Texas State Soil and Water Conservation Board
Clean Water Act §319(h) Nonpoint Source Grant Program
FY 2013 Workplan 13-03

SUMMARY PAGE						
Title of Project	Continued Restoration of the Coastal Prairie Wetland at Sheldon Lake State Park					
Project Goals	• Support implementation of the Galveston Bay Plan by restoring approximately 57.2 acres of coastal prairie wetlands at Sheldon Lake State Park • Utilize innovative BMPs to demonstrate cost-efficient water quality abatement through wetland restoration • Engage citizens in water resources management through direct involvement in wetland restoration work to increase knowledge about function of wetlands • Promote adoption of wetland restoration by other entities through the use of field days and educational materials • Coordinate and conduct water resources and related environmental outreach/education efforts across the watershed					
Project Tasks	(1) Project Administration and Coordination; (2) Wetland Plant Propagation; (3) Wetland Restoration; (4) Outreach and Education					
Measures of Success	• Approximately 57.2 acres of restored coastal prairie wetlands • 35,000 native plants propagated and planted into the restored plants • Reduction in nutrient, sediment and bacteria loads • Trained Texas Master Naturalist volunteers who will complete the on-the-ground restoration work • Number of individuals participating in on-the-ground restoration work • Increased citizen knowledge and understanding about the nature and function of wetlands • Increase in wetland restoration by other entities in the Galveston Bay area					
Project Type	Implementation (X); Education (X); Planning ( ); Assessment ( ); Groundwater ( )					
Status of Waterbody on *2010 Texas Integrated Report*	Segment ID 1006B	Parameter of Impairment or Concern		Category 3		
Project Location (Statewide or Watershed and County)	Sheldon Lake State Park in Carpenters Bayou Watershed in Harris County					
Key Project Activities	Hire Staff ( ); Surface Water Quality Monitoring ( ); Technical Assistance ( ); Education (X); Implementation (X); BMP Effectiveness Monitoring ( ); Demonstration (X); Planning ( ); Modeling ( ); Bacterial Source Tracking ( ); Other ( )					
2012 Texas NPS Management Program Reference	• Component 1 – LTG Objectives 1, 2, 5, 6, 7, 8 • Component 1 – STGs 2B, 3A, 3D, 3F, 3G • Components 2, 4					
Project Costs	Federal	$404,204	Non-Federal	$235,548	Total	$639,752
Project Management	• Texas A&M AgriLife Extension Service					
Project Period	October 1, 2013 – September 30, 2016					

Part I – Applicant Information

Applicant							
Project Lead	John Jacob						
Title	Professor and Extension Environmental Quality Specialist						
Organization	Texas A&M AgriLife Extension Service						
E-mail Address	jjacob@tamu.edu						
Street Address	1250 Bay Area Blvd, Ste C						
City	Houston	County	Harris	State	TX	Zip Code	77058
Telephone Number	281-218-0565			Fax Number	281-218-6352		

Applicant							
Co-PI	Marissa Sipocz						
Title	Wetland Program Manager						
Organization	Texas A&M AgriLife Extension Service						
E-mail Address	m-sipocz@tamu.edu						
Street Address	1250 Bay Area Blvd, Ste C						
City	Houston	County	Harris	State	TX	Zip Code	77058
Telephone Number	281-218-6253			Fax Number	281-218-6352		

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 Extension Service, Texas Sea Grant Program (Extension)	Provide staff to complete restoration project and educational outreach associated with the project.
Texas Parks and Wildlife Department (TPWD)	Provide state park land (Sheldon Lake State Park) for restoration project and staff support for the wetland restoration and water quality assessment.
Texas Master Naturalist Program (TMN)	Provide volunteer labor and support for the entire wetland propagation and restoration project as well as the student outreach portions.

Part II – Project Information

Project Type							
Surface Water	X	Groundwater					
Does the project implement recommendations made in (a) a completed WPP, (b) an adopted TMDL, (c) an approved I-Plan, (d) a Comprehensive Conservation and Management Plan developed under CWA §320, (e) the *Texas Coastal NPS Pollution Control Program*, or (f) the *Texas Groundwater Protection Strategy*?				Yes	X	No	
If yes, identify the document.	The Galveston Bay Plan, a Comprehensive Conservation and Management Plan developed under the auspices of the National Estuary Program (CWA §320)						
If yes, identify the agency/group that developed and/or approved the document.	Galveston Bay Council as facilitated by the Galveston Bay Estuary Program (TCEQ)		Year Developed	1994			

Watershed Information				
Watershed or Aquifer Name(s)	Hydrologic Unit Code (12 Digit)	Segment ID	Category on 2010 IR	Size (Acres)
Carpenters Bayou	120401040702	1006B	3	24,205

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: *2010 Texas Integrated Report*, Clean Rivers Program Basin Summary/Highlights Reports, or other documented sources.

2010 Texas Index of Water Quality Impairments and 303(d) List

- 1006_07 Carpenters Bayou (tidal) for dioxin and PCBs
  - A TMDL is underway, scheduled, or will be scheduled.
- 1006B Carpenters Bayou (freshwater, above tidal)
  - Not assessed
  - Waterbody not included on 2010 TWQI because no data collected on segment during period of record
  - Category 3 – insufficient or no data and information to determine if any standard is attained
- 1006 Houston Ship Channel Tidal
  - receiving waterbody for Carpenters Bayou (1006B and 1006_07)
  - Category 4b – chlordane, dieldrin, heptachlor epoxide
  - Category 5a – dioxin, PCBs

2010 HGAC Basin Highlights Report

The main stem of the Houston Ship Channel does not meet state standards for fish and crab consumption due to the detection of PCBs and dioxin in their tissues. In addition, bacteria impairments and nutrient concerns continue to remain a concern within the main stem of the Houston Ship Channel prohibiting safe contact recreation use in non-tidal portions of tributaries within the watershed.

Project Narrative

Problem/Need Statement

Galveston Bay is an estuary of national importance and, through the federal CWA §320, is included in the National Estuary Program administered by the EPA. Based on historical topographic maps and 1930s aerial photographs, approximately 25 to 30% of the surface area of the Coastal Prairie Ecosystem (Clay Plain Ecosystem) (Smeins et al, 1991) consisted of freshwater marshes embedded in tall grass prairie. These wetlands provided important ecological services including habitat, flood buffering and water quality abatement. The majority of the wetland acreage was lost to agricultural uses and more recently, commercial development (i.e., urban sprawl). Development of the landscape has resulted in decreasing habitat and increasing water quality issues. The cumulative loss of water quality and flood storage functions from the rapid disappearance of these wetlands has detrimentally affected water quality and flood attenuation in the Galveston Bay watershed (Forbes, Doyle, et. al). Restoration of these wetlands will provide much needed water quality abatement of pollutants, as well as, restore critical habitat for this region.

Sheldon Lake State Park & Environmental Learning Center is a 2,800 acre outdoor education and recreation facility located in northeast Harris County (as shown in the map provided in the general project description). Sheldon Reservoir, located on Carpenters Bayou, a tributary of Buffalo Bayou, was constructed in 1942 by the federal government to provide water for war industries along the Houston Ship Channel. TPWD acquired the reservoir in 1952 and designated it as the Sheldon Wildlife Management Area, and was opened to the public in 1955. Sheldon Lake was designated a state park in 1984. Formerly in the "country," Sheldon Lake has survived a tremendous influx of urbanization over the past 50 years as Houston has grown. Sheldon Lake is now a green and blue "oasis" for wildlife and people on the edge of Texas' largest city. (TPWD, http://www.tpwd.texas.gov/state-parks/sheldon-lake). Sheldon Lake State Park was once coastal prairie and pine/oak savanna dotted and crossed by circular and linear marsh basins. Rice farming and reservoir construction filled or drained almost all of the prairie wetlands in the park area. TPWD, in partnership with Extension, is now restoring the park's agricultural lands to pre-settlement condition prairie and wetland for the conservation of native plant and animal populations and to restore ecological functions, including water quality amelioration.

Phase I of the Restoration project was an experiment to test the feasibility of re-excavating buried marsh topsoils. Extension carefully removed fill material to expose the original wetland topsoil and restored hydrology to 10 acres of marsh within 100 acres of prairie, in 2004. The wetlands and surrounding uplands were planted with native vegetation. All excavated soils were used on-site or placed in upland areas within existing agricultural fields. Phase I of the restoration was successful and is now the template for regional wetland mitigation projects. As part of the on-going restoration and education effort, Phase I is visited by hundreds of Houston area students and citizens each year.

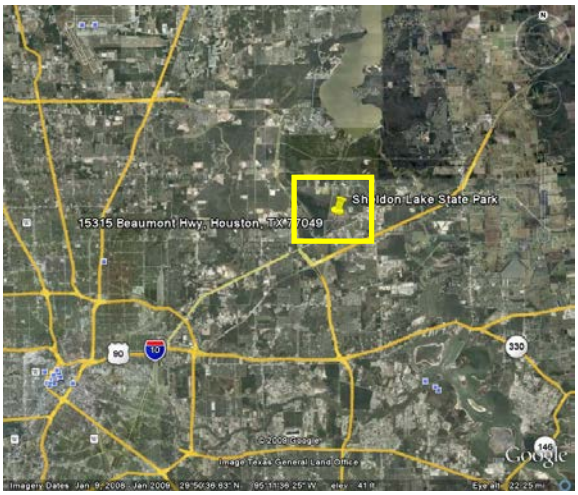
In 2011, TSSWCB project #10-05, Coastal Prairie Wetland Restoration at Sheldon Lake State Park funded portions of Sheldon Lake Prairie Wetland restoration Phase II and III and are expected to be completed as scheduled by August 2013. Phase IV is the final segment of restoration for the park's southern management units. The completion of all 4 phases of this project will have measurable impacts on the water quality of Carpenters Bayou and its receiving waterbodies. Very importantly, a significant piece of habitat critical to this region will have been restored. This project addresses the following priority actions from the *Galveston Bay Plan*:

- HP-1 Restore, create, and protect wetlands
- WSQ-6 Reduce nutrient and BOD loadings to problem areas
- NPS-11 Implement agricultural NPS control programs
- PPE-5 Continue to develop effective volunteer opportunities for citizens

Project Narrative

General Project Description (Include Project Location Map)

This project will restore an additional 57.2 acres of seasonal and semi-permanent marsh and tall-grass prairie at Sheldon Lake State Park, which includes 8.1 acres of excavated revegetated basins and 49.1 acres of tallow-cleared basins. The property is wholly within Sheldon Lake State Park and is to remain in TPWD ownership in perpetuity. The park's Interpretive Master Plan shows the restoration site to be used as native prairie and wetland habitat with a nature trail winding through the upland portion.



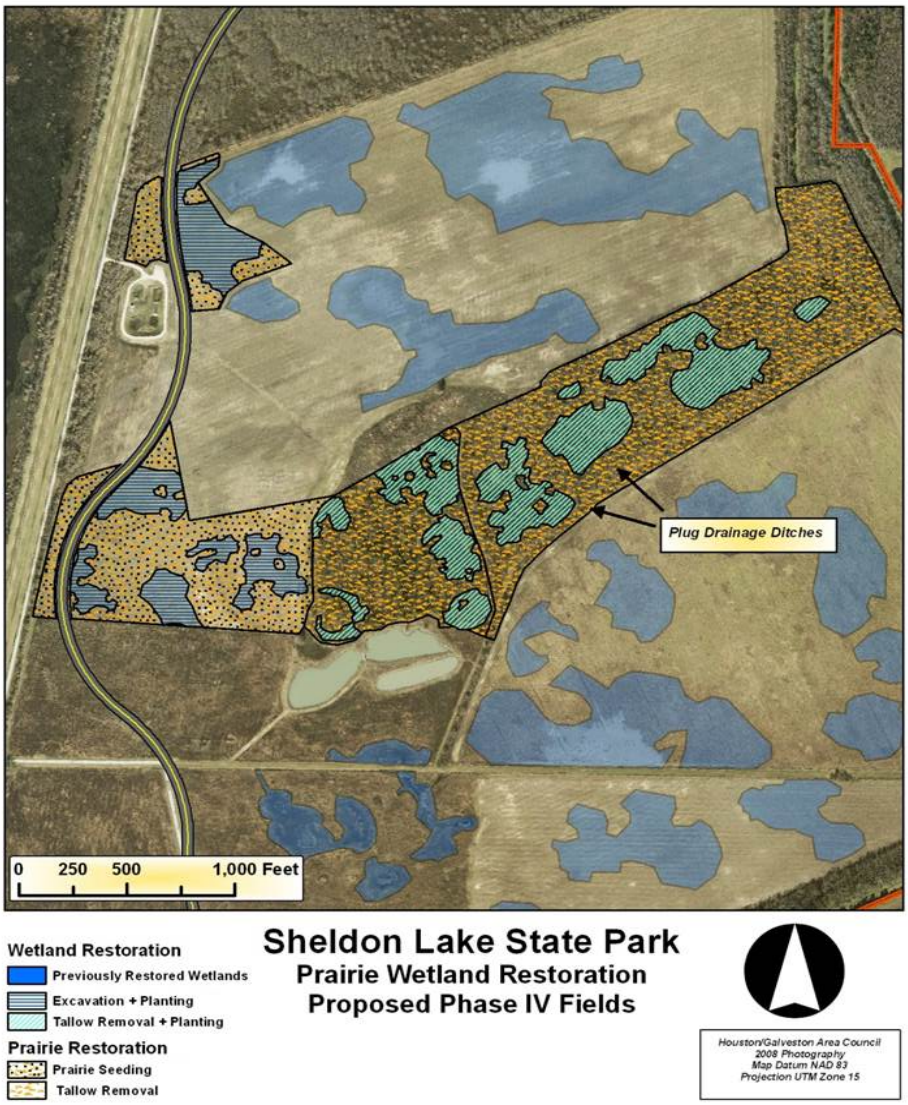
The fields (all phases) are considered prior converted (PC) lands, a designation made by Natural Resource Conservation Service, under the federal 1985 Food Security Act. Extension and TPWD will consult with Army Corps of Engineers as to any CWA requirements that may arise from the loss of the PC exemption specific to wetlands and waters of the US so as to ensure compliance with federal regulations. Extension and TPWD will also consult with Harris County Flood Control District to ensure compliance with floodplain regulations.

All restoration activities will be managed and coordinated by the Wetland Restoration Team (Team), a partnership between Extension and the TMN Program. The Team is a group of trained TMN volunteers who specialize in wetland education and restoration. The Team was responsible for the wetland planting during Phase I, II and III of the restoration project. Trained mentors from the Team work with local school and other volunteer groups by providing the knowledge and experience about the restoration process. The mentors provide individual guidance as well as act as quality control for the restoration.

Restored wetlands should largely be vegetated by the end of the second growing season following project initiation, barring severe drought conditions which would inhibit establishment of the vegetation. Restoration of these wetlands at Sheldon Lake State Park will store or detain rainfall runoff, remove pollutants from surface waters, and thus improve Carpenters Bayou (and therefore Buffalo Bayou) water quality and reduce downstream flood levels. This project will demonstrate the use and success of restoring wetlands to treat potential constituent pollutants in agricultural settings.

Extension and TPWD will produce an engineering design for this restored wetland system which is consistent with NRCS conservation practice standards for Wetland Restoration (657) and Constructed Wetland (656), and consistent with the plans from previous Phases of the project. Extension and TPWD will utilize the operation and maintenance plan, as developed under TSSWCB project 10-05, for the restored wetland for the designed life of the restored wetland.

The project will restore 57.2 acres of freshwater coastal prairie wetlands (see inset map on page 6). It will be necessary to propagate at least 35,000 native wetland plants. These 35,000 plants will then be installed into the excavated pond areas to restore the wetlands to their pre-settlement condition. Extension will conduct quarterly vegetation transects, as established under TSSWCB project #10-05, to quantify wetland plant stand establishment and changes within the plant community.



Extension and TPWD will conduct field days at the restored wetland site to highlight the innovative construction methods and utility of the restored wetland targeted to various audiences. Extension will make presentations on the restored wetland at local and regional meetings, including Galveston Bay Council and subcommittee meetings, Clean Rivers Program Basin Steering Committee meetings, TMN Program meetings, and watershed stakeholder meetings for certain TMDLs (i.e., Houston area Bacteria Implementation Group) and WPPs. Extension will also host and maintain a project webpage for the public dissemination of project materials through the life of the Wetland Program and its partnership with TPWD.[http://tcwp.tamu.edu/wetland-restoration/sheldon-lake-prairie-wetland-restoration-project/].

Tasks, Objectives and Schedules						
Task 1	Project Administration and Coordination					
Costs	Federal	$ 115,265	Non-Federal	$ 32,414	Total	$ 147,679
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	Extension 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 15th 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	Extension 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	Extension 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. Extension 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	Extension will host and maintain a project webpage for the public dissemination of project materials.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 1.5	Extension will develop a Final Report that summarizes activities completed, conclusions reached and discusses the extent to which project goals and measures of success have been achieved.					
	Start Date	Month 33	Completion Date	Month 36		
Deliverables	• QPRs in electronic format • Project website • Reimbursement Forms and necessary documentation in hard copy format • Final Report in electronic and hard copy formats					

Tasks, Objectives and Schedules						
Task 2	Wetland Plant Propagation					
Costs	Federal	$ 78,871	Non-Federal	$ 82,953	Total	$ 161,824
Objective	To collect and propagate native wetland vegetation.					
Subtask 2.1	Extension will collect local native wetland plants (within 50 mile radius of Sheldon Lake State Park) to restore the wetland site. Collection will be conducted using ecologically sound methodologies to ensure the integrity of native wild populations.					
	Start Date	Month 1	Completion Date	Month 33		
Subtask 2.2	Extension will propagate all collected native wetland plants. All plants will remain on Sheldon Lake State Park property.					
	Start Date	Month 1	Completion Date	Month 33		
Deliverables	• Approximately 35,000 native wetland plants propagated					

Tasks, Objectives and Schedules						
Task 3	Wetland Restoration					
Costs	Federal	$ 128,246	Non-Federal	$ 82,953	Total	$ 211,199
Objective	To restore 57.2 acres of prairie wetland matrix on Sheldon Lake State Park.					
Subtask 3.1	Extension will work with TMN Program to train Wetland Restoration Team members to be mentors for the restoration process. Training will include classroom (at the Regional Park office facilities) and field instruction as well as practicals (i.e. outdoor labs). Extension will coordinate with TMN Program to prepare mentors for completing restoration (planting) of constructed site.					
	Start Date	Month 1	Completion Date	Month 33		
Subtask 3.2	Extension and TPWD will produce an engineering design for this restored wetland system. The design will be consistent with the methods of the previous wetland restoration completed within Phase II and III. The design shall be consistent with Natural Resource Conservation Service (NRCS) Conservation Practice Standards for Wetland Restoration (657) and Constructed Wetland (656).					
	Start Date	Month 1	Completion Date	Month 12		
Subtask 3.3	TPWD, with the assistance of Extension, shall obtain all necessary local, state, and federal permits that apply before the restoration is conducted. Texas water rights permits and Clean Water Act § 401/404 permits may be required.					
	Start Date	Month 1	Completion Date	Month 6		
Subtask 3.4	Extension will contract to complete the excavation of the wetland basins.					
	Start Date	Month 6	Completion Date	Month 12		
Subtask 3.5	Extension will contract for the tallow clearing in the existing wetland basins and the prairie wetland matrix within the Phase IV boundaries.					
	Start Date	Month 6	Completion Date	Month 12		
Subtask 3.6	Extension and TMN Program will plant the constructed restoration site and tallow-cleared wetland basins with propagated local native wetland plants. Trained mentors and student volunteers will help provide the planting services.					
	Start Date	Month 12	Completion Date	Month 33		
Subtask 3.7	Extension will conduct vegetation transects to determine wetland plant stand establishment. Criteria for determining stand establishment shall be consistent with the engineering design and NRCS Conservation Practice Standards and existing TPWD protocol for vegetation monitoring within the wetland complex.					
	Start Date	Month 12	Completion Date	Month 33		
Subtask 3.8	TPWD will continue to implement the Operation & Maintenance Plan (developed in TSSWCB project #10-05) for the designed life of the restored wetland. The Operation and Maintenance Plan will be updated to address new issues, such as tallow regrowth in Phase IV.					
	Start Date	Month 1	Completion Date	Month 36		
Deliverables	• Restored 57.2 acres of freshwater wetlands • Copies of permits or approvals acquired for the project • Vegetation transects					

Tasks, Objectives and Schedules						
Task 4	Outreach and Education					
Costs	Federal	$ 81,822	Non-Federal	$ 37,228	Total	$ 119,050
Objective	To demonstrate the water quality benefits of the restored wetland system through field days, presentations at stakeholder meetings, and dissemination of educational materials.					
Subtask 4.1	Extension and TPWD will conduct a minimum of 3 field days at the restored wetland site and Regional Park office facilities (1 per year) to highlight the innovative construction methods and utility of the restored wetland. Targeted audiences should include 1) other entities in the Galveston Bay area considering conducting wetland restoration, 2) TPWD staff from other State Parks, and 3) media including TV and newspapers.					
	Start Date	Month 13	Completion Date	Month 36		
Subtask 4.2	Extension will make presentations on the restored wetland at local and regional meetings, including 1) Galveston Bay and Estuary Program meetings, 2) TSSWCB Southeast and South Central Texas Regional Watershed Coordination Steering Committee, 3) Houston-Galveston Area Council Natural Resources and Agriculture Council, Clean Rivers Program, and Bacteria Implementation Group meetings 4) the Annual Meeting of Soil and Water Conservation Districts, and other potential conferences where appropriate.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 4.3	Extension will develop and disseminate project informational materials related to the wetland restoration project, including, but not limited to, flyers, brochures, letters, news releases, and other appropriate outreach materials. TSSWCB must approve all announcements, letters and publications prior to distribution. In addition, all outreach material will be available on the project website: tcwp.tamu.edu, and Extension will regularly update the website and post weekly blogs on the project status.					
	Start Date:	Month 6	Completion Date:	Month 36		
Subtask 4.4	Extension will produce an article for inclusion in the quarterly *TPWD Wetland News*.					
	Start Date	Month 1	Completion Date	Month 36		
Deliverables	• Promotional materials, notices, agenda and attendance lists for field days • Presentations at local and regional meetings, as developed and presented • Project informational materials, as developed and disseminated					

Project Goals (Expand from Summary Page)
• Support the implementation of the Galveston Bay Plan and the Sheldon Lake State Park Interpretive Master Plan by restoring 57.2 acres of coastal prairie wetlands at Sheldon Lake State Park • Utilize innovative construction methods as part of the demonstration project, showing cost-efficient NPS pollution abatement per acre of restored wetland • Engage citizens in community and watershed-level land and water resources management through direct involvement in wetland restoration work and dissemination of educational materials to increase knowledge about the nature and function of wetlands • Promote adoption of wetlands restoration by entities in the Galveston Bay area through field days and dissemination of educational materials in order to restore ecosystem function and abate NPS pollution • Coordinate and conduct water resources and related environmental outreach/education efforts across the watershed

Measures of Success (Expand from Summary Page)
• Restoration of 57.2 acres of coastal prairie wetlands at Sheldon Lake State Park • Propagation of at least 35,000 native wetland plants and subsequent successful vegetative establishment at wetland restoration site • Reduction in nutrient, sediment and bacteria loads to receiving waterbody from the restored wetland system • Number of trained TMN volunteers who will complete the on-the-ground restoration work • Number of individuals participating in field days and on-the-ground restoration work • Increased impact of educational programming through increased citizen knowledge and understanding about the nature and function of wetlands • Increase in wetland restoration by other entities in the Galveston Bay area for NPS pollution abatement (long-term measure may not be quantifiable during this project)

***2012 Texas NPS Management Program* Reference (Expand from Summary Page)**
Components, Goals, and Objectives
Component 1 – Explicit short- and long-term goals, objectives and strategies that protect surface… water.
Long Term Goal Objective 1 – Focus NPS abatement efforts, implementation strategies, and available resources in watersheds and aquifers identified as impacted by NPS pollution.
Long Term Goal Objective 2 – Support the implementation of state, regional, and local programs to prevent NPS pollution through assessment, implementation, and education.
Long Term Goal Objective 5 – Support implementation of state, regional, and local programs to reduce NPS pollution in the coastal management zone through the *Texas Coastal NPS Pollution Control Program*.
Long Term Goal Objective 6 – Develop partnerships [and] relationships… to facilitate collective, cooperative approaches to manage NPS pollution.
Long Term Goal Objective 7 – Increase overall public awareness of NPS issues and prevention activities.
Long Term Goal Objective 8 – Enhance public participation and outreach by providing forums for citizens… to contribute their ideas and concerns about the water quality management process.
Short Term Goal Two – Implementation – Objective B – …implement BMPs to address constituents of concern… in watersheds identified as impacted by NPS pollution.
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.
Short Term Goal Three – Education – Objective D – Conduct outreach through AgriLife Extension… 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.
Short Term Goal Three – Education – Objective F – Implement outreach and education activities identified in the *Texas Coastal NPS Pollution Control Program* to prevent and abate NPS impacts to coastal resources.
Short Term Goal Three – Education – Objective G – Implement public outreach and education to maintain and restore water quality in waterbodies impacted by NPS pollution.
Component 2 – Working partnerships to appropriate state, regional, and local entities, private sector groups, and federal agencies.
Component 4 – Abatement of water quality impairments from NPS pollution and prevention of significant threats to water quality from present and future NPS activities.

Estimated Load Reductions Expected

Wetlands provide a sediment retention and nutrient removal system that uses natural chemical, physical and biological processes involving wetland vegetation, soils and their associated microbial populations to improve water quality (Waidler, et al). There are few quantitative data available to estimate the pollutant reduction and flood storage effectiveness of small freshwater wetlands; and, there is little water quality data on coastal freshwater wetlands in general, and linkages between these functions and downstream waterbodies are largely theoretical (Forbes, Doyle, et al). However, the following pollutant removal efficiencies are presented:

Median Pollutant Removal Efficiency, Stormwater Treatment Wetlands	
Pollutant	Median %
Total Suspended Solids	72
Total Phosphorus	48
Solubel Phosphorus	25
Total Nitrogen	24
Nitrate/Nitrite	67
Bacteria	78

From *Stormwater Wetlands for the Texas Gulf Coast* (Texas Sea Grant; 2009)

Pollutant Removal Efficiency, Wetland Creation	
Pollutant	%
Sediment	77.5
Phosphorus	44
Nitrogen	20

From *Conservation Practice Modeling Guide for SWAT and APEX* (Waidler, et al; 2009)

Estimated load reductions expected from implementing BMPs through this project (restored wetland) would be based on known, existing pollutant loading to Carpenters Bayou and the above pollutant removal efficiencies. However, no current water quality data exist for this waterbody (freshwater, above tidal) and no modeling has been conducted to estimate pollutant loading from this watershed.

Effectiveness of particular BMPs in reducing pollutants is dependent on a myriad of factors including natural weather phenomena and the ability of landowners to correctly install, operate, maintain or manage the BMP. With these factors in mind, the general pollutant removal efficiencies to be expected, as presented above, should be regarded as the "best case scenario" with probability that actual reductions will be less.

The mechanism for reporting pollutant load reductions achieved through implementation of BMPs funded with CWA §319(h) monies, is through the EPA Grants Reporting and Tracking System (GRTS). Actual load reductions achieved can only be reported after the BMPs are installed and operational. Currently, EPA Program Activity Measures (PAMs) only call for load reductions achieved for nitrogen, phosphorus, and sediment. Nitrogen, phosphorus, and sediment load reductions achieved through this project will be reported through GRTS.

EPA State Categorical Program Grants – Workplan Essential Elements ***FY 2011-2015 EPA Strategic Plan* Reference**
Strategic Plan Goal – Goal 2 Protecting America's Waters
Strategic Plan Objective – Objective 2.2 Protect and Restore Watersheds and Aquatic Ecosystems

Part III – Financial Information

Budget Summary			
Federal	$ 404,204	% of total project	63%
Non-Federal	$ 235,548	% of total project (≥ 40%)	37%
Total	$ 639,752	Total	100%

Category	Federal	Non-Federal	Total
Personnel	$ 211,534	$ 9,742	$ 221,276
Fringe Benefits	$ 62,802	$ 3,117	$ 65,919
Travel	$ 20,096	$ 0	$ 20,096
Equipment	$ 0	$ 0	$ 0
Supplies	$ 5,000	$ 0	$ 5,000
Contractual	$ 49,000	$ 0	$ 49,000
Construction	$ 0	$ 0	$ 0
Other	$ 3,050	$ 181,646	$ 184,696
Total Direct Costs	$ 351,482	$ 194,505	$ 545,987
Indirect Costs (≤ 15%)	$ 52,722	$ 41,043	$ 93,765
Total Project Costs	$ 404,204	$ 235,548	$ 639,752

Budget Justification (Federal)		
Category	Total Amount	Justification
Personnel	$ 211,534	Project Manager @ 0.5 FTE for year 1, 1.0 FTE for years 2 and 3 ($125,877) Project Assistant @ 0.5 FTE for years 1 through 3 ($52,082) Office Manager @ 0.20 FTE for 3 years ($31,335) Student Intern @ $14/hr for 1 month ($2,240)
Fringe Benefits	$ 62,802	Benefits for Faculty/Staff include 17.4% Fringe of Salary per effort plus $474/mo/FTE group health insurance.
Travel	$ 20,096	Mileage reimbursement accrued through project functions/workdays (for both State vehicle and Project Manager/Assistant personal vehicle). Approximately, 12 round trips to the State Park each month (56 miles per trip at $0.56/mile) for 36 mos; Toll charges (EZ tag) for the state van ($168/month for 18 mos). Education/Outreach trips to the outreach location (approximately 100 miles per month ($0.56/mile)). Additional travel expenses to attend meetings/conferences ($1,508).
Equipment	$ 0	N/A
Supplies	$ 5,000	Office supplies include, but are not limited to, pens, pencils, paper, printer cartridges/toners, laminating supplies, folders, mailing labels, flash drives, software, imaging units, markers, printable business cards, postage labels, batteries, index cards, post-it notes, highlighters, mouse pads, transfer belt for printers and sheet protectors. ($50/month for 30 months = $1,200) Restoration supplies include gloves and boots for volunteers, soil knives, shovels and muck buckets for planting/collection. (Estimate $75/mo for 36 months = $2,700);; Wetland Team Uniforms for volunteers ($800)
Contractual	$ 49,000	• Contractual Services for clearing of the Chinese tallow ($7,041) • Contractual Services for herbicide treatment of the restoration area ($6,959) • Contractual Services for excavation of the wetland basins ($35,000)
Construction	$ 0	N/A
Other	$ 3,050	Meeting and conference registration fees (e.g., International Conference on Environmental Science and Technology, Restore America's Estuaries annual conference and Conference on Ecological and Ecosystem Restoration) @ $483/yr; postage @ $75/yr; Equipment maintenance for Gator @ $125/year; Misc. Restoration Supplies ($1,000)
Indirect	$ 52,722	15% IDC Direct (of total federal direct costs)

Budget Justification (Non-Federal)		
Category	Total Amount	Justification
Personnel	$ 9,742	Professor and Extension Environmental Quality Specialist @ 0.12 FTE for 3 years
Fringe Benefits	$ 3,117	Benefits for Faculty/Staff include 17.4% Fringe of Salary per effort plus $474/mo/FTE group health insurance.
Travel	$ 0	N/A
Equipment	$ 0	N/A
Supplies	$ 0	N/A
Contractual	$ 0	N/A
Construction	$ 0	N/A
Other	$ 181,646	o Texas Master Naturalist Volunteers $75,660 Trained labor from TMN volunteers for approximately 1,141 hours at $16.92/hr annually ($57,916); o Trained labor from TMN volunteers for approximately 135 hours at $25.63/hr annually ($10,379); o Volunteer botanist assistance for 64 hours at $38.36/hr annually ($7,365); Texas Parks & Wildlife Department $97,021 o Assistance from Sheldon Lake State Park staff ($24,734) o Regional Park Biologist per Task 3 and 4 ($2,537); o Use of the Regional office facilities for conducting meetings and classes ($15,750); o Use of Park facilities for generating all restoration plant stock ($54,000) Funds from Natural Resource Damage Assessment Team towards Task 4 ($8,965)
Indirect	$ 41,043	$11,809 Non-Federal Match based on DHHS approved Standard Off-Campus IDC rate of 24% of MTDC for Texas A&M AgriLife Extension Service. $29,234 Unrecovered IDC based on the 9% difference of Fed Funds 15% IDC on TDC and the Standard entity rate of 24%.