



COASTAL RESOURCES NEWSLETTER

JULY 2025

Keeping Up With CEPRA

Enhancing Bird Rookeries: CEPRA Completes Shoreline Protection and Restoration at Two Rookery Islands

By: Kelly Brooks & Kristin Hames, Texas General Land Office

The Coastal Erosion Planning and Response Act (CEPRA) program, in partnership with nonprofits and government entities, enhances and restores bird-nesting islands along the Texas coast. Colonial waterbirds flock to these rookery islands to nest and raise their young. The rookery islands provide a safe space free from predation and disturbance for the fledglings to thrive. Erosional forces, storm events, and flooding endanger the islands and compromise the bird's chick-rearing and, over time, can negatively impact bird populations. Restoration activities bolster these islands and increase their resiliency, with the goal of maximizing the number of nesting birds.

Triangle Tree Rookery Island

In January 2025, CEPRA and the Coastal Bend Bays and Estuaries Program (CBBEP) completed a 1,130 linear foot breakwater to protect Triangle Tree Rookery Island, located in the Upper Laguna Madre. The GLO, CBBEP, and the US Fish and Wildlife Service (USFWS) contributed funding for construction. Over the past 20 years, CBBEP has managed invasive vegetation on the island and monitored nesting activity. The newly installed breakwater will alleviate wave energy and allow the island to stabilize, the shoreline habitat to expand, and the existing island habitat to be protected. CBBEP will continue to monitor and manage the island and expects to see increased nesting over time.

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The newly installed rock rubble breakwater protects Triangle Tree Rookery Island from wave action. Photo credit: HDR

Shamrock Rookery Island

Also in January 2025, CEPRA and The Nature Conservancy (TNC) completed restoration and shoreline protection at Shamrock Rookery Island, located on the backside of Mustang Island in Corpus Christi Bay. Shamrock Rookery Island is an important bird rookery and has been instrumental in recovering brown pelican numbers in Texas. This partnered project is Phase 3 of a phased shoreline protection initiative to remediate post-Harvey damage along the north and south beach areas on the western side of the island. The breach areas were filled with 2,200 cubic yards of material dredged from an adjacent offshore borrow area, restoring ~0.70 acres of beach/shoreline habitat. Approximately 462 linear feet of Natrx concrete-formed shoreline protection structures were placed along the restored shorelines to increase resiliency. A two-acre offshore feeder berm was also placed with 15,000 cubic yards of material from the offshore borrow area that will slowly provide additional material to the shoreline of this highly dynamic bird rookery island.

[Click to learn more about CEPRA projects](#)

Texas Sites and Coastal Sights

The Invisible Sunken Road

By: Kristin Hames, Texas General Land Office

On a mosquito-filled evening in 1865, a squad of Texas rangers pitched camp in what is now Corpus Christi's North Beach area. They had been pursuing a Native American raiding party across the untamed landscape surrounding the small trade village of Corpus Christi. Night was falling, and knowing the Native American group was trapped by the bay, the Rangers decided to camp and pick up the trail in the morning. At dawn they broke camp, saddled up, and rode towards their quarry to find the raiders had vanished, leaving nothing but wet footprints on the shore.

This anecdote describes the settler's discovery of the "Reef Road", a string of oyster reefs that crossed Corpus Christi Bay is roughly parallel to the current US Highway 181 causeway. Though 1865 is the first written record, historians think Native Americans had long used the reefs to traverse the bay. Calling it a "road" was generous – the crooked rows of sharp-toothed oyster clumps were barely visible and exposed only at the lowest tides. Even at low tide, a majority of the Reef Road was submerged. Horses and wagons that went off-course became mired in the sucking mud. Travelers were stranded in the bay if they miscalculated the timing of the tides. Despite these difficulties, travelers used the Reef Road rather than endure the additional 50 miles of trekking around the bay.

The first manmade bay crossing connecting the modern towns of Portland and Corpus Christi was the railway, built in 1887. Travelers continued to use the Reef Road after the railway opened until the first causeway was built in 1915. In the following decades, the Reef Road was slowly broken up by construction activities, dredging operations, and vessel strikes. However, if you cross the Corpus Christi causeway at low tide when the water is calm, you may see large dark patches in the water and riffles where the reef breaks through. As you zoom across the bay at 50 miles per hour, it may be interesting to imagine crossing the bay 150 years ago on the perilous Reef Road. A historical marker for the Reef Road is located on the Portland side of the causeway on Indian Point Pier Road.



Oysters and barnacles encrust a derelict piling of unknown origin in Nueces Bay at the approximate location of the Reef Road and originally constructed causeway.



The GLO staff take a celebratory photo after the completion of the 2025 Coastal Roundup.

Deeper Dive

Coastal Roundup Recap

By Cara Stewart, Texas General Land Office

The GLO held its second annual Texas Coastal Roundup event on April 26, 2025, in South Padre Island, Texas. The event was filled with plenty of fun exhibits, which included watershed models from GLO's very own Texas Beach Watch program, a Mobi Chair provided by Cameron County Parks Beach Patrol, an animal rescue ambulance from the Texas State Aquarium, and even a robot dog from Texas A&M University - Corpus Christi, which was a crowd favorite! Some other popular booths included the GLO's fish printing and bubble station, and two face painters, which the younger crowd thoroughly enjoyed. The event was located at Isla Blanca Park with a beautiful view of the ocean and had an attendance spanning from 400-500 beachgoers and day trippers.

This event would not have been made possible without the helping hands of both GLO staff and the amazing Cameron County Parks team. A huge thank you to Cameron County Parks Director Joe Vega for his endless support and guidance throughout the many stages of event development. If you missed out on this year's event, fear not! The GLO will be hosting the next Texas Coastal Roundup 2026 on Galveston Island! More details to follow. If your organization would like to participate, please contact Cara Stewart at cara.stewart@glo.texas.gov. We look forward to seeing you then!



Cameron County Park Beach Patrol offers Mobi Chairs on local beaches for those with limited mobility to enjoy a day at the beach!



Andrea Walms and Virgie Greb from the Texas General Land Office explain water runoff to the public using the Texas Beach Watch watershed model.

Beach and Dune Digest

Dune It Right: How Sand Dunes are Formed

By: Lauren Medlin, Texas General Land Office

Coastal dunes are a vital natural resource that serve many purposes along the Texas coastline. They are a resilient natural barrier that provides defense against storms and beach erosion. Dunes also provide habitat for native plants and animals. Several of these native plants, in turn, play a crucial role in the development and stabilization of dunes.

Dunes are formed by winds that deposit sand that later becomes trapped by coastal plants called pioneer species. Some common pioneer species that help trap sand include sea purslane (*Sesuvium portulacastrum*), sea oats (*Uniola paniculata*), saltmeadow cordgrass (*Spartina patens*), and bitter panicum (*Panicum amarum*), among others. They form coppice mounds, or embryo dunes, which are the youngest dunes mainly comprised of minimal vegetation. As sand accumulates on the coppice mounds, foredunes are formed. Foredunes are in a constant state of change due to wave and wind action until vegetation stabilizes the sand movement. Not only are sea oats and bitter panicum excellent pioneer species, but they are also highly effective in securing dunes due to their robust and deep root systems. Once elevation

starts to increase and the dunes become fully vegetated, they transition into a more established, fixed dune with minimal movement.

Though coastal dunes are formed through this natural process, the dune system can be reinforced and strengthened through dune restoration projects. Property owners may build new dunes with sand or organic materials, or stabilize existing dunes by planting native vegetation. Planting native vegetation or using other organic materials is preferred to restore and stabilize dunes, and sand fencing may also be used in areas where there is insufficient sand to naturally accumulate. Fencing should conform to the guidelines in the GLO's Dune Protection and Improvement Manual for the Texas Gulf Coast.

Property owners are required to obtain a Beachfront Construction Certificate and Dune Protection Permit from the local jurisdiction prior to conducting any dune restoration efforts, and the Beach Dune team is here to help. If you have questions on dune restoration permits, contact [Lauren Medlin](#).



Sea purslane (Sesuvium portulacastrum) captures wind-blown sand, becoming buried to form an embryo dune.



Sea oats (Uniola paniculata), bitter panicum (Panicum amarum), and saltmeadow cordgrass (Spartina patens) aids in the accumulation of sand and stabilization of dunes.

CMP Success Story

Freshwater Inflow to Texas Bays and Estuaries: A State-Wide Review, Synthesis, and Recommendations

By: Meghan Martinez, Texas General Land Office

More than 31 years have passed since the publication of the seminal book “Freshwater Inflows to Texas Bays and Estuaries: Ecological Relationships and Methods for Determination of Needs” (Longley 1994), which had an enormous impact on the management of environmental flows to estuaries in Texas and worldwide. Freshwater inflows (FWI) are important in moderating salinity, depositing sediments, and providing nutrients for estuaries. As water is diverted for human use, less flows to the coast. Despite the long-standing acknowledgment of FWI needs for the maintenance of estuarine health, FWI standards are still uncommon and only recently have they been studied and regulated in Texas.

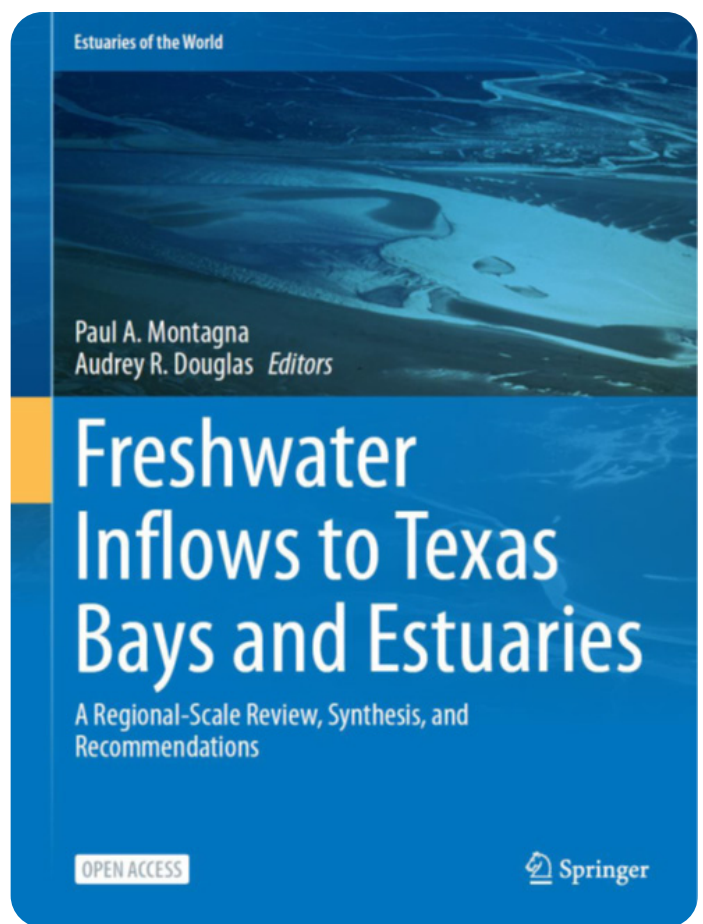
Using CMP Cycle 26 Gulf of Mexico Energy Security Act (GOMESA) funds, the Texas A&M University-Corpus Christi (TAMU-CC) Harte Research Institute for Gulf of Mexico Studies synthesized three decades of new management goals, policies, data, scientific methods, and recommendations for the monitoring, management, and regulation of FWI. This collaborative effort resulted in the publication of an open-access book entitled “Freshwater Inflow to Texas Bays and Estuaries: A State-Wide Review, Synthesis, and Recommendations”, which focuses on ecological processes and compares differences and responses across Texas estuaries.

This book is the result of numerous collaborators and produced several outcomes. By the numbers—

- 84 stakeholders attended a workshop to identify key issues for adaptive management implementation of environmental flow standards for bays and estuaries, data sources, and participants as publication reviewers
- 61 people participated as co-principal investigators, students, or professional staff
- 40 datasets were created and are archived in publicly available data archives
- 46 documents were archived in the publicly available Texas Digital Library
- 11 oral histories were archived in the TAMU-CC Digital Library

- 1 ArcGIS StoryMap was created that summarized the book and acts as an introduction to the science and management of environmental flow research
- The book constitutes 17 chapters and has been downloaded 31,000 times since it was published on January 2, 2025

While major progress has been made in Texas, there is still more to accomplish. This publication is intended to serve as a guide for anyone interested in the conservation, restoration, enhancement, or protection of estuaries anywhere in the world. [Learn more about this project](#)



Freshwater Inflow to Texas Bays and Estuaries: A State-Wide Review, Synthesis, and Recommendations” is available for download and serves as a guide to any interested in the conservation, restoration, enhancement, or protection of estuaries.

Texas Beach Watch Box

Welcome to Summer 2025! Stay Informed with Texas Beach Watch

By Lucy Flores, Texas General Land Office

As Texans and visitors from across the country plan their summer getaways to the Texas coast, the GLO is excited to welcome the 2025 beach season! To help visitors plan their perfect beach day, the GLO strongly encourages use of www.texasbeachwatch.com.

The GLO's Beach Watch program provides weekly updates on the quality of coastal water. The extensive network monitors key indicators, sharing vital findings with beachgoers, agencies, and researchers alike. Specifically, Beach Watch tests for Enterococcus bacteria. While a natural component of coastal ecosystems, the bacteria (originating from animals with hair, fur, or feathers) can be correlated with rainfall and stormwater runoff, and its presence can indicate the potential for disease-causing organisms.

When observed bacteria levels suggest a possible increased risk of illness, a water quality advisory is promptly issued. It's important to note that the GLO issues these advisories to

inform the public and actual beach closures are determined by local authorities.

The GLO's commitment to the public's safety and enjoyment is reflected in these robust sampling efforts. In 2024 alone, the Texas Beach Watch program collected an impressive 8,237 samples along the entire Texas coast. Of these, only 797 samples—a mere 9%—resulted in a beach advisory. This data underscores that beaches generally offer excellent water quality!

All beachgoers should do their part in preserving the beautiful Texas coast: please pick up after pets and dispose of all trash properly. Together, we can keep the Texas coast pristine for everyone to enjoy!



The closed Texas Beach Watch sign offers beachgoers the opportunity to scan a barcode for local beach safety advisories.



The open Texas Beach Watch sign informs the public of the current safety warnings on beaches.



The McFaddin Beach and Dune Restoration Project restored over 14 miles of coastline and planted more than 150,000 native dune plants. It was named one of the Best Restored Beaches of 2025 by the American Shore and Beach Preservation Association (ASBPA).

Natural Resources Damage Assessment Program

Program Highlights – Mid-Year Update

By Tara Whittle, Texas General Land Office

Deepwater Horizon Updates:

We kicked off 2025 with the release of the Draft Restoration Plan/Environmental Assessment (RP/EA) #3: Restoration of Wetlands, Coastal, and Nearshore Habitats. A public meeting was held in Galveston on January 28, and Trustees received valuable feedback both in person and online. Those comments are currently under review, and the final version of RP/EA #3 is in the works. Stay tuned for its release and another public meeting later this year.

In other good news, the McFaddin Beach and Dune Restoration Project (RP/EA #1) wrapped up at the end of 2024. The project restored over 14 miles of coastline and planted more than 150,000 native dune plants. With multiple partners and funding sources, implementation by the GLO, and project management by the GLO Coastal Erosion Planning and Response Act's Kelly Brooks, this effort was a true team success. Monitoring is now underway to track progress over the next five years, evaluate success, and identify any adaptive management needs. We're also proud to share that McFaddin was named one of the Best Restored Beaches of 2025 by the American Shore and Beach Preservation Association (ASBPA).

The Galveston Island Habitat Acquisition Project (RP/EA #2) also marked a major milestone with the closing of a conservation easement on May 27. This action permanently protects 142 acres of Galveston barrier island habitat, with the Galveston Bay Foundation holding the easement. Our Texas Trustee partners over at the Texas Commission on Environmental Quality implemented this important project.

Other Updates:

We're currently developing six new draft Damage Assessment and Restoration Plan/Environmental Assessments (DARP/ EAs) for recently settled cases. These efforts aim to restore natural resources impacted by the six incidents and will be released for public review in the coming months.

There's more to come soon! Our role as Trustees of Texas's natural resources is an ongoing responsibility, and one we're proud to carry forward year-round. For more information, please contact a GLO NRDA Trustee: nrda@glo.texas.gov, or check out this [link](#)



The Natural Resources Damage Assessment (NRDA) team held a public meeting in Galveston on January 28, following the release of the Draft Restoration Plan/Environmental Assessment (RP/EA) #3: Restoration of Wetlands, Coastal, and Nearshore Habitats. Trustees received valuable feedback both in person and online.



Bill conducting research in Matagorda Bay.

Stories From the Surf

Meet Bill Balboa, Executive Director of the Matagorda Bay Foundation

By: Cara Stewart, Texas General Land Office

Executive Director Bill Balboa of the Matagorda Bay Foundation has dedicated his life to preserving green spaces along the Texas coast. However, if you were to ask Bill, he would say that the path to his current position was rooted in both hard work and perhaps a little bit of divine intervention.

At an early age, Mr. Balboa developed an intense passion for the outdoors, which included spending time swimming in resacas with his family in Brownsville and reading an immense amount of National Geographic Magazine, along with a touch of Hemingway. His mother was an English teacher and would often bring young Bill to the library, where he would sit for hours, reading about the different types of wildlife that make up the coastal ecosystem. A few years later, the Balboa family moved from the Rio Grande Valley to Central Texas for his father to continue his studies at the University of Texas. During this time, you could often find the Balboa family enjoying Austin's famous Barton Springs.

Well into his young adult years, Bill attended Texas State University, where he received a Bachelor of Applied Arts and Science, and then on to graduate school. While in graduate school, Bill was hired by the Texas Parks and Wildlife Department's Coastal Fisheries Division, where he spent a

great deal of time in the town of Palacios. After 24 years with the Coastal Fisheries Division, Bill then worked for Sea Grant, where he by luck or perhaps fate, met with an environmental attorney with a familiar face named Jim Blackburn. During a meeting, Jim offered Bill the Executive Director position at Matagorda Bay Foundation, and the rest was history!

Although Bill's career path has been eventful, Bill says he has been blessed with the opportunity to have seen things in this line of work that the public would only get the chance to view on television. For example, in 1995, the Houston Ship Channel caught a female manatee, and Bill worked with Florida Manatee Specialists to ensure its safe return into the wild.

When asked for any final reflections regarding his time with Matagorda Bay Foundation, Bill had this to say:

"Being a Texas native growing up on the coast and the valley, the green space in Texas is what makes this state so unique. Our foundation is essentially trying to preserve history. We believe that people need to see the beauty of Texas to understand why it needs to be preserved."

Bill is extremely proud of the relationships that he has had with the GLO staff over the years and is appreciative of funding on previous and current projects such as the Acquisition of Dog Island State Park and the Bolivar Point Reef Oyster Restoration Project.

To learn more about the environmental impact that Bill and his team are making, please [reach out to Bill](#).



Bill Balboa ready to scuba dive as a youngster. Bill has always had a passion for the outdoors.

Eyes on the Horizon

Kicking Off the Next Texas Coastal Resiliency Master Plan

By: Josh Oyer, Texas General Land Office

The GLO kick-started the multi-year process towards building the foundation for the next iteration of the Texas Coastal Resiliency Master Plan (TCRMP), anticipated to be released in 2028, with a round of virtual Technical Advisory Committee (TAC) meetings in mid-May. As a reminder, the TCRMP is the GLO's ongoing planning process that aims to adapt recommendations for actions and strategies in response to the changing conditions along the coast and the evolving preferences of coastal communities. The planning effort behind the TCRMP is heavily driven by input from stakeholders through the TAC. TAC members include representatives from local governments, community groups, universities, state and federal resource agencies, non-profits, engineering firms, coastal experts, and a host of other foundations, trusts, and regional partners.

This round of TAC meetings focused on gathering input on some of the initial tasks undertaken by the GLO's consulting team for the TCRMP, which includes AECOM and the Harte Research Institute of Texas A&M – Corpus Christi. Two specific goals that are being advanced through this first round will focus on the incorporation of more data-driven elements into the planning process and using the next TCRMP iteration to speak broadly on the history of the Texas coast, the way human activities have shaped the current situation, and how past projects and other interventions have accomplished the restoration, protection, and conservation goals of the GLO and its partners along the Texas coast. Working towards these goals, the TCRMP team presented a list of site visits being conducted to help tell the story of how best practices have been applied across a suite of past projects to glean lessons learned that can be applied to project conceptualization moving forward. The TCRMP team also presented their initial ideas on the creation of a data-driven vulnerability assessment process that will intake comprehensive, coastwide datasets that illuminate the relative level of concern for land change, flooding, and degraded water resource vulnerability issues at the local and regional levels. Data for this assessment will be used to better understand how these vulnerabilities have changed over time, the current conditions, and how they are anticipated to be influenced in the future.

Site visits by the TCRMP team are ongoing, with many already completed in regions 2, 3, and 4. AECOM is performing a desktop analysis of the project site using historical

documentation before visiting the sites with project partners and capturing drone photography to better discern the current site conditions that can be used for further analysis after the site visits are completed. The GLO has been very grateful for the close involvement of project partners in visiting these sites and site visit conclusions are forthcoming. Please stay tuned via the CMP Newsletter for details on the next steps regarding the TCRMP. For questions or comments, please contact [Joshua Oyer](#).



A recent site visit to Adolph Thomae Jr County Park to meet with Cameron County staff. The County has partnered with the GLO through multiple phases of shoreline stabilization and public access improvement projects for the park, leveraging CEPR, CMP, and Coastal Impact Assistance Program (CIAP) funding over many years of project implementation efforts.



Marsh vegetation has expanded and diversified landward of the rock rubble breakwater at Arturo Galvan Coastal Park. This long-established living shoreline has survived multiple tropical storms and hurricanes.

Living Shorelines Lowdown

Living Shorelines Withstand the Test of Time

By: Kristin Hames, Texas General Land Office

Over the past 20 years, 125 living shorelines were constructed on the Texas coast. When comparing living shorelines to hard infrastructure, one of the most common questions is – how long do they last? While the answer is site-specific, there are many living shorelines that were constructed 10 to 20 years ago that are still flourishing. A benefit of living shorelines is they “grow back” because they incorporate plants and natural features. Living shorelines also balance out long-term erosive forces and self-repair after natural disasters by accreting sediment and facilitating plant growth. The following are some examples of publicly accessible Texas living shorelines protecting park infrastructure that were built 10-22 years ago:

- Arturo Galvan Coastal Park, Port Isabel: Construction year 2015
- Baronridge Park, Seabrook: Construction year 2012
- Driscoll Rooke Covenant Park, Bayside: Construction year 2003
- Goose Island State Park, Rockport: Construction year 2001
- Job Beason Park, Oak Island: Construction year 2009

These living shoreline projects are a “hybrid” construction type; smooth cordgrass plugs were planted along the shoreline, and rock rubble breakwaters were constructed to protect the new plants. Over the years, the cordgrass spread and other native plant species colonized the shoreline to form marsh complexes used by birds, shrimp, crabs, and juvenile fish. These long-established projects along the Texas coast have survived multiple tropical storms and hurricanes, and show the resilience of living shorelines.

A complete inventory of Texas living shorelines projects can be found on the Texas Living Shorelines Project Explorer map, available at the [GLO Living Shorelines website](#).



Smooth cordgrass thrives in hybrid living shoreline at Baronridge Park. Hybrid living shorelines involve planting smooth cordgrass plugs along the shoreline and then constructing a rock rubble breakwater to protect the new plants.

Kevin & Jason's Retirement Farewell



Jason Pinchback and Kevin Frenzel enjoying some celebratory cake during their retirement party at the GLO's Coastal Resources office.

Jason Pinchback: Riding Into the Next Chapter

The last 14 years at the GLO have offered invaluable opportunities to learn, grow, and connect—not just with colleagues and coastal communities, but with the Texas coast itself.

To my coastal partners, community influencers, and dear colleagues: your expertise has been instrumental in advancing our understanding of how to restore and protect the water quality of our treasured coastal resources.

Of all my projects, helping build the Water Resources Program and develop [Clean Coast Texas](#) has been the most rewarding. This collaborative effort—shaped by the talents of Texas A&M AgriLife, Harte Research Institute, Texas Sea Grant, and the Meadows Center for Water and the Environment—has grown into a bold, organically developed program. Clean Coast Texas has taken on what many might call a mission impossible: helping communities grow in ways that protect, rather than degrade, the water resources they depend on.

No region has fully cracked this code—but I believe, with all my heart, that this team is making real, lasting progress. Through sustainable drainage, strategic partnerships, and community-driven collaboration, you're laying the foundation for cleaner water and more resilient coastal communities.

Though I'm stepping away from state service, I'm not stepping away from the mission. I'll remain active in watershed sciences and continue working alongside communities and organizations to navigate complex water resource challenges. Let's stay in touch at jason.pinchback@cleanwaterimpact.com

Thank you again for the journey—it's been an honor.



Jason Pinchback competes in the Austin Rattler race.

Kevin Frenzel: Surfing into the Next Chapter

To my friends in Coastal Resources and colleagues throughout the Texas Coast, I have decided to take the next step of retirement and spend a lot more time at the beach and with my family. This decision did not come easy as working at the GLO has been the best job of my 40-plus-year career. I grew up on the coast near Port Aransas and spent my youth either working as a deckhand on fishing boats or surfing when the waves were good, so finding a job that allowed me to work in the area that I played in was a dream come true. I am very proud of the work we have accomplished over my years here and I want to acknowledge the great people who work for the GLO, especially the Coastal Team. They are so dedicated to the mission of the agency, and I wish them all well for the future.



Kevin enjoying a day at the beach.



Texas GLO staff at a scheduled SpaceX launch in South Padre Island. From left to right: Julie McEntire, Andrea Walms, Kelly Brooks, Meghan Martinez, Carver Wray, Rita Setser Kevin Frenzel, and Joshua Oyer.



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