



Living on the Edge
Protecting Our Bays and Estuaries

Coastal Bend Bays & Estuaries Program

FY 2011 Comprehensive Annual Work Plan

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COASTAL BEND BAYS & ESTUARIES PROGRAM

FY 2011 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 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 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 2011 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 2011 Comprehensive Work Plan will be September 1, 2010.

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 2010, 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 2004, FY 2006 and FY 2008 implementation years have been completed. FY 2005 and FY 2007 projects are expected to be completed by June 30, 2011. FY 2009 and FY 2010 projects are expected to be completed by August 31, 2011.

V. Goal for FY 2011

The overarching goal for FY 2011 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. Implementation of Projects

Project activities for FY 2011 have been selected for their contribution towards implementation of the *Coastal Bend Bays Plan*. Twenty-nine projects will be implemented in FY 2011. A comprehensive list of projects outlining project numbers, titles, action items, performing party(s), and budget can be found in Table 1: FY 2011 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*.

VII. 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 # 1101 Protecting Important Shorebird Habitat Using Piping Plovers as an Indicator Species

Performing Organization: CBBEP
Total Project Funding: \$95,000
CBBEP Bays Plan Action Items: HLR-1, HLR-4

Background:

The Texas coast hosts many thousands of migrating and wintering shorebirds each year. Certain sites along the Texas coast are internationally recognized as important shorebird habitats because these areas support huge concentrations of a variety of shorebird species. Levels of threats to these sites vary among different bay systems, but in almost all cases the intertidal areas required by these species are threatened by rising sea levels and in many areas these habitats are also exposed to increasing degradation from certain management practices and/or increasing levels of human use. Research on piping plovers, a federally listed threatened species, has shown that this species uses a mosaic of habitats during winter, moving from Gulf beach to bay shorelines to seasonally emergent habitats further out in the bay. These movements coincide with changes in lunar tidal regimes and are also due to the effects of wind-driven water across intertidal zones. There is some potential for an ecological “bottleneck” on the Gulf beach when wind-driven tides and/or water levels cause plovers to converge on beach habitats for foraging. When this coincides with beach recreation and development, adequate beach habitat may be a limiting factor for piping plovers, and therefore other shorebirds, in Texas.

To develop protection strategies and management recommendations that will effectively preserve continuing shorebird use of each bay system, it is important to identify all the “pieces of the puzzle” (all the habitats in the mosaic), especially in those bay systems that are seeing the greatest pressure from recreational use and development.

Project Objectives:

- For two study areas (southern Mustang Island/northern North Padre Island and Galveston Bay/Bolivar Flats), determine piping movement and habitat use among beach and bayside habitats.
- Evaluate habitat characteristics at sites used by shorebirds.
- Assist with the USFWS 2011 International Wintering Piping Plover census in the Texas Coastal Bend
- Compile baseline data on piping plover numbers in areas where development has occurred.
- Develop a GIS product for use in developing management strategies.

Project # 1102 Coastal Waterbird Management

Performing Organization: **CBBEP**
Total Project Funding: **\$175,000**
CBBEP Bays Plan Action Items: **HLR-1, HLR-4**

Background:

The Living Resources Characterization Report prepared for the Estuary Program documented the declining populations of certain colonial waterbird populations. Some species of colonial waterbird have experienced a 90% reduction in breeding pairs since the 1960's. Colonial waterbird populations are indicators of the overall health of the estuary. Bird watching, especially viewing colonial waterbirds, is an important and growing component of ecotourism and the local economy.

Building on the efforts of the CBBEP Colonial Waterbird projects in previous years, this project will continue the implementation of specific management actions of the *CBBEP Colonial Waterbird Rookery Island Management Plan*. Additionally, efforts to protect other imperiled coastal bird species will be made. Management actions will include efforts to reduce human-disturbance, nesting substrate management, vegetation management to enhance rookery island habitat, and predator control where necessary. Outreach will continue to be a crucial component in achieving project objectives.

Project Objectives:

- Continue efforts towards the enhancement and construction of nesting habitat.
- Continue to promote public programs to protect colonial waterbirds.
- Assist in efforts to note fluctuations of colonial waterbird populations for management purposes.
- Install signage to reduce impacts of human disturbance on waterbird colonies.
- Implement predator control efforts.

Project 1103 Coastal Bend Environmental Science: Learning on the Edge

Performing Organization: CBBEP
Total Project Funding: \$185,000
CBBEP Bays Plan Action Items: PEO-3, PEO-5

Background:

Learning on the Edge began as a partnership that focuses 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. The Coastal Bend Bays & Estuaries Program partners with the already successful educational programs. By combining all of these resources into one program, *Learning on the Edge* 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.

Project Objectives:

- Provide field trip opportunities for teachers and students to visit the Nueces Delta Preserve. The co-curricular trip is 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 4000 students a year.
- Facilitate three summer workshops designed for teachers to address local environmental science topics. Participants will enhance their science knowledge through direct instruction, hands-on learning, field excursions, and TEKS-aligned lesson presentations. These workshops will be lead by the CBBEP Environmental Educator, a State Board for Educator Certification (SBEC) continuing professional education (CPE) provider. Teachers attending these workshops will receive CPE credits as well as Texas Environmental Education Advisory Committee (TEEAC) credits.

Project # 1104 CBBEP Habitat Protection Media Campaign

Performing Organization: **CBBEP**
Total Project Funding: **\$35,000**
CBBEP Bays Plan Action Items: **BTR-1, PEO-2, PEO-3, PEO-5**

Background:

Public outreach continues to be a key element of the CBBEP to educate Coastal Bend residents about the importance of bays and estuaries to their communities. The 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.

Project Objective:

The goal is to 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.

**Project # 1105 Water and Sediment Quality Status and Trends in the CBBEP Area -
Phase I: Data Archiving and Publishing**

Performing Organization: Harte Research Institute
Total Project Funding: \$50,000
CBBEP Bays Plan Action Items: WSQ-3, WSQ-4, WSQ-5

Background:

The purpose of this project is to develop a modern water and sediment quality data archiving and delivery system of data in the CBBEP area by placing existing status and trends data in a modern data base, updating the existing status and trends data base, and constructing web services to make the data available. The overall end product of this project after both phases are completed will be an interactive web based data management system, identification of areas with parameters that are trending higher or exceeding standards, and list of management recommendations developed from linking major water quality concerns in the Coastal Bend to specific parameters being analyzed, such as hypoxia, TMDL's, and bacteria.

The original water and sediment quality status and trends report for the Corpus Christi Bay area was completed more than 10 years ago (Ward and Armstrong 1997), and included analyses of data through December 1994. A status and trends project is actually two projects: one to assemble and organize the data base, and one to perform analyses and write the report. This kind of project can require multiple years of effort, and each time the data base has to be re-invented unless permanent data archives exist. In fact, the original report made four data management and eight data archiving recommendations regarding this that have yet to be implemented. Much change has occurred since 1997 in the world of data management, especially with respect to developing access to data over the internet using web services. Therefore, scientists are currently in a position to finally address the data management recommendations made in the 1997 report.

Recently the entire Rincon Bayou and Corpus Christi Bay hypoxia data bases have been archived using a data base technology called the CUAHSI Observations Data Model (ODM for short), and made available over the web by creating CUAHSI Web Services. A similar approach will be used in this project. Follow this link to the recently completed ODM:
<http://ccbay.tamucc.edu/dash/>

This project is an outgrowth of existing projects and builds on previous CBBEP projects. The ODM, programming, and web-server infrastructure are paid for by existing multi-million dollar National Science Foundation projects to electronically publish water data.

Project Objective for Phase 1:

Enhance the modern data archiving and delivery system of existing data in the CBBEP area.

Project # 1106 Nueces Delta Environmental Monitoring Project

Performing Organization: **Conrad Blucher Institute**
Total Project Funding: **\$40,000**
CBBEP Bays Plan Action Items: **FW-1, FW-2, FW-3, FW-4**

Background:

The purpose of this project is to maintain 6 environmental monitoring stations in the Nueces Delta and Bay that are key instruments in various ongoing projects with CBBEP, City of Corpus Christi, Harte Research Institute, Center for Coastal Studies, United States Geological Survey (USGS), and Conrad Blucher Institute (CBI). CBI has installed and currently maintains 6 environmental monitoring stations in the Nueces Delta and Bay. Four stations measure salinity and water temperature, one station is a meteorological monitoring site, and one is a tide gauge equipped with meteorological instruments.

Three of the salinity stations (Nude01, Nude02, Nude03) were established in 2008 along the Rincon Bayou in the Nueces Delta and are currently sponsored by the CBBEP until August 2010. The other salinity station (Salt08) was established for the City of Corpus Christi in 1999, and support ended for this station in 2008. These 4 stations are currently being used to observe the effects of the freshwater pass-thrus into the Rincon Bayou.

The installation and first years' maintenance of the Nueces Delta Meteorological station (NUDEWX) was sponsored by the Fort Worth District Army Corps of Engineers and was established in 2008. There is currently no support for this station, but is utilized by several research entities and CBBEP for localized rainfall and wind data along the Rincon Bayou.

The Nueces Bay Tide Station (NUEBAY) platform installation was sponsored by the CBBEP, and was installed in 2009. There is currently no support for maintenance and operation of the tide gage. This tide gage is instrumental in data collection projects in and around the Nueces Delta, especially in collecting topographic, bathymetric, and sea level rise data.

Project Objective:

Maintain six real time water quality and meteorological monitoring stations in the Nueces Delta and Bay.

Project # 1107 Nueces Bay Rookery Island Habitat Enhancement

Performing Organization: **To Be Determined**
Total Project Funding: **\$85,000**
CBBEP Bays Plan Action Items: **HLR-2, HLR-4**

Background:

Most Colonial nesting waterbird populations have declined over the past 40 years, according to data from the Texas Colonial Waterbird Survey. 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.

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 acre of new nesting area, by placing approximately 4,800 cubic yards of material between the islands' current shorelines and existing geotextile tubes. The new material will provide habitat for bare-ground nesters, such as a black skimmers and gull-billed terns.

Project Objective:

Enlarge three rookery islands in Nueces Bay by placing material between the island's current shorelines and existing geotextile tubes.

Project # 1108 Suter Wildlife Refuge Public Access Enhancements

Performing Organization: **Corpus Christi CVB/City of Corpus Christi**
Total Project Funding: **\$20,000**
CBBEP Bays Plan Action Items: **HLR-2, PEO-3, BTR-2**

Background:

To protect and improve sensitive habitat for resident and migratory bird species in Hans & Pat Suter Wildlife Refuge located on Ennis Joslin at Nile. Enhancements include installation of irrigation system in the bird and butterfly garden, removal of invasive plants, installation of updated interpretive signage, additional signage, security cameras, and a shade structure at the end of the boardwalk. The project includes improving prime native habitat with the concentration of removing invasive species primarily guinea grass and the Brazillian Pepper Trees along the channel.

Park maintaince is provided by the City Parks Department, Friends of the Park, and a volunteer group of Citgo Refinery employees. Local Audubon clubs record bird sightings and document regular bird counts. Increased security and usage of the park will also be factors pointing to the success of these efforts. The desired outcome will be a healthy and balanced habitat for dependent bird species and an educational wild bird viewing area for visiting nature enthusiasts which fosters appreciation for the environment.

The 22-acre Suter Wildlife Refuge provides a home for many migrating birds along the banks of Oso Bay. The park boasts an impressive birding and butterfly checklist which attracts visitors and locals alike. The refuge is known for the waterfowl and shorebirds that frequent the Oso and channel outlet.

The park has an 800-foot boardwalk designed for birding which stretches across marshes (created by fresh water inflow from a wastewater treatment plant), tidal pools, and into Oso Bay. By removing invasive species, repairing broken boards, and improving the signage in the park, nature enthusiasts will have a better understanding and appreciation for the protection of native wildlife and habitat.

The park signage is worn and outdated and in some cases missing and incorrect. The Corpus Christi CVB is committed to improving and enhancing the park to showcase its natural beauty through a community wide education campaign. The park serves as one of the primary nature refuges in the Corpus Christi area for migratory birds and butterflies.

Project Objective:

Construct a shade structure on the end of an existing pier. Engineer required to make sure structure is compliant with wind code. The shade structure is primarily being requested to provide shade to educational groups and visitors.

Performing Organization: CBBEP and San Antonio Bay Partnership
Total Project Funding: \$15,000
CBBEP Bays Plan Actions: HLR-2, PEO-3, BTR-2

Background:

The San Antonio Bay System, located at the terminus of the San Antonio River and the Guadalupe River watershed (approx. 53,100 km²), is one of the seven major estuaries along the Texas coast. This large (531 km²) estuarine complex is extremely unique in that wetlands associated with large portions of the surrounding shoreline provide critical habitat for the last wild flock of the endangered Whooping Crane (*Grus americana*). The protection, restoration and enhancement of wetlands within the San Antonio Bay System has assumed a high priority as factors such as diminished freshwater inflow and hydraulic modifications within wetland areas have affected habitat quality within the historic wintering grounds for this iconic bird species. San Antonio Bay also supports important commercial (oysters and shrimp) and recreational fisheries, which depend on surrounding wetlands for maintaining water quality and providing nursery grounds for fish and shellfish.

Experience in the development of the Coastal Bend Bays & Estuaries Program indicates the value of implementing “pilot projects” early in the process as a means of building stakeholder support and involvement. In the San Antonio Bay System, projects aimed at wetlands protection, restoration and enhancement to protect/expand Whooping Crane habitat would provide an early focal point and a means to encourage stakeholders through the tedious process of compiling scientific and technical information, identifying priority issues and producing a management plan.

Project Objective:

Develop an inventory of potential wetlands projects in order to provide a means of guiding investments (as funding may be available in the future from various sources, including Supplemental Environmental Projects (SEPs) associated with environmental enforcement actions) in wetlands protection, restoration, and enhancement projects within the San Antonio Bay System.

Performing Organization: **University of Texas**
Total Project Funding: **\$141,571**
CBBEF Bays Plan Action Items: **FW-1, FW-2, FW-3, FW-4**

Background:

The purpose of this project is to (1) conduct field research to establish how the principal ecological communities in the Nueces Delta respond to water flow, elevation and salinity, and to establish an empirical basis for predicting ecological responses to upstream changes in water supply, local diversion efforts and/or restoration interventions; and (2) develop a hydrodynamic model necessary to understand the transport of water through the Nueces River Delta located near Corpus Christi, Texas.

This project is part of the U.S. Army Corps of Engineers (USACE) catchment-to-estuary restoration efforts for the Nueces River and its tributaries. The focus on the present project is in the field research to establish how the principal ecological communities in the Nueces Delta respond to water flow, elevation (i.e., inundation) and salinity, and to establish an empirical basis for predicting ecological responses to upstream changes in water supply, local diversion efforts and/or restoration interventions.

Phase 1 of this two phased project consisted of developing a preliminary hydrodynamic model and beginning field research in the Nueces Delta. This work is closely coordinated with a separate project by the Harte Research Institute for the Gulf of Mexico Studies to develop an ecological model of the vegetation community responses to changes in the physical regime.

Project Objectives:

- Perform field work to estimate the distribution of vegetation assemblages in the Rincon Delta by species, cover, and biomass;
- Perform field experiments to determine the response of the predominant species assemblages to pore-water salinity and nutrient inputs;
- Quantify gross photosynthesis, and its seasonal and geographical variation in predominant species.
- Develop computational models of key physical fluxes through the Delta (water levels, salt and temperature).
- Conduct the data
- Collation, collection and analysis necessary to build these foundational models.

Project # 1111 Corpus Christi Bay Bacteria Assessment

Performing Organization: **To be determined**
Total Project Funding: **\$50,000**
CBBEP Bays Plan Action Items: **FW-1, FW-3, FW-5, PH-1**

Background:

The purpose of this project is to identify sources of bacterial contamination at beaches on the state's impairment list in an attempt to characterize fecal sources that are posing a human health risk and to provide a basis for making management decisions. This project may look at performing bacteria source tracking (BST) techniques to identify specific species origin, and may collect data on possible sanitary sewer overflows (SSO) or other actions.

The determination of sources of contamination in recreational waters is key in efforts to remediate impaired waters. While the Texas Beach Watch Program (TBWP) monitors recreational beach water quality using *Enterococcus* as an indicator of fecal contamination, source identification is currently not a component of the program. Two beach parks along Corpus Christi Bay, Cole and Ropes Parks, which are monitored as part of the program have been identified as impaired and included on the Texas 2008 303 (d) list category 5c.

CBBEP is currently (FY2010 Work Plan) implementing a project tracking sources of contamination at these sites, detection of several molecular markers of human contamination by PCR assays is being used to assess human contamination. However, while presence of these markers will confirm human/sewage sources it will not provide information critical for remediation efforts on other contamination sources that may be contributing to the impairment, it will not identify issues with SSO, or quantify relative proportions of sources of contamination.

Texas Commission on Environmental Quality and the City of Corpus Christi will be involved in developing and implementing an overall project. The information from the study will be used to aid in identifying the causes contributing to poor water quality at these sites and provide a basis for decisions on effective remediation efforts.

Project Objectives:

- To conduct a study to identify possible sources of fecal contamination contributing to elevated levels of fecal bacteria at Cole and Ropes Parks.
- Support TCEQ's initial study of the impairment and assist in potential future TMDL development and provide a basis for appropriate remediation efforts to restore the bay sites to meet water quality standard(s).

Project 1112 Partnering for Teacher Workshops

Performing Organization: CBBEP
Total Project Funding: \$10,000
CBBEP Bays Plan Action Items: PEO-3, PEO-5

Background:

Learning on the Edge is an exceptional partnership that focuses 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. The Coastal Bend Bays & Estuaries Program Educator has noticed that some teachers would like continuing education in Environmental Science. Partnering throughout the year would allow quarterly workshops to introduce environmental issues to teachers who may not be able to spend a full week in the summer at a workshop. It will also allow those teachers who may need more instruction in a specific area of science to continue their education.

Project Objectives:

- Facilitate quarterly workshops designed for teachers (grades 3-8) to address local environmental science topics by collaborating with well-regarded science education programs of the Coastal Bend. Participants will enhance their science knowledge through direct instruction, hands-on learning, field excursions, and TEKS-aligned lesson presentations. As a State Board for Educator Certification (SBEC) continuing professional education (CPE) provider, teachers will receive 2-4 hours of CPE credits.
- Address the gap that exists between teachers learning about environmental science and the delivery and implementation of environmental science in the classroom. The purpose is to help teachers recognize their strengths and weaknesses in science, while allowing the Environmental Educator to assist with requested help from the teacher.

Project # 1113 Field Trip Funding for the Delta Preserve

Performing Organization: CBBEP
Total Project Funding: \$15,000
CBBEP Bays Plan Action Items: PEO-3, PEO-5

Background:

Classroom teachers today face an almost overwhelming challenge of helping students progress through the required subject material. Many of the students that are being exposed to scientific concepts for the first time have never really spent much time outdoors or in dedicated environmental education facilities. There is a need to bring classroom concepts alive in the proper setting through field trips.

The Coastal Bend Bays & Estuaries Program will conduct environmental education leaning experiences for students and their teachers. The funding is intended to support the education trip in its entirety, including associated educational materials, and the necessary and reasonable costs associated with transporting the teacher and students from the school to the destination.

Project Objective:

Plant seeds of appreciation and passion for a new generation of naturalists, biologists, and nature lovers to protect and preserve the Coastal Bent through educating school children about preserving our environment and protecting our animals and plant life.

Project # 1114 Coastal Bend Wetland Conservation Initiative (Acquisition)

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

Background:

This initiative is a multi-phased project that includes the acquisition, restoration, and long-term management of habitat within the Nueces Delta and other priority areas. This phase (Phase 2) of the project will be to continue acquiring valuable, functioning habitat within the Nueces River Delta for conservation purposes, focusing on the largest parcels of land that are key pieces to wetland protection. CBBEP is specifically targeting one owner of approximately 5,000 acres that will connect scattered tracts of essential habitat types that are already owned and protected. Additional owners have been identified in this area, including some remaining tracts along the Nueces River and Nueces Bay. Other priority areas include tracts in San Patricio County along Copano/Port/St. Charles Bays and on Live Oak Peninsula.

CBBEP ownership will ensure that both habitat protection and water quality functions will continue without fear of potential development.

Also integral to the success of this project is the establishment of a long-term operation and management fund.

Project Objectives:

- Conduct preparation and negotiation activities that are necessary for the acquisition of property within the Nueces River Delta (or other identified priority areas). These activities include (but may not be limited to) title searches, conducting boundary surveys, appraisals, and contracting.
- Complete the acquisition of property within the Nueces River Delta (or other identified priority areas), utilizing the services of a licensed Title Company.

Project # 1115 Nueces Bay Causeway Marsh Restoration

Performing Organization: **HDR and To Be Determined**
Total Project Funding: **\$1,503,000**
CBBEP Bays Plan Action Items: **HLR-1, HLR-2**

Background:

Nueces Bay Causeway supports the section of U.S. Highway 181 that crosses the mouth of Nueces Bay between Corpus Christi and Portland. Historically, this area consisted of significant amounts of crucial marsh habitat. Approximately 180 acres of marsh habitat was lost to dredging and construction of the causeway in the late 1940s, and approximately 160 acres of marsh has been lost to subsequent erosion. This assessment does not include impacts caused by the construction of the roadway or railroad that existed prior to the 1940s.

Based on a habitat assessment conducted in 2006, the general health of the remaining marsh complex is good, supporting a variety of fisheries (including crucial nursery habitat) and providing foraging and loafing opportunities for migratory colonial waterbirds. Low-marsh communities, dominated by smooth cordgrass (*Spartina alterniflora*), are much more ecologically productive than mid-marsh communities and adjacent uplands. Unfortunately, it is the low-marsh communities that have suffered the greatest loss – to the point where they are no longer the dominant community type in the area.

The marsh complex and adjacent uplands serve as a buffer, protecting U.S. Highway 181 from erosion. The causeway also provides public access for bird watchers, wade-fishers and light watercraft. Currently, public access along the Nueces Bay side of the Nueces Bay Causeway is largely unmanaged, increasing the vulnerability of crucial habitat and adding to the effects of natural erosion.

CBBEP started this effort in FY 2005 with the development of a feasibility assessment and conceptual design. A first phase of restoration (construction) was implemented with FY 2009 and 2010 funds. The requested FY 2011 funds will allow for continued on-the-ground restoration.

Project Objectives:

- Restore critical marsh habitat, resulting in an increase to ecological productivity and diversity. Marsh restoration will consist of adjusting bottom elevation to support low-marsh communities, allowing for adequate circulation through the raised areas, and planting appropriate vegetation. The marsh complex and causeway will be protected by an earthen or stone berm.
- Protect crucial infrastructure (Highway 181) by providing an increased buffer from wave energy
- Provide appropriate managed public access to Nueces Bay.

Project # 1116 Matagorda Island Marsh Restoration

Performing Organization: **To Be Determined**
Total Project Funding: **\$700,000**
CBBEP Bays Plan Action Items: **HLR-1, HLR-4**

Background:

Matagorda Island's western marsh consists of approximately 15,000 acres located on state and federal land. Many state and federally listed species of concern (see the below list) inhabit the marsh, including the Whooping Crane (*Grus Americana*).

State- and/or federally-listed species of concern (* = species outside of its normal range): American Alligator, Aplomado Falcon, Arctic Peregrine Falcon, Bald Eagle, Botteri's Sparrow*, Brown Pelican, Green Sea Turtle, Hawksbill Sea Turtle, Kemp's Ridley Sea Turtle, Least Tern, Leatherback Sea Turtle, Loggerhead Sea Turtle, Mountain Plover, Peregrine Falcon, Piping Plover, Reddish Egret, Roseate Tern*, Sooty Tern*, Southern Yellow Bat, Swallow-tailed Kite, Texas Diamondback Terrapin, Texas Horned Lizard, West Indian Manatee*, White-faced Ibis, White-tailed Hawk, Whooping Crane, Wood Stork, Zone-tailed Hawk

The marsh was negatively impacted when, from the early 1960s to the late 1970s, large portions were sectioned off, blocked with levees, drained, and utilized for cattle grazing. The levee system remains largely intact, resulting in muted tidal exchange with the surrounding bay system, altered circulation patterns, restricted flows, and impaired water quality in remote reaches.

Since 2007, CBBEP has been working with U.S. Fish and Wildlife Service to assess the health of marsh and adjacent habitat, identify and prioritize Action Item locations, develop an Adaptive Management Plan (AMP), and implement on-the-ground restoration actions as recommend by the AMP. AMP Action Items are designed to restore water flow and circulation, improve water quality, and increase wildlife abundance and diversity. At least 20 Action Item locations still need to be addressed. When completed, this restoration effort will have restored approximately 15,000 acres of wetland and adjacent upland habitat (90% wetlands, 10% adjacent uplands) on federal- and state-owned lands.

This phase of the project will restore an estimated 2,500 acres.

Project Objectives:

- Implement on-the-ground restoration in accordance with the Matagorda Island Adaptive Management Plan (AMP).
- Conduct monitoring and assessment activities in accordance with the AMP.
- Update the AMP to reflect current conditions within Matagorda Island's western marsh.

Project # 1117 Copano Bay/Holiday Beach Whooping Crane Habitat (Acquisition)

Performing Organization: CBBEP
Total Project Funding: \$260,250
CBBEP Bays Plan Action Items: HLR-1, HLR-4

Background:

Coastal Bend Bays & Estuaries Program (CBBEP) has partnered with The Nature Conservancy (TNC) to identify and conserve critical habitat for Aransas Wood Buffalo Whooping Cranes. Working in collaboration with Whooping Crane Recovery Team biologists and other knowledgeable resource agency staff, CBBEP and TNC have determined that ever increasing numbers of the Whooping Crane population will ultimately require additional protected areas in the coastal bend region of Texas in order to successfully reach species recovery goals. Habitats currently used by wintering populations of cranes on the Texas coast are well documented. While the Aransas-Matagorda Island National Wildlife Refuge provides managed and protected areas critical to the winter survival of these cranes, it is only a portion of the overall area currently used by this federally endangered species. Wintering cranes have been observed in many undeveloped/unprotected adjacent areas. Increasing commercial and residential development pressures within, and adjacent to, vital wintering crane habitat in both Aransas and Calhoun counties makes the need for habitat protection measures paramount if we are to succeed in bringing this species back from near extinction to recovery team goals necessary for delisting.

This project targets the acquisition of two parcels of land totaling 168 acres in Aransas County Texas, adjacent to Copano Bay and the Holiday Beach subdivision (see the attached maps). The parcels consist of freshwater and estuarine marshes, tidal mudflats and saline uplands. They are adjacent to the Mission-Aransas National Estuarine Research Reserve, managed by the National Oceanic and Atmospheric Administration. The tracts are also close to Goose Island State Park (< 5 miles) and the Lamar Unit (< 3 miles) and Tatton Unit (< 5 miles) of Aransas-Matagorda Island National Wildlife Refuge. Important similarities exist between habitats found on the subject tracts, the Aransas-Matagorda Island National Wildlife Refuge and Goose Island State Park.

After the parcels have been acquired, CBBEP will work with our project partners to identify and implement (if needed) minimal maintenance/management activities to protect and enhance that land's value as whooping crane habitat.

Project Objectives:

- Conduct preparation and negotiation activities that are necessary for the acquisition of parcels adjacent to Copano Bay and Holiday Beach. These activities include (but may not be limited to) title searches, boundary surveys, appraisals, and contracting.
- Complete the acquisition of parcels adjacent to Copano Bay and Holiday Beach, utilizing the services of a licensed Title Company.
- Identify and implement (if needed) minimal maintenance/management activities to protect and enhance the land's value as whooping crane habitat.

Project # 1118 Nueces Delta Preserve Habitat Enhancement

Performing Organization: **CBBEP**
Total Project Funding: **\$45,700**
CBBEP Bays Plan Action Items: **HLR-2, HLR-10**

Background:

Floral surveys along the Nueces Delta Preserve's Rincon Bayou identified the absence of two species of trees, anacua and sugar hackberry, which should represent approximately 25% of total floral composition (Rincon Bayou Diversion Project 2002 Section 02110). The riparian enhancement component of this project will restore 15 acres of riparian corridor by planting these two species, thereby restoring natural species composition. Methods for this enhancement will be modified from those outlined in the Rincon Bayou Diversion Project 2002 Section 02931 part 3.

Historically, within the project area, woody vegetation was restricted to the riparian and higher areas. The practice of wildfire suppression has allowed invasive woody species to expand at an unnatural rate. The upland restoration component of this project will remove and suppress invasive woody species throughout a 406 acre area, greatly enhancing the area as a foraging, nesting, and resting site for many species of wildlife.

Finally, an existing 30-acre wetland site within the delta has altered water retention patterns due to the construction of a nearby road and culverts. CBBEP will partner with Texas Prairie Wetlands Project to install new water control structures that will allow some control over water flow and retention at the site.

Project Objectives:

- Enhance approximately 15 acres of riparian habitat by planting appropriate vegetation.
- Enhance approximately 406 acres of upland habitat by removing and suppressing appropriate vegetation.
- Enhance approximately 30 acres of wetland habitat by installing control structures that will allow some control over water flow and retention at an existing wetland site within the Nueces Delta Preserve.

Project # 1119 Coastal Bend Rookery Island Site Selection

Performing Organization: CBBEP
Total Project Funding: \$15,000
CBBEP Bays Plan Action Items: HLR-2, HLR-4

Background:

Most Colonial nesting waterbird populations have declined over the past 40 years, according to data from the Texas Colonial Waterbird Survey. 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.

Preliminary assessments by CBBEP waterbird staff and other technical experts using the Texas Colonial Waterbird Survey indicate a need for protected nesting islands in San Antonio Bay and the Upper Laguna Madre. For a number of reasons, a small island positioned in a bay that has intact foraging and roosting sites is likely to be more productive than a larger island located near degraded or developed shorelines.

This project will form an advisory team to aid in the identification of island creation projects, conduct preliminary field work and feasibility analysis studies, and make specific recommendations for the restoration/creation of 1 or 2 new rookery islands.

Project Objectives:

- Conduct preliminary field work and feasibility analysis studies to determine the appropriate size and location for island restoration/creation projects.
- Make recommendations for the restoration/creation of one or two new rookery islands.

Project # 1120 CBBEP/CBBF Community Outreach Partnership

Performing Organization: Coastal Bend Bays Foundation
Total Project Funding: \$50,000
CBBEP Bays Plan Actions: PEO-1, PEO-2, PEO-3, PEO-4, PEO-5

Background:

The CBBEP is constantly working to promote public/private partnerships as stated in the Coastal Bend Bays Plan to help achieve its educational goals. One of the benefits of the partnership between the CBBEP and the Coastal Bend Bays Foundation 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.

The CBBEP will work closely with the CBBF on the project objectives outlined below but will not be limited to only those listed. The environmental education and outreach activities will include: monthly Coastal Issues Forums; bay-resource or related workshops; continuation of the Earth Day celebration held in April; and the coordination of the annual CBBF Conservation and Environmental Stewardship Awards. The CBBEP will be acknowledged as one of the major funding partners at the various events and activities.

CBBEP is the most important funding partner for CBBF programs. The CBBF is a public interest organization (non-profit 501(c)(3)) dedicated to the conservation of freshwater and coastal natural resources through communication, advocacy, research and education.

Project Objectives:

- Host, organize and coordinate turnkey operations of Earth Day festival.
- Host, organize and coordinate CBBF Conservation and Environmental Stewardship Annual Awards Banquet.
- Conduct monthly 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.

Project #1121 CBBEP Public Outreach Events and Activities

Performing Organization: CBBEP
Total Project Funding: \$30,000
CBBEP Bays Plan Action Items: PEO-1, PEO-2, PEO-3, PEO-4, PEO-5, BTR 1

Background:

One of the most important goals of the 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 will be 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. As a result of the need for the public outreach events and activities, the CBBEP will participate in the following:

- Community events and festivals
- CBBEP educational materials
- CBBEP web site
- CBBEP e-newsletter
- Other outreach opportunities
- National Ocean Science Bowl

Project Objective:

To provide the general 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.

Project # 1122 CC Beach North Jetty Kayak Launch Site Improvements

Performing Organization: City of Corpus Christi, CBBEP
Total Project Funding: \$12,600
CBBEP Bays Plan Action Items: BTR-1, BTR-2, SM-2

Background:

The City of Corpus Christi is proposing to install an ADA compliant/wheelchair accessible kayak launch north of the jetty at Corpus Christi Beach. This project is part of an overall effort by the City to remove barriers to beach access for people with disabilities, increase public recreational opportunities near and in coastal waters, and promote environmental awareness about coastal natural resources.

Providing beach access for people with disabilities is complicated due to the dynamic nature of coastal shores. Corpus Christi Beach, an urban waterfront within Corpus Christi Bay, provides the perfect location for the ADA compliant/wheelchair accessible kayak launch. There are no other kayak launches in the area (the nearest one located at Lighthouse Lake).

Kayakers and canoeists use the area north of the Corpus Christi Beach Jetty as an unimproved launch site to access Nueces Bay. While the jetty minimizes wave energy making the area suitable for launching, the area also contains rock groins that present a public safety issue. An improved kayak launch designed to protect kayakers will make Corpus Christi Beach a destination location for paddlers and significantly increase public access to Nueces Bay.

As part of the installation, the city will install two educational signs that will (1) encourage paddlers to remove floatable trash from the water when they encounter it, and (2) interpret native landscaping that will be placed near the kayak launch. The City will host an annual trash removal event at the site to encourage paddlers to remove debris from the bay that is not accessible from the shoreline. The installation site of a kayak will be close to existing ADA accessible bathrooms and parking. Funding provided by CBBEP will be used as a match for a GLO grant that the City has received for this project.

Project Objectives:

- Provide beach access for people with disabilities.
- Increase public recreational opportunities near and in coastal waters.
- Promote environmental awareness about coastal natural resources.

Project # 1123 Redfish Bay Causeway Public Access Improvements

Performing Organization: Nueces County & CBBEP
Total Project Funding: \$10,000
CBBEP Bays Plan Actions: BTR-1, BTR-2, HLR-1

Background:

The Redfish Bay Causeway and adjoining Redfish Bay marine resources and seagrass meadows are a priority coastal natural resource and priority recreational resource of statewide importance. The CBBEP has funded prior Shoreline Management land use planning as well as the nearby Lighthouse Lakes Park. In addition, the public and resource agencies have also identified this area for compatible public access and resource protection.

Nueces County has met with the City of Aransas Pass regarding future Nueces County Park and facility plans along Redfish Bay Causeway. Nueces County is interested in improving public park facilities along Redfish Bay Causeway. The entire area south of Highway 361 between Morris and Cummings Cut and Bridge No. 7 (near Lighthouse Lakes Park) is Texas Department of Transportation (TxDOT) right-of-way including what is considered wetlands, sand flats, submerged land and Sailboat Cut. The lands typically considered state-owned submerged land was deeded by TxGLO to TxDOT in the 1950's. As a result the plans for an East Flats Preserve and Park would be located on TxDOT-ROW and would involve an agreement between TxDOT and Nueces County. Projects within wetlands and submerged land are regulated by the USACE (requiring USACE permits). However, a TxGLO Coastal Lease would not be required within this TxDOT-ROW.

The park concept has been coordinated with TxDOT and the road access improvements can be approved at the local level. The future park expansion facilities such as bollards and picnic tables will require further TxDOT coordination and approvals. The future park will also require USACE – Nationwide Permits which are “permissible” and similar to those already permitted at the Lighthouse Lakes Park.

Project Description

Use CBBEP dedicated funds to continue to work with project partners toward the development of improved access points along the Redfish Bay Causeway.

Project # 1124 Live Oak Nature and Education Trail Improvements

Performing Organization: **Aransas County**
Total Project Funding: **\$58,800**
CBBEP Bays Plan Action Items: **BTR-1, BTR-2, HLR-1, WSQ-1, PEO-3**

Background:

Aransas County and the ACISD have recently established a partnership regarding a 13.4-acre tract of undisturbed native live oak woodlands located within the ecologically important Live Oak Peninsula of Aransas County. This important habitat is recognized as a unique coastal natural resource area and is owned by the ACISD.

This woodland area is to be preserved as protected habitat and is also to be used for education and public access. The woodlands are located in Rockport, Texas and are adjacent to the Tule Ditch/Tule Creek Watershed which is a riparian drainage-way that ultimately discharges to Little Bay and then to Aransas Bay. The ACISD is interested in utilizing the woodlands as an educational tool and nature awareness/interpretation opportunity where field trips and outdoor nature classrooms can be performed in combination with ACISD elementary, junior high, and high school science curricula.

The proposed Live Oak Nature and Education Trail was developed in response to the combined interests between Aransas County and the ACISD. The CBBEP project funding and sponsorship by Aransas County will establish an opportunity to help the ACISD develop the necessary facilities to allow for low impact access with an ADA accessible path, and observation decks/kiosks for nature awareness and education.

The location of the Live Oak Nature and Education Trail is across from the Rockport Aquatic Center and Skate Park and nearby ACISD schools and offices. In addition, the City plans a hike and bike trail along Tule Ditch and the Tule Woodlands and a planned bridge for the hike-bike trail is concurrently located between the proposed Live Oak Nature and Education Trail and the City Park providing easy access by students, teachers, and the public.

Project Objective:

Incorporate facilities for nature awareness, education, and passive recreation, such as birding, photography, nature interpretation. Centrally located in Rockport and Fulton, the woodlands will be a convenient “living laboratory” for educating, teaching, training, communicating, and imparting knowledge and ideas about the natural resources and how to protect these resources through greenspace protection compatible with stormwater management practices that provide habitat and water quality benefits. The ACISD will maintain and operate the facilities with a focus on student education, as well as allowing public access.

Project # 1125 Joe Fulton Trade Corridor Public Access Improvements

Performing Organization: CBBEP, Port of Corpus Christi Authority
Total Project Funding: \$35,000
CBBEP Bays Plan Action Items: BTR-2, PEO-3

Background:

The opening of the Joe Fulton Trade Corridor gave the public access to a portion of the lower Nueces River and to Nueces Bay that had previously only been accessible by boat. With the growing popularity of fishing in the access areas provided by the Port a need for improved public access points was created. The public access areas are in need of delineated boundaries and an improved parking surface. A bollard and cable system will keep vehicles in the parking area while continuing to allow pedestrian access to the bay for fishing or launching a non motorized water craft. The establishment of this area will help control erosion caused by vehicles driving over vegetation.

The Port of Corpus Christi has security and safety concerns about vehicles pulling off the edge of the Joe Fulton Trade Corridor in restricted areas. The creation of an improved park area would help direct recreation seekers to use the provided area instead trespassing across restricted property.

Project Objectives:

- Develop a parking and staging area for fisherman and paddle craft users.
- Install a bollard perimeter to keep vehicles in the approved parking areas.
- Work with the Port of Corpus Christi to install rules and regulation signage in the access area.

Performing Organization: CBBEP
Total Funding: \$12,500
CBBEP Bays Plan Action Items: BD-1

Background:

Bay debris poses public health risks and reduces the aesthetic appeal of the bay system. It can degrade habitats, snare aquatic and wildlife species. These impacts result in costs: to the shrimper who tears his net by hanging up on debris; to the windsurfer who steps on a broken bottle; to the tourist industry when hotel rooms are unfilled because potential visitors would rather visit cleaner beaches; and to agencies and organizations who devote thousands of hours to cleaning the beaches along the bays.

Debris clean-up along the shoreline is a continual challenge along the Texas Coastal Areas. Every year, numerous clean-up events are coordinated and hundreds of tons of debris are collected and disposed. During certain periods of the year, heavy visitation by tourists results in overflowing garbage receptacles causing debris to be spread over large areas. Additionally, frustrated beach goers leave debris behind, not willing to transport it with them to their lodging site. Since prevention is generally more cost-effective than clean-up, CBBEP will approach this issue by strategically placing large garbage receptacles by request and in areas of high use to prevent debris from being mismanaged and ending up along the bay shorelines.

The CBBEP will also make dumpster service available upon request for Coastal Cleanups. The CBBEP will determine which cleanups to provide dumpsters to based on the amount of project funding available.

Project Objectives:

- To reduce the amount of debris along coastal roadsides and shorelines by the placement of large garbage receptacles in strategic locations.
- Make dumpster service available upon request for Coastal Cleanups. Some examples of possible partners are the City of Corpus Christi Spring Break cleanup, TGLO Adopt a Beach, and other organized coastal clean ups. The CBBEP will determine which cleanups to provide dumpsters based on the amount of project funding available.

Project # 1127 CBBEP Property Management (Nueces Delta, Oso, Padre Island, etc.)

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

Background:

The CBBEP is responsible for several properties including over 5,400 acres along the Nueces River and Nueces River Delta, 35 acres along Nueces Bay (HWY 181) and 53 acres on Mustang Island.

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 5,400 acres in San Patricio and Nueces Counties that are owned and managed by the CBBEP as a conservation site for the purpose 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, coastal wetlands mud flats and shoreline. The 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 properties, including but not limited to road maintenance; fencing maintenance, gates, brush control, equipment purchases, habitat and predator management (as appropriate 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, 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.

Project Objective:

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

Project # 1128 Weather Station for CC Marina

Performing Organization: Conrad Blucher Institute, TAMU-CC
Total Funding: \$7,500
CBBEP Bays Plan Action Items: BTR-1

Background:

The Conrad Blucher Institute (CBI) installed a weather station at the Boaters Facility on the Lawrence Street T-Head in mid 2005. The CBBEP provided funding for the installation, and the CC Marina provided the facilities. All equipment (meteorological instruments, data logger, communication, etc.) were provided by CBI, and consisted of used components that were no longer of use to the various projects for which equipment was purchased. It was known at the time of installation that any and all components would be of limited life span. That life span has expired and the station is no longer in operation. The CBI platform in CC Bay is being renovated thanks to an award from the CBBEP, as well as the new platform which will be established in the eastern side of the bay. Both stations will be used to support the hypoxia study conducted by the Harte Research Institute at TAMU-CC.

This request is to replace the system at the CC Marina with a new system. This project is for equipment only, as installation, data collection, database management, and data display on the Division of Nearshore Research website and at the monitor at the Marina Boaters Facility will be provided as a public service by CBI. (<http://lighthouse.tamucc.edu/kiosk/135> & <http://lighthouse.tamucc.edu/kiosk/108>)

Objective:

Purchase and install a Campbell Scientific meteorological system, similar to the one presently used in the Nueces Delta, with Intuicom line of sight radio communications providing real time wind speed and direction, barometric pressure, air temperature, rainfall, solar radiation, and relative humidity.

Project # 1129 Student Research at the Nueces Delta Preserve

Performing Organization: CBBEP
Total Project Funding: \$3,500
CBBEP Bays Plan Actions: PEO-3, PEO-5

Background:

The Nueces Delta, owned and managed by CBBEP, is a unique and diverse habitat. The Delta has primarily been used for educational purposes and is an excellent location for field trips. To date, little student led research has been conducted at the Nueces Delta site, and the goal of this project is to provide a mechanism to increase research in this site.

Funds are requested to begin a program for local 9-12 students as well as college students at UTMSI, TAMU-CC, TAMUK and Del Mar to apply to perform research at the Nueces Delta. Research may be observational or empirical. We anticipate high school students applying science fair and capstone projects and graduate students completing longer term studies. The benefits from this program are many. First, by encouraging science and research, the Educational and Outreach Implementation Team is promoting science in the community and using the CBBEP facility. Second, the data collected by students will be available to the CBBEP and help to better understand the ecology of the Nueces Delta. Finally, the funding program will increase the prestige of CBBEP in the community and provide unique educational opportunities for local students.

Project Objective:

Increase student-led High School research activity in the Nueces Delta Preserve.

VIII. Program Administration

CBBEP administrative staff (3 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 for overall program coordination with EPA Region 6 and TCEQ.
7. Participate in regional, state, and national conferences and meetings relevant to estuarine management.
8. 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.
9. Continued implement 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.

IX. 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.

X. 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.

XI. 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.

XII. Summary

On September 1, 2010, the Coastal Bend Bays & Estuaries Program will begin Year 13 of implementing the *Coastal Bend Bays Plan*. This FY 2011 Work Plan describes the proposed work to be initiated during FY 2011. Of the total funds identified in the Work Plan budget, \$815,000 are new (FY 2011) EPA federal funds, \$841,601 are new (FY 2011) TCEQ state funds, \$3,969,671 are new (FY 2011) project-specific funds, and \$280,000 are new (FY 2011) local partner funds. When combined with carryforward from previous unspent federal and state funds, the total budget for this FY 2011 Work Plan is \$6,094,570.

TABLE 1: FY 2011 COMPREHENSIVE ANNUAL WORK PLAN OUTLINE

PROJECT #	PROJECT TITLE	ACTION ITEM(S)	PERFORMING PARTY	EPA CWA 320 FY11	EPA CF	TCEQ FY11	TCEQ CF	LOCAL	OTHER	TOTAL CBBEP FUNDING
1101	Protecting Important Shorebird Habitat Using Piping Plovers as an Indicator Species	HLR-1, HLR-2	CBBEP						\$95,000	\$95,000
1102	Coastal Waterbird Management	HLR-1, HLR-4	CBBEP	\$175,000						\$175,000
1103	Coastal Bend Environmental Science – Learning on the Edge	PEO-3, PEO-5	CBBEP	\$185,000						\$185,000
1104	CBBEP Habitat Protection Media Campaign	BTR-1, PEO-2, PEO-3, PEO-5	CBBEP	\$9,146	\$23,761			\$2,093		\$35,000
1105	Water and Sediment Quality Status & Trends in the CBBEP Area – Phase I: Data Archiving and Publishing	WSQ-3, WSQ-4, WSQ-5	Harte Research Institute	\$50,000						\$50,000
1106	Nueces Delta Environmental Monitoring Project	FW-1, FW-2, FW-3, FW-4	Conrad Blucher Institute	\$40,000						\$40,000
1107	Nueces Bay Rookery Island Habitat Enhancement	HRL-2, HLR-4	TBD	\$85,000						\$85,000
1108	Suter Wildlife Refuge Public Access Enhancements	HLR-2, PEO-3, BTR-2	CC CVB/ City of CC	\$20,000						\$20,000
1109	San Antonio Bay Partnership Wetlands Assessment	BTR-2, HLR-2, PEO-3	CBBEP and San Antonio Bay Partnership	\$15,000						\$15,000
1110	Hydrodynamic Model for the Nueces Delta – Phase 2	FW-1, FW-2, FW-3, FW-4	University of Texas						\$155,721	\$155,721

PROJECT #	PROJECT TITLE	ACTION ITEM(S)	PERFORMING PARTY	EPA CWA 320 FY11	EPA CF	TCEQ FY11	TCEQ CF	LOCAL	OTHER	TOTAL CBBEP FUNDING
1111	Corpus Christi Bay Bacteria Assessment	FW-1, FW-3, FW-5, PH-1	TBD		\$50,000					\$50,000
1112	Partnering for Teacher Workshops	PEO-3, EPO-5	CBBEP			\$10,000				\$10,000
1113	Field Trip Funding for the Delta Preserve	PEO-3, PEO-5	CBBEP			\$15,000				\$15,000
1114	Coastal Bend Wetland Conservation Initiative	HLR-1	CBBEP						\$1,500,000	\$1,500,000
1115	Nueces Bay Causeway Marsh Restoration	HLR-1, HLR-2	HDR Engineering and TBD			\$244,512	\$40,488		\$1,238,000	\$1,503,000
1116	Matagorda Island Marsh Restoration	HLR-1, HLR-4	TBD						\$700,000	\$700,000
1117	Copano Bay/Holiday Beach Whooping Crane Habitat	HLR-1, HLR-4	CBBEP						\$260,250	\$260,250
1118	Nueces Delta Preserve Habitat Enhancement	HRL-2, HLR-10	CBBEP	\$25,000					\$20,700	\$45,700
1119	Coastal Bend Rookery Island Site Selection	HLR-2, HLR-4	CBBEP	\$15,000						\$15,000
1120	CBBEP/CBBF Community Outreach Partnership	PEO-1, PEO-2, PEO-3, PEO-4, PEO-5	Coastal Bend Bays Foundation				\$37,500	\$12,500		\$50,000
1121	CBBEP Public Outreach Events & Activities	PEO-1, PEO-2, PEO-3, PEO-4, PEO-5, BTR-1	CBBEP			\$11,029		\$18,971		\$30,000
1122	CC Beach North Jetty Kayak Launch Site Improvements	BTR-1, BTR-2, SM-2	City of Corpus Christi, CBBEP					\$12,600		\$12,600
1123	Redfish Bay Causeway Public Access Improvements	BTR-1, BTR-2, HLR-1	Nueces County and CBBEP					\$10,000		\$10,000

PROJECT #	PROJECT TITLE	ACTION ITEM(S)	PERFORMING PARTY	EPA CWA 320 FY10	EPA CF	TCEQ FY10	TCEQ CF	LOCAL	OTHER	TOTAL CBBEP FUNDING
1124	Live Oak Nature and Education Trail Improvements	BTR-1, BTR-2, HLR-1, WSQ-1, PEO-3	Aransas County				\$24,049	\$34,751		\$58,800
1125	Joe Fulton Trade Corridor Public Access Improvements	BTR-2, PEO-3	CBBEP, Port of Corpus Christi Authority					\$35,000		\$35,000
1126	Public Debris Management at Public Access Sites	BD-1	CBBEP				\$12,500			\$12,500
1127	CBBEP Property Management	HLR-1	CBBEP					\$30,000		\$30,000
1128	Weather Station for Corpus Christi Marina	BTR-1	TAMU-CC					\$7,500		\$7,500
1129	Student Research at the Nueces Delta Preserve	PEO-3, PEO-5	CBBEP					\$3,500		\$3,500
	TOTAL PROJECT FUNDS			\$619,146	\$73,761	\$260,541	\$114,537	\$166,915	\$3,969,671	\$5,204,571
	Administrative / Travel		CBBEP	\$195,854		\$581,060		\$113,085		
	TOTAL FUNDING			\$815,000	\$73,761	\$841,601	\$114,537	\$280,000	\$3,969,671	\$6,094,570