

### The Management Plan

Should we use a magic 8-ball? (Probably not!) We gather input from our stakeholders instead.

Our new management plan is near completion and guides our work for 2015 – 2020.

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# Guide to the Future!

By Jace Tunnell

## Reserve Director

The Reserve is happy to announce the near completion of our new management plan for 2015-2020. This is only our second management plan since designation in 2006, and contains a guided path forward for the program over the next five years. A lot of things have changed since our first management plan, which contained development of program infrastructure, guidance on formulating advisory boards and committees, initiation of core programs, and a map to establishing partnerships. The Reserve has been very successful on all these fronts, including building the Estuarine Research Center at UTMSI and the Bay Education Center in Rockport, as

well as acquiring a conservation easement on the Fennessey Ranch. We have an established 12 member Reserve Advisory Board that helps to guide the program, and we have developed the System Wide Monitoring Program with real-time data collection, built out the vegetation monitoring sites, and are currently completing the installation of the Surface Elevation Tables to monitor long-term trends of the marsh. Our most important accomplishment includes establishing new partnerships to help make all these things possible.

The new management plan has three goals, 26 objectives, and 77 action

items. These action items hold the key to actual implementation and showing progress to enhancing existing programs, starting new projects, and establishing new educational activities that promote science to the next generation of decision makers.

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We look at this management plan as a stepping-stone for success in reaching out to the community. In order to make this happen, we will reform our original sector advisory committees to help us implement the plan in the most effective way, through stakeholder engagement.

The first step is to hear your thoughts on the draft management plan. We have scheduled a public meeting:

**October 13<sup>th</sup> at 5:30pm**  
 Bay Education Center  
 Rockport, Texas (121  
 Seabreeze Dr. 78382). 🌟

## + We want to hear from you!

All comments on the draft plan are due to Jace Tunnell (jace.tunnell@austin.utexas.edu) by **October 31, 2015**

Here is the link to the draft plan:  
<https://sites.cns.utexas.edu/manerr/about/management-plan>

# Happy National Estuaries Day!

By Nicole F. Pringle  
 Education Specialist

Celebrations take place to honor something or someone, to designate a special day, and to embrace it. Each year in late September, National Estuaries Day is celebrated to acknowledge the importance of estuaries, where rivers meet the sea.

On Saturday, September 26<sup>th</sup>, The University of Texas Marine Science Institute offered estuary themed activities, games, stories and hands-on experiences to the public. The day kicked off with a Hands-on-Habitat tour

to engage visitors at our Wetlands Education Center. This is an opportunity to touch, feel and learn first-hand about sand dunes and salt marshes - animals that live there, plants that thrive there and the adaptations they use to survive. The Education team gave a sneak preview of the new *Cabinet of Curiosities* and some of its discovery drawer contents, including sea beans, sand, marine debris and birds. In the afternoon we offered sea stories, marine animal puppets, viewings of live animals, crab origami and fish rubbings.



Numerous partners joined us to celebrate this special day, including many of the National Estuarine Research Reserves. Together, we can protect these nurseries of the sea, not only on National Estuaries Day, but all year long! 🌟





Our coastal marsh ecosystems are valuable systems. How can we quantify this value? Blue Carbon can help us answer that question, and work as a tool for local land and resource managers to help protect and restore these habitats.

By Dana Sjostrom

Coastal Training Program Coordinator

## Blue Carbon

Coastal Blue Carbon refers to the ability for coastal wetland habitats to store greenhouse gases. Along the Texas Coast these habitats include seagrasses, mangroves, and salt marsh systems. These coastal habitats can sequester up to 10 times more carbon than terrestrial forests, making the coastal wetlands prime candidates for conservation and restoration. Although we visualize a salt marsh with above ground biomass, the capacity for the soil to store carbon is much greater than that visible greenery. The entirety of the

system, from the tips of cordgrass or mangrove down to several feet below the surface, really does matter. Since the carbon storage capacity for wetlands is so massive, these habitats are also at the forefront of climate change discussions. If we destroy coastal wetlands, we release huge amounts of carbon dioxide into the atmosphere.

### What can your coastal habitats do for you?

Think for a moment about something valuable to you. What is it that makes that 'something' valuable? Is it monetary? Of personal value? If you gave it to someone else would it hold

the same value to that person? Assigning true value can be a difficult process. If we examine our coastal habitats as providing some kind of value, we can list a host of valuable functions including habitat for a variety of organisms, filtering capability for water quality, buffers for storms, and recreational use. These ecosystem services are a useful component to any argument to preserve or conserve wetlands. Carbon storage, and the coastal blue carbon component, can provide an interesting valuation strategy for our coastal wetlands and guide future land-use and conservation efforts. ♣

## Gulf of Mexico COASTAL TRAINING



Our Coastal Training Program aims to meet the needs of coastal decision-makers to provide relevant, science-based training opportunities throughout the year. We are partnering with Restore America's Estuaries and the Gulf of Mexico Training Program to

bring the workshop "Blue Carbon: A Management Tool for Conservation and Restoration of Coastal Wetlands" to the Reserve November 5, 2015. For details about this workshop contact [dana.sjostrom@utexas.edu](mailto:dana.sjostrom@utexas.edu).





# The Brazilian Peppertree: A Sprinter in a Marathoner's World

By Katie Swanson  
Stewardship Coordinator

The Brazilian Peppertree (*Schinus terebinthifolius*), some people hate them, some people love them. If you don't know what they are and you are in located in Port Aransas - look in the dunes, the wetlands or any open area and you are probably looking at a Brazilian peppertree.

The Brazilian peppertree is an aggressive, fast growing plant that

displaces most native vegetation. They have been known to grow 7-15 feet in 2 years! Often when Brazilian peppertrees are cut down or removed, you quickly realize there is no other vegetation under it. The only thing in its proximity is probably another Brazilian peppertree. They are aggressive competitors and have the ability to shade out other plants. Sometimes they choke out other trees or shrubs by growing right through the middle, intertwining itself with the previously established plant. And if that wasn't enough, the presence of Brazilian



peppertree fruit extract is believed to reduce seed germination of native plants. Coastal Texas is a harsh environment, with salt spray, wind, heat, and drought often causing stress on native plants. However the native plants are adaptive, they prefer to look at this environment as more of a marathon, taking their time for growth. Not the Brazilian peppertree, they are sprinters in a marathoner's world.

If you see a huge, bright green mass, and if it has red berries in the next couple of months – bullseye – you've spotted a Brazilian peppertree



So, what does a monoculture of Brazilian peppertree mean?

This means a lot for the animals that are dependent on the native plants. This change can be devastating for an island that loves its birding. Port Aransas is a haven for birds and the



Volunteers in the Port Aransas Nature Preserve at Charlie's Pasture remove Brazilian peppertrees to make room for native vegetation.

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people that enjoy watching them. Brazilian peppertree reduces the biodiversity of not only the plants, but also the animals. In natural areas, such as Charlie's Pasture Nature Preserve, that native grassland prairie vegetation provides habitat and food sources for numerous animal species. Brazilian peppertrees threaten that habitat, as well as wetland and mangrove habitats.

The Texas Gulf Region Cooperative Weed Management Area was formed in 2014 to help fight against this invasion. It is a collaborative effort of local, county, and federal agencies, non-profit organizations, university researchers and community

representatives to control the spread of the Brazilian peppertree from Port O'Connor to Packery Channel on the Texas Gulf Coast. The mission of this group is to restore and protect habitats that are threatened by the Brazilian peppertree. The members have made it a priority to restore the areas to native vegetation. At the beginning of October, the group focused on an impacted area of Charlie's Pasture Nature Preserve in Port Aransas. Over 20 individuals came out to remove the invasive plant, and replanted the area with over 30 costal live oaks, cedar elms, and black willow trees. Birds tend to use the Brazilian peppertrees for



Watch our video!

structure, not much else, so by replacing the removed trees with native ones, we are replacing that structure as well.

If you are interested in Learning more about Brazilian peppertrees, please consider participating in the Texas Gulf Region Cooperative Weed Management Area or joining a work event. Together we can make a difference. ✪

## New Faces in our Education Sector!

Amanda Taylor joins us as an Environmental Educator. She looks forward to bringing students aboard the *R/V Katy* for hands-on bay explorations. She works to educate the



next generation of marine scientists and inspire others to learn about these important habitats.



Nicole Pringle is our new Education Specialist and Volunteer Coordinator. She looks forward to developing new educational programs and

bringing enthusiasm to her participants. She also plans to work with volunteers for projects in our bays and estuaries.





# Teaming up for Teachers

By Carolyn Rose Education Coordinator

Dr. Ed Buskey,  
UTMSI professor,  
sharing his  
plankton  
research with  
participants



The NERRS educators from the Gulf of Mexico (Gulf) reserves teamed up last spring and summer to help Gulf-state science teachers integrate estuarine research and data into their teaching. The Gulf-state education coordinators received a NOAA Gulf of Mexico Bay-Watershed Education and Training (B-WET) grant to design and deliver *Teachers on the Estuary* professional development workshops that highlighted local and regional Gulf research. Reserve education coordinators facilitated a total of five professional development

workshops, from March through August, 2015. Workshop locations traversed the Gulf, from Texas to Mississippi, Alabama, and Florida. The collaborative workshops allowed middle and high school science teachers to interact with local scientists and regional educators from across the Gulf.

The Mission-Aransas Reserve offered a collaborative *Teachers on the Estuary* workshop this past July for 14 middle and high school science teachers who teach in Gulf coastal counties. Scientists from

UTMSI, Texas Sea Grant, Texas A&M University at Galveston, and Texas A&M at Corpus Christi shared research and led workshop activities that focused on oil spills, climate science, and freshwater inflows to estuaries. Reserve education coordinators facilitated activities from the NERRS *Estuaries 101* and NOAA *Ocean Data Education* curricula. The combined contribution of Texas Gulf Coast scientists and education coordinators from Mississippi and Florida allowed teachers to view locally relevant science concepts in a broader Gulf-wide perspective and understand how cross-cutting issues effect other Gulf estuaries and reserves.

Getting teachers outside to experience the estuarine environment is an important component of *Teachers on the Estuary* trainings and the workshop

(continued)



Dr. Amber Hardison,  
UTMSI Assistant  
Professor, helping  
teachers interpret  
water quality data





evaluations showed that teachers enjoyed the field experiences more than any other aspect of the workshop. Teachers at the Mission-Aransas Reserve workshop investigated the northern migration of black mangroves during boat excursions to Harbor Island and conducted water quality testing atop kayaks at Fennessey Ranch. The field experiences were designed to give teachers the knowledge and skills needed to teach their students the science concepts and methods that they learned during the workshop.

Increasing estuarine stewardship among teachers and their students is another goal of *Teachers on the Estuary* trainings.

Dr. Anna Armitage,  
Texas A&M University  
at Galveston Assistant  
Professor, discussing  
mangrove biology



Mission-Aransas Reserve participants received a personal stipend to offset travel and lodging costs and an additional stipend to facilitate student environmental stewardship projects. One workshop session introduced ideas and resources for conducting stewardship activities. During this session, the teachers brainstormed and shared stewardship project ideas

that they planned to implement with their students over the 2015-2016 school year.



Please contact the Reserve's education coordinator, Carolyn Rose (361-749-3152, [carolyn.rose@utexas.edu](mailto:carolyn.rose@utexas.edu)), if you would like more information about *Teachers on the Estuary* workshops 🌱

## Kudos for The Reserve!

Our photos were honored in the National Oceanic and Atmospheric Administration's Estuary Photo Contest.



*Squid Observation* wins in the **Play** category.



*American Alligator* wins the **Creepers** category.



*Blue Crab* received Honorable Mention.





## Citizen Science Larval Blue Crab Monitoring Project

By Dr. Ed Buskey, Research Coordinator

Blue crabs are ecologically and economically important species in Texas bays and estuaries. Their scientific name *Callinectes sapidus* means a savory (good tasting) and beautifully swimming crab. In addition to being an important commercial shellfish species enjoyed by seafood lovers, they are consumed by other important marine species including red drum, sea turtles and whooping cranes. Unfortunately, blue crab populations appear to be declining on the Texas coast, as well as in some other parts of their range. This observation is supported with data from Texas Parks and Wildlife Department's monthly trawl data collected in Texas estuaries. These data show a clear and steady decline in blue crab populations over the past 30 years.

The reasons for this decline in blue crab populations are not well understood. Some argue that the decline is due to overfishing of blue crabs in Texas, while others suggest that an increase in red drum populations over the past 30 years (since gill-netting of red drum was banned) could be placing additional predation pressure on juvenile blue crabs. It is also possible that a general decline in habitat quality could

be contributing to reduction of blue crab populations, including reduction in seagrass beds, increased salinities due to reduced freshwater inflows to bays and estuaries and/or an increase in pollutants in our coastal bays.

A method for measuring blue crab larval recruitment has been developed which involves placing so called "hog's hair" collectors in the sea. These are made of sections of PVC pipe with air-conditioner filter material wrapped around them to simulate the type of surface the crab larvae like to settle on. These collectors are placed in the water for 24 hours, and then they are rinsed

(continued)



Photo Credit: Kent Ellington





with freshwater to get the crab larvae to release their grip on the filter and are collected in a sieve,



Hoghair collector to capture blue crab larvae

placed in a small jar and preserved with ethanol. These samples are then examined under a microscope to count the number of blue crab larvae.

To learn about blue crab recruitment in the Mission-

Aransas estuary, hogs hair collectors need to be placed at multiple locations on a daily basis. This requires a lot of effort, and would not be possible without a large research grant to hire several full time employees. We decided to start this effort on a shoestring budget, and our volunteer coordinator started a citizen scientist project to get volunteer help to collect samples at multiple locations. Sampling was performed at up to 5 locations over the past four

years, from 2012 until the present. Dr. Zack Darnell helped train the volunteers in both setting the traps and identifying the blue crab larvae. In 2014 we received a grant from the Texas State Aquarium that has allowed us to hire Tracy Weatherall to examine the over one thousand samples collected. Once the samples were counted, Dr. Lindsay Scheef performed some preliminary analysis of the data.

Our initial questions about recruitment of blue crab larvae included:

- What proportion of blue crab larvae enters the estuary?
- How far do they go before they turn into post-larval juveniles?
- Is blue crab larval recruitment seasonal?
- How do periods of drought and amount of freshwater inflow to estuaries affect larval recruitment?

## What do the data indicate?



Our analysis of this citizen science data has just begun, but our preliminary analysis reveals that only a little more than 1% of the larvae in the Gulf of Mexico appear to enter the passes to the estuary. We find very few blue crab larvae at any distance from the ship channel, suggesting that most larvae molt into juvenile crabs very near the ship channel. In addition, this suggests

that few, if any, female blue crabs release their larvae within the estuary, even when salinities are high during droughts. Our seasonal data indicate that blue crab larvae can be collected throughout the year, but they are most abundant in the fall, winter, and spring. We need to perform further data analysis to determine the impact of drought on blue crab recruitment. ★



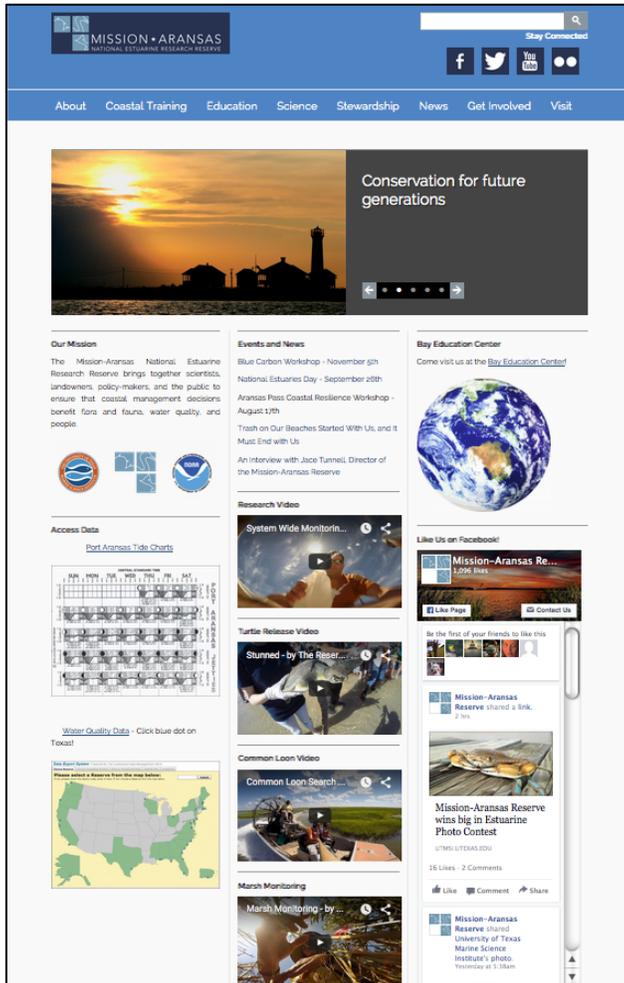


# New Looks, New Likes

The Reserve has new videos online, and launched our new website.

Visit [www.missionaransas.org](http://www.missionaransas.org)

Check us out.



Click the play button or the images below for a selection of videos from our YouTube Channel.



Lydia Ann Lighthouse



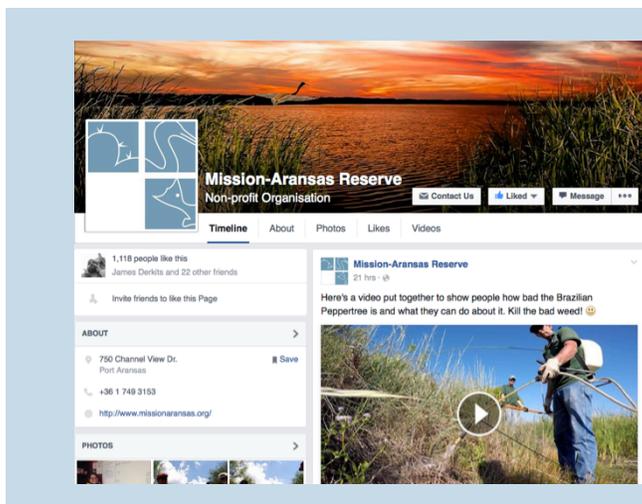
Marsh Monitoring



Cedar Bayou



Loon Search and Recovery



Check out what we're up to on Facebook. We'll give you everything from Fun Friday Critters to Public Meeting Announcements.

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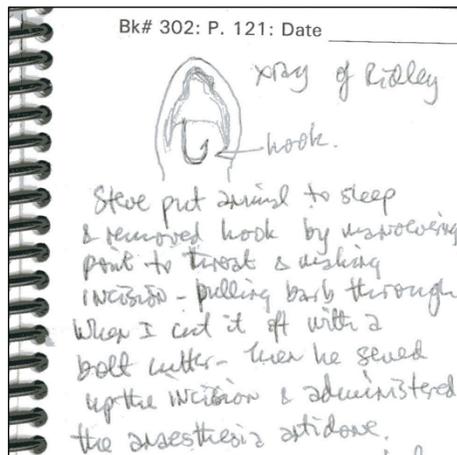


# Tales of Traveling Turtles

By Tony Amos  
Animal Rehabilitation Keep (ARK)

To reshuffle a famous Yogi Berraism, "It all begins when it starts". This particular ARK saga began with a shark fisherman hauling in a sea turtle on the Padre Island National Seashore Gulf beach. That was on 21 September 2002, near the Autumnal Equinox thirteen years ago. At the time I wrote in the notes: *It was an adult female Kemp's Ridley about 5 miles from the end of the paved road. Two people sitting with it near surf zone. The mosquitoes were so bad you could hear and feel them hitting your face. In the truck I inhaled a mosquito (Yum!). Mileage 82.4. Meanwhile Hurricane Isidore was threatening and we had to prepare for that. Two days later (Isidore turned north and hit New Orleans but still eroded our beaches) I drove the turtle to Dr. Steve Wilson in Port Lavaca who surgically*

removed the hook - see notes below:



On the return driving at 70mph I felt the truck shudder, heard a noise and looked in the mirror to see the turtle rearing up, seemingly about to climb out! A stop at the famous DQ in Tivoli, Texas verified that active as she now was, she couldn't get out of the truck. *Mileage 146.6*

A month later, outfitted with two metal tags and an electronic chip (pit tag as pictured on the left) the Ridley turtle was released

from Mustang Island Gulf beach opposite Access Road #1 A in Port Aransas. That was the last I heard of her ... until now. Today

I got this email from the Archie Carr Center for Sea turtle Research that explains it all:

*Hi Tony, Jaime Pena sent me his tagging data from Rancho Nuevo for 2014 and 2015. In there was one of your Kemp's ridleys! The turtle with PIT tag 423C1F4A0D (XXC628/XXC629) nested at Rancho Nuevo on 5/15/2015 Enjoy!*

We seldom know what happens to sea turtles the ARK rescues and

Released back to the Gulf



releases back to the wild so news that a Kemp's Ridley nesting on the ancestral nesting beach in Ranch Nuevo, Mexico this year





(continued) was one we saved and released 13 years ago made it all worthwhile! Two other amazing turtle stories: the ARK recently took in two



loggerhead hatchlings. They look like just-hatched turtles with no bio growth and yolk sac still evident. Most remarkable, one was found in a residential canal in Ingleside on the Bay and the other in the Corpus Christi Ship Channel in the bay. Could it be that a loggerhead momma nested on one of the bay beaches? That would be most unusual. Also a visitor found an egg on Mustang Island Gulf beach. Of all the dozens of “turtle eggs”

Heading back to the Gulf.

visitors call in over the years, this is the first that was the real thing (though not viable)! I think it’s a green turtle’s. ☆

### Green Tip: Why Buy Local?

With the holiday season right around the corner, below are a few tips on why it’s important to keep your shopping local!

1. Buy Local -- Support yourself: when you buy from an independent, locally owned business, rather than a nationally run businesses, more of your money is used to make purchases from other local businesses, service providers and farms -- continuing to strengthen the local economy.
2. They support community groups: Non-profit organizations receive an average 250% more support from smaller business owners than they do from large businesses.
3. Keep our community unique: Our one-of-a-kind businesses are what make our community unique. Our tourism businesses also benefit.
4. Reduce environmental impact: Local businesses make more local purchases requiring less

transportation and generally set up shop in town or city centers as opposed to building new. This generally means contributing less to sprawl, congestion, habitat loss and pollution.

5. Create more good jobs: Small local businesses are the largest employer nationally and in our community, provide the most jobs to residents.
6. Get better service: People with a better understanding of the products they are selling and take more time to get to know customers usually work at local businesses.



Invest in community: Local businesses are owned by people who live in this community, and are more invested in the community’s future. ☆



**Administrative**

Reserve Director | Jace Tunnell

**Education**

Education Coordinator | Carolyn Rose

K-12 Program Administrator | Sara Pelleteri

Education Specialist | Nicole Pringle

Environmental Educator | Amanda Taylor

Road Scholar Coordinator | Linda Fuiman

Education Specialist – BEC | Nelida Spurrell

**Stewardship**

Stewardship Coordinator | Katie Swanson

Research Scientist Assistant | Hunter Samberson

Animal Rehabilitation Keep | Tony F. Amos, Andrew

Orgill, Amanda Terry, and Guy Davis

**Research**

Research Coordinator | Dr. Ed Buskey

Research Assistant | Cammie Hyatt

Research Assistant | Collin Croulet

Research Associate | Dr. Lindsay Scheef

Research Associate | Dr. Jianhong Xue

Research Scientist Assistant | Tracy Weatherall

Graduate Research Assistant | Jason Jenkins

Cooperating Scientist | Dr. Tracy Villareal

Cooperating Scientist | Dr. Ken Dunton

**Coastal Training Program**

Coastal Training Program Coordinator | Dana Sjostrom

*The Mission-Aransas National Estuarine Research Reserve includes 185,708 acres of federal, state, and private land, on the south Texas Coast. A great diversity of habitats are contained within the Reserve, including tidal marsh, riverine, marine, prairie, mangrove and woodland. Protecting these habitats, encouraging resource conservation and providing opportunities for research and education are among the major goals of the Reserve. The Reserve is administered by the University of Texas Marine Science Institute and the National Oceanic and Atmospheric Administration, in partnership with governmental agencies and private organizations. Mission-Aransas Reserve partners include the United States Fish and Wildlife Service, Texas General Land Office, Texas Parks and Wildlife Department, Texas Department of Transportation, Coastal Bend Bays & Estuaries Program, Coastal Bend Land Trust, The Nature Conservancy, Fennessey Ranch, and Aransas County/City of Rockport.*

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**Mission-Aransas National Estuarine Research Reserve**

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