



**Living on the Edge**  
*Protecting Our Bays and Estuaries*

# **COASTAL BEND BAYS & ESTUARIES**

## **FY 2007 COMPREHENSIVE ANNUAL WORK PLAN**

---

**Coastal Bend Bays & Estuaries Program, Inc.**  
1305 N. Shoreline Blvd., Suite 205  
Corpus Christi, TX 78401

[www.cbbep.org](http://www.cbbep.org)

Submitted August 2006

Go with the flow...  
Log on [cbbep.org](http://cbbep.org)

# **COASTAL BEND BAYS & ESTUARIES PROGRAM**

## **FY 2007 Comprehensive Annual Work Plan**

### **TABLE OF CONTENTS**

<b>I.</b>	<b>Introduction.....</b>	<b>1</b>
<b>II.</b>	<b>Starting Date .....</b>	<b>2</b>
<b>III.</b>	<b>Federal &amp; State Program Coordinators and Project Officers.....</b>	<b>2</b>
<b>IV.</b>	<b>Accomplishments to Date .....</b>	<b>3</b>
<b>V.</b>	<b>Goals for FY 2007.....</b>	<b>4</b>
<b>VI.</b>	<b>Implementation of Projects .....</b>	<b>5</b>
<b>VII.</b>	<b>Project Deliverables/Schedule .....</b>	<b>5</b>
<b>VIII.</b>	<b>Program Administration .....</b>	<b>39</b>
<b>IX.</b>	<b>Project Management.....</b>	<b>39</b>
<b>X.</b>	<b>Program Expenses .....</b>	<b>39</b>
<b>XI.</b>	<b>Working Capital.....</b>	<b>40</b>
<b>XII.</b>	<b>Summary .....</b>	<b>40</b>
	<b>Table 1: FY 2007 Comprehensive Annual Work Plan Outline.....</b>	<b>41</b>

## 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 2007 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 2007 Comprehensive Work Plan will be September 1, 2006.

## **III. Federal and State Program Coordinators and Project Officers**

### **Federal**

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

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

### **State**

Mr. Jeff Foster  
CBBEP Program Coordinator  
Texas Commission for Environmental Quality  
NRC Bldg, #3300  
6300 Ocean Dr.  
Corpus Christi, TX 78412

Mr. Frank Fuller

CBBEP Project Officer  
Texas Commission for Environmental Quality  
P.O. Box 13087, MC 205  
Austin, TX 78711-3087

#### **IV. Accomplishments To Date**

The CBBEP achieved its primary goal for FY 2006, 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 Estuary Council has not made any changes in the priorities as listed in the CCMP.

All project deliverables identified during the FY 1999 through FY 2002 implementation years have been completed. FY 2003, 2004 and FY 2005 projects are expected to be complete by August 31, 2007, with several projects likely requiring no-cost time extensions beyond the expected completion date. FY 2006 projects are expected to be completed by August 31, 2008.

The Estuary Council committees have undergone restructuring to better focus on particular subject areas. The new structure includes five distinct implementation teams. These 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 Bays Plan Coordination Team, consisting of all the chairs of the Implementation Teams and key members of the Bays Council, coordinates the annual work plan recommendations to the CBBEP Bays Council, and reviews and proposes update recommendations to the *Bays Plan*.

In FY 2006 the CBBEP initiated numerous projects funded by various state, federal and local support. The following brief discussion highlights several of these projects.

**Learning on the Edge (LOTE)** - CBBEP received the Coastal Bend Community Foundation's largest single grant to implement this area's most unique project to date - *Coastal Bend Environmental Science: Learning on the Edge (LOTE)*. The CBBEP has provided funding for the well-regarded science education programs of the Coastal Bend Wildlife Photo Contest (*Kritters 4 Kids*), Texas A&M University – Corpus Christi (*Teaching Environmental Science*), and Texas State Aquarium (*Keepers of the Coast*) over the last several years and merged the projects to launch LOTE. This exceptional partnership integrates these successful programs to provide teachers with the skills, resources, and supporting materials to strengthen science teaching and relate it to the environmental treasures that make up the Coastal Bend while enhancing their ability to fulfill the Texas Essential Knowledge and Skills (TEKS) requirements. The LOTE training launched two summer week-long teacher academies that included: 30 CPE credits, hands-on science activities, outdoor adventures including water quality testing gear, seines, nets, and other supplies, resource guides with activities on coastal wildlife/habitats, wetlands and marshes, a class set of *Wildlife in Focus II* photography books along with a curriculum guide, and integrated science networking opportunities.

**Various Public Outreach and Education Projects** – One of the goals of the public outreach strategy is to take action to position the CBBEP in a way that improves communication and behavioral changes in the Texas Coastal Bend community. The CBBEP has become a clearinghouse for information related to the state of the bay, a network hub of information for media journalists on environmental issues, and established a strong brand name recognition in the community through the communication of media coverage.

**Colonial Waterbird / Avian Resources Project** –The Program continues to a focus on the management of Colonial Waterbirds and their habitat through the implementation of the Rookery island Management Plan. Management for nesting sites has proven successful as evidenced by marked increases in nesting birds at various managed sites. Colonial Waterbird populations are a key indicator of the health of the estuary.

## **V. Goals for FY 2007**

### **Environmental Indicators**

The CBBEP has as a priority goal for FY 2007 to complete development of environmental indicators and a summary scorecard. Indeed, the CBBEP and its partners have already made great progress in developing the required scientific data and information that will be incorporated into the environmental indicators report and scorecard. Much of that information is being reported to the public as it becomes available.

The CBBEP has worked with EPA ORD and OW (Barry Burgan) to collect extensive water quality data, sediment quality data, benthic community data, and fish tissue contamination data for use in the National Coastal Condition Report and in a report soon to be published by EPA prepared specifically for the CBBEP area.

Our partners at Texas Parks and Wildlife Department – Coastal Fisheries Division have been systematically collecting fisheries data for years and are in the process of updating a fisheries status and trends report specifically for the CBBEP project area. A draft version of the summary report has been received and will be finalized over the next few months. Texas Parks and Wildlife has already released information to the public regarding important recreational species and the local newspaper has reported that information to the public.

The US Fish and Wildlife Service and Texas Colonial Waterbird Society are helping the CBBEP develop status and trends data for colonial waterbirds in the program area. The results of that work indicate a major decline of some species while others have maintained their population levels. Again, that information is being shared with the public as it become available.

The CBBEP has been working with our partners at the University of Texas and Texas State University to assess seagrass coverage in the program area and the health of those seagrasses. That report is nearly complete and will provide the information needed to develop a seagrass-specific indicator and report card.

Most importantly, the CBBEP has invested in improving our public input process with the development of new priority issue specific “Implementation Teams” and the “CBBEP Coordination Team” to help select indicators most appropriate for our area.

### **Continued Implementation of the *Coastal Bend Bays Plan***

The overarching goal for FY 2007 is to continue the successful initiation and completion of projects developed to implement the *Coastal Bend Bays Plan*. The CBBEP is continuing to focus on core Clean Water Act (CWA) priorities with both EPA funds and other funds under the management of the CBBEP. The CBBEP FY 2007 Comprehensive Annual Work Plan further details other projects being implemented to address core CWA priorities.

This fiscal year, CBBEP is proposing to focus funding in five priority areas: protection, restoration and enhancement of wetlands and associated wildlife habitat; establishment of real-time water quality monitoring stations in the Mission-Aransas Estuary; colonial waterbird habitat management; continuation of our ongoing public education and outreach efforts; and refinement of environmental indicators.

Wetland protection and restoration will be addressed by projects working on the loss of wetlands along the Nueces delta shoreline and by a project to develop a comprehensive habitat management plan focused on ecosystem needs including the beneficial use of dredged material and establishing mitigation priorities.

The CBBEP is pleased to report a strong partnership with the new Mission-Aransas National Estuarine Research Reserve. The organizations are already cooperating on a variety of issues including the establishment of real-time water quality monitoring stations.

CBBEP will continue its efforts to protect and restore colonial waterbird populations through our efforts to actively manage nesting habitat for species of concern. These efforts include vegetation and substrate management, predator control – including fire ants, coyotes, raccoons, etc., and the placement of nesting platforms for species such as the Great Blue Heron and Reddish Egret.

The continued implementation of our public outreach and education strategy through an assortment of projects including the *Coastal Bend Environmental Sciences: Learning on the Edge* project and supporting development of the Nueces Delta Preserve Conservation Science Center.

Further development and refinement of Environmental Indicators will be a priority goal for CBBEP staff and Implementation Teams.

## **VI. Implementation of Projects**

Project activities for FY 2007 have been selected for their contribution towards implementation of the *Coastal Bend Bays Plan*. Twenty-three projects will be implemented in FY 2007. A comprehensive list of projects outlining project numbers, titles, action items, performing party(s), and budget can be found in Table 1: FY 2007 Comprehensive Annual Work Plan Outline.

## **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 #0701 Nueces Bay Total Maximum Daily Load – Zinc Uptake in Oyster Tissue Study**

---

**Performing Organization:** Texas A&M University-Corpus Christi  
Center for Coastal Studies  
**Total Project Funding** \$100,000  
**CBBEF Bays Plan Actions:** PH-2, WSQ-1, WSQ-3, WSQ-4

Nueces Bay (Segment 2482) is included on the 2000, 2002, and draft 2004 Texas Clean Water Act 303(d) List of impaired waters for not meeting the oyster water use due to elevated zinc levels in oyster tissue. In April 2004, the Center for Coastal Studies (CCS) began quarterly sampling for total and dissolved zinc in water and semi-annual sampling for zinc in sediment to provide additional data for the Texas Commission on Environmental Quality (TCEQ) Total Maximum Daily Load (TMDL) team. Data collected will aid TCEQ in determining if the water body use is being met and track the effect reduced zinc loadings to the bay (i.e. TMDL implementation) will have on water quality and ultimately in oyster tissue. In the most recent Texas Department of State Health Services (TDSHS) assessment (March 2005) of potential health risks associated with consumption of oysters in Nueces Bay, mean oyster tissue concentrations were above the Health Assessment Comparison Value of 700 mg/kg; with the Whites Point site having the highest mean concentration of 1093.33 mg/kg. TDSHS concluded that consumption of oysters in Nueces Bay still constitutes a public health hazard due to elevated zinc levels. Although elevated zinc concentrations persist in oyster tissue, water and sediment data do not support these elevated concentrations, as CCS sites recorded zinc concentrations well below TCEQ Tidal Water criteria and sediment Screening Levels. As a result, more information is necessary to determine if a relationship exists between water, sediment, and oyster tissue for zinc in Nueces Bay.

This year-long study will place oysters in cages at pre-determined sites within Nueces Bay (Segment 2482). Oysters will be removed from the caged sites quarterly, and tested for uptake of zinc in their tissue. In addition, growth and mortality rates will be evaluated along with basic water quality data (dissolved oxygen, pH, salinity, and temperature) being collected at each of the sites during the period of the study. Concurrent with the oyster sampling, water and sediment samples for zinc analysis will be collected at CCS sites previously identified for the TMDL evaluation. Water samples for total and dissolved zinc will be collected quarterly with the oyster tissue analysis and sediment samples will be collected semi-annually for zinc analysis.

**Project Objective:**

To implement an Oyster Cage study in Nueces Bay and continue the current TCEQ sampling program (Phase III) for total and dissolved zinc in water and zinc in sediments within Nueces Bay (Segment 2482), the Nueces River (Segment 2101), and the Corpus Christi Inner Harbor (Segment 2484) in order to,

1. Determine if a relationship exists between water, sediment, and oyster tissue for zinc in Nueces Bay.
2. Determine the uptake rate of zinc in oysters in Nueces Bay.
3. Geographically identify the greatest accumulation of zinc in oysters in Nueces Bay.
4. Assist the TCEQ TMDL Team in arriving at a viable TMDL solution.

---

**Project #0702      Real-Time Water Quality Monitoring Stations Equipment in  
Aransas / Copano / Mission Bays**

---

**Performing Organization:**            **Texas A& M University-Corpus Christi, Conrad Blucher  
Institute, Division of Nearshore Research**  
**Total Project Funding:**            **\$23,000**  
**CBBEF Bays Plan Actions:**        **PH-1, WSQ-1, WSQ-5**

The Conrad Blucher Institute, Division of Nearshore Research (CBI-DNR) at Texas A&M University-Corpus Christi currently operates 53 near real time water quality monitors in the coastal waters of Texas and Mexico. Data from these monitors includes basic water quality parameters such as dissolved oxygen (D.O.), pH, conductivity/salinity, temperature, and tidal height. The data is retrieved from the field via phone systems and is stored on computers and made available to the scientific community and the public via web site connection at (<http://lighthouse.tamucc.edu>).

Currently, Aransas, Copano, and Mission Bays do not have established real time water quality monitoring stations. The Aransas, Copano, and Mission Bay system is included within the boundary of the newly established Mission-Aransas National Estuarine Research Reserve (MANERR). Establishment of monitoring stations in this bay system will provide continuous data regarding water quality that would provide valuable information that is crucial in determining the condition of the bay system.

This project will establish and operate four (4) real time water quality monitors in the Aransas, Copano, and Mission Bays through the Texas A&M University-Corpus Christi Conrad Blucher Institute, Division of Nearshore Research (CBI-DNR), for the first year. The following year's operational costs for the monitoring stations are expected to originate from the MANERR. Basic water quality parameters that will be measured at each station include salinity, conductivity, water temperature, dissolved oxygen, pH and turbidity. The data will be transmitted to CBI-DNR via Freewave line of sight radio. The data will then be downloaded into CBI-DNR computer system and made available, near real time, to data users via the web. Without support of the Coastal Bend Bays and Estuaries Program, the data would not be made available on a near real-time basis, but rather on an annual basis.

**Project Objective:**

To establish and operate four (4) monitoring stations in the Aransas/Copano/Mission Bay system for a period of one year that will provide "real-time" monitoring data.

---

**Project #0703 Colonial Waterbird Management**

---

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

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 experience 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. 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:**

1. Continue efforts on enhancement and construction of nesting habitat.
2. Continue to promote public programs to protect colonial waterbirds.
3. Monitoring of Colonial Waterbird populations.
4. Install signage to reduce impacts of human disturbance on waterbird colonies.
5. Management of predator control efforts.

---

**Project #0704 Matagorda Island Marsh Restoration**

---

**Performing Organization:** Aransas National Wildlife Refuge  
**Total Project Funding:** \$100,000  
**CBBEP Bays Plan Actions:** HLR-2

Matagorda Island National Wildlife Refuge consists of more than 56,000 acres along 38 miles of the Texas coast. Habitat types within the refuge include grassland, sand dunes, beaches and tidal marshes.

An estimated 15,000 acres of marsh on Matagorda Island were negatively impacted when, from the early 1960s to the late 1970s, large portions of the marsh were sectioned off, blocked with levees, drained, and utilized for cattle production. Since the 1970s, multiple culverts installed throughout the marsh have failed, resulting in the continued degradation of natural flow/circulation patterns, marsh habitat, wildlife abundance and diversity, and water quality.

An effort to restore circulation to these impacted areas is needed to restore the area to functional wetland habitat. An assessment of the island with a focus on identifying and prioritizing areas for levee removal and culvert installation is crucial to restoration efforts.

**Project Objectives:**

1. Identify priority locations where levee removal and/or other earthwork actions will provide the greatest ecological benefit, and develop a Restoration Plan that can be implemented in discrete phases as funding becomes available.
2. Implement the first phase of the Restoration Plan based on available funding in order to:
  - a. Restore natural flow/circulation patterns to tidal stream segments, marshes, and bays;
  - b. Restore tidal marsh habitat;
  - c. Increase the diversity and abundance of wildlife utilizing marsh habitat; and
  - d. Improve water quality within and adjacent to Matagorda Island National Wildlife Refuge.

---

**Project #0705    Whooping Crane Habitat Restoration Along St. Charles Bay**

---

**Performing Organization:**            **Aransas National Wildlife Refuge**  
**Total Project Funding:**            **\$35,500**  
**CBBEF Bays Plan Actions:**        **HLR-2, HLR-4, HLR-10**

Primary habitat types along St. Charles Bay consist of coastal salt marsh, wetland, forest, and prairie. These coastal environments have experienced significant declines since the turn of century. All along the U.S., coastal habitat is being developed at an increasing rate, which has resulted in coastal prairie habitat being less than 1% of what it once was. This loss of coastal habitat reinforces the notion that existing coastal habitat should be protected through active management that may require efforts to enhance and/or stabilize an area.

The importance of the St. Charles Bay area is further recognized by its designation as critical habitat for the only wild flock of federally endangered whooping cranes in the world. While public ownership of portions of the Bay helps to control development, colonization by invasive plants is quickly converting critical tracts into monocultures of invasive plant stands. Historically, in this environment, floral conversion by invasive plants renders habitat unsuitable for whooping crane use.

This project will provide significant information on the distribution, density, and composition of the nonnative invasive plants within the St. Charles Bay system. It will also serve to control the spread and stop the loss of habitat to invasive species. Currently several invasive species (salt cedar, China berry, and Chinese tallow) have been reported from the Bay area. In addition, several new invasive species (guinea grass, Brazilian pepper) have just begun to be reported from the area. It is anticipated that this project will provide the means of early detection and eradication for these new invaders.

**Project Objectives:**

1. Detect, map, and identify all invasive plant species within the Bay area (2,000 acres).
2. Develop long-term treatment and control plans for targeted invasive species.
3. Reclaim 60-75 acres through the eradication of invasive plants within the treatment zone.
4. Educate local landowners and agency staff regarding invasive species identification and control methods.

---

**Project #0706 Nueces Delta Shoreline Wetland Protection (Engineering)**

---

**Performing Organization:** Coastal Technology Corporation  
**Total Project Funding:** \$100,000  
**CBBEP Bays Plan Actions:** HLR-2

The *Bays Plan* calls for efforts to identify and conserve at-risk habitats. Funds frequently become available to CBBEP for habitat conservation projects, especially wetland conservation projects. Unfortunately, once funding does become available, it is often not possible to prepare documents that sufficiently detail project parameters and justify receipt of the funding in the short time frame available. Therefore, it is important that potential projects be identified and delineated well prior to the availability of funding.

Prior projects funded by CBBEP (#0319 and #0412) have identified the Nueces Delta Shoreline as potential habitat restoration site. Substantial erosion along the Nueces Delta is causing the on-going loss of emergent intertidal and subtidal marsh habitat. Furthermore, stabilization of the Delta's fringe will allow CBBEP to focus on inland restoration projects.

Potential wetland habitat conservation projects require planning that could include development of project descriptions, goals, objectives, preparation of feasibility studies, alternatives analysis, conceptual design, cost analysis, and permitting from the U.S. Army Corps of Engineers

**Project Objectives:**

1. Conduct the studies necessary to sufficiently document the need for conservation activities to include current conditions, and project goals & objectives.
2. Evaluate and prioritize habitat restoration and enhancement alternatives.
3. Develop a Conceptual Plan (with cost estimates) for the restoration and enhancement of habitat along the Nueces Delta Shoreline. The plan should be capable of being implemented in discrete phases as funding becomes available.
4. Obtain (if required) U.S. Army Corps of Engineers Permitting, and Texas General Land Office Lease.

---

## Project #0707      Habitat Restoration Site Database

---

**Performing Organization:**                      **To Be Determined**  
**Total Funding:**                                      **\$70,000**  
**CBBEP Bays Plan Actions:**                      **HLR-1, HLR-2, SM-1**

Over the years, CBBEP has funded numerous projects with goals towards developing databases with habitat restoration/mitigation site inventories and related data.

- ∞ FY 1997, Task 1.5: Species-Habitat Relational Database,
- ∞ FY 1999, Task 2.1: Riparian Corridor Assessment and Habitat Protection,
- ∞ #0019, #0205, #0306: Oso Bay/Oso Creek Habitat Acquisition and Protection (included identifying and listing priority locations within the Oso Watershed),
- ∞ #0318, #0531: Development of Geographic Information System,
- ∞ #0319: Identify Potential Habitat Restoration & Enhancement Sites, and
- ∞ #0412: Coastal Bend Conservation Project Inventory.

This large list of funded projects is strong evidence of the fact that resource agencies and environmental professionals place a high value on the availability of this type of information. While these past projects were successful in achieving their stated goals, they remain largely as independent reports that will have more accessibility if the information is incorporated into a single clearinghouse. This information would be invaluable to both resource and research organizations because it could identify completed restoration and mitigation projects (possibly preventing duplication of effort), prioritize potential restoration and land acquisition sites according to type of restoration activity and provide some amount of baseline data for analysis.

This project seeks to 1) gather historical data from previous studies by both CBBEP and other agencies, 2) collect new data to fill in any gaps and bring previous studies up-to-date, and 3) combine all the data into a usable database that is accessible to the regional resource/research organizations.

The project's initial focus would be on database development, inventorying and prioritizing sites, and making the database available to resource/research organizations via the Internet. Continued efforts would focus on supplementing the site inventories with additional baseline data.

### **Project Objectives:**

1. Determine initial parameters to be included in a database for the following categories:
  - a. Previous Mitigation Sites
  - b. Completed Habitat Restoration Project Sites
  - c. Potential/Priority Habitat Restoration Project Sites
  - d. Current Land Ownership of Conservation Organization
  - e. Potential/Priority Land Acquisition Sites
2. Gather both historical and new data as needed.
3. Develop a searchable database (housed on a dedicated server) that includes an inventory listing and/or baseline data for the above categories.
4. Make the database available to resource/research organizations via the Internet. Make recommendations for continued development and maintenance of the database.

---

**Project #0708    Comprehensive Habitat Management Plan for Coastal Bend Bays and Estuaries**

---

**Performing Organization:**                    **To Be Determined**  
**Total Funding:**                                **\$65,000**  
**CBBEP Bays Plan Actions:**                **D-1, D-2, D-3**

Dredging is an ongoing activity necessary to maintain navigable waterways and berthing facilities in the CBBEP area. There is often a lack of consensus about the benefits and adverse effects of dredging and placement of dredged material. The CBBEP Maritime Commerce and Dredging Implementation Team believes that an analysis (or consensus from resource agencies and the scientific community) identifying current ecological resource needs (e.g. more rookeries, more emergent marsh, more submergent aquatic vegetation, more reefs) could be used to identify uses for material, should it become available. The recognition for the needed ecological resources could then be used as guidance for the development of a plan that identified specific projects that were acceptable and could be implemented with the use of dredged material. This plan would be available for use by resource agencies and industrial users alike in planning for maintenance, growth and development within the Coastal Bend area.

This project addresses elements of D-1 and D-2 and D-3 of the *Bays Plan*. The beneficial uses work group (D-1) would develop a long-term (D-2) regional beneficial uses plan using dredged material from a variety of private and public sources including new marine terminals (D-3). The basis of the plan is to be determined but as generally discussed would include a range of applications. The primary focus would be on habitat creation, habitat restoration, or conversion of one aquatic habitat type for another aquatic habitat type deemed to be of higher ecological and social value in order to meet resource management and societal needs, and to facilitate economic development and reduce permit processing time by providing a pre-coordinated buy-in for regulatory/mitigation decisions.

The *Coastal Bend Bays Plan* identifies the need to develop consensus on a long-term management plan for dredged material management that will use sound dredging practices and maximize the use of dredged materials. Although CBBEP has participated in planning efforts for dredged material management with the US Corps of Engineers and the Port of Corpus Christi Authority, a comprehensive management plan to address activities stemming from other organizations currently does not exist.

**Project Objective:**

Develop a consensus based comprehensive management plan that identifies habitat enhancement, creation and conversion opportunities in Coastal Bend area and includes opportunities created from future dredging and dredged material placement activities.

---

**Project #0709      CBBEP Nueces Delta Preserve Management**

---

**Performing Organization:**            **CBBEP**  
**Total Funding:**                    **\$10,000**  
**CBBEP Bays Plan Actions:**        **HLR-1**

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, riverine 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 property, including property

**Project Objective:**

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

---

**Project #0710 Keepers of the Coast**

---

**Performing Organization:** Texas State Aquarium  
**Total Funding:** \$14,000  
**CBBEP Bays Plan Actions:** PEO-3, PEO-5

**Work Plan Project Description:**

The Texas State Aquarium's *Keepers of the Coast* (KOTC) was developed to address Action Items included in the CBBEP *Bays Plan* and needs identified in elementary science instruction. Traditionally, the average elementary classroom receives very little science instruction. In 2003, the Texas Education Agency implemented a first-ever elementary science test, administered at Grade 5. The changes in the standards increase the need for science and math skills for educators at the elementary level. The need for sustained instruction across grade levels is intensified by the new middle school science test that will be administered in Spring 2006.

KOTC was developed as a multi-component, multi-grade level program to offer sustained, targeted instruction for area schools. It was successfully implemented in FY2001 and originally targeted grades 3, 5, 6, and 8. Concepts introduced in lower grades form the foundation of the program, and are progressively built upon as students advance into middle school (properties of water, water conservation, wetlands, watersheds, water quality). KOTC now involves all students in grades 3-8.

KOTC emphasizes the connection among inland environments, coastal waters, and the Gulf of Mexico. Participating districts are distributed across the CBBEP project area and include coastal and inland communities: Alice, Aransas Pass, Benavides, Ingleside, and Woodsboro. School campuses that participate are required to take action to ensure the sustainability of local resources, wetlands, watersheds, and waterways.

KOTC has five main components:

1. Teacher workshops that focus on area watershed and coastal resources.
2. A teacher resource guide that includes background information on water, wetlands, watersheds, and coastal resources; classroom and field activities; support materials for outreach and field trip programs; documentation of support of state education standards; and resources for community projects.
3. Outreach programs that were developed to address CBBEP priority issues.
4. Field trips that include programs that reinforce outreach programs.

Community packets that include information from local, state, and federal resources on schoolyard habitats, water use monitoring, water quality monitoring, and habitat cleanups. Continued participation in KOTC is contingent on a school's successful implementation of a community project.

**Status:**

Project not yet started.

---

**Project #0712 Coastal Bend Environmental Science: Learning on the Edge**

---

**Performing Organization:** CBBEP  
**Total Funding:** \$40,000  
**CBBEP Bays Plan Actions:** BTR-1, PEO-2, PEO-3, PEO-5

The CBBEP's Environmental Education & Outreach Implementation Team (EEOIT) identified challenges that teachers face with the Texas Education Agency (TEA) and Texas Essential Knowledge and Skills (TEKS) state requirements. The team understands how vital an Environmental Educator is and needed to assist teachers in the CBBEP's 12-county area.

Coastal Bend Environmental Science: Learning on the Edge will continue to work on the following goals.

**Summer Teacher Workshops**

The CBBEP will deliver a locally based environmental science curriculum to area teachers by integrating some of the Program's well-regarded science education programs. Teachers will learn the curriculum in an interactive manner, designed to go beyond what conventional textbooks and TEKS currently provide, so that they can see the actual presentation of the material with real students. Grades 3-5 will be targeted to support preparation for the state-mandated TEKS assessment in Grade 5. The summer workshops will include delivery of the Kritters 4 Kids curricula, 40 classroom sets of books and training for teachers. This curriculum teaches school children about the importance of wildlife and habitat, the threat of urbanization, local ecosystems, food webs, and includes an interactive learning tool called the Treasure Hunt.

**In-Classroom Curriculum Instruction During the School Year**

This project will address the gap that exists between the delivery and implementation of new curriculum by teachers. Follow-up visits to assist teachers further with implementation of the curriculum in their classrooms would be conducted throughout the school year by the Environmental Educator. Coordinated field trips to area sites will provide hands-on experiences in the local environment. Education partners will coordinate with the Educator to provide in-class curriculum instruction and implementation.

**2006 Summer Teacher Academy Follow-up**

The Environmental Educator will schedule follow-up visits throughout the school year to help team-teach with the teachers who completed the 2006 Summer Teacher Academy.

**Project Objective:**

Teachers in the community will have increased knowledge, skills and resources to more effectively teach science in local schools as measured by teacher reported implementation of new techniques in classrooms.

---

**Project #0713      CBBEP / Coastal Bend Bays Foundation Community Outreach Partnership**

---

**Performing Organization:** Coastal Bend Bays Foundation  
**Total Funding:** \$40,000  
**CBBEP Bays Plan Actions:** PEO-1, PEO-2, PEO-3, PEO-4, PEO-5

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 Coastal Bend Bays Foundation (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 into the public policy debate. The *Bays Plan* calls for continued involvement from the Bays Foundation, as the region prepares itself for ever-increasing numbers 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. The environmental education and outreach activities will include: monthly Coastal Issues Forums, bay-resource/related workshops, the Adopt-A-Beach program, the 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.

The Coastal Bend Bays Foundation 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:**

1. Host, organize and coordinate turnkey operation of Earth Day festival.
2. Host, organize and coordinate turnkey operation of Adventure Bay at Bayfest.
3. Host, organize and coordinate CBBF Conservation and Environmental Stewardship Annual Awards Banquet.
4. Conduct monthly Coastal Issues Forums to increase communication between resource managers, users and general public.
5. Organize and coordinate local Adopt-A-Beach beach clean ups.
6. Organize and coordinate bay-resource/related workshops with CBBEP's approval such as the Oso Creek Watershed workshop.

---

**Project #0714      CBBEP Public Outreach Events & Activities**

---

**Performing Organization:**                    **CBBEP**  
**Total Funding:**                                **\$40,000**  
**CBBEP Bays Plan Actions:**                **PEO-1, PEO-2, PEO-3, PEO-4, PEO-5, BTR-1**

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 to 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:

- a) Community Events and Festivals – Events may include: Crab Trap Removal Project, Flat Out Fishing, Botanical Gardens NatureFest, Keep Ingleside Beautiful, Aransas Pass Shrimptree, Bayfest, Great Texas Birding Classic, International Migratory Bird Day, and other area events.
- b) CBBEP Educational Materials – The CBBEP will print an educational poster and will continue to update and develop materials that will serve as general information and/or overview about the Program. The materials will be distributed at all events, meetings, outreach, schools, etc.
- c) CBBEP Website – One of the CBBEP's most informative and interactive tools has become a tremendous resource for the general public. The CBBEP will continue to update the website, improve navigation, information flow, and increase interactivity.
- d) CBBEP E-Newsletter – This informational electronic newsletter will serve as an important outreach tool and help keep CBBEP members, legislators, government officials, and the general public informed about local environmental issues and CBBEP activities.
- e) Other Outreach Opportunities - 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. Program staff will utilize local and regional media (newspapers, television, radio stations, websites, etc.) other public events, exhibit ideas, and other CBBEP materials to implement the goals of the CBBEP Public Outreach Strategy.
- f) National Ocean Sciences Bowl - This event provides the opportunity to increase knowledge of the aquatic environment on the part of high school students, their teachers and parents, as well as to raise public awareness of ocean-related concerns

**Project Objective:**

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 #0715      CBBEP Public Outreach Media Campaign**

---

**Performing Organization:**                    **CBBEP**  
**Total Funding:**                                **\$25,000**  
**CBBEP Bays Plan Actions:**                **PEO-1, PEO-2, PEO-3, PEO-5, BTR-1**

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:

- Seagrass Protection Campaign
- 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 media.

**Project Objective:**

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 #0716      Restoration of Public Boat Ramps Along the JFK Causeway**

---

**Performing Organization:**                    **Texas Park & Wildlife Department**  
**Total Funding:**                                **\$50,000**  
**CBBEF Bays Plan Actions:**                **BTR-1, PEO-1**

The *Coastal Bend Bays Plan* identifies the need to provide appropriate, well-managed public access sites. One of the goals listed in the *Bays Plan* is to maintain and expand tourism and recreational opportunities in a way that enhances the local economy while protecting the environment. Two public boat ramps located along the JFK Causeway, in the vicinity of Billing's Bait Stand and Clem's Marina, provide free access to the Laguna Madre. These boat ramps are in very poor condition and need to be repaired and expanded.

The recent opening of Packery Channel is expected to increase the number of boaters using these ramps. Between May 2002 and April 2003, usage of the ramps accounted for 13,679 trips made by 5,471 anglers, which is 23% of the total upper Laguna Madre fishing pressure.

Texas General Land Office has identified the need to evaluate existing structures and perform improvements at the previously mentioned boat ramps. This will be accomplished by:

- ∞ Repairing boat ramps due to broken down concrete and difficulty in launching boats.
- ∞ Adding timber walkways, cleats, and bump-guards to protect boats from concrete walkways.
- ∞ Protecting against increased erosion on uplands adjacent to boat ramps in the form of consolidated rip-rap, bulkhead installation, etc.
- ∞ Install educational signage at both boat ramps thus promoting safe boating and educating boaters about colonial waterbirds nesting on islands.

Additional funding from other "local" partners will be needed to satisfy the required 25% funding match for Texas Parks & Wildlife Department's State Boating Access Program.

**Project Objectives:**

1. Improve both boat ramps to a condition in which they can be used safely during all seasons and tide cycles.
2. Respond to projected increase in use of boat ramps as a result of the development of Packery Channel and expected growth of population in the Coastal Bend.

---

**Project #0717 Fish Pass Road Improvements at Mustang Island State Park**

---

**Performing Organization:** Texas Parks & Wildlife Department  
**Total Funding:** \$50,000  
**CBBEP Bays Plan Actions:** BTR-2, BD-1

The *Coastal Bend Bays Plan* identifies the need to provide appropriate, well-managed public access sites. One of the goals listed in the *Bays Plan* is to maintain and expand tourism and recreational opportunities in a way that enhances the local economy while protecting the environment.

Shore based access to Corpus Christi Bay from Mustang Island is Limited to a few sites. The general public commonly accesses several areas along the Corpus Christi Bay shoreline by trespassing (either knowingly or unknowingly) on private land. One of the few free public access sites is along the north side of Fish Pass. This 1.1-mile road with garbage receptacles is maintained by Mustang Island State Park. Past heavy rainfall, high tides, and maintenance budget restraints have caused the road to degrade thus limiting its use to only high-clearance vehicles and foot traffic.

Annually, an estimated 12,000 to 15,000 visitors (including many out of town tourists) use the site for nature watching, off-road bike riding, kayaking, and fishing. Currently, Mustang Island State Park staff maintains garbage pick up along the road, but little other maintenance is performed on the site. Improving access to the site would improve the aesthetic value of the site and provide an opportunity to educate the public on the barrier island ecosystem.

**Project Objectives:**

1. Improve vehicular access by creating a 1.1-mile x 16' road to be maintained by TPWD Mustang Island State Park staff.
2. Construct one or more educational stations/signs along the 1.1-mile road.

---

**Project #0718      Oso Bay / Mud Bridge Wetland Protection and Public Access Management**

---

**Performing Organization:**            **CBBEP**  
**Total Funding:**                        **\$22,000**  
**CBBEP Bays Plan Actions:**        **BTR-2, BD-1, HLR-1**

The Yorktown Boulevard Bridge over Oso Bay, commonly referred to as Mud Bridge, is an access spot for area residents to fish and recreate from the shores of Oso Bay. Anglers often pull off the road and drive on the mud flats to target fisheries at the outfall of the Barney M. Davis Power Plant’s cooling reservoir and points beyond. Others use the site as a 4x4 recreation site, damaging mudflats and vegetation common to the area. Illegally dumping of large household garbage (such as old appliances, dilapidated vehicles, etc.) further degrades land around the site.

This area is a common feeding ground for the Reddish Egret and loafing ground for shore birds such as the Snowy Plover. Estimates of greater than 100 acres of state-owned mudflats on the southeast and southwest side of Mud Bridge have been negatively impacted for years. This continued degradation of the marsh habitat affects wildlife abundance, diversity, and water quality.

**Project Objectives:**

1. Identify and protect priority habitats, natural tidal mud flats, and marsh habitat from vehicular access.
2. Create ecologically safe public access opportunities at the site that provides the greatest ecological benefit and still allows access to all users.
3. Install educational signage about the Oso Bay ecosystem in “parking areas”.

---

**Project #0719 Nueces Delta Preserve Conservation Science Center**

---

**Performing Organization:** CBBEP  
**Total Funding:** \$80,000  
**CBBEP Bays Plan Actions:** PEO-3, PEO-5, FW-4

The CBBEP Nueces Delta Preserve (NDP) 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, riverine riparian habitat, brackish wetlands, coastal wetlands mud flats and shoreline. , The CBBEP's secondary goal for the preserve is for the property to used for a variety of educational and research opportunities.

The NDP is located 3 miles from the City of Odem and 20 miles from downtown Corpus Christi. This preserve provides excellent opportunities for the implementation of environmental education programs. The NDP currently lacks facilities that would provide an outdoor classroom atmosphere.

The construction of a covered facility to serve as the Conservation Science Center will create an area for the staging of various educational programs, while providing protection from the elements. The versatility of the structure will allow for year round use.

**Project Objective:**

Design and Build the Nueces Delta Preserve Conservation Science Center suitable for use as an outdoor classroom for use by area educators conducting environmental education programs at the NDP.

---

**Project #0720      Packery Channel Post-Opening Nekton Fisheries Recruitment Study**

---

**Performing Organization:**            Texas A&M University-Corpus Christi  
**Total Funding:**                        \$40,000  
**CBBEF Bays Plan Actions:**        WSQ-4, HLR-1, HLR-2

Packery Channel is located in the southeast corner of Corpus Christi Bay near the upper portion of the Laguna Madre. Prior to the construction of the Corpus Christi Ship Channel, Packery Channel was an open inlet allowing the exchange of water between the Upper Laguna Madre/Corpus Christi Bay System and the Gulf of Mexico. Since that time, it has been closed except for brief periods following hurricanes. It is anticipated that by August of 2006, this pass will be fully dredged open to the Gulf of Mexico and fortified with stone jetties into the Gulf.

Many of the estuarine species in the Upper Laguna Madre and Corpus Christi Bay have a portion of their life cycle where adults of the species spawn offshore, typically near passes, and their larvae enter the bay system through the pass. With the opening of Packery Channel, a new, permanent means of ingress to the local estuarine system will be made available to fish and crustaceans. This should result in more fisheries productivity from adjacent habitats that are currently isolated from other passes.

One factor defining, or limiting, the environmental influence of Packery Channel is the extent of the tidal prism. For this portion of the project, basic water quality data will be collected concurrently with each of the nekton sampling events.

In addition to the water quality data, this project will conduct a characterization of nekton fish and crustacean juveniles in the vicinity of Packery Channel and will compare size and density at sites near the inlet with more distant, unaffected sites, to evaluate the impact of the opened inlet. The fish and crustaceans will be sampled semi-monthly at sites that vary in distance from the pass, both southward into Laguna Madre and northward to Corpus Christi Bay. Samples will be transported to a lab for sorting and identification to species. Statistical analyses (t-test, Linear Regression, and ANOVA) will be performed to characterize the species using these areas and the potential impacts of opening the pass to the Gulf of Mexico.

**Project Objectives:**

The main objective of this project is to determine the impact of opening Packery Channel on water quality, nekton fish and crustacean populations in the vicinity of the pass. These objectives include:

1. Monitor seasonal changes to fish and crustacean abundance and recruitment after Packery Channel has been opened to the Gulf of Mexico.
2. Measure direct effect of Packery Channel on important water quality parameters.
3. Determine whether the opening of Packery Channel Pass has produced an improvement in the fish and crustacean populations in the surrounding estuarine system.

---

**Project #0721      Packery Channel Post-Opening Plankton Fisheries Recruitment Study**

---

**Performing Organization:**                      **University of Texas Marine Science Institute**  
**Total Funding:**                                      **\$50,000**  
**CBBEF Bays Plan Actions:**                      **WSQ-1, HLR-1, HLR-2**

Packery Channel is located in the southeast corner of Corpus Christi Bay near the upper portion of the Laguna Madre. Prior to the construction of the Corpus Christi Ship Channel, Packery Channel was an open inlet allowing the exchange of water between the Upper Laguna Madre/Corpus Christi Bay System and the Gulf of Mexico. Since that time, it has been closed except for brief periods following hurricanes. It is anticipated that by August of 2006, this pass will be fully dredged open to the Gulf of Mexico and fortified with stone jetties into the Gulf.

Many of the estuarine species in the Upper Laguna Madre and Corpus Christi Bay have a portion of their life cycle where adults of the species spawn offshore, typically near passes, and their larvae enter the bay system through the pass. With the opening of Packery Channel, a new, permanent means of ingress to the local estuarine system will be made available to fish and crustaceans. This should result in more fisheries productivity from adjacent habitats that are currently isolated from other passes.

One factor defining, or limiting, the environmental influence of Packery Channel is the extent of the tidal prism. For this portion of the project, basic water quality data will be collected concurrently with each of the plankton sampling events.

In addition to the water quality monitoring, this project will also perform a characterization of fish and crustacean larvae and juveniles in the vicinity of Packery Channel, and will compare size and density at sites near the inlet with more distant, unaffected sites to evaluate the impact of the opened inlet. Larvae and juveniles will be sampled semi-monthly at sites that vary in distance from the pass, both southward into Laguna Madre and northward to Corpus Christi Bay. Samples will be transported to a lab for sorting and identification to species. Statistical analyses (t-test, Linear Regression, and ANOVA) will be performed to characterize the species using these areas and the potential impacts of opening the pass to the Gulf of Mexico.

**Project Objectives:**

The main objective of this project is to determine the impact of opening Packery Channel on larval fish and crustacean populations in the vicinity of the pass. Other objectives include:

1. Monitor seasonal changes to larval fish and crustacean abundance and recruitment after Packery Channel has been opened to the Gulf of Mexico.
2. Measure direct effect of Packery Channel on important water quality parameters.
3. Determine whether the opening of Packery Channel Pass has produced an improvement in the larval fish and crustacean populations in the surrounding estuarine system.

---

**Project #0722      Status and Trends of Wetlands and Aquatic Habitats in the  
CBBEP Area**

---

**Performing Organization:**                      **University of Texas, Bureau of Economic Geology**  
**Total Funding:**                                      **\$100,000**  
**CBBEP Bays Plan Actions:**                      **HLR-1, HLR-2**

*The Coastal Bend Bays Plan* identifies the need to monitor the condition and amount of wetlands and aquatic habitats in the program area. Certain wetland types, such as freshwater pothole wetlands have experienced significant declines over the years as these areas have been converted for agriculture use and development. Other areas around the bay have seen the decline of brackish wetlands as freshwater inflows have been reduced.

The last comprehensive look at wetlands for most of the Coastal Bend area was published in 1998 (CCBNEP – 29) and was based on 1992 aerial photography. This effort will include an analysis of new imagery (28 DOQQ's) and a re-evaluation of older imagery using the latest techniques and GIS technology.

This study will address three critical issues:

- 1) The status of coastal wetlands in the Coastal Bend, their extent, locations and trends,
- 2) The probable causes for rates and locations of changes in wetlands
- 3) Identify which wetland types have been impacted the most and should be a higher priority for restoration efforts.

**Project Objectives:**

1. Interpret and map wetlands and aquatic habitats on historical and recent aerial photographs, using and revising historical data where acceptable.
2. Process habitat delineations and enter into Geographic Information System.
3. Field-check (ground-truth) mapped wetlands and aquatic habitats.
4. Conduct detailed quality control analysis of all (historical and current) GIS databases.
5. Analyze wetland trends, determine probable causes and write up results.

---

**Project #0723     Digital Elevation Model of the Nueces Delta**

---

**Performing Organization:**            **University of Texas Bureau of Economic Geology &  
University of Texas Marine Science Institute**  
**Total Funding:**                        **\$143,718**  
**CBBEP Bays Plan Actions:**        **HLR-1, HLR-2, FW-1, FW-3**

The Bureau of Economic Geology (BEG) at the University of Texas at Austin (UT) proposes to use airborne lidar (light detection and ranging) and shallow-water echo sounding to provide terrain elevation data of approximately 1000 ha of wetlands, ponds, and adjacent uplands on the Nueces River Delta, Texas (fig. 1).

The objective of this collaborative research effort between UT's Marine Science Institute (MSI) and the BEG will be to develop a research-quality digital elevation model that will be used to

- (1) better understand how vegetation assemblages are correlated with elevation,
- (2) map habitats in conjunction with aerial photography, and
- (3) design freshwater diversion projects.

In addition to acquisition of conventional first and last return lidar data, which will be used to create the DEM's, we will acquire experimental wave-form data. The acquisition of wave-form data will not add additional cost to this project, and the BEG will seek other funding to process and analyze these data on an experimental basis.

**Project Objectives:**

1. Obtain and analyze lidar data, including the placement of targets at known elevations with ground-truthing of additional areas.
2. Completion of bathymetric survey to provide water depth data in areas not addressed by the lidar survey focusing on the main channels within the Rincon bayou and other priority areas in the delta.
3. Development of a digital elevation model for the Nueces Delta.

Design potential freshwater diversion projects using the digital elevation model.

## **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 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 to be completed by 9/30/06.
9. Develop and 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**

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.

## **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 Estuary 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, 2006, the Coastal Bend Bays & Estuaries Program will begin Year 9 of implementing the *Coastal Bend Bays Plan*. This FY 2007 Work Plan describes the proposed work to be initiated during FY 2007. Of the total funds identified in the Work Plan budget, \$492,600 are new (FY 2007) federal funds, \$849,777 are new (FY 2007) state funds, \$275,733 are new (FY 2007) project-specific funds, and \$275,000 are new (FY 2007) local partner funds. When combined with carryforward from previous unspent federal and state funds, the total budget for this FY 2007 Work Plan is \$2,319,138.