



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

# Coastal Bend Bays & Estuaries Program

## FY 2014 Comprehensive Annual Work Plan

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# **COASTAL BEND BAYS & ESTUARIES PROGRAM**

## **FY 2014 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 2014 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 2014 Comprehensive Work Plan will be September 1, 2013.

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

### **Federal**

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

Ms. 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

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

The CBBEP achieved its primary goal for FY 2013, 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 2010 implementation years have been completed. FY 2011 projects (federal) are expected to be completed by August 31, 2014. FY 2012 projects are expected to be completed by August 31, 2014, and FY 2013 projects are expected to be completed by August 31, 2015.

#### **V. Goals for FY 2014**

The overarching goal for FY 2014 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 2014 have been selected for their contribution towards implementation of the *Coastal Bend Bays Plan*. Twenty-four projects will be implemented in FY 2014. A comprehensive list of projects outlining project numbers, titles, action items, performing party(s), and budget can be found in Table 1: FY 2014 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.

**Performing Organization:** CBBEP  
**Total Project Funding:** \$168,895  
**CBBEP Bays Plan Actions:** HLR-1, HLR-4

**Background:**

The 2010 Environmental Indicators Report prepared by CBBEP documented the declining populations of certain colonial waterbird populations. Some species of colonial waterbirds have experienced a 90% reduction in breeding pairs since the 1960's. Colonial waterbird populations are indicators of the overall health of the estuary. Certain coastal bird species are also showing declining trends. 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, these efforts will extend to management activities in support of coastal bird species and management of their habitat. 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.

**Objectives:**

This project will:

- Continue efforts on enhancement and construction of nesting habitat.
- Continue to promote public programs to protect coastal waterbirds.
- Assist in efforts to note fluctuations of coastal waterbird populations for management purposes.
- Install signage to reduce impacts of human disturbance on waterbird colonies.
- Provide management of predator control efforts directed at rookery islands.

**Performing Organization:** CBBEP  
**Total Project Funding:** \$165,000  
**CBBEP *Bays Plan* Actions:** BTR-1, PEO-2, PEO-3, PEO-5

**Background:**

*Learning on the Edge* has become the tagline for our entire environmental education program. The educational program costs consist of the following:

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

Fieldtrips: Many of the students that are being exposed to scientific concepts for the first time have never really spent much time outdoors. There is a need to bring classroom concepts alive in the proper setting through fieldtrips. Getting students out of the classroom and into the outdoors adds greatly to the students understanding of natural processes.

CBBEP Environmental Educators provide fieldtrip opportunities for teachers and students to visit the Nueces Delta Preserve. The cross-curricular trip may to be organized by the teacher, with assistance from the Environmental Educator, to create an educational TEKS-aligned agenda for outdoor education. This program exposes over 8000 students a year to quality outdoor environmental education experiences.

The goal is to plant seeds of appreciation and passion for a new generation of naturalists, biologists, and nature lovers to protect and preserve the Coastal Bend through educating school children about preserving our environment and protecting our animal and plant life.

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

Fall/Spring Workshops: CBBEP Environmental Educators will facilitate workshops throughout the school year. These workshops will address local environmental science topics and will align to the TEKS objectives. Hands-on learning in the field will dominate and field work correlation to the classroom will follow the outdoor learning experience. Participating teachers will receive SBEC credits. The workshops focus on equipping teachers with the skills, curriculum, support and materials to strengthen science teaching as it relates to the environmental treasures of Texas Coastal Bend. Partnering throughout the year would allow CBBEP to introduce environmental issues to teachers who may not be able to dedicate time in the summer to workshops. It will also allow those teachers who may need more instruction in a specific area of science to continue their education. The funding provides all fees for partnering, curriculum, and substitute teachers in order for these workshops to occur on weekdays.

Summer Workshops: CBBEP partners with already successful educational programs. By combining all of these resources into one program, Coastal Bend Environmental Science seeks to provide teachers the tools needed to successfully teach science and promote student awareness of local ecology and environmental issues affecting the bays and estuaries. Additionally, the program will provide teachers with supplies for use in their classroom and in the field. CBBEP will provide light refreshments throughout the day, such as snacks, soft drinks and light sandwiches. The NDP is about 21 miles away from nearby restaurants and transporting the teachers to/from any restaurants will delay the workshops considerably. CBBEP has made arrangements for sandwich delivery to the NDP. Teachers can continue with the workshop with little downtime. Workshops are held during the hottest part of the summer, with little or no shelter available at times.

Nueces Delta Preserve Upkeep: Upkeep of the Nueces Delta Preserve consists of electricity costs, phone and internet costs, Port-a-Potty maintenance, trash pick-up, supplies for programming, staff accreditation and educational training, and mileage, etc.

**Objectives:**

- Provide teacher workshops that support environmental education and stewardship: CBBEP partners will facilitate and perform a major portion of teaching during the week-long summer teacher academy. The teachers will receive all curricula and information provided by these partners, a curricula guide from CBBEP, and equipment for the classroom. The academic year workshops will be small scale educational seminars with supplies needed for teaching the curricula provided to participants.
- Facilitate and lead environmental education fieldtrips: CBBEP Educator and partners will organize and conduct fieldtrips for students throughout the Coastal Bend to come to the Nueces Delta Preserve for a day long outdoor experience connecting the classroom to local nature. We provide funding to assist schools in their ability to take such trips.



**Performing Organization:** CBBEP  
**Total Project Funding:** \$15,000  
**CBBEP *Bays Plan* Actions:** HLR-1, HLR-2

**Background:**

The San Antonio Bay System, located at the terminus of the San Antonio River and the Guadalupe River watershed (approx. 53,100 km<sup>2</sup>), is one of the seven major estuaries along the Texas coast. This large (531 km<sup>2</sup>) 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.

An inventory of potential wetlands projects was developed in 2012 with sites aimed at wetland protection, restoration, and enhancement within the San Antonio Bay System. The sites were mapped and are accessible on Google Earth. The Google Earth supported files can be found at [www.cbbep.org](http://www.cbbep.org).

The project will form an advisory team to aid in the selection of a wetland enhancement site from the "Inventory of Conservation, Restoration, and Protection Sites: San Antonio Bay System – Phase II" for preliminary project planning and assessment. The deliverable for this project will be a summary report documenting preliminary project planning, assessment, and recommendations.

**Objective:**

Select a site from the "Inventory of Conservation, Restoration, and Protection Sites: San Antonio Bay System – Phase II" and conduct further evaluation to support planning and permitting efforts.

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

**Background:**

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

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

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

**Objectives:**

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

**Performing Organization:** CBBEP  
**Total Project Funding:** \$25,000  
**CBBEP *Bays Plan* Actions:** PEO-1, PEO-2, PEO-3, PEO-4 and PEO-5 and BTR-1

**Background:**

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

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

**Objectives:**

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

In addition, CBBEP may participate in:

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

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**Project 1406**

**Outdoor Classrooms**

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

**Background:**

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

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

**Objective:**

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

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

**Background:**

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

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

**Objective:**

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

**Performing Organization:** CBBEP  
**Total Funding:** \$3,000  
**CBBEP *Bays Plan* Actions:** 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.

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

**Objectives:**

- To reduce the amount of debris along coastal roadsides and shorelines by the placement of large garbage receptacles in strategic locations during high traffic weekends.
- CBBEP will also 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 cleanups. CBBEP will determine which cleanups to provide dumpsters based on the amount of project funding available.

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

**Background:**

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 CBBEP as a conservation site for the purpose of preserving natural habitat, function and species diversity in the Nueces River delta. The preserve is rich in diversity that can be characterized by Tamaulipan thorn scrub, grasslands, lomas, freshwater wetlands, riparian habitat, brackish wetlands, coastal wetlands mud flats and shoreline. CBBEP's secondary goal for the preserve is for the property to be used for a variety of educational and research opportunities.

The funds provided by the project support the necessary management and routine maintenance of the properties, including but not limited to road maintenance, fencing maintenance, gates, brush control, equipment purchases, habitat and predator management (as appropriate and necessary), and property taxes.

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

**Objective:**

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

**Performing Organization:** Texas Water Development Board  
**Total Project Funding:** \$33,500 (\$16,750/year) TWDB in-kind contribution - \$33, 500  
**CBBEP Bays Plan Actions:** FW-1, FW-3

**Background:**

The purpose of this project is to refine a tool used for determining environmental inflow regimes for estuaries by carrying out improvements to the TxBLEND Hydrodynamic and Salinity Transport Model (TxBLEND Model). The effort will lead to a modeling tool that can be used to better predict salinity regimes under various environmental conditions for the Nueces Bay and Delta. The tool could potentially be used to help implement the Salinity Monitoring and Real Time (SMART) Inflow Management concept.

During the analyses performed by both the Guadalupe/San Antonio BBEST and the Nueces BBEST, it was discovered that the modeling tools available were not always adequate to make accurate prediction of inflow and salinities. For example, there are certain inflow conditions and certain geographic areas of the estuarine regions that proved difficult for the TxBLEND Model to predict salinity accurately, or it was not responsive enough at the intended scale (i.e., fine-scale salinity modeling of Nueces Bay both spatially and temporally). During the BBEST process there was not enough time to develop new modeling approaches that would have best addressed the problems at hand. Thus, there is a need to improve and re-calibrate the TxBLEND Model. While stakeholders recognized the limited effect that freshwater inflow has on reducing salinity in Corpus Christi and associated bays, recommendations were made for the improvements to salinity modeling methods focus on, but not be limited to, Nueces Bay.

This study proposes a re-examination and refinement of TxBLEND for the Nueces estuary, focusing on improving performance in Nueces Bay and surrounding Nueces Delta to include:

1. Increase grid resolution in Nueces Bay
2. Expand TxBLEND grid to include Rincon Bayou and Nueces Delta
3. Incorporate bathymetry for Nueces Delta
4. Improve the spatial representation of inflow points to Nueces Bay
5. Use of existing salinity monitoring data in upper Nueces Bay and Delta for calibration
6. Improve estimates of freshwater inflow to Nueces Bay

The Texas Water Development Board (TWDB) would be the lead for this project since they created and own the TxBLEND Model. Other State agencies might need to be brought in for technical support. This study should take two years to complete.

**Objective:**

Create a water management tool that can be used in implementing new water management strategies.



**Performing Organization:** Conrad Blucher Institute  
**Total Project Funding:** \$45,000  
**CBBEP Bays Plan Actions:** FW-1, FW-2, FW-3, FW-4

**Background:**

The purpose of this project is for the Conrad Blucher Institute for Surveying and Science (CBI) at Texas A&M University - Corpus Christi (TAMUCC) to continue to maintain 3 current real-time salinity monitoring stations along the Rincon Bayou and a tide gauge in west Nueces Bay in order to characterize freshwater inflows into the Nueces Delta. Salinity sensors along the Nueces Delta will be used to trace freshwater inflows from freshwater pumping events via the Rincon Bayou Pipeline (RBP) from the Nueces River and will report water temperature, conductivity, chlorophyll *a*, and salinity every 30 minutes. Data from these salinity stations are used by the Nueces Inflow Pipeline Advisory Committee (IPAC) to help determine when to recommend the schedule of pass-through of “banked” water to the City of Corpus Christi and by the Nueces Estuary Advisory Council (NEAC) to create freshwater inflow recommendations. The Center for Coastal Studies (CCS) at TAMUCC uses the salinity data provided from the salinity stations to support various projects involving sampling in the Nueces Delta. Data from these salinity stations are also utilized by the University of Texas Marine Science Institute (UTMSI) to support various modeling projects which will investigate the interaction between water in sediment and tidal creeks and in the Nueces Delta. Additionally, the data is intended for use in the calibration and validation of the Nueces Delta Hydrodynamic Model. A weather station will also be maintained in the Nueces Delta and will provide air temperature, wind, precipitation, barometric pressure, relative humidity, and solar radiation data. A weather station will also be maintained in the Nueces Delta and will provide air temperature, wind, precipitation, barometric pressure, relative humidity, and solar radiation data. All data will be available to the public at CBI’s webpage (<http://cbi.tamucc.edu>).

Normally, a river flows through a delta area prior to making its confluence with its receiving water body. The Nueces River is different in that it flows into Nueces Bay at a point along the south shore of the bay, 2 ½ to 3 miles from the delta-bay interface, completely bypassing the delta. Only during times of severe flooding, causing over-banking of the river, or locally heavy rain, did much freshwater make it into the delta proper.

To provide more freshwater diversions during normal flow conditions, the City of Corpus Christi has had a pipeline and pump station built to divert up to the first 3,000 AF of pass-throughs per month from above the saltwater barrier dam directly into the upper Rincon Bayou.

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

**Objective:**

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

**Performing Organization:** HDR Engineering, Inc.  
**Total Project Funding:** \$51,115  
**CBBEF Bays Plan Actions:** FW-1, FW-3

**Background:**

The purpose of this project is to model impacts of Salinity Monitoring and Real Time (SMART) Inflow Management to the reservoir system's (Lake Corpus Christi and Choke Canyon Reservoirs) safe yield by running the Corpus Christi Water Supply Model (CCWSM).

The SMART Inflow Management strategy pulses water to the estuary as needed based on salinity conditions in the bay and delta, rather than through a schedule of monthly target volumes. The strategy seeks multiple goals: 1) to assure adequate environmental flows to Nueces Bay and Delta that creates measureable ecological benefits, 2) provides connectivity between Bay and Delta while also providing for a reduced variance in salinities, and 3) helps to maintain recreational and economic values within the reservoirs for longer periods of time.

The Nueces Basin and Bays Expert Science Team (BBEST) reports that there is a loss of salinity gradient in the Nueces Bay and Delta that influences a zonation of communities found within the bay system. Connectivity of freshwater is another issue within the delta, and high salinity variance is found both in the delta and the bay. The salinity gradient between the bay and delta are compromised due to both the connectivity and high salinity variance. Through modeling exercises, the SMART Inflow Management concept appears to be a viable strategy for efficiently utilizing the limited freshwater resource available to create bay and delta conditions that have a salinity gradient, connectivity, and a reduction in the salinity extremes that have a negative impact on estuarine productivity.

Since preliminary modeling work has already been completed and shows positive results, the next initial step will be to begin implementing the SMART Inflow Management on a trial basis over a period of 10 years. A small advisory group will be formed from members on the Nueces Estuary Advisory Council (NEAC) to help monitor when freshwater inflows are needed into the bay and to establish criteria for storing (i.e. water banking) and releasing water. The small advisory group would work under the guidance of the NEAC and be communicating with reservoir operators and the Texas Commission on Environmental Quality (TCEQ) on how and when to best send water to the bay, with the idea being to develop an operational plan for SMART Inflow Management. The CCWSM should be run to insure safe yield is not negatively impacted.

The NEAC, which is chaired by TCEQ, will be the overall guidance for the pilot project. The NEAC will create the advisory group from its list of members, establishing a balanced group of stakeholders to lead the project. The City of Corpus Christi (City) is the operator of the reservoirs and is a member of the NEAC, so the City will be an integral part of the projects success.

**Objective:**

Use the CCWSM to determine the SMART Inflow Management's impact on the safe yield of the reservoir system.

**Performing Organization:** Texas A&M University-Corpus Christi  
**Total Project Funding:** \$10,000  
**CBBEP Bays Plan Actions:** WSQ-3

**Background:**

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

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

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

**Objective:**

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

**Performing Organizations:** CBBEP, GLO-CMP, NOAA  
**Total Funding:** \$100,000 (\$60,000 CMP approved) (\$40,000 CBBEP)  
**CBBEP Bays Plan Actions:** BTR-2, HLR-1

**Background:**

The Mollie Beattie Habitat Community was created in 1996 through a Memorandum of Understanding between The General Land Office (TGLO) and the United States Fish and Wildlife Service (USFWS). These two tracts of land contain a significant amount of intertidal habitat which is extensively used by a variety of shorebirds, wading birds, and other species, including the endangered piping plover. To assist in the management of this area, a management team consisting of members from TGLO, USFWS, TPWD, and National Audubon Society was created.

To date, an on-going problem at the site has been preventing vehicular traffic from entering the site. Two parking lots have been established for people to park their vehicles and enjoy the area by foot. However, vehicles often still try to drive into the site, causing damage to the site. With the opening of Packery Channel and the increase in use of local bays, the importance of maintaining this unique habitat, while still providing public access for local users, is a top priority.

The site encumbers approximately 1,000 acres of Permanent School Fund land within State Tracts 59 and 60, north of Packery Channel and west of Highway 361.

**Objectives:**

- Restrict vehicular traffic within the habitat site.
- Provide an area for public access to the bay for fisherman and birders.
- Protect the area for wildlife, including endangered species, such as the piping plover.
- Maintain the area in a clean and safe condition.

**Performing Organization:** Nueces County  
**Total Project Funding:** \$8,500  
**CBBEP Action Plans:** BTR-1, BTR-2, HLR-1

**Background:**

A sand boat ramp at Wilson's Cut Channel, heavily used by the public, has provided access to remote areas of Corpus Christi Bay for over 40 years. The boat ramp and launch area has been used by fishermen, boaters, duck hunters, and federal resource agencies allowing access to back bay areas on the bay-side of Mustang Island and eastern shores at Corpus Christi Bay. The Wilson's Cut boat launch area property is privately owned and the property owner is proposing to restrict any further public access and use of the area.

CBBEP is a property owner of a tract approximately ¼ miles due south of the boat ramp which may allow a new access route to Wilson's Cut. CBBEP and City of Corpus Christi have an agreement regarding the tract of property owned by CBBEP and are involved with the Nueces County and area fishing conservation groups who have showed interest in investigating the feasibility of a new public access area to Wilson's Cut.

In addition to the CBBEP/City of Corpus Christi property, there are oil/gas industry roads that access production facilities along Wilson's Cut that involve easements with the TGLO. These oil/gas service roads could provide potential access to a new public boat launch area. The feasibility of a new public access road "route" and boat launch site would involve CBBEP/property and oil/gas service road easement, as well as a possible coastal lease with the TGLO and a permit from the USACE for the actual construction of a boat launch.

In 2012, CBBEP awarded Nueces County funds to perform a Feasibility and Constraints Review (see attached summary of findings). The results of the project identified and developed several alternative routes including the most feasible route. The preferred route was selected since it involved the least development/construction cost, utilized the most existing oil field roadways, impacted the least wetlands, and had lesser permitting constraints and considerations compared to the other alternatives. The preferred route, however, required continued coordination with the TGLO and oilfield roadway "property owners" of the initial road segment off Hwy 361.

The primary factors influencing the feasibility of a new road and boat launch site involves the interest/willingness of the property owners (CBBEP, City, TGLO, developer) to allow use of their property as well as issues involving the oil/gas service road/facilities and related easements. The new road access may involve new road segment options involving the CBBEP/City property in combination with the existing oil/gas facility service road, as well as a Coastal Lease with the TGLO and a USACE permit for the boat launch site at Wilson's Cut. There are also road access routes/segments on the CBBEP/City property that potentially involve possible avoidance/minimization of USACE jurisdictional wetlands.

**Objectives:**

- Performing a preliminary wetlands jurisdictional determination of Alternative Route 3 and 4.
- Identify adjustments to the Route 3 and 4 alignments to avoid and minimize wetlands impact while remaining within the existing CBBEP easement. In coordination with CBBEP and USACE permit resource agencies, identify ramifications of Section 103(b)(a) and ability to permit a new route and roadway involving filling of wetlands.
- Expand on coordination with the TGLO regarding feasibility of entering into a MOU for a lease of existing roadways as the public access to Route 3.
- Coordinate with Nueces County Commissioner and Nueces County Parks Board, Nueces County Coastal Parks, and City of Corpus Christi to determine feasibility of establishing a MOU to operate and maintain a proposed Wilson's Cut Boat Ramp. Identify potential for another possible third-party operator.
- Prepare a letter report with recommendations on further project development including a USACE and TGLO permitting analysis addressing general feedback and correspondence from coordination with the USACE and TGLO and resource agencies (TPWD, USFWS, and NMFS).

**Performing Organization:** Nueces County  
**Total Project Funding (CBBEP),** \$57,000  
**County Provided Match:** \$20,000 (Skilled Labor)

**CBBEP Bays Plan Actions:** BTR-2, BD-1 BTR-03, HLR-1, HLR-2, WSQ-1

**Background:**

Hazel Bazemore Park is a 77.6 acre outdoor recreation and nature park along the Nueces River near Calallen. The park is a mixed use outdoor recreational area that includes picnic and playground areas, fishing, the award winning "Hawk Watch Tower and Pavilion", two birding blinds overlooking a wetland marsh and pond, and the Louis Kimmel Woodland Trail. Although the park allows walking and biking along the Nueces River and more active fishing and boat access areas, the project will provide managed public access and ADA accessibility to the undeveloped bottomland habitat managed as a nature preserve. There are several existing information kiosks that also can be improved with more weather resistant interpretive information.

Nueces County is proposing an addition to the nature preserve and public access/eco-tourism opportunities at Hazel Bazemore Park through development of the Nueces River Bottomland Nature Trail and other improvements including a Marsh Overlook, and improvements to the Lewis Kimmel Trail. The additional bottomland and riparian parklands of the Bottomland Nature Area will help further protect, restore, and enhance this unique Nueces River habitat. The proposed Bottomland Nature Trail will also promote public awareness of the ecological value of bottomland habitat. The Marsh Overlook will also improve nature interpretive access to the existing pond and surrounding wetlands including the unique migratory bird habitat use of the pond. The initial Phase I of this park expansion is the Marsh Overlook which was funded during the 2012 CBBEP funding cycle and construction has been completed using CBBEP funds and Nueces County labor.

In addition, the County is developing a more long term Master Plan of improvements and a phased expansion that could involve doubling the size of Hazel Bazemore Park. The County has also received funds from the Coastal Impact Assistance Program which will be used for park improvements related to the existing Hawk Watch Tower.

The Phase 2 project is the initial phase of the Bottomlands Trail. There is \$84,000.00 being requested from the CBBEP and an additional \$20,000.00 in in-kind County labor is being provided by Nueces County Inland Parks staff. The principal Phase 2 start of the Bottomlands Nature Trail is a timber bridge crossing to the new protected bottomlands area west of the existing Hazel Bazemore Park, pathways along the Nueces River bottomlands, timber observation blind and pavilion, interpretive signage, habitat cleanup of the new trail park facility, parking lot improvements, and the new Marsh Overlook Pond. There will also be an enhanced wetlands (*Batis maritima*) component by scraping down/sculpting a wetlands area to create a pond near the Marsh Overlook. This pond creation will only involve excavation of an existing *B. maritima* field and then connect the small pond to the existing ponds. All work will be performed on mat and/or wide-track equipment. All fill will be placed in uplands.

**Objectives: – (Phase 2 – Initial Phase of the Bottomlands Nature Trail)**

- Expand the Hazel Bazemore Park with a new nature trail component along the Nueces River Bottomlands.
- Improved public access and habitat protection through park expansion and park user education.
- Improved open water habitat in proximity to the Marsh Overlook.

**Performing Organization:** Harte Research Institute for Gulf of Mexico Studies  
**Total Project Funding:** \$26,000  
**CBBEP Bays Plan Actions:** FW-1, FW-2, HLR-1, WQ3, WSQ-4

**Background:**

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

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

The approach is to analyze archived samples and take new samples of hydrography, water quality, and benthic macrofauna on a quarterly basis for one year. However, it may be necessary during future years to obtain sufficient drought and non-drought periods to obtain a statistically robust result.

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

Sampling methodologies will be the same as those performed earlier. Water column characteristics (i.e., depth, salinity, temperature, dissolved oxygen, pH), water quality (chlorophyll a, and nutrient concentrations), and benthos (i.e., abundance, biomass, and diversity) will be measured quarterly for two years. Sediment grain size will be performed annually. Quarterly samples of water quality and macrofauna communities have also been taken since the last thorough statistical analysis in September 2010 and these data will be incorporated into this project's statistical analysis.

**Objective:**

This project will help determine the effects of pumped inflows into Rincon Bayou on benthic macrofauna in order to inform water managers on how to create an ecologically effective pumping strategy.

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**Project 1418**

**Texas State Aquarium Second Chances Wildlife Rehabilitation Program Enhancement**

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**Performing Organization:** Texas State Aquarium  
**Total Project Funding:** \$4,200  
**CBEP Bays Plan Actions:** HLR-5

**Background:**

The purpose of this project is to provide support to the Texas State Aquarium in their efforts to expand their coastal and shorebird rehabilitation facilities at Sealab. The Texas State Aquarium's Second Chances Wildlife Rehabilitation Program at SeaLab is one of only two locations in South Texas that has been issued a Federal Fish and Wildlife permit, and has the authority to provide veterinary and rehabilitative care for injured coastal and shorebirds. This rehabilitation program alone treats close to 1,000 or more birds in one year.

When a wounded bird is brought to SeaLab, the Aquarium provides veterinary care to stabilize the animal. Once stabilized the birds are transferred to enclosed pool areas with flight space so the birds can reacclimatize to swimming, flying, and interacting with other birds. Each bird is observed while in the enclosures to ensure it is recovering from its injury. All recuperating birds must be able to swim, fly, and survive on their own before being released back to their natural habitat. If a bird is not able to successfully demonstrate the basic survival skills necessary, then it will not be released to the wild. Animals that do not meet the qualifications for release are entered into the animal ambassador program and used for educational demonstrations, or they are transferred to another accredited wildlife institution for the remainder of their natural life. However, the primary goal for the Texas State Aquarium's Second Chances Wildlife Rehabilitation Program is to get each bird back into the wild fully recovered from injury.

After 20 years of coastal climate stress, the rehabilitation enclosures need a refreshing renovation to deliver quality care for the injured marine birds. The current rehabilitation facilities include two in-ground pools with a combined volume of 5,000 gallons of saltwater. The pools' current filtration system, consisting of one centrifugal pump and one rapid sand filter, is not enough to provide sufficient life support for the entire enclosure. A necessary upgrade needed to keep the facilities functioning efficiently includes an additional centrifugal pump and rapid sand filter.

**Objective:**

The renovation of the Second Chances Wildlife Rehabilitation Program facilities includes adding an additional centrifugal pump and rapid sand filter.



**Performing Organization:** Ducks Unlimited  
**Total Project Funding:** \$37,000 (TPWD in-kind contribution - \$23,071)  
**CBBEP Bays Plan Actions:** HLR-1, HLR-2, SM-1, PEO-4

**Background:**

The purpose of this project is to stabilize the shoreline of Dagger and Ransom Island. Dagger and Ransom islands form a protective barrier between approximately 14,000 acres of valuable seagrass beds and other sensitive habitat in the Redfish Bay State Scientific Area (RBSSA) and the Corpus Christi Ship Channel (CCSC). This project addresses both the current and future need for shoreline stabilization. The current rate of erosive forces, which is expected to increase in the future, already adversely affects valuable habitats. The Port of Corpus Christi has been approved to increase the depth of the Corpus Christi Ship Channel from 45 feet to 52 feet as well as expand the width of the channel from 500 feet to 532 feet to accommodate larger and more weight laden ships. In addition, the La Quinta Ship Channel is also undergoing expansion and several large industrial companies will be building facilities along this channel in the near future. The increased frequency and intensity of ship wakes will likely increase the current erosion rates of 1.3 ft/yr to 5.6 ft/yr along these protective shorelines and their leeward habitats. The shoreline protection project would first target areas with the highest erosion rates. The project could be expanded in phases to provide additional protection as needed along the shoreline. The objective is to eliminate or drastically reduce the rate of shoreline erosion which will be determined with pre- and post-construction surveys.

A secondary goal is to protect and conserve critical habitat essential for sustaining fish and wildlife, especially in the juvenile life stages. These habitats include the vast 14,000 acres of seagrass meadows, a mixture of Spartina and mangrove marshes on the west of the islands and intermittent tidal flats. The back side of Dagger and Ransom Islands are utilized by numerous avian species for obtaining food, resting, loafing and pairing. The protected wetlands from this project will provide stable long-term habitat for juvenile recreational and commercial marine fishery species such as spotted seatrout, flounder, Atlantic croaker, red drum, black drum, Gulf menhaden, striped mullet, and blue crab. These protected wetlands will also provide additional benefits by maintaining feeding areas for wading birds, colonial nesting birds and migratory shorebirds. The direct and indirect benefits of protecting the habitats by shoreline stabilization will also provide long-term human recreational enjoyment as well as increased educational awareness opportunities.

**Objectives:**

- Advance the Dagger and Ransom Island Shoreline Protection Project to a 95% complete design.
- Develop and submit a USACE permit application.

**Performing Organization:** TBD  
**Total Project Funding:** \$14,459 (USFWS direct contribution - \$40,000)  
**CBBEP Bays Plan Actions:** HLR-1, HLR-2

**Background:**

The purpose of this project will be to conserve and provide long-term protection for three species of rare plants, two federally listed and one extremely rare but unlisted species, respectively, slender rush pea (*Hoffmannseggia tenella*), black-lace cactus (*Echinocereus reichenbachii* var. *albertii*), and angled sandmint (*Rhododon angulatus*). Seeds will be collected from all three species; seeds will be obtained from as many locations as possible in an attempt to maximize genetic variability. Seed collection protocols, with regard to amount of seed collected at each site will follow Center for Plant Conservation seed collection guidelines. Some of the harvested seeds will be transferred to the Corpus Christi Botanical Garden for propagation and housing. Some seeds will be shipped to the USDA'S Kika de la Garza Plant Materials Center in Kingsville, Texas for short- and long-term storage. Seed transportation, storage, and collection techniques will follow guidelines provided by the Center for Plant Conservation and the Plant Materials Center in Kingsville.

Rare plants can be particularly difficult to grow and maintain, often they inhabit strict biological niches; so in an effort to compensate for this, planting sites will be selected that best replicate the natural conditions associated with each of the three species. In addition to the three target species, seeds of associates will be collected and other native flowering plants will be used for experimental introduction into the refugia to duplicate a more natural community structure.

Developing refugia for all three species will help to ensure that they persist across time. For example, since the early 1990's, angled sandmint populations have declined to only two small sub-populations less than 150 yards apart. With a species that is so highly restricted in its distribution, development of Refugia could be critical to its continued survival.

This project will work in cooperation with the Corpus Christi Botanical Garden, Aransas NWR, NRCS and the Mid-Coast Chapter of the Texas Master Naturalists, to develop Refugia for three rare species of plants.

**Objectives:**

- Develop Refugia for three species of rare plants.
- Develop seed bank for three rare plant species.
- Restore 15 acres of native coastal habitat

**Performing Organization:** Harte Research Institute  
**Total Project Funding:** \$60,000  
**CBBEP Bays Plan Actions:** HLR-1, HLR-4

**Background:**

The purpose of this project is to examine resource use (food, habitat) of black drum in Baffin Bay. In the past year, alarming trends appeared in the south Texas black drum fishery. Specifically, a large proportion of black drum landed in Baffin Bay by both recreational and commercial anglers have exhibited abnormal physical characteristics. These alterations have included overall reduced condition, strange tissue morphology (fisherman have named “jellyflesh”), and empty guts. These unusual landings have prevented commercial dockside sale and recreational consumption of black drum. Black drum represent an important commercial and recreational fishery in the state of Texas. In 2010 alone, ~1.7 million pounds of black drum were landed (valued at ~\$1.6 M), second only to red snapper. It is hypothesized that these various characteristics are due to resource limitation (food, space, etc.), and may stem from altered water quality in Baffin Bay.

Following the design of previous work by Montagna and guidance from the Texas Parks and Wildlife Department, the team will reinstitute a standardized benthic sampling program to understand the spatial and temporal patterns in the abundance of potential black drum prey (i.e., benthic invertebrates) across Baffin Bay. To examine black drum reliance on these potential resources and spatial variability in trophic role, the research group will conduct comparative diet analyses from specimens collected from Baffin and adjacent areas. The final component of this project will examine movement patterns of black drum (e.g., fidelity to Baffin Bay) and how they relate to the environmental regime. A large number of black drum will be fitted with coded acoustic transmitters and tracked across receiver arrays deployed in Baffin Bay and adjacent water bodies. To do this, the research group will modify the current acoustic array deployed throughout the coastal bend and examine black drum fidelity to Baffin and potential connectivity with other embayments. Coupled with a concurrent, spatially explicit water quality study in Baffin Bay (CBBEP Project 1333), the research group will integrate fine-scale environmental monitoring with tracking data and build a comprehensive picture of ecosystem dynamics in this system. In summary, this integrative project will identify the potential biological and physical factors plaguing the economically important black drum fishery in Texas waters.

**Objective:**

A comprehensive scientific understanding of how to best manage the Black Drum fishery in Baffin Bay.

**Performing Organization:** CBBEP  
**Total Project Funding:** \$357,000  
**CBBEP *Bays Plan* Actions:** HLR-2, HLR-4

**Background:**

The Aplomado Falcon, Attwater's Prairie Chicken, and Whooping Crane are endangered species that occur in coastal Texas, and whose ranges overlap to varying degrees with one another, as well as with many migratory birds which have experienced long-term, broad-scale declines across much of their ranges. These species can neither recover nor be sustained unless habitat sufficient to support viable populations is conserved. Habitat for these species has been degraded by the production of food and fiber, and is being lost to development and rising sea-levels.

Since 2002, CBBEP has worked to acquire either fee simple title or conservation easements for more than 7,200 acres of freshwater marsh, forested wetlands, mudflats, riparian corridors, and native upland habitat for conservation management. CBBEP has coordinated with U.S. Fish & Wildlife Service, Natural Resources Conservation Services, and The Nature Conservancy to develop and implement management plans and restoration actions throughout this protected habitat. CBBEP has also coordinated with other property owners (such as Aransas National Wildlife Refuge, Texas Parks and Wildlife Department, City of Corpus Christi, South Texas Botanical Gardens and Nature Center, and private property owners) to develop and implement restoration actions on their property.

In 2013, CBBEP initiated a project that involved coordinating with USFWS, USDA-NRCS, and other conservation organizations to identify and implement restoration actions that benefit a minimum of 2,000 acres of habitat for Aplomado Falcons, Attwater's Prairie Chickens, and Whooping Cranes.

**Objective:**

This project will allow CBBEP to expand on the existing project and continue coordinating with USFWS, USDA-NRCS, and other conservation organizations to identify and implement restoration actions that benefit a minimum of 4,000 additional acres of habitat for Aplomado Falcons, Attwater's Prairie Chickens, and Whooping Cranes.

**Performing Organization:** CBBEP  
**Total Project Funding:** \$3,000,000 +  
**CBBEP Bays Plan Actions:** HLR-1

**Background:**

Since starting on land acquisition efforts in 2002, CBBEP has worked to acquire either fee simple title or conservation easements for more than 7,200 acres of freshwater marsh, forested wetlands, mudflats, riparian corridors, and native upland habitat for conservation management. CBBEP has coordinated with U.S. Fish & Wildlife Service, Natural Resource Conservation Service, and The Nature Conservancy to develop and implement management plans and restoration actions throughout the protect habitat. CBBEP has also coordinated with other property owners and managers to develop and implement restoration actions on their property. The Coastal Bend Bays & Estuaries Program – Bays Plan calls for an effort to identify at risk habitats and to work with land owners to preserve sufficient, functional acreage of those at risk habitats. By conserving critical or ‘at risk’ habitat areas within the CBBEP program area the CBBEP will help sustain species that rely on those habitats.

**Objectives:**

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

**Performing Organization:** CBBEP  
**Total Project Funding:** \$165,154 (from Nueces County/CIAP)  
**CBBEP Bays Plan Actions:** HLR-1, HLR-4

**Background:**

The Living Resources Characterization Report prepared for the CBBEP 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. The purpose of this project is to sub-award county CIAP funds to Coastal Bend Bays and Estuaries Program (CBBEP) to manage, protect, and enhance colonial waterbird populations including Pelicans, Roseatte Spoonbills, Terns, Egrets, Herons, etc. The project will include habitat enhancement and restoration, public education, and nesting success monitoring.

Most species of colonial nesting waterbirds such as pelicans, herons, terns and gulls, have experienced population declines over the past forty years for which trend data exists. One of the principal reasons for this decline is loss of nesting habitat in our surrounding bay systems. These birds have several basic requirements to nest successfully, thereby replacing themselves and hopefully reversing declines in their populations. Most nesting activity in the Coastal Bend occurs on small islands that do not support populations of predators such as raccoons or coyotes, are remote enough so that invasion during nesting season is not likely, support substrate types (brush for wading birds, bare ground for terns, skimmers, etc.) that are required by the various species, and are not subject to excessive disturbance and destruction by human activities.

Loss of nesting habitat in Nueces County and especially in Nueces Bay has been especially pronounced over the last forty years. Previously, over 60 small islands were scattered around the western part of the bay near White's Point, all of which supported vibrant populations of nesting waterbirds. Currently, only six of those islands remain, most of which are a small fraction of their former size. A new island that was engineered and created five years ago was immediately occupied by nesting birds, and is now at what is probably the greatest supportable capacity given the conditions.

CBBEP's Colonial Waterbird and Rookery Island Management Plan has identified the need for increasing the size of existing islands in west Nueces Bay, and managing areas for the benefit of bare-ground nesting birds. This suite of birds includes several high priority species of conservation concern, including American oystercatcher, Black skimmer, and Gull-billed tern. All species have been experiencing a decline in Nueces Bay, likely as a result of decreased available nesting area and factors associated with interspecific colony dynamics.

**Objective:**

This project will enhance and restore rookery island habitat, and manage and protect colonial waterbird populations within an existing island in Nueces Bay. The project will also increase public awareness of colonial waterbird nesting needs and monitor nesting success.

## **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 (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 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, 2013, the Coastal Bend Bays & Estuaries Program will begin Year 16 of implementing the *Coastal Bend Bays Plan*. This FY 2014 Work Plan describes the proposed work to be initiated during FY 2014. Of the total funds identified in the Work Plan budget, \$527,000 are new (FY 2014) EPA federal funds, \$712,619 are new (FY 2014) TCEQ funds, \$3,592,154 are new (FY 2014) project-specific funds, \$362,500 are new (FY 2014) local partner/federal court interest funds and \$38,000 are FY 2013 Carry Forward funds. The total budget for this FY 2014 Work Plan is \$5,232,273.



**TABLE 1: FY 2014 COMPREHENSIVE ANNUAL WORK PLAN OUTLINE**

PROJECT #	PROJECT TITLE	ACTION ITEM(S)	PERFORMING PARTY	EPA FY14 CWA 320	TCEQ FY14 & 604b	LOCAL/ COURT INTEREST	TGLO CMP	NRDA	Nueces County	USFWS	FY13 CF	TOTAL CBBEP FUNDING
1401	Coastal Waterbird Management	HLR-1, HLR-4	CBBEP	168,896		5,315					3,000	\$177,211
1402	Coastal Bend Environmental Science – Learning on the Edge (LOTE)	BTR-1, PEO-2, PEO-3, PEO-5	CBBEP	156,000		20,011						\$176,011
1403	San Antonio Bay Partnership Habitat Restoration Planning	HLR-1, HLR-2	CBBEP	15,000								\$15,000
1404	CBBEP Community Outreach Partnership	PEO-1, PEO-2, PEO-3, PEO-4, PEO-5	Coastal Bend Bays Foundation			5,000					25,000	\$30,000
1405	CBBEP Public Outreach Events & Activities	PEO-1, PEO-2, PEO-3, PEO-4, PEO-5, BTR-1	CBBEP		10,000	15,000						\$25,000
1406	Outdoor Classrooms	PEO-3, PEO-5	CBBEP & USFWS							10,000		\$10,000
1407	CBBEP Habitat Protection Media Campaign	BTR-1, PEO-2, PEO-3, PEO-5	CBBEP		15,000							\$15,000
1408	Debris Management: CBBEP Project Area	BD-1	CBBEP			3,000						\$3,000
1409	CBBEP Property Management	HLR-1	CBBEP			30,000						\$30,000
1410	Improve TxBLEND Model and Create a Water Management Tool	FW-1, FW-2	TX Water Development Board			16,750						\$16,750

PROJECT #	PROJECT TITLE	ACTION ITEM(S)	PERFORMING PARTY	EPA FY14 CWA 320	TCEQ FY14 & 604b	LOCAL/ COURT INTEREST	TGLO CMP	NRDA	Nueces County	USFWS	FY13 CF	TOTAL CBBEP FUNDING
1411	Nueces Delta Environmental Monitoring	FW-1, FW-2, FW-3, FW-4	Conrad Blucher Institute		45,000							\$45,000
1412	SMART Inflow Management Impacts on Safe Yield	FW-1, FW-3	HDR Engineering		51,115							\$51,115
1413	Volunteer Water Quality Monitoring Program in Baffin Bay	WSQ-3	Texas A&M University-Corpus Christi			30,000						\$30,000
1414	Mustang Island Habitat Protection & Enhancements	BTR-2, HLR-1	CBBEP, GLO, NOAA			40,000	60,000					\$100,000
1415	Mustang Island & Wilson's Cut Channel Boating Access Continued Site Development	BTR-1, BTR-2, HLR-1	Nueces County			8,500						\$8,500
1416	Hazel Bazemore Park Ecological Enhancements Phase II	BTR-1, BTR-2, BTR-3, HLR-1, HLR-2, WSQ-1	Nueces County		25,000	22,000					10,000	\$57,000
1417	Effects on Benthic Macrofauna from Pumped Flows in Rincon Bayou	FW-1, FW-2, HLR-1, WQ-3, WSQ-4	Harte Research Institute			26,000						\$26,000
14318	TX State Aquarium Second Chances Wildlife Rehabilitation Program Enhancement	HLR-5	Texas State Aquarium			4,200						\$4,200
1419	Dagger and Ransom Island Shoreline Protection	HLR-1, HLR-2, SM-1, PEO-4	Ducks Unlimited			37,000						\$37,000

PROJECT #	PROJECT TITLE	ACTION ITEM(S)	PERFORMING PARTY	EPA FY14 CWA 320	TCEQ FY14 & 604b	LOCAL/ COURT INTEREST	TGLO CMP	NRDA	Nueces County	USFWS	FY13 CF	TOTAL CBBEP FUNDING
1420	Conservation of Three Species of Rare Plants in the Coastal Bend	HLR-1, HLR-4,	TBD			14,459						\$14,459
1421	Ecosystem-based Approach to Assess Black Drum in Baffin Bay	HLR-2, HLR-4	Harte Research Institute		60,000							\$60,000
1422	Gulf Coast Conservation Initiative Restoration Phase II	HLR-2, HLR-4	CBBEP							357,000		\$357,000
1423	Habitat Acquisition in CBBEP Program Area	HLR-1	CBBEP					3,000,000				\$3,000,000
1424	Colonial Waterbird Habitat Management and Enhancement in Nueces Bay	HLR-1, HLR-4	CBBEP						165,154			\$165,154
	<b>TOTAL PROJECT FUNDS</b>			<b>\$339,896</b>	<b>\$206,115</b>	<b>\$277,235</b>	<b>\$60,000</b>	<b>\$3,000,000</b>	<b>\$165,154</b>	<b>\$367,000</b>	<b>38,000</b>	<b>\$4,453,400</b>
	Administrative / Travel		CBBEP	\$187,104	\$506,504	\$85,265						\$778,873
	<b>TOTAL FUNDING</b>			<b>\$527,000</b>	<b>\$712,619</b>	<b>\$362,500</b>	<b>\$60,000</b>	<b>\$3,000,000</b>	<b>\$165,154</b>	<b>\$367,000</b>	<b>\$38,000</b>	<b>\$5,232,273</b>