible tissue	5a	2008

2202_01: From the downstream end of segment to the confluence with Little Creek just upstream of State Loop 499.

2202_02: From the confluence with Little Creek to the confluence with La Feria Main Canal just upstream of Dukes Highway.

2202_03: From the confluence with La Feria Main Canal just upstream of Dukes Highway to the confluence with La Cruz Resaca just downstream of FM 907

2202_04: From the confluence with La Cruz Resaca to the upper end of segment at FM 2062

SegID: 2202A Donna Reservoir Off-channel irrigation reservoir pumped from Rio Grande near the City of Donna in Hidalgo County

SegID: 2491 Laguna Madre Laguna Madre

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

2491_02: Area adjacent to the Arroyo Colorado confluence

<u>Parameter</u>	<u>Category</u>	<u>Year</u>
Depressed dissolved oxygen	5b	1999

2491_01: Upper portion of bay north of the Arroyo Colorado confluence

2491_02: Area adjacent to the Arroyo Colorado confluence

SegID: 2491OW Laguna Madre (Oyster Waters) Laguna Madre (Oyster Waters)

<u>Parameter</u>	<u>Category</u>	<u>Year</u>
bacteria (oyster waters)	5c	2006

2491OW_02: Area adjacent to the Arroyo Colorado confluence

Concerns and Sources

Seg ID 2201: Arroyo Colorado Tidal: From confluence with Laguna Madre in Cameron/Willacy County to a point 100 meters (110 yards) downstream of Cemetery Road south of Port Harlingen in Cameron County

<u>Parameter</u>	<u>Level of Concern</u>
Chlorophyll-a	CS

2201_01: From the downstream end of the segment to the confluence with San Vicente Drainage Ditch

2201_02: From the confluence with San Vicente Drainage Ditch to the confluence with an unnamed drainage ditch with NHD RC 12110108005353 at point N-97.53, W 26.31

2201_03: From the confluence with an unnamed drainage ditch with NHD RC 12110108005353 at point N-97.53, W 26.31 to the confluence with Harding Ranch Ditch tributary

2201_04: From the confluence with Harding Ranch Ditch tributary to just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186

2201_05: From just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186 to the upstream end of the segment

<u>Parameter</u>	<u>Level of Concern</u>
Depressed dissolved oxygen	CS
2201_05: From just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186 to the upstream end of the segment	

<u>Parameter</u>	<u>Level of Concern</u>
nitrate	CS
2201_01: From the downstream end of the segment to the confluence with San Vicente Drainage Ditch	
2201_02: From the confluence with San Vicente Drainage Ditch to the confluence with an unnamed drainage ditch with NHD RC 12110108005353 at point N-97.53, W 26.31	
2201_03: From the confluence with an unnamed drainage ditch with NHD RC 12110108005353 at point N-97.53, W 26.31 to the confluence with Harding Ranch Ditch tributary	
2201_04: From the confluence with Harding Ranch Ditch tributary to just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186	
2201_05: From just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186 to the upstream end of the segment	

SegID 2201A: Harding Ranch Drainage Ditch Tributary (A) to the Arroyo Colorado Tidal (unclassified water body)

<u>Parameter</u>	<u>Level of Concern</u>
ammonia	CS
2201A_01: Entire water body	

SegID 2201B: Unnamed Drainage Ditch Tributary (B) in Cameron County Drainage District #3 (unclassified water body)

<u>Parameter</u>	<u>Level of Concern</u>
Chlorophyll-a	CS
2201B_01: Entire Water Body	

<u>Parameter</u>	<u>Level of Concern</u>
nitrate	CS
2201B_01: Entire Water Body	

SegID 2202: Arroyo Colorado Above Tidal: From a point 100 meters (110 yards) downstream of Cemetery Road south of Port Harlingen in Cameron County to FM 2062 in Hidalgo County

<u>Parameter</u>	<u>Level of Concern</u>
Chlorophyll-a	CS
2201_01: From the downstream end of the segment to the confluence with San Vicente Drainage Ditch	
2201_02: From the confluence with San Vicente Drainage Ditch to the confluence with an unnamed drainage ditch with NHD RC 12110108005353 at point N-97.53, W 26.31	
2201_03: From the confluence with an unnamed drainage ditch with NHD RC 12110108005353 at point N-97.53, W 26.31 to the confluence with Harding Ranch Ditch tributary	
2201_04: From the confluence with Harding Ranch Ditch tributary to just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186	

<u>Parameter</u>	<u>Level of Concern</u>
nitrate	CS
2201_01: From the downstream end of the segment to the confluence with San Vicente Drainage Ditch	
2201_02: From the confluence with San Vicente Drainage Ditch to the confluence with an unnamed drainage ditch with NHD RC 12110108005353 at point N-97.53, W 26.31	

2201_03: From the confluence with an unnamed drainage ditch with NHD RC 12110108005353 at point N-97.53, W 26.31 to the confluence with Harding Ranch Ditch tributary

2201_04: From the confluence with Harding Ranch Ditch tributary to just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186

<u>Parameter</u>	<u>Level of Concern</u>
Total phosphorus	CS

2201_01: From the downstream end of the segment to the confluence with San Vicente Drainage Ditch

2201_02: From the confluence with San Vicente Drainage Ditch to the confluence with an unnamed drainage ditch with NHD RC 12110108005353 at point N-97.53, W 26.31

2201_03: From the confluence with an unnamed drainage ditch with NHD RC 12110108005353 at point N-97.53, W 26.31 to the confluence with Harding Ranch Ditch tributary

2201_04: From the confluence with Harding Ranch Ditch tributary to just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186

SEG ID: 2202B Unnamed Drainage Ditch Tributary (B) to S. Arroyo Colorado Perennial drainage ditches that flow into the segment in Cameron and Hidalgo counties

<u>Parameter</u>	<u>Level of Concern</u>
ammonia	CS

2202B_01: Entire segment

<u>Parameter</u>	<u>Level of Concern</u>
Bacteria	CN

2202B_01: Entire segment

<u>Parameter</u>	<u>Level of Concern</u>
Chlorophyll-a	CS

2202B_01: Entire segment

SEG ID: 2202C Unnamed Drainage Ditch Tributary (C) to S. Arroyo Colorado from the confluence with S. Arroyo Colorado to a point 1.1 miles upstream near US Highway 281.

<u>Parameter</u>	<u>Level of Concern</u>
ammonia	CS

2202B_01: Entire segment

<u>Parameter</u>	<u>Level of Concern</u>
bacteria	CN

2202B_01: Entire segment

SEG ID: 2491 Laguna Madre Laguna Madre

<u>Parameter</u>	<u>Level of Concern</u>
ammonia	CS

2491_02: Area adjacent to the Arroyo Colorado confluence

<u>Parameter</u>	<u>Level of Concern</u>
chlorophyll-a	CS

2491_01: Upper portion of bay north of the Arroyo Colorado confluence

2491_02: Area adjacent to the Arroyo Colorado confluence

<u>Parameter</u>	<u>Level of Concern</u>
depressed dissolved oxygen	CS
2491_03: Lower portion of bay south of the Arroyo Colorado confluence	

<u>Parameter</u>	<u>Level of Concern</u>
nitrate	CS
2491_02: Area adjacent to the Arroyo Colorado confluence	

Sources

SegID 2201: Arroyo Colorado Tidal: From the confluence with Laguna Madre in Cameron/Willacy County to a point 100 meters (110 yards) downstream of Cemetery Road south of Port Harlingen in Cameron County

AUID: 2201_01 From the downstream end of the segment to the confluence with San Vicente Drainage Ditch
Bacteria Geomean

NS Enterococcus - PS - Municipal Point Source Discharges; UNK - Source Unknown; NPS - Urban Runoff/Storm Sewers;

Nutrient Screening Levels

CS Chlorophyll-a - NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

CS Nitrate - NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

AUID: 2201_02 From the confluence with San Vicente Drainage Ditch to the confluence with an unnamed drainage ditch with NHD RC 12110108005353 at point N-97.53, W 26.31

Bacteria Geomean

NS Enterococcus - PS - Municipal Point Source Discharges; UNK - Source Unknown; NPS - Urban Runoff/Storm Sewers;

Nutrient Screening Levels

CS Chlorophyll-a - NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

CS Nitrate - NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

AUID: 2201_03 From the confluence with an unnamed drainage ditch with NHD RC 12110108005353 at point N-97.53, W 26.31 to the confluence with Harding Ranch Ditch tributary

Bacteria Geomean

NS Enterococcus - PS - Municipal Point Source Discharges; UNK - Source Unknown; NPS - Urban Runoff/Storm Sewers;

Nutrient Screening Levels

CS Chlorophyll-a - NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

CS Nitrate - NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

AUID: 2201_04 From the confluence with Harding Ranch Ditch tributary to just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186

Bacteria Geomean

NS Enterococcus - PS - Municipal Point Source Discharges; UNK - Source Unknown; NPS - Urban Runoff/Storm Sewers;

Dissolved Oxygen 24hr minimum

NS Dissolved Oxygen 24hr Min - PS - Municipal Point Source Discharges; UNK - Source Unknown; NPS - Urban Runoff/Storm Sewers;

Nutrient Screening Levels

CS Chlorophyll-a - NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

CS Nitrate - NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

AUID: 2201_05 From just upstream of the City of Rio Hondo Wastewater Discharge at point N-97.58359, W26.247186 to the upstream end of the segment

Bacteria Geomean

NS PS - Municipal Point Source Discharges; UNK - Source Unknown; NPS - Urban Runoff/Storm Sewers;
Enterococcus

Dissolved Oxygen 24hr average

CN NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; UNK - Source Unknown; NPS - Non-Point Source; NPS - Urban Runoff/Storm Sewers;
Dissolved Oxygen 24hr Avg

Dissolved Oxygen 24hr minimum

NS NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; UNK - Source Unknown; NPS - Non-Point Source; NPS - Urban Runoff/Storm Sewers;
Dissolved Oxygen 24hr Min

Dissolved Oxygen grab screening level

CS Dissolved Oxygen Grab UNK - Source Unknown;

DSHS Advisories, Closures, and Risk Assessments

NS Restricted and No-Consumption UNK - Source Unknown; NPS - Non-Point Source;

NS Restricted and No-Consumption UNK - Source Unknown; NPS - Non-Point Source;

NS Restricted and No-Consumption NPS - Atmospheric Deposition - Toxics; UNK - Source Unknown;

Nutrient Screening Levels

CS Chlorophyll-a NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS - Urban Runoff/Storm Sewers;

CS Nitrate NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS - Urban Runoff/Storm Sewers;

SegID 2201A: Harding Ranch Drainage Ditch Tributary (A) to the Arroyo Colorado Tidal (unclassified water body)

AUID: 2201A_01 Entire Water Body

Nutrient Screening Levels

CS Ammonia - UNK - Source Unknown;

SegID 2201B: Unnamed Drainage Ditch Tributary (B) in Cameron County Drainage District #3 (unclassified water body) From the confluence with the Arroyo Colorado in Cameron County in the Rio Hondo turning basin at -97.6, 26.196 decimal degrees to a point 17.6 km upstream at the FM 510 crossing.

AUID: 2201B_01 Entire Water Body

Bacteria Geomean

NS Enterococcus UNK - Source Unknown; NPS - Non-Point Source;

Nutrient Screening Levels

CS Chlorophyll-a UNK - Source Unknown; NPS - Non-Point Source;

CS Nitrate UNK - Source Unknown; NPS - Non-Point Source;

SegID 2202: Arroyo Colorado Above Tidal: From a point 100 meters (110 yards) downstream of Cemetery Road south of Port Harlingen in Cameron County to FM 2062 in Hidalgo County

AUID: 2202_01 From the downstream end of segment to the confluence with Little Creek just upstream of State Loop 499.

Bacteria Geomean

NS E. coli PS - Municipal Point Source Discharges; NPS - Urban Runoff/Storm Sewers;

DSHS Advisories, Closures, and Risk Assessments

NS Restricted and No-Consumption PS - Industrial Point Source Discharge; UNK - Source Unknown;

NS Restricted and No-Consumption PS - Industrial Point Source Discharge; UNK - Source Unknown;

NS Restricted and No-Consumption NPS - Atmospheric Deposition - Toxics; UNK - Source Unknown;

Nutrient Screening Levels

CS Total Phosphorus NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

CS Nitrate NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

CS Chlorophyll-a NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

AUID: 2202_02 From the confluence with Little Creek to the confluence with La Feria Main Canal just upstream of Dukes Highway.

Bacteria Geomean

NS E. coli PS - Municipal Point Source Discharges; NPS - Urban Runoff/Storm Sewers;

DSHS Advisories, Closures, and Risk Assessments

NS Restricted and No-Consumption NPS - Atmospheric Deposition - Toxics; UNK - Source Unknown;

NS Restricted and No-Consumption PS - Industrial Point Source Discharge; UNK - Source Unknown;

NS Restricted and No-Consumption PS - Industrial Point Source Discharge; UNK - Source Unknown;

Nutrient Screening Levels

CS Chlorophyll-a NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

CS Nitrate NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

CS Total Phosphorus NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

AUID: 2202_03 From the confluence with La Feria Main Canal just upstream of Dukes Highway to the confluence with

La Cruz Resaca just downstream of FM 907

Bacteria Geomean

NS E. coli PS - Municipal Point Source Discharges; NPS - Urban Runoff/Storm Sewers;

DSHS Advisories, Closures, and Risk Assessments

NS Restricted and No-Consumption NPS - Atmospheric Deposition - Toxics; UNK - Source Unknown;

NS Restricted and No-Consumption PS - Industrial Point Source Discharge; UNK - Source Unknown;

NS Restricted and No-Consumption PS - Industrial Point Source Discharge; UNK - Source Unknown;

Nutrient Screening Levels

CS Nitrate NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

CS Chlorophyll-a NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

CS Total Phosphorus NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

AUID: 2202_04 From the confluence with La Cruz Resaca to the upper end of segment at FM 2062

Bacteria Geomean

NS E. coli PS - Municipal Point Source Discharges; NPS - Urban Runoff/Storm Sewers;

DSHS Advisories, Closures, and Risk Assessments

NS Restricted and No-Consumption NPS - Atmospheric Deposition - Toxics; UNK - Source Unknown;

NS Restricted and No-Consumption PS - Industrial Point Source Discharge; UNK - Source Unknown;

NS Restricted and No-Consumption PS - Industrial Point Source Discharge; UNK - Source Unknown;

Nutrient Screening Levels

CS Chlorophyll-a NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

CS Nitrate NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

CS Total Phosphorus NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

SegID: 2202A Donna Reservoir Off-channel irrigation reservoir pumped from Rio Grande near the City of Donna in Hidalgo County

AUID: 2202A_01 Entire reservoir

DSHS Advisories, Closures, and Risk Assessments

NS Aquatic Life Closure NPS - Atmospheric Deposition - Acidity; PS - Industrial Point Source Discharge;

SEG ID: 2202B Unnamed Drainage Ditch Tributary (B) to S. Arroyo Colorado Perennial drainage ditches that flow into the segment in Cameron and Hidalgo counties

AUID: 2202B_01 Entire segment

Bacteria Geomean

CN *E. coli* UNK - Source Unknown; NPS - Non-Point Source;

Nutrient Screening Levels

CS Chlorophyll-a NPS - Irrigated Crop Production;

CS Ammonia NPS - Irrigated Crop Production;

SEG ID: 2202C Unnamed Drainage Ditch Tributary (C) to S. Arroyo Colorado From the confluence with S. Arroyo Colorado to a point 1.1 miles upstream near US Highway 281.

AUID: 2202C_01 Entire segment

Bacteria Geomean

CN *E. coli* UNK - Source Unknown;

Nutrient Screening Levels

CS Ammonia NPS - Irrigated Crop Production; PS - Municipal Point Source Discharges; NPS – Urban Runoff/Storm Sewers;

SegID: 2491 Laguna Madre Laguna Madre

AUID: 2491_01 Upper portion of bay north of the Arroyo Colorado confluence

Dissolved Oxygen 24hr minimum

NS Dissolved Oxygen 24hr Min UNK - Source Unknown;

Nutrient Screening Levels

CS Chlorophyll-a UNK - Source Unknown; NPS - Non-Point Source; NPS - Upstream Source;

AUID: 2491_02 Area adjacent to the Arroyo Colorado confluence

Bacteria Geomean

NS Enterococcus NPS - Non-Point Source; NPS - Upstream Source;

Dissolved Oxygen 24hr minimum

NS Dissolved Oxygen 24hr Min NPS - Non-Point Source; NPS - Upstream Source; NPS - Urban Runoff/Storm Sewers;

Nutrient Screening Levels

CS Ammonia NPS - Non-Point Source; NPS - Upstream Source;

CS Chlorophyll-a NPS - Non-Point Source; NPS - Upstream Source;

CS Nitrate NPS - Non-Point Source; NPS - Upstream Source;

AUID: 2491_03 Lower portion of bay south of the Arroyo Colorado confluence

Dissolved Oxygen grab screening level

CS Dissolved Oxygen Grab UNK - Source Unknown;

SegID: 2491OW Laguna Madre (Oyster Waters) Laguna Madre (Oyster Waters)

AUID: 2491OW_02 Area adjacent to the Arroyo Colorado confluence

DSHS Shellfish Harvesting Maps

NS DSHS Shell fishing Restrictions UNK - Source Unknown

Project Narrative

Problem/Need Statement

The Update to the Arroyo Colorado Watershed Protection Plan 2017 (ACWPP Update) was developed with local, state, and federal stakeholder input to address water quality issues in the Arroyo Colorado. The watershed is located in Cameron, Hidalgo, and Willacy counties in the Lower Rio Grande Valley of South Texas. The Arroyo Colorado flows approximately 90 miles from east of McAllen to the Lower Laguna Madre. Approximately 706 square miles of land drains into the Arroyo Colorado. Land uses include agriculture, including vegetable and fruit crops (54%); range (18.5%); urban (12%); water bodies (6%); and sugarcane (4%) (Kannan, 2012); and some industry exists. Two primary water users in the watershed are agriculture and municipalities. Flow in the Arroyo Colorado is primarily sustained by wastewater discharges and agricultural irrigation return flows which ultimately enter the Lower Laguna Madre. These return flow sources carry bacteria, nutrients and sediment resulting in elevated bacteria and nutrients and low dissolved oxygen levels.

The tidal segment (SegID 2201) of the Arroyo Colorado was first listed as having low dissolved oxygen levels in 1996 and elevated bacteria levels in 2006 (TCEQ) while the above tidal segment (SegID 2202) was listed in 1996 for having elevated bacteria levels. The Laguna Madre (SegID 2491) is also listed as impaired by bacteria and low dissolved oxygen. To address these impairments, the Arroyo Colorado Agricultural Issues Workgroup, made up of local, state, and federal stakeholders, recommended education and outreach as a high priority for implementation. Since then, several projects have occurred including an integrated farm management program, pesticide education program, and cost-share education program, which have been effective in raising water quality awareness. However, the Arroyo Colorado Watershed Partnership has not yet met its goal of 150,000 irrigated acres under conservation programs; to date there are approximately 133,000 acres under conservation practices. Educational programming is needed to 1) continue raising awareness, 2) provide technical education for understanding of BMPs and their benefits, and 3) facilitate awareness and use of financial incentives.

Based on an evaluation tool assessing educational needs of agricultural producers in the Lower Rio Grande Valley of Texas, results indicated that they are concerned with:

1. Water Quantity. Specifically, agricultural producers indicated an interested in the amount of irrigation water available for the upcoming year and specific conservation practices that reduce irrigation water use. Conservation practices are especially important in improving water quality. Enciso (2012) found that the excessive/runoff tailwater during irrigation events could contain the highest amount of nutrients contributing to local impairments.
2. Salinity. Salt concentrations in the Rio Grande are gradually increasing. Leaching salts from the soil profile is the primary management strategy; however, this can have adverse effects on NPS pollutant generation and shallow groundwater contamination.
3. Financial Incentives. Technical assistance regarding the application process and sources of financial incentives available to help pay for conservation practices.
4. Management Practice Performance. Information and education regarding conservation practice adoption and practice effectiveness is desired. This information will allow producers to make informed decisions and likely spur adoption.

Economic barriers are often tied to language barriers. There are a number of historically underserved farmers and small farms in the Rio Grande Valley (RGV) that primarily speak and read Spanish. Translating Ag BMP educational materials and cost-share education programs is vital to bring awareness to the underserved farmers in the RGV.

Supporting these barriers in the literature, Nowak (1992) described two reasons for non-adoption: 1) being unable to adopt and 2) being unwilling to adopt. Both are tied directly to education and stem from lacking or scarce information; limited access to supporting resources; conflicting information; and poor applicability/relevance of information. Rogers (2003) also supports this by providing the needed components of innovations including relative advantage, compatibility, complexity, observability, and trialability. Educators are not able to meet the component of trialability; however, the other four can be provided.

Watershed urbanization, wastewater discharges, irrigation return flows and stormwater have contributed to water quality issues that the ACWPP Update seeks to address. At the direction of watershed stakeholders, the WWP was crafted and subsequently updated to identify numerous issues and concerns; it identified BMPs and management measures to address these concerns and did it in a coordinated fashion. Through the ACWPP Update, ag education and BMP cost-share incentives for producers remained a high priority. The availability of up-to-date, accurate information will enhance efforts to reduce nutrient and bacteria loading into the watershed.

References:

- Kannan, N. Texas Water Resources Institute, (2012). *SWAT modeling of the Arroyo Colorado watershed* (Technical Report 426). Retrieved from website: <http://twri.tamu.edu/reports/2012/tr426.pdf>.
- Nowak, P. (1992). Why farmers adopt production technology: Overcoming impediments to adoption of crop residue management techniques will be crucial to implementation of conservation compliance plans. *Journal of Soil and Water Conservation*, 47(1), 14-16.
- Rogers, E. M. (2003). *Diffusion of Innovations*. New York, NY: Free Press.
- Texas Commission on Environmental Quality, (2015, November 19). *2014 Texas integrated report index of water quality impairments*. Retrieved from website: https://www.tceq.texas.gov/assets/public/waterquality/swqm/assess/14txir/2014_imp_index.pdf.
- Update of the Arroyo Colorado Watershed Protection Plan 2017, (2017). Texas Water Resources Institute Technical Report – 504 August 2017 College Station, Texas.
- Enciso, Juan. (2012). Evaluation of BMPs to Reduce NPS Pollution at the Farm Level. Texas Water Resources Institute Technical Report – 423 August 2017 College Station, Texas.

Project Narrative

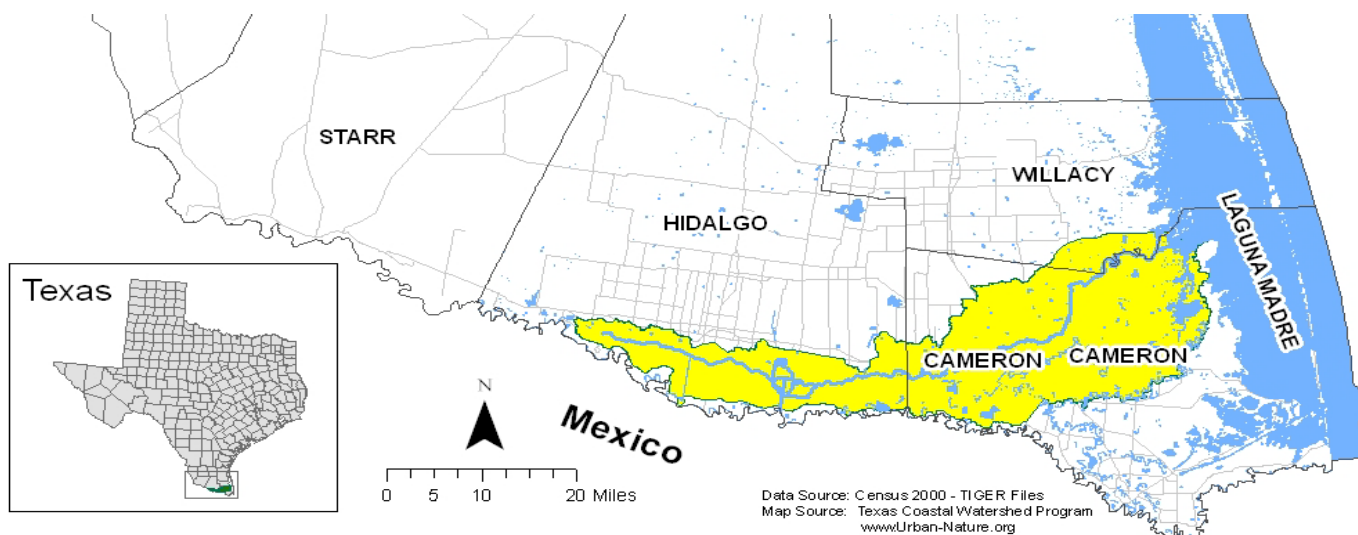
General Project Description (Include Project Location Map)

Project activities center on three goals to address impairments within the watershed. The first is education and outreach activities and workshops dedicated to providing the necessary information to the agricultural community. This includes public outreach and education on financial incentives to ensure long-term sustainability and encourage participation and adoption of BMPs. Second, TWRI will work to identify and compile materials on technologies and management strategies to address nutrient runoff and salinity in irrigation water at the field level. Finally, TWRI will track the implementation of BMPs and management measure implementation identified in the ACWPP Update. This is vital for coordination of stakeholder efforts and evaluation for future improvements.

The primary focus of the agricultural education and financial incentives goals of this project is to continue efforts undertaken in earlier work (TSSWCB 19-05) and enhance the education program delivery to provide more specific, technical and financial information that will address both nutrient and bacteria related impairments. This project compliments ongoing partnership efforts implementing the *Update to the Arroyo Colorado Watershed Protection Plan* and addresses the need of educating the agricultural community, a gap existing within other current projects. TWRI will act as the primary conduit between local agricultural producers, TSSWCB, and NRCS.

In this project, the Watershed Coordinator will maintain and update a contact list for direct mailings, electronic communication, and personal contacts to facilitate communication to agricultural producers that will be geared toward highlighting the availability of, and involvement in, incentive programs and other upcoming educational opportunities for key stakeholders. Project personnel will attend SWCD meetings twice annually to provide them with information about the program. Additional emphasis will be placed on small acreage producers and beginning farmers. A series of targeted workshops covering topics such as range/pasture management, prescribed grazing, and water conservation BMPs will be developed. Under this project, the Watershed Coordinator will work with County Agricultural and Natural Resources Extension Agents, TSSWCB, SWCDs, and NRCS to develop and distribute additional information about technical and financial assistance for both nutrient and bacteria BMPs. The information will be tailored to the Arroyo Colorado watershed.

Key to the project's education and outreach efforts, the Watershed Coordinator will coordinate annual programming on specific topics to help agricultural producers make decisions about a variety of BMPs. The Watershed Coordinator will host at least two workshops that will present information on new technologies and BMPs to address nutrient runoff and salinity management at the farm level. The salinity, nutrients and sediment carried in irrigation return flows have a huge impact on the water quality of the Arroyo Colorado. Implementation of new and non-traditional technologies may play a key role in improving the water quality of the irrigation return flows and the Arroyo Colorado. The Watershed Coordinator will also coordinate delivery of at least two meetings for producers that promotes TSSWCB, USDA-NRCS, FSA, and other technical and financial assistance programs and will highlight BMPs that can be adopted through those programs. Finally, the Watershed Coordinator will host at least one field tour that will demonstrate the use of BMPs and their efficiency. Educational content developed for programs will be produced in Spanish where appropriate. It is the goal of this project to deliver the most relevant information to agricultural producers and equip them with the technical information needed to adopt BMPs, especially through incentive programs.



TWRI will continue its role in providing for continued implementation and tracking of the WPP and its management measures. To facilitate communication, TWRI will continue to provide technical assistance to the Watershed Steering Committee (WSC) and other stakeholders and will continue to collect data on their WPP management measures implemented. The Watershed Coordinator will serve as the primary conduit for interaction with landowners, citizens, officials, and other entities. To facilitate implementation efforts, TWRI will assist the agricultural community and counties to acquire resources, including state and federal technical and financial assistance.

Tasks, Objectives and Schedules						
Task 1	Project Administration					
Costs	Federal	\$20,096	Non-Federal	\$13,398	Total	\$33,494
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	Conduct Landowner Education and Outreach to Increase Program Participation					
Costs	Federal	\$130,631	Non-Federal	\$87,087	Total	\$217,718
Objective	To increase the awareness and knowledge of agricultural management practices, programs and resources through the delivery of educational materials, educational events, and field days.					
Subtask 2.1	The Watershed Coordinator will continue to maintain and develop a mailing list of producers in the Arroyo Colorado Watershed and update the mailing list as needed.					
	Start Date	Month 1		Completion Date	Month 36	
Subtask 2.2	The Watershed Coordinator will periodically distribute emails to producers identified in Subtask 2.1. Direct mailings and personal contact will be geared toward highlighting the availability of and involvement in available incentive programs. The Watershed Coordinator will promote upcoming educational opportunities through emails, news releases and the Partnership's annual newsletter.					
	Start Date	Month 1		Completion Date	Month 36	

Subtask 2.3	<p>The Watershed Coordinator will coordinate and host at least two workshops that focus on new technologies and/or management practices to improve irrigation management and positively influence runoff water quality. Workshops may be in-person or virtual using appropriate technologies deemed applicable at the time to deliver the information. Workshops will include content focused on managing and minimizing nutrient loss and salinization issues at the farm level. Topical specialists will present information on new technologies to address these concerns including, but not limited to:</p> <ul style="list-style-type: none"> • Technologies and management to address irrigation water quality • Technologies and management to reduce irrigation return flows • Management strategies to address cropland runoff water quality issues • BMP adoption economics <p>Materials will be printed and provided to participants. All educational materials will be translated to Spanish and distributed to historically underserved farmers.</p>			
	Start Date	Month 1	Completion Date	Month 36
Subtask 2.4	<p>The Watershed Coordinator will coordinate with SWCDs, NRCS, HRO, and cooperating producers to host one educational meeting annually, specifically dedicated to promoting technical and financial assistance programs. The meetings may be in-person or virtual using appropriate technologies to deliver information. All educational materials will be translated to Spanish and distributed to historically underserved farmers.</p>			
	Start Date	Month 1	Completion Date	Month 36
Subtask 2.5	<p>AgriLife Extension and the Watershed Coordinator will coordinate with SWCDs, NRCS, HRO, and cooperating producers to host at least one field tour that demonstrates the benefits of BMPs and WQMPs. Demonstrations will include equipment where appropriate/feasible to illustrate BMP efficacy.</p>			
	Start Date	Month 1	Completion Date	Month 36
Subtask 2.6	<p>The Watershed Coordinator will work with County Extension Agents and AgriLife Economist to develop and host two workshops targeting small acreage producers and beginning farmers that cover range/pasture management, prescribed grazing, and water conservation.</p>			
	Start Date	Month 1	Completion Date	Month 36
Deliverables	<ul style="list-style-type: none"> • Direct mailing list • News releases promoting events and assistance programs • Documentation of at least 8 educational programs developed and delivered highlighting BMPs, technologies, management practices, funding assistance, and demonstrations • Number of meeting attendees, agendas and program materials documented in QPRs • List of field days, demonstrations, and other events in which project personnel participate 			

Tasks, Objectives and Schedules						
Task 3	Support and Facilitation of ACWPP Update Implementation and Coordination					
Costs	Federal	\$50,243	Non-Federal	\$33,495	Total	\$83,738
Objective	To facilitate and track continued stakeholder involvement in the Arroyo Colorado watershed to ensure a successful implementation of the ACWPP Update, including agriculture BMP implementation, education and outreach, and other management measures.					
Subtask 3.1	<p>TWRI will continue to employ an Arroyo Colorado Watershed Coordinator to engage and facilitate the Arroyo Colorado watershed stakeholder committee, stakeholders, and entities identified in the Arroyo Colorado WPP. The Watershed Coordinator will be stationed in the watershed area and serve as the primary conduit for interaction with landowners, citizens, and entities to facilitate the implementation of the WPP.</p>					
	Start Date	Month 1	Completion Date	Month 36		

Subtask 3.2	TWRI will facilitate public participation and stakeholder involvement in the watershed planning process, specifically by hosting semi-annual meetings of the Arroyo Colorado Workgroup and quarterly Steering Committee meetings. TWRI will assist with agenda development and facilitation as needed. TWRI will coordinate meetings, secure meeting locations, and prepare and disseminate meeting notices and agendas. Meeting summaries will be prepared and posted to the project website. Meeting summaries will include: agenda, meeting summary, attendance list, and meeting materials.			
	Start Date	Month 1	Completion Date	Month 36
Subtask 3.3	TWRI will attend and participate in other public meetings as appropriate to communicate project goals, activities, and accomplishments to affected parties. Such meetings may include, but are not limited to, county commissioners' courts, Clean Rivers Program, Basin Steering Committee and Coordinated Monitoring meetings, local SWCDs, groundwater conservation districts, Lower Rio Grande Valley Development Council, Region M Water Planning Group, International Boundary and Water Commission Public Forum meetings, and other appropriate meetings of critical watershed stakeholder groups. Coordination activities will be documented in the Quarterly Progress Reports.			
	Start Date	Month 1	Completion Date	Month 36
Subtask 3.4	TWRI will develop, publish, and distribute annual newsletters that are designed to keep landowners and entities informed of ongoing WPP implementation activities, including water quality data collection and progress toward achieving milestones in the ACWPP Update. The newsletter will be distributed to individual landowners and entities in the watershed. TWRI will solicit content matter for the newsletters from project partners as appropriate. TSSWCB must approve all project-related content in any informational materials and promotional publications prior to distribution.			
	Start Date	Month 1	Completion Date	Month 36
Subtask 3.5	TWRI will continue operation and maintenance of the Arroyo Colorado Watershed Partnership website by routinely reviewing content and providing updates as appropriate.			
	Start Date	Month 1	Completion Date	Month 36
Deliverables	<ul style="list-style-type: none"> • Maintaining/ Updating Arroyo Partnership Website • Semi-Annual Steering Committee Meeting summaries • Annual Work Group Meeting summaries • List of other meetings attended and dates 			

Project Goals (Expand from Summary Page)	
<ul style="list-style-type: none"> • Continue effective coordination, facilitation and engagement with watershed stakeholders across the Arroyo Colorado watershed • Provide public outreach/education information and opportunities to the agricultural community • Support and promote the adoption of BMPs through incentive programs by hosting annual cost-share update meetings and field tours to demonstrate the effectiveness of BMPs • Encourage voluntary implementation of agricultural management measures and technologies to improve irrigation management and minimize nonpoint source pollution generation potential • Host field tours and demonstrations for agricultural producers to observe the effects of BMPs • Increase the number of producers participating in incentive programs and installing BMPs • Continue to effectively operate and maintain the Arroyo Colorado Watershed Partnership website as an informational repository for relative content 	

Measures of Success (Expand from Summary Page)

- Number of producers reached through education programs
- Increase in the number of BMPs installed as a result of increased outreach and education through this project
- Evaluation of educational programs and producer likeliness to adopt practices
- Increased participation in incentive programs
- Increased adoption of BMPs
- Steering Committee and Workgroup meetings and involvement
- Coordination with critical watershed groups, including meetings and other communication
- Annual newsletters
- Success will be evaluated on the number of contacts made during the project period

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

Components, Goals, and Objectives

Component 1: Explicit short- and long-term goals, objectives, ... that protect surface and groundwater.

Long Term Goals

- 1: Focus NPS abatement efforts, implementation strategies, and available resources in watersheds identified as impacted by nonpoint source 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 implementation of strategies defined in... Watershed Protection Plans.
- 5: Support the implementation of state, regional, and local programs to reduce NPS pollution in the coastal management zone through the Texas Coastal NPS Pollution Control Program.
- 6: Develop partnerships, relationships, ... to facilitate collective, cooperative approaches to manage NPS pollution.
- 7: Increase overall public awareness of NPS issues and prevention activities.
- 8: Enhance public participation and outreach by providing forums for citizens and industry to contribute their ideas and concerns about the water quality management process.

Short Term Goals

- #1: Implementation: Coordinate and administer the implementation of Watershed Protection Plans and other state, regional, and local plans/programs to reduce NPS pollution.
 - Objective B: Develop and implement BMPs to address constituents of concern or water bodies not meeting water quality standards in watersheds identified as impacted by NPS pollution.
 - Objective D: Implement... Watershed Protection Plans developed to restore and maintain water quality in water bodies identified as impacted by nonpoint source pollution.
- #2: Education: Conduct education and technology transfer activities to help increase awareness of NPS pollution and prevent activities contributing to the degradation of water bodies, including aquifers, by NPS pollution
 - 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 C: Where applicable, expedite development of technology transfer activities to be conducted upon completion of BMP implementation.
 - Objective D: Conduct outreach through the ...Texas Cooperative Extension, Soil and Water Conservation Districts, and others to facilitate broader participation and partnerships. Enable stakeholders and the public to participate in decision-making and provide a more complete understanding of water quality issues and how they relate to each citizen.
 - Objective F: Implement public outreach and education to maintain and restore water quality in waterbodies impacted by NPS pollution.

Objective G: Implement public outreach and education to maintain and restore water quality in water bodies impacted by NPS pollution.

Component 2: Working partnerships and linkages to appropriate state,, regional and local entities, private sector groups and Federal agencies.

Component 3: Combination of statewide nonpoint source programs and on-the-ground projects achieve water quality benefits; efforts are well-integrated with other relevant state and federal programs.

Component 4: Description of how resources will be allocated between abating known water quality impairments from nonpoint source pollution.

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

Watershed modeling was conducted during the ACWPP Update using the SWAT and CE-Qual-W2. SWAT results suggest that storm water runoff will increase by 13.8% and groundwater recharge will decline by 9.5% due to increased impervious cover. As a result, the total water yield from drainage areas is projected to increase by 4.3%. Other nonpoint source contaminant loads including sediment, TP, and *E. coli* increase by 16.8%, 2.1%, and 32.8%, respectively. In contrast, the nonpoint source TN load decreases by 11.1% because cropland and rangeland are converted to urban, and fertilizer applications and livestock contributions are reduced. When these changes in nonpoint source loads are combined with increased discharges from point sources, the average daily flow in the main channel, along with TN, TP, and *E. coli* concentrations, would increase by 13.6%, 2.9%, 18.5%, and 11.6%, respectively at the Port of Harlingen (RCH#10), while sediment concentration is reduced by 30.3%. Large increases in TN and TP concentrations are attributed to significant increases in point source discharges. Significant increases in *E. coli* loads from upland nonpoint sources is contributed by urban development. This indicates that significant work is needed to achieve water quality in the future; especially in light of rapid urbanization in the watershed.

Actual loading reductions expected from this project cannot be quantified at this point. Educational programs will include an evaluation component where questions regarding practice adoption or intent to adopt will be quantified. Estimated load reductions will be presented in the project final report.

**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	\$	200,970	% of total project	60%
Non-Federal	\$	133,980	% of total project	40%
Total	\$	334,950	Total	100%
Category		Federal	Non-Federal	Total
Personnel	\$	108,613	\$ 36,934	\$ 145,547
Fringe Benefits	\$	37,744	\$ 9,400	\$ 47,144
Travel	\$	13,103	\$ 0	\$ 13,103
Equipment	\$	0	\$ 0	\$ 0
Supplies	\$	400	\$ 0	\$ 400
Contractual	\$	0	\$ 0	\$ 0
Construction	\$	0	\$ 0	\$ 0
Other	\$	14,896	\$ 0	\$ 14,896
Total Direct Costs	\$	174,756	\$ 46,334	\$ 221,090
Indirect Costs (≤ 15%)	\$	26,214	\$ 87,646	\$ 113,860
Total Project Costs	\$	200,970	\$ 133,980	\$ 334,950

Budget Justification (Federal)		
Category	Total Amount	Justification
Personnel	\$ 108,613	<p>TWRI Program Coordinator, \$53,112 annually @ 12.6 months (35% per year) – \$59,181</p> <p>TWRI Program Specialist III, \$55,000 annually @ 3.6 mos. (10% per year) – \$17,510</p> <p>TWRI Assistant Director, \$95,448 annually @ 1.8 mos. (5% per year) – \$15,194</p> <p>TBD Program Manager: \$64,970 annually, 3 mo. (8.33% per year) – \$16,728</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</p> <p>*(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.)</p> <p>*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	\$ 37,744	<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.</p> <p>*(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.)</p> <p>*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	\$ 13,103	<p>Watershed Coordinator:</p> <p>Local Mileage for stakeholder meetings, program development and delivery @ the state rate/mile est. @ 9,000 miles: (\$4,500)</p> <p>Travel to watershed coordinator roundtable meetings (6 trips; 1 person and 3 days per trip)</p> <p>Lodging: 12 nights @ the state rate/night: \$1,488</p> <p>Per diem: 15 days @ the state rate/day: \$915</p> <p>Mileage: 3,048 miles @ the state rate/mile: \$1,524</p> <p>Total Round Table Meeting Travel: (\$3,927)</p> <p>TWRI College Station</p> <p>Travel to Valley for Program Delivery (4 trips; 2 people and 3 days per trip)</p> <p>Lodging: 16 nights @ the state rate/night: \$1,536</p> <p>Per diem: 28 days @ the state rate/day: \$1,540</p> <p>Mileage: 800 mi/trip @ the state rate/mi: \$1,600</p> <p>Total TWRI College Station Travel: (\$4,676)</p>
Equipment	\$ 0	N/A
Supplies	\$ 400	General project/program supplies, including, but not limited to pens, paper, folders, printer cartridges, etc.
Contractual*	\$ 0	N/A
Construction	\$ 0	N/A
Other	\$ 14,896	<p>Speaker Travel Fees for Invited Speakers: \$3,000</p> <p>Communication Services: 45 hours @ \$100/hr: \$4,500</p> <p>Website maintenance fees: 36 mo @ \$80/mo: \$2,520</p> <p>Translation Services for Educational Materials: \$2,500</p> <p>Laptop computer: \$2,376</p>
Indirect	\$ 26,214	<p>Per the RFP requirements, indirect costs are limited at 15% of total direct costs.</p> <p>\$174,756 Total Direct Costs * 15% = \$26,214</p>

Budget Justification (Non-Federal)		
Category	Total Amount	Justification
Personnel	\$ 36,934	<p>TWRI Director: \$209,180 annually, 1.18 mo. (3.82% in yr. 1; 3% in yrs. 2 & 3) – \$21,740</p> <p>TWRI Assistant Director: \$95,448 annually, 1.8 mo. (5% per year) – \$15,194</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</p> <p>*(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.)</p> <p>*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	\$ 9,400	<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.</p> <p>*(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.)</p> <p>*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	\$ 0	N/A
Equipment	\$ 0	N/A
Supplies	\$ 0	N/A
Contractual*	\$ 0	N/A
Construction	\$ 0	N/A
Other	\$ 0	N/A
Indirect	\$ 87,646	<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%</p> <p>- \$46,334 MTDC * 51.5% = \$23,861</p> <p><u>Unrecovered IDC on federal funds:</u> 51.5% MTDC – 15% TDC</p> <p>- IDC on MTDC: \$174,756 MTDC * 51.5% = \$89,999</p> <p>- IDC on TDC: \$174,756 TDC * 15% = \$26,214</p> <p>Total Unrecovered IDC: \$89,999 - \$26,214 = \$63,785</p>