

**Texas State Soil and Water Conservation Board**  
**Clean Water Act §319(h) Nonpoint Source Grant Program**  
**FY 2022 Workplan 22-13**

SUMMARY PAGE						
Title of Project	Implementation of the Double Bayou Watershed Protection Plan: Monitoring, Coordination, and Stakeholder Outreach					
Project Goals	<ul style="list-style-type: none"> <li>Facilitate ongoing stakeholder involvement and participation in the Double Bayou Watershed Partnership.</li> <li>Coordinate and conduct relevant outreach and education activities.</li> <li>Continue surface water quality monitoring to generate quality assured data.</li> <li>Conduct analysis using historical and newly collected data to monitor ongoing conditions and trends.</li> <li>Support adaptive management and expand stakeholder participation by communicating water quality results to the Double Bayou Watershed Partnership.</li> <li>Evaluate progress of implementation projects toward achieving milestones established in the Watershed Protection Plan.</li> </ul>					
Project Tasks	(1) Project Administration; (2) Quality Assurance; (3) Surface Water Quality Monitoring; (4) Data Analysis and Reporting; (5) Stakeholder Communication and Participation					
Measures of Success	<ul style="list-style-type: none"> <li>Technical assistance provided to stakeholders</li> <li>Evaluation of progress toward achieving management measure milestones</li> <li>Establishment of a project data set that is sufficient to characterize water quality conditions</li> <li>Knowledge transfer of water quality conditions and trends</li> <li>Maintenance of project website to provide education and outreach materials to stakeholders</li> </ul>					
Project Type	Implementation (X); Education (); Planning (); Assessment (X); Groundwater ( )					
Status of Waterbody on 2020 Texas Integrated Report	<u>Segment ID</u>	<u>Parameter of Impairment or Concern</u>		<u>Category</u>		
	2422B	Bacteria in water		5c		
	2422B	Dissolved oxygen		5b		
	2422B	Dioxin in edible tissue category		5a		
	2422B	PCBs in edible tissue category		5a		
	2422D	Bacteria in water		5c		
	2422D	Dioxin in edible tissue category		5a		
	2422D	PCBs in edible tissue category		5a		
Project Location (Statewide or Watershed and County)	Double Bayou Watershed in Chambers and Liberty Counties					
Key Project Activities	Hire Staff ( ); Surface Water Quality Monitoring (X); Technical Assistance (X); Education ( ); Implementation (X); BMP Effectiveness Monitoring ( ); Demonstration ( ); Planning ( ); Modeling ( ); Bacterial Source Tracking ( ); Other ( )					
2017 Texas NPS Management Program Reference	<ul style="list-style-type: none"> <li>Element One – LTGs 1, 2, 5, and 6</li> <li>Element One – STGs 1A,1B, 1C, 3A, 3B, and 3D</li> <li>Elements Two and Five</li> </ul>					
Project Costs	Federal	\$373,175	Non-Federal	\$208,355	Total	\$581,530
Project Management	<ul style="list-style-type: none"> <li>Geotechnology Research Institute (GTRI)/Houston Advanced Research Center (HARC)</li> </ul>					
Project Period	October 17, 2022 – September 30, 2025					

## Part I – Applicant Information

Applicant							
Project Lead	Dr. Ryan Bare						
Title	Research Scientist, Watershed Ecology						
Organization	Geotechnology Research Institute (GTRI)/Houston Advanced Research Center (HARC)						
E-mail Address	Rbare@harcresearch.org						
Street Address	8801 Gosling Drive						
City	The Woodlands	County	Montgomery	State	TX	Zip Code	77381
Telephone Number	281-364-6050 (o)	214-454-2313 (c)	Fax Number	281-363-7935			

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.
Geotechnology Research Institute (GTRI)/Houston Advanced Research Center (HARC)	Project administration and coordination responsible for developing water quality monitoring plan, QAPP, and data analysis.
United States Geological Survey (USGS)	Implement and manage water quality monitoring and assist with Quality Assurance Project Plan.

## Part II – Project Information

Project Type									
Surface Water	<input checked="" type="checkbox"/>	Groundwater	<input type="checkbox"/>						
Does the project implement recommendations made in: (a) a completed WPP; (b) an adopted TMDL; (c) an approved I-Plan; (d) a Comprehensive Conservation and Management Plan developed under CWA §320; (e) the <i>Texas Coastal NPS Pollution Control Program</i> ; or (f) the <i>Texas Groundwater Protection Strategy</i> ?						Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
If yes, identify the document.		a) The Galveston Bay Plan, a Comprehensive Conservation and Management Plan b) The Double Bayou Watershed Protection Plan							
If yes, identify the agency/group that developed and/or approved the document.		a) Galveston Bay Council as facilitated by the TCEQ Galveston Bay Estuary Program b) EPA, TSSWCB, GTRI/HARC, Shead Conservation Solutions, USGS, Double Bayou Watershed Partnership			Year Developed		a) 1995 b) July 2016		

Watershed Information				
Watershed or Aquifer Name(s)	Hydrologic Unit Code (12 Digit)	Segment ID	Category on 2020 IR	Size (Acres)
Double Bayou Watershed	12040202 (portion)	2422B, 2422D	5a, 5b, 5c (2422B) 5b, 5c (2422D)	61,445

## Water Quality Impairment

Describe all known causes (i.e., pollutants of concern) and sources (e.g., agricultural, silvicultural) of water quality impairments or concerns from any of the following sources: *2020 Texas Integrated Report*, Clean Rivers Program Basin Summary/Highlights Reports, or other documented sources.

The 2020 Texas Integrated Report – Texas 303(d) List documents the following impairments for segment ID 2422B (Double Bayou West Fork): bacteria in water (Recreation Use) category 5c, depressed dissolved oxygen in water (aquatic life use) category 5b, dioxin in edible tissue category 5a, and PCBs in edible tissue category 5a.

The 2020 Texas Integrated Report – Texas 303(d) List documents the following impairments for segment ID 2422D (Double Bayou East Fork): bacteria in water (Recreation Use) category 5c, dioxin in edible tissue category 5a, and PCBs in edible tissue category 5a.

The primary pollutant of concern is fecal waste that has caused the East and West Forks of Double Bayou to be impaired for recreation use. Potential sources of fecal waste in the Double Bayou Watershed include sanitary sewer overflows, failing on-site sewage facilities, stormwater runoff, animal waste, livestock such as cattle, improper disposal of waste from boats, a wastewater treatment facility (WWTF), and wildlife, including feral hogs.

## Project Narrative

### Problem/Need Statement

The Double Bayou Watershed (the Watershed) is situated in the eastern portion of the Lower Galveston Bay Watershed on the Upper Texas Gulf Coast and is identified as a priority watershed by TSSWCB for WPP implementation projects. The Watershed drains 98 square miles (61,445 acres) of predominantly rural and agricultural land directly into Trinity Bay and, ultimately, into the larger Galveston Bay system. The majority (93%) of the watershed lies within Chambers County while the remaining 7% of the watershed is in Liberty County, Texas. The West Fork of Double Bayou (Segment 2422B) is listed as impaired (not meeting its water quality standards) on the 2020 Texas Integrated Report 303(d) for low dissolved oxygen (aquatic life usage listed since 2004) and for elevated levels of bacteria (recreation use listed since 2006). In addition, the East Fork of Double Bayou (Segment 2422D) is listed as impaired for bacteria in water (recreation use listed since 2014).

During the WPP development process, the Spatially Explicit Load Enrichment Calculation Tool (SELECT) was used to estimate potential pollutant loadings for bacteria sources across the Watershed. Cattle and feral hogs were found to be the two highest potential contributors of fecal waste pollution. Because feral hogs typically traverse waterways, the direct deposition of their fecal waste into bayous is a highly concentrated delivery mechanism of FIB, impacting instream water quality. Feral hogs are actively managed in the Watershed by the Chambers County Sheriffs' office, but still pose a significant burden to NPS loadings. In the WPP, Double Bayou stakeholders recommended utilizing Bacterial Source Tracking (BST) as a management tool to validate SELECT results and inform management measure implementation. A 2017 study (BST on Tributaries of Trinity and Galveston Bays funded by the Galveston Bay Estuary Program) was conducted to estimate the proportion of *E. coli* source loadings from data collected within the Watershed but had a limited number of samples. Results from the 2017 BST study are available for use in the proposed project.

The association of the West Fork having a longer history of impairment and historically higher concentrations of fecal indicator bacteria (FIB) compared to the East Fork continues to be evident in the water quality monitoring data collected during the active "*Coordinating Facilitation and Implementation of the Double Bayou Watershed Protection Plan and Monitoring for Implementation Effectiveness*" project (#18-07). FIB primary contact recreation screening level exceedances and high concentrations of targeted event samples indicate that sources of fecal waste are still present, rainfall results in runoff of nonpoint source (NPS) fecal waste, and additional management measures are needed to protect and restore water quality of the waterways. This project proposes to meet this need by generating surface water quality data, performing data analysis and reporting, and implementing stakeholder outreach and participation management measures. These activities will serve to implement management measures, increase engagement of stakeholders through a participatory process, and inform adaptive management to provide a path

forward for implementation.

## Project Narrative

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

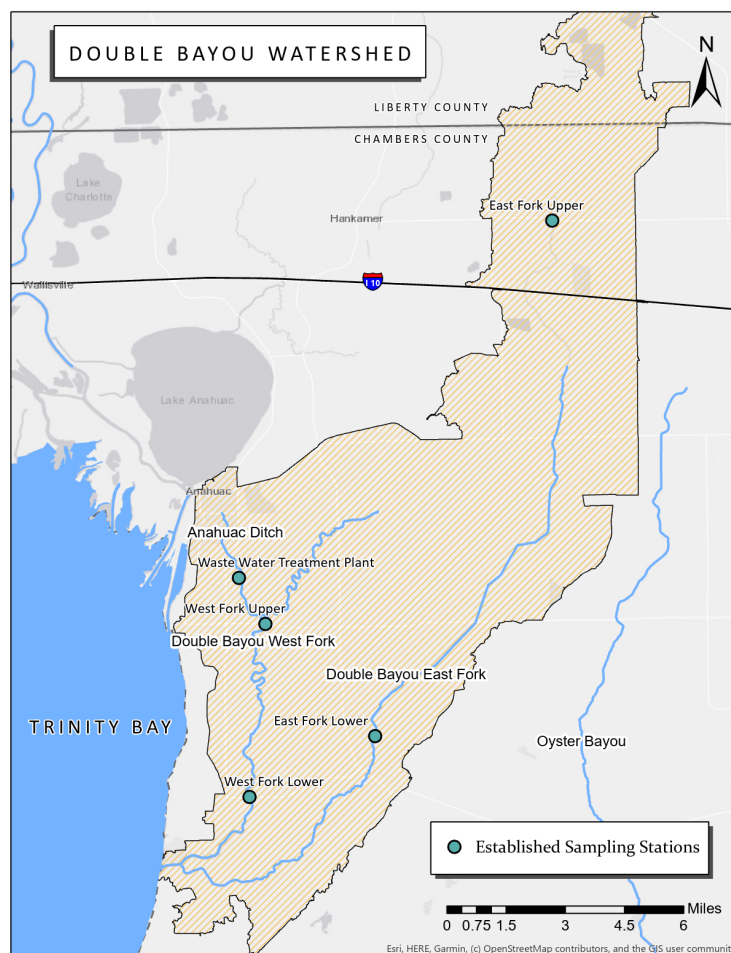
Since 2012, GTRI has worked with USGS and Shead Conservation Solutions through funding from TSSWCB/EPA and GBEP/TCEQ to develop a WPP for Double Bayou. The Double Bayou Watershed Partnership (the Partnership) was formulated to guide the decision-making process. The final version of the Double Bayou WPP was approved by stakeholders and accepted by the EPA in July 2016 (<http://www.doublebayou.org/wpp-document/>). The proposed project will facilitate ongoing implementation of the Double Bayou WPP for the protection and restoration of water quality within the East and West Forks.

The monitoring plan for this project is comprised of surface water quality data collection to occur during a 24-month period. USGS will perform field collection for the project's monitoring plan and provide technical support, including assisting with development of the project QAPP. Surface water quality monitoring consists of routine ambient sample collection at four established East and West Fork (mainstem) sites once every other month and at one WWTF site once per quarter. In addition, event-based targeted sampling at four mainstem sites will be performed during or immediately after two storm events. A total of 64 routine and targeted samples will be collected for field, conventional, flow, and bacteria parameter groups.

The continued collection of surface water quality data can enhance available information to have the greatest potential of reducing NPS loads. Using newly collected and historical quality assured data, GTRI will develop assessment methodologies to identify current conditions, spatial and temporal relationships, and trends to assess effectiveness of implementation efforts, increase adaptive capacity, and provide data for impairment assessment.

This project will engage the established Partnership, which serves as the participatory mechanism for interested stakeholders. The Partnership continues to be instrumental for the implementation of management measures. GTRI will host in person or virtual stakeholder meetings to share all analysis results and findings, communicate management measures milestones, and provide opportunities for education and outreach. In addition, GTRI will develop, publish, and distribute three newsletters and other digital content, such as management measure Fact Sheets, that are designed to keep stakeholders informed of ongoing WPP implementation activities. GTRI will work with state and federal agencies, as appropriate, to bring technical and financial resources to the Watershed and coordinate education and outreach management measures as identified in the WPP. This project will maintain and update the Double Bayou Watershed website to host outreach materials and enhance stakeholder communication (<https://www.doublebayou.org/>).

The proposed project will continue to leverage and coordinate implementation of ongoing management measures occurring within the Watershed. A shared Trinity Bay Soil and Water Conservation District Technician's contract has



been renewed, through a TSSWCB project, to focus on the implementation of WQMPs in the Cedar and Double Bayou Watersheds. In addition, a stakeholder effort organized by AECOM has been initiated in response to the Double Bayou Watershed's Tier 1 classification for habitat preservation projects in the Texas General Land Office Coastal Resiliency Master Plan. To realize a shared goal of enhancing the Watershed's ecological resiliency, this project team is committed to collective identification of opportunities for wetland protection and shoreline stabilization. Other stakeholders are successfully contributing to the improvement of water quality, including the Chambers County Sheriff's office, who are spearheading a successful feral hog eradication campaign, the Houston-Galveston Area Council, who have replaced homeowner septic systems through a Residential Wastewater Assistance Program as part of the Coastal Communities Program, and the City of Anahuac, which is currently constructing a new WWTF and replacing wastewater infrastructure.

Tasks, Objectives and Schedules						
Task 1	Project Administration					
Costs	Federal	\$22,259	Non-Federal	\$20,474	Total	\$42,733
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	GTRI will prepare electronic quarterly progress reports (QPRs) for submission to the TSSWCB. QPRs shall document all activities performed within a quarter and shall be submitted by the 1 <sup>st</sup> of January, April, July, and October. QPRs shall be distributed to all Project Partners.					
	Start Date	Month 1		Completion Date	Month 36	
Subtask 1.2	GTRI 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	GTRI 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. GTRI 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	GTRI 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 6		Completion Date	Month 36	
Deliverables	<ul style="list-style-type: none"> <li>QPRs in electronic format</li> <li>Reimbursement Forms and necessary documentation in hard copy format</li> <li>Final Report in electronic format</li> </ul>					

Tasks, Objectives and Schedules						
Task 2	Quality Assurance					
Costs	Federal	\$14,393	Non-Federal	\$4,756	Total	\$19,149
Objective	To develop data quality objectives (DQOs) and quality assurance/control (QA/QC) activities to ensure data of known and acceptable quality are generated through this project.					
Subtask 2.1	GTRI will develop a QAPP for activities in Task 3 and 4 consistent with the most recent versions of <i>EPA Requirements for Quality Assurance Project Plans (QA/R-5)</i> and the <i>TSSWCB Environmental Data Quality Management Plan</i> . All monitoring procedures and methods prescribed in the QAPP shall be consistent with the guidelines detailed in the <i>TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue (RG-415)</i> and <i>Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data (RG-416)</i> . [Consistency with Title 30, Chapter 25 of the Texas Administrative Code, <i>Environmental Testing Laboratory Accreditation and Certification</i> , which describes Texas' approach to implementing the National Environmental Laboratory Accreditation Conference (NELAC) standards, shall be required where applicable.]					
	Start Date	Month 1		Completion Date	Month 6	

Subtask 2.2	GTRI will implement the approved QAPP. GTRI will submit revisions and necessary amendments to the QAPP as needed.			
	Start Date	Month 6	Completion Date	Month 36
Deliverables	<ul style="list-style-type: none"> <li>QAPP approved by TSSWCB and EPA in both electronic and hard copy formats</li> <li>Approved revisions and amendments to QAPP, as needed</li> <li>Data of known and acceptable quality as reported through Task 3 and 4</li> </ul>			

**Tasks, Objectives and Schedules**

Task 3	Surface Water Quality Monitoring					
Costs	Federal	\$172,176	Non-Federal	\$13,279	Total	\$185,455
Objective	To provide sufficient quality assured data for characterization of current and historical water quality conditions in support of WPP implementation.					
Subtask 3.1	<p>During the sampling 24-month sampling period USGS will conduct routine ambient monitoring at 4 mainstem sites once every other month (48 samples), collecting field, conventional, flow, and bacteria parameter groups. USGS will include routine ambient monitoring at 1 WWTF site once per quarter, for an additional 8 samples. The number of samples planned for collection through this subtask is 56 plus QA/QC samples (duplicates/replicates). USGS will assist with development of the QAPP, as detailed in Task 2, which will include a monitoring plan.</p> <p>Bacteria parameters are <i>E. coli</i> and enterococci (for tidal and non-tidal sites). Field parameters are pH, temperature, specific conductance, turbidity, and dissolved oxygen. Conventional parameters are suspended solids, sulfate, chloride, nitrite+nitrate nitrogen, ammonia nitrogen, total kjeldahl nitrogen, orthophosphorus, and total phosphorus. Flow parameters are quantitative and collected by gage.</p>					
	Start Date	Month 7	Completion Date	Month 31		
Subtask 3.2	<p>During the 24-month sampling period USGS will conduct targeted monitoring at 4 mainstem sites, during 2 storm events, collecting field, conventional, flow, and bacteria parameter groups. Specific parameters are defined in subtask 3.1. The QAPP, as detailed in Task 2, will precisely identify the monitoring plan. The number of samples planned for this subtask is 8.</p>					
	Start Date	Month 7	Completion Date	Month 31		
Subtask 3.3	<p>One 24-hour multi-parameter sonde deployment measuring field parameters will be made during the TCEQ Index Period of each year (total of two deployments); 24-hour dissolved oxygen concentrations will monitored.</p>					
	Start Date	Month 7	Completion Date	Month 33		
Subtask 3.4	<p>USGS will transfer monitoring data from activities in subtasks 3.1-3.3 to TCEQ through GTRI for inclusion in the Surface Water Quality Management Information System (SWQMIS). Data will be transferred in the correct format using the TCEQ file structure, along with a completed Data Summary, as described in the most recent version of <i>TCEQ Surface Water Quality Monitoring Data Management Reference Guide</i>. Data Correction Request Forms will be submitted to TSSWCB whenever errors are discovered in data already reported. Monitoring data files, data summary reports, and data correction request forms will be provided to all Project Partners.</p>					
	Start Date	Month 7	Completion Date	Month 33		
Deliverables	<ul style="list-style-type: none"> <li>Station Location Request Forms (as needed) in electronic format</li> <li>Monitoring data files and Data Summary in electronic format</li> <li>Data Correction Request Forms (as needed) in electronic format</li> </ul>					

**Tasks, Objectives and Schedules**

Task 4	Data Analysis and Reporting					
Costs	Federal	\$103,762	Non-Federal	\$109,141	Total	\$212,903
Objective	To evaluate water quality and changes in source loadings by analyzing historical and newly acquired data to support adaptive management, update stakeholders, expand participation, and gage success.					

Subtask 4.1	GTRI will analyze water quality trends, relationships, and assess current instream conditions of the East and West Forks of Double Bayou using newly collected and historical water quality (Task 3) along with supplemental data acquired from quality assured sources such as rainfall and discharge.			
	Start Date	Month 7	Completion Date	Month 33
Subtask 4.2	Using results from subtask 5.1, GTRI will develop figures and visuals to communicate results to stakeholders. GTRI will write a discussion for the Final Report (subtask 1.4) that defines water quality impairments or concerns, assesses temporal or spatial patterns of water quality, and makes recommendations to guide continued management measure implementation.			
	Start Date	Month 1	Completion Date	Month 36
Subtask 4.3	GTRI will use results from subtasks 4.1, to evaluate and track progress toward achieving management milestones established in the WPP.			
	Start Date	Month 7	Completion Date	Month 33
Deliverables	<ul style="list-style-type: none"> <li>Water quality analysis</li> <li>Water quality results prepared into maps, charts, and tables for stakeholder communication</li> <li>Documentation of data analysis and conclusions in Final Report</li> </ul>			

Tasks, Objectives and Schedules						
Task 5	Stakeholder Outreach and Participation					
Costs	Federal	\$60,585	Non-Federal	\$60,705	Total	\$121,290
Objective	To facilitate stakeholder involvement in the Double Bayou Watershed Partnership that guides the WPP implementation decision-making process.					
Subtask 5.1	GTRI will provide stakeholder outreach and participation by facilitating in person or virtual meetings to discuss water quality monitoring efforts and results, progress in identifying implementation funding, progress towards water quality restoration, and seek input or recommendations on needed activities. GTRI will coordinate the meetings, secure a meeting location as needed, and disseminate meeting notices and agendas. A meeting announcement and summary will be posted to the project website.					
	Start Date	Month 3	Completion Date	Month 24		
Subtask 5.2	GTRI will maintain a spreadsheet of stakeholders for use in engaging the public in the watershed planning process based upon previous efforts of the TSSWCB project #18-07. The spreadsheet will represent a diverse cross section of landowners, citizens, local businesses, governmental entities, elected officials, state and federal agencies, environmental, and special interest groups.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 5.3	GTRI will develop, publish, and distribute three newsletters and other digital content, such as management measure Fact Sheets, that are designed to keep stakeholders informed of ongoing WPP implementation activities. Content will include water quality results, documented progress toward achieving milestones, and highlights of successful management measures. The newsletters and digital content shall be distributed to stakeholders via email and the project website.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 5.4	GTRI will coordinate education and outreach implementation management measures as identified in the Double Bayou WPP. GTRI will work with state and federal agencies, as appropriate, to bring technical and financial resources to the Watershed. Potential programs to be delivered over the course of the project could include workshops such as Lone Star Healthy Streams, Introduction to Septic Systems for Homeowners, Aerobic System Operation and Maintenance for Homeowners, Riparian Management for Landowners and Land Managers, Feral Hog Management, or Texas Well Owner Network trainings and well screening events. Stakeholder guidance and availability of resources will determine workshop selection.					
	Start Date	Month 1	Completion Date	Month 36		

Deliverables	<ul style="list-style-type: none"> <li>• Notice, agenda, meeting material, attendance list, and summary from Partnership meeting</li> <li>• Stakeholder contact list, updated as needed</li> <li>• Notices, attendance lists, and summaries for conducted workshops or programs</li> <li>• Three newsletters developed and distributed to stakeholders</li> </ul>
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**Project Goals (Expand from Summary Page)**

- Facilitate ongoing stakeholder involvement and participation in the Double Bayou Watershed Partnership.
- Coordinate and conduct relevant outreach and education activities.
- Continue surface water quality monitoring to generate quality assured data.
- Conduct analysis using historical and newly collected data to monitor ongoing conditions and trends.
- Support adaptive management and expand stakeholder participation by communicating water quality results to the Double Bayou Watershed Partnership.
- Evaluate progress of implementation projects toward achieving milestones established in the Watershed Protection Plan.

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

A primary measure of success for this project is the degree of technical assistance provided to stakeholders. Furthermore, success will be measured by continued evaluation of progress toward achieving management measure milestones during implementation. In addition, the establishment of a project data set sufficient to characterize water quality conditions through analysis and reporting is a key measure of success. Tracking the knowledge transfer of water quality conditions such as analysis of trends to stakeholders will be crucial to gage success of this project. The last measure of success is maintenance of the project website to provide education and outreach materials to stakeholders.

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

Components, Goals, and Objectives



**Element 1** - Explicit short- and long-term goals, objectives and strategies that protect surface water.

**Long-Term Goal** – To restore water quality from NPS pollution through assessment, implementation, and education.

*Objective A* – Focus NPS abatement efforts, implementation strategies, and available resources in watersheds identified as impacted by NPS pollution.

*Objective B* – Support the implementation of programs to prevent NPS pollution through assessment, implementation, and education.

*Objective E* – Develop partnerships, relationships, memoranda of agreement, and other instruments to facilitate collective, cooperative approaches to manage NPS pollution.

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

**Short-Term Goal One** – Data Collection and Assessment

*Objective A* – Identify waterbodies from the 303(d) List that need additional information to characterize non-attainment of designated uses and [water] quality standards.

*Objective B* – Ensure that monitoring procedures meet quality assurance requirements and are in compliance with EPA-approved TSSWCB Quality Management Plans.

*Objective C* – Conduct special studies to determine sources of NPS pollution and gain information to target BMP implementation.

**Short-Term Goal Three** – Education

*Objective A* – Enhance existing outreach programs at the state, regional, and local levels to maximize the effectiveness of NPS education.

*Objective D* – Conduct outreach through the Clean Rivers Program, SWCDs, and others to facilitate broader participation and partnerships [to] enable stakeholders and the public to participate in decision-making and provide a more complete understanding of water quality issues and how they relate to each citizen.

**Element 2** – Working partnerships and linkages to appropriate state, regional, and local entities, private sector groups, and federal agencies.

**Element 5** – The state program identifies watersheds impaired by NPS. Further, the state establishes a process to progressively address these identified waters by conducting more detailed watershed assessments and developing watershed implementation plans, and then by implementing the plans.

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

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

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

**Part III – Financial Information**

**Budget Summary**

Federal	\$	373,175	% of total project	64%
Non-Federal	\$	208,355	% of total project	36%
Total	\$	581,530	Total	100%
Category		Federal	Non-Federal*	Total
Personnel	\$	113,303	\$ 52,555	\$ 165,858
Fringe Benefits	\$	54,385	\$ 25,226	\$ 79,611
Travel	\$	491	\$ 0	\$ 491
Equipment	\$	0	\$ 0	\$ 0
Supplies	\$	166	\$ 0	\$ 166
Contractual	\$	156,990	\$ 0	\$ 156,990
Construction	\$	0	\$ 0	\$ 0
Other	\$	16,381	\$ 6,310	\$ 22,691
Total Direct Costs	\$	341,716	\$ 84,091	\$ 425,807
Indirect Costs (≤ 15%)	\$	31,459	\$ 124,264	\$ 155,723
Total Project Costs	\$	373,175	\$ 208,355	\$ 581,530

**Budget Justification (Federal)**

Category	Total Amount	Justification
Personnel	\$ 113,303	Research Scientist, 95K @ average of 19% FTE/year over three years Senior Research Scientist, 218K @ 1% FTE/year over three years Senior Research Assistant, 71k @ average of 18% FTE/year over three years GIS Specialist, 95K @ 7% FTE/year over two years
Fringe Benefits	\$ 54,385	Based on actual fringe benefit costs at 48% of salaries.
Travel	\$ 491	6 trips from The Woodlands to Anahuac, TX – 150 miles round-trip at a state rate of \$0.545 per mile.
Equipment	\$ 0	N/A
Supplies	\$ 166	Four months of BioRender software, for infographics and visuals for stakeholder outreach and communications
Contractual*	\$ 156,990	USGS Surface Water Quality Monitoring
Construction	\$ 0	N/A
Other	\$ 16,381	<ul style="list-style-type: none"> <li>Website: Domain name registration \$20/year</li> <li>Website: WordPress hosting \$179/year</li> </ul> IT & Facilities Fee: A total of \$15,784 (\$6/manhour). This IT and Facilities Fee is a proportionate share of the IT costs (servers, software licenses, user support, etc.) and building costs (maintenance, utilities, depreciation, etc.) in support of the project.
Indirect	\$ 31,459	HARC's approved IDC rate is 53% of modified total direct costs, but for this project HARC is voluntarily limiting the indirect cost reimbursement to 15% MTDC. HARC will provide an additional 38% (over the 15%) as match.

<b>Budget Justification (Federal)</b>		
<b>Contractual Budget Justification for USGS Surface Water Quality Monitoring</b>		
Category	Total Amount	Justification
Personnel	\$ 36,330	USGS personnel salary for monitoring, sample collection, data management, and reporting.
Fringe Benefits	\$ 0	N/A
Travel	\$ 5,600	Vehicle fuel, maintenance, and incidental costs
Equipment	\$ 690	
Supplies	\$ 6,640	Misc. supplies for sampling and monitoring (probes, standards, sample bottles, etc.)
Contractual*	\$ 0	N/A
Construction	\$ 0	N/A
Other	\$ 87,250	Lab costs for sample analysis at water quality labs, shipping
Indirect	\$ 20,480	Non-standard USGS Indirect Rate 15%

<b>Budget Justification (Non-Federal)*</b>		
Category	Total Amount	Justification
Personnel	\$ 52,555	Senior Research Scientist 218K @ average of 1% FTE/year over three years GBEP Match @ \$40,354

Fringe Benefits	\$ 25,226	Based on actual fringe benefit costs at 48% of salaries with adjustment for possible increases in future years to maximum of 49%.
Travel	\$ 0	N/A
Equipment	\$ 0	N/A
Supplies	\$ 0	N/A
Contractual*	\$ 0	N/A
Construction	\$ 0	N/A
Other	\$ 6,310	IT & Facilities Fee: \$6/manhour. This IT and Facilities Fee is a proportionate share of the IT costs (servers, software licenses, user support, etc.) and building costs (maintenance, utilities, depreciation, etc.) in support of the project.
Indirect	\$ 124,264	HARC's approved IDC rate is 53% of modified total direct costs, but for this project HARC is voluntarily limiting the indirect cost reimbursement to 15% MTDC. HARC will provide an additional 38% IDC (over the 15%) as match. The full IDC on the Non-Federal funds, at 53%, is \$44,568, and the unfunded IDC related to the Federal fund, at 38%, is \$79,696.

