

FISCAL 2017 ANNUAL WORK PLAN



A PROGRAM OF THE TCEQ

May 2016

TABLE OF CONTENTS (CTRL+CLICK TO FOLLOW LINK)

LIST OF ABBREVIATIONSiii

SECTION 1: PROGRAM OVERVIEW 1

SECTION 2: INTRODUCTION 3

 SECTION 2.1: GBEP ORGANIZATIONAL STRUCTURE 4

 SECTION 2.2: FISCAL 2016 GOALS AND ACCOMPLISHMENTS 9

 SECTION 2.3: STRATEGIC ACTION PLAN GOALS TO FOCUS ON IN FISCAL 2017 18

SECTION 3: FISCAL 2017 PROJECTS..... 20

 SECTION 3.1: FISCAL 2017 FEDERAL PROJECTS BY PROGRAM ELEMENT 20

 SECTION 3.2: FISCAL 2017 FEDERAL PROJECT DESCRIPTIONS..... 21

 SECTION 3.3: FISCAL 2017 GRANT BUDGET SPREADSHEET 29

SECTION 4: COMPLETED MAJOR PROJECTS..... 33

 SECTION 4.1: MAJOR PROJECTS COMPLETED IN FISCAL 2016 33

LIST OF ABBREVIATIONS

Table 1. Abbreviations List

Name	Abbreviation
American Recovery and Reinvestment Act	ARRA
Association of National Estuary Programs	ANEP
Bacteria Implementation Group	BIG
Best Management Practice	BMP
Clean Water Act	CWA
Coastal Impact and Assistance Program	CIAP
Comprehensive Conservation and Management Plan	CCMP
Conservation Assistance Program	CAP
Fats, Oils, and Grease	FOG
Freshwater Inflows Action Plan	FW
Galveston Bay Bacteria Reduction Plan	GBBRP
Galveston Bay Council	GBC
Galveston Bay Coalition of Watersheds	GBCW
Galveston Bay Estuary Program	GBEP
Galveston Bay Foundation	GBF
Galveston Bay Plan	GBP
<i>Galveston Bay Public Awareness and Education Campaign</i>	<i>Back the Bay</i>
GeoTechnology Research Institute	GTRI
Habitat Protection Action Plan	HP
Harmful Algal Bloom	HAB
Houston Advanced Research Center	HARC
Houston-Galveston Area Council	H-GAC
Imaging Flow Cytobot	IFCB
Implementation Plan	I-Plan
Monitoring and Research	M&R
National Broadcasting Company	NBC
National Estuary Program	NEP
National Wildlife Refuge	NWR
Natural Resource Uses	NRU

Name	Abbreviation
Nonpoint Source	NPS
Point Sources of Pollution Action Plan	PS
Public Participation and Education	PPE
Public Service Announcement	PSA
Quality Assurance Project Plan	QAPP
Research Action Plan	RSC
Restore America's Estuaries	RAE
Shoreline Management Action Plan	SM
Species Population Protection Action Plan	SP
Spills and Dumping Action Plan	SD
Texas A&M University	TAMU
Texas A&M University Galveston	TAMUG
Texas Commission on Environmental Quality	TCEQ
Texas Department of State Health Services	DSHS
Texas Estuarine Resource Network	TERN
Texas General Land Office	GLO
Texas Parks and Wildlife Department	TPWD
Texas State Soil and Water Conservation Board	TSSWCB
Texas Water Development Board	TWDB
Total Maximum Daily Load	TMDL
U.S. Environmental Protection Agency	EPA
United States Geological Survey	USGS
Water Quality Improvement Project	WQIP
Water and Sediment Quality	WSQ
Watershed Protection Plan	WPP

SECTION 1: PROGRAM OVERVIEW

The initial application is for three years of time and one year of funding with the intent to request another year of time and funding each year for the next two years. The Texas Commission on Environmental Quality (TCEQ) has found this method is most effective for successful operation and coordination of the Galveston Bay Estuary Program (GBEP).

Galveston Bay is the largest and one of the most productive estuaries in Texas. It sits adjacent to one of the most heavily industrialized areas in the nation. The GBEP service area encompasses 232 miles of estuarine shoreline along the upper Texas Coast and incorporates the 5-county area bordering Galveston Bay: Liberty, Chambers, Harris, Galveston, and Brazoria counties.

The GBEP was established in 1989 to provide comprehensive management of this vital resource. In 1990, the GBEP began working with a diverse group of stakeholders to develop a comprehensive plan that would receive broad based support from and involvement by federal and state agencies with jurisdiction in Galveston Bay, industries and businesses, local government officials, commercial and recreational fisherman, conservation organizations, and citizens. In 1994, the Galveston Bay Plan (GBP), the comprehensive conservation and management plan (CCMP), was completed, and in 1995 it was approved by the Governor of Texas and the U.S. Environmental Protection Agency (EPA) Administrator. The initial effort was jointly funded by the EPA, the Texas General Land Office (GLO), and the TCEQ.

The GBP identifies 82 action items to protect and restore the health and productivity of the estuary while supporting continued economic growth and public use of the Galveston Bay. The GBEP received a grant from the EPA to begin implementing the GBP in 1995. This grant ran from fiscal 1995 – 1999 and is now closed. Subsequent grants have run from fiscal 2000 – 2003, fiscal 2004 – 2007, fiscal 2008 – 2010, and fiscal 2011 – 2015. Currently the fiscal 2014 – 2018 grant is open but is no longer receiving allocations. Over 200 implementation projects have been initiated under these grants.

The GBEP and its partners have received 15 national awards for its partnerships and progress in implementing the GBP and preserving Galveston Bay.

Pre-2008 AWARDS

- Four awards from Coastal America: one in 1999, Clear Creek Habitat Restoration project, for the beneficial use of dredge material, one in 2002 for Galveston Island State Park habitat restoration, one in 2003 for habitat restoration at Jumbile Cove, and one in 2005 for San Jacinto State Park for beneficial use of dredge material.
- Recognition award from the National Aeronautics and Space Administration for Galveston Bay estuary restoration and five years of implementation of the GBP.
- National Wetland Conservation Award for the Delehide Cove Protection and Restoration project from the U.S. Fish and Wildlife Service in 2006.
- The EPA Gulf of Mexico Program Gulf Guardian Partnership Award for the Brays Bayou Urban Wetlands project.
- The Fisheries and Habitat Conservation Partnership award for the cumulative habitat conservation work on the part of the Natural Resource Uses (NRU) subcommittee.
- Two EPA Gulf of Mexico Program Gulf Guardian Awards to GBEP partners, including an award in the non-profit category to SCENIC GALVESTON for the Virginia Point Coastal Preserve; in which the GBEP played an instrumental role, and an award in the individual category to Dick Benoit, a highly active local citizen.

2008-PRESENT AWARDS

- The EPA Gulf of Mexico Program was awarded the First Place Gulf Guardian Award in the Partnership category for the East Bay Shoreline Protection project.

- Department of Interior's Collaborative Conservation award for the East Bay Shoreline Protection project.
- The EPA's Gulf of Mexico Program Gulf Guardian Partnership Award for the North Deer Island Protection project.
- The Coastal America Partnership Award for the North Deer Island Protection project.
- The Coastal America Partnership Award for the Savannah Oaks Conservation project.

SECTION 2: INTRODUCTION

The GBEP, a special non-regulatory program of the TCEQ, is a partnership of local governments, business and industry, conservation organizations, bay user groups, and resources agencies. The GBEP is charged with implementing the GBP, the CCMP for Galveston Bay. The GBEP is part of the TCEQ's Office of Water, Water Quality Planning Division. A program manager and staff of six located in the Houston-Galveston area directly oversee implementation of the GBP. Program staff responsibilities are as follows:

- acquire, manage, and disburse funds to implement specific actions in the GBP;
- provide for coordination and communication among state and federal resource agencies for the many cross jurisdictional issues;
- coordinate, monitor and track implementation activities of the Galveston Bay Council (GBC) partners;
- identify and communicate bay improvements to agencies, stakeholders, and the public;
- conduct public outreach and education to increase awareness of Galveston Bay;
- advocate conservation of the estuary (see Figure 1); and
- maintain stakeholder involvement in the decision-making process through the GBC and its subcommittees.



Figure 1. The Gordy Marsh conservation easement closed under the Conservation Assistance Program (CAP) in November 2015, permanently protecting 1,739 acres in Chambers County.

SECTION 2.1: GBEP ORGANIZATIONAL STRUCTURE

The GBEP has the primary responsibility for coordinating and administering the work plan. Program staff and job descriptions are provided below.

Sarah P. Bernhardt, M.S., Ph.D., program manager, is responsible for overall implementation of the GBP, including: securing and managing funds to support operations, staff, and projects; fostering stakeholder involvement to facilitate GBP implementation; managing program staff and operations to ensure efficient use of resources; and representing the GBEP on national, state, and local boards and committees and at national and state conferences/events to garner federal and state support. Dr. Bernhardt also coordinates the GBC.

Lindsey Lippert, NRU coordinator, is responsible for coordinating implementation of habitat protection (HP), species population protection (SP), freshwater inflows (FW), shoreline management (SM), and spills and dumping (SD) actions in the GBP; coordination of invasive species workgroup and the NRU subcommittee of the GBC; implementing specific projects to restore and protect habitat and manage and control invasive species; maintaining Government Performance and Report Act and EPA reporting.

Lisa Marshall, M.S., monitoring and research (M&R) coordinator and water and sediment quality (WSQ) coordinator, is responsible for coordinating implementation of stormwater, wastewater, septic systems, point sources of pollution (PS), seafood safety, and research (RSC) actions in the GBP; coordinating the regional monitoring program, including data management/reporting, and development and application of environmental indicators; facilitating the M&R and WSQ subcommittees of the GBC; and researching, evaluating and reporting findings concerning scientific and technical issues impacting GBP implementation.

Cynthia Clevenger, public participation and education (PPE) coordinator and community relations specialist, is responsible for building relationships and developing communication channels and dialogue with local government officials, private sector, and other outside organizations key to implementing the GBP. This position facilitates cross-sectoral learning of public relations and marketing activities for the Galveston Bay watershed; organizes and manages community relations events and the State of the Bay symposium; tracks emerging stakeholder community concerns/issues. Ms. Clevenger also coordinates the PPE subcommittee; provides information to stakeholders, the general public and media; oversees the Galveston Bay Public Awareness campaign; promotes special events and projects; and website maintenance.

Michelle M. Krause, M.S., technical programs coordinator, is responsible for serving as the quality assurance officer and as the contracts specialist, budget liaison and grants coordinator for the GBEP. Ms. Krause also coordinates development and submission of federal reports, identifies and tracks the evolution of issues affecting bay management, and researches policy, technical and management results that pertain to Galveston Bay in collaboration with the NRU and WSQ coordinators.

Mary Stiles, education and outreach support, handles GBEP exhibiting events, maintains the GBEP contacts database, handles timekeeping, conducts K – 12 presentations, and supports general activities of the PPE team and PPE subcommittee. Ms. Stiles manages the annual Trash Bash contract and Spanish language community outreach.

Doretta G. Thomas, administrative assistant, is responsible for travel coordination, vehicle and equipment maintenance and repairs, mail, correspondence, office safety, and general administrative support for the GBEP.

PROGRAM COMPETENCY DEMONSTRATION

The following statements demonstrate the GBEP's competency as a Continuing Environmental Program:

- Competency is demonstrated by the TCEQ Quality Systems Audit conducted annually by Sharon Coleman, the TCEQ quality assurance manager.
- Competency is demonstrated through the EPA Quality Project and Program Management training taken by Sarah Bernhardt, Lisa Marshall, and Michelle Krause on 4/8/14 – 4/10/14. Lindsey Lippert completed the EPA Quality Assurance Management training on 3/21/2007. Certificates are available upon request.
- Competency is demonstrated through the EPA approved the TCEQ Quality Management Plan (Revision 21 approved January 2016) that the GBEP operates under, which provides descriptions of the quality policies, including all the requirements described in the EPA document QA/R-2.

FISCAL 2016 LEVERAGING, TRAVEL, AND TECH TRANSFER AMOUNTS

Figures reported in Table 2 provide a mid-year estimate of leveraged funding reported by partners and grantees from September 2015 – February 2016. The number is subject to change as additional funding may be reported for the period.

Table 2. Fiscal 2016 Leveraging

EPA Funds to Program (Section 320)	Other Federal Funds (Role: Primary)	State Funds to Program (Role: Primary)	Local Government Funds to Program and In-Kind (Role: Primary)	Private funds to GBEP Projects & In-kind (Role: Significant)
\$600,000	\$0	\$884,613	\$0	\$0

Figures reported in Table 3 depict the travel expenses and tech transfer descriptions from the last year.

Table 3. Fiscal 2016 Travel and Tech Transfer

EVENT, LOCATION, & PURPOSE	STAFF PERSON	EPA SECTION 320 FUNDS	TCEQ 100% STATE FUNDS
Introduction to Proper Functioning Conditioning Training (Streams) Waxahachie, Texas, June 2015 -The class provided an introduction to the riparian assessment method known as Proper Functioning Condition. The class included a field component where participants assessed a local stream.	Michelle Krause	\$0	\$226
Introduction to Modeling Workshop Austin, Texas, July 2015 -The class provided watershed coordinators with an introduction to watershed modeling and covered models available for use. Participants gained an understanding of what model is needed for watershed protection planning, how modeling fits into the nine Elements, and the resources needed to take the next steps.	Lisa Marshall	\$0	\$224

EVENT, LOCATION, & PURPOSE	STAFF PERSON	EPA SECTION 320 FUNDS	TCEQ 100% STATE FUNDS
Texas Watershed Coordinators Roundtable San Marcos, Texas, August 2015 - This meeting provided a forum for water professionals to establish and maintain dialogue between watershed coordinators, facilitate interactive solutions to common watershed issues faced throughout the state, and add to the fundamental knowledge conveyed at the short courses.	Lisa Marshall	\$0	\$108
Clean Waters Initiative: Regional Water Conservation Houston, Texas, September 2015 -This meeting provided information regarding water conservation and the 2060 Region H Water Plan, estimating savings from outdoor watering restrictions, and water management strategies and assessments for buildings and irrigation systems.	Lisa Marshall Michelle Krause	\$0	\$0
The Houston-Galveston Area Council's (H-GAC) Natural Resources Advisory Committee Houston, Texas, August 2015 -This meeting provided an opportunity to learn about local watershed projects and issues as well as provide advisory information to the H-GAC regarding natural resources.	Michelle Krause	\$0	\$0
Watershed Coordination Steering Committee Wharton, Texas, September 2015 -This meeting provided updates about projects in the Galveston Bay watershed and watersheds in the area; this meeting provided networking opportunities with other project managers and watershed coordinators.	Lisa Marshall	\$0	\$37
Bayou Preservation Association Symposium Houston, Texas, October 2015 -Staff received an overview on the trash, plastics, automobiles and other pollutants in Houston waterways.	Cynthia Clevenger Lisa Marshall Michelle Krause	\$0	\$195

EVENT, LOCATION, & PURPOSE	STAFF PERSON	EPA SECTION 320 FUNDS	TCEQ 100% STATE FUNDS
People and Nature Houston, Texas, October 2015 -This conference discussed how creating smarter cities and towns can help conserve the remaining natural treasures for both people and wildlife. The focus of this conference was the reinvention of Houston.	Cynthia Clevenger	\$0	\$225
Watershed Coordinator Short Course Bandera, Texas, October 2015 -This weeklong course provided participants with guidance on stakeholder coordination, education, and outreach; meeting the EPA's nine key elements of a watershed protection plan (WPP); data collection and analysis; and the tools available for plan development.	Lisa Marshall Michelle Krause	\$0	\$1,559
Clean Waters Initiative: Galveston Bay Report Card Houston, Texas, October 2015 -This meeting provided an overview of the Galveston Bay Foundation (GBF) and the Houston Advanced Research Center's (HARC) report card on Galveston Bay. After a presentation of the methodology a panel of experts answered questions from the audience.	Sarah Bernhardt Lisa Marshall Michelle Krause	\$0	\$0
Southern Plains & Prairie Conference Houston, Texas, November 2015 -The conference focused on three key areas: prairie restoration and management, creating revenue from prairies and costs of converting pastures to native prairie and creating connected, diverse prairie landscapes for wildlife.	Michelle Krause	\$0	\$150
The H-GAC's Natural Resources Advisory Committee Houston, Texas, November 2015 -This meeting provided an overview of the Waters of the United States ruling and information on stream mitigation banking both locally and nationally.	Sarah Bernhardt Lisa Marshall Michelle Krause	\$0	\$0

EVENT, LOCATION, & PURPOSE	STAFF PERSON	EPA SECTION 320 FUNDS	TCEQ 100% STATE FUNDS
10th State of the Bay Symposium Galveston, Texas, January 2016 -The GBEP staff and TCEQ's Environmental Assistance Division coordinated the 10th State of the Bay Symposium and learned about the progress regional leaders and local experts have made in protecting Galveston Bay.	Sarah Bernhardt Cynthia Clevenger Lindsey Lippert Michelle Krause Lisa Marshall Mary Stiles		\$1,725
Surface Water Quality Standards Advisory Workgroup Meeting Austin, Texas, January 2016 -Staff learned about the statewide surface water quality standards.	Lisa Marshall		\$5
Spring EPA National Estuary Programs (NEP) Workshop, Washington, D.C., February 2016 -This meeting provides training, information transfer, and updates from the EPA	Sarah Bernhardt (estimate)	\$2,131	\$0
The H-GAC's Natural Resources Advisory Committee Houston, Texas, February 2016 -This meeting provided information regarding RESTORE Act funding, GBF programs such as Cease the Grease (funded in part by the GBEP), and the Riparian Buffer Tool and the Basin Summary Report.	Sarah Bernhardt Michelle Krause	\$0	\$0
Total		\$2,131	\$4,454

SECTION 2.2: FISCAL 2016 GOALS AND ACCOMPLISHMENTS

The GBEP partners made notable achievements in improving water quality, restoring wetlands, protecting unique habitats, and educating the public in 2016. These achievements are highlighted in the following sections.

HABITAT AND LANDSCAPE-LEVEL CONSERVATION: CREATING, RESTORING, AND PROTECTING COASTAL HABITAT

The Texas coast features a wealth of coastal habitats that support a tremendous abundance and diversity of fish and wildlife. Although the habitat conservation efforts of the GBEP and its partners are bay wide, particular attention is given to the West Bay watershed. Preserving wetlands and natural areas is critical to maintaining the water quality and protecting valuable fish and wildlife habitat in this region.

Since 2000, the GBEP and its partners created, protected, and enhanced 27,131 acres of important coastal habitats, leveraging approximately \$93,358,000 in local, industry, state, and federal contributions. In the past year, the GBEP protected and restored 1,130 acres of wetlands and coastal habitats, and leveraged \$8,123,881 in local, industry, state, and federal contributions. Through projects currently in progress, the GBEP and partners will protect or restore an additional 5,000 acres of coastal habitat. Since the start of fiscal 2016, an additional 1,800 acres of coastal habitat have been permanently protected through the conservation efforts of the NRU subcommittee, including the CAP and West Bay Conservation Initiative.

CAP

The goal of the CAP is to support regional efforts to preserve wetlands and important coastal habitats that protect the long-term health and productivity of Galveston Bay. With the help and consensus of conservation partners, a collaborative effort between the GBEP, the GBF, and Texas Coastal Partners identifies conservation projects, develops funding strategies, works with landowners to negotiate conservation transactions, carries out due diligence, and finalizes purchase and transfers of title to the appropriate land conservation entity.

To date, seven projects have closed under this partnership, including the Lone Pine Farm and Anahuac National Wildlife Refuge (NWR) Coastal Prairie, permanently protecting 5,022 acres and leveraging approximately \$7,000,000. Many additional projects are ongoing, including the Hitchcock Prairie conservation easement (3,200 acres) and the Chocolate Bayou acquisition (104 acres), which have already leveraged an additional \$5,774,000.

In 2008, the GBEP secured \$2,000,000 from the GLO's Coastal Impact and Assistance Program (CIAP) funding to conserve properties in the West Bay watershed. In 2012, project partners permanently protected Savannah Oaks Ranch, a 700-acre rice farm near the Brazoria NWR, situated at the convergence of Austin and Flores Bayous. The property provides habitat for the declining mottled duck population, which thrives on rice fields. Under this land agreement (conservation easement), the family will continue to maintain the property's current use as a working farm while preserving its wildlife values in perpetuity. Additional properties identified through the CAP for funding under this initiative include the Chocolate Bayou Conservation Project (104 acres) and the Settegast Coastal Heritage Preserve Mid-tract (~60 acres).

West Bay Conservation Initiative

The West Bay Conservation Initiative is a concentrated effort in West Bay comprised of numerous conservation, restoration, and habitat protection projects supported by non-profit organizations, state and federal agencies, and private partners. The objective of the initiative is to protect and restore habitat and associated biological communities critical to the Galveston Bay ecosystem, including fringing intertidal and high marsh, tidal flats, freshwater wetlands, and coastal prairie.

Settegast Coastal Heritage Preserve

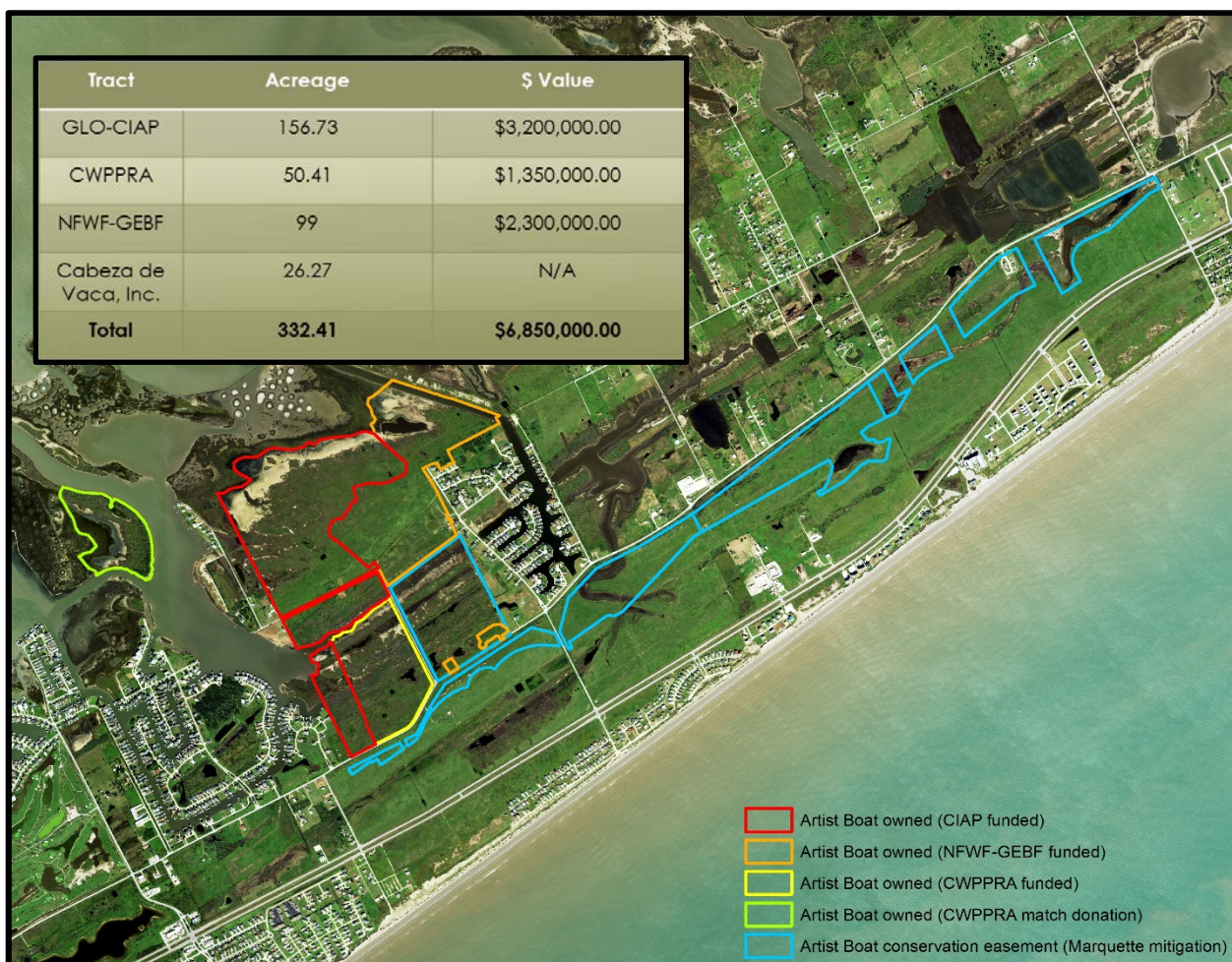


Figure 2. Settegast Coastal Heritage Preserve is located in West Bay, Galveston County. Image courtesy of The Artist Boat.

Identified as a key conservation priority by multiple different conservation plans for the Galveston Bay area, the Settegast Coastal Heritage Preserve is the largest undeveloped, unfragmented tract of land on west Galveston Island. Acquiring parcels within the Settegast project area contributes to ongoing efforts to maintain the physical and biological integrity of Galveston Island and the productivity of West Galveston Bay. The preserve is divided into four distinct tracts by roadways; the bay tract, the Marquette middle tract, the Marquette beach tract, and the Anchor Bay tract.

The Settegast bay tract contains 360 acres of coastal prairie and freshwater depressional wetlands along the northern shoreline of West Bay (see Figure 2). To date, project partners have permanently protected 332 acres on the bay tract, leveraging over \$6,850,000. An additional 216 acres on the bay and the Marquette middle tract were donated to the Artist Boat in 2016, because of a development permit being activated on the remainder of the 1,000-acre property. With the addition of the donated acreage, the entire bay tract is permanently protected from development. The preservation of the Anchor Bay and Marquette middle tracts is currently under development, with \$1,000,000 secured from the West Bay CIAP, and multiple grant applications in progress.

IMPROVING & PROTECTING WATER QUALITY: SUPPORTING CORE CLEAN WATER ACT (CWA) PROGRAMS

In support of the EPA’s core CWA goals the GBEP has worked to build capacity of local stakeholders through watershed protection planning and implementation of water quality improvement projects (WQIPs). Through this effort in coordination with other water programs of the TCEQ and local stakeholders, the majority of impaired waters in the five county region surrounding Galveston Bay have some level of watershed protection or improvement being enacted.

WPPs

Highland Bayou

The Watershed Characterization Report was completed in fiscal 2011 using \$275,000 of American Recovery and Reinvestment Act (ARRA) funds. Additional environmental data has been collected for this impaired water body in conjunction with the Clean Rivers Program. The information collection included the completion of a landscape analysis of nonpoint source (NPS) pollution; identification of potentially failing septic systems; and one-on-one meetings with local planners and decision makers. In January 2014, the project received \$100,000 in GBEP funding to complete the nine-element WPP for Highland Bayou. In 2015, the modeling for pollution sources was completed and loading estimates were revised, social media sites were updated and work groups have been recruited and initialized. In 2016, work group meetings will continue and the WPP will be updated and a draft completed for TCEQ review.

Bacteria Implementation Plan (I-Plan)

In 2013 the Bacteria Implementation Group (BIG) I-Plan to address bacteria in the Houston-Galveston Region was completed. The BIG anticipates implementation activities over the next 25 years, 2013 – 2036, with periodic reviews to track success and make necessary course corrections to improve success.

While most activities in the I-Plan are to be funded using existing funding sources, such as public works department budgets, grant funding opportunities through the TCEQ and other entities, other sources will be needed to help sustain regional coordination efforts; advance the use of new or novel technology and best management practices (BMPs); and expedite implementation. The BIG continues to coordinate the implementation of BMPs listed in the I-Plan and are considering expanding their membership to include other total maximum daily load (TMDL) I-Plan groups.

Cedar Bayou

With suggestion from the GBEP, the H-GAC and the Texas State Soil and Water Conservation Board (TSSWCB), completed development of a WPP on Cedar Bayou that was started in fiscal 2011. The GBEP provided matching funds and staff support for development of the WPP. The Cedar Bayou Watershed Partnership was formed from a diverse group of local stakeholders, and has met over the course of the intervening years to discuss the challenges and potential solutions in the watershed. Modeling and monitoring activities are ongoing, and the WPP was completed at the end of 2015 and is currently with the EPA for review. In the meantime, project partners have already begun to implement BMPs, including signage for polychlorinated biphenyls/dioxins, large scale marine debris removal, and education and outreach efforts.

Double Bayou

The Double Bayou Watershed Characterization Report was completed in early fiscal 2012 using \$206,322 in ARRA funds, \$50,000 from the TMDL Program and \$12,000 from the GBEP. Accomplishments include additional environmental data collected for this water body listed on the CWA Section 303(d) list, classified as Category 5c; completion of the watershed characterization report including water quality and land use analyses; and completed one on one meetings with local planners and decision makers. The project leads later received funding from TSSWCB's CWA Section 319 program for completing a WPP starting in fiscal 2012. Since the CWA Section 319 funding began, larger stakeholder and focused work group meetings have been held, targeted water quality monitoring has begun, land use has been analyzed focusing on water quality impairments through discussions with stakeholders and several topic-specific workshops have been held or scheduled in the watershed (Watershed Stewards Training, Riparian Workshop, Feral Hog Workshops, etc.). Spatially explicit load enrichment calculation tool (also known as SELECT) modeling to analyze land use and potential bacterial source load contributions has been completed; stakeholders contributed to initial model data inputs as well as model run results through small work group meetings and a stakeholder meeting. Targeted water quality monitoring has included both routine and ambient weather events as well as a series

of 24 hour dissolved oxygen events. For fiscal 2015, the GBEP approved \$129,126 to provide state funding to be used as matching funds required under the grant to complete work on the WPP. In fiscal 2016, the WPP was approved by the stakeholders and has gone out for public comment. It is anticipated to go to the EPA for review during the final quarter of fiscal 2016.

WQIPs

Clear Creek

The City of League City with encouragement from the GBEP, sought and received a 2011 TCEQ CWA Section 319 Program grant to control NPS pollution within the city limits. The million dollar grant and match from the GBEP funded the construction of the Ghirardi Family WaterSmart Park, a 3.75 acre park that features NPS best management green infrastructure features including rain gardens, pervious pavement, bios-wales, rain water harvesting and a green room. This award winning facility, serves as a demonstration for residents, city staff and local developers as to how these practices can be implemented into landscapes and developments around League City and Galveston County. Additional tasks in fiscal 2015 included reviewing and re-writing existing city ordinances, completing a report on BMPs retrofit recommendations for the Creekside District to control NPS runoff, and completing modeling of runoff quantity and quality for areas of new developments, including how BMPs can best be utilized to reduce both. Monitoring of the BMPs occurred during most of fiscal 2015 but was suspended until a quality assurance project plan (QAPP) was developed for the new fiscal 2016 contract. Finalizing the QAPP and re-initiating the monitoring will take place in fiscal 2016.

Armand Bayou I-Plan

The Armand Bayou I-Plan coordination committee and work groups were formed in early 2013. The committee reviewed the bacteria I-Plan developed by the BIG and determined they were interested in joining the BIG I-Plan instead of writing their own I-Plan, once the TMDL for Armand Bayou was completed. In May 2014, the stakeholders approved the addition of the Armand Bayou TMDL to the BIG TMDL. The proposal to join the BIG TMDL was approved by the TCEQ in August of 2015. The group is currently working with the BIG partners to target wastewater treatment facilities infrastructure and on-site sewage facility improvements to reduce bacteria in the waterways.

Harris, Galveston and Brazoria Counties Stormwater Wetland

In fiscal 2013, the GBEP began to establish a stormwater wetland program in three counties which expect to double in population size by 2030. The GBEP was working in concert with city and county governments to establish a stormwater wetland program and technology transfer. In addition to introducing and facilitating stormwater wetlands projects in Pearland, Clear Lake City and at the MD Anderson Facilities in the Medical Center of Houston, the program continued to work through one-on-one meetings, technical workshops, establishment of a task force and funding assistance to create demonstration projects. An additional component was outreach to school districts where the educational capacity of stormwater wetlands as outdoor classrooms has been recognized. The work for this project was completed in May 2015.

Galveston Bay Fats, Oils, and Grease (FOG) Campaign

Starting in fiscal 2014, the FOG campaign has been a joint project with the WSQ and the PPE subcommittees. In an effort to coordinate outreach and education efforts to the upper Galveston Bay Watershed in the Dallas area, the GBEP is funding a project with the City of Nassau Bay to implement the City of Dallas Water Utilities FOG outreach campaign called Cease the Grease. This project supports the CWA core program of addressing diffuse, NPS sources of pollution. The Dallas campaign not only shows measureable success in reducing FOG-related sanitary sewer overflows, but the City of Dallas is also willing to allow the City of Nassau Bay to use their materials. The campaign has been implemented in the Galveston Bay region through the City of Nassau Bay and outreach materials and efforts have been tailored for the Galveston Bay region (see Figure 3). City of Nassau Bay in partnership with the GBF are tracking the progress of the campaign based on the number of

impressions achieved through marketing and outreach activities, knowledge change throughout the campaign based on pre and post test data in outreach programs and other indicators developed by the campaign work group. Additionally, the GBF will request sanitary sewer overflow reports from the TCEQ and municipalities in order to track whether or not a bacteria reduction results from campaign implementation. Tracking results are shared with campaign partners, the City of Dallas as well as potential future partners and other regions looking for examples of a successful FOG reduction campaign. Funding for year three will incorporate launching grease recycling stations in two locations. Funding for year four of the project will allow the campaign to be refreshed and modified based on lessons learned.



Figure 3. FOG Campaign Local Recycling Center Map

IMPROVING RESOURCE MANAGEMENT THROUGH TARGETED RESEARCH THAT INCREASES ECOSYSTEM UNDERSTANDING

The GBEP continues to focus on providing ecosystem based M&R and encourage new information to inform resource managers through maintaining and updating a prioritized project spreadsheet. From this work projects such as investigating mangrove restoration in Galveston Bay and monitoring the Galveston Bay system at monthly intervals were funded as a result of the fiscal 2014 – 2015 request for grant applications. In fiscal 2016, the M&R subcommittee supported a project that investigates the impacts of reservoirs on freshwater inflows, specifically the Lake Livingston reservoir. At the October 2015 GBC meeting, the GBC approved funding to continue the Lake Livingston project in fiscal 2017 and a funding request is included in the fiscal 2017 work plan.

The Impacts of Assimilative Capacity of Reservoirs on Coastal Inflows

The most recent Texas State Water Plan calls for 26 new reservoirs to increase water supplies by 1,500,000 acre-feet per year in 2060 to meet Texas' future water needs. Reservoirs are costly to build, and have ecologic and hydrologic impacts downstream by affecting freshwater inflow and the supply of sediment and nutrients to Texas coastal systems.

The goal of this project is to assess the assimilative capacity of the Lake Livingston reservoir and how it impacts coastal inflows. This project will monitor the inflows into Lake Livingston and the outflows to obtain before and after numbers for nutrients and sediments. Assimilative capacity changes depending on flows so the study will obtain samples during low, medium, and high flows (ambient and event monitoring). The Lake Livingston reservoir may play an important role in controlling sediment and nutrient load variability to the coastal ecosystem. The effect Lake Livingston has in sequestering sediments and nutrients is not well understood; therefore quantifying the assimilative capacity of Lake Livingston is critical in understanding the impacts of reservoirs on the health of the Galveston Bay ecosystem.

Mangrove Restoration in Galveston Bay: Ecological Benefits and Effective Restoration Techniques

The overall objective of this project is to determine if, when, and where mangrove restoration should be implemented in Galveston Bay. Data will be collected from at least three sites of each of four habitat types: mature and restored salt marshes, and mature and restored mangrove stands. This data will be used to inform the following questions: which mangrove planting techniques yield near- and long-term mangrove restoration success at sites throughout Galveston Bay, are there specific ecosystem functions between existing mangrove stands and salt marshes in Galveston Bay, and how do these restoration sites compare to other Texas estuaries? In addition to the research component of this project, there is an outreach piece that educates the public on the importance of wetland restoration for NPS management and integrates research findings into outreach and stewardship programs. Texas A&M University Galveston (TAMUG) is the contractor for this project and the QAPP was approved in November 2015. TAMUG has been sampling since December 2015.

Galveston Bay: Changing Land Use Patterns and Nutrient Loading. Causal or Casual Relationship?

The objective of this project is to continue monitoring Galveston Bay at monthly intervals using the Dataflow system to measure water quality parameters, collect nutrient and other data at fixed stations in Galveston Bay which can then be used to explain patterns in water quality such as chlorophyll data, and measure phytoplankton productivity, community composition, and the presence of harmful algal blooms (HABs), if present. The QAPP for this project is under development and is close to execution. TAMUG will likely begin sampling spring 2016.

CONTINUE BUILDING REGIONAL SUPPORT FOR PPE

The PPE subcommittee continued supporting the *Galveston Bay Public Awareness and Education Campaign (Back the Bay)* in fiscal 2016. Local stakeholders identified trash and plastic pollution as a priority initiative in 2016, which supports EPA's Trash Free Waters initiative.

Examples of these activities include:

- Supported community-based events such as Boy Scouts, University of Houston Central Sustainability Festival, Bayou Greenway Day, Trash Bash, Bay Day, Family Fishing Day (outreach booth depicted in Figure 4) and Houston Water Festival.
- Garnered support for the campaign with Houston-area businesses and conservation groups, and local governments in key watersheds: Galveston, Buffalo Bayou, Houston Ship Channel.
- Partnered with a local news station and newspaper.
- Increased awareness of Galveston Bay and its value and actions that help protect the bay through a coordinated, regionally implemented campaign.
- Partnered with several groups on the Plastics Pollution Partnership to highlight messages and outreach events on education and awareness on water and marine debris such as fishing line.

Galveston Bay Public Awareness and Education Campaign



Figure 4. Outreach booth at Family Fishing Day at the Anahuac NWR.

The GBEP implemented a public awareness campaign, involving key stakeholders, to reinforce implementation of the GBP's priorities. The goals of the Galveston Bay Public Awareness and Education Campaign—called *Back the Bay*—are to build awareness of the value of Galveston Bay, and encourage and motivate actions that support habitat conservation, water conservation, and water quality improvement.

In fiscal 2012 the campaign had a total of 14.4 million impressions, or the number of times people may have seen or heard about the campaign through web, television, print and outdoor advertising. Since the launch of the campaign, the GBEP has had an advertising partnership with the local Houston area National Broadcasting Company (NBC) television station KPRC Channel 2. The partnership has achieved the following: over 10 million impressions on Justweather.com (KPRC Channel 2 website); and 4,150 click-thrus to the [Back the Bay website](#). The fixed widget on the weather home page delivered 55 percent of all the impressions, yet delivered 65 percent of all the click-thrus. Also, an estimated 1.8 million viewers ages 18 and older saw the television ads between March 26, 2012 and August 31, 2012.

In fiscal 2013, the campaign was implemented on a regional level in all five counties adjacent to Galveston Bay including Brazoria, Chambers, Galveston, Harris and Liberty counties. Implementation initiatives included: continued partnerships with KPRC Channel 2, local governments, the H-GAC, the GBF, Armand Bayou Watershed Partnership, Artist Boat; and increasing awareness of Galveston Bay, its recreational activities, and positive behavior changes citizens can do at home.

The awareness campaign was awarded a \$1 million CIAP grant to implement the habitat conservation module of the campaign. Initiatives for this module include developing a new print ad, television spot and online presence focusing more on habitat conservation of Galveston Bay.

In April 2013, the GBEP launched its 2013 partnership with KPRC Channel 2 and Click2Houston.com. The GBEP began airing 7-second and 15-second television ads during weekly newscasts promoting residents' connection to Galveston Bay—a key campaign message—and the campaign brand, *Back the Bay*. The GBEP also placed online advertisements on the weather page of Click2Houston.com (KPRC Channel 2's website). These ads showcase the value of Galveston Bay as well as residents' connection to the bay. Additionally, KPRC Channel 2 contributed a television banner called a snipe that ran during specific NBC broadcast programs such as the *Today Show*, *Tonight Show*, and *Saturday Night Live*.

For the fiscal 2013 media campaign implementation, the GBEP created new 60- and 30-second radio spots. The public service announcement (PSA) ran on four of Houston's popular radio stations from April 1, 2013 through August 2013.

The fiscal 2013 campaign delivered a total of 41 million impressions, including more than 2 million added

value impressions. Added value includes media placements provided to a campaign at no cost. Through PSA distribution, the partnership with KPRC and free radio placements, *Back the Bay* received free media valued at \$127,976.

The fiscal 2014 campaign began with a fall media buy that ran from September to October 2013. The fall media buy targeted hunters and fishers in the Galveston Bay area, a key target audience for the campaign. The buy included print ad placements in the Houston Chronicle's "Hunt Texas" publication and several community newspapers. The Houston Chronicle sponsorship also included online banners on Chron.com. Overall, the fall campaign generated more than 1.5 million impressions.

In October 2014, the GBEP also launched a Hunter Channel "takeover" on Chron.com. A "takeover" is an exclusive advertising and branding opportunity on the homepage or popular interior page of a website. The *Back the Bay* takeover included custom background and online banners that ran through March 2014 on the hunting/fishing section of the site.

The fiscal 2015 campaign was launched in April 2015. Media included: newspaper print insertion in the Houston Chronicle; online digital, web banners, pre-roll video, broadcast video, and mobile banners on KPRC and KHOU TV and websites. The campaign emphasized the connection between residents' storm drains and Galveston Bay habitats with the second chalk art ad highlighting birds.

Highlights for 2015 include:

- Two statewide press releases were distributed to help generate awareness about Galveston Bay, and recommended ways to avoid nesting birds and turtles to protect their habitats. The second press release showcased Galveston Bay's contribution to nature tourism in Texas to help make the connection to the importance of habitat conservation. The press releases generated \$26,903.26 in earned media publicity value.
- The GBEP worked with partners from Audubon Texas and Turtle Island Restoration Network, Sea Turtle Restoration Project for an appearance on KHOU Channel 11's Great Day Houston for an education and outreach segment on protecting birds and sea turtles especially during the nesting season. The segment highlighted awareness and tips for the public to do their part in protecting habitats.
- The [Back the Bay website](#) received a major overhaul and is now a much more engaging, user-friendly, and informative experience for visitors and partners.
- The GBEP worked with stakeholders to create a three minute video highlighting the history, beauty, and the natural and economic resources of Galveston Bay to remind citizens they are more connected to Galveston Bay than they think, and we all can play a part in preserving the bay and protecting its natural resources. The video may be viewed at the [Back the Bay website](#). The video is available for stakeholder organizations, local governments, and other agencies to share on their different media platforms.
- For television in 2015, the campaign received 9.6 million impressions through KPRC-TV and KHOU-TV. This included the appearance on KHOU's Great Day Houston.
- KPRC provided \$17,120 in additional in-kind value by over delivering results and placing the *Back the Bay* video into additional TV timeslots when available.
- New partnerships garnered in 2015:
 - Bayou Preservation Association
 - Galveston Parks Board
 - Artist Boat
 - Plastics Pollution Partnership
 - A consortium of several area organizations including state and federal agencies who have created a network to educate, and conduct outreach including hands-on activities to bring about awareness of birds, turtles and other wildlife and the importance of preserving habitats.

- Some of those key partners include: Houston Audubon, the GBF, the Houston Zoo, Turtle Island Restoration Network, Gulf Coast Bird Observatory, Texas Parks and Wildlife Department's (TPWD) Galveston Island State Park, and the EPA Trash Free Waters initiative.
- KHOU Channel 11

Trash Bash

In March 2015, the GBEP coordinated the 22nd annual Trash Bash cleanup at Mason Park along Brays Bayou and one of 17 clean-up sites across the Houston-Galveston area. The event promotes environmental stewardship and encourages volunteers to do their part at home by properly disposing of trash, household chemicals, and pet waste. Trash Bash supports two of the EPA's fiscal 2014 – 2018 *Strategic Plan* goals which include: 1) cleaning up our communities and advancing sustainable development; and 2) protecting America's waters.

191 volunteers collected an estimated 2,700 lbs. of trash at Mason Park. Their efforts enabled 20 pounds of materials to be recycled. Each year, Trash Bash meets or surpasses volunteer goals. In 2015, 4,384 volunteers from all over the Houston-Galveston area cleaned 162 miles of shoreline, collected approximately 37 tons of trash—including 434 tires—and recycled 2,612 pounds of trash. The GBEP staff also provided *Back the Bay* and Cease the Grease campaign education at the Mason Park event.

In April 2016 the GBEP will coordinate the 23rd annual Trash Bash cleanup at Mason Park along Brays Bayou and add two satellite sites to the Mason Park main site.

SECTION 2.3: STRATEGIC ACTION PLAN GOALS TO FOCUS ON IN FISCAL 2017

- Create, restore, and protect important coastal habitats.
- Reduce NPS pollutant loads through coordination with local watershed initiatives and implementing WQIPs.
- Create a sense of personal ownership and shared responsibility among all cultural components of the community, including the public, industry and government.
- Ensure that stakeholders receive the knowledge necessary to act on the GBEP's priorities in ways that benefit Galveston Bay and the entire community.
- Increase understanding of the Galveston Bay ecosystem.
- Make available information needed by the public, the GBC Members, and the GBEP subcommittee members to support implementation of the GBP.

FISCAL 2017 EXPECTED OUTCOMES

- Create, restore, and protect important coastal habitats.
- Increased coordination and more strategic implementation of water quality improvement activities in Galveston Bay Oyster Waters, Armand Bayou, Bastrop Bayou, Brays Bayou, Double Bayou, Cedar Bayou, Highland Bayou, Clear Creek, Jarbo Bayou and Dickinson Bayou watersheds.
- Increase technical transfer from demonstration projects with local governments for improving storm water.
- Inform and educate adults and children through presentations, exhibiting events, voluntary events, and the *Back the Bay* campaign for a total of approximately.
- Continue to build a brand for Galveston Bay across the Houston-Galveston region through the implementation of *Back the Bay* campaign.
- Continue to elevate the prominence of Galveston Bay issues in the local media and the general public's ability to recall Galveston Bay issues through a targeted media blitz (PSAs, paid advertisements, and increased media coverage) in Brazoria, Chambers, Galveston, Harris and Liberty counties.

FISCAL 2017 EXPECTED OUTPUTS

- conserve and protect 950 acres of habitat,
- restore and enhance 50 acres of habitat,
- complete one draft WPP for TCEQ review,
- facilitate the approval of one local WPP,
- begin one water quality monitoring project,
- update and maintain the Status and Trends Maintenance dataset,
- facilitate a stakeholder and public engagement process to create a draft GBP revision,
- complete six presentations to bay user groups, civic groups, non-profit organizations and schools,
- provide exhibits at ten local events, and
- continue to implement the *Back the Bay* campaign.

FISCAL 2017 STATE AND FEDERAL FUNDING

The total cost of the fiscal 2017 work plan is \$1,200,000. Fifty percent (\$600,000) of the project cost is provided by federal funds; 50 percent (\$600,000) in match is being provided by the TCEQ through a waste water treatment inspection fee, as described in Table 4 and Table 5. These tables exclude additional state and local funding.

Table 4. Fiscal 2017 Funding

PROGRAM	AMOUNT (\$)	% OF TOTAL
GBEP	\$1,200,000	100%
Total	\$1,200,000	100%

Table 5. Fiscal 2017 Budget Detail

BUDGET DETAIL- See also fiscal 2017 federal projects (Table 6)	AMOUNT (\$)
Salaries (Includes Fringe and Indirect)	\$563,892
Travel	\$7,500
Capital	\$0
Supplies	\$200
Contracts	\$148,650
Other	\$479,758
Total	\$1,200,000

PROJECT SCHEDULE

The execution of the tasks associated with this work plan will occur over a 36-month period, which is anticipated to begin September 1, 2016, and end August 31, 2019. The exact start date of the work plan and all due dates for deliverables are contingent upon the actual date the grant funds are awarded and contracts executed.

The projects outlined in this work plan were developed by the NRU subcommittee, WSQ subcommittee, Monitoring subcommittee, PPE subcommittee, and the M&R subcommittees, ranked by the Budget and Priorities subcommittee, and submitted to the GBC for approval in October, 2015. The GBC approved the projects listed in this work plan at the October 28, 2015 quarterly meeting.

The project scopes of work will be submitted to the TCEQ Quality Assurance Officer to determine which projects in the work plan will require a QAPP. Under the authority granted by the EPA to the TCEQ to approve QAPPs for the GBEP, the GBEP staff and their project partners will develop QAPPs for projects determined by the TCEQ and the EPA to require QAPPs. QAPPs will be developed in accordance with the EPA requirements for QAPPs, EPA document QA/R-5.

SECTION 3: FISCAL 2017 PROJECTS

SECTION 3.1: FISCAL 2017 FEDERAL PROJECTS

Table 6 depicts the fiscal 2017 federal projects.

Table 6. Fiscal 2017 Federal Projects (CTRL+CLICK Project Names)

PROJECT NAME	YEARS	FEDERAL	STATE MATCH	TOTAL 2017 GBEP BUDGET	STATUS
Program Administration (Includes supplies, travel, salary, fringe & indirect, intern)	2017	\$ 290,025	\$ 290,025	\$ 580,050	Annual
GBEP Website	2017	\$ 802	\$ 802	\$ 1,605	Annual
1. The GBP Revision	2017	\$ 37,500	\$ 37,500	\$ 75,000	New Project
Administration Total				\$ 656,655	
2. CAP	2011–2017	\$ 50,000	\$ 50,000	\$ 100,000	Ongoing
NRU Total				\$ 100,000	
3. Galveston Bay FOG Campaign	2014–2017	\$ 30,000	\$ 30,000	\$ 60,000	Ongoing
4. Galveston Bay Coalition of Watersheds (GBCW)	2017	\$ 42,500	\$ 42,500	\$ 85,000	New Project
WSQ Total				\$ 145,000	
5. 2017 Back the Bay Public Awareness Campaign	2010 – 2017	\$ 73,523	\$ 73,523	\$ 147,045	Ongoing
6. Trash Bash 2017	2017	\$ 2,500	\$ 2,500	\$ 5,000	Annual
7. Texas Estuarine Resource Network (TERN)	2017	\$ 12,500	\$ 12,500	\$ 25,000	New Project
PPE Total				\$ 177,045	
8. The Impacts of Assimilative Capacity of Reservoirs on Coastal Inflows Phase II	2016 – 2017	\$ 20,650	\$ 20,650	\$ 41,300	Ongoing
9. Freshwater Inflows to Galveston Bay: Relationship to HABs	2017	\$ 40,000	\$ 40,000	\$ 80,000	New Project
M&R Total				\$ 121,300	
FUNDING REQUEST GRANT TOTAL				\$ 1,200,000	

SECTION 3.2: FISCAL 2017 FEDERAL PROJECT DESCRIPTIONS

3.2A - ADMINISTRATIVE PROJECTS FOR FISCAL 2017

1. The GBP Revision

CCMP Actions Implemented: All

Grantee/Contractor: The H-GAC

Fiscal 2017 Budget: \$75,000

Total Project Budget: \$75,000

Milestones: First public workshop to occur in October 2016.

Project period: September 2016 – May 2018

Status: New project

Objective(s): The goal for the proposed project is to revise the GBEP's CCMP in accordance with the EPA revision guidelines.

Background: The GBEP's CCMP, the GBC, was completed in 1995 and the *Charting the Course to 2015: Strategic Action Plan* was completed in 2005. The EPA's fiscal 2015 – 2016 funding guidance to National Estuary Programs (NEPs) requires that each NEP complete a full revision of their CCMP prior to September 30, 2018. The GBEP's staff and stakeholders have been working on an implementation review since 2013.

Project Description: Through this project, the H-GAC will work with the GBEP staff and stakeholders to draft a CCMP revision. Specific tasks in the contract will include a public stakeholder meeting to receive feedback on the implementation review, drafting a new *Galveston Bay Plan Revision* utilizing the EPA checklist and stakeholder feedback, hosting and coordinating GBEP staff and stakeholder meetings for feedback, and final public comment period, incorporation of final edits, and a final public stakeholder meeting.

Partners and Their Role(s): All members of the GBC and partners have been asked to participate in the implementation review of the 1995 plan, and will be invited to participate in the development and review of the revised CCMP.

Outputs/Deliverables:

- quarterly progress reports until contract expiration,
- final plan revision due August 2017, and
- final report due August 2017.

Long-term Outcomes: Implementation of a revised CCMP resulting in community and stakeholder driven local actions resulting in improvements in watershed level water quality, water conservation, habitat restoration, habitat preservation, habitat protection, ecosystem services, research, and public awareness.

3.2B - NRU PROJECTS FOR FISCAL 2017

2. CAP

CCMP Actions Implemented: HP-1, HP-5, SP-1, SM-5, PPE-1

Grantee/Contractor: The GBF

Fiscal 2017 Budget: \$100,000

Total Project Budget: \$600,000 (\$300,000 in Grant #CE-00F20801: fiscal 2011 \$173,054/ fiscal 2012 \$126,946; \$200,000 in Grant #CE-00655005: fiscal 2014 \$94,450/ fiscal 2015 \$5,550/ fiscal 2016 \$100,000)

Milestones: Not applicable. Milestone dates for individual tasks are not applicable as project identification is

a continuous task, and specific project support is applied for as needed.

Project period: September 2016 – August 2017

Status: Ongoing. The CAP has been associated with the successful conservation of seven projects totaling approximately 5,022 acres in Galveston, Brazoria, and Chambers counties. Active projects have the potential to protect nearly 9,000 acres of coastal habitats within the Galveston Bay watershed. To date, over \$7,000,000 dollars have been leveraged on successful conservation projects, with an additional \$5,774,000 secured for ongoing projects.

Objective(s): The goal of this project is to place 1,000 acres of coastal habitat in the Galveston Bay area in permanent conservation.

Project Description: The overall goal of the CAP is to support the GBEP and its partners' efforts to preserve wetlands and other important coastal habitats to protect the long-term health and productivity of Galveston Bay. The CAP will continue to accomplish these goals by:

- identifying priority conservation properties with the help and consensus of conservation partners;
- building funding strategies through grant identification, grant writing, and fundraising;
- working with willing sellers to negotiate fee simple or conservation easement transactions;
- carrying out legal, title, and other due diligence transaction support; and
- finalizing the sale and transfer of title to a third party organization or government entity.

Partners and Their Role(s): While the GBF leads the efforts, the CAP workgroup is comprised of a diverse group of federal, state, local, and non-governmental organization resource managers.

Outputs/Deliverables:

- quarterly progress reports until contract expiration, and
- final report due August 2017.

Long-term Outcomes: The permanent conservation of coastal habitat and preservation of important hydrologic and water quality functions in West Bay.

3.2C - WSQ PROJECTS FOR FISCAL 2017

3. Galveston Bay FOG Campaign

CCMP Actions Implemented: WSQ-1, 5, 6, PS-2, PPE-3

Grantee/Contractor: The City of Nassau Bay

Fiscal 2017 Budget: \$60,000

Project Total: \$216,000 (\$156,000 in Grant #CE-00655005: fiscal 2014 \$50,000/ fiscal 2015 \$46,000/ fiscal 2016 \$60,000)

Milestones: Installation of two oil recycling receptacles by January 2017.

Project Period: September 2016 – August 2018

Status: Ongoing

Objective(s): The goal of this project is to reduce, via public education, bacteria loading into Galveston Bay caused by the release of FOG into sewer systems. This project aligns with one of the EPA's areas of special interest regarding nutrient management and control activities.

Background: The project began in July 2015. The initial campaign materials were targeted at single and multi-family homes. In year two, fiscal 2015, the number of campaign partners and the reach of the campaign were expanded, additional marketing and outreach materials developed, and the campaign diversified by adding materials for restaurants, Spanish language audiences, and children. In year three, fiscal 2016, the initial

success of the campaign will be evaluated based on tracking data and the campaign modified based on lessons learned, as well as launch the cooking oil recycling program.

Project Description: In year four, fiscal 2017, the success of the cooking oil recycling program will be evaluated based on tracking data and the program modified based on lessons learned, as well as develop refreshed and new marketing and outreach materials, expand the reach of the campaign, and increase the number of cooking oil recycling stations. In addition, the workgroup will develop a partnership model that allows for the campaign to be sustainable over time. The Cease the Grease Campaign continues to target reducing sanitary sewer overflows from FOG by: 1) working in cooperation with a stakeholder workgroup, 2) developing marketing and outreach materials, 3) creating a distribution plan, and 4) tracking campaign progress. The proposal includes refining and maintaining these campaign efforts based on lessons learned, in addition to partnering with cities to pilot local grease recycling stations.

Partners and Their Role(s): The GBF is coordinating and facilitating the effort between partners, City of Nassau Bay is serving as the pass-thru entity, City of Dallas is providing the Cease the Grease program materials free of charge, League City, City of La Porte, and City of Pasadena are contributing to brand development, and KPRC Channel 2 is providing in-kind media and creating the website.

Outputs/Deliverables:

- quarterly progress reports until contract expiration,
- installation of recycling receptacles, January 2017, and
- final report due August 2018.

Long-term Outcomes: Fewer overflow reports, increase in number of grease recycling stations.

4. Galveston Bay Coalition of Watersheds (GBCW)

CCMP Actions Implemented: NPS-1, 3, 4, PS-2, 4, WSQ-6

Grantee/Contractor: Texas A&M University (TAMU)/ Texas Coastal Watershed Partnership

Fiscal 2017 Budget: \$85,000

Project Total: \$85,000

Milestones: Coalition stakeholders will be identified and included in a participation list by November 2016.

Project Period: September 2016 – May 2018

Status: New project

Objective(s): The objective of this project is to establish and maintain a sustainable coalition of watershed groups for the Galveston Bay area to implement existing WPPs and I-Plans. The funding for this project would also include managing implementation of the Galveston Bay Bacteria Reduction Plan (GBBRP) with the GBF.

Project Description: The Galveston Bay Coalition of Watersheds will be established to implement measures from existing WPPs and I-Plans. The GBCW will include stakeholders from existing groups including Dickinson, Highland, and Jarbo bayous, as well as watersheds that will likely be developing WPPs or I-Plans in the future such as Moses Bayou. This regional approach will:

- extend limited resources for coordinating implementation efforts,
- reduce the number of meetings stakeholders are asked to attend, and
- facilitate the information coordination already happening between watershed groups.

The GBEP funding will be used as seed funding for a full time coordinator who will establish and maintain the GBCW. This coordinator will help determine the makeup of the group, work with stakeholders to establish a unified vision and goals, and define a plan for continued funding which should include a matching component from local governments, be it financial or in-kind. Local contributions will be leveraged for grant applications

to fund implementation measures and continued coordination. The coordinator will also work with GBCW members to carry out implementation measures in existing plans across all of the partner watersheds. The coordinator will also work with the GBF staff to ensure facilitation of active stakeholder participation in the GBBRP and collaborate with adjacent watershed groups in order to guide successful implementation and tracking of plan progress, which addresses oyster waters bacteria impairments in Galveston Bay.

Partners and Their Role(s): Texas Coastal Watershed Program, the GBF, and watershed groups in the lower Galveston Bay area.

Outputs/Deliverables:

- quarterly progress reports until contract expiration,
- Galveston Bay Oyster Waters annual report due May 2017, and
- final report due May 2018.

Long-term Outcomes: Establish a sustainable model for coordinating local watershed efforts.

3.2D - PPE PROJECTS FOR FISCAL 2017

5. 2017 Back the Bay Public Awareness Campaign

CCMP Actions Implemented: All

Grantee/Contractor: To be determined through the TCEQ preapproved vendor list

Fiscal 2017 Budget: \$147,045

Total Budget: To be determined

Milestones Identifying more diverse communities including non-English speaking and underserved/underrepresented communities within the Galveston Bay Watershed by January 2017.

Project Period: December 2016 – August 2018

Status: The GBEP is currently working with the state purchasing system to find a contractor through the TCEQ preapproved vendor list for the fiscal 2016 funding allocation. Once a contractor has been identified and a notice to proceed has been issued, the purchase order will include fiscal 2016 and 2017 funding.

Objective(s): The objective of *Back the Bay* is to raise regional awareness and value of Galveston Bay, and promote environmentally-conscious actions—those that help preserve habitat, conserve water, and improve water quality.

Background: The GBEP developed a regional public stewardship campaign, called *Back the Bay*, to increase public awareness and education about Galveston Bay. The campaign offers a fun and interactive way for residents to learn about the benefits of, and their connection to, our region's most valuable natural resource. The campaign also features conservation tips that benefit Galveston Bay. The campaign will be used to reinforce implementation of the GBP's priorities. This specifically includes: watershed-based, water quality improvement initiatives, habitat conservation, and freshwater inflows.

The campaign was implemented in 2010 with a phased rollout through August 2015. The campaign is comprehensive in nature and includes two phases. The first phase started with a pre-research project (Summer 2010), a pilot program project in a limited geographical region (Summer 2011), and post-pilot research (Summer 2011). These projects developed and tested campaign messages, creative and other tactics, and a campaign plan. The second phase began in the spring of 2012, and expanded to the entire five-county region. In order to maximize awareness and effectiveness, the campaign will expand as quickly as the budget allows both geographically and in terms of the media mix.

Project Description: Fiscal 2017 funding will cover adjusting campaign messages as appropriate to address the needs of non-English speaking communities. The 2017 campaign will create and produce materials for

outreach and education and continue working with media partners on delivering campaign messages to TV, Radio, and digital communication channels. In addition, the campaign will update and manage the Back the Bay website to:

- Ensure campaign messages, creative and outreach materials are easily available.
- Track website activity, including number of “unique visitors” and other pertinent information.
- Identify and correct deficiencies and problems with the website design and construction if and when applicable.

Partners and Their Role(s): The following partners have provided campaign exposure by using the campaign messaging and materials: the GBF, Take Care of Texas, Houston Audubon, Audubon Texas, City of Pasadena, City of Baytown, Houston Parks Board, and Bayou Preservation Association. Funding partners: the TCEQ, the EPA (CWA Section 320 Grant).

Outputs/Deliverables:

- weekly progress reports until contract expiration, and
- final report due August 2017.

Long-term Outcomes: Change behaviors of audiences that are associated with habitat loss, degraded water quality, and water consumption in appropriate-identified percentage of the Houston-Galveston area targeted audiences—those whose behavior change will affect the most positive change. (Percentage of behavior change—as well as type—and target audiences was determined through extensive preliminary research before campaign implementation and reassess throughout campaign implementation.)

6. Trash Bash 2017

CCMP Actions Implemented: PPE-1, PPE-3, PPE-5, SD-5

Grantee/Contractor: The H-GAC

Fiscal 2017 Budget: \$5,000

Total Budget: \$11,500 (\$6,500 in Grant #CE-00655005: fiscal 2015 \$1,500/ fiscal 2016 \$5,000)

Milestones: Trash Bash event will occur on March 27, 2017.

Project Period: September 2016 – July 2017

Status: Ongoing.

Objective(s): The goal of Trash Bash is to "promote environmental stewardship of our watershed through public education by utilizing hands-on educational tools and by developing partnerships between environmental, governmental and private organizations."

Background: Trash Bash is a successful volunteer-based litter cleanup event that has been held at multiple sites in the Houston-Galveston area on an annual basis since 1994. In fiscal 2015 and 2016 the CWA Section 320 funds were used to help promote and implement the Trash Bash 2015 and 2016 by paying for items such as, but not limited to, supporting staff to coordinate activities with site leads and collect and share results, printing and postage of promotional materials and for acquiring supplies for the participating sites.

Project Description: The GBEP continues to support Trash Bash in 2017 by providing funds at the \$5,000 sponsorship level to fund the salary and fringe benefits for a portion of the H-GAC Trash Bash coordinator position. For fiscal 2017 the GBEP Trash Bash site located along Brays Bayou at Mason Park will also include two satellite sites at Brays Greenway Park and Kuhlman Gully. The Mason Park site will serve as the main site and some participants will be shuttled to the nearby satellite sites for additional trash removal.

Partners and Their Role(s): Partners for this project include the H-GAC which organizes and coordinates the event, Texas Conservation Fund which manages the funding, the TCEQ's CWA Section 319 grant program

which provides funding, City of Houston provides site coordinators and outreach materials, as well as private and corporate sponsorships.

Outputs/Deliverables:

- Trash Bash Steering Committee meeting agendas and meeting minutes due July 31 annually, and
- final report due July 2017.

Long-term Outcomes: Increase awareness level of the connection between littering, how litter enters into our waterways, and the negative impacts it has on neighboring communities, fish and wildlife by 10% at all Trash Bash locations. Decrease the amount of trash flowing into area waterways through educating citizens on appropriate actions i.e. do not litter in your neighborhood, along the roads, etc. Support EPA Trash Free Waters initiative.

7. Texas Estuarine Resource Network (TERN)

CCMP Actions Implemented: PPE-1, PPE-5, PPE-8, SP-8, HP-7

Grantee/Contractor: Audubon Texas

Fiscal 2017 Budget: \$25,000

Total Project Budget: \$45,000 (\$25,000 Federal, \$20,000 State)

Milestones: Assemble project advisory committee by December 2016.

Project period: September 2016 – May 2018

Status: New project

Objective(s): The goals of the project are to facilitate and establish public/citizen involvement as an integral part in Galveston Bay policy and management.

Description: Audubon Texas' TERN program was successful in its first year, and the organization's goal is to expand the program in Galveston Bay area by hiring a seasonal employee to help recruit and train new TERN volunteers and support expanded citizen science, community education, outreach and engagement during the busy coastal season (January – August). This time of year is characterized by higher concentrations of colonial water birds, young birds being hatched and fledged, and more people using Galveston Bay for recreational purposes.

Since Audubon Texas launched the TERN program in the Galveston Bay area in September 2014, local volunteer groups such as Texas Master Naturalists, Audubon chapters, bird clubs and other community residents have been monitoring estuarine environments and the wildlife that depends on them. The resulting bird monitoring, data collection, and analysis has and will continue to help improve understanding of local, coastal ecosystems as well as provide a baseline database that will continue to inform decisions on resource management long into the future. In the program's first year, volunteers not only collected foraging and nesting data on local colonial water birds but also helped to support ongoing American Oystercatcher research and helped support Brown Pelican and other coastal bird rehabilitation.

In addition to the added seasonal staff, the program will print and distribute more educational brochures, install signage on rookery islands to help abate disturbance, increase the number of fishing line recycling bins (and the associated upkeep) and provide more opportunities to engage our citizen scientist volunteers in the monitoring of both water bird foraging and nesting habitat.

Partners and Their Role(s): Local governments, agencies, master naturalist groups, and citizen organizations contributing to outreach and education messaging and outreach, and volunteer wildlife guidance.

Outputs/Deliverables:

- quarterly progress reports until contract expiration,

- TERN program presentation due November 2016,
- print copies of Breeding Birds of the Texas Coast: a fisherman's and boaters guide due May 2017, and
- final report due August 2018.

Long-term Outcomes: Fewer injured wildlife and disturbed bird habitats.

3.2E - M&R PROJECTS FOR FISCAL 2017

8. The Impacts of Assimilative Capacity of Reservoirs on Coastal Inflows Phase II

CCMP Actions Implemented: FW-1-5, RSC-2

Grantee/Contractor: The HARC/ GeoTechnology Research Institute (GTRI)

Fiscal 2017 Budget: \$41,300*

*The HARC requested \$80,000 for phase II of the project for fiscal 2017. Due to increase salary and fringe and indirect costs, the HARC agreed to receive the funding over two fiscal years, and will receive the final \$38,700 in fiscal 2018.

Total Project Budget: \$160,000 (\$80,000 in Grant #CE-00655005: fiscal 2016 \$80,000)

Milestones: Revised QAPP by February 2017.

Project period: September 2016 – May 2018

Status: Ongoing

Objective(s): The goal for the proposed project is to assess the assimilative capacity of the Lake Livingston reservoir and related impacts on coastal inflows.

Background: More than half of the inflow into Galveston Bay comes from the Trinity River. The Lake Livingston reservoir feeds into the Trinity and the goal of the project will be to assess the assimilative capacity of Lake Livingston and the related impacts on coastal inflows. The United States Geological Survey (USGS), in cooperation with the Texas Water Development Board (TWDB), has evaluated a number of high flow events on the Trinity River in order to evaluate the variability of nutrient and sediment concentrations entering Texas bays and estuaries during a variety of flow conditions. Initial results from this study indicate that releases from the Lake Livingston reservoir may play an important role in controlling sediment and nutrient load variability to the coastal ecosystem. The effect Lake Livingston has in sequestering sediments and nutrients is not well understood; therefore quantifying the assimilative capacity of Lake Livingston is critical in understanding the impacts of reservoirs on the health of the Galveston Bay ecosystem.

Project Description: The QAPP was developed and approved during the first year of the project. The monitoring will begin during the second half of fiscal 2016 under grant #CE-00655005 and continue through the end of the project. Fiscal 2017 will allow the GTRI to double the sampling time period and sampling amounts. Doubling the number of samples will help to better capture the full regime of flows (low, medium and high). In addition, more samples increase both precision and accuracy in estimating assimilative capacity. The extra project dollars will cover the increased project management, reporting, invoicing, data management and analysis and oversight associated with the extended project period.

Partners and Their Role(s): The USGS will assist with the development of the QAPP and the monitoring plan, and will also conduct the monitoring; the TWDB will contribute sampling data from the Trinity River.

Outputs/Deliverables:

- quarterly progress reports until contract expiration,
- QAPP revision due February 2017,
- year-end summary report due annually in September, and
- final report due May 2018.

Long-term Outcomes: Insight into assimilative capacity of reservoirs and impacts to inflows for Galveston Bay.

9. Freshwater Inflows to Galveston Bay: Relationship to HABs

CCMP Actions Implemented: FW-1, 7, SP-1

Grantee/Contractor: TAMUG

Fiscal 2017 Budget: \$80,000

Total Project Budget: \$80,000

Milestones: Coordination meeting held in January 2017.

Project period: September 2016 – May 2019

Status: New project

Objective(s): The objective of this project is to monitor the development of the relationship between freshwater inflows and the presence of HABs in Galveston Bay by using an Imaging Flow Cytobot (IFCB) to detect HABs earlier than previously documented. Coupled with the simultaneous monitoring of the flow and chemistry of the bay, a better understanding of the influences on water quality will be established.

Description: Only a basic understanding of the factors which lead to HABs in Galveston Bay exists today. Extreme events such as drought conditions and excessive rain can change the dynamics of algal blooms in Galveston Bay. In addition to blooms observed as a result of these extreme climatic events, there are also naturally occurring blooms of native species. These tend to be poorly documented unless there is a concurrent fish kill event. Hence, more information is needed.

Using a new type of technology, the IFCB, will allow a more proactive approach to providing needed early detection of HABs when they occur. Given the unit is housed on the TAMUG campus, it will detect species entering Galveston Bay. In this way, the IFCB will help to identify phytoplankton blooms, their timing, magnitude and duration, follow blooms and observe changes, and develop predictive abilities to forecast subsequent blooms. Observations will be able to be related to water quality and importantly to freshwater inflows. By working with the Coastal Fisheries Division of the TPWD and the Texas Department of State Health Services (DSHS), the goal is to provide an early announcement to oyster and fisheries groups to protect consumers from disease or other health hazards associated with harvesting and/or consuming these products exposed to (harmful) algal blooms.

Funding will cover the cost of daily samples collection and processing on the IFCB. Concurrently salinity, temperature, dissolved oxygen, and pH will be measured and freshwater inflows data collected from USGS.

Partners and Their Role(s): TAMUG, TPWD Coastal Fisheries Division, DSHS, and USGS

Outputs/Deliverables:

- quarterly progress reports until contract expiration,
- draft QAPP due November 2016,
- final QAPP within 45 days of draft,
- final report due May 2019.

Long-term Outcomes: A better understanding of the relationship between freshwater inflows and HABs.

SECTION 3.3: FISCAL 2017 GRANT BUDGET SPREADSHEET

Table 7 depicts the Grant Budget Spreadsheet for fiscal 2017. Table 8 provides a summary of the fiscal 2017 budget.

Table 7. Fiscal 2017 Grant Budget Spreadsheet

2017 Grant Budget Totals	Total Costs	NRU	WSQ	PPE	M&R	Administration
Project #		915210	915210	915210	915210	915210
Salaries	\$ 354,917	\$ -	\$ -	\$ -	\$ -	\$ 354,917
Contracts	\$ 148,650	\$ -	\$ -	\$ 147,045	\$ -	\$ 1,605
Travel	\$ 7,500	\$ -	\$ -	\$ -	\$ -	\$ 7,500
Other	\$ 479,758	\$ 100,000	\$ 145,000	\$ 30,000	\$ 121,300	\$ 83,458
Supplies	\$ 200	\$ -	\$ -	\$ -	\$ -	\$ 200
Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Sub-Total</u>	<u>\$ 991,025</u>	<u>\$ 100,000</u>	<u>\$ 145,000</u>	<u>\$ 177,045</u>	<u>\$ 121,300</u>	<u>\$ 447,680</u>
Fringe 30.40%	\$ 107,895	\$ -	\$ -	\$ -	\$ -	\$ 107,895
<u>Indirect 28.48%</u>	<u>\$ 101,080</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 101,080</u>
GRANT TOTAL	<u>\$ 1,200,000</u>	<u>\$ 100,000</u>	<u>\$ 145,000</u>	<u>\$ 177,045</u>	<u>\$ 121,300</u>	<u>\$ 656,655</u>

Table 8. Fiscal 2017 GBEP Budget Summary (CTRL+ CLICK Project Names)

2017 GBEP Budget Summary	Amount
Salaries	\$ 354,917
Salaries for staff members of GBEP	\$ 354,917
Contracts	\$ 148,650
5. 2017 Back the Bay Public Awareness Campaign	\$ 147,045
GBEP Website	\$ 1,605
Travel	\$ 7,500
Travel for program manager and two staff to attend Fall ANEP Tech Transfer meeting/Restore America's Estuaries (RAE) Conference in New Orleans, Louisiana	\$ 4,993
Travel for program manager to attend Spring EPA NEP Workshop in Washington, D.C.	\$ 2,507
Other	\$ 479,758
1. The GBP Revision	\$ 75,000
2. Conservation Assistance Program	\$ 100,000
3. Galveston Bay FOG Campaign	\$ 60,000
4. Galveston County Coalition of Watersheds	\$ 85,000
6. Trash Bash 2017	\$ 5,000
7. TERN Program	\$ 25,000
8. The Impacts of Assimilative Capacity of Reservoirs on Coastal Inflows Phase II	\$ 41,300
9. Freshwater Inflows in Galveston Bay: Relationship to HABs	\$ 80,000
Mickey Leland Intern	\$ 8,458
Supplies	\$ 200
Supplies for Outreach and Education	\$ 200
Fringe and Indirect	\$ 208,975
2017 GRANT TOTAL	\$ 1,200,000

Table 9. Travel Summary by Trip

Travel Summary	Amount
Fall ANEP Tech Transfer meeting/RAE Conference in New Orleans, Louisiana (1 person travel, 4 days)*	\$1,798
Transportation (State Vehicle)	\$0
Registration for RAE conference	\$575
Lodging (\$153/night)	\$612
Hotel Tax (13.0%)	\$80
Taxi/transport	\$75
Parking (one vehicle, staff riding together)	\$200
Per diem (\$64/day)	\$256
Fall ANEP Tech Transfer meeting/RAE Conference in New Orleans, Louisiana (1 person travel, 4 days)*	\$1,598
Transportation (State Vehicle)	\$0
Registration for RAE conference	\$575
Lodging (\$153/night)	\$612
Hotel Tax (13.0%)	\$80
Taxi/transport	\$75
Per diem (\$64/day)	\$256
Fall ANEP Tech Transfer meeting/RAE Conference in New Orleans, Louisiana (1 person travel, 4 days)*	\$1,598
Transportation (State Vehicle)	\$0
Registration for RAE conference	\$575
Lodging (\$153/night)	\$612
Hotel Tax (13.0%)	\$80
Taxi/transport	\$75
Per diem (\$64/day)	\$256
Spring EPA NEP Workshop in Washington, D.C. (1 person travel, 4 days)	\$2,507
Airfare	\$1,200
Lodging (\$189/night)	\$756
Hotel Tax (14.5%)	\$110
Taxi/transport	\$75
Parking	\$91
Per diem (\$69/day)	\$276
2017 Travel Estimate Total**	\$7,500

*The ANEP Fall Tech Transfer meeting, which will be hosted by the Louisiana NEP, is being scheduled in partnership with the RAE conference to allow attendance at both events concurrently. There will be five concurrent sessions during the RAE conference which will allow three GBEP staff to attend different sessions at the same conference. The RAE conference is located in New Orleans and the close proximity to Galveston Bay watershed means the talks will be relevant to local Galveston Bay issues.

**All out of state travel is dependent on management review and approval. Rates for fiscal 2017 are subject to change and estimates are based on previous trips from fiscal 2016 as well as the current fiscal 2016 federal and state per diem rates.

SECTION 4: COMPLETED MAJOR PROJECTS

SECTION 4.1: MAJOR PROJECTS COMPLETED IN FISCAL 2016

The following are major projects that were completed during fiscal 2016.

COMPLETED MAJOR PROJECTS

1. West Bay Implementation Project

CCMP Actions Implemented: HP-1, NPS-1, 2, 3, WSQ-6, PPE-5

Lead Implementer: TAMU/Texas Coastal Watershed Partnership

Partners and Their Role(s): Municipalities in the lower Galveston Bay watershed implemented stormwater wetlands BMPs, MD Anderson installed stormwater wetlands on their campus, Master Naturalist volunteered to manage the wetland plants and planted at new sites and schools in Clear Creek Independent School District educated students about the importance of stormwater wetlands and students managed a wetland on school property.

Status: Complete

Objective(s): To demonstrate and advance the effective use of created multi-functional stormwater detention basins as water quality improvement practices that will result in measureable stormwater quality improvement.

Description: The Stormwater Wetland Program was an effort to improve stormwater quality in Harris, Galveston and Brazoria Counties by demonstrating the use of engineered wetlands as a stormwater BMP and the multi-functionality of stormwater wetlands sites, which provide flood control measures, water quality improvements, natural habitat, and where appropriate, public green space. The program built partnerships with local governments and entities, designed and installed stormwater wetland pilot projects, educated local government staff, school communities, and other groups through presentations, printed media, videos, workshops, and volunteer events.

Accomplishments and Deliverable(s):

- completed three stormwater wetlands by March 2015,
- created outreach materials by March 2015,
- established a stormwater wetland task force by April 2015, and
- final report by May 2015.

CWA Section 320 Funds: \$452,058

Long-term Outcomes: Built partnerships to increase the awareness of stormwater wetlands and reduced NPS pollution.

CWA Core Program(s): Addressing diffuse, NPS sources of pollution.

2. Galveston Bay Public Awareness and Education Campaign

CCMP Actions Implemented: All

Lead Implementer: The GBEP working with contractor EnviroMedia

Partners and Their Role(s): Local governments, agencies, and nonprofits supported the campaign by using their outreach and education opportunities and social media channels by distributing the campaign creative assets including printed posters, brochures, online videos, and digital banners. Partners also incorporated *Back the Bay* messages and talking points in their presentations, newsletters, and education/outreach materials.

Status: Complete

Objective(s): The objective of *Back the Bay* is to raise regional awareness and value of Galveston Bay, and

promote environmentally-conscious actions—those that help preserve habitat, conserve water, and improve water quality.

Description: The GBEP developed a regional public stewardship campaign, called *Back the Bay*, to increase public awareness and education about Galveston Bay. The campaign offers a fun and interactive way for residents to learn about the benefits of, and their connection to, our region's most valuable natural resource. The campaign also features conservation tips that benefit the bay. The campaign will be used to reinforce implementation of the GBP's priorities. This specifically includes: watershed-based, water quality improvement initiatives, habitat conservation, and freshwater inflows.

Accomplishments and Deliverable(s):

- created one radio PSA by August 2014,
- completed campaign research by August 2014,
- created outreach materials by August 2015,
- created three PSA videos by August 2015,
- completed a campaign website (backthebay.org) by August 2015,
- completed a Partner Tool Kit on the Back the Bay Website with the creative materials and PSA's for partners and public to utilize by August 2015, and
- final report by February 2016.

CWA Section 320 Funds: \$1,761,317

Long-term Outcomes: The theme of the *Back the Bay* campaign is, "You're more connected than you think." The campaign's goal is to raise awareness of each individual's connection to the bay and the valuable resources Galveston Bay provides. The campaign created several materials and messages that are available on backthebay.org and in the "Materials" section of the website. The campaign is a successful example of many stakeholders coming together to create a unique and adaptable public awareness campaign that is multidimensional based on three pillars of water quality, water conservation and habitat conservation. The campaign will continue to strengthen its messaging and delivery in the coming years as the GBEP, the GBC and subcommittees, along with multiple partners, work together to adapt it based on social indicators of the region.

CWA Core Program(s): N/A