



by Sally Morehead Palmer,
Reserve Manager

This June, I will be stepping down as Reserve manager to spend more time with my young children and move into a part-time position as Communications Coordinator for the University of Texas Marine Science Institute. Being the manager of the Mission-Aransas Reserve has been the most fulfilling job that I have had. It humbles me to look back on our eight-year tenure and reflect on the partnerships and programs we have created. When the Reserve was designated in 2006, Paul Montagna passed me the torch and a solid blueprint. I was given free reign with guidance from the University and NOAA to develop the program from scratch.

If I knew then what I know now, I would have been scared and overwhelmed. In my naivety, myself and many valued colleagues plunged forward. In the last eight years, I'm proud to say that we set aside over 3,300 acres for conservation at Fennessey Ranch, ensuring an opportunity for my future great grandchildren to enjoy this nature experience. Dr. Ed Buskey has our six 'System Wide Monitoring Program' stations collecting and preserving the vital data on the health of Mission-Aransas Estuary. We also built two amazing buildings - the Estuarine Research Center and the Bay Education Center. There are no other places in the region that surpass these facilities' abilities to inspire creative research and education. The Wetlands Education Center and new Estuary Explorium have also broken barriers and are helping people understand the importance of our valuable estuaries. Facilities and conservation easements are significant assets, but what I'm most proud of are the people who work for the Reserve and the partnerships that the Reserve has created.

The staff at the Reserve, University, and our partner organizations are some of the most dedicated and hardworking people that I've known. I've learned that all it takes is one dedicated person or partnership to make a difference. People are the driving force behind the top caliber research and stellar education programs that affect behavior and policy changes for the bays. I often reflect upon this when I am tempted to be discouraged by the multitude of problems affecting our precious bays and estuaries. On that note, I will leave and say that the program is in great hands and will remain a positive force for making our estuaries better understood and managed.

Stay tuned for the opening of the new Estuary Explorium exhibits – opening this summer in at the University of Texas Marine Science Institute Visitor Center!



Reserve Manager, Sally Palmer and daughter Scarlett at the opening ceremony of the 2014 Nature Challenge.

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Oil Spill Update

by Colbi Gemmell,
DROPPS Outreach
Coordinator

In addition to being the Research Coordinator for the Reserve, Dr. Ed Buskey is also the director of the DROPPS Consortium. DROPPS stands for Dispersion Research on Oil: Physics and Plankton Studies and is funded by the Gulf of Mexico Research Initiative (GoMRI). The DROPPS consortium was awarded \$6.7 million dollars to study oil as a result of the April 2010 Deepwater Horizon Spill in the Gulf of Mexico. The DROPPS Consortium consists of scientists from UTMSI, Johns Hopkins University, University of Pennsylvania, University of Wisconsin-Milwaukee, Texas Tech University, and Stiftelsen for Industriell og Teknisk Forskning (SINTEF). This team of scientists is using various techniques to examine the breakup of oil as well as how microscopic organisms interact with and affect the fate of oil. This research is aiding predictions of the overall impact of future spills to better protect people and the environment.



DROPPS Research Associate Dr. Brad Gemmell (left) deploys a 3D imaging system with Texas Tech student Larry Brock (right).

On Saturday March 22, 2014, an oil spill in Galveston Bay occurred as a result of a barge colliding with a ship in the Houston Ship Channel. An estimated 168,000 gallons of oil spilled into the bay, prompting local officials to shut



Researchers from UTMSI, Texas Tech, and TAMU-Galveston as well as a U.S. Coast Guard representative sample the Galveston oil spill.

down the ship channel for cleanup. This gave DROPPS scientists an opportunity to study oil interactions in the natural environment. Scientists from UTMSI, Texas Tech, and Texas A&M Galveston gained approval from the U.S. Coast Guard and the Texas General Land Office to collect samples and take measurements in the spill area. DROPPS scientists will be using the analyzed results from their data to learn not only about how the small, important organisms are affected by the oil, but also how these organisms can influence the fate of oil in the water. Chemical analysis will also be conducted to determine the rate of oil breakdown by bacteria, the amount of oil present in organisms, and comparisons of the oil washing up near the beaches of Port Aransas versus the oil collected in Galveston.



DROPPS post-doctoral fellow Dr. Hernando Bacosa takes a sample of a tar ball on the beach in Galveston, Texas.

Talking Trash: The Impacts of Marine Debris

by Katie Swanson,
Stewardship Associate

We face many complex challenges when it comes to maintaining a clean and healthy marine environment, but one problem is quite simple to understand: Trash.

On average, 500 tons of marine debris are removed from Texas beaches each year. NOAA defines marine debris as, "any man-made object discarded, disposed of, or abandoned that enters the coastal or marine environment."

Marine debris can lead to a number of adverse environmental, aesthetic, and economic impacts. The detrimental effects debris has on the marine environment can range from death or harm to marine life to chemical accumulation and pollution. Of the five species of sea turtles found off the coast of Texas, all have been known to ingest plastic and other trash. Sea turtles often mistake plastic bags for jellyfish, a main food source. Marine debris can leach harmful chemicals into the environment, many of which tend to concentrate in the fat deposits of animals, where they can remain for a long time. Effects of these chemicals on reproduction, growth, and behavior have been observed.

Marine debris also causes negative impacts on the economy and tourism. Abandoned crab traps and fishing nets can catch and entangle countless numbers of commercially important species, such as blue crabs,



Marine debris covers a Texas beach following a high tide.

sea trout, flounder, and red and black drum. Boaters can feel the impact when their boats hit floating or submerged debris, a rope gets caught in a propeller, or a plastic bag blocks the water intake on the motor. Many coastal communities spend thousands of dollars cleaning trash off beaches that has either been left by visitors or brought in by the currents.



Volunteers and the trash they picked up following a cleanup at Egery Flats. Abandoned crab traps and tires are regularly found during these cleanups.

The Mission-Aransas Reserve has implemented a number of outreach activities to reduce this marine debris problem. Education of school groups, volunteers, and visitors about the impacts of marine debris is crucial. A marine debris display in the new Estuary Explorium will educate visitors on this issue. The Reserve also hosts and supports a number of beach and bay cleanups throughout the year. Annually on National Estuaries Day, a cleanup at the Aransas National Wildlife Refuge is organized to clear critical Whooping Crane habitat of trash. Twice a year, in partnership with the Texas Master Naturalists, Egery Flats, an important shrimp nursery habitat, is also cleaned of countless plastic bottles, fishing gear, and tires. Marine debris is a global problem, but the Reserve is doing its part in reducing the source through education and outreach, in order to preserve the habitats within our boundaries.

Explore Estuaries and Oceans this Summer at the Estuary Explorium

by Carolyn Rose,
Education Coordinator

Get ready for a big splash this summer as the Reserve opens a new interpretive and educational space – the Estuary Explorium. The Estuary Explorium will enhance the UTMSI Visitor Center experience by adding approximately 1,000 square-feet of ocean and estuary themed exhibits and a place for dynamic programming – the Explorer Lab. The Explorer Lab is partially complete and already being used for early childhood education programs. New student, teacher professional development, and community education programs will be presented in the Explorer Lab in the future.

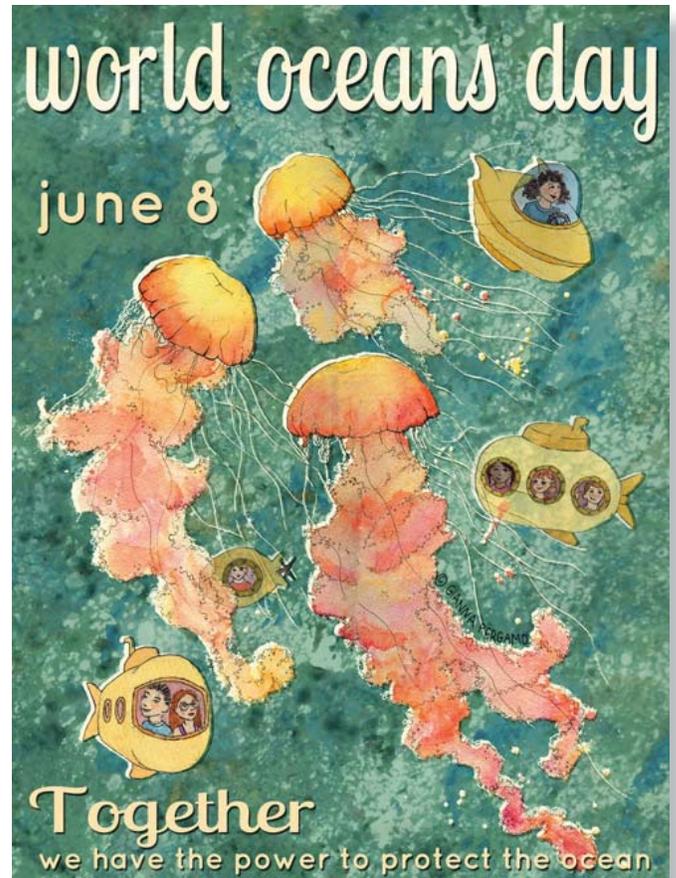
Visitors will be able to see where Gulf of Mexico and estuarine waters meet and mix through the Estuary Explorium's windows, providing an ideal location to learn about the ecological importance of estuaries in the life cycles of marine animals. Visitors will also learn about the economic benefits provided by commercial and recreational fishing of estuarine dependent species, research conducted by UTMSI scientists, and how people can help protect and conserve ocean and estuarine resources. The Estuary Explorium will contain interactive



A cartoon crab larva ("Zoe," the zoea) will be used as an icon in the Estuary Explorium exhibits to inform visitors about UTMSI research. Zoe was kindly illustrated by Nancy Buskey.

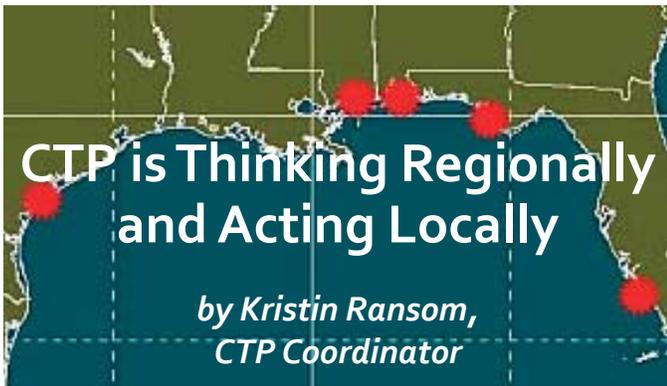
exhibits to engage visitors of all ages, with Castaway Corner and Zoe's Zone aimed specifically at the interests of younger learners.

The Estuary Explorium will be open free to the public all year, from 8 a.m. to 5 p.m. on weekdays, and as funding allows on weekends. Public visitors and school groups will have the option of exploring the exhibits on their own or participating in scheduled programs in the Explorer Lab and adjoining Wetlands Education Center. Public education programs will be offered at the Estuary Explorium periodically on Saturdays throughout the year.



The importance of the global ocean is celebrated world-wide each year on World Oceans Day. Please join the Mission-Aransas Reserve and UTMSI in celebrating the ocean on Saturday, June 14, 2014.

The Estuary Explorium grand opening is targeted for Saturday, June 14th, in celebration of World Oceans Day. There will be a full line-up of events scheduled in honor of World Oceans Day, including R/V Katy boat trips, outdoor walks and talks, and ocean themed crafts, stories, and science activities. Please check our website (www.missionaransas.org) as the date draws near for more information about World Oceans Day activities.



“Think regionally. Act locally.” This is the mission statement of the Gulf of Mexico Coastal Training Program, a partnership between the five Gulf of Mexico National Estuarine Research Reserve Coastal Training Programs. These five programs (Mission-Aransas Reserve, Grand Bay Reserve, Weeks Bay Reserve, Rookery Bay Reserve, and Apalachicola Bay Reserve) have been working together for over five years on issues that are important to local coastal decision-makers, but that are regional in scope. The Gulf of Mexico Coastal Training Program has held various workshops and trainings on issues like water quality, wetland restoration, living shorelines, and coastal community resiliency. Trainings held as part of this program include Breaking through Barriers, Living Shorelines, and the Coastal Community Resiliency Index workshops held in multiple communities.



The CTP works to provide relevant information on issues related to the ecological and economic health of the Gulf of Mexico.

Why is it important for the Coastal Training Program to focus on the Gulf of Mexico? The Gulf of Mexico is a relatively closed system, which means that our activities have a larger impact than just what we see in our local beaches and estuaries. The Gulf of Mexico is also home to large population centers, which are the source of many of

the environmental stresses placed on the Gulf of Mexico. By working together with partners across the Gulf, the actions that we take here in the Mission-Aransas Estuary can have a much larger impact on the health of the Gulf of Mexico.

Thanks to funding from the Environmental Protection Agency’s Gulf of Mexico Program, the Gulf of Mexico Coastal Training Program will be starting a three-year training and technical assistance project to address the EPA’s priority issues in the Gulf. With the help of a regional coordinator, the Gulf of Mexico Coastal Training Program will be developing a series of trainings in each state that tackle a current priority issue for the EPA, including water quality monitoring and improvement, coastal habitat enhancement or protection, community resilience, and environmental education. In addition to addressing EPA priority issues, events will be planned with the help of local National Estuary Programs to address their specific needs. In our local area, we will be working with the Coastal Bend Bays and Estuaries Program on this specific event. The Regional Training Coordinator will also be working with select local communities to provide technical assistance related to these topics.

To keep up with the Mission-Aransas Coastal Training Program’s efforts on a regional scale, follow the project at www.gulfcoastaltraining.org! If you’d like more information on any upcoming events or workshops, please contact Kristin Ransom at 361.749.3048 or at Kristin.ransom@utexas.edu.

Green Tip:

Heading to the beach this summer? Don’t forget to make it green. Here are some tips to make your beach day a little more green . . .

1. Use reusable water bottles to stay hydrated under the sun.
2. Use Eco-friendly sunscreen. It’s good for marine life and your body.
3. Bike to the beach. Don’t have one? Rent one.
4. Observe signs, such as ‘Please don’t feed the birds’ or ‘Please stay off the dunes’.
5. Pick up your trash. Leave nothing but your footprints at the end of the day.



Women in Marine Science Day

by Candace A. Peyton,
Project Manager

This spring we hosted our first ever Women in Marine Science Day. The purpose of the event was to provide girls an opportunity to learn about the world of marine science. Based on feedback from participants, instructors, and parents, we have decided to make it an annual event! We would like to give a huge thank you to the 16 women who volunteered to teach the girls about careers available in the field of marine science. They were instrumental in making sure that our vision for Women in Marine Science Day was met. This vision was a result of seeing the many opportunities offered to girls on the main campus of UT Austin, and desiring to implement those same opportunities here. Thankfully, this past March our wishes came true.



Girls in the *More than Mudpies* class examine sediment cores and find a very special critter, which they affectionately name "Bob the Brittle Star."

By working closely with Penny Falian, Director of Program Services for the Girl Scouts of Greater South Texas, we were able to ensure that the invitation for our event was distributed all over South Texas including cities such as Corpus Christi, Harlingen, Laredo, McAllen, and Victoria. With Penny's help we were able to bring

in 30 girls in 5th-8th grades to take part in hands-on experiments in a variety of different classes.

Six classes were offered. *More than Mudpies* gave the girls the opportunity to explore the world of benthic ecology, and locate brittle stars, snails, worms, and other tiny creatures that live in the bottom of the bay. *Swim Towards the Light* showed how the swimming habits of *Artemia sp.*, a planktonic animal that lives in the water column and uses light cues to navigate, were affected by various colors of light. During *Ice Cube in a Greenhouse*, students examined what happens in the Arctic by investigating thousands of years of climate change data. Students also completed an art project using real fish to help understand how each adapts to its own environment in *Adaptation Art*. In *Night of the Swimming Dead*, participants dissected fish to learn about specialized organs for detecting movement and vibrations in water.

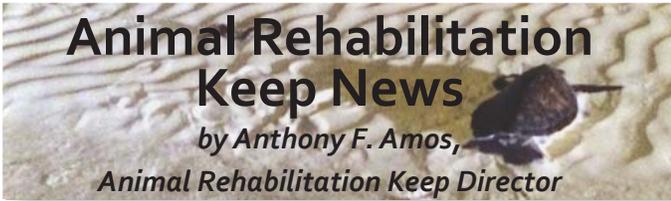
"What an impressive event! Of the many Girl Scout events, this was the highest quality. Thank you for instructing and mentoring our girls." – Parent

"My favorite class was *More than Mudpies*, because there were small groups so we could see what was going on and there were tons of interesting creatures that I never knew lived under the mud!" – Girl Scout

We are very happy about the success of our first Women in Marine Science Day and are already excited about planning next year's event that will offer even more class options. Visit our Facebook page (<https://www.facebook.com/womeninmarinescience>) to find out more!



Texas Girl Scouts bring home badges after spending a day learning with women scientists.



The most dramatic event for the ARK as the new year came in was the stranding of hundreds of green sea turtles, laid low by the cold winter and early spring. Already by the end of 2013 we had handled an unprecedented 460 sea turtles. In 2014, an additional 468 have come in. Most of these have been released but at one time we housed 200 live sea turtles. They were everywhere and I begged to borrow some tanks in the main building's labs to take the overflow. This was great until the aroma of warm turtle stuff wafted through the labs and offices. Fortunately a relatively warm spell allowed us to release most of turtles. Dozens of volunteers helped us catch, measure, and clean-up the turtles and then transport them to the Padre Island National Seashore. Some 36 vehicles of all sizes and types formed the turtle train. Some volunteers tell me they found muscles that hurt that they didn't know they had.



Black-bellied Whistling Duck used as a surrogate momma for motherless ducklings.

In April a mini green turtle stranding event occurred because the foot-long juveniles were getting tangled in the large quantity of Sargassum weed coming ashore, with 30 in the past week alone, many of them dead. One live green prompted the Port Aransas Police Department to call me at 1 a.m.: it was crawling up to the dunes, imitating a nesting female (it's got 25 years to grow before it can

actually do that). Friends of the ARK and volunteers have started daily patrols of the 36-mile (round trip) length of Mustang and 40-mile round trip of San Jose Island Gulf beaches. No nests yet, but it's still early.

Regarding bird rehabilitation, as baby bird season gets underway we have received 350 birds of 56 species. Topping the list as usual is Brown Pelican (79) followed by Laughing Gull (36) and Mourning Dove (13). Our latest is this Black Vulture with a face that only a mother (and ARK staff and volunteers) could love.



The remarkable face of a Black Vulture – the other end of the cute spectrum.

CALENDAR OF EVENTS

MAY

- 10 OYSTER REEF RESTORATION
GOOSE ISLAND STATE PARK
- 26 ARK SEA TURTLE RELEASE, 10A.M., MARKER 35

JUNE

- 9-13 UT SUMMER SCIENCE WEEK 1*
- 10 COASTAL PLANNING TOOLS WORKSHOP
- 14 WORLD OCEANS DAY
UTMSI VISITOR CENTER
10A.M. - 3P.M.
- 14&28 ESTUARY EXPLORER LAB*
- 16-20 UT SUMMER SCIENCE WEEK 2*
- 21 EARLY EXPLORER LAB*
- 13-27 UT SUMMER SCIENCE WEEK 3*

JULY

- 5&19 EARLY EXPLORER LAB*
- 8-10 TEACHERS ON THE ESTUARY TRAINING*
- 12 BLUE SCIENCE*
- 26 ESTUARY EXPLORER LAB

AUGUST

- 2 EARLY EXPLORER LAB*
- 9 BLUE SCIENCE*
- TOURS OF THE WETLANDS EDUCATION CENTER
EVERY TUES & THURS, AT 10A.M., UTMSI VISITOR
CENTER IN PORT ARANSAS
- SCIENCE ON A SPHERE
EVERY TUES - SAT, AT 2P.M. AND 3P.M., BAY EDUCATION
CENTER IN ROCKPORT

***FOR MORE INFORMATION ON OUR EDUCATIONAL PROGRAMS PLEASE VISIT WWW.MISSIONARANSAS.ORG**



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Administrative Associate: *Candace Peyton*

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Sea Grant Coastal Planning Specialist: *Heather Wade*

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& Rae Mooney
Cooperating Scientist: *Dr. Tracy Villareal*
Graduate Research Fellows: *Gene Oh, Stephanie Smith &*
Sara Wilson
Research Associates: *Dr. Jianhong Xue & Dr. Brad Gemmell*
Postdoctoral Fellow: *Dr. Lindsay Scheef*

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Cooperating Scientist: *Dr. Ken Dunton*
Animal Rehabilitation: *Anthony F. Amos,*
Andrew Orgill, Amanda Terry & Guy Davis



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, Nature Conservancy, Fennessey Ranch, and Aransas County / City of Rockport.