

CHAPTER

# 6

# Human Uses

## CONTENTS

Introduction

Tourism and Recreation Action Plan

Shoreline Management Action Plan

Bay Debris Action Plan

Public Health Action Plan

## Introduction

The Coastal Bend bays and estuaries contain a wealth of resources for people to enjoy and appreciate. Indeed, these resources are central to the quality of life for many who live or come here to recreate. The bays and estuaries also support an enormous segment of the local economy, supplying us with both recreation and dollars. However, our use of these waters -- what we put into them and what we take from them -- must be managed to ensure that the bay system remains healthy and productive.

Principal goals of the Human Uses Action Plans are to ensure that people continue to benefit from a safe, clean bay system and to promote stewardship of bay resources. To do this, it is important to inform the citizens of this community and our millions of visitors about how to enjoy the resources without degrading them. It is also important to plan for the ever-increasing number of people who visit the region to enjoy its natural resources. Well-planned and well-managed access areas will do much to curtail resource damage while providing enough parks and facilities for the growing numbers of users. Finally, ensuring that the waters are safe to swim in and that the fish, crabs, and shrimp are safe to eat are important goals.

## Tourism and Recreation

Coastal Bend bays provide opportunities for many recreational activities, such as fishing, kayaking, and birding. However, some recreational uses have adverse impacts on our coastal natural resources, such as uprooting of seagrass by boat propellers, disturbance of nesting birds, and litter on beaches and bay shorelines. As the number of visitors and residents using the bays continues to increase in the future, there will be even more pressure placed on coastal natural resources. Therefore, it is important that the CBBEP and its partners work with tourism organizations to keep visitors informed and ensure that bay users understand their impact on bay resources and are aware of ways of reduce these impacts. Ensuring the safety of natural resources will also require implementation of actions that mitigate the impacts of human intrusion on critical habitats (particularly bird rookeries and seagrass beds), promote ethical angling practices, and encourage proper disposal of common trash items by recreational users.

◀ **KAYAKING** is just one of the many ways to enjoy the bays and estuaries of the Coastal Bend. (Photo by Mission-Aransas NERR)



## ACCOMPLISHMENT: Packery Flats Improvements

Nestled on the backside of Mustang Island adjacent to Packery Channel, Packery Flats Coastal Habitat is a little known gem with lots to offer in terms of public access to our coastal areas. The one thousand acre protected area boasts extensive intertidal habitats that are heavily utilized by fish and wildlife, and also have many features that are appealing to passive recreation. Previous efforts by the CBBEP have constructed parking lots for public access, but increases in the popularity of the area prompted the CBBEP's Human Uses Implementation Team to prioritize additional improvements.

Costing a total of \$115,000, the improvements were funded by the CBBEP, NOAA, and the Texas General Land Office's Coastal Management Program. They include interpretive signage, improved road access and parking at two locations along Highway 361, and expanded bollard and cable systems to protect the sensitive habitats. Using bollard and cable systems are a good way to limit vehicular access to an area while still promoting pedestrian access.

The two public access points at Packery Flats offer different experiences. The main parking lot (1) on Highway 361 contains interpretive signage and entrance to a 1/3 mile long pedestrian trail that ends at the tidal flats adjacent to Packery Channel. The second access point (2) takes you from Highway 361, a quarter of mile through high marsh, to a parking area with direct access to the shallow waters of the backside of the island and Kate's Hole, a known fishing spot. The parking area is surrounded by Spartina alterniflora which immediately gives way to submerged seagrass meadows and open water. Here you can fish and bird watch from the shore, kayak, stand-up paddleboard, or wade out into the flats and fish.

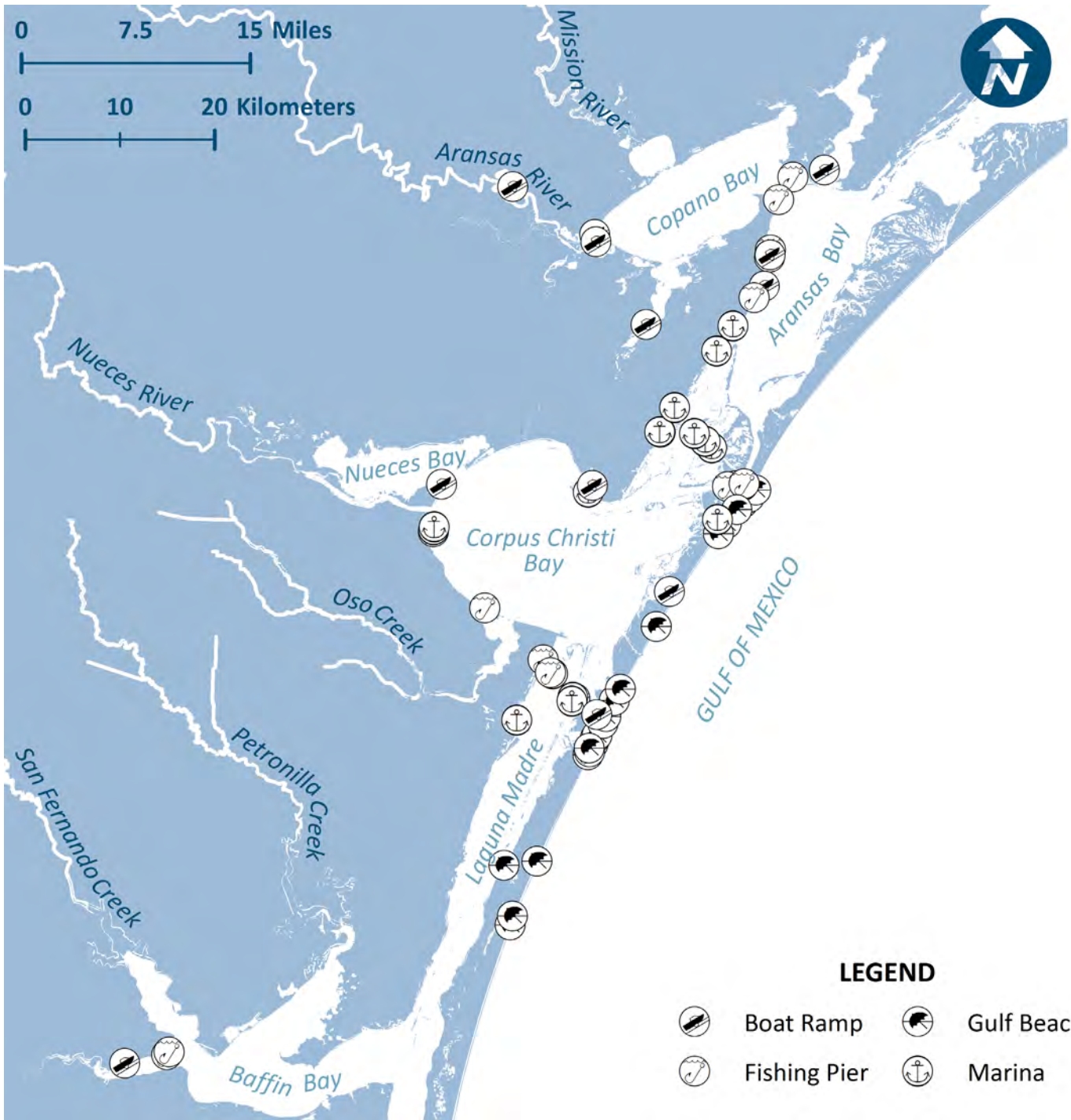


FIGURE 10. MAP OF BOAT RAMPS, MARINAS, FISHING PIERS, AND GULF BEACH ACCESS POINTS IN THE COASTAL BEND.

The CBBEP will also work to improve existing public access sites (Figures 10 and 11) and develop the appropriate number of well-managed sites in order to protect the coastal resources and ensure their longevity for future bay users. This will be done in partnership with other agencies, including the Texas General Land Office and local governments that issue beach access and dune protection permits. Finally, the increasing number of water craft

using the bay system calls for additional actions which call attention to the kind and amount of services available to support this use. Therefore, the 2017 Bays Plan calls for CBBEP and other partners to work with the owners and operators of marinas to develop plans and funding options to make improvements to solid waste, sanitary pumpout, or fueling facilities.

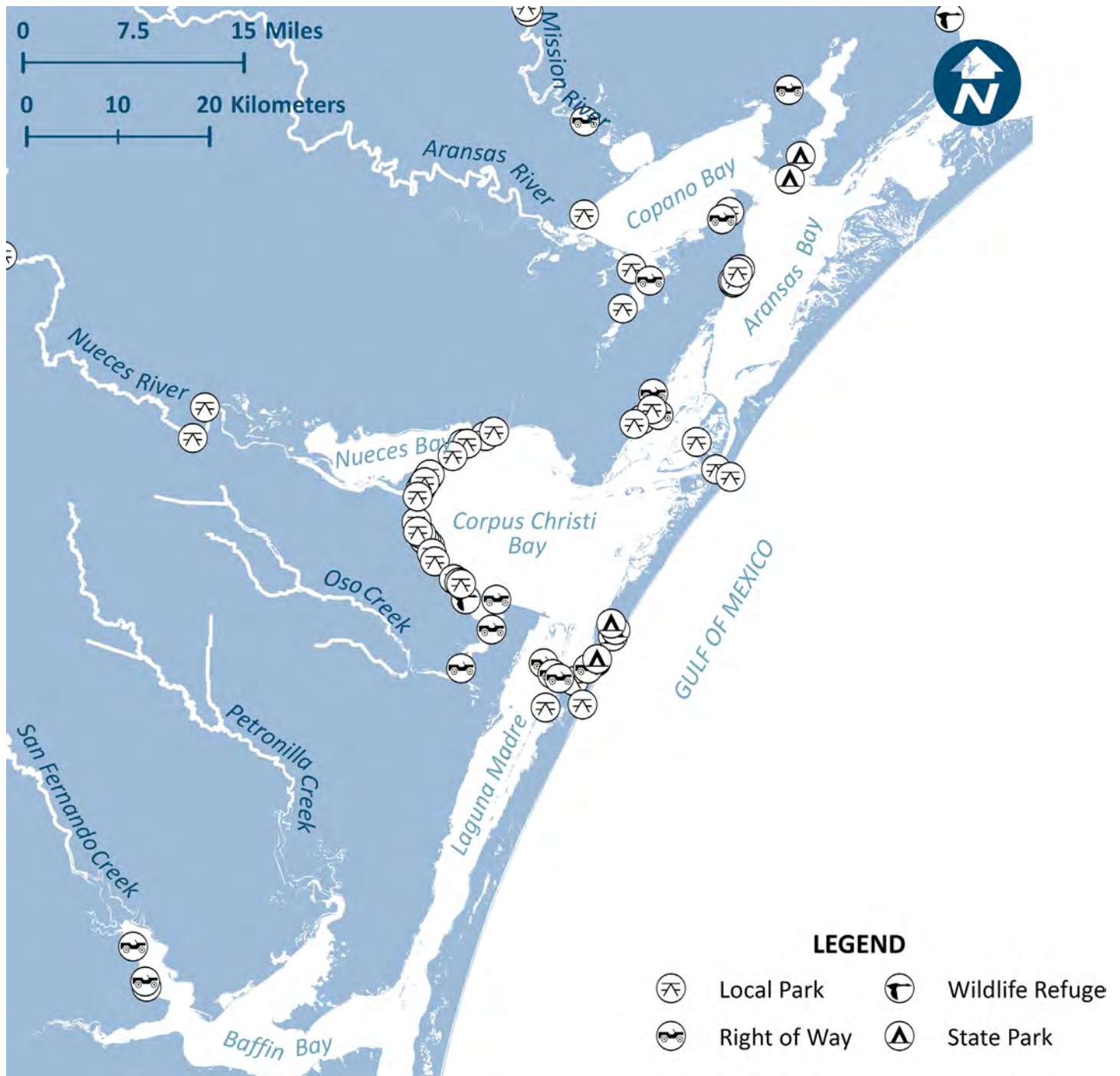


FIGURE 11. MAP OF LOCAL PARKS, STATE PARKS, WILDLIFE REFUGES, AND RIGHT OF WAY ACCESS POINTS IN THE COASTAL BEND.

## Shoreline Management

Environmental impacts from poorly planned shoreline development can result in unnecessary habitat loss, reduced public access, altered bay circulation, and degraded water and sediment quality. Therefore, the CBBEP will work with local governments, landowners, and key resource management agencies to provide guidance

on shoreline management techniques, focusing on the preservation of natural shoreline functions and features.

Proper shoreline management techniques are not only important in the bay but along riverine shorelines as well. The riparian habitats that border rivers and creeks perform a number of important functions, such as filtering out nutrients, promoting deposition of sediments, acting as



## **ACCOMPLISHMENT:**

### **Shoreline Protection at Indian Point**

Indian Point Park encompasses 55 acres and is a prime location for fishing, birding, and nature watching. This popular nature park is immediately adjacent to the City of Portland's Sunset Lake Park. Indian Point Peninsula is constantly impacted by waves from wind blowing across Corpus Christi Bay and the shoreline has retreated about 85 feet in the time period between 2005 and 2011. The CBBEP, TGLO, and the City of Portland completed construction on a project to protect and to provide long-term protection to sensitive marsh habitat as well as important park infrastructure.

A combination of shoreline revetment and off-shore breakwaters was determined to provide the most functional and cost-effective solution with minimal environmental impacts. Lester Contracting out of Port Lavaca, TX, was selected to construct the project. This first phase of the project included the crushing and recycling of old broken concrete previously used as shoreline protection and the construction of approximately 1,040 linear feet of limestone revetment and offshore breakwaters. The structures are designed to lessen the impact of the waves on shorelines and structures behind them. As waves hit the rock structures, they will break and dissipate energy. The reduction in wave energy lessens erosion along the shoreline, protecting any structures, parking areas and wetland habitats.

The first phase of the project was successfully completed on budget and ahead of schedule in 2014. The second phase of the project will begin in 2018 and will involve construction of additional breakwater structures. Funding for the second phase is being provided by the Natural Resource Damage Assessment associated with the Deepwater Horizon oil spill.

corridors that create important linkages between isolated forests, and regulating water temperatures in rivers and streams. Another action calls for CBBEP and partners to ensure the proper management of the vegetation along rivers and creeks in order to maintain these important functions.

## **Bay Debris**

The debris in our bays comes from many sources -- runoff from land, including the debris carried by storm sewers and tributaries; debris discarded or blown from vessels and offshore operations; the trash that blows out of vehicles; the trash that beach goers leave behind; and the debris that washes and blows into the bays from festivals held on the shoreline. Bay debris poses public health risks, reduces the aesthetic appeal of the bay system, degrades habitats, and ensnares wildlife. 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 tourism 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.

The CBBEP and its partners will work with local governments to improve solid waste management procedures, reduce solid waste inputs from stormwater drainage systems, implement litter enforcement efforts, and educate citizens on ways they can help achieve the goal of a cleaner environment. Although it is typically less cost-effective than prevention programs, clean-up efforts are also needed to help remove debris once it reaches the bay. Volunteer clean-up events hosted by CBBEP and its partners help to remove small-scale debris items from Coastal Bend bays and their shorelines, but larger items, such as derelict vessels, deteriorating oil/gas infrastructure, and storm debris, are more difficult and costly to remove, often requiring special funding and the assistance of state partners.

## **Public Health**

While significant threats to public health from water contact or seafood consumption are not found in the CBBEP program area, shellfish closures, harmful algal blooms, and isolated cases of waterborne illness have occurred. Fortunately, there are already several county, state, and federal agencies working to safeguard public health from bay-related maladies, and continued support of proactive monitoring programs that assess and monitor recreational waters is needed. Better public education on a variety of health issues could avoid unnecessary

problems and provide important, positive information about the overall health of the bay system. Such assurance is desired by residents and visitors alike.

Another action will focus on the consumption of fish and shellfish. Although the government tightly regulates commercial seafood harvesting, little is known about the safety of consuming recreationally caught seafood. Additional analyses of fish and shellfish tissue is needed to determine the presence and concentration of harmful substances, such as polychlorinated biphenyls (PCBs), metals, and pesticides. The data will be submitted to the Texas Department of Health for a risk assessment evaluation.



## **ACCOMPLISHMENT:**

### **Rookery Island Cleanup**

Trash that washes up on the shores of rookery islands is very harmful to birds and other wildlife that utilize these habitats. Pieces of plastic are often mistaken for food and birds can easily become entangled in discarded fishing line or injured by hooks and lures. These types of casualties are preventable, and therefore, removing these materials from the rookery islands and shorelines that the birds utilize is a priority of the CBBEP.

Removal of the harmful trash from these remote islands is a big job, however, and requires a fleet of boats and captains to accomplish. So the CBBEP Coastal Bird Program, in conjunction with US Fish & Wildlife Service, began hosting Rookery Island Clean Ups back in 2006 to engage volunteers from the public, as well as agencies and non-profits within natural resource management to help clean the shorelines of these important water-bird rookeries. The effort has grown considerably, with 2016 marking the 10th year of the Upper Laguna Madre Rookery Island Clean Up, as well as the inaugural effort for the Lower Laguna Madre Rookery Island Clean Up.

Thousands of pounds of trash was removed by volunteers from sensitive rookery island habitat during this year's clean up! The Upper Laguna Madre effort removed 1,250 pounds of bagged trash as well as larger items such as buckets, pallets, 55 gallon drums, and crab traps. The Lower Laguna Madre effort removed 800 pounds of bagged trash as well as buoys, chairs, a porcelain toilet, and even a kitchen sink!



# TOURISM & RECREATION

## Action Plan

### GOAL

Maintain, manage, and expand tourism and recreational opportunities in a way that enhances the local economy and protects the natural resources of the bays.

### OBJECTIVES

- TR 1: Enhance the reputation of the Coastal Bend as being a premier ecotourism destination for people to experience Texas' coastal natural resources.
- TR 2: Improve existing public access sites and develop additional, well-managed sites in order to protect coastal natural resources and provide the bay user with proper facilities.
- TR 3: Minimize adverse impacts to coastal natural resources caused by recreational uses of the bays and enhance resources for recreational use where appropriate.

### ACTIONS

- TR 1.1: Collaborate with tourism organizations to adopt a theme of resource protection and stewardship in their promotion of tourism.
- TR 2.1: Provide for the appropriate number of improved, well-managed public access sites.
- TR 3.1: Support the development and implementation of management strategies that reduce or avoid impacts from recreational uses.



## Tourism and Recreation 1.1

Collaborate with tourism organizations to adopt a theme of resource protection and stewardship in their promotion of tourism.

Coastal Bend bays provide for many recreational activities including fishing, windsurfing, birdwatching, waterfowl hunting, camping, jet skiing, kayaking, canoeing, surfing, swimming, sailing, power boating, shelling, beach combing, walking, and running. These recreational activities result in tremendous economic benefits to the regional economy. However, the ever-increasing number of bay users has resulted in impacts to natural resources, such as uprooting of seagrass by boat propellers, disturbance of nesting birds, and litter on beaches and bay shorelines. As the number of visitors and residents using the bays continues to increase in the future, there will be even more pressure placed on coastal natural resources. Therefore, it is important that bay users understand their impact on bay resources and are aware of ways of reduce these impacts.

### STEP 1:

Promote the involvement of local tourism organizations in the “Human Uses Implementation Team.”

### STEP 2:

Through the “Human Uses Implementation Team,” support projects that promote responsible tourism and protect the natural resources of local bays (e.g., public service announcements, signage, etc.).

#### STATUS



**NEW:** Implementation of new actions will take place following the adoption of the revised plan during the time period identified.

#### TIMEFRAME



2022-2037

#### COST



**ESTIMATED COST:** Step 1 = \$; Step 2 = \$\$-\$\$\$ (varies by project type)

**POTENTIAL FUNDING:** CBBEP Programmatic funds (EPA 320 funds, TCEQ, Local funds); Foundations; Local governments; Private industry

#### PARTNERS



**LEAD:** CBBEP

**POTENTIAL PARTNERS:** Audubon Texas; CBBF; CCA; Local Chambers of Commerce; Conservation organizations (e.g., Surfrider, Sierra Club); Local governments; Regional Tourism Council; TPWD; USFWS

#### PERFORMANCE METRICS



1. Number of individuals from tourism industry participating in Human Uses Implementation Team.
2. Number of public service announcements, signs, brochures, etc. produced that promote responsible tourism.





## Tourism and Recreation 2.1

Provide for the appropriate number of improved, well-managed public access sites.

Ensuring public access to Coastal Bend bays is critically important to maintaining the ecotourism economies of the coastal communities in the region. However, the need to provide public access must be balanced with the need to conserve and protect coastal habitats and resources from user impacts such as litter/debris, wildlife disturbance, and habitat alteration. As communities in the Coastal Bend continue to grow and tourism increases, the pressure to provide public access is becoming an increasing issue. Well-planned and well-managed access areas will do much to curtail resource damage, while providing enough parks and facilities for the growing numbers of residents and visitors. Although there are numerous existing public access sites within the Coastal Bend, there is still a need to improve some of these existing sites and to develop an appropriate number of new, well-managed sites in order to protect the coastal resources and ensure their longevity for future bay users.

### STEP 1:

Through the “Human Uses Implementation Team,” develop funding and implementation strategies that provide new public access sites or improvements to existing sites.

#### STATUS



**UNDERWAY:** The CBBEP has worked with local partners to complete numerous projects that enhance public access sites within the Coastal Bend (e.g., installation of boat ramps, construction of boardwalks, and installation of educational signs and trash receptacles). Currently, CBBEP is working on: (1) installation of trails and educational signs at the Amos Rehabilitation Keep in Port Aransas, (2) installation of interpretive signs at the Oso Bay Wetlands Preserve, (3) installation of bollards at Blind Oso, (4) adding debris container lids at Hazel Bazemore Park, and (5) installation of bollards and educational signs at properties owned by CBBEP on Lamar Peninsula.

#### TIMEFRAME



**2017-2037:** Projects will be implemented, as needed and as funding becomes available, throughout the applicable life of this plan.

#### COST



**ESTIMATED COST:** \$\$\$-\$\$\$\$ (varies by project type)

**POTENTIAL FUNDING:** CBBEP Programmatic funds (EPA 320 funds, TCEQ, Local funds); CMP; Local governments; Private industry; RESTORE Act; TPWD

#### PARTNERS



**LEAD:** CBBEP

**POTENTIAL PARTNERS:** Local governments; NOAA; SABP; TGLO; TPWD; USACE; USCG; USFWS

#### PERFORMANCE METRICS



1. Number of new public access sites in the project area.
2. Number of existing public access sites in the project area that are improved.



## Tourism and Recreation 3.1

Support the development and implementation of management strategies that reduce or avoid impacts from recreational uses.

Coastal Bend bays provide opportunities for many recreational activities, but some recreational uses have adverse impacts on our coastal natural resources. For example, boat propellers are known to disturb the bay bottom and uproot seagrass, destroying critical nursery habitat for many important commercial and recreational fisheries. Human disturbance at colonial waterbird rookeries has also become a growing concern in the Coastal Bend. Rookery islands are especially susceptible to disturbance from boaters, and if disturbed while nesting, birds may abandon their nests, which can leave eggs or baby chicks vulnerable to predators and heat. Litter and trash left behind by recreational users is another issue throughout the entire region. If left alone, some of this trash may persist in the environment for hundreds of years. In addition to being an eyesore, bay debris is a threat to wildlife that may ingest the trash or become entangled, and it can also engulf and smother the habitats that birds, fish, and other animals rely on for shelter and food. This debris also poses a safety hazard for humans if fishing gear or other types of trash become wrapped around boat propellers or clog seawater intakes. Management strategies are needed to ensure that these impacts can be minimized and the coastal natural resources that so many recreational users enjoy can be conserved for future bay users.

### STEP 1:

Support implementation of the “Texas Seagrass Conservation Plan,” which monitors for impacts and recovery from boat propeller scarring in seagrass beds.

### STEP 2:

Implement projects that mitigate the impacts of human intrusion on important critical habitats (e.g., signage, educational materials, bollards, etc.).

### STEP 3:

Collaborate with CBBEP’s Coastal Bird Program to implement strategies that prevent impacts to rookery islands from human disturbance.

### STEP 4:

In conjunction with owners/operators, assess the operations of marinas to determine the types and scale of pollutant loadings and other impacts. Work with owners/operators to identify funding sources, and develop and implement site-specific BMPs. Encourage the installation and use of pump-out stations and trash receptacles at appropriate locations.

### STEP 5:

Develop funding and implementation strategies for projects and programs that promote ethical angling practices.

### STEP 6:

Develop funding and implementation strategies for projects and programs that promote proper disposal by recreational users of common trash items such as monofilament, fishing tackle, shot gun shells, plastic bottles, and cans.

### STATUS



**UNDERWAY:** CBBEP has worked with local partners to implement projects that help reduce or avoid impacts from recreational users (e.g., educational signs, installation of bollards, and public service announcements). Currently, CBBEP is working on the following projects: (1) installation of bollards at Blind Oso and (2) installation of bollards and educational signs at properties owned by CBBEP on Lamar Peninsula.

### TIMEFRAME



**2017-2037:** Projects will be implemented, as needed and as funding becomes available, throughout the applicable life of this plan.

## **COST**



**ESTIMATED COST:** TBD

**POTENTIAL FUNDING:** CBBEP Programmatic funds (EPA 320 funds, TCEQ, Local funds); CMP; Foundations; NOAA Marine Debris Program; Private industry; RESTORE Act

## **PARTNERS**



**LEAD:** CBBEP

**POTENTIAL PARTNERS:** Audubon Texas; CBBF; CCA; Conservation organizations (e.g., Sierra Club, NWF); Local governments; MANERR; Marina owners; NMFS; TPWD; SEA; USCG; USFWS

## **PERFORMANCE METRICS**



1. Acres of seagrass beds in project area.
2. Number of projects that limit human intrusion on critical habitats (e.g., number of signs posted, number of brochures distributed, number of areas where bollards installed, etc.)
3. Number of pump out stations and trash receptacles installed at marinas and boat ramps.
4. Number of projects initiated to promote ethical angling.
5. Number of projects initiated to promote proper trash disposal by recreational users.



# SHORELINE MANAGEMENT Action Plan

## GOAL

Minimize impacts to natural resources from shoreline activities occurring within the program boundary.

## OBJECTIVE

SM 1: Support environmentally sound shoreline management.

## ACTIONS

SM 1.1: Support efforts to promote enhanced management of riverine shorelines and riparian habitat.

SM 1.2: Advise and assist local partners with shoreline management issues.



## Shoreline Management 1.1

Support efforts to promote enhanced management of riverine shorelines and riparian habitat.

Riparian habitat is the term used to describe the areas located directly adjacent to rivers or streams. These habitats perform a number of important functions. Runoff from agricultural and urban areas can have high levels of nutrients and sediments, and riparian areas play a key role in maintaining the water quality of our streams and rivers by filtering out many of these nutrients and promoting deposition of sediments. Riparian habitats also act as corridors, creating important linkages between isolated forests - they serve as a “highway” on which animals and plants can travel and disperse to new locations. The vegetation in riparian areas also plays a key role in providing shade and helping control water temperatures in rivers and streams. Finally, the leaf litter and woody debris created by the canopy also provide food and habitat for aquatic animals. Proper management of the vegetation along rivers and streams can reduce erosion and sedimentation and is important for maintaining the important functions provided by these valuable riparian habitats.

### STEP 1:

Promote buffer areas by protecting, enhancing, restoring, and creating riparian habitats along rivers and streams located within the project area.

### STEP 2:

Support the implementation of conservation practices and the development of plans that enhance quality of rivers and streams and the habitats directly adjacent to them.

### STEP 3:

When applicable, ensure that projects proposed by the “Human Uses Implementation Team” include appropriate best management practices for riparian areas and riverine shorelines.

### STATUS



**UNDERWAY:** The CBBEP is collaborating with local partners to secure funding to work with private landowners to restore and/or secure conservation easements in riparian areas.

### TIMEFRAME



**2017-2037:** Steps 1 and 2 will be implemented as needed and as funding becomes available, throughout the applicable life of the plan. Step 3 will be implemented annually through meetings of the Human Uses Implementation Team.

### COST



**ESTIMATED COST:** Steps 1 and 2 = \$\$ - \$\$\$\$ (varies by project type); Step 3 = \$

**POTENTIAL FUNDING:** CBBEP Programmatic funds (EPA 320 funds; TCEQ; Local funds); CMP; NRCS Conservation Stewardship Program; NRCS Environmental Quality Incentives Program; RESTORE Act; TSSWCB Nonpoint Source Grant Program, TPWD Landowner Incentive Program; TSSWCB Water Quality Management Plan Program

### PARTNERS



**LEAD:** CBBEP

**POTENTIAL PARTNERS:** BBASCs; Local governments; MANERR; NRCS; Private landowners; River authorities (i.e., GBRA, NRA, SARA); TGLO; TPWD; TSSWCB

### PERFORMANCE METRICS



1. Acres of riparian habitat protected, enhanced, restored, or created.
2. Number of projects implemented in riparian habitats using CBBEP resources.



## Shoreline Management 1.2

Advise and assist local partners with shoreline management issues.

Environmental impacts from poorly planned shoreline management can result in unnecessary habitat loss, reduced public access, altered bay circulation, and degraded water and sediment quality. CBBEP provides advice and assistance (i.e., resources) to local governments, landowners, and key resource management agencies on shoreline management issues as needed. Wherever practical, the preservation of natural shoreline functions and features, at both public and privately owned facilities, is encouraged to take advantage of natural defenses against wave and wind energy. Tax-paying citizens and users of the bay beaches, as well as private property owners along the shoreline, will benefit from the sound management and use of coastal shore areas.

### STEP 1:

Provide local governments, landowners, and key resource management agencies with guidance on sound shoreline management techniques that will minimize environmental impacts while trying to maximize economic benefits.

### STEP 2:

Ensure that all shoreline management projects proposed by the “Human Uses Implementation Team” incorporate preferred shoreline management techniques.

### STEP 3:

Assist with acquisition of funding for projects that employ preferred shoreline management methods.

### STATUS



**UNDERWAY:** CBBEP has frequently provided advisory support to local governments, landowners, and local resource managers regarding shoreline management issues. CBBEP staff perform this task on an as needed basis and will continue to do so throughout the applicable life of this Plan.

### TIMEFRAME



**2017-2037:** Steps 1 and 3 will be implemented as needed throughout the applicable life of the plan. Step 2 will be implemented annually through meetings of the Human Uses Implementation Team.

### COST



**ESTIMATED COST:** \$

**POTENTIAL FUNDING:** CBBEP Programmatic funds (EPA 320 funds, TCEQ, Local funds)

### PARTNERS



**LEAD:** CBBEP

**POTENTIAL PARTNERS:** Local governments; MANERR; Navigation Districts; Private landowners; TGLO, TNC; TPWD; USACE; USFWS

### PERFORMANCE METRICS



1. Number of shoreline management projects in project area that are implemented utilizing preferred management techniques.
2. Linear feet of shoreline managed using preferred management techniques.
3. Number of individuals provided technical assistance by CBBEP staff with shoreline management issues.



# **BAY DEBRIS**

## **Action Plan**

### **GOAL**

Reduce bay debris in the Coastal Bend to ensure minimal impact to people, aquatic life, and natural resources.

### **OBJECTIVE**

BD 1: Reduce the amount of debris in the bays and estuaries throughout the Coastal Bend.

### **ACTIONS**

BD 1.1: Support activities to reduce the amount of debris reaching the bays.

BD 1.2: Support activities to remove existing debris in the bay.



## Bay Debris 1.1

Support activities to reduce the amount of debris reaching the bays.

Bay debris poses public health risks and reduces the aesthetic appeal of the bay system. It can also degrade habitats and ensnare aquatic and wildlife species. The debris in our bays comes from many sources, including runoff from land (i.e., storm sewers and tributaries); debris discarded or blown from offshore operations; trash that is discarded or blown out of vessels and vehicles; and trash that beachgoers and bay users leave behind. Bay debris is a large, multi-faceted, solid waste management problem, and prevention is typically the most cost-effective solution. Therefore, CBBEP and its partners support efforts by local governments to improve solid waste management and to educate citizens on ways they can help achieve the goal of a cleaner environment.

### STEP 1:

Develop and implement improved solid waste management procedures for urban, rural, and unincorporated areas. Efforts should address illegal dumping and household hazardous waste.

### STEP 2:

Enhance efforts to remove improperly disposed of solid waste from stormwater drainage systems, implementing pilot demonstration projects as appropriate.

### STEP 3:

Work with elected officials and legal authorities to improve litter enforcement efforts and continue to encourage litter-related public assistance programs (e.g., rewards programs, neighborhood watch programs, etc.).

### STEP 4:

Support efforts to educate citizens about the impacts of bay debris and ways to achieve a cleaner environment.

### STATUS



**UNDERWAY:** The CBBEP is partnering with the City of Corpus Christi to purchase and install catch basin inserts at the highest priority storm drains where trash accumulates in the Cole Park drainage basin.

### TIMEFRAME



**2017-2037:** Steps will be implemented, as needed and as funding becomes available, throughout the applicable life of this plan.

### COST



**ESTIMATED COST:** \$-\$ (varies by project type)

**POTENTIAL FUNDING:** CBBEP Programmatic funds (EPA 320 funds, TCEQ, Local funds); CMP; Coastal Bend COG; EPA Trash Free Waters; NOAA Marine Debris Program; TCEQ; RESTORE Act

### PARTNERS



**LEAD:** CBBEP

**POTENTIAL PARTNERS:** CBBF; City of Corpus Christi; Coastal Bend COG; Local governments; MANERR; Surfrider Foundation; TGLO; TPWD

### PERFORMANCE METRICS



1. Amount of debris in vicinity of stormwater outfalls.
2. Number of illegal dumpsites within project area.
3. Number of household hazardous waste removal programs.
4. Number of stormwater improvement pilot projects implemented.
5. Number of tickets issued for littering.
6. Number of public assistance programs for littering.





## Bay Debris 1.2

Support activities to remove existing debris in the bay.

Bay debris poses public health risks, reduces the aesthetic appeal of the bay system, degrades habitats, and ensnares aquatic and wildlife species. The debris in our bays comes from many sources and ranges in size from small-scale items such as plastic bottles and fishing gear (e.g., monofilament, abandoned crab traps) to large-scale items such as deteriorating docks/piers, abandoned vessels, deteriorating oil/gas infrastructure, and debris from extreme storms and hurricanes. Numerous volunteer clean-up events occur throughout the Coastal Bend on an annual basis, focusing on removal of small-scale items found on bay shorelines and beaches. Large-scale debris items located within the bay and along its shoreline are more difficult and costly to remove, often requiring special funding and involvement from resource management agencies such as the Texas General Land Office and Texas Parks and Wildlife Department.

### STEP 1:

Update the inventory of existing large-scale bay debris (e.g., docks/piers, vessels, oil/gas structures, storm debris).

### STEP 2:

Using the inventory created in Step 1, develop and implement strategies for the removal of different types of debris.

### STEP 3:

Support Texas Parks and Wildlife Department's "Abandoned Crab Trap Removal Program."

### STEP 4:

Support existing beach and shoreline clean-up efforts.

### STATUS



**NEW:** Although this is a new action item, the CBBEP already supports a number of on-going efforts to remove debris from the bay, including partnering with the CBBF and other partners on clean-up events.

### TIMEFRAME



**2017-2037:** Crab trap removal and beach/shoreline clean-up efforts will occur annually. Large-debris removals will be implemented, as needed and as funding becomes available, throughout the applicable life of this plan

### COST



**ESTIMATED COST:** Step 1 = No Cost; Step 2 = \$\$\$\$; Steps 3 & 4 = \$

**POTENTIAL FUNDING:** CBBEP Programmatic funds (EPA 320 funds, TCEQ, Local funds); CCA; CMP; Foundations; NOAA Marine Debris Program; Private industry; RESTORE Act; TGLO

### PARTNERS



**LEAD:** Step 1 = TGLO; Step2 = TGLO; Step 3 = TPWD; Step 4 = CBBEP

**POTENTIAL PARTNERS:** CCA; Coastal Bend COG; MANERR; Friends of PINS; NOAA Marine Debris Program; NPS; PINS; SABF; Surfrider Foundation; TCEQ; TMN; USCG

### PERFORMANCE METRICS



1. Number of large-scale debris items removed from the program area.
2. Number of crab traps removed from the program area.
3. Number of beach/shoreline cleanups occurring in the program area.
4. Pounds of debris collected during beach/shoreline cleanup events.
5. Number of volunteers participating in beach/shoreline cleanup programs.



# **PUBLIC HEALTH**

## **Action Plan**

### **GOAL**

Ensure public health associated with contact recreation and seafood consumption.

### **OBJECTIVES**

PH 1: Minimize the threat of waterborne illness and disease.

PH 2: Reduce the risk of illness and disease associated with consumption and handling of fish and shellfish caught in local waters.

### **ACTIONS**

PH 1.1: Support efforts to protect recreational water quality through studies on waterborne health issues, including pathogens, chemicals, and Harmful Algal Blooms.

PH 2.1: Support health risk assessments associated with consumption and handling of seafood.



## Public Health 1.1

Support efforts to protect recreational water quality through studies on waterborne health issues, including pathogens, chemicals, and Harmful Algal Blooms.

The public wants to know that it is safe to visit local beaches and bays and to get in the water. While significant threats to public health from water contact are not found in the project area, shellfish closures, Harmful Algal Blooms (HABs), and isolated cases of waterborne illness have occurred. A public health concern anywhere in the area can have economic repercussions throughout the region. The best way to avoid this situation is to have a proactive approach to assess and monitor recreational waters, and thus be able to address any situation before it becomes a concern.

### STEP 1:

Support water quality monitoring programs that provide notifications to recreational users (e.g., Texas Beach Watch, HAB hotline).

### STEP 2:

Support efforts to better understand the impacts of waterborne pathogens (e.g., *Vibrio vulnificus*) and HABs (e.g., red tide) on recreational water quality.

### STEP 3:

Support efforts to improve fecal bacteria problems through feral animal control programs.

### STATUS



**UNDERWAY:** The Implementation Plan for Cole and Ropes Parks is completed and is expected to be approved by TCEQ in 2017. The Plan details voluntary management measures and control actions that government and citizens can take to reduce bacteria entering the bay at these sites. The CBBEP continues to participate in the Cole and Ropes Park Coordination Committee (CARP) and the Oso Creek and Bay Coordination Committee. The CBBEP also participates in the HAB Working Group and receives information regarding current HABs from the TPWD Kills and Spills Team. The CBBEP staff provides information to the public as needed.

### TIMEFRAME



**2017-2037:** Steps will be implemented, as needed and as funding becomes available, throughout the applicable life of this plan.

### COST



**ESTIMATED COST:** \$\$ - \$\$\$ (varies by project)

**POTENTIAL FUNDING:** CBBEP Programmatic funds (EPA 320 funds, TCEQ, and Local funds); CMP; EPA; Local governments; NOAA; TCEQ; Texas Sea Grant; TDSHS; TPWD

### PARTNERS



**LEAD:** CBBEP

**POTENTIAL PARTNERS:** Local health departments; TAES; TDSHS; Texas Beach Watch; TGLO; TMMSN; TPWD; Universities (e.g., TAMUCC; TAMU; UTMSI)

### PERFORMANCE METRICS



1. Number of monitoring programs in project area that provide water quality notifications to recreational users.
2. Number of reports and publications about waterborne pathogens and HABs that are produced using CBBEP resources.
3. Number of feral animal control programs in the project area.
4. Number of impairments for fecal indicator bacteria in project area.



## Public Health 2.1

Support health risk assessments associated with consumption and handling of seafood.

Several local and state agencies are working to ensure the safety of commercially caught seafood. Information regarding the safety of consuming and handling recreationally caught seafood is presently inadequate for some seafood types and areas.

### STEP 1:

Support efforts to collect sufficient fish and shellfish data to be used in human consumption risk assessments from selected subsections of the project area. Analyze the tissue in a laboratory acceptable to Texas Department of State Health Services (TDSHS) for volatiles, semivolatiles, metals, pesticides, and PCBs. Submit data to TDSHS for risk assessment consultation, and disseminate results to the public.

### STEP 2:

If risk is deemed unacceptable, determine sources of pollutants and implement controls through TDSHS.

### STATUS



**UNDERWAY:** Previous research funded by the CBBEP has shown high contaminant levels (e.g., mercury, PCBs) in local fish and oysters. With continued population and industrial growth in the Coastal Bend, the CBBEP and its partners will need to continue examining contaminant levels in seafood in order to ensure public health.

### TIMEFRAME



**2017-2037:** Steps will be implemented, as needed and as funding becomes available, throughout the applicable life of this plan.

### COST



**ESTIMATED COST:** \$\$ - \$\$\$ (varies by project)

**POTENTIAL FUNDING:** CBBEP Programmatic funds (EPA 320 funds, TCEQ, or Local funds); CCA; EPA; NOAA; TCEQ; TDSHS; TPWD

### PARTNERS



**LEAD:** CBBEP

**POTENTIAL PARTNERS:** CCA; NMFS; SEA; TDSHS; TPWD; Universities (e.g., CCS; HRI; UTMSI)

### PERFORMANCE METRICS



1. Number of fish and shellfish health risk assessments supported by CBBEP resources.
2. Number of controls for fish and shellfish consumption implemented by TDSHS in program area.