

COASTAL BEND BAYS & ESTUARIES PROGRAM 2024 ANNUAL REPORT



Dear Partners and Friends,

As I look back on the Coastal Bend Bays & Estuaries Program's achievements in 2024, I continue to be proud and grateful to be part of an organization that has been working closely with the community for over 25 years to protect our bays and estuaries. Our approach of implementing non-regulatory and locally-based solutions to create clean water, healthy habitats, and resilient communities has proven to be successful time and time again.

The work we do varies from year to year and often comes in many different shapes and sizes - sometimes projects are as small as installing a few new picnic tables at a public park, while other projects involve much larger scale initiatives like building rock breakwaters to protect miles of eroding shoreline. No matter how big or small, every project is important - every piece of trash we help remove from the environment, every square foot of safe space we provide for nesting birds, and every student that gets to hold a shrimp for the first time are all key to ensuring that our bays and estuaries remain a vibrant part of the region's environmental and economic landscape.

As you read through this report of recent accomplishments, you will be taken on a journey that stretches along hundreds of miles of shoreline from the vast, shimmering waters of San Antonio Bay down to the salty, seagrass-filled lagoons of the Lower Laguna Madre. In this remarkable part of the Texas Coast, the beauty of the land and sea exists in harmony, where each tide, breeze, and sunrise reminds us of the incredible, ever-changing ecosystems that thrive. It is a place that beckons to be explored, cherished, and protected for future generations to experience.

Moving forward, our mission remains the same - conserve, protect, and restore the vital coastal ecosystems of the South Texas Coast. We are excited for the opportunities and challenges the new year will bring, and we are committed to working hand in hand with you, our partners and friends, to protect the beauty and vitality of our bays.

I would like to express my deepest gratitude to our dedicated staff, partners, and supporters for your hard work, collaboration, and tireless commitment to the mission of CBBEP. Together, we are making a lasting impact, and I look forward to the continued success we will achieve in the year ahead.

Thank you for your continued support and dedication.

Minste Stangel

Executive Director

25 YEARS OF PROTECTING THE BAYS & ESTUARIES OF THE COASTAL BEND







Matagorda Island

Near the northern border of the CBBEP program area lies one of the last few undeveloped stretches of barrier island along the Texas Coast, Matagorda Island. With valuable habitat across the coast being lost each year to erosion and development, the raw nature of Matagorda Island and its designation as part of the Aransas National Wildlife Refuge affords it high priority for conservation and restoration efforts.

Hurricane Harvey made land fall near the Island in 2017 and had significant impact, the marsh was blown apart and shorelines fell into the bay. Once the waters receded and an assessment was made, the work to restore and protect the Island began.

From the Gulf shores across the shallow water bay systems, CBBEP and partners have invested millions into habitat restoration projects on and around Matagorda Island. Like many coastal areas in Texas, there is a growing concern to protect wild spaces and keep them functioning at their historic capacity to protect species, like the endangered Whooping Crane, that call them home. Progress was made in 2024 by removing 55 tons of trash and bulk debris, restoring marsh hyrdology, and repairing vital infrastructure, with more projects in the process of going to construction.

MATAGORDA WEST MARSH RESTORATION

With a quick cruise across Mesquite Bay from U.S Fish and Wildlife Service's (USFWS) Aransas National Wildlife Refuge Headquarters (ANWR), you'll find yourself near the south end of Matagorda Island, known as the Matagorda Unit of ANWR. This 36-mile, sliver of land serves as a barrier between the Gulf and the Texas bay systems and protects communities from Austwell to Port O'Connor. Like the other six barrier islands along the Texas coastline, Matagorda Island has been weathering the impacts of sinking elevations and coastal erosion, especially during tropical storm and hurricane events.

This patchwork of vegetation and tidal flows requires a fine balance to maintain its functionality, relying on the baffling system of the marsh to control water and salinity levels within its bounds and beyond. When Hurricane Harvey made landfall in 2017, the intensity of the storm surge left a large impact on the Island, rearranging dune systems along the Gulf, breaching levees, and collapsing culverts that had helped to control water flows and maintain a healthy marsh. This disorganization of waterways through the marsh has created a higher frequency of erosion as an increase of water flows through the marsh with every swing of the tide, taking valuable sediment with it.

The alteration of the landscape has impacts and implications above and below the water line. The vegetation that opts for a higher and drier vantage point above the tide line, provides habitat that supports wintering Whooping Cranes, migratory birds, wild hogs, whitetail deer, and even diamondback terrapins. Underwater seagrass beds provide invaluable habitat for aquatic species, but struggle to keep their foothold with deeper water levels blocking sunlight and their foundations relocated as sediment shifts.

With CBBEP and ANWR working together, construction of improved culverts and levees was complete in the summer of 2024 by Lester Contracting, LLC. Contractors worked closely alongside ANWR staff to ensure the construction was minimally invasive to the habitat and they were even able to recycle concrete from forgotten WWII airbase tarmacs on the Island to build the road base. By the time the equipment was on a barge back to Port O'Connor, 16 improved culverts were installed along the isolated levee system. The completion of this project marks another step towards resiliency on Matagorda Island, but not the last. Several additional projects related to erosion, rising seas, shoreline protection, habitat restoration and invasive species removal are currently in various stages of completion moving into 2025.





MESQUITE BAY OYSTER REEF RESTORATION

Separating Matagorda Island and the mainland are the shallow waters of the Mesquite Bay Complex, a historically productive and ecologically important oyster fishery that has fallen victim to substantial degradation, likely due to impacts from Hurricane Harvey in 2017 and high harvest pressure from commercial oyster boats. The harvest technique used by these commercial operations, known as dredging, is destructive to oyster reefs as weighted rakes are towed across the reefs before sorting the oysters by size and returning those oysters that are too small for harvest. This destruction of the reefs not only removes growing oysters from the reef but also disrupts the life cycle of the oyster as the juvenile oyster spat relies on hard substrate to attach to before it can begin to grow. Not only does this threaten the long-term viability of the commercial fishing industry, but also the overall health of the bay system as oysters fill a vital role as they filter up to 50 gallons of bay water per day and provide critical habitat for many recreational and commercially important species. With the widespread decline of oyster reefs across the entire Texas Coast, several bay systems have been closed to oyster harvest in recent years and increased attention has been given to restoring and protecting these invaluable pieces of the ecosystem.

Many of CBBEP's partners, including the Mission-Aransas National Estuarine Research Reserve, Coastal Conservation Association Texas, Texas Parks and Wildlife Department, Harte Research Institute, and Flatsworthy, are working to set the future of oyster habitat up for success by using data-backed decision making to steer the restoration process forward. Several steps were taken in 2024 to further this goal with CBBEP collaborating with these partners to begin the design and permitting process for the restoration of 11 acres of oyster reef in an area along the Matagorda Island shoreline known as Ayres Point. Once complete, the project will restore both subtidal and emergent reef habitat that provides valuable ecosystem services and also protects an eroding shoreline. Construction dollars have been secured and CBBEP is ready to start construction once the permitting and final design phase is complete in 2025.

Mission River Delta

In the back of Copano Bay, at the furthest inland extent of the Mission-Aransas National Estuarine Reserve, stretches the Mission River Delta. As the fresh waters of the Mission River meander southeast from Refugio and begins to spread their fingers toward the sea, the habitat shifts from high marsh scrubs and woody stands to coastal marsh and tidal flats.

The habitat approaching the Delta holds all the makings of a productive riparian corridor, but has grown disconnected at the hands of erosion and development. In this region of the coast, CBBEP has focused on supporting the connectivity of the riparian corridor and improving the quality and usage of the habitat. In 2021, a 375-acre stretch of land was purchased and preserved through a conservation easement, ensuring the habitat doesn't fracture any further and allowing opportunities for additonal restoration.

With this land secured for conservation and restoration efforts underway, the Mission River Delta can provide important habitats for migratory waterfowl, shorebirds, waterbirds, fish, shrimp, and crabs.



Marsh Mosaic Near the Mission River Delta

TEXAS COAST WATERFOWL SANCTUARY PROGRAM

Coming off a successful pilot year of the Texas Coast Waterfowl Sanctuary Program (TCWSP) that saw CBBEP working in collaboration with Texas Parks and Wildlife Department and U.S Fish and Wildlife many species and ecosystems. Between decreasing available habitat and increasing pressure on usable habitats, the ability to fully support migrating birds for their return journey is continuing to decline. The TCWSP incentivizes landowners to create valuable shallow freshwater ponds that will directly support this year's crop of migrators. The fallowed fields that are dedicated by landowners to remain



The waters of the Mission River originate from the confluence of the Blanco and Medio creeks in Refugio County, before it meanders southeast to meet the salt water of Mission and Copano bays. Like most river deltas, as the waters flow closer to the river mouth they begin to disperse into the lower elevation marsh, introducing new sediment while also flushing the marsh plants with fresh water as it filters through the vegetation and soils of the delta. The lower stretch of the Mission River snakes through 24 miles of rural communities and agriculture fields. In 2021, CBBEP acquired a tract at the end of Ermis Road in Bayside, Texas to create a continuos conservation corridor, bringing the total amount of protected land in the Mission River Delta to over 13,000 acres. This habitat consists of a mosaic of tidally influenced estuarine wetlands and shallow saltwater lakes with a riparian corridor running alongside the Mission River. An old windmill and crude road bases remind us of the cattle operation that ran on this 375-acre parcel not long ago. Channels full of juvenile redfish and speckled trout in the spring and summer and Bluewing teal and Gadwall bursting from a hidden pocket of water in the fall paint the picture of the diverse ecosystem potential.

Along the one roadway on the property, three culverts failed when they were destroyed by Hurricane Harvey in 2017, disrupting flow through the marsh and into the bay. Through the collaborative effort from CBBEP and U.S Fish and Wildlife Service's Fish Passage Funds, Partners for Wildlife Program, and Coastal Program, the replacement of these culverts began in the fall of 2024 and wrapped up in early 2025. By restoring the pathway to the bay, the hydrologic function of the marsh will improve and be able to further support the species that rely on this region of the Texas coast.



MISSION RIVER CIRCULATION ENHANCEMENT

Nueces Delta Marsh Meandering to the Bay

Nueces Delta Preserve

The Nueces Delta Preserve is a cornerstone of the Coastal Bend Bays & Estuaries Program and a great representation of the protection and restoration that is possible through years of dedication to conservation and collaboration. The now 13,000 contiguous acre nature preserve stretches from the shoreline of Nueces Bay, through the back bay sloughs of the Nueces Delta and up into the high marshes along the Nueces River.

This stretch of land has served many roles for many users throughout history, dating back to early indigenous tribes that relied on the bountiful resources of the estuary. Before coming into the hands of the CBBEP, the land was used as part of a large-scale cattle operation known as the McGregor Ranch, operated by the McGregor family. After generations of success, the McGregors had developed a deep sense of value for the land they occupied and decided to ensure that it retained that inherent value. In 2003, the family decided to sell the land to newly formed Coastal Bend Bays & Estuaries Program to manage the habitat for wildlife and ensure that the integrity of the landscape remained intact.

Since then, more acres have been purchased, many projects have been completed, and thousands of dollars have been invested into restoring and preserving the natural habitats and educating the public on the various forms and functions of the Coastal Bend's natural resources.

NUECES DELTA RESTORATIONS

Though the Nueces Delta Preserve has escaped the threat of urban development within its boundary, human impacts are still affecting the estuary. The CBBEP funded several long-term monitoring studies in the Nueces Delta over the past 20 years, gathering data related to erosion rates, water quality, and health of wetland habitats. Data from these studies has shown that the Delta shoreline is losing up to 14 feet of marsh to open water each year due to a combination of factors. A delta system relies on freshwater inputs and sediment deposition to maintain its structure, and when rainfall in the watershed is low, rivers are damned, and reservoirs are built, that valuable sediment and freshwater is trapped upstream and never makes it through to the estuary. At the same time, the unique positioning of the Nueces Delta on our coastline allows largely unhindered wave energy from the prevailing southeast winds to deepen channels and carve bluffs into the shorelines until they collapse and succumb to open water. These factors have come together to create quite a dire scenario for the habitat and wildlife that rely on it.

In 2023, CBBEP completed construction of 3,600 linear feet of a protective breakwater structure, which was later added onto by the US Army Corp of Engineers (USACE) in 2024. With the breakwater stuctures in place and protecting the shoreline, the issue of sediment starvation could be addressed. A surplus of dredge material became available via the deepening of the nearby Port of Corpus Christi Ship Channel. The material was tested and when the samples came back below screening levels, the USACE worked closely with CBBEP to identify the target elevations and best locations for placement of close to two million cubic feet of dredge material along the Nueces Bay shoreline. The placement areas were specifically chosen based on what was historically marsh habitat that has been converted to open water. Though these placement areas create a barrren landscape shortly after placement, given a couple of years time and adaptive management by CBBEP, marsh habitat will soon be restored.

Additional material will be placed by the USACE contractors in the Nueces Delta in 2025 with the goal of building back even more of the marsh habitat that has been lost over the years. CBBEP will be monitoring these placement areas to see how they change over time, and we will be ready to take any adaptive management steps that may be needed to help these areas become the thriving marsh habitat that was once part of the Nueces Delta shoreline.





NUECES TIDAL SEGMENT

Community input and engagement can be a catalyst that takes conservation efforts from conversation to action. This was the case of the Nueces River Tidal Segment, which describes the stretch of river from the mouth at Nueces Bay to the saltwater barrier near Labonte Park that experiences changes in salinity based on tidal movement. The Nueces Tidal Segment borders the Nueces Delta Preserve on one side of the river and private residences on the other side all the way to the bay but does not travel through the delta. Unfortunately, those who reside along this length of river have noticed concerning changes in the water quality including algal blooms, odd sheens on the water's surface, and fish kills that leave everything from minnows to redfish washed up along the banks. In 2023, a stakeholder group led by CBBEP and composed of community members, agencies, and researchers began to meet and discuss the issues.

In order to understand the current state of the tidal segment's water quality, two sampling studies were launched in 2024. The Harte Research Institute at Texas A&M University-Corpus Christi sought to identify the nutrient(s) that are driving excessive algal growth in this segment of river. Because nutrients come in many different forms, from nitrogen to phosphorus and organic to inorganic, it is important to understand which of these are driving the algal blooms before we begin tracing the nutrients back to their origin and make any management recommendations to reduce inputs.

The second project performed by the Center for Coastal Studies at Texas A&M University-Corpus Christi monitored water quality at five locations in the Nueces River tidal segment to characterize water quality along this stretch each month with a focus on bacteria and nutrients. Possible sources of excess nutrient/bacterial loadings include permitted point source discharges, runoff from urban and rural nonpoint sources, on-site sewage facilities (or septic tanks), groundwater discharges, and others. Sample analysis will include chlorophyll-a, nutrients, and bacteria. Data will be used to quantify total constituent loadings, helping to identify possible transport pathways, sources, fates, and poor water quality "hot spots". Both of these studies will continue gathering data into 2025.

SEPTIC SYSTEM ASSISTANCE PROGRAM

Improving water and sediment quality has been a focus of the CBBEP from the program's genesis, and remains as part of our core mission. Achieving this mission can take many different shapes, as there are many factors that can impact the quality of our local water and sediments. Toward the northern boundary of our programmatic area lies Refugio County, a tributary-rich part of the watershed with Blanco Creek, Copano Creek, Medio Creek, Melon Creek, and Mission River flowing through before depositing into Aransas Bay, Copano Bay, San Antonio Bay and St. Charles Bay. Refugio county is sparsely populated compared to nearby Nueces County and many residents live void of municipal water and utility services, instead relying on water wells and on-site sewage facilities, or more commonly reffered to as septic systems.

Generally two types of systems are used for the onsite treatment process, either conventional gravity fed drain fields that separate solid and liquid waste before being treated by the soil and aerobic treatment units that utilize aerobic bacteria to breakdown material. However, without proper installation or maintenance, systems often fail, releasing excess nutrients and bacteria into the environment and posing negative effects on local water as well as public health concerns. To reduce this excess nonpoint source pollution, CBBEP offered eight residents of Refugio County a free inspection and repair/replacement.





WASTE WATER TREATMENT PLANT OUTREACH

With coastal populations across Texas surging, outdated infrastructure can often struggle to keep up with increasing volume and stressors, ultimately leading to system failures. Such is the case in Refugio and San Patricio Counties, both bordering the booming business growing around the Corpus Christi Bay area. The 16 wastewater treatment facilities in these counites feature outdated equipment that can threaten the integrity of their treatment process. A failure in this process means excess nutrient and bacterial pollution being introduced to our waterways and ultimately impacting the bays. Excess runoff from the plants in these coastal counties has little distance to travel to enter the bay, draining into nearby Aransas Bay, Copano Bay, Corpus Christi Bay, Nueces Bay, and Redfish Bay.

Modelling the success of the Baffin Bay Waste Water Outreach Program that has helped improve wastewater treatment in the Baffin Bay watershed, CBBEP contracted with the Nueces River Authority to implement a similar program in San Patricio and Refugio counties in 2024. This program is designed to work with local elected officials and treatment plant employees to address infrastructure needs in both wastewater collection and treatment systems, at no cost. As needs are identified, the Nueces River Authority facilitates the process of getting them resolved; whether it be through identifying infrastructure needs, seeking grant funding, or educating plant operators.

Upper Laguna Madre

Seagrass meadows and sandy potholes stretch for miles, thriving in the hypersaline conditions of the Upper Laguna Madre. Seperated from the Gulf waters by the northern extent of Padre and Mustang Island, this 40 mile stretch of the lagoon recieves more water exchange then the Lower Laguna Madre through Packery Channel.

A truly teeming ecosystem, the Upper Laguna Madre full to the gills with speckled seatrout, redfish, black drum, and southern flounder in the seasonally crystal clear waters. Sharp-beaked colonial waterbirds, frail and fluffy shorebirds, and wintering waterfowl all rely on the habitat throughout the year.

Not only an invaluable habitat, the Upper Laguna Madre offers economic benefits as well, generating millions of dollars through recreational users annually. The restoration and research efforts that take place here not only serve habitat and wildlife, but also livelihoods.



Calm Day on the Upper Laguna Madre

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FLOUR BLUFF ISD WETLAND INVASIVE SPECIES REMOVAL

Not far from the banks of the Upper Laguna Madre in Flour Bluff lies a series of freshwater ponds that dot the shoreline. These ponds and the surrounding areas of flora provide refuse amongst modern infrastructure for a wide variety of species, that in turn draw attention from the local community. Two of the three ponds, Duncan and Redhead Pond, are identified conservation areas managed by the City of Corpus Christi and Texas Parks and Wildlife Department. The third pond lies on 51 acres owned and managed by Flour Bluff ISD and is used as a living laboratory where students get hands-on experiences while learning about the natural resources of the Coastal Bend. Over recent years, these properties have fallen into the grips of invasive plants, such as Brazilian peppertree and Guinea grass, that have choked out natives and reduced accessibility for both wildlife and human uses.

These invasive plants are known for out competing natural species and creating dense thickets that can become impenetrable and unusable habitat, even for small songbirds. To restore and improve the habitat at the Flour Bluff ISD Wetland, nearly 30 acres of dense invasive vegetation were mechanically removed while taking care to avoid sensitive wetland habitats and native species. This project not only reduced invasive species seed sources for nearby properties, but also enhanced the learning opportunities for students as they monitor the regrowth and observe habitat usage. Surrounding properties that are facing similar threats from invasive species are targeted for treatment in 2025.





WALDRON PARK POND IMPROVEMENTS

One of the most impactful ways to inspire future stewards in our community is to get them engaged with the natural resources through hands-on experiences. The Coastal Bend is rich in scenic landscapes and valuable habitat, but public access limitations can present a barrier for members of the community to engage with many of these areas. With limited public access available, maintaining existing public access points is key.

Located in the middle of Flour Bluff, Waldron Park is heavily utilized year-round by the local community. On any given day you may see folks walking dogs, playing disc golf, holding soccer practice, or fishing in Waldron Pond. The pond is a key feature of the park, hosting a variety of waterfowl and waterbirds, as well as bass, catfish, gar, and the bi-annually TPWD stocked rainbow trout. After years of heavy usage, the fishing pier had fallen into disrepair and become a hinderance for people looking to wet a line. To improve the accessibility to the pond, the pier was rebuilt with freshly treated lumber to include new benches, handrails and decking that is sure to offer a stable place to cast for the future.

Early Morning on Baffin Bay

Baffin Bay

Creeks slowly meander through the south Texas brush country, moving toward the salty waters of "the jewel of the Texas coast", Baffin Bay. The shoreline is rugged yet serene, lined with high bluffs exposing gnarled mesquite roots and herons hunting on the shallow flats. Trophy speckled trout and shimmering redfish lurk through seagrass beds, waiting to ambush their prey as anglers do the same. The incredibly productive habitat has drawn migratory birds, commerical and recreational fishermen to its waters for many years, but has been declining over the last four decades.

The once prestine waters began to show symptoms of poor water quality in the form of algal blooms, fish kills, diminished seagrass habitat, and declining fish populations. In 2013, a group of citizens with deep connection to the bay committed to assist the Harte Research Institute at Texas A&M University- Corpus Christi with a water quality monitoring effort that would begin the Bringing Baffin Back campaign. After several years of analyzing data from water samples, excessive nutrients were found to be fueling the decline of the ecosystem's health. The high amounts of nitrogen and phosphorus were traced back to sources within the watershed, such as minimally treated wastewater, fertilizer runoff, poorly maintained septic tanks, and even rainwater that sweeps pollutants off of yards, sidewalks, and streets.



10 YEARS OF BRINGING BAFFIN BACK

Stakeholder efforts to address water quality issues in Baffin Bay surpassed the decade mark in 2023, marking ten years of research and collaborative citizen science geared towards understanding the ailments and restoring the historic bay system known as the "Jewel of the Texas Coast" while also educating communities on their connection to the bay. Baffin Bay was once world renowned for trophy speckled trout, oversized resident red drum, vast under water seagrass beds, and the infamous serpulid worm reefs that are scattered across the bay bottom, but recent years have shown significant water quality issues with increasing frequencies in algal blooms and fish kills. After years of water sampling and nutrient source tracking performed by researchers at Texas A&M University - Corpus Christi, researchers and resource managers began to develop an understanding of the sources behind the decline of the health of the bay. The data showed that the nutrient inputs into the bay were causing a slough of issues, and while there are a variety of sources, one of the major contributors is human waste making its way to creeks and bays due to failing waste water treatment plants and faulty septic systems throughout the watershed.

Once the sources of the water quality issues were identified, a multi-pronged plan to address the problems was created and implementation began. The Bringing Baffin Back Campaign was able to bring on a fulltime Watershed Coordinator to focus on continued engagement of a variety of different stakeholder groups and collaboration on nutrient reduction strategies throughout the watershed. As communities grasp their direct connection to the bay, even from the watershed interior, efforts to curb their personal impacts are growing.

SARITA ELEMENTARY SCHOOL RAIN GARDEN INSTALLATION

Sarita Elementary School is located in the Baffin Bay watershed, feeding into the jewel of the Texas coast, Baffin Bay. However, high bacterial loads and excess nutrients have impaired the watershed, threatening the health of the people and organisms which rely on Baffin Bay. Research has identified urban runoff from impervious surfaces as a contributor to water quality decline, and rain gardens are a cost-effective way to reduce the pollutants entering the bays and estuaries downstream. To address these issues, CBBEP is looking for opportunities to implement rain gardens and other nature based solutions within the watershed. Made possible through a grant from Rotary International, Southern Landscapes was contracted to construct the rain garden at Sarita Elementary School which was completed in the fall of 2024. The rain garden will be furnished with educational signage that will be installed in 2025, along with replanting any plants that did not make it through the winter.

Not only will this rain garden reduce impacts of stormwater runoff and help address water quality concerns, but also it will help to beautify the campus and create an educational tool for teachers to use. Larger trees such as Southern Magnolia and Southern Live Oak were planted outside of the swales, with shrubby species like Texas Compact Sage and Mexican Feathergrass planted along the edge of the depressions, followed by aquatic tolerant species like trailing lantana, longspur columbine, and raspberry autumn sage more centralized in each swale. These plants require less maintenance once established, have deep roots that soak up lots of water quickly, and provide food and habitat for wildlife. This approach to stormwater management allows more of the rain that falls to soak into the ground before flowing into ditches, drains, and eventually the bay. The plants and soils filter and clean the water of pollutants before it enters the waterways that will carry it into our bayous, bays, and estuaries. CBBEP is looking to encourage and support more nature based solutions to address water quality concerns, with the Sarita Elementary Rain Garden serving as a catalyst for others.



Lower Laguna Madre

At the southern most extent of the Texas Coast, the fertile Rio Grande Valley meets the hypersaline waters of the Lower Laguna Madre. The vast expanses of tidal mud flats and seagrasses are protected from the Gulf by the longest barrier island in the world, Padre Island, offering valuable habitat for many species. Situated at a bottleneck of the the central fly way, migratory birds highly rely on the natural resources found here to feed, rest, and nest on their cross-continental journey.

Here CBBEP's Coastal Bird Program stays busy monitoring migratory bird populations and working to restore and protect their habitats as development grows and habitats are threatened. Focusing on colonial water birds and shorebirds, such as the federally threatend Red Knot and endangered Piping Plover, Avian Ecologists on staff spend many long days in the field. Working to gather data through bird surveys, banding efforts, and even GPS tracking methods, that provide information on population fluctuations and habitat usage patterns. This has helped identify which characteristics make valuable habitat and prioritize restoration efforts in those areas.



Shorebird Monitoring on Lower Laguna Tidal Flats

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ROOKERY ISLAND HABITAT MANAGEMENT

One of the largest threats to colonial waterbird populations is the loss of habitat, whether it be from erosion, invasive species, or human development and disturbance. With productive habitat declining, birds rely more heavily on the areas that remain available, further pressuring the resource. CBBEP's Coastal Bird Program staff spend the winter season stewarding habitat to prepare the rookery islands for the nesting season in the fall. Each rookery island has a unique set of needs, and a management plan is made for each piece of the habitat.

The network of active rookery islands are spread throughout the bay systems all along the coast, but the Lower Laguna Madre sees heightened numbers of birds coming through during the nesting season. During the winter most islands are unoccupied, providing a window of time to work on the islands without the risk of disturbing birds. Once their nesting brings them to the area and the islands begin to get busier, staff switch gears from habiat management season to monitoring.

While focusing on improving habitat, a wide variety of techniques are put to use. Some cases require fire ant erradication, predator managment, planting efforts, or trash and debris removal. The work for the planting process starts long before any soil is moved. Each spring, starter seeds are planted in grow tables at the Nueces Delta Preserve where they are cared for until they are big enough to be planted in the tough climate on the rookery islands. Once they are ready to be planted on the islands, Coastal Bird Program staff and volunteers place the young plants in augered holes with a protective sleeve to help capture water and protect from elements. In 2024, nearly a thousand granenjo and mesquite plants were spread throughout the Coastal Bend and Lower Laguna Madre.

Another key piece of habitat management is removing litter, trash, and debris from the habitat that poses a fatal threat for wildlife. Each year, the annual Rookery Island Cleanup gathers agency partners and volunteers from throughout the Coastal Bend and the Rio Grande Valley to travel to the remote rookery islands where they are able to remove the harmful debris. With such a wide area to cover, two launch locations help ensure islands in both the Upper and Lower Laguna Madre are cleaned. This year, 50 volunteers gave their time and effort to secure a safe nesting season ahead.





SHOREBIRD MONITORING

The shorebird monitoring season is an exciting time of year for Coastal Bird Program staff. As migrating birds make their way back to the area, many hours are spent behind the lens of a spotting scope or binoculars in the field scanning skylines and shorelines to gather population data on a variety of shorebirds. The highly migratory birds utilize a wide swath of habitat during their travels from the high Arctic to South America, and many of them funnel through the south Texas coast on the way, offering an opportunity to gather reliable data on populations as they pass through. While bird counts play a key role in monitoring for changes in population densities, more robust insights can be drawn from spatial data gathered using banding techniques and GPS technologies. It's truly amazing to observe how precise the small aviators are able to travel back to the same stretch of beach or flooded field each year.

Although many of CBBEP's programs focus exclusively on the Coastal Bend, these birds utilize habitat across the coast, making it necessary for CBBEP's Coastal Bird Program to push beyond the Coastal Bend boundary and collaboration with other organizations a key to success. In 2024, the CBBEP Coastal Bird Program coordinated a one day, coast wide monintoring effort that covered over 400 kilometers of the Texas coast. The OkploverBlitz monitoring effort brought members from seven different agencies and organizations together to collect population data along the entire coast for Snowy Plovers, Wilson's Plovers, Piping Plovers, Black-bellied Plovers, Red Knots, and American Oyster Catchers. Given the highly migratory nature of these birds, a bird counted in Galveston may be resighted and counted again on Padre Island later in the migration. By conducting a singular coordinated count on a single day, a more accurate population estimate can be made. Throughout the day 492 Snowy Plovers, 9 Wilson's Plovers, 2,279 Piping Plovers, 691 Black-bellied Plovers, 61 American Oyster Catchers, and 1,162 Red Knots, totaling 4,694 targeted species sighted. Of these over four thousand sightings, 135 were birds that had been banded and released in previous years. As the data set continues to grow and trends become more clear, mangement efforts are tailored to meet the birds where their greatest needs are.

2024 COLLABORATORS

Amos Rehabilitation Keep Aransas County Aransas County Independent School District Aransas County Navigation District Aransas First Aransas National Wildlife Refuge Audubon Outdoor Club of Corpus Christi Audubon Texas Baffin Bay Stakeholder Group Barataria-Terrebonne National Estuary Program Calallen Independent School District City of Austwell City of Bayside City of Corpus Christi City of Ingleside City of Ingleside on the Bay City of Port Aransas City of Portland City of Rockport Coastal Bend Bays Foundation Coastal Bend Council of Governments Coastal Conservation Association Coastal Prarie Conservancy Conrad Blucher Institute Corpus Christi Astronomical Society Corpus Christi Independent School District Delta Land Services Ducks Unlimited Flatsworthy Flour Bluff Independent School District Friends of Redhead Pond Gregory-Portland Independent School District Guadalupe Blanco River Trust Harte Research Institute International Crane Foundation Kleberg County Keep Aransas County Beautiful Louisiana Department of Wildlife and Fisheries Mission-Aransas National Estuarine Research Reserve National Fish & Wildlife Foundation Natural Resource Conservation Service

Nueces County Nueces County AgriLife Extension Nueces River Authority Odem Independent School District Oso Bay Wetlands Preserve & Learning Center Padre Island National Seashore Port of Corpus Christi Project Learning Tree Texas Refugio County San Antonio Bay Partnership San Patricio County Sarita Independent School District Smithsonian Migratory Bird Center South Texas Botanical Gardens Taft Independent School District Texas A&M AgriLife Extension Texas A&M University Corpus Christi Texas A&M University Kingsville Texas Children in Nature Texas Commission on Environmental Quality Texas General Land Office Texas Gulf Region Cooperative Weed Management Area Texas Master Naturalists Texas Nature Trackers - City Nature Challenge Texas Parks & Wildlife Department Texas Sea Grant Texas State Aquarium Texas State University Texas State Soil & Water Conservation Board Texas Water Development Board Texas Water Resource Institute The Nature Conservancy Tuloso-Midway Independent School District University of Texas Marine Science Institute **US Environmental Protection Agency** US Fish & Wildlife Service US Geological Survey Voices of the Colonias West Oso Independent School District Wildlife In Focus Youth Odyssey

GOVERNMENT

City of Corpus Christi City of Port Aransas City of Portland City of Ingleside National Oceanic & Atmospheric Administr Nueces County Port of Corpus Christi San Patricio County Texas Commission on Environmental Qua Texas General Land Office Texas Parks & Wildlife Department University of Texas at Austin US Environmental Protection Agency US Fish & Wildlife Service

CORPORATIONS & BUSINES

1PointFive AECOM Anchor QEA Engineering Apex Clean Energy Buckeye Partners Celanese Cheniere Energy CITGO Coastal Bend Industry Association **Conoco Phillips** Corpus Christi Hooks **Delta Land Services** Enbridge Exxon Mobil Flint Hills Resources Gulf Coast Growth Venture HDR Engineering LJA Engineering LyondellBasell Port Aransas Chamber of Commerce **Project YaREN** Valero

2024 SUPPORTERS

INDIVIDUALS

	Albert Adams
	Kristina Alexander
	Melissa Barnes
	Lillian Bass (In Memory of Kati Parker)
ation	Brandon Broom
	Randy & Dawn Bissell
	Nicole Cloutier
	Jasminn Del Rio
ality	James Dodson
	Gretchen Evans
	Ted & Shirley Madden
	Ryan O'Malley
	Mary Jo O'Rear
	Larry McKinney
SES	Tommy Moore
	Angela Reed
	Darrell Scanlan
	Laurance Sumners
	D'Ann Williams

FOUNDATIONS & NONPROFITS

American Bird Conservancy Ed Rachal Foundation **Frazier Family Foundation** Gulf of Mexico Alliance Jacob and Terese Hershey Foundation Kathryn Nell Harrison Foundation Knobloch Family Foundation Matagorda Bay Mitigation Trust Robert J. Kleberg, Jr. & Helen C. Kleberg Foundation Rotary Foundation Texas Master Naturalist - South Texas Chapter (In Memory of Kati Parker)

STAFF

Kiersten Stanzel Alice Sanchez Melissa Barnes Michelle Cortinas Sheryl Alexander Lisa Havel Jake Herring Travis Muckleroy Rosario Martinez Adrien Hilmy Leigh Perry Kathryn Tunnell Aaron Baxter Mary Baker David Newstead Brooke Hill **Justin** Leclaire Alexander Sharp Jason Loghry Cheyenne Feagin Roy Hawthorn Matt Hendrix Lauren Piorkowski Quinn Hendrick

Executive Director Director of Business Affairs Accountant Administrative Assistant Accounts Administrator Grants Director Director of Land Conservation Conservation Specialist Senior Project Manager Project Manager Project Manager Project Manager Project Manager Project Manager Director of Coastal Bird Program Avian Conservation Ecologist Avian Conservation Biologist Avian Conservation Ecologist Migratory Shorebird Habitat Specialist Shorebird Habitat Conservationist Environmental Education Director Education Coordinator Volunteer and Outreach Coordinator

olunteer and Outreach Coordinator Communication Manager

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