



Protecting Our Bays & Estuaries

FY 2016 Comprehensive Annual Work Plan

**Coastal Bend Bays & Estuaries Program, Inc.
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COASTAL BEND BAYS & ESTUARIES PROGRAM

FY 2016 Comprehensive Annual Work Plan

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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 CCMP. The Act defines criteria by which Management Conferees 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 1992 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 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 Program Office had been established as a program of the TNRCC since December 1993. 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 Texas 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 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 Plan implementation effectiveness.

Work Plan Development

The FY 2016 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 Comprehensive Conservation and Management Plan (CCMP) 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 2016 Comprehensive Work Plan will be September 1, 2015.

III. Federal and State Program Coordinators and Project Officers

Federal

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State

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CBBEP Program Coordinator
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IV. Accomplishments To Date

The CBBEP achieved its primary goal for FY 2015, which was to continue the successful initiation and completion of projects developed to implement the *Coastal Bend Bays Plan*. The Program and its partners achieved programmatic progress on 94 percent of CCMP actions. Action-specific environmental progress directly attributed to CBBEP activities has resulted in thousands of acres of restored or protected habitat. The Program's success in leveraging funds for CBBEP projects has also been noteworthy. Broad support for the Program's activities is evidenced by the range of contributors, including local governments, industries, NGOs and state and federal agencies. The CBBEP Management Conference has not made any changes in the priorities as listed in the CCMP.

All project deliverables identified during the FY 1999 through FY 2011 implementation years have been completed. FY 2012 projects (federal) are expected to be completed by September 30, 2015. FY 2013 projects are expected to be completed by August 31, 2016.

V. Goals for FY 2016

The overarching goal for FY 2016 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 2016 have been selected for their contribution towards implementation of the *Coastal Bend Bays Plan*. Thirty-one projects will be implemented in FY 2016. A comprehensive list of projects outlining project numbers, titles, action items, performing party(s), and budget can be found in Table 1: FY 2016 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.

Performing Organization: CBBEP
Total Project Funding: \$130,554
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*. Additionally, these efforts will extend to activities that support the conservation of non-breeding coastal bird species and their habitat. Management actions will include efforts to reduce anthropogenic impacts, habitat management and protection, and predator control when necessary. Public education and outreach will continue to be a major component in achieving project objectives.

Objectives:

This project will:

- Continue the restoration efforts of coastal bird populations through management of colonial waterbird nesting sites, including habitat enhancement, protection, and predator control, and by reducing 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 #1602 Delta Discovery

Performing Organization: **CBBEP**
Total Project Funding: **\$178,355**
CBBEP Bays Plan Actions: **BTR-1, PEO-2, PEO-3, PEO-5**

Background:

Delta Discovery embraces our entire environmental education program. The educational program costs consist of the following:

- Salary of CBBEP environmental educators, temporary part-time staff, and interns.
- Supplies needed for the Nueces Delta Learning Preserve
- Supplies and food for Teacher workshops

Field trips: Many of the students that are being exposed to scientific concepts for the first time have never spent much time outdoors. There is a need to bring classroom concepts alive in the proper setting through field trips. Getting students out of the classroom and into the outdoors adds greatly to the students understanding of natural processes. CBBEP Environmental Educators provide field trip opportunities for teachers and students to visit the Nueces Delta Preserve. The cross-curricular trip may to be organized by the teacher, with assistance from the Environmental Educator, to create an educational TEKS-aligned agenda for outdoor education. This program sees over 8000 students a year. The goal is to plant seeds of appreciation and passion for a new generation of naturalists, biologists, and nature lovers to protect and preserve the Coastal Bend through educating school children about preserving our environment and protecting our animal and plant life.

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

Fall/Spring 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. Hands-on learning in the field will dominate and field work correlation to the classroom will follow the outdoor learning experience. 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 Texas Coastal Bend. Partnering throughout the year would allow the CBBEP to introduce environmental issues to teachers who may not be able dedicate time in the summer to workshops. It will also allow those teachers who may need more instruction in a specific area of science to continue their education. The funding provides all fees for partnering, curriculum, and substitute teachers in order for these workshops to occur on weekdays.

Summer Workshops: CBBEP partners with already successful educational programs. By combining all of these resources into one program, Coastal Bend Environmental Science seeks to provide teachers the tools needed to successfully teach science and promote student awareness of local ecology and environmental issues affecting the bays and estuaries.

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

During the Summer and Fall/Spring Workshops, CBBEP will provide light refreshments throughout the day, such as snacks, bottled water, soft drinks and sandwiches. The Nueces Delta Preserve is about 21 miles away from nearby restaurants and transporting the teachers to/from any restaurants will delay the workshops considerably. CBBEP has made arrangements for sandwich delivery to the NDP. Teachers

can continue with the workshop with little downtime. Workshops are held during the hottest part of the summer, with little or no shelter available at times.

Objective:

The objective of this project is to provide educational field trips and also aid teachers in the community to increase their knowledge, skills and provide resources to more effectively teach science to their students in local schools.

Performing Organization: Mission-Aransas National Estuarine Research Reserve
Total Project Funding: \$46,000
CBBEP Bays Plan Actions: BTR-1, BTR-2, HLR-1, PEO-5

Background:

The purpose of this project is to create a 2 acre “Dunescape” in Port Aransas, Texas, for public access and education of the importance of sand dunes to Mustang and North Padre Islands. The Dunescape will provide walking paths and interpretive signage to educate the public. Public parking will be made available, and the Dunescape will be an addition to an already funded Water Wise Wildlife Garden, set to break ground in the fall of 2015. The proposed project is on the University of Texas Marine Science Institute (UTMSI) property.

The UTMSI and the Mission Aransas National Estuarine Research Reserve (Reserve) strive to enhance public understanding of the value and function of estuaries and to encourage protection of the coastal environment. In 2014, UTMSI and the Reserve were awarded funding to develop a native species xeriscape demonstration garden that utilizes native, water-wise plants that attract wildlife, such as birds, butterflies, and dragonflies. This Water Wise Wildlife Garden (WWWG) will teach Port Aransas visitors about the importance of wildlife gardens and water conservation, and greatly enhances the educational programs currently offered by means of the installation of interpretive signage.

The currently proposed CBBEP project includes extending the WWWG to include the dune habitat directly adjacent. In the spring of 2014 a platform was constructed allowing for educational programs to bring classes out into the dune environment, while providing shade and seating. The dune habitat in front of the “Dunescape” has previously been altered. Currently there is a manmade berm separating the dune area from the front lawn of the UTMSI Lab Building; this berm was created to allow for dredge material to be filled in behind it. During the Dunescape construction, much of the area was also impacted. Some of this area will be restored with funding from the WWWG grant, however a large portion of that dune habitat will not be restored, and no educational signage or pathways will be installed due to the lack of funding. We believe this is a perfect opportunity to connect the two projects. By creating pathways and signage within the dune habitat it will allow for a seamless transition between the two areas. Educational exhibits focusing on the importance of dune habitats and the protection, resources, and services they provide will be installed throughout the pathway.

Objectives:

- To provide a public access to dune habitat and an educational opportunity between the Wetlands Education Center, Estuarine Research Center, and the Water Wise Wildlife Garden that enhances the educational programs and improves the overall learning experience of Port Aransas visitors.
- To restore impacted dune habitat by removing invasive or nuisance species, and replanting native, dune vegetation.
- To showcase the benefits and importance of dune habitats (i.e., beauty, hardiness, attraction of wildlife, storm protection).

Project 1604**Monarch Conservation in the Texas Coastal Bend**

Performing Organization: South Texas Botanical Garden & Nature Center
Total Project Funding: \$30,000
CBBEP Bays Plan Actions: HLR-2

Background:

The purpose of this project is to contribute to conservation of migratory Monarch butterflies, a species of urgent conservation concern, in the Coastal Bend region of Texas through habitat creation/restoration, and education and outreach. The U.S. Fish and Wildlife Service's (Service) new Monarch Conservation Strategy was developed in response to precipitous recent declines of this unique migratory species of butterfly. The Service's strategy includes partnerships to restore and enhance habitat in the eastern population's central flyway for migrating monarchs with a focus on their first-generation spring breeding habitat and summer breeding areas. The initiative's goal includes development of partnerships needed to identify priority habitats, conducting habitat restoration at every scale, collection and distribution of native milkweed seed, inventory and monitoring of monarchs, and providing educational opportunities and materials.

Conservation of spring breeding and migration habitats in Texas and Oklahoma is critical for the first generation offspring from the Mexican overwintering population as they breed and then migrate to recolonize the summer breeding grounds of the Midwest. One of the largest contributors to the migratory Monarch's decline is believed to be a loss of native milkweeds throughout their migratory corridor where much of the acreage is planted to Round-Up Ready crops. Native seed availability is a limiting factor for Texas and Oklahoma. Therefore, a major part of the conservation strategy focuses on finding local ecotypes of native milkweeds (surveys); collection of seed pods; processing of seed, and replanting into the wild in combination with native flowering plants known to be used as nectar plants by the Monarchs.

Objective:

The objective of this project will be creating additional monarch waystations and assisting in the preservation of Monarchs. An increase in community awareness will be achieved with outreach materials detailing the conservation concern of the Monarch butterflies.

Performing Organization: Texas A & M – Corpus Christi
Total Project Funding: \$65,000
CBBEP Bays Plan Actions: WSQ1, WSQ-4, WSQ -5, FW-1

Background:

The purpose of this project is to purchase high precision pH and pCO₂ sensors for monitoring ocean acidification, install equipment and to begin monitoring ocean acidification in the Aransas Pass at the University of Texas Marine Science Institute research pier; the first monitoring program in the region.

High precision pH and pCO₂ data would help to advance ocean and estuarine acidification scientific knowledge, as well as carbon cycle in this semi-arid region. As more research is being focused towards estuarine and coastal acidification, research needs to also expand to warmer waters and more arid environments, such as the northwestern Gulf of Mexico. In this semi-arid region, drought and freshwater inflows play a stronger role in estuarine pH and carbonate chemistry, and they could modulate carbon cycle in a mechanism that is different than many other coastal regions that are not under freshwater shortage.

Dr. Xinping Hu, Texas A&M – Corpus Christi, recently published a paper where they analyzed 40 years of total alkalinity and pH data in Texas estuaries and showed a long-term reduction in alkalinity in all bays within the CBBEP (Hu et al. 2015). Along the Texas coast, the long-term reduction in alkalinity was most pronounced in the southern bays due to low freshwater inputs and hypersaline conditions (high evaporation) during dry periods. The greatest decline in alkalinity took place in Copano Bay, in the middle of the CBBEP project area (Hu et al. 2015). It is also important to note that the southern-most commercial oyster harvesting in Texas is the Aransas-Copano bay system, which may become negatively impacted by estuarine acidification. Climate change scenarios have also projected drier conditions for this region in the future.

Objective:

The objective of this project is to begin a record of long-term high precision pH and pCO₂ monitoring. This monitoring will gain important data and information about water quality and ocean acidification in the Coastal Bend bays and coastal waters. Researchers, decision makers, and natural resource managers will be able to utilize this information on this emerging conservation issue.

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: CBBEP
Total Project Funding: \$15,000
CBBEP *Bays Plan* Actions: BTR-1, PEO-2, PEO-3 and PEO-5

Background:

Public outreach continues to be a key element of CBBEP to educate Coastal Bend residents about the importance of bays and estuaries to their communities. CBBEP will utilize local and regional media, which includes television, radio, print, and websites, to implement the goals of the CBBEP Public Outreach Strategy. The priority issues for this media campaign as identified in the Coastal Bend Bays Plan are: altered freshwater inflow into bays and estuaries; non-point source pollution; loss of wetlands and estuarine habitats; degradation of water quality; condition of living resources; altered estuarine circulation; public health issues.

Some or all of the priority issues listed above will be considered for public outreach through the media.

Objective:

Use the media to provide the public with the environmental science knowledge to make sound decisions regarding the effective management of bay resources and to promote environmental stewardship through increasing awareness of the resources and the issues regarding their use.

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 funds.

Performing Organization: CBBEP
Total Project Funding: \$40,000
CBBEP *Bays Plan* Actions: HLR-1

Background:

CBBEP is responsible for several properties including over 8,500 acres along the Nueces River and Nueces River Delta, 35 acres along Nueces Bay (HWY 181) and 160 acres on Mustang Island, and 180 acres on the Lamar Peninsula.

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 5,800 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 necessary management and routine maintenance of the CBBEP owned properties, including but not limited to road maintenance, fencing maintenance, gates, brush control, equipment purchases, habitat and predator management (as appropriate and necessary), and property taxes.

Past project accomplishments include dike repair to a 50 acre created wetland, management equipment purchases, nest box construction, building maintenance, volunteer projects, aerial application of herbicide to invasive *huisache*, road repairs, preparation for prescribed fire, construction of a parking area for school buses, creation of a wildlife observation area and water sampling station, establishing routine mowing of common areas, portable toilet and trash collection service.

Objective:

Provide for the ongoing maintenance and management of the Nueces Delta Preserve and other CBBEP properties.

Project 1610

Carbon Sequestration and Long-Term Seagrass Monitoring in Corpus Christi Bay and Upper Laguna Madre

Performing Organization: University of Texas Marine Science Institute
Total Project Funding: \$15,000
CBBEP Bays Plan Actions: WSQ-4, WSQ-5, HLR-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 2014 and 2015. 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. In addition, this program includes the measurement of the carbon:nitrogen:phosphorus (C:N:P) content of blade tissues collected at nearly 500 stations across the Texas coast that represent over 94% of the State's seagrass resources. 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 at a minimum 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.

Performing Organization: Conrad Blucher Institute
Total Project Funding: \$50,000
CBBEP Bays Plan Actions: FW-1, FW-2, FW-3, FW-4

Background:

The purpose of this project is for the Conrad Blucher Institute for Surveying and Science (CBI) at Texas A&M University - Corpus Christi (TAMUCC) to continue maintenance of three current real-time salinity monitoring stations, add a new salinity station, and maintenance of one meteorological monitoring station along the Rincon Bayou, as well as maintenance of a tide gauge in west Nueces Bay. Data from all monitoring stations will assist in characterization of 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 (RBP) from the Nueces River and will report water temperature, conductivity and salinity every 30 minutes. Data from these salinity stations are used by the Nueces Inflow Pipeline Advisory Committee (IPAC) to help determine when to recommend the schedule of pass-throughs of "banked" water to the City of Corpus Christi and by the Nueces Estuary Advisory Council (NEAC) to create freshwater inflow recommendations. The Center for Coastal Studies (CCS) at TAMUCC uses 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 Marine Science Institute (UTMSI) to support various modeling projects which will investigate the interaction between salinity of pore-water in the sediment and salinity of tidal creeks in the Nueces Delta. Additionally, the data is intended for use in the calibration and validation of the Nueces Delta Hydrodynamic Model. 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. A tide gauge will be maintained to the National Oceanic and Atmospheric Administration's standards and will report water level, water temperature, wind speed, wind direction, and barometric pressure. All data will be available to the public at CBI's webpage (<http://cbi.tamucc.edu>).

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, 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.

Performing Organization: CBBEP
Total Project Funding: \$17,916
CBBEP *Bays Plan* Actions: BTR-1, PEO-2, PEO-3, PEO-5

Background:

The Coastal Bend Bays & Estuaries Program (CBBEP) received a grant to partner with the Corpus Christi Independent School District (CCISD), Goose Island State Park, Mustang Island State Park, the Mission Aransas National Estuarine Research Reserve (MANERR), and The Texas A&M Corpus Christi (TAMUCC) Center for Coastal Studies (CCS) to bring Environmental Education to high school students. These high school students will experience the Coastal Bend.

This partnership will include Biology field trips to the Nueces Delta, Environmental Science field trips to Goose Island State Park, and Aquatic Science field trips to Mustang Island State Park. These students will receive an in depth coastal ecology experience most classroom teachers would not be able to provide. Students will use technology to record data through Photography and compass/gps orienteering for mapping using google earth, data collection on iPads using iNaturalist, and similar apps. Students will experience the recreational aspects of the Coastal Bend through fishing and boating with the CCS. First Aid Kits will be carried by staff at all times and life jackets will be used for boat safety. The MANERR will also video some of these experiences and produce informational videos teachers can use in the classroom for instructional time.

The goal is for these students to experience in depth, hands on experiences that connect the local environmental issues to classroom learning. Our future depends on the fostering of good stewards of the environment for future generations and this cannot be done in a sterile classroom environment. For this reason the partners will create an on campus group of Environmental Stewards that will be mentored and can share the message on campus, vertically with the elementary schools that feed into the campus and at festivals. The teachers will receive workshops in Project WILD, WILD Aquatic, and Flying WILD as well as knowledge of local Environmental Science issues. These will be offered at no cost to the teachers.

Objectives:

- Coordinate partnerships and curriculum delivery for educational field trips.
- Deliver curriculum and training to teachers for use in the classroom.
- Introduce students to local history and the environment in a discovery based classroom.
- Develop designated Environmental Stewards from the high schools through mentoring that can deliver programs to elementary schools and festivals.
- Develop informational videos of local issues teachers and students can use in the classroom.

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 establish 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:

Establish and support 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.

Performing Organization: CBBEP
Total Project Funding: \$25,000
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. 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 at various community events.

In addition, CBBEP may participate in:

- Community events and festivals
- CBBEP educational and promotional materials
- CBBEP web site
- CBBEP electronic updates
- Other outreach opportunities

Performing Organization: Texas A&M University-Corpus Christi
Total Project Funding: \$51,000
CBBEF Bays Plan Actions: WSQ-3

Background:

This project will support implementation of datasonde network in Baffin Bay for continuous water quality monitoring in Baffin Bay. At present, water quality data in Baffin Bay is provided by quarterly TCEQ sampling as well as a volunteer monitoring program that collects samples on a monthly basis. The proposed study will be highly complementary to these efforts, as it will provide temporally-explicit data that will fill in gaps associated with both program's lower frequency data collections.

The higher frequency sonde data is necessary for capturing and quantifying the effects of infrequent, but high intensity rainfall events that are likely to be important in terms of nutrient and organic matter loadings, as well as overall water quality, in Baffin Bay. This project will also be critical for understanding the conditions that lead to phytoplankton blooms and hypoxia in Baffin Bay. Finally, the sonde network will allow for estimation of 24-hour dissolved oxygen in different seasons and under differing stratification conditions. The 24-hour dissolved oxygen is a key water quality criterion that is utilized by TCEQ. The main objective will be to quantify the temporal dynamics of important water quality parameters (temperature, salinity, pH, dissolved oxygen, chlorophyll fluorescence, and turbidity) in Baffin Bay.

Hydrolab 5X datasondes, equipped with dissolved oxygen, salinity, temperature, pH, turbidity and chlorophyll fluorescence sensors will be deployed at surface (Cayo del Grullo) and surface & near bottom locations (CM 36, CM 14) along the length of Baffin Bay. Note that the CM 36 and CM 14 locations overlap with established TCEQ water quality stations. Continuous datasonde measurements will be obtained over the course of one year, which will be important for understanding seasonality in terms of water quality dynamics in the system. Deployed sondes will be switched out every 2-3 weeks with clean/calibrated sondes according to established operating practices, and discrete chlorophyll & turbidity samples will be collected at each retrieval to build a database that will be necessary to calibrate the sensors for these parameters.

Objective:

Establish and maintain a datasonde network in Baffin Bay for continuous water quality data monitoring. This project will support the Baffin Bay volunteer water quality monitoring study, TCEQ quarterly sampling, and other research projects in Baffin Bay.

Performing Organization: CBBEP
Total Project Funding: \$43,500
CBBEP *Bays Plan* Actions: FW-3 and HLR-2

Background:

CBBEP owns and manages approximately 8,500 acres in the Nueces River Delta. The Rincon Bayou flows through the middle of the CBBEP property. Thousands of wetland acres are influenced by the water that flows through the Rincon Bayou. In 2009 the City of Corpus Christi finished construction on the Rincon Bayou Pipeline (RBP). This pipeline was developed to restore regular freshwater inflows to the Rincon Bayou using the City of Corpus Christi's required inflows to the estuary for environmental purposes.

In 2011 CBBEP was awarded funds from the Coastal Management Program to construct a freshwater control structure on the Rincon Bayou to assist in the management of freshwater inflows delivered to the Nueces Delta from the RPB. Construction of the freshwater control structure was completed in June of 2014. In June of 2015 substantial flooding caused erosion to occur at the site of the freshwater control structure. This structure is integral in to the proper management of pumped freshwater inflows into the Rincon Bayou. Without a functioning control structure the effectiveness of the pumped water is greatly reduced.

Objectives:

- To restore the eroded bank of the Rincon Bayou adjacent to the freshwater control structure. The restoration of the bayou bank will allow the freshwater control structure to regain function.
- Make improvements to the control structure to handle higher than normal flood conditions as experienced in the 2015 flood.
- Remove flood debris around the freshwater control structure.

Performing Organization: Harte Research Institute for Gulf of Mexico Studies
Total Project Funding: \$50,000
CBBEP Bays Plan Actions: FW-1, FW-2, HLR-1, WQ3, WSQ-4

Background:

The purpose of this project is to determine the effects of pumped inflows into Rincon Bayou on benthic macrofauna during normal and drought precipitation events. This information is needed by managers to create an effective pumping strategy for the Rincon Bayou pipeline.

In 2009, a pipeline and pumping station was constructed to pump freshwater from the Calallen Pool to Rincon Bayou so that flow would not rely on overflowing the Calallen Dam. The most beneficial pumping regime (i.e., the timing and quantity of pumped inflow) has yet to be resolved. The upper and central Rincon Bayou have been sampled for benthic macrofauna during pumping periods between 2009 and 2013 by the Harte Research Institute, and pumping-specific studies took place in 2014. Pumping periods coincided with a high and low precipitation periods, so benefits of the pumped inflows can be determined. Monitoring of macrofauna in the upper Rincon Bayou during pumping must be performed in order to determine the effects of pumped inflows on estuarine productivity, and to quantify the optimal quantity and frequency of pumped inflows. A recent synthesis of research in the Rincon Bayou has determined that cycles of inflow to Nueces Delta follow a roughly two-year cycle, so intense study for a second year is required.

Studies will be conducted in the Nueces Delta, near Corpus Christi, Texas. Sampling stations are located at sites where baseline data are available to facilitate assessment of ecosystem changes. Sampling will be conducted quarterly at three stations (463, 400F, 466C) located in the upper Rincon Bayou, and biweekly at station 466C to capture pumping events.

Sampling methodologies will be the same as those performed earlier. Water column characteristics (i.e., depth, salinity, temperature, dissolved oxygen, pH), water quality (chlorophyll a, and nutrient concentrations), and benthos (i.e., abundance, biomass, and diversity) will be measured quarterly. Sediment grain size will be performed annually. Historical samples of water quality and macrofauna communities have also been taken and these data will be incorporated into this project's statistical analysis.

Objective:

This project will help determine the effects of pumped inflows into Rincon Bayou on benthic macrofauna in order to inform water managers on how to create an ecologically effective pumping strategy. The data from this project will be used to validate a model that was based on previously collected benthic macrofauna data (2009-2015).

Performing Organization: **CBBEP**
Total Project Funding: **\$2,000**
CBBEP *Bays Plan* Actions: **HLR-4**

Background:

The Texas coast is one of the most critical corridors for bird migration in the Western Hemisphere. Migratory bird species are challenging to manage effectively since they often rely on geographically distant sites for critical life history phases, and travel over large distances which imposes large physiological demands.

The study of migratory movements of birds using technology has been progressing at a rapid rate in the past two decades. The use of VHF transmitters has allowed researchers to follow the local movements of individuals in a particular area, but until recently this methodology has not been as useful for the study of long-distance movements since it requires the receiver to be close to the individual in order to detect it, requiring costly aerial search methods.

The MoTUS Wildlife Tracking System is a network established by Bird Studies Canada that relies on an array of stationary receiving antenna stations put in place and maintained by a wide range of researchers over a much larger area which includes most of eastern Canada and parts of the northeast US. Last year, CBBEP Coastal Bird Program, with support from Environment Canada and in conjunction with the University of Saskatchewan, installed the first two antenna stations on the coast of the Gulf of Mexico (and partners installed six more in Saskatchewan), primarily to track the migratory movements of shorebirds including Red Knots and Sanderlings.

An additional two antenna receiver stations have been provided by Environment Canada, and will be installed at other locations along the Texas coast.

Funds for this project are provided by The Nature Conservancy – Texas chapter.

Objectives:

This project will:

- Increase the number of active MoTUS receiver stations on the Texas coast by 2, for a total of 4.
- Allow for travel to remote sites and installation and maintenance of the four antenna stations in the western Gulf array.

Performing Organization: Coastal Bend Bays Foundation
Total Project Funding: \$32,250
CBBEP Bays Plan Actions: HLR-1, HLR-2

Background:

In January 2015 CBBEP received notification of funding from CMP to implement volunteer marsh plantings at the Nueces Bay Marsh Project site. The match requirement for this project is 60/40, with CBBEP needing to fund 40% of the total project cost. The total project cost is \$32,250, with CBBEP's match requirement of \$12,900.

The CBBEP has participated in volunteer marsh plantings at the Nueces Bay site in 2012 and 2013. The CBBEP will work with Texas Parks & Wildlife to acquire a permit to introduce smooth cordgrass (*Spartina alterniflora*) and will work with the Coastal Bend Bays Foundation and their volunteer core group. The primary goal of the volunteer marsh plantings is to educate each community volunteer on the importance of wetlands within our ecosystem and promote stewardship of our bay resources. The CBBEP plans to "re-plant" areas that were not successful during past events and plant smooth cordgrass along the fringe of the terraces to further enhance the marsh site. The CBBEP will contract with the Coastal Bend Bays Foundation for support in coordinating and supplying volunteers and event day set-up.

The project will increase and enhance marsh habitat, increase aquatic wildlife abundance and diversity, and provide foraging opportunities for coastal waterbirds which will be the measure of success.

Objective:

The objective of the volunteer marsh plantings is to educate each community volunteer on the importance of wetlands within our ecosystem and promote stewardship of our bay resources.

Project 1620

**Population Trends, Stressors, and Genetic Differences in Diamondback
Terrapin in the Texas Coastal Bend**

Performing Organization: TX A&M University – Center for Coastal Studies
Total Project Funding: \$9,680
CBBEP Bays Plan Actions: HLR-1

Background:

The purpose of this project would gather new data on population status and trends, salinity induced stress, and genetic differences for Texas diamondback terrapins in the Texas Coastal Bend. This project would incorporate a three-pronged approach to providing new data for Texas diamondback terrapins in the Texas Coastal Bend. The first portion of the project would involve re-visiting previously sampled terrapin populations to hopefully uncover population status and trends. As a species of concern, there have been recent requests from Texas Parks and Wildlife Department (TPWD) to provide updated data regarding terrapin populations in Texas. Current population status and historical trends are missing for this species for almost the entire Texas coast. These data are essential for the proper management of this species.

Second, this project would examine whether reduced freshwater inflows, and the resultant high salinities, induce physiological stress in this species. This would be accomplished by analyzing stress hormone levels at varying salinities. There is potential for alterations in behavior and other aspects of life history based on physiological stressors, suggesting the importance of knowing how increased, and even hyper, salinities affect these estuarine organisms.

The third part of this project seeks to identify genetic relatedness across local populations. In species, such as this that occur in small sub-populations, there may be little gene flow resulting in increased genetic separation. This information would be helpful to managers in terms of conserving these isolated populations.

Objective:

The objectives of this project will be gathering new data on the Texas diamondback terrapin in the Texas Coastal Bend regarding population status and trends, salinity induced stress, and genetic variations.

Performing Organization: Mission-Aransas NERR
Total Project Funding: \$29,000
CBBEP Bays Plan Actions: HLR-1

Background:

The purpose of this project is to expand a long-term relative sea level rise monitoring program (Sentinel Site Program (or SSP)) in Aransas Bay to help determine impacts of sea level rise on seagrass, marsh, and mangrove habitats over time. This is a one year project for CBBEP, but the start of a long-term data collection effort that NOAA and the Reserve will be maintaining in the foreseeable future of the program to ensure Coastal Bend communities and resource agencies have the information they need for planning for sea level rise in the future. The ultimate goal of the program is to supply policy and decision makers with good data so that informed decisions can be made about our natural environment.

A sentinel site is an area within the coastal or marine environment that has the operational capacity for intensive study and sustained observations to detect and understand changes in the ecosystems they represent. The focus of the National Estuarine Research Reserve System (NERRS) SSP is on understanding changes in sea level and inundation and the associated responses of marsh, mangrove, and submerged aquatic vegetation. All NERR SSPs are standardized and measured the same and can be comparable throughout the country, allowing for a nationwide understanding of how habitats are changing due to relative sea level rise and ways for managing those changes.

The currently proposed CBBEP project includes funding to purchase 31 HOBO Data Loggers and material to install a set of Surface Elevation Tables (SET) near an established vegetation monitoring site on Mud Island. The data loggers will be used to monitor continuous pore water characteristics (temperature, salinity, elevation). They will be placed along the Reserve's established vegetation transects (emergent marsh and mangrove) in Aransas Bay. Pore water chemistry is an excellent integrator of watershed processes. Adding SETs near the Mud Island vegetation transect strengthens the Mission-Aransas Reserve's SSP by finishing out all proposed SETs locations. These SETs provide long-term data on what impacts sea level rise is having in the local communities.

Objectives:

- Purchase and install a set of Surface Elevation Tables and 31 HOBO Data Loggers for gathering continuous data.
- Enhance an existing monitoring program that is providing short- and long-term data on the changes in sea level, shifts in salt marsh community structure and spatial extent, increased shoreline erosion and deteriorating water quality by providing additional equipment.
- Accurately measure climate impacts in order to better inform decision-making by coastal management communities.

Performing Organization: Texas A&M University – Corpus Christi
Total Project Funding: \$5,000
CBBEP Bays Plan Actions: HLR-1, HLR-2

Background:

The objective of this project is to assess the effectiveness of the Nueces Bay Marsh Restoration Project built by CBBEP. Salt marshes provide critical habitat for many important marine and avian species. They protect coastal areas from flooding and erosion, improve water quality, and enhance habitat quality of adjacent marine habitats (e.g., oyster reefs). Salt marshes have been identified as coastal natural resource areas by Texas GLO because of the ecosystem services they provide. Yet, marshes are severely degraded and many attempts to create and restore marsh habitats have been and continue to be performed with varying degrees of success.

The original baseline assessment of the area before construction was performed August 2009. This project will assess Nueces Bay Marsh Restoration site post construction. Construction began in 2010 on the 72 acre marsh complex consisting of terraces protected by an earthen berm. The CBBEP has also 1) completed construction of an outermost berm that encloses and protects another 80 acres, 2) planted *Spartina alterniflora* (smooth cordgrass) on all terraces and berms, 3) completed construction of 3 large marsh cells between the inner terraces and the outermost berm, 4) planted *Spartina alterniflora* (smooth cordgrass) on the 3 large marsh cells, and 5) completed a rock revetment on the outermost berm.

Objectives:

- Measure species richness and abundance in the restored Nueces Bay Marsh of associated fauna and in surrounding natural marsh habitats,
- Compare plant density and associated faunal community in the restored Nueces Bay Marsh to natural marshes in Nueces Bay and to natural marshes in nearby locations

Performing Organization: CBBEP
Total Project Funding: \$30,000
CBBEP Bays Plan Actions: HLR-1, HLR-4

Background:

Many of the colonial waterbird species in Texas have seen dramatic population declines, partly because of the loss and degradation of vital nesting habitat. Currently, in the Coastal Bend of Texas, most waterbird species nest on small, isolated islands in the bays and waterways along the coast. The majority of these islands are composed of dredge material and often lack the vegetation that many waterbirds prefer for nesting, therefore, the planting of native vegetation is critical to provide suitable nest structure and prevent the establishment of invasive/exotic vegetation.

The Coastal Bird Program at CBBEP has, over the last decade, developed successful techniques for managing habitat in the harsh, salty, and dry conditions that exist on rookery islands. Using new materials and planting techniques such as tree tubes, weed mat, and site-specific fertilizer, the Coastal Bird Program has seen vastly improved seedling survival and growth rates; as much as 80% or more first year survival over previous seedling establishment techniques. This project will provide materials and personnel to effectively plant 1,500 native brush seedlings on area rookery islands, greatly improving existing habitat for colonial nesting waterbirds.

Another factor affecting reproductive success for colonial waterbirds is chronic human disturbance. CBBEP efforts in recent years have looked at ways of minimizing disturbance and educating the public of the ramifications of disturbance to nesting birds. Installing signage around rookery islands is one way of warning and informing bay users to stay off active nesting sites. Many of the signs that have been in place for several years are too small, faded, and hard to read. New, larger signs that can be seen and read from further away are needed to inform bay users to avoid critical nesting areas before they are close enough to disturb nesting birds. This project provides materials to install and/or replace 50 signs at key rookery islands.

Objectives:

This project will:

- Improve valuable rookery island habitat through the planting and establishment of 1,500 native brush seedlings on key colonial waterbird nesting sites.
- Reduce human disturbance of rookery islands by replacing and installing new, larger signs that warn bay users of active rookeries and can be seen from a considerable distance, preventing and minimizing human disturbance of waterbird colonies.

Performing Organization: CBBEP
Total Project Funding: \$100,000
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.

Funding for this project is provided by the Robert J Kleberg Jr and Helen C Kleberg Foundation.

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: HDR Engineering and construction contractor TBD
Total Project Funding: \$1,323,000
CBBEP Bays Plan Actions: WSQ-5, FW-1, HLR-1, HLR-2

Background:

The purpose of this project is to restore hydrology and reduce salinity in the Egery Flats marsh area, which has lost about 100 acres of marsh in the past 60 years. Egery Flats provides habitat to numerous species of birds, finfish, shellfish, and herpetiles. During low tide, the exposed flats and emergent marshes support thousands of migrating shorebirds feeding on macrobenthic infauna. During high tide, the inundated flats and emergent marshes support various wading birds and waterfowl and serve as nurseries to larval and juvenile fishes, shrimps, and crabs. Located outside of a major bay or bait bay, Texas Parks and Wildlife Department (TPWD) considers the shallow water habitats of Egery Flats a nursery area that serves as a significant growth and development environment for postlarval and juvenile shrimp. Additionally, the U.S. Fish and Wildlife Service (USFWS) has identified this area as a site of potential range expansion for the endangered whooping crane (*Grus americana*) which depends on aquatic resources associated with estuarine marsh.

Egery Flats, a 600-acre semi-enclosed basin near the confluence of the Aransas River and Copano Bay, has lost about 100 acres of emergent marsh from 1949-2008. A feasibility study showed that existing elevations should support marsh, but existing culverts installed in 1941 provide an inadequate connection to Copano Bay resulting in hypersalinity (35-85ppt) that does not support marsh growth or survival. The diurnal tide range in the parent waterbody is about 0.38 feet. Water circulation data showed that the basin maintains about 18% of the available tide (25% at culverts). Modeling results showed that increasing the culvert size increased available tide to about 66% (77% at culverts). An alternatives analysis stated that improving water flow at existing culverts would provide the "closest situation to the natural state of Egery Flats" prior to highway construction. The proposed project would restore hydrology and enhance re-vegetation of marsh by replacing two 24-inch diameter culverts with three 3x6-foot culverts at two locations along the highway and planting up to 10 acres of marsh. Changes in salinity, water elevations, and emergent marsh (natural and planted) would be monitored over three years to ensure success. Culvert replacement is a cost effective way to improve about 600 acres of degraded emergent marsh, submerged aquatic vegetation, and tidal flats that will be available for use by numerous species of birds, finfish, shellfish, and herpetiles.

Objective:

The objective of this project is to restore hydrology and reduce salinity to about 600 acres of emergent marsh, submerged aquatic vegetation, and tidal flats by replacing two 24 inch culverts with three 6 x 3 foot box culverts in two locations at Egery Flats adjacent to Copano Bay, Texas. The project will also enhance re-vegetation of emergent marsh by planting up to 10 acres of emergent marsh.

Performing Organization: CBBEP
Total Project Funding: \$954,000
CBBEP *Bays Plan* Actions: HLR-1 HLR-4

Background:

According to data from the Texas Colonial Waterbird Survey, most Colonial nesting waterbird populations have declined over the past 40 years. The reasons for the decline include mammalian predators, imported red fire ants, human disturbance of nesting sites, loss of coastal wetlands, and the direct loss of nesting habitat to erosion and sea level rise. Erosion, storm surge, and sea level rise pose the largest natural risk to these islands. To mitigate this risk all islands will be restored to an elevation of +2 ft to accommodate future sea level rise.

In 2001 CBBEP constructed New Island in Nueces Bay to help address the loss of nesting habitat. As part of that project, five other remnant islands were protected with geotextile tubes to prevent further erosion. The geotextile tubes were placed to allow for the addition of fill material that would increase nesting area (but due to financial constraints, the placement of fill has not occurred). This project will restore three of the five islands, adding a total of approximately 1.22 acres of new nesting area by placing approximately 6,200 cubic yards of material between the islands' current shorelines and existing geotextile tubes. Due to the highly concentrated nature of colonial waterbird nesting, this new acreage could provide habitat for hundreds of pairs of wading birds (such as Reddish Egret and Roseate Spoonbill) and ground-nesting birds (Black Skimmers, Gull-billed Tern) each year. Historical data reflect that significant losses to nesting waterbird populations in western Nueces Bay track the simultaneous decline in available habitat. The new material will provide habitat for bareground nesters such as a black skimmers and gull-billed terns.

Primary activities for this project will include the development of a final design and specifications for the restoration actions to be constructed. Activities will also include obtaining a state submerged land lease(s) from the Texas General Land Office (application submitted in May 2014), and construction of the restoration actions. The state submerged land lease that CBBEP will be acquiring will allow for construction activities, while the Audubon Texas surface management lease allows for management of vegetation, signage, and predator control. All of the above said work will be conducted through an RFP process for selecting a contractor. There are currently no major uncertainties associated with this project and probably due to the simplicity of the project.

Objective:

Restore three rookery islands in Nueces Bay, Texas, by placing material between the islands' current shorelines and existing geotextile tubes to create an additional 1.22 acres of nesting habitat for populations of colonial water birds such as black skimmers, roseate spoonbills, and egrets.

Performing Organization: TBD
Total Project Funding: \$50,000
CBBEP Bays Plan Actions: HLR-4, HLR-10

Background:

The “Bays Plan” is a comprehensive conservation and management plan (CCMP) intended as a living document. EPA recommends that each National Estuary Program review its CCMP every three-to-five years to determine whether a revision or update is needed to keep the CCMP relevant. EPA also expects that all CCMPs revised by the end of FY 2020 will take into account a broad, risk-based climate change vulnerability assessment. Climate change has never been addressed in the CBBEP “Bays Plan”.

The “Bays Plan” (CBBEP’s CCMP) was completed in 1998 and even though the majority of the plan is still pertinent to our needs here in the Coastal Bend, it is in dire need of a thorough review and an update. The update is necessary to review each of the goals, objectives and actions to determine what revisions are needed to address various changes that have occurred in the Coastal Bend area over the last 15 years. The review and update of the plan will also take into consideration new scientific findings that affect the actions needed to continue to protect the quality of the natural resources and the watershed in the Coastal Bend area.

Recently, in an effort to develop more information on local effects climate change may have in the Coastal Bend area, CBBEP initiated a project to conduct a Climate Change Vulnerability Assessment. This project was submitted as part of the FY15 Work Plan to EPA and the TCEQ and the information resulting from the vulnerability assessment report will be used to develop only the section in the Bays Plan needed to address climate change.

CBBEP proposes to do the majority of the review and the update of the “Bays Plan” and “Implementation Strategy for the Coastal Bend Bays Plan” “in-house” using CBBEP staff. Meetings/workshops to solicit stakeholder input will also be coordinated, facilitated and conducted by CBBEP staff.

Objective:

To conduct a thorough review of the CBBEP “Bays Plan” and to revise the plan with current Goals, Objectives and Actions for every section in the existing plan and to add a section on Climate Change/Sea Level Rise, and other needs that may have developed over the past 15 years.

Performing Organization: CBBEP
Total Project Funding: \$119,000
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 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 7,200 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, USDA-NRCS, and other conservation organizations to identify and implement restoration actions that benefit a minimum of 220 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 220 acres of habitat for Aplomado Falcons, Attwater's Prairie Chickens, and Whooping Cranes.

Performing Organization: CBBEP
Total Project Funding: \$2,500,000
CBBEP Bays Plan Actions: HLR-1

Background:

Since starting on land acquisition efforts in 2002, CBBEP has worked to acquire either fee simple title or conservation easements for more than 8,500 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 Resource Conservation Service, and The Nature Conservancy to develop and implement management plans and restoration actions throughout the protect habitat. CBBEP has also coordinated with other property owners and managers to develop and implement restoration actions on their property. The Coastal Bend Bays & Estuaries Program – Bays Plan calls for an effort to identify at risk habitats and to work with land owners to preserve sufficient, functional acreage of those at risk habitats. By conserving critical or ‘at risk’ habitat areas within the CBBEP program area the CBBEP will help sustain species that rely on those habitats.

Objectives:

- Identify tracts of land to be acquired
- Perform due diligence through inspection, appraisal, and surveying prior to acquiring target tracts
- Develop, if necessary, a habitat restoration plan for acquired tracts

Performing Organization: City of Aransas Pass
Total Project Funding: \$75,900
CBBEP Bays Plan Actions: BTR-1, BTR-2, HLR-1, PEO-2

Background:

The Redfish Bay Causeway and the adjoining Redfish Bay marine ecosystem is a priority natural resource and priority recreational area of statewide importance. The CBBEP has funded prior shoreline management land use planning and public access elements of Phase I for the development of the Lighthouse Lake Trails back in 2005/2006. In addition Nueces County, the Cities of Port Aransas, Aransas pass, Rockport, and natural resource agencies have identified this area as having strong compatible public use and resource protection opportunities.

In 2010/2011 Nueces County secured a Coastal Management Grant through the Texas General Land Office to expand the park including another 8.5 acres of public access elements for human recreational use and to mitigate the uncontrolled access impacts. This expansion established a new pervious road surface to 9 new picnic areas, each complete with shade structures/tables, and two large 15'X15' educational kiosks for outreach focusing on the natural habitat and the historical significance of the channel and the Lydia Ann Lighthouse.

There is a great need to a form of a permanent restroom facility to service the park and its users. For years the only restroom facility has been available is a port-a-potty provided by a private entity. With the expansion of the park and the routine maintenance and oversight being provided by Nueces County, City of Aransas Pass, and Aransas Pass City Police Department, the park has more than tripled in attendance and has become a very family friendly recreational destination that draws large numbers of kayak anglers from across the state year round.

Because the park has become so popular for local residents and visitors there is need to construct additional shade/picnic table structures and low level lighting of the park for public safety.

Objectives:

- Construct 6 additional shaded picnic table structures out of treated lumber.
- Purchase and install a pre-fabricated restroom facility with above ground holding tank.
- Contract with AEP for the purchase of additional transformer and wiring to install 7 are lights on existing power poles.
- Complete surfacing with reclaimed asphalt parking areas to service picnic areas and a secondary means of ingress/egress at the park.

Project 1631 Habitat Management Plan for Nueces County's 3,680 Acre Tract of Land on Padre Island

Performing Organization: **TBD**
Total Project Funding: **\$7,673 (Partial Funding of Project)**
CBBEP Bays Plan Actions: **BTR-1, BTR-2, HLR-1, HLR-4, HLR-10, SM-2**

Background:

The objective of this project is to prepare a baseline habitat characterization; and develop preliminary guidelines and action plans (Habitat Management Plan), using adaptive management protocols, for recreational use and protection and conservation of natural resources within the newly acquired 3,680-acre parcel of undeveloped barrier island land.

In January 2015, Nueces County received a grant to acquire 3,680 acres of undeveloped land on Padre Island in northern Kleberg County. Prior to acquisition, the property was owned by the Texas General Land Office which purchased it through a Federal Highway Administration grant in 1995. Since then, the land has been unmanaged with practically no law enforcement and has been subjected to illegal dumping, recreational shooting with suspected lead munitions, and indiscriminant vehicular traffic in dunes and wetlands. The full extent of these uncontrolled impacts has not been quantified, but may be affecting the hydrology, flora, and fauna needed to sustain healthy wetland ecosystems; infringing upon the critical habitat of endangered species and placing uncontrolled contaminants into the environment.

The new property is very valuable ecologically. It borders Padre Island National Seashore and contains approximately 6 miles of gulf beaches, 2.3 miles of estuarine mud flats and Laguna Madre shoreline, freshwater emergent wetlands, large expanses of coastal prairie, and other barrier island habitats. According to the Information, Planning, and Conservation System, the property potentially supports many threatened, endangered, or rare species known to occur on Padre Island and contains designated critical habitat for the piping plover, a Federal and State-listed threatened species. Other Federal and State-listed endangered and/or threatened species within the subject area include the Kemp's Ridley sea turtle, green sea turtle, hawksbill sea turtle, leatherback sea turtle, loggerhead sea turtle, red knot, northern aplomado falcon, and Sprague's pipit. Aside from listed species, examples of other resources and issues that need to be addressed in the site's habitat management plan include freshwater wetlands and the need to control invasive species such as Brazilian peppertree and guinea grass, which have become extremely problematic in this general geographic area of Texas.

Objective:

Develop an initial Habitat Management Plan for the newly acquired 3,680 acre parcel of land which will guide conservation of natural resources while meeting the multi-use mission of the Nueces County Coastal Parks and CBBEP Action Plans. The habitat management plan will be prepared utilizing an adaptive management structure to facilitate subsequent modifications as needed and economic resources become available.

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 (9 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, 2015, the Coastal Bend Bays & Estuaries Program will begin Year 18 of implementing the *Coastal Bend Bays Plan*. This FY 2016 Work Plan describes the proposed work to be initiated during FY 2016. Of the total funds identified in the Work Plan budget, \$665,000 are new (FY 2016) EPA federal funds, \$757,504 are new (FY 2016) TCEQ funds, \$5,165,266 are new (FY 2016) project-specific funds, and \$385,300 are new (FY 2016) local partner/federal court interest funds, \$15,000 are local carryforward funds, and \$70,000 are from local reserve funds. The total budget for this FY 2016 Work Plan is \$7,058,070.

TABLE 1: FY 2016 COMPREHENSIVE ANNUAL WORK PLAN OUTLINE

PROJECT #	PROJECT TITLE	ACTION ITEM(S)	PERFORMING PARTY	EPA FY16 CWA 320	TCEQ FY16 & 604b	LOCAL/ COURT INTEREST	TGLO & TPWD	MISC GRANTS	NFWF	USFWS	FY15 CF	TOTAL CBBEP FUNDING
1601	Coastal Waterbird Management	HLR-1, HLR-4	CBBEP	130,554								\$130,554
1602	Delta Discovery	BTR-1, PEO-2, PEO-3, PEO-5	CBBEP	177,355		1,000						\$178,355
1603	Dunescape Creation and Public Access in Port Aransas, TX	BTR-1, BTR-2, HLR-1, PEO-5	Mission-Aransas NERR	46,000								\$46,000
1604	Monarch Conservation in the Texas Coastal Bend	HLR-2	S. TX Botanical Gardens	4,737		25,263						\$30,000
1605	Ocean and Coastal Acidification Monitoring	WSQ-1, WSQ-4, WSQ-5, FW-1	Texas A&M Corpus Christi	65,000								\$65,000
1606	Outdoor Classrooms	PEO-3, PEO-5	CBBEP & USFWS							10,000		\$10,000
1607	CBBEP Habitat Protection Media Campaign	BTR-1, PEO-2, PEO-3, PEO-5	CBBEP								15,000	\$15,000
1608	CBBEP Community Outreach Partnerships	PEO-1, PEO-2, PEO-3, PEO-4 PEO-5	Coastal Bend Bays Foundation		18,100	11,900						\$30,000
1609	CBBEP Property Management	HLR-1	CBBEP			40,000						\$40,000
1610	Carbon Sequestration & Long Term Seagrass Monitoring	WSQ-1, WSQ-5, HLR-1	University of TX Marine Science Institute		15,000							\$15,000

PROJECT #	PROJECT TITLE	ACTION ITEM(S)	PERFORMING PARTY	EPA FY16 CWA 320	TCEQ FY16 & 604b	LOCAL/ COURT INTEREST	TGLO & TPWD	MISC GRANTS	NFWF	USFWS	FY15 CF	TOTAL CBBEP FUNDING
1611	Nueces Delta Environmental Monitoring	FW-1, FW-2, FW-3, FW-4	Conrad Blucher Institute		50,000							\$50,000
1612	TPWD Delta Discovery Partnership	BTR-1, PEO-2, PEO-3, PEO-5	CBBEP				17,916					\$17,916
1613	Volunteer Water Quality Monitoring Program in Baffin Bay	WSQ-3	Texas A&M University-Corpus Christi					50,000				\$50,000
1614	CBBEP Public Outreach Events & Activities	PEO-1, PEO-2, PEO-3, PEO-4, PEO-5, BTR-1	CBBEP			25,000						\$25,000
1615	Continuous Water Quality Monitoring Network in Baffin Bay	WSQ-1	Texas A&M University-Corpus Christi		51,000							\$51,000
1616	Nueces Delta Preserve-Rincon Bayou Water Control Structure Restoration	FW-2 HLR-2	CBBEP			20,000		23,500				\$43,500
1617	Effects on Benthic Macrofauna from Pumped Flows in Rincon Bayou	FW-1, FW-2, HLR-1, WQ-3, WSQ-4	Harte Research Institute		50,000							\$50,000
1618	Migratory Bird Tracking Addition of Two Antenna Receivers	HLR-4	CBBEP					2,000				\$2,000
1619	Nueces Bay Marsh Volunteer Planting	HLR-1, HLR-2,	Coastal Bend Bays Foundation		12,900		19,350					\$32,250

PROJECT #	PROJECT TITLE	ACTION ITEM(S)	PERFORMING PARTY	EPA FY16 CWA 320	TCEQ FY16 & 604b	LOCAL/ COURT INTEREST	TGLO & TPWD	MISC GRANTS	NFWF	USFWS	FY15 CF	TOTAL CBBEP FUNDING
1620	Population Trends, Stressors, and Genetic Differences in Diamondback Terrapin in the TX Coastal Bend	HLR-1	Texas A&M University Center for Coastal Studies			9,680						\$9,680
1621	Relative Sea Level Rise Habitat Assessment in Aransas Bay	HLR-1,	Mission-Aransas NERR			29,000						\$29,000
1622	Nueces Bay Marsh Restoration Post Construction Assessment	HLR-2, HLR-4	Texas A&M University Corpus Christi			5,000						\$5,000
1623	Waterbird Nesting Habitat Enhancement and Protection	HLR-1, HLR-4	CBBEP					30,000				\$30,000
1624	Lower Laguna Madre Bird Conservation	HLR-1, HLR-4	CBBEP					100,000				\$100,000
1625	Egery Flats Marsh Restoration	WSQ-5, FW-1, HLR-1, HLR-2	HDR Engineering and Contractor						1,323,000			\$1,323,000
1626	Nueces Bay Rookery Island Restoration	HLR-1, HLR-4	CBBEP						913,172			\$913,172
1627	Update of the "Bays Plan" and "Implementation Strategy for the Bays Plan"	HLR-4, HLR-10	TBD		50,000							\$50,000
1628	Gulf Coast Conservation Initiative	BTR-3, SM-3, HLR-1, HLR-2	CBBEP							108,170		\$108,170

PROJECT #	PROJECT TITLE	ACTION ITEM(S)	PERFORMING PARTY	EPA FY16 CWA 320	TCEQ FY16 & 604b	LOCAL/ COURT INTEREST	TGLO & TPWD	MISC GRANTS	NFWF	USFWS	FY15 CF	TOTAL CBBEP FUNDING
1629	Habitat Acquisition in CBBEP Program Area	HLR-1	CBBEP					2,500,000				\$2,500,000
1630	Lighthouse Trails Public Use & Access Improvements	BTR-1, BTR-2, HLR-1, PEO-2	City of Aransas Pass		51,666	24,234						\$75,900
1631	Habitat Management Plan for Nueces County's 3,680 Acre Tract of Land on Padre Island	BTR-1, BTR-2, HLR-1,, HLR-4, HLR-19, SM-2	TBD			7,673						\$7,673
	TOTAL PROJECT FUNDS			423,646	298,666	198,750	37,266	2,705,500	2,236,172	118,170	15,000	6,033,170
	Administrative / Travel		CBBEP	241,354	458,838	256,550		16,500	40,828	10,830		\$1,024,900
	TOTAL FUNDING			\$665,000	\$757,504	\$455,300	\$37,266	\$2,722,000	\$2,277,000	\$129,000	\$15,000	\$7,058,070