



Protecting Our Bays & Estuaries

FY 2018 Comprehensive Annual Work Plan

Approved 8/24/17

Coastal Bend Bays & Estuaries Program, Inc.
615 N. Upper Broadway, Suite 1200
Corpus Christi, TX 78401

www.cbbep.org

COASTAL BEND BAYS & ESTUARIES PROGRAM

FY 2018 Comprehensive Annual Work Plan

TABLE OF CONTENTS

I.	Introduction.....	1
II.	Starting Date	2
III.	Federal & State Program Coordinators and Project Officers	2
IV.	Accomplishments to Date.....	3
V.	Goals for FY 2018	3
VI.	Statement of Competency	3
VII.	Implementation of Projects	4
VIII.	Project Deliverables/Schedule	4
IX.	Program Administration.....	35
X.	Project Management & Implementation	35
XI.	Program Expenses	35
XII.	Working Capital	36
XIII.	Summary	36
	Table 1: FY 2018 Comprehensive Annual Work Plan Outline	37

I. Introduction

History

In its 1987 reauthorization of the Water Quality Act, the U.S. Congress established the National Estuary Program (NEP) to promote long-term planning and management of nationally significant estuaries threatened by pollution, development, or overuse. The Administrator of the Environmental Protection Agency (EPA) was given authority to convene Management Conferences and to award Federal financial assistance grants to approved state programs for the purpose of developing and implementing a Comprehensive Conservation and Management Plan (CCMP). The Act defines criteria by which Management Conferences are charged with balancing the conflicting uses in target estuaries, while restoring or maintaining their natural character.

The Coastal Bend Bays & Estuaries Program (formerly the Corpus Christi Bay National Estuary Program) was formally established in October 1993 with committee meetings beginning in late 1993. The CBBEP was one of the first NEPs to use a streamlined approach to the development of a CCMP. The goal of the CBBEP to complete a Preliminary CCMP within 12 to 18 months (from 09/01/94) and a final CCMP (*Coastal Bend Bays Plan*) in approximately four years (by September 1998) was achieved.

A State-EPA Management Conference Agreement detailing this and other specific outputs of the four-year program was signed in May 1994 by the Regional Administrator of the EPA and the Chairman of the State-lead agency for the Program, the Texas Natural Resource Conservation Commission (now the Texas Commission on Environmental Quality – TCEQ). The CBBEP had been established since December 1993 as a program of the TCEQ. In 1999, CBBEP became a non-profit organization to lead implementation.

CBBEP Operations

The project area encompasses the estuarine environment of 75 miles of the south-central Texas coastline, and includes the 12 counties of the region known as the Coastal Bend. This 514 square mile area of water includes all bays, estuaries, and bayous in the Copano, Aransas, Corpus Christi, Nueces, Baffin, and upper Laguna Madre bay systems, which together represent three of the seven major Texas estuaries.

The priority Issues for the CBBEP are:

- Alteration of Freshwater Inflow into Bays and Estuaries
- Condition of Living Resources
- Loss of Wetlands and Estuarine Habitats
- Degradation of Water Quality
- Altered Estuarine Circulation
- Bay Debris
- Selected Public Health Issues

The *Coastal Bend Bays Plan* has been developed to address each of these priority issues under the following categories of action plans: Human Uses; Maritime Commerce and Dredging; Habitat and Living Resources; Water and Sediment Quality; Freshwater Resources; and Public Education and Outreach. The projects selected for implementation under this Cooperative

Agreement reflect a combination of priority and readiness or feasibility for implementation. Implementing Partners for other actions of the *Bays Plan* will likewise be called upon to begin and continue to implement their own portions of the Plan. The role of Program staff is multi-faceted, but will include at a minimum the following tasks: (1) acquire, manage, and disperse funds to implement the *Bays Plan*; (2) develop and implement partnership projects with local governments, state and federal agencies, and private organizations; (3) monitor, track, and report on implementation performance by implementing partners, and work to maintain implementation commitments; and (4) coordinate the environmental monitoring and assessment of *Bays Plan* implementation effectiveness.

Work Plan Development

The FY 2018 Comprehensive Work Plan will allow the CBBEP to continue the implementation of the *Coastal Bend Bays Plan*. This Work Plan describes implementation projects and administrative support that will be undertaken pending approval and receipt of funds by the funding entities.

All data and information produced under the auspices of the CBBEP will adhere to standardized formats and be made publicly accessible. A public participation strategy, refined under the “public education and outreach” chapter of the *Bays Plan*, will continue to guide public participation efforts in the *Bays Plan* implementation. The list of Priority Issues, refined through public input and characterization projects will continue to serve as the focus for implementation.

II. Starting Date

The starting date for this FY 2018 Comprehensive Work Plan will be September 1, 2017.

III. Federal and State Program Coordinators and Project Officers

Federal

Mr. Doug Jacobson
CBBEP Program Coordinator
U.S. EPA Region 6
Marine and Wetlands Section (6WQ-EM)
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Ms. Teresita Mendiola
CBBEP Project Officer
U.S. EPA Region 6
Office of State & Tribal Program Section (6WQ-AT)
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

State

Mr. Cory Horan
CBBEP Program Coordinator
Texas Commission for Environmental Quality
P.O. Box 13087, MC 203
Austin, TX 78711-3087

IV. Accomplishments To Date

CBBEP regularly assesses administrative program activities in order to improve its success. CBBEP has continuously had favorable annual financial audits, as well as the quality system audits conducted by the Texas Commission on Environmental Quality (TCEQ). The Program has identified the need for more project documentation in a timely manner. Specifically, project progress needs to be better documented in the CBBEP project database on a more regular basis – not just when reporting deadlines are due. In addition, CBBEP recognizes the need to make draw-downs on EPA funds on a timelier basis.

The CBBEP achieved its primary project-related goal for FY 2016, which was to continue the successful initiation and completion of projects developed to implement the *Coastal Bend Bays Plan*. To date, CBBEP and its partners have achieved programmatic progress on 94 percent of *Bays Plan* actions. The Program's success in leveraging funds for CBBEP projects has also been noteworthy. Broad support for CBBEP's activities continues to be evidenced by the range of contributors, including local governments, industries, NGOs, and state and federal agencies. The CBBEP Bays Council continues to support the priorities as listed in the *Bays Plan*.

In 2016 the CBBEP implemented numerous projects aligned with the goals and objectives of EPA's *Strategic Plan and Government Performance and Results Act*. These projects include well-defined outputs and outcomes.

All project deliverables identified prior to CBBEP FY 2014 implementation years have been completed. CBBEP will prepare a draft Revised Comprehensive Work Plan that reallocates funds not identified with projects for FY 2014, FY 2015, FY 2016 and FY 2017.

The project implementation teams continue to identify, initiate and select project ideas for inclusion in the Program work plans. The teams are: Habitat & Living Resources Team, Human Uses Team; Maritime Commerce & Dredging Team; Water & Sediment Quality Team; and Environmental Education & Outreach Team. The *Bays Plan* Coordination Team, consisting of all the chairs of the Implementation Teams and key members of the Bays Council, coordinates the annual work plan recommendations to the CBBEP Bays Council, and reviews and proposes update recommendations to the *Bays Plan*.

V. Goals for FY 2018

The overarching goal for FY 2018 is to continue the successful implementation of the *Coastal Bend Bays Plan*. CBBEP Implementation Teams continue to identify, initiate and select project ideas for inclusion in the Program work plans. The teams are: Habitat & Living Resources, Human Uses Team; Maritime Commerce and Dredging Team; Water & Sediment Quality Team; and Environmental Education & Outreach Team. The CBBEP Coordination Team, consisting of all the chairs of the Implementation Teams and key members of the Conference, coordinates the annual work plan recommendations to the CBBEP Board of Directors, and reviews and proposes update recommendations to the *Bays Plan*.

VI. Statement of Competency

CBBEP is committed to the development and implementation of procedures and policies in order to assure that activities that acquire, generate, compile, or use environmental data and technology that are of the appropriate type and quality for their intended use. CBBEP operates under, and maintains an annually approved Quality Management Plan to continually assure that

quality of the data generated is sufficient to meet the objectives of the project. To this end, CBBEP's activities meet all the requirements that have been set forth to receive and utilize funds from the Agency and can demonstrate this through the following commitment:

“Competency for generating environmental measurement data under USEPA funded assistance is demonstrated at the CBBEP through the maintenance of quality assurance project plans for data collection activities that involve water quality monitoring and other environmental measurements, and through the approved Quality Management Plan that provides descriptions of the quality policies, including all requirements described in EPA QA/R-2.”

VII. Implementation of Projects

Project activities for FY 2018 have been selected for their contribution towards implementation of the *Coastal Bend Bays Plan*. Twenty-nine projects will be implemented in FY 2018. A comprehensive list of projects outlining project numbers, titles, action items, performing party(s), and budget can be found in Table 1: FY 2018 Comprehensive Annual Work Plan Outline. This list represents the combined efforts of the many volunteers who have donated their time and expertise to help assure the successful implementation of the *Coastal Bend Bays Plan*.

VIII. Project Deliverables/Schedule

Specific project deliverables and schedules for completion are to be negotiated with the sub-contractor of the project and will be included in the scope of work of the project contract. The project contract and any amendments will be subject to review by funding entities and are incorporated into this annual work plan by reference.

Project 1801 CBBEP Coastal Bird Management

Performing Organization: **CBBEP**
Total Project Funding: **\$161,256**
CBBEP *Bays Plan* Actions: **HLR-1, HLR-4**

Background:

Coastal birds are important components of estuarine ecosystems and serve as indicators of ecosystem health. In addition, recreational bird viewing is a significant and growing component of ecotourism, a major facet of the local economy. The 2010 Environmental Indicators Report prepared by CBBEP documented the declining populations of many colonial waterbird species in Texas, with some species experiencing up to a 90% reduction in breeding pairs since the 1960's. Research continually provides evidence of the importance of the Texas coast to many other non-breeding coastal bird species, many of which are also experiencing major population declines.

Building on the efforts of the CBBEP Colonial Waterbird projects from previous years, this project will continue the implementation of specific management actions of the *CBBEP Colonial Waterbird Rookery Island Management Plan* that will reduce anthropogenic impacts, manage, protect, and restore nesting habitat, and minimize the presence of nest predators. Additionally, these efforts will extend to activities that support the conservation of non-breeding coastal bird species and their habitat. Public education and outreach through actions such as volunteer engagement, presentations, local and social media engagement, and organizing and participating in beach cleanups and other similar events will continue to be a major component in achieving project objectives.

Years of experience working with coastal bird species in the Coastal Bend makes the CBBEP uniquely qualified to provide expertise and assistance to partners and stakeholders working to conserve coastal birds. The CBBEP will assist resource agencies, universities, and other stakeholders in joint efforts to monitor changes in coastal bird populations at a large scale. These monitoring efforts will take place primarily in December and May and provide information that helps direct waterbird management priorities for CBBEP for the coming years. In addition, the CBBEP will meet with partners and stakeholders throughout the year to provide updated information on coastal bird species ecology and management in the Coastal Bend area, aiding in regional planning and monitoring efforts.

Objectives:

This project will:

- Continue the restoration efforts for coastal bird populations through management of colonial waterbird nesting sites, which includes habitat enhancement and protection, predator control, and the reduction of anthropogenic impacts to coastal birds.
- Develop and implement public education and outreach programs that promote awareness and stewardship of coastal birds and their habitats.
- Assist partners in efforts to monitor changes in coastal bird populations for management purposes.
- Provide resource agencies, researchers, and other stakeholders with expertise on coastal bird ecology, habitats, and conservation needs.

Project 1802 Delta Discovery

Performing Organization: CBBEP
Total Project Funding: \$224,470
CBBEP *Bays Plan* Actions: BTR-1, PEO-2, PEO-3, PEO-5

Background:

Delta Discovery has become the tagline for our entire education program. The educational program cost consists of the following:

- Salary of full time CBBEP environmental educators & part time Teacher Naturalists.
- Supplies needed for the Nueces Delta Preserve.
- Bus funding for field trips.
- Supplies and food for teacher workshops.

Teacher Workshops: CBBEP Environmental Educators will facilitate workshops throughout the school year. These workshops will address local environmental science topics and will align to the TEKS objectives. Participating teachers will receive SBEC credits. The workshops focus on equipping teachers with the skills, curriculum, support, and materials to strengthen science teaching as it relates to the environmental treasures of the Texas Coastal Bend. Partnering throughout the year would allow the CBBEP to introduce environmental issues to teachers who may not be able to dedicate time in the summer to workshops. The funding provides all fees for partnering, curriculum, and substitute teachers in order for these workshops to occur on weekdays. During the summer, the CBBEP partners with other successful educational programs.

Fieldtrips: CBBEP Environmental Educators provide field trip opportunities for teachers and students to visit the Nueces Delta Preserve. The cross-curricular trip may be organized by the teacher, with assistance from an Environmental Educator, to create an educational TEKS-aligned agenda for outdoor education. This program serves over 8,000 students a year.

Delta Discovery Days: CBBEP will host four Delta Discovery Days. These hands-on “picnic days” provide families time and guidance to discover, connect and learn about the estuary in their back yard. Families bring a sack lunch and the CBBEP Education Staff facilitates learning activities throughout the four hour picnic. During our pilot program we served 46 people at the Delta Discovery Days.

Nature Story Time: CBBEP will host 14 nature story times. These programs are geared for 2-5 year olds and introduce children to nature and the joys of reading through stories, crafts, and outdoor play. Children and their families will explore and connect with the estuary and its inhabitants. During the pilot program this summer, we served a total of 77 families over the course of 6 Nature Story Time events.

Home School Days: Home School families often request field experiences, yet have difficulty meeting our minimum student quota for the day. To better serve this audience, we are going to offer two home school experience days. These will allow home school families and their students an opportunity to connect their classroom science curriculum to the natural world of the Coastal Bend using both place based and discovery education.

Nueces Delta Preserve Upkeep: Upkeep of the Nueces Delta Preserve consists of electricity costs, phone and internet costs, bathroom cleaning/maintenance, trash pick-up, equipment for programming, staff accreditation and educational training, and mileage, etc.

Bus Funding: CBBEP will conduct environmental education learning experiences for students and their teachers. This funding is intended to support the education trip in its entirety, including associated educational materials, substitutes if needed for school trips, and the necessary and reasonable costs associated with transporting the teacher and students from the school to the destination.

Objectives:

The objectives of this project are:

- Provide a day-long outdoor experience to K-12 students connecting the classroom to local nature through educational field trips.
- Aid teachers in the community to increase their knowledge, skills and provide resources to more effectively teach science to their students in local schools.
- Facilitate outdoor experiences that connect families to nature.

Project 1803 Debris Container Lids for Hazel Bazemore Park

Performing Organization: Nueces River Authority
Total Project Funding: \$6,000
CBBEP Bays Plan Actions: HRL-1, BTR-2, PH-1, BD-1, WSQ-1

Background:

In FY 2013, CBBEP funded the Debris Management at Public Access Sites, #13-14, project administered by the Nueces River Authority (NRA). The project initially provided \$10,000 for a cleanup along CR 73, in Nueces County. In-kind support from the City of Corpus Solid Waste Department, CC Disposal, Dawson Recycling, and Republic Services provided allowances in the existing project budget for the Nueces River Authority to provide trash cans at the Nueces County Hazel Bazemore Park. After CBBEP authorized the work scope and budget modification the Nueces River Authority coordinated with Nueces County for the purchase of the necessary supplies and the construction and installation of the trash receptacles.

Park visitors have been consistently using the trash receptacles. However, park wildlife are getting in the receptacles and scattering the deposited trash on the ground outside of the trash barrels.

Several discussions have been held over the past few years about having lids installed to remedy this situation, but there has been no implementation to date.

This project supports the CBBEP's Coastal Bend Bays Plan the Lower Nueces River Watershed Protection Plan.

Objectives:

- To install trash can lids on the 29 trash cans therefore discourage park wildlife from accessing the trash inside the receptacles without discouraging park visitors from using them
- To minimize the required effort by the Nueces County park staff personnel to service the receptacles during routine park maintenance activities.

Performing Organization: Center for Coastal Studies at TAMUCC
Total Project Funding: \$3,500
CBBEF Bays Plan Actions: PH-1, WSQ-1, WSQ-5, FW-1, PEO-5

Background:

Staff from the Center for Coastal Studies at Texas A&M University–Corpus Christi have been working with stakeholders since 2013 to develop a plan for water quality improvements in the Oso Bay/Oso Creek Watershed (Oso Watershed). The efforts of this plan have identified the need to connect the urban and rural communities within the Oso Watershed, specifically with the Colonias communities.

The Islander Stream Team, established in August 2015 at Texas A&M University-Corpus Christi (TAMUCC), is composed of both undergraduate and graduate TAMUCC student volunteers. The students collect monthly water quality data at sites along Corpus Christi Bay and Oso Bay. This project will give the Islander Stream Team latitude to move out into the rural areas of the Oso Watershed and help build relationships with the Colonias communities.

The data collected by the Islander Stream Team is submitted to the Center for Coastal Studies at Texas A&M University-Corpus Christi, which is the hub for the Coastal Bend Regional Stream Team. The Center for Coastal Studies takes the water quality data through Quality Assurance/ Quality Control (QAQC) measures before final submission to the Texas Stream Team database. Our partner, the Nueces River Authority supported the formation of the Islander Stream Team by purchasing kits, standards, refractometers, buckets, and other supplies needed for the students to sample.

The funding will support the Islander Stream Team by allowing the team to expand their sampling activities to the rural areas of the Oso Watershed and connecting with the Colonias communities. Funds would also be used to purchase standards and water quality kits. The Islander Stream Team, with the help of the Center for Coastal Studies, will build relationships and communication with the Colonias communities using water quality monitoring as the foundation. Breaking the barrier between urban and rural watershed communities and building a strong relationship with the Colonias community is vital for the Oso Watershed TMDL and I-Plan process currently in progress by TCEQ. The Islander Stream Team would be our conduit to connect the rural Oso Creek Colonias communities with the urban communities along Oso Bay. This plan to connect communities in the Oso Watershed is essential and key to a successful I-Plan for Oso Bay and Oso Creek. This will be accomplished by visiting rural grade-schools and giving students hands on education about water quality using standard LaMotte Kits and visiting the Colonias communities and talking with them about water quality. Building and growing communities in the Oso Watershed to protect our water is the ultimate goal of this project.

Objective:

The project objective is to expand the Islander Stream Team water quality monitoring and outreach into the rural areas of the Oso Watershed to help build relationships with the Colonias communities.

Project 1805 Real-time Data Access for Copano and Aransas Bay Systems

Performing Organization: Mission-Aransas National Estuarine Research Reserve
Total Project Funding: \$22,500
CBBEF Bays Plan Actions: WSQ-1, FW-1

Background:

The purpose of this project is to create a real-time data access network for bay users and resource managers in Copano, Aransas, and Mesquite bays using the existing infrastructure from the System Wide Monitoring Program established by the Mission-Aransas National Estuarine Research Reserve (Reserve).

In 2015, four of the five water quality monitoring stations in the Copano/Aransas Bay System became not real-time due to increased fees for managing real-time data. However, by adding GOES satellite transmitters to each of the four stations, as is what is currently installed on the fifth station, all data will become available real-time for use by resource managers and stakeholder groups. Specific organizations/groups using the data include researchers from TAMUCC, Harte Research Institute, UTMSI, and Texas A&M University-Galveston. Texas Parks & Wildlife Department, Texas State Soil and Water Conservation Board, Texas Water Development Board, U.S. Coast Guard, and fishing guides. The groups using the data would benefit from the real-time capabilities of these stations. The satellite transmissions from the GOES transmitters are free and once the stations have been upgraded, there will be no cost associated with data collection except for equipment repairs/maintenance which is already factored into the Mission-Aransas Reserve recurring annual budget.

Other benefits to developing this real-time data access system:

- Satellite transmissions have historically been more reliable than free-wave radio transmissions, which is what the older system was using.
- The Centralized Data Management Office at NOAA already has a web interface for displaying the real-time data at: <http://cdmo.baruch.sc.edu/get/export.cfm>

The four stations that need the upgrades are Mesquite Bay, Copano East, Copano West and the Ship Channel.

Objective:

The primary project objective will be to re-establish a real-time network of water quality stations so that stakeholder user groups and resource managers can access these data in a timely manner for emergencies, recreation, or for educational purposes.

Project 1806 Outdoor Classrooms

Performing Organization: CBBEP & USFWS
Total Project Funding: \$10,000
CBBEP *Bays Plan* Actions: PEO-3, PEO-5

Background:

In several discussions with teachers and principals, it has been determined that moving students to learning opportunities (field trips) is becoming more difficult. Buses are expensive and finding personnel to supervise, as well as scheduling, has become challenging. Field trips at the middle school and junior high level are almost non-existent.

One way to solve this problem would be to bring learning opportunities to schools in the form of an outdoor classroom. Outdoor classroom is defined as an outdoor area on campus set aside for student investigation and learning. Components are varied but often include benches or picnic tables adjacent to a study or natural area where students can gain field experience.

Objective:

To provide public schools with the option of an outdoor classroom that will promote interest in science, include community experts, support parent involvement, provide field experience to students, and help to improve scores.

Performing Organization: TBD
Total Project Funding: \$36,000
CBBEP Bays Plan Actions: HLR-1, HLR-2, HLR-10

Background:

The purpose of this project is to convert 38 years of Tony Amos' beach observation data from Mustang and San Jose Islands into a relational database management system format and be made available to the public for analysis and inform management decisions such as beach maintenance, rare species and migratory bird protection, and marine debris solutions. The data will be put into the online accessible data base, Gulf of Mexico Research Initiative Information & Data Cooperative (GRIIDC).

In April 1978 Anthony (Tony) Amos, a University of Texas Marine Science Institute Research Associate and Director of the Animal Rehabilitation Keep, started making repeated observations of a 7.25 mile (11.4Km) stretch of Mustang Island Gulf beach between Access Road #1 and Access Road #2. In 1996 Tony started sampling San Jose Island every 8 days collecting the same type of data. Data has been entered up to 2009 in a DOS-based database created by Tony Amos. For a significant part of the survey timeframe, data entry was automated through use of a portable data recording device with a time and location for each individual observation. However, since 2009 (when the last of these devices failed), data has been recorded on paper datasheets and has not been entered into the database.

Data collected includes: birds, people, vehicles, dogs, and certain items of marine and beach debris are all tabulated. Birds are counted as individuals and in groups, to get some idea of territorial, foraging, and roosting behavior. People are treated similarly distinguishing between day visitors and those who camp on the beach. At one-mile intervals, the width of the beach from shoreline to high tide line to dune line to datum marker posts is measured. At a halfway point, the location of beach features, such as berms, weed lines, driving lanes, and vegetation lines are recorded. At an established location, the sea water temperature is measured, a sample of seawater is collected for a salinity reading, and basic weather observations are made. The frequencies of some 40 categories of things found on the beach that defy counting (natural and man-made materials that wash ashore or are left by visitors to the beach) are estimated. Photos, videos and coded notes (to be classified into categories later) are all recorded. Tony also measures tides at the UTMSI Pier on a regular basis, then predicts the tides annually based on these measurements.

Objective:

Thirty-eight years of data, of over 5,000 surveys conducted along Mustang Island and San Jose Islands along the Texas coast will be transcribed into a usable format that can be used for research and management decisions. The data will be uploaded to a searchable database called the Gulf of Mexico Research Initiative and Data Cooperative (GRIIDC), housed by the Harte Research Institute for Gulf of Mexico Studies at Texas A&M University-Corpus Christi. The link to this searchable database is: <https://data.gulfresearchinitiative.org/>.

Project 1808 CBBEP Community Outreach Partnerships

Performing Organization: Coastal Bend Bays Foundation
Total Project Funding: \$30,000
CBBEP Bays Plan Actions: PEO-1, PEO-2, PEO-3, PEO-4 and PEO-5

Background:

As stated in the *Coastal Bend Bays Plan*, CBBEP is constantly working to promote public/private partnerships to help achieve its educational goals.

The CBBEP partnership with the Coastal Bend Bays Foundation (CBBF) addresses our educational goals set forth in the *Bays Plan*. One of the benefits of the partnership between the CBBEP and CBBF is addressing the need for continued dialogue between competing user groups and the need for an engaging public forum to allow for individual input in the public policy debate. The *Bays Plan* calls for continued involvement from CBBF, as the region prepares itself for ever-increasing number of people wanting to make use of the bays and estuaries. Minimizing conflict through informed discussion will help achieve the overall objective of ensuring the public's safety, health and enjoyment of our bays and estuaries.

This project will result in increase in the community's awareness of local environmental issues through Earth Day, forums and an awards banquet. An estimated 12,000 people are expected to attend these events.

Objectives:

- Host, organize and coordinate turnkey operation of Earth Day festival.
- Host, organize and coordinate CBBF Conservation and Environmental Stewardship Annual Awards Banquet.
- Conduct Coastal Issues Forums to increase communications between resource managers, users and general public.
- Organize and coordinate bay-resource/related workshops with CBBEP's approval.
- Continue to seek matching and/or leveraging funds.

Project 1809 CBBEP Property Management

Performing Organization: **CBBEP**
Total Project Funding: **\$35,000**
CBBEP *Bays Plan* Actions: **HLR-1**

Background:

CBBEP is owner and steward of properties in Nueces, San Patricio, Aransas, and Refugio Counties which includes the 10,500 acre Nueces Delta Preserve, public access properties, and more recently the Mission River Delta along the Mission River and Mission Bay.

The CBBEP Nueces Delta Preserve is located 3 miles from the City of Odem and 20 miles from downtown Corpus Christi. The CBBEP Nueces Delta Preserve consists of approximately 10,500 acres in San Patricio and Nueces Counties that are owned and managed by CBBEP as a conservation site for the purpose of preserving natural habitat, function and species diversity in the Nueces River delta. The preserve is rich in diversity that can be characterized by Tamaulipan thorn scrub, grasslands, lomas, freshwater wetlands, riparian habitat, brackish wetlands, tidal mud flats and estuarine shoreline. CBBEP's secondary goal for the preserve is for the property to be used for a variety of educational and research opportunities.

The funds provided by the project help support the land ownership obligations and some routine maintenance associated with CBBEP owned properties. Maintenance activities including but not limited to paying for portions of road maintenance, fencing repairs, brush control, equipment purchases, habitat and predator management (as appropriate and necessary), and the payment of property taxes.

Past project accomplishments include fencing repairs and removal, preparation for prescribed burns, dike repair and vegetation manipulation to a 50 acre created wetland, management of equipment purchases, nest box construction, building maintenance, volunteer project coordination, application of herbicide to invasive brush, road repairs, creation of a wildlife observation area, and establishing routine mowing of common areas.

Objective:

To provide the required ongoing maintenance and management of properties owned by Coastal Bend Bays & Estuaries Program.

Project 1810 Gulf Connections: Red Knots and Black Skimmers in the Northern Gulf of Mexico

Performing Organization: CBBEP
Total Project Funding: \$25,000
CBBEP *Bays Plan* Actions: HLR-1, HLR-4

Background:

The Gulf of Mexico supports a huge diversity of birds that depend on healthy coastal environments, and that are connected to distant and often unknown locations through migration. The Black Skimmer is a unique coastal resident that breeds on small islands in coastal bays throughout the northern Gulf of Mexico, but many depart the area in late fall towards an unknown wintering area. The species has been steadily declining on the Texas coast since the 1970s. We direct a great deal of effort to manage breeding sites for skimmers, but they may be suffering from threats in other parts of their range in the winter. Satellite transmitters are now small enough to enable researchers to track the real-time movements of birds such as Black Skimmers. We propose to use these devices to identify sites of greatest importance to the birds during all phases of their annual cycle, evaluate potential threats at wintering areas, and seek out and communicate with local partnering organizations to help conserve the species.

Red Knots are among the champions of long-distance migration, breeding in the Arctic and traveling as far as Tierra del Fuego and back each year. In 2014 we began a project investigating the occurrence of Red Knots in coastal Louisiana. Through marking and resighting, we found the beaches of Louisiana's barrier islands are a regular migration and wintering area for a larger population of knots than was previously thought. Because of the remoteness of many of Louisiana's barrier islands, accessing and surveying these sites for Red Knots would be logistically challenging and costly. We propose to use a combination of capture/markings, resighting of marked individuals, and tracking devices called geolocators to determine the migratory connectivity of this group of birds.

This is Phase II of this project. Last year, funds were used to facilitate the deployment of 50 geolocators on Red Knots in Louisiana, and 14 satellite transmitters on Black Skimmers in Texas.

Objectives:

This project will:

- Enhance tracking efforts by providing additional 5g solar satellite PTTs (platform terminal transponders) to track Black Skimmers throughout the annual cycle
- Determine patterns of Black Skimmer habitat use during different life history stages (breeding, migration, wintering)
- Determine reproductive output of focal colonies of skimmers in several areas along the coast
- Support additional data collection and analysis on Red Knot populations in the Gulf of Mexico

Project 1811 Nueces Delta Environmental Monitoring Project

Performing Organization: Conrad Blucher Institute
Total Project Funding: \$55,325
CBBEF Bays Plan Actions: FW-1, FW-2, FW-3, FW-4

Background:

The purpose of this project is for the Conrad Blucher Institute to continue to maintain 3 current real-time salinity monitoring stations along the Rincon Bayou, and a fourth station at "South Lake" and continue to maintain a tide gauge in west Nueces Bay in order to characterize freshwater inflows into the Nueces Delta. Salinity sensors along the Nueces Delta will be used to trace freshwater inflows from freshwater pumping events via the Rincon Bayou Pipeline from the Nueces River and will report water temperature, conductivity, and salinity every 30 minutes. Data from these salinity stations will be used to aid in the development of management strategies for the Rincon Bayou Pipeline. The Center for Coastal Studies, the Harte Research Institute at TAMUCC use the salinity data provided from the salinity stations to support various projects involving sampling in the Nueces Delta. Data from these salinity stations are also utilized by the University of Texas (UT) at Austin and the UT Marine Science Institute in Port Aransas to support various modeling projects which are investigating the interactions between water in sediment and tidal creeks in the Nueces Delta. The Nueces Delta Hydrodynamic Model being conducted by UT also utilized the tide gauge data in the western Nueces Bay. Several Texas Water Development Board funded projects have and currently are utilizing the available data. A weather station will also be maintained in the Nueces Delta and will provide air temperature, wind, precipitation, barometric pressure, relative humidity, and solar radiation data. All data will be available to the public on the contractor's webpage.

Normally, a river flows through a delta area prior to making its confluence with its receiving water body. The Nueces River is different in that it flows into Nueces Bay at a point along the south shore of the bay, 2 ½ to 3 miles from the delta-bay interface, completely bypassing the delta. Only during times of severe flooding, causing over-banking of the river, or locally heavy rain, did much freshwater make it into the delta proper. To provide more freshwater diversions during normal flow conditions, the City of Corpus Christi built a pipeline and pump station to divert up to the first 3,000 acre-feet of pass-throughs per month from above the saltwater barrier dam directly into the upper Rincon Bayou.

The primary project objectives will be to continue monitoring the freshwater inflows coming into the delta via the pipeline by recording salinities within the water column at various stations along the Rincon Bayou and within the Nueces Delta, as well as to maintain a real-time weather station and a tide gauge in Nueces Bay for the period of one year. These instruments will be used to calculate spatial and temporal environmental effects as well as the amount of freshwater needed to manage a healthier estuary.

Objective:

Maintain real-time water quality, tide gauge, and meteorological monitoring stations in the Nueces Delta and Bay to measure effects of Rincon Pipeline freshwater inflows.

Project 1812 Comprehensive Management Plan - Nueces Delta Preserve

Performing Organization: CBBEP
Total Project Funding: \$35,000
CBBEP Bays Plan Actions: HLR-1, PEO-1, FW-1

Background:

In December of 2015 with the purchase of a 1970 acre tract from The Conservation Fund the Nueces Delta Preserve became to a contiguous 10,500 acres. CBBEP has decided that a Comprehensive Management Plan to help with guidance and operations of the Nueces Delta Preserve is needed to best serve the property. Current and future managers of the Nueces Delta Preserve will benefit from the goals and objectives set out in the plan.

Not unlike any other conservation property there are numerous ongoing uses of the Nueces Delta Preserve. Ensuring the current uses are compatible and can coexist while continuing to preserve the core conservation values of habitat conservation and enhancement will be the guiding principles of the plan.

Objectives:

- Establish an advisory team to help develop the Comprehensive Management Plan
- Identify and document all activities at the Nueces Delta Preserve
- Obtain current and historical aerial imagery of the Nueces River Delta
- Obtain all boundary surveys in an electronic form
- Obtain all pipeline owner and operator information on CBBEP owned lands
- Develop a framework for the Comprehensive Management Plan
- Draft the Comprehensive Management Plan

Project 1813 Volunteer Water Quality Monitoring Program in Baffin Bay

Performing Organization: Texas A&M University-Corpus Christi
Total Project Funding: \$50,000
CBBEF Bays Plan Actions: WSQ-3

Background:

The purpose of this project is to help maintain a volunteer water quality monitoring program in Baffin Bay that will be gathering water samples and identifying potential sources of water quality degradation in the system. Baffin Bay is also undergoing significant eutrophication, as exemplified by a long-term increase in nitrogen and phosphorus loads and chlorophyll *a* concentrations that have exceeded state criteria for nearly the past decade (Montagna and Palmer 2012). Additional symptoms include blooms of potential HAB species (*A. lagunensis*, *Pyrodinium bahamense*), episodic hypoxia and fish kills.

In response to concerns over water quality changes in Baffin Bay, Texas A&M University-Corpus Christi (TAMU-CC) recently initiated a spatially-temporally intensive volunteer water quality monitoring program to: 1) generate data for construction of nutrient budgets and to identify potential sources of nutrient/organic matter loadings that are contributing to water quality degradation in the system, and 2) characterize the ecosystem response to loading events, including from episodic storm events.

As part of the volunteer program and a TAMU-CC Ph.D. student project, samples will be collected from 8 sites in Baffin Bay on a monthly basis, as well as at higher frequencies in response to episodic storm events or fish kills (Figure 1). Two of the sites overlap with TCEQ quarterly monitoring stations, allowing for comparison with longer-term trends within Baffin Bay. At each site, vertical profiles will be performed and discrete surface samples collected. Additionally, a YSI Ecomapper Autonomous Underwater Vehicle (AUV), equipped with water quality sensors (temperature, salinity, D.O., pH, chlorophyll fluorescence) will be regularly deployed to identify water quality “hot spots” and to characterize environmental conditions pre- and post-storm.

Objective:

Support and maintain a volunteer water quality monitoring program through TAMU-CC and collect monthly data, and rain event data, to identify nutrient concentrations and loading throughout the bay system.

Project 1814 CBBEP Public Outreach Events and Activities

Performing Organization: **CBBEP**
Total Project Funding: **\$37,000**
CBBEP Bays Plan Actions: **PEO-1, PEO-2, PEO-3, PEO-4 and PEO-5 and BTR-1**

Background:

One of the most important goals of the *Coastal Bend Bays Plan* is to educate citizens about the ecology of the bay system, its many environmental and economic values, and how an individual can make a positive difference to ensure its long-term health. To accomplish this, the *Public Education and Outreach Action Plan* is designed to raise the public's environmental awareness, foster community stewardship of bay resources; and increase individual involvement in bay resource management issues.

Helping residents and visitors understand the complex issues concerning bay resource management is a priority. CBBEP utilizes a public opinion survey to gauge the effectiveness of our education and outreach efforts. In addition to understanding how the bay system functions, it is important that citizens develop a sound appreciation for the significant value and economic impact derived from the renewable resources of the bays. CBBEP is constantly working to promote public/private partnerships as stated in the *Coastal Bend Bays Plan* to help achieve its educational goals.

Objective:

CBBEP will raise awareness of environmental issues by connecting with the Coastal Bend public through our websites and at community events and festivals. We will spread the CBBEP brand through promotional and educational materials, such as posters, reusable bags and other items. We expect to reach thousands of people at various community events.

In addition, CBBEP may participate in:

- Community events and festivals
- CBBEP may produce or purchase educational and promotional materials
- CBBEP will maintain a web site(s)
- CBBEP develop and provide electronic updates
- Other outreach opportunities

Project 1815 Oso Bay Wetlands Preserve Interpretative Signage

Performing Organization: City of Corpus Christi
Total Project Funding: \$20,000
CBBEF Bays Plan Actions: HLR-1, PEO-1, BD-1, FW-1

Background:

In the early 2000's the Coastal Bend Bays & Estuaries Program along with the City of Corpus Christi set out to establish a nature preserve on the City's south side. Numerous partners have been involved over the last almost 20 years in the creation of what has evolved into the City of Corpus Christi Oso Bay Wetlands Preserve & Learning Center. The preserve is an approximately 162 acres in size and is nestled along the rapidly developing western shore of Oso Bay. The preserve is dedicated to further enhance the knowledge of the flora and fauna of South Texas and to safeguard a piece of our coastal ecosystem. This is a property where the public is welcomed and encouraged to come out and explore nature on the over 4 miles of nature trails. The preserve staff also hosts organized fieldtrips during the school year and several educational camps when area students are on summer break.

The continued development of identifiable interpretative in the coastal bend is imperative to promoting the conservation of coastal resources. The interpretive signs planned to be designed and installed at the Oso Bay Wetlands Preserve will promote outdoor exploration through highlighting different naturalist skills and observations. The signs will also direct visitors to other natural areas throughout the Coastal Bend where they can practice their newly developing skills. The hope is that visitors to the Oso Bay Wetlands Preserve become more ecologically aware citizens that learn how to safely and responsibly interact with our coastal environments.

Objectives:

- To design a minimum of six (6) interpretative sign panels for the Oso Bay Wetlands Preserve. Existing back ground templates will be utilized to create uniformity among the new and existing signs.
- To construct and install the designed interpretative sign panels made with weather and vandalism resistant materials at the City of Corpus Christi owned and operated Oso Wetlands Preserve.

Project 1816 Bacterial Source Tracking Project for Little Bay

Performing Organization: Texas A & M University – Corpus Christi
Total Project Funding: \$47,218
CBBEP Bays Plan Actions: PH-1, WSQ-1, WSQ-3

Background:

The purpose of the proposed project is the identification of fecal pollution sources affecting Little Bay, Rockport, Texas. Potential sources of fecal pollution in Little Bay include 1) rookeries supporting large bird populations, 2) a fish cleaning station, 3) eleven stormwater outfalls, and 4) sanitary sewers servicing a high-density of nearby residences.

The justification of the proposed project is that two of the four Texas Beach Watch Stations at Little Bay show a history of elevated enterococci concentrations, but the source(s) of bacterial loading have yet to be identified. Enterococci is a widely-accepted indicator of fecal pollution, and is a proxy for the presence of pathogenic microorganisms that pose a health threat to recreational users. Data identifying sources of fecal pollution is critical to the timely remediation of impaired water quality in Little Bay.

The objective of the proposed project is a comprehensive assessment of fecal pollution sources, producing data that is actionable to the Aransas County Navigation District (ACND). To complete this objective, potential sources of fecal pollution will be monitored for enterococci using an EPA-approved method. As enterococci is a general group of bacteria comprised of multiple species (e.g., *Enterococcus faecalis*, *E. faecium*, *E. hirae*, *E. casseliflavus*, *E. mundtii*), the species most directly associated with fecal pollution (i.e., *E. faecalis*) will be identified/confirmed by polymerase chain reaction (PCR) (1). *E. faecalis* isolates will then be typed/compared by BOX-PCR to determine the source(s) of fecal pollution (2).

Objective:

Monitor Little Bay for enterococci concentrations and determine the sources. The data will be shared with the Aransas County Navigation District and the City of Rockport.

Project 1817 Management Strategies for the Rincon Bayou Pipeline

Performing Organization: Harte Research Institute for Gulf of Mexico Studies
Total Project Funding: \$30,000
CBBEP Bays Plan Actions: FW-1, FW-2, HLR-1, WQ3, WSQ-4

Background:

The purpose of this project is to develop a set of recommendations and implementation strategy for management of environmental flows delivered to upper Rincon Bayou by the Rincon Bayou Pipeline. This information is needed to improve the environmental effectiveness of pumped flow deliveries to Rincon Bayou and the Nueces marsh. This new project is a logical follow-up to recently completed field and modeling studies funded by the CBBEP and Texas Water Development Board (TWDB) respectively, that identified the ecological impacts of pumped flows. We now know that a little bit of water pumped during dry times can have positive environmental benefits, and too much water pumped during wet times may have a negative influence and act as an ecological disturbance. The next step is to formulate a series of recommendations for managing pumped flows and determine the policy and regulatory processes and steps needed to enable these recommendations to be implemented.

In 2009, a pipeline and pumping station was constructed to pump freshwater from the Calallen Pool to Rincon Bayou so that inflow would not rely on overflowing the Calallen Dam. The upper and central Rincon Bayou have been monitored for water quality and benthic macrofauna during pumping periods between 2009 and 2016 by the Harte Research Institute. This followed the initial monitoring on the effectiveness of construction of the Nueces River Overflow channel that was built in 1994. The monitoring between 1994 and 2000 was supported by the Bureau of Reclamation, between 2001 and 2009 by the City of Corpus Christi, and between 2010 and 2016 by the CBBEP. So, altogether there is a 22 year period of data (1994 – 2016), which can be used to create science-based recommendations on how the pipeline should be operated, and this can be accomplished via a literature review and synthesis analysis of the long-term data.

The pipeline is operated by the City of Corpus Christi, and its operation is regulated by the Texas Commission on Environmental Quality (TCEQ) Agreed Order, which also created the Nueces Estuary Advisory Council (NEAC) to advise TCEQ on environmental flow needs for the Nueces Estuary. Thus, it is necessary to involve stakeholders from the City, NEAC, TCEQ, and the TWDB to determine what approaches can be used to implement a new operation plan. That plan might include policy change options, or adaptive management such as a pilot project that would investigate future water management actions.

Objective:

The project objective is to develop a set of recommendations and implementation strategy for management of environmental flows delivered to upper Rincon Bayou by the Rincon Bayou Pipeline.

Project 1818 Investigating Reactive Nitrogen Sources that Stimulate Algal Blooms in Baffin Bay

Performing Organization: Texas A&M University – Corpus Christi
Total Project Funding: \$44,400
CBBEF Bays Plan Actions: WSQ-1, HLR-1

Background:

The project purpose is to investigate the role of reactive nitrogen sources, particularly dissolved organic nitrogen, in fueling algal blooms (esp. brown tide) in Baffin Bay. Phytoplankton rely on sources of reactive nitrogen nutrients (i.e. NO_3^- , NO_2^- , NH_4^+ , and dissolved organic nitrogen (DON)) to fuel and sustain bloom populations. Thus understanding the sources and processing of these nutrients is key to mitigating excessive phytoplankton growth. A “brown tide” bloom, caused by *Aureoumbra lagunensis*, was first recorded in 1989 in Baffin Bay, persisted for nearly 7 years, and has recurred frequently since then in both Baffin Bay and the Laguna Madre. Brown tide is unique in that it can flourish on DON as a nutrient source which allows it to persist where other ecologically “healthy” phytoplankton would fail. Recent efforts by the Baffin Bay Volunteer Water Quality Monitoring Study have recorded average DON levels in the bay to be ~9X that of inorganic nitrogen; ideal nutrient conditions for brown tide to thrive. An important step to future mitigation of brown tide occurrence is discovering the sources and processing of nutrients in the Bay, specifically DON.

One approach to determining sources and processing of nutrients is to characterize their stable nitrogen isotopic composition. Nitrogen exists in nature as nitrogen stable isotopes with a mass of 14 atomic mass units (14N) and a mass of 15 amu (15N). Due to this mass difference, different sources of nutrients have different ratios of 15N:14N, and these different ratios act as a fingerprint for distinct nutrient sources. Nutrient processing mechanisms also have unique isotope ratio effects associated with them. For instance, organisms such as *Aureoumbra lagunensis* tend to preferentially use the lighter isotope of nitrogen (14N) when assimilating nutrients for growth and energy. This leads to a change in the 15N:14N ratio of the nutrient pool which allows insight to how the nutrients are processed. This approach has been used extensively to investigate inorganic nitrogen (NO_3^- , NH_4^+) processing in estuaries, bays, oceans and rivers and recent advances in isotope instrumentation and analysis methods have allowed for isotopic studies investigating DON.

Objective:

The project objective is to apply this stable isotope approach to investigate reactive nitrogen sources and processing in Baffin Bay

Project 1819 Public Access Management at the Blind Oso

Performing Organization: TBD
Total Project Funding: \$20,000
CBBEP Bays Plan Actions: HRL-1

Background:

The Blind Oso is an aquatic resource is located in close proximity to the Corpus Christi Naval Air Station, Texas A&M University-Corpus Christi, and the Pat & Hans Suter Wildlife Refuge. The habitats types found within the Blind Oso consist of wind tidal flats, algal mats, submerged aquatic vegetation, and emergent marsh. If not managed property vehicular traffic within these habitats is highly destructive to the plant and animal communities associated with the sensitive habitats. Through past efforts CBBEP has been able to demonstrate that removing vehicles from these habitats allow them to heal over time. CBBEP has had past successes in limiting vehicular access while continuing to allow pedestrian access to public resources. The Blind Oso is a popular bird watching, nature viewing, kayaking, and wade fishing area.

The purpose of this project is to coordinate with property owners, resource agencies, and local governments to help design and install bollard systems to with public access management at the Blind Oso.

Objectives:

- To coordinate with property owners and appropriate authorities in the development and design of approximately 750 linear ft of bollard fencing to help manage vehicular access while allowing pedestrian access to the Blind Oso.
- To source pricing and contract for the installation of approximately 750 linear feet of bollard fencing along the Blind Oso.

Performing Organization: TBD
Total Project Funding: \$25,000
CBBEP Bays Plan Actions: HLR-1, HLR-2, HLR-4, HLR-10

Background:

The purpose of this project is to develop a plan to conserve and restore live oak - redbay woodlands within the Coastal Bend Bays and Estuaries Program (CBBEP) area. The Texas Coastal Bend Live Oak - Redbay Forest (*Quercus fusiformis* - *Persea borbonia* Forest) is an imperiled plant community which is classified by the Ecological Mapping Systems of Texas as “deep sand live oak forest and woodland”. Historically, this habitat type occurred in much of the barrier islands and coastal areas of the Coastal Bend. Live oak - redbay woodlands are still fairly extensive at the Aransas National Wildlife Refuge. South of the refuge only remnant woodlands remain, primarily along the Live Oak and Encinal Peninsulas. Texas Parks and Wildlife Department (TPWD) and Nature Serve (2001) rank this community type as G2 S2 which indicates “imperiled” at the global and state levels. Coastal Bend live oak - redbay woodlands are threatened by disease, severe weather events (e.g., drought and hurricanes), fire suppression, and invasive species. Agricultural and urban development that results in selective clearing of the understory or complete habitat removal has the greatest adverse effect on habitat function.

The proposed project would develop a plan to conserve and restore live oak - redbay woodlands within the CBBEP area. The contractor would map live oak - redbay habitat, inventory sites that are currently protected (e.g., parks, refuges, and sanctuaries), and identify potential preservation and restoration sites based on specific criteria using existing datasets. While ground-truthing may be necessary, the location and extent of existing live oak - redbay woodlands occurs in two TPWD datasets (Texas Ecological Systems Classification and Texas Natural Diversity Database). Because this community appears to be limited to deep sands (e.g., Galveston-Mustang association, Falfurias association, and Mustang fine sand), soil maps from the Natural Resource Conservation Service could be used to identify potential restoration sites. A stakeholders/partners group would be developed to generate criteria to identify suitable tracts and to prioritize or strategize implementation.

The deliverables envisioned through this project would be an educational brochure, a digital map, and a companion report aimed at conservation and restoration of the live oak – redbay woodlands. The brochure would highlight best management practices for protecting the functions and values of this important habitat. The digital map and companion report would identify existing and potential preservation sites, identify potential restoration sites, and provide additional site attributes (e.g., tract size, current land use, connectivity, the occurrence of other rare animals or plant communities, etc.). The plan would also identify additional resources to facilitate plan implementation, such as technical guidance for the development of wildlife management plans, wildlife management associations, conservation easements, regulatory and non-regulatory conservation guidance, funding opportunities, and other conservation strategies that can be implemented by private and/or public entities.

Project Objective:

The objective is to develop an educational brochure, a digital map, and a companion report aimed at conservation and restoration of the live oak – redbay woodlands.

Performing Organization: UTMSI
Total Project Funding: \$19,000 (\$7000 match from UTMSI, \$1000 from USGS National Wetlands Center)
CBBEP Bays Plan Actions: HLR-1

Background:

The purpose of this project is to assess the ecological changes associated with progressive black mangrove (*Avicennia germinans*) displacement of *Spartina alterniflora* marshes in the CBBEP study area. This preliminary study is focused on (1) the differences in sediment biogeochemical properties between the two habitats, (2) differences in the composition and abundance of infaunal and epibenthic species, and (3) the direct assimilation of mangrove carbon by omnivorous benthic fauna and its relative importance as an ultimate carbon source to higher trophic level organisms.

Over the past few decades climatic warming has produced some profound shifts in coastal vegetation along the Gulf coast. In south Texas, in particular, competition between *Spartina alterniflora* (smooth cord grass) and *Avicennia germinans* (black mangroves) is apparent. The CBBEP study area straddles 27° N and the mixture of both mangrove and *Spartina* marsh habitats has been noted by wetland scientists here for many years. Regional changes in climate have also produced increased salinity, decreased precipitation, and increasing eustatic sea level changes that favor mangrove development. As winter freezing events have decreased in frequency along the Texas coast in recent decades, displacement of *Spartina* has accelerated, especially in the CBBEP study area as mangroves expand northward to areas previously inhabited by *S. alterniflora*. In addition, *A. germinans* propagule establishment is facilitated in salt marshes because of favorable soil physicochemical conditions, effectively forcing salt marsh vegetation out of these areas.

Many biogeochemical parameters of both mangrove and *S. alterniflora* ecosystems are similar, but because these plants act as foundation species, even small changes can have major implications on ecosystem dynamics. Moderately small changes in winter extreme events can cause dramatic ecosystem structural and functional changes that lead to *A. germinans* encroachment and salt marsh displacement. However, the faunal composition change associated with *A. germinans* encroachment into *S. alterniflora* communities is not as well documented. Both community types provide valuable ecosystem services, but at fundamentally different scales.

Objective:

This project will provide preliminary data on the effect of black mangroves on ecosystem processes as they expand into *Spartina* marshes.

Performing Organization: Ladybird Johnson Wildflower Center
Total Project Funding: \$40,000
CBBEP Bays Plan Actions: HLR-1, HLR-2, HLR-10

Background:

The purpose of this project is to continue Brazilian peppertree (*Schinus terebinthifolius*) control treatments on land within the Texas Gulf Region Cooperative Weed Management Area (CWMA;). Brazilian peppertree is a non-native, invasive woody plant with the ability to completely dominate and change the landscape. Brazilian peppertree dominated landscapes have been shown to be poor habitat for native wildlife and may negatively impact grassland bird populations. In 2015, it is estimated that Brazilian peppertree occupies approximately 133 acres within the city limits of Port Aransas. The species is easily spread by some birds, which consume the fruit and seeds. This negative environmental impact of the species is so extreme that the Texas Department of Parks and Wildlife lists the species as a Prohibited Aquatic Species, making it illegal to release the species into waters of the state (Texas Administrative Code, Title 31, part 2, Chapter 57, Subchapter A). Additionally, the Texas Department of Agriculture lists the species as a noxious species, in which a person commits an offense under Texas Agricultural Code §71.151 if the person sells, distributes or imports the plant listed in any live form without permit.

The Texas Gulf Coast CWMA was established in 2014 and its mission is to address invasive Brazilian peppertree from Port O'Connor to Packery Channel on barrier islands of the Texas Gulf Coast. All together the Texas Gulf Region CWMA is approximately 151.3 square miles (391.9 km²) or 96,832 acres. Currently the CWMA contains nine partners, and over 30 members. The Texas Gulf Region CWMA management plan was approved in February 2016, and includes a monitoring component for invasive species in the CWMA. To date, the CWMA has successfully reached over 3,000 landowners within the CWMA boundary; completed six work days that include volunteers consisting of the removal of Brazilian peppertree at Port Aransas Nature Preserve at Charlie's Pasture, IB Magee Beach Park, and Mustang Island State Park; removed Brazilian peppertree from over 120 acres; and improved land management practices on over 5,775 acres of public and managed lands

Funding from CBBEP will be used specifically for Brazilian peppertree control will be on public lands within the CWMA boundary. The CBBEP will contract with Ladybird Johnson Wildflower Center to allow their agent to serve as Area Coordinator and oversee the Management Plan implementation including executing a contract to employ a vegetation management firm to remove and "stump-treat" Brazilian peppertrees in selected project areas.

Project Objective:

The primary project objective will be Brazilian peppertree control within the CWMA boundary to enhance local coastal grasslands and native plant communities.

Project 1823

**Aransas NWR San Antonio Bay – Aransas Unit Dagger Point Shoreline
Preservation – Phase I**

Performing Organization: TBD
Total Project Funding: \$65,000
CBBEP Bays Plan Actions: HLR-1, HLR-2

Background:

This project is located on a unique Ingleside barrier deposit consisting of a bluff ranging from 15' to 30' in elevation and up to 1.5 miles of actively eroding bay shoreline along San Antonio Bay, in Calhoun and Aransas County, and is part of the 47,261 acre Aransas National Wildlife Refuge. The habitat in this area consists of loose sandy soils, comprising the substrate for a mature stand of live oak-bay forest community which is eroding at a rate estimated to range at times from 5 to 30 feet per year, dependent on location and climatic conditions. These deep sands are remnant deposits of old beachfront ridges or coastal cheniers formed much like currently accreting barrier islands. The woodland plant community reaches its greatest growth potential on these deep well drained sands. This feature is unique to this bay ecosystem. Without action, erosion will continue to diminish this unique habitat. Efforts to conserve this resource and exceptional feature of the Coastal Bend area include feasibility study and alternative analysis as part of a decision tree to plan actions needed the development of a solution to reduce erosion. Phase I will include a feasibility study, modeling environmental parameters, alternative analysis and estimating budgets. It is envisioned that an ecologically acceptable engineering solution can be implemented to protect this important area.

Subsequent phases will depend upon the design selected through the Phase I process. Outcomes of this effort will feed into the protection of: San Antonio Bay shoreline, emergent marsh, seagrasses, associated coastal woodlands, wildlife and fisheries located along the bay shoreline, near shore and Aransas National Wildlife Refuge. These are all State of Texas and Federal, U. S. Fish and Wildlife, Aransas National Wildlife Refuge priorities.

Objective:

The CBBEP will contract with an engineering firm to prepare a feasibility and alternatives analysis, Phase I of a project, aimed at reducing erosion along the southeastern San Antonio Bay shoreline to conserve wetland, coastal woodlands and near shore habitats.

Project 1824 Lower Laguna Madre Bird Conservation

Performing Organization: CBBEP
Total Project Funding: \$126,310
CBBEP *Bays Plan* Actions: HLR-1, HLR-4

Background:

The Laguna Madre is one of the most important coastal wetland complexes for birds in the Western Hemisphere. Much of the value of this system for birds is based on the diversity of tidal flats and seagrass beds spread over a very large geography – extending from the Corpus Christi area down to La Pesca, in Tamaulipas, Mexico.

While CBBEP’s Coastal Bird Program has conducted extensive management efforts focused on the Upper Laguna Madre within the CBBEP program area, virtually no management activity has been directed towards important sites in the Lower Laguna Madre which is nearly the same size.

The Coastal Bird Program has conducted some management activity in that area in the past, and is well acquainted with the area and the management needs of the islands. There are substantial opportunities to successfully manage these sites for the benefit of colonial nesting species.

This project will allow the Coastal Bird Program to initiate a slate of management actions at island sites throughout the Lower Laguna Madre, and establish a more permanent presence in the lagoon system and the surrounding communities. This will be accomplished by hiring one additional staff person who will work in conjunction with the current Bird Program staff. This expansion will allow the smooth transfer of knowledge and management methods that have been developed over years of the program’s activities in the central coast.

The expansion will also allow the Coastal Bird Program to engage more directly with partners in coastal conservation on the Mexican portion of the Laguna Madre by offering training and assistance with management planning and implementation.

Objectives:

This project will:

- Improve colonial nesting waterbird populations in the Lower Laguna Madre by addressing proximate causes of nest failure such as predation, lack of suitable nesting substrate, and human disturbance.
- Implement monitoring efforts on shorebird populations to identify potential conservation actions.
- Engage volunteers and communities in coastal bird conservation efforts through the coastal portion of the Rio Grande Valley.

Performing Organization: San Antonio Bay Partnership
Total Project Funding: \$28,000 (\$10,000 match from ICF)
CBBEP Bays Plan Actions: HLR-1, HLR-2, HLR-4, BTR-3

Background:

Providing freshwater resources to Aransas-Wood Buffalo (AWB) Whooping Cranes, the last naturally migrating population, in their only wintering grounds in the central Texas coast is critical to their survival, health and ability to migrate back to their Canadian breeding grounds. In 2014, the San Antonio Bay Partnership (SABP) received funding from the US Fish and Wildlife Service (USFWS) and the Coastal Bend Bays & Estuaries Program (CBBEP) to collaborate with the International Crane Foundation (ICF) on a project to develop a *Water Well Suitability Index*. The project used a GIS-based conservation planning software called NatureServe Vista to develop a suitability index that characterized locations within the Whooping Crane wintering territory based on their potential for successful use by cranes following water well installation/repair. The index was designed to help ensure that resources are utilized wisely by investing in water wells that are more likely to provide the greatest benefit to Whooping Cranes.

SABP will incorporate the information generated from previous monitoring projects (2012-2016) and use the Water Well Suitability Index to refine the list of potential sites based on wetland characteristics (i.e., altered by excavation, impoundment, levees vs. natural) and cooperative landowners. At least one site will be selected and a solar-powered water well installed in a location on the landscape that provides the freshwater resources where it is currently lacking during this project's period. ICF will install at least two remote game cameras at each site consistent with other sites currently monitored within the Waters for Wildlife Program. Although 95% of land is privately owned in Texas, an extensive amount of public lands are located within the wintering range of the AWB population of Whooping Cranes. These lands are used in a diversity of ways including conservation, wildlife management, ranching operations, and traditional recreational uses. SABP and ICF will initiate an informal dialogue with participating landowners (public and private) to identify landowner goals related to freshwater resource creation/enhancement projects on their properties, and current strategies they employ to maximize the benefits relative to the multiple uses. These strategies will be summarized into an information guideline document completed during this project period that will be provided to current and future participants of the Waters for Wildlife Initiatives and to other organizations with similar goals.

Objective:

- Install at least one additional new water well or rehab two existing water wells with solar pumps at a priority site(s) in the Whooping Crane wintering range,
- Use a game camera to check for the presence and use of Whooping Cranes and other wildlife at the freshwater ponds created or enhanced by newly installed water wells, and
- Develop informational guidelines that will maximize the use of these habitats by wildlife, in accordance with ongoing ranch operations and traditional recreational uses.

Project 1826 Long-Term Seagrass Monitoring in Corpus Christi Bay and Upper Laguna Madre

Performing Organization: University of Texas Marine Science Institute
Total Project Funding: \$12,000
CBBEF Bays Plan Actions: HLR-1, WSQ-1

Background:

The purpose of this project is to support the Seagrass Monitoring Program (SMP) for monitoring Corpus Christi Bay and the Upper Laguna Madre seagrasses in order to establish the quantitative relationships between physical and biotic parameters that ultimately control seagrass condition, distribution, and persistence. The project will also assess the carbon storage of seagrasses.

This research will monitor long-term health of Texas seagrass in the ULM and CCB in combination with other leveraged funds from three other agency partners. It contributes to a broader Tier-2 state-wide effort to assess seagrass condition and distribution that began in late-summer 2011 (see <http://www.texasseagrass.org/>). The program also strongly complements a long-term commitment by both the Mission-Aransas National Estuarine Research Reserve Program for Tier-2 sampling in Redfish and Aransas bays and the National Park Service for Tier-2 sampling in the ULM (Padre Island National Seashore only), as well as new funding from the Texas General Land Office (TGLO) for the Lower Laguna Madre for 2017 and 2018. The effort since 2011 is unprecedented in its breath and scope and will serve as an invaluable database of existing seagrass resources available for various local, state, and national groups. This project should help to understand and establish the quantitative relationships between physical and biotic parameters that ultimately control seagrass condition, distribution, and persistence. All protocols and methodologies will be under the direction of a Quality Assurance Project Plan.

Water quality and other parameters to be sampled include: light attenuation, turbidity, depth, water temp, salinity, DO, TSS, Chl a, seagrass species composition, epiphyte density, and percent cover.

Objective:

Monitor seagrass/water quality in Corpus Christi Bay and the Upper Laguna Madre to support the SMP and possible creation of water quality criteria for seagrass beds.

Project 1827 Repairs to CBBEP Facilities at the Nueces Delta Preserve

Performing Organization: CBBEP
Total Project Funding: \$20,000
CBBEP Bays Plan Actions: PEO-3, PEO-5

Background:

In 2007 CBBEP began building infrastructure on a portion of the CBBEP Nueces Delta Preserve. This area has developed into the CBBEP Environmental Education Center which is the home of the CBBEP Delta Discovery Program. Over time and constant exposure to the harsh elements and salty air of the Nueces Delta has caused portions of the facilities at the Nueces Delta Preserve to need refurbishing beyond what is considered routine maintenance. Primarily, a structure that is utilized for teacher workshops and is also used as an open air classroom is in need of extensive repairs.

Repairs to facilities will include but not be limited to replacement of wood rot, new weather proof siding, replace rusted doors, installation of new screens, painting the interior and exterior of the classroom building, pressure washing and sealing of treated wood components.

Objectives:

- To refurbish CBBEP facilities and extend the useful life of the structures.

Project 1828 Gulf Coast Conservation Initiative (Phase 5)

Performing Organization: CBBEP
Total Project Funding: \$80,000
CBBEP Bays Plan Actions: BTR-3, SM-3, HLR-1, HLR-2

Background:

The Gulf Coast Conservation Initiative (GCCCI)'s purpose is to protect, enhance, and/or restore habitat for whooping cranes, northern Aplomado falcons, Attwater's prairie chickens, Sprague's pipit and associated migratory bird species.

The Aplomado Falcon, Attwater's Prairie Chicken, and Whooping Crane are endangered species that occur in coastal Texas, and whose ranges overlap to varying degrees with one another, as well as with many migratory birds which have experienced long-term, broad-scale declines across much of their ranges. These species can neither recover nor be sustained unless habitat sufficient to support viable populations is conserved. Habitat for these species has been degraded by the production of food and fiber, and is being lost to development and rising sea-levels. Protecting, enhancing, and restoring habitat for these species from development will in this area reduce or avoid impacts from recreational uses, protect and preserve functional sensitive natural habitat types, preserve open space, and restore degraded habitats in the GCCCI priority area.

Since 2002, CBBEP has worked to acquire either fee simple title or conservation easements for more than 12,000 acres of freshwater marsh, forested wetlands, mudflats, riparian corridors, and native upland habitat for conservation management. CBBEP has coordinated with U.S. Fish & Wildlife Service, Natural Resources Conservation Services, and The Nature Conservancy to develop and implement management plans and restoration actions throughout this protected habitat. CBBEP has also coordinated worked with other property owners (such as Aransas National Wildlife Refuge, Texas Parks and Wildlife Department, City of Corpus Christi, South Texas Botanical Gardens and Nature Center, and private property owners) to develop and implement restoration actions on their property.

CBBEP will coordinate with USFWS, Grazing Lands Coalition, TNC, USDA-NRCS, and other conservation organizations to identify and implement restoration actions that benefit a minimum of 500 acres of habitat for Aplomado Falcons, Attwater's Prairie Chickens, and/or Whooping Cranes, as well as associated focal migratory birds' habitats. For projects on private lands CBBEP or a designated project partner will develop written 10-year long agreements with landowners.

Objective:

Identify and implement restoration actions that benefit a minimum of 500 acres of habitat for Aplomado Falcons, Attwater's Prairie Chickens, and Whooping Cranes.

Project 1829 Caring for Our Coast – Nueces Delta Preserve: Education and Habitat Restoration

Performing Organization: CBBEP
Total Project Funding: \$30,000
CBBEP Bays Plan Actions: PEO-3, HLR-1, HLR-2

Background:

This project, sponsored by CITGO is designed to support the activities and habitats at the Nueces Delta Preserve. The CBBEP Nueces Delta Preserve is located 3 miles from the City of Odem and 20 miles from downtown Corpus Christi. The CBBEP Nueces Delta Preserve consists of approximately 10,500 acres in San Patricio and Nueces Counties that are owned and managed by CBBEP as a conservation site for the purpose of preserving natural habitat, function and species diversity in the Nueces River delta. The preserve is rich in diversity that can be characterized by Tamaulipan thorn scrub, grasslands, lomas, freshwater wetlands, riparian habitat, brackish wetlands, tidal mud flats and estuarine shoreline. CBBEP's secondary goal for the preserve is for the property to be used for a variety of educational and research opportunities.

The funds provided by the project support the activities of the CBBEP Delta Discovery Program and also provide funding to treat at minimum 375 acres of encroaching brush in coastal grasslands within the boundaries of the Preserve. Chemical individual plant treatment methods and also mechanical plant removal methods will be used to treat encroaching brush.

Objective:

- To educate area youth through the implementation of nature based educational field trips.
- To restore and enhance habitats in the Nueces Delta Preserve.

IX. Program Administration

CBBEP administrative staff (5 FTE's) will provide organizational and logistical support for Estuary Council and subcommittee meetings, and coordinate/communicate as necessary with appropriate groups, including stakeholder groups, state and federal agencies, local governments, and professional groups relevant to CCMP implementation. Staff will:

1. Acquire, manage, and disperse funds to implement the *Bays Plan*;
2. Monitor, track, and report on implementation performance by implementing partners, and work to maintain implementation commitments;
3. Develop a prioritized biennial work plan and budget for Estuary Council review and approval;
4. Coordinate the periodic update of the *Bays Plan*, the *State of the Bay* report, the *Implementation Strategy*, and other key documents of the program;
5. Provide logistical support for all meetings, workshops, symposia, and special events related to program mission;
6. Provide outreach to the public through local and regional media;
7. Develop strategies for seeking funding sources;
8. Provide for overall program coordination with EPA Region 6 and TCEQ.
9. Participate in regional, state, and national conferences and meetings relevant to estuarine management.
10. Develop and implement policies and procedures for an emergency contingency plan which will include: protecting financial records, office equipment, computers, and other vital records and equipment; employee responsibilities; backup and storage of data; and recovery actions.
11. Continued implementation of a management system to track and assess Quality Assurance Project Plans (QAPPs) and determine required corrective actions and follow-up to be completed on date determined by TCEQ.

X. Project Management and Implementation

CBBEP Project Management staff (10 FTE's) will coordinate/communicate as necessary with appropriate groups, including stakeholder groups, state and federal agencies, local governments, and professional groups relevant to *Bays Plan* implementation. Staff will:

1. Develop and implement partnership projects with local governments, state, and federal agencies, and private organizations;
2. Monitor, track, and report on implementation performance by implementing partners, and work to maintain implementation commitments;
3. Provide communication and coordination with the Texas Coastal Management Program and the Coastal Coordination Council, the Gulf of Mexico Program, the Texas Commission for Environmental Quality (TCEQ), and other relevant coastal/watershed programs;
4. Coordinate the review of proposed actions of federal, state, and local projects in an open process for consistency with the *Bays Plan*;
5. Develop a prioritized biennial work plan and budget for Estuary Council review and approval;
6. Provide for overall program coordination, including quality control/quality assurance procedures with EPA Region 6 and TCEQ.
7. Participate in regional, state, and national conferences and meetings relevant to estuarine management.

XI. Program Expenses

CBBEP funds will be used to support continued program implementation, evaluation, and reporting. Funds are also necessary to provide logistical support for the Bays Council and subcommittee meetings. Expense categories are as follows:

1. Travel – allows Program staff to attend state, regional and national meetings, workshops, and conferences;
2. Supplies – as needed, for the day-to-day operations of the Program;
3. Equipment – purchase of items over \$1,000, i.e. computers;
4. Other – copier rental, temporary staff, postage, communication services, accounting services, printing, etc.

XII. Working Capital

The CBBEP Board of Directors has established working capital out of local funding. The funds will be set aside for possible future projects, matching funds and/or emergency funding.

XIII. Summary

On September 1, 2017, the Coastal Bend Bays & Estuaries Program will begin Year 20 of implementing the *Coastal Bend Bays Plan*. This FY 2018 Work Plan describes the proposed work to be initiated during FY 2018. Of the total funds identified in the Work Plan budget, \$600,000 are new (FY 2018) EPA federal funds; \$734,230 are new (FY 2018) TCEQ funds; \$271,000 are new (FY 2018) project-specific funds; and \$765,373 are new (FY 2017) local partner/federal court interest funds; and \$100,000 are from local reserve funds. The total budget for this FY 2017 Work Plan is \$3,085,113.

TABLE 1: FY 2018 COMPREHENSIVE ANNUAL WORK PLAN OUTLINE

PROJECT #	PROJECT TITLE	ACTION ITEM(S)	PERFORMING PARTY	EPA FY18 CWA 320	TCEQ FY18& 604b	LOCAL/ COURT INTEREST	TGLO	MISC GRANTS	USFWS	FY17CF	TOTAL CBBEP FUNDING
1801	Coastal Waterbird Management	HLR-1, HLR-4	CBBEP	119,457				26,800	15,000		\$161,257
1802	Delta Discovery	BTR-1, PEO-2, PEO-3, PEO-5	CBBEP	162,617		41,853		20,000			\$224,470
1803	Debris Can Lids – Hazel Bazemore Park	HLR-1, BTR-2, PH-1, BD-1, WSQ-1	Nueces River Authority	6,000							\$6,000
1804	Connecting Communities in the Oso Bay/Oso Creek Watershed	WSQ-1, WSQ-5, FW-1, PH-1, PEO-5	Center for Coastal Studies, TAMU-CC	3,500							\$3,500
1805	Real-Time Data Access for Copano and Aransas Bay Systems	WSQ-1, FW-1	Mission-Aransas National Estuarine Research Reserve	22,500							\$22,500
1806	Outdoor Classrooms	PEO-3, PEO-5	CBBEP & USFWS						10,000		\$10,000
1807	Long-term Marine Debris and Endangered Species Data Transcription	HLR-1, HLR-2, HLR-10	TBD			36,000					\$36,000
1808	CBBEP Community Outreach Partnerships	PEO-1, PEO-2, PEO-3, PEO-4 PEO-5	Coastal Bend Bays Foundation		7,000	23,000					\$30,000
1809	CBBEP Property Management	HLR-1	CBBEP			35,000					\$35,000

PROJECT #	PROJECT TITLE	ACTION ITEM(S)	PERFORMING PARTY	EPA FY17 CWA 320	TCEQ FY17 & 604b	LOCAL/ COURT/ DELTA	TGLO	MISC GRANTS	USFWS	FY16 CF	TOTAL CBBEP FUNDING
1810	Gulf Connections: Red Knots & Black Skimmers in the Northern Gulf of Mexico	HLR-1, HLR-4	CBBEP					25,000			\$25,000
1811	Nueces Delta Environmental Monitoring	FW-1, FW-2, FW-3, FW-4	Conrad Blucher Institute		55,325						\$55,325
1812	CMP Nueces Delta Preserve	HLR-1, PEO-1, FW-1	CBBEP			35,000					\$35,000
1813	Volunteer Water Quality Monitoring Program in Baffin Bay	WSQ-3	Texas A&M University-Corpus Christi					50,000			\$50,000
1814	CBBEP Public Outreach Events & Activities	PEO-1, PEO-2, PEO-3, PEO-4, PEO-5, BTR-1	CBBEP			37,000					\$37,000
1815	Oso Bay Wetlands Preserve Interpretative Signage	HLR-1, PEO-1, BD-1, FW-1	City of Corpus Christi		20,000						\$20,000
1816	A Bacterial Source Tracking Project for Little Bay	PH-1, WSQ-1, WSQ-3	TAMU-CC		42,218			5,000			\$47,218
1817	Management Strategies for the Rincon Bayou Pipeline	FW-1, FW-2, HLR-1, WQ-3, WSQ-4	Harte Research Institute		30,000						\$30,000
1818	Investigating Reactive Nitrogen Sources that Stimulate Algal Blooms in Baffin Bay	WSQ-1, HLR-1	Texas A&M University-Corpus Christi		44,400						\$44,400

PROJECT #	PROJECT TITLE	ACTION ITEM(S)	PERFORMING PARTY	EPA FY18 CWA 320	TCEQ FY18 & 604b	LOCAL/ COURT/ DELTA	TGLO	MISC GRANTS	USFWS	FY17 CF	TOTAL CBBEP FUNDING
1819	Public Access Management at Blind Oso	HLR-1,	TBD		17,449	2,551					\$20,000
1820	Texas Coastal Bend Live Oak – Redbay Woodland Conservation Plan	HLR-1, HLR-2, HLR-4, HLR-10	TBD			25,000					\$25,000
1821	Habitat Changes Associated with Mangrove Expansion in Coastal Marsh Systems	HLR-1,	UTMSI		19,000						\$19,000
1822	TX Gulf Region CWMA: Controlling the Brazilian Peppertree	HLR-1, HLR-2, HLR-10	Ladybird Johnson Wildflower Center			5,000	30,000			5,000	\$40,000
1823	Aransas National Wildlife Refuge San Antonio Bay - Aransas Unit Dagger Point Shoreline Preservation–Phase 1	HLR-1, HLR-2	TBD			45,000			20,000		\$65,000
1824	Lower Laguna Madre Bird Conservation	HLR-1, HLR-4	CBBEP					126,310			\$126,310
1825	Waters for Wildlife for Whooping Crane Freshwater Enhancement and Multiple Use Guidelines for Landowners	HLR-1, HLR-2, HLR-4, BTR-3	San Antonio Bay Partnership		28,000						\$28,000
1826	Long-term Seagrass Monitoring in Corpus Christi Bay and Upper Laguna Madre	HLR-1, WSQ-1	UTMSI		12,000						\$12,000

PROJECT #	PROJECT TITLE	ACTION ITEM(S)	PERFORMING PARTY	EPA FY17 CWA 320	TCEQ FY17 & 604b	LOCAL/ COURT/ DELTA	TGLO	MISC GRANTS	USFWS	FY16 CF	TOTAL CBBEP FUNDING
1827	Repairs to CBBEP Facilities at the Nueces Delta Preserve	PEO-3, PEO-5	CBBEP			20,000					\$20,000
1828	Gulf Coast Conservation Initiative Phase 5	BTR-3, SM-3, HLR-1, HLR-2	CBBEP						80,000		\$80,000
1829	Caring for Our Coast – Delta Discovery and Habitat Protection/ Enhancement Activities	PEO-3, HLR-1, HLR-2	CBBEP					30,000			\$30,000
	TOTAL PROJECT FUNDS			314,074	275,392	305,404	30,000	283,110	125,000	5,000	1,337,980
	Administrative / Travel		CBBEP	285,926	458,838	227,741	0	0	0	36,840	\$1,009,345
	TOTAL FUNDING			\$600,000	\$734,230	\$532,500	\$30,000	\$283,110	\$125,000	\$41,840	\$2,346,680