



Take a trip along our 10 year
roadmap – a visual tour.

We plan to celebrate our
10th Anniversary
September 24, 2016.

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There's always great stuff happening here!

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A Decade of Research, Education, and Stewardship

By **Jace Tunnell**
Reserve Director

In 2006, the Mission-Aransas National Estuarine Research Reserve (Reserve) was designated as part of the National Estuarine Research Reserve System making it one of 28 Reserves around the country, educating the public about estuarine habitats through good science, stewardship, training, and outdoor education programs. This year marks our tenth year in existence, allowing us to pause and take a look back at what we've accomplished and where we want to go in the future. We've put together a picture timeline of milestones from over the past 10

years to help visualize the successes (see pages 2 and 3).

What will the future hold? Thanks to our partners at the Coastal Bend Bays & Estuaries Program, we are working on designs for creating educational signs and trails on UTMSI campus called the Dunescape. We also plan to open up portions of the Animal Rehabilitation Keep so visitors can see the process of helping animals recover from injury. We have a huge effort underway to renovate the Marine Science Education Center at UTMSI, which will enhance the educational experience of visitors

about habitats and estuarine life living within the Mission-Aransas Reserve. We would like to develop a friends group for the Reserve to help promote our efforts, and we are looking to build cabins at Fennessey Ranch for visiting scientists. We will be looking for ways to develop new citizen science projects so that

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good data can be collected by passionate folks living and playing in the estuary. All of these efforts will take time, money, and determination. If you would like to help initiate any of these efforts or if you have other ideas to

help shape our future for a better community, please let us know. It all comes down to what we are setting up and leaving behind for our next generation. Come join us! ★

Mission-Aransas National Estuarine Research Reserve 10th Anniversary Timeline



After a multi-year site selection process, the Mission-Aransas National Estuarine Research Reserve is designated as the 28th reserve in the nation. An easement on Fennessey Ranch is also acquired at designation.

2006



The Wetlands Education Center is constructed. It provides a unique opportunity for school groups and the public to get an up-close view of how a wetland looks and functions.

2008



The Bay Education Center in Rockport, Texas is constructed. The Center tells the story of an estuary with engaging exhibits that reveal the ecological and economic importance of the Mission-Aransas Estuary.

2010

2007

Research begins in earnest. Four system-wide monitoring stations are built and placed throughout the estuary.



2009

The University of Texas breaks ground for new headquarters for the Mission-Aransas Reserve - the Estuarine Research Center.



2011

The Estuarine Research Center is completed. It provides over 35,000 ft² of state-of-the-art laboratories and office space. The building receives a gold certification for Leadership in Energy and Environmental Design.





Installation of equipment at five sites throughout the estuary to measure water and soil elevation changes.



A new Water Wise Wildlife garden is constructed at the Marine Science Education Center in Port Aransas to showcase the utility of native landscaping.



2016



A new management plan for the Mission-Aransas Reserve is developed.

2015



Figure Credit: Sally Palmer

2013

New programs begin - *Teachers on the Estuary* and research on freshwater inflows.



2014

The Estuary Explorium is opened at the Marine Science Education Center in Port Aransas. The Estuary Explorium houses approximately 950 ft² of engaging exhibits that teach the value and transitional nature of the estuarine environment.



Join us to celebrate **National Estuaries Day** and our 10th Anniversary!

When:

September 24, 2016

12 – 5 pm

Where:

University of Texas Marine Science Institute

Marine Science Education Center

855 East Cotter Ave,
Port Aransas, TX 78373

Hands-on activities and a great line-up of speakers await. Plan on joining in on the fun!





Completion of the Water Wise Wildlife Garden

By Katie Swanson
Stewardship Coordinator

In the previous Fall 2014 newsletter, I wrote about the Mission-Aransas Reserve and the University of Texas Marine Science Institute receiving funding to design and install a water wise wildlife garden on campus in Port Aransas. **As of May 20th, it is officially installed, open, and ready for you to take a stroll.** In late May, we



We're on an island, after all, so we held a 'Net Cutting' instead of a 'Ribbon Cutting' to signify the official opening of the Water Wise Wildlife Garden.

From Right:

Ellen Reisinger and Laura Clark (*Texas Master Naturalist*), Dr. Robert Dickey (*UTMSI Director*), Dr. Steve Lanoux (*retired Assistant Director for Operations for UTMSI*), Katie Swanson, Honorable Chairman Todd Hunter (*Texas Representative, District 32*), Karen Blaney (*UT Sustainability Operations*) and Rae Mooney (*Coastal Bend Bays & Estuaries Program*)

held a ribbon-cutting ceremony, opening the Water Wise Wildlife Garden for the community and visitors to enjoy. We had a great turnout at the ceremony, including: Texas Representative Todd Hunter, members of Port Aransas Chamber of Commerce, Port Aransas City Council, Office of Sustainability at the University of Texas at Austin, Keep Port Aransas Beautiful, Port Aransas Garden Club, Texas Master Naturalists, Texas Master Gardeners, and members of the community.

The garden would not have been possible without the help of Mid-

Coast Texas Master Naturalists and Aransas/San Patricio Master Gardeners, Ellen Reisinger and Laura Clark, who helped design, plant, and weed the garden into the beautiful, magical place it has become. The staff at the Marine Science Institute has also been

instrumental in assisting with the construction, planting, and installation of the garden.

This past winter and spring, over 500 plants of 74 different species were planted in the Water Wise

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The Water Wise Wildlife Garden officially opened on May 20th. The garden contains walking trails with plant ID stakes, and educational signage discussing the importance of native landscaping and water conservation.



Wildlife Garden. The garden contains five “themed” areas, along with educational signage that teaches about the importance of native landscapes for water conservation and wildlife. For example, in the butterfly themed area, we have planted Coralbean (*Erythrina herbacea*), Green Milkweed (*Asclepias viridis*), and Mealy Blue Sage (*Salvia farinacea*). These plants will provide resources for the many butterflies and native bees that are at risk from habitat loss, introduced diseases, and pesticide use. The grass prairie area contains grasses, along with thousands of wildflower seeds, which will provide a beautiful color pallet throughout the year. The Xeroscape contains a number of coastal shrubs and trees, and succulents, including Red Yuccas (*Hesperaloe parviflora*), Agaritas (*Mahonia trifoliolata*), and Prickly Pear Cactus (*Opuntia engelmannii*). These

plants provide critically important food and cover for resident songbirds and migrants that pass through the Texas Coastal Bend. We strived to plant species that are native to Mustang and Padre Islands, plants that are drought tolerant, and good habitat and food resources for native species.

They will also require minimal care to maintain once established.

On March 11th, we held a community planting day, where over 35 volunteers came out to the Marine Science Institute to help with the planting of over 80 plants and the making of seed balls, which were planted in the Water



The Port Aransas Garden Club even presented the Marine Science Institute with the Commercial Garden of the Month!

From Right: Ben Keller (*Gardener*), John Nickless (*Gardener*), Miguel Abecia (*Grounds Maintenance Leader*), Dr. Robert Dickey (*Director*), Katie Swanson, Veril Barr (*Landscape Services Supervisor*), and Dr. Steve Lanoux (*retired Asst. Dir. for Operations*)

Wise Wildlife Garden at a later date. The seed balls were tiny balls of clay that were packed with wildflower seeds. The idea behind them, is that rain will naturally disperse the seeds, and protect them from wildlife foragers.

Currently we are working to develop walking tours and other educational programs that will focus on the Water Wise Wildlife Garden. This is a natural connection to the Wetland Education Center, where tours are currently offered. Be sure to stop by, and take in the new surroundings! 🌟



Indian Blanket
Gaillardia pulchella

Click to watch a video of our volunteer planting event!



Science and Sun for Everyone

By Carolyn Rose
Education Coordinator

The Mission-Aransas Reserve will offer teachers and families a chance to soak up some cool science this summer. Middle and high school teachers who are part of the Texas State Aquarium / Education Service Center Region 2 Science Collaborative will join Reserve educators and stewardship staff for *Teachers on the Estuary* (TOTE) professional development workshops on July 11-12 and 14-15. The workshop activities will target earth science teaching standards, while highlighting the global problem of marine debris and the actions that people can take to help reduce trash in the oceans. The TOTE workshops will allow teachers to learn how scientists monitor



Marine debris artwork created during our March 12th SEAsonal crafts program, "Trash2Treasure."

marine debris by conducting hands-on laboratory and field activities that they may later teach their students.

Mark Your Calendars!
Sea Stars
June 18, July 2, July 16, August 6
Estuary Explorers
June 25, July 9, July 30, August 13

This summer's Saturday morning programs will offer families the opportunity to explore our coastal environment and participate in interactive activities at UTMSI's Marine Science Education Center. These free programs include *Sea Stars*, for families with children aged 3 to 5, and *Estuary Explorers*, for families with children aged 6 and above. All programs will focus on



Families had a chance to investigate local fishes during a free Estuary Explorer lab program.

marine or coastal topics and many will include an opportunity for families to share outdoor experiences in the natural environment. Saturday morning programs will begin at 10:00 a.m. and
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space is limited, so reservations are encouraged.

Summer afternoons in South Texas can be warm, to say the least! When the beach gets too hot, families are invited to join us indoors for our free *Film and Discovery Series*. Families with children aged 6 and above discover the importance of marine environments and how we can all help protect them.

Nicole Pringle takes a group out to the beach for a hands-on educational program, "Shoreline Science."



Film and Discovery Series:
Coastal Themed Films + Hands-on Science/Art Activities
3:00 – 4:00pm
Wednesday afternoons
June 15 to August 3

There is room for all to view the afternoon films, but space is limited for the following hands-on activity and reservations are recommended.

Please join us at the Reserve this summer to soak up some fun science – both in and out of the sun!

For information about family summer programs or to RSVP for a program, please contact Nicole Pringle at 361-749-3153 or npringle@austin.utexas.edu

For information about Teachers on the Estuary workshops, please contact Carolyn Rose at 361-749-3152 or carolyn.rose@utexas.edu 🌟

New Videos at The Reserve! #MissionAransas

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



Tony Amos Legacy



Installing SETS



Coquina Chaos!



SWMP Trip





It's Always Something!



By Cammie Hyatt
Research Technician
and Data Manager

In the 1980's, Gilda Radner had a recurring role on Saturday Night Live as Roseanne Roseannadanna who frequently ended her skits with "It just goes to show you, it's always something!" That saying has been adopted by the SWMP (System Wide Monitoring Program) crew at the Reserve in reference to anything from faulty probes to the real-time telemetry going out. Since most of these issues eventually lead to the use of new technology or somehow improving on current protocols, we've decided to put a positive spin on that mantra and make lemonade out of our lemons!

Whether due to old age, loose wiper motors, or some other undetermined issue, all of those failing water quality probes are bringing us ever closer to the switch from the 6600 V2 sondes over to the new

EXO sondes that YSI began implementing a few years ago. The EXO 2 sondes have probes that are covered with titanium and designed to withstand fouling for longer periods of time. Communication with the sonde is achieved via Bluetooth or through direct connection. This feature alone will help prevent loss of data if the connector is damaged which has happened in the past when water intrusion corroded the pins. Another great feature is that the probes are

smart sensors and carry their calibrations internally. This enables the technician to calibrate multiple sensors of each parameter at once and then distribute them to the other sondes. Not only will this save time, but it will also save money since less chemical is used to calibrate the sondes and the risk of contamination is reduced. SWMP currently has two EXO sondes that will soon be deployed in Aransas Bay and more added to the inventory as funding allows.

When the Reserve was first established, we had our official SWMP water quality site (Aransas Bay) and our meteorological site (Copano East), which both had GOES satellite transmitters for telemetry. In less than a year, we added three additional



A hydroid colony living on our optical wiper makes our data manager grumpy!



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water quality sites: Copano West, the Ship Channel, and Mesquite Bay. Since the Division of Nearshore Research at TAMUCC helped us set up all of these sites, we contracted them to handle the telemetry for the rest of our sites as well as tie in the telemetry that was already being transmitted to the Hydro-meteorological Automated Data System of the National Weather Service. The data are transmitted

The EXO II Data Sonde. You're looking at the wave of the future!



using free-wave radios at all of the sites except Aransas Bay which has a radio relay that carries the signal back to a computer on top of the UTMSI laboratory building. Over the past year or so, we've had issues with our telemetry which originated from bad transmitters, broken radios, wind moving the antenna out of range, or loss of power due to grounding wires to the solar panel coming loose. We greatly appreciate their partnership but we made the difficult decision to invoke cost saving measures and

maintain the telemetry in-house. We decided that it would be better for us to maintain our own telemetry and replace the old radio technology with Sutron Satlink transmitters at all of our other water quality sites. Although there will be an initial cost to set them up, it will be more efficient and save money in the long run, not to mention that it will cut down on data loss. While trying to get a quote for the new equipment, it was brought to our attention that they are no longer making the Sutron Satlink 2 transmitters and the new models, Satlink 3, are not yet approved for SWMP use by the CDMO...it just goes to show you, it's ALWAYS something...but at least we have a plan!

Finally, it never fails that once we have established parameters that we want to monitor and things are going smoothly, we are asked to add another parameter to our repertoire. Although this adds more work to our list of samples to be processed on field days, it also gives us the opportunity to increase our knowledge of what is going on in our estuary. Monitoring Total Suspended Solids (TSS) is next on our list of parameters to study. TSS is most often used to assess the quality of wastewater after treatment in a wastewater treatment plant. It

consists of solids in the water which may include silt, decaying plant and animal matter, industrial wastes, and sewage among other things. High concentrations of suspended solids can reduce the amount of light that reaches submerged vegetation which can affect oxygen production. TSS can also increase the temperature of surface waters as the suspended particles absorb heat from the sunlight, causing the dissolved oxygen in the water to fall since warmer water can hold less oxygen. In addition to that, TSS reduces water clarity and inhibits the ability of fish to see their prey. Many other issues can arise from high TSS in our estuary which will affect all of the plants and animals that we have living there. Suffice it to say that we will do whatever necessary to increase our understanding of TSS and the role it plays in the Reserve. ☺

Although equipment will continue to malfunction and funding continues to be elusive, SWMP will continue to grow. "It's always something" will continue to be our mantra, but that doesn't mean it's a bad thing!



Buzzwords and Other Monsters Under the Bed

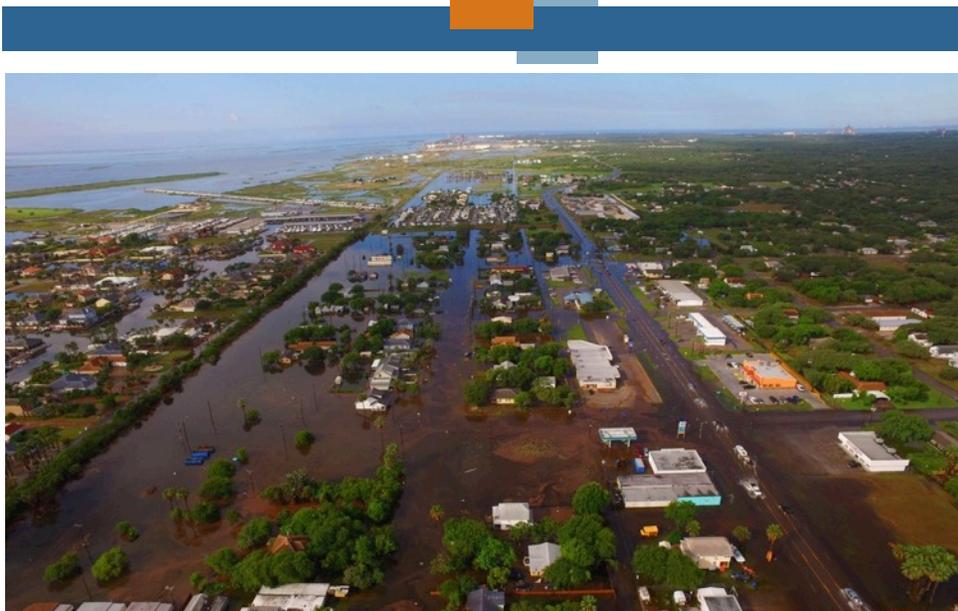
By Dana Sjostrom
Coastal Training Program
Coordinator



Growing up, we all had that scary thing under the bed, or in the closet.

At least I did! Do you remember yours? We tiptoe off the bed so it doesn't reach out, to grab us, we open that closet door slooowly with lights on. One day though we get brave enough to throw open that closet door or jump off the bed to peer under it – only to find it empty. That figment of our imagination, so scary, so frightening, is suddenly dispelled and we can go on much more confidently with our day.

Now let's link this concept to our communities. We throw around buzzwords and jargon so often, it's like the monster under the bed – scary, unapproachable, and better to just avoid for now. Community resiliency, preparedness, adaptation, readiness Why can't we just pick one? What does all that mean anyhow? Why should we worry about floods if we're in a



Flooding in Aransas Pass from rains May 15-16, 2016 remind us that community resiliency and effective planning are key elements in responding to these events. Photo courtesy of the City of Aransas Pass.

100 year floodplain? We haven't had a hurricane in years, why should we bother thinking about our plans?

The Coastal Training Program aims to bring communities the best science and information to help them become more resilient. Better able to respond to the effects of climate change, floods, hurricanes, development, urbanization, and increasing human populations along our coastline.

That's a lot for our coastal communities to deal with! We are a resource to help our planners, managers, and others make more informed decisions.

Planning ahead matters. Thinking ahead to not only the "what if's" but thinking ahead to the "WHEN"... That is what makes communities more resilient.

One tool we use is called the Coastal

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Community Resiliency Index, already completed with Aransas Pass and plans are in place to begin with Rockport shortly. These are inexpensive ways for communities to come together and examine areas needing improvement, identify already strong components to their resilient communities, and determine how best to move

forward to grow in thoughtful, responsible ways.

We love our coastline, but so do many new folks to the area – population growth is inevitable. Therefore, plan for it.

With the recent flooding in our area, these ideas of resiliency have more context. We saw devastating impacts of recent rains through

Corpus Christi, Ingleside, Rockport, Port Aransas, and Aransas Pass. Planning ahead for these events and finding ways to improve our capacity to minimize damage to human health and property is a good idea - and we are here to help our communities find ways to do just that.

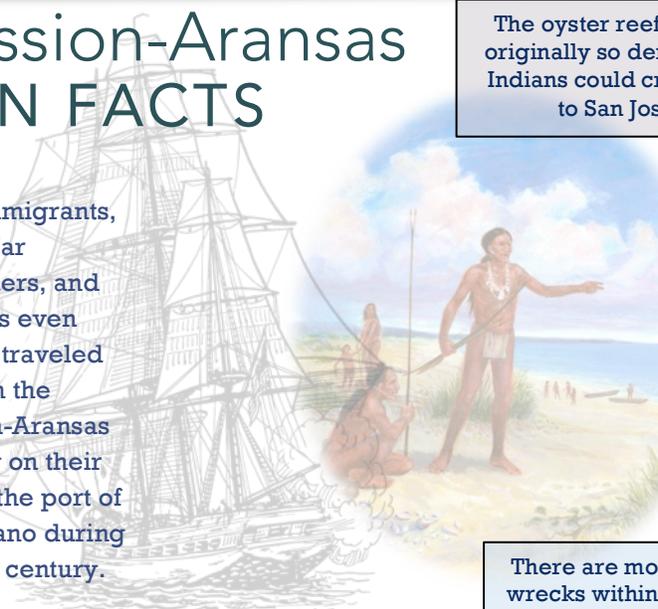
Instead of treating our planning and development with the monster under the bed strategy, let's face it head on: **informed, prepared, resilient.** ★



Rains caused flooding right here in Port Aransas May 15-16, 2016. Over a 26 hour period, we experienced 6.65" of rain at the Ship Channel Meteorological Station and 11.1" at the Copano East Station.
South Jetty Staff Photo by Dan Parker

Mission-Aransas FUN FACTS

Irish immigrants, Civil War smugglers, and perhaps even pirates traveled through the Mission-Aransas Estuary on their way to the port of El Copano during the 19th century.



The oyster reefs in Aransas Bay were originally so dense that the Karankawa Indians could cross from Goose Island to San Jose Island on foot.

The largest tidal range in Port Aransas, home of the Reserve headquarters, is 0.67m.
High Spring Tide May 23, 2016 recorded 0.36m

There are more than 20 charted ship wrecks within the Reserve boundary.

Every time you swallow a mouthful of seawater at the beach, you are ingesting tens of millions of harmless marine viruses, millions of marine bacteria, hundreds of thousands of marine algae, thousands of marine protozoa and a few tiny crustaceans.
Bon appetite!





A Ridley Sea Turtle Adventure (with a cast of characters)

By Tony Amos
Animal Rehabilitation Keep

It's a Saturday. UTMSI's Tracy Weatherall found a brown pelican attached to a royal tern by fishing line on the beach near the North Jetty. She called Andrew Orgill at the ARK who gathered up a net, carrier, and Tammy Linton and headed over to San Jose Island thanks to Cap'n George and the Jetty Boat. They captured the birds, disentangled them and headed back to the Jetty Boat. But Tracy walked a little bit farther and found sea turtle tracks, or more accurately, sea turtle track, singular. That can only mean one thing, a (Kemp's Ridley) turtle was at the end of the track making a nest and about to lay eggs. Andrew and Tammy are called back, Friends of the ARK boss Lee Harrison arranged the following; Charlie Lockaby had finished his patrol of Mustang Island Gulf Beach

but he is qualified to extract sea turtle eggs from a nest so his day was not yet over. MSI boat captain Frank Ernst was cajoled in from his day off in Flour Bluff. He took Charlie and the ATV across the channel to the beach where Charlie extracted 96 eggs. The eggs were packed in special boxes and carefully transported over beach, dunes, and sea to Port Aransas.

Then a call comes in: a Ridley turtle has come out of the sea on Mustang Island Gulf beach and is digging a nest by Marker 195. City of Corpus Christi beach workers Melinda and Hamp Rogers are standing by. Lee Harrison dashes off to the nest and notes the event happenings. Unfortunately all of the egg-extracting and turtle measuring stuff is on San Jose Island. Tony Amos has a duplicate kit in his



San Jose Island nester Ridley 2016 #1
05/07/16

truck but he is driving back from the Hill Country on I37 near Mathis. Xavier Harrison converges from Port Aransas also with equipment. We all arrive together and Tony is able to measure and tag this turtle who was straining to go back home. Lee extracts 112 eggs and the US Coast Guard arrives in a vehicle and the San Jose eggs and the Mustang Island eggs meet. Safely strapped in the back seats in special

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Ridley #1 going home after nesting on San Jose Island
May 7, 2016



gimballed frames, seat belted like passengers the precious cargo goes off to the Padre Island National Seashore to be incubated. In around 50 days they will hatch and start the whole cycle again. When all this was over the group had just over an hour to converge on the Port Aransas Civic Center where Friends of the ARK were having the Annual fundraising dinner. Just another Saturday! ☆



The Glen Rose Story

A Bonus Tony Amos Snippet

Glen Rose is a small city southwest of Dallas with a population around 2,500. Miss Lisa Cox's Fifth Grade Classes at the Intermediate School did a special project on debris on Texas beaches and the Gulf of Mexico and its effect on the environment and marine animals. They collected over \$400 and decided to donate it all to the ARK in Port Aransas. In honor of their effort we named two young green turtles Glen



and Rose and released them at the UTMSI Pier Port Aransas on 31 May 2016. By the time these turtles are mature enough to reproduce and nest the Glen Rose Intermediate students will be old enough to have married and have 5th grade children of their own! **Glen (Left)**



weighed 5.2lb and Rose (Right) 6.4lb on release. When old enough to produce young they may weigh as much as 400lb! ☆





Greening Your Vacation

A Green Team Update

Summer is right around the corner, and to many families that means VACATION TIME! Below are a few helpful ideas on how to make your get-away a little more environmentally friendly.

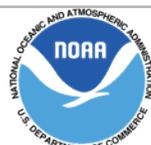


- ✓ Before you leave- turn off and unplug all appliances, turn down your thermostat, and switch your water heater to the vacation setting.
- ✓ Stay close to home- or try and book direct flights (takeoffs and landings use lots of fuel).
- ✓ Be mindful of what you pack- fly light (heavy loads cause planes and cars to burn more fuel); bring a reusable water bottle; pack snacks and meals in reusable containers.
- ✓ Pick a green hotel- look for hotels with environmentally friendly policies, such as purchasing green products, conserving water and energy, and investing in the local community. Do your part by saying no to daily towel and sheet changes, and keeping the room thermostat above 75.
- ✓ Get around smart- at your destination, use public transportation or better yet rent a bike or walk.

- ✓ Support local- support sustainable, local businesses, and eat in-season meals from restaurants.



- ✓ Stay chemical free- vacation staples such as sunscreen and bug spray can be full of harmful chemicals, so look for safe, family friendly alternatives.
- ✓ Avoid damaging recreational activities- avoid sports and attractions that have environmental impacts, or choose more progressive establishments.
- ✓ Watch what you buy as souvenirs- stay away from products made of endangered species, including animal hides, tortoise- shell, ivory, or coral- they could be illegal.





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

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Research Scientist Assistant | Hunter Samberson

Animal Rehabilitation Keep | Tony F. Amos, Andrew

Orgill, Amanda Terry, and Guy Davis

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Research Assistant | Collin Croulet

Research Associate | Dr. Linsay 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.



Mission-Aransas National Estuarine Research Reserve

University of Texas Marine Science Institute

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