

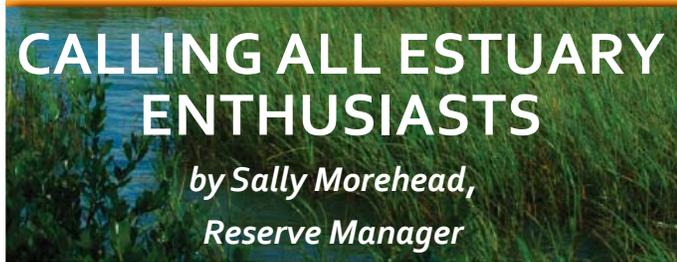


THE MISSION ★ ARANSAS OBSERVER

A Newsletter of the Mission ★ Aransas National Estuarine Reserve



AUTUMN
2010



CALLING ALL ESTUARY ENTHUSIASTS

by Sally Morehead,
Reserve Manager

Welcome to the recently completed Bay Education Center in Rockport, Texas. Whether you live in the area or are just visiting, this new addition to South Texas is a 'must see' and is free and open to the public, Tuesday through Saturday, 1-4 pm, with daily presentations at 2:15 pm. So many of us are drawn to the local estuaries but know little about the important role they play in our ecology. The Bay Education Center provides the visitor with an innovative way of exploring and learning about these important bodies of water and the life they support.

Step inside the exhibit hall to be serenaded by the sounds of an estuary, and greeted by a life-sized Whooping Crane and giant oyster. Stroll at your leisure to enjoy our hands-on exhibits and check out the current water quality in our bays. An added attraction is Science On a Sphere®, a spherical display system created by NOAA to illustrate Earth science concepts to people of all ages. Stop by for a

visit and it will be an experience that will inspire new appreciation and knowledge of the world around you.

This wonderful adventure in downtown Rockport has been made possible by strong partnerships: NOAA, City of Rockport, Aransas County Navigation District, Texas General Land Office, Coastal Bend Bays & Estuaries Program, local garden clubs, and the Mission-Aransas National Estuarine Research Reserve - all working together to create this one of a kind venue. Enjoy, learn, and let us know what you think.



Giant, touchable oyster and viewing periscope that shows how oysters filter and clean estuarine water.



Life-sized Whooping Crane, SWMP Station replica, and habitat diversity exhibits at the Bay Education Center.

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MEASURING NUTRIENTS IN COPANO BAY

By Denise Bruesewitz Ph.D.
Postdoctoral Fellow

I am excited to begin work on a new research project in the Mission-Aransas NERR! I come from a background of freshwater ecology, having received my Ph.D. in Ecology at the University of Notre Dame, working on rivers and lakes of the Midwest. I recently completed a post-doctoral fellowship, studying nitrogen cycling in lakes of New Zealand. I have been employed by the NERR since June and I am enjoying the experience of working in such a beautiful place.

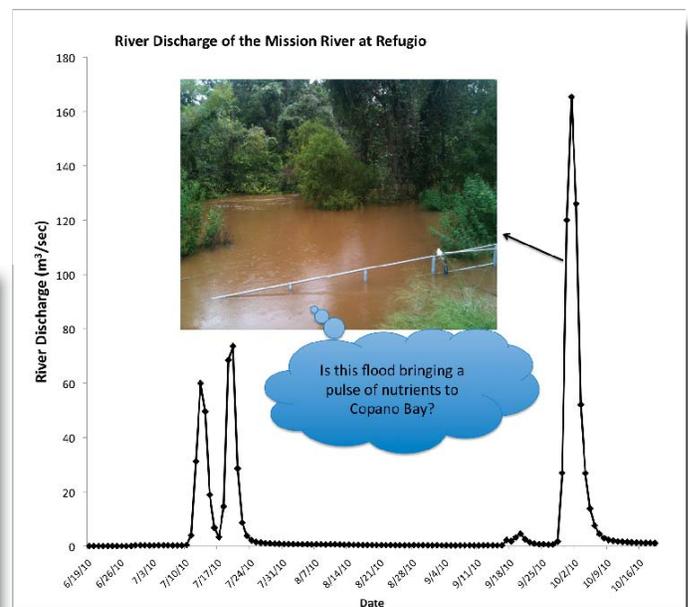
We are investigating nutrient dynamics of the NERR with a focus on Copano Bay. This project was developed by Drs. Ed Buskey, Wayne Gardner, and Jim McClelland and is in coordination with the Gulf of Mexico Alliance (GOMA) Nutrient Priority Issue Team and the United States Environmental Protection Agency. When too many nutrients enter coastal



Dr. Denise Bruesewitz and Rae Mooney collecting Copano Bay sediment cores to measure nitrogen cycling. Photo by Lindsey Pollard.

waterways we can see a cascade of negative effects, including a loss of biodiversity and loss of nursery areas for commercially and recreationally important fish species. We hope to form nutrient criteria recommendations for coastal ecosystems by developing a deeper understanding of: 1) where the nutrients in the estuary are coming from, 2) the importance of floods and droughts in bringing nutrients to the estuary, and 3) what happens to the nutrients once they enter the bays.

As you may know, we experienced some dramatic flooding in September! We were fortunate to be able to safely collect samples from the Mission and Aransas Rivers, as well as from within the NERR during and after this flooding. This will give us insight into how nutrients are moving and changing as the flood waters enter the bays. The graph shown below illustrates just how dramatic this flooding was in both the Mission and Aransas Rivers.



Graph showing increased river discharge due to flooding episodes.

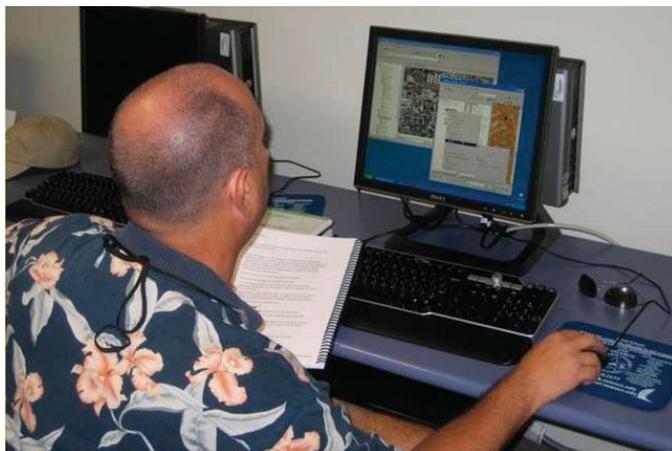
We will continue our sampling over the next year with the help of Rae Mooney, Cammie Hyatt, Britt Dean, and Lindsey Pollard, hopefully capturing dynamic periods of both floods and drought during our study. We will then use these data to develop predictive models that will help us recommend how much nutrient the Mission-Aransas Estuary can handle without suffering negative impacts, such as harmful algal blooms or low-oxygen 'dead zones' that lead to losses of biodiversity and fish habitat.

COASTAL DECISION MAKERS EAGER FOR TRAINING IN MAPPING SOFTWARE

by Chad Leister,
Coastal Training Program Coordinator

The CTP hosted an Introduction to Coastal Geographic Information System (GIS) Training at Texas A&M University-Corpus Christi (TAMUCC) for the second summer in a row. The primary purpose of this course was for beginners to learn the basics of GIS software and its applications. GIS uses computer-based tools to manage, display, and analyze spatial data. It can also help users answer questions and solve problems by presenting data in a format that is easily understood and shared (e.g., shared maps, models, or charts). This three-day course was framed in a coastal management context and provided trainees with the knowledge and skills to successfully use GIS in their work. The event was hosted in partnership with TAMUCC, Harte Research Institute for Gulf of Mexico Studies, and NOAA Coastal Services Center.

Local decision-makers eagerly responded to advertisements for this course - over 40 individuals registered within 24 hours. Unfortunately, the class size was limited to 30 participants, but this quick response demonstrates a high level of interest and the need for



A participant learns the basics of GIS in a Coastal Training Program workshop.

WHAT IS CTP?

THE COASTAL TRAINING PROGRAM (CTP) PROVIDES NEEDS-BASED TRAINING TO LOCAL COASTAL DECISION-MAKERS. DECISION-MAKERS ARE TYPICALLY DEFINED AS INDIVIDUALS WHO MAKE ROUTINE DECISIONS ABOUT THE MANAGEMENT OR USE OF COASTAL AND ESTUARINE RESOURCES IN A PROFESSIONAL OR VOLUNTEER CAPACITY.

additional GIS training in the future.

Course evaluation surveys showed that participants found the training very helpful - 96% reported increasing their knowledge and skills. One participant wrote, "This workshop helped me to apply and tie together the bits I already knew about GIS. It will definitely make me quicker and more efficient in map making and I'll have a more professional end product." Despite learning so much, 85% of participants reported a need for more GIS training. When asked why, a participant wrote, "Simply because I know the program has the capabilities to do so much more!" As a result, the CTP is planning to host additional GIS training events next summer.



Blue crabs will be the focus of an upcoming CTP conference.

The CTP also has a number of upcoming events including a one-day conference exploring blue crab dynamics in Texas estuaries on January 26th, 2011. This conference will feature expert speakers Dr. Dan Rittschof from Duke University and Dr. David Egelston from NC State University. For more information, to register for the Blue Crab Conference, or review a full list of upcoming events please visit our website:

<http://www.utmsi.utexas.edu/about-the-institute/mission-aransas-nerr/coastal-training-program.html>.

WALKING ON WATER: NEW BOARDWALK CONSTRUCTED AT FENNESSEY RANCH

*by Kiersten Madden, Ph.D.,
Stewardship Coordinator*

Fennessey Ranch is a 3,256-acre ranch located in the watershed of the Mission-Aransas Estuary. It is situated directly adjacent to the Mission River and contains a diversity of ecosystems - natural lakes, freshwater wetlands, prairies, brush, riparian woodlands, and oak mottes form the landscape of the Ranch. These habitats support over 400 species of birds, 50 kinds of amphibians and reptiles, 70 types of moths and butterflies, and numerous mammals, such as armadillos, deer, coyotes, and cougars.

Fennessey Ranch is designed to be an environmentally friendly business that profits from traditional ranching activities (i.e., oil and gas drilling, cattle grazing), as well as wildlife tours, hunting leases, and photography trips. In 2006, the University of Texas and the Mission-Aransas NERR purchased a conservation easement on Fennessey Ranch. The easement ensures that the diverse and important ecosystems of the Ranch will remain undeveloped in the future and will continue to support wildlife.



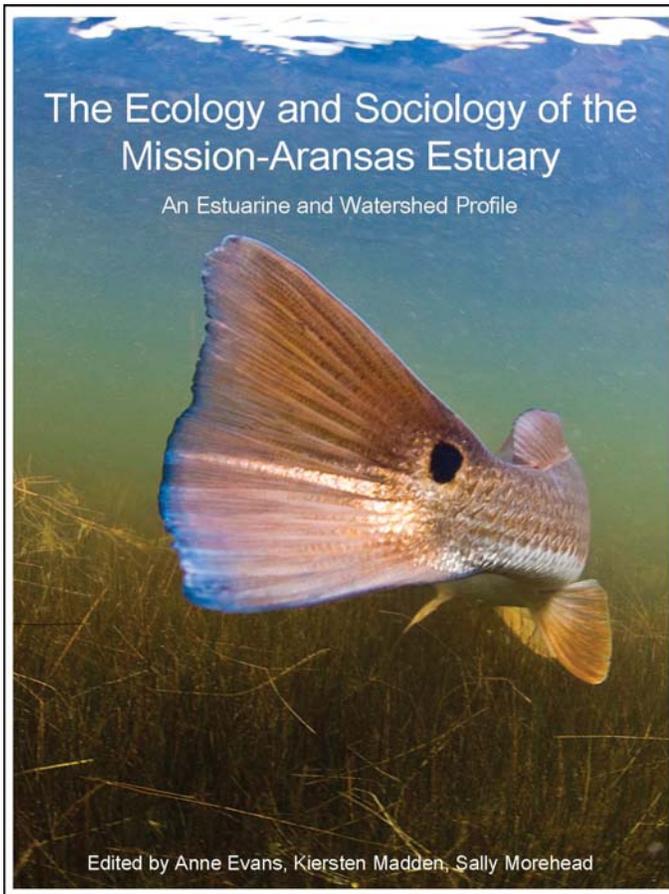
A new boardwalk and floating platform have been constructed on McGill Lake at Fennessey Ranch.

Numerous bird watchers, hunters, photographers, students, scientists, and other conservation oriented groups visit Fennessey Ranch on an annual basis. Until recently, however, the Ranch has lacked any safe and easy ways to access its major aquatic habitats. In July, the Mission-Aransas NERR received permission from NOAA to use existing funds to build a boardwalk and floating platform on McGill Lake – the most frequently visited aquatic habitat on the Ranch. Construction was completed by Texas Docks & Decks from Corpus Christi in early October. This new boardwalk and floating platform will enhance all the programs offered at Fennessey Ranch – students will be able to explore aquatic habitats with underwater periscopes, researchers can easily collect water samples, and birders can get a better view of nesting birds.

Contact the staff of Fennessey Ranch (361-529-6600) if you would like to schedule a visit to this amazing wildlife oasis and try out the new boardwalk for yourself.



Students from Port Aransas crouch on the new floating platform to get a closer look at the aquatic plants and animals



Hot Off the Press

by Kiersten Madden, Ph.D.,
Stewardship Coordinator

The Mission-Aransas NERR is preparing to publish two new documents this winter. The first document is titled *The Ecology and Sociology of the Mission-Aransas Estuary: An Estuarine and Watershed Profile*. This document summarizes the existing state of knowledge of the Mission-Aransas Estuary and includes descriptions of the physical ecosystem components, ecological processes, habitats, and watershed. The purpose of this document is to provide researchers and resource managers with an adequate basis of knowledge to further the development of scientific studies and applied management investigations within the Mission-Aransas Estuary and its watershed.

The second document is titled *Mission-Aransas NERR Ecosystem Based Management Tool Demonstration Project: An Integrated Approach to Land Use Planning in Aransas County*. This document summarizes the results of a two-year project in which a unique partnership of local, state, and federal agencies, aca-

dem institutions, and non- and for-profit organizations worked together on the development of an integrated land-sea planning toolkit. The toolkit is designed to assist planners and resource managers in applying ecosystem based management principles to land use planning.

Aransas County was an ideal study location for developing and piloting this type of toolkit because of its healthy estuary with highly diverse habitats, strong community interest in maintaining the region's resource-dependent quality of life, and high rate of population growth. The report describes the results of three land use planning scenarios that were developed for this region and evaluated using the integrated land-sea planning toolkit.

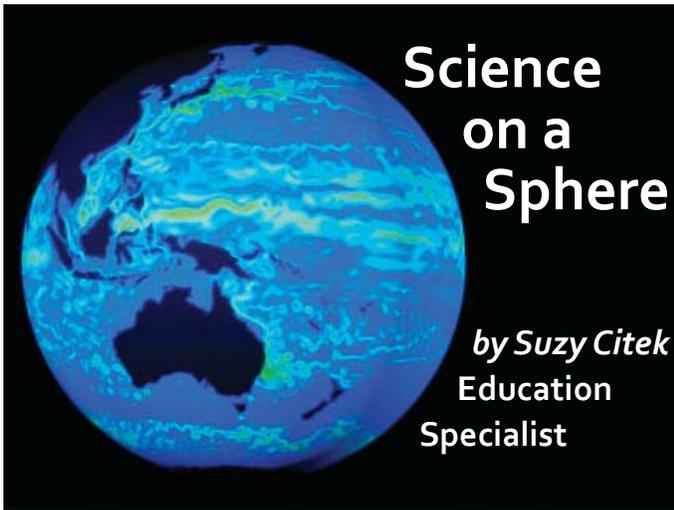
Please contact Dr. Kiersten Madden (kiersten.madden@mail.utexas.edu; 361-749-6779) for more details or for information about how to receive either document.

UTMSI forms a "Bike Gang"

In an effort to encourage University of Texas Marine Science Institute (UTMSI) employees to leave their cars at home and ride their bikes to work, the UTMSI Green Team challenged every staff member to ride their bike to work at least 13 days during the month of November. Individuals who met the challenge became the first-ever members of the UTMSI Bike Gang and earned a free t-shirt to show their dedication to staying healthy and helping the environment. The challenge was a huge success and the "gang" now has 18 members! The Green Team hopes to repeat the challenge this spring and add even more people to the UTMSI Bike Gang.



Keep an eye out for t-shirts with this symbol – if you see one - you've probably encountered a member of the UTMSI Bike Gang!



From the first day that the doors opened at the Bay Education Center in Rockport, the star attraction has been Science On a Sphere® or SOS. SOS is a display system created by the National Oceanic and Atmospheric Administration (NOAA) to help people learn about the Earth and other planetary sciences. SOS uses a computer and four projectors to display satellite-captured images on a six-foot diameter sphere. This technology creates the experience of viewing the Earth and other planetary bodies as if you were aboard a spacecraft. Viewing the true color depiction of the Earth on SOS is about as close as most of us will ever get to viewing our planet from space.

SOS is a powerful teaching tool because it offers students a means to explore environmental data in a visually engaging and fun manner. One of the goals of the Mission-Aransas NERR education program is to



Teachers learning about SOS during a professional development workshop hosted by the Mission-Aransas NERR.

develop SOS K-12 school programs that are aligned to the Texas public school teaching standards. The datasets available for display include satellite images of ocean currents, real-time weather, hurricanes, landforms, commercial airplane traffic, the Earth at night, the sun, planets, moons, and much more. There are over 350 datasets currently developed for the system and NOAA is constantly creating more.

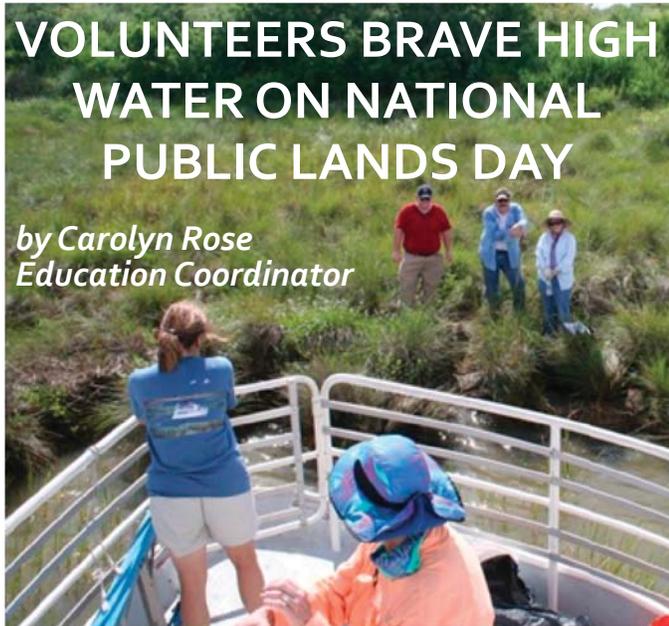
SOS is not only a powerful teaching tool for students, but members of the general public are fascinated by it as well. Many visitors come back multiple times and bring friends and family members to experience this large animated globe. SOS presentations are offered free to the public at 2:15 p.m., Tuesday through Saturday, at the Bay Education Center. For more information about SOS please visit <http://sos.noaa.gov/index.html>. For more information about the Bay Education Center please call 361-549-1694.



High school students explore SOS in background and interactive exhibits in foreground.

VOLUNTEERS BRAVE HIGH WATER ON NATIONAL PUBLIC LANDS DAY

by Carolyn Rose
Education Coordinator



Volunteers loading trash onto the "Skimmer" at the Aransas National Wildlife Refuge.

Despite heavy rains that pelted the area just before the clean-up, 22 volunteers waded through high water to clean the shoreline of the Aransas National Wildlife Refuge on this year's National Public Lands Day. Captain Tommy Moore volunteered his time again this fall to transport the clean-up crews to, within, and from the Refuge on his boat, "The Skimmer." The Mission-Aransas NERR coordinated the clean-up event and staff from the Aransas National Wildlife Refuge hauled away the collected trash.

National Public Lands Day fell on National Estuaries Day and the fall Texas Adopt-A-Beach Clean-up Day this year, so the Refuge clean-up was designed to benefit our local public lands, estuaries, and shorelines. Volunteers collected and removed approximately 1,500 pounds of trash, from a 3.5 mile stretch of Refuge shoreline. The Texas General Land Office's Adopt-A-Beach Clean-up program supplied trash-bags and gloves for the clean-up.

The Mission- Aransas NERR staff sincerely thank the volunteers and partners who braved the high waters to help with this effort.



Visit: <http://lighthouse.tamucc.edu/MissionAransas/HomePage> to get real-time water quality and weather data, collected at the Mission-Aransas NERR SWMP stations.

CALENDAR OF EVENTS

JANUARY

- 1/13-3/31 UTMSI PUBLIC LECTURE SERIES 2011 (THURSDAY EVENINGS)
- 16-20 EXPLORING THE GULF COAST - ROAD SCHOLARS
- 20 RESERVE ADVISORY BOARD MEETING
- 23-28 BIRDING HOT SPOTS OF THE U.S.: UPPER RIO GRANDE VALLEY - ROAD SCHOLARS
- 26 BLUE CRAB CONFERENCE
- 1/30-2/4 BIRDING THE TEXAS TROPICS: LAGUNA ATASCOSA TO SOUTH PADRE ISLAND - ROAD SCHOLARS

FEBRUARY

- 1-5 CULTURE AND HISTORY OF SOUTH TEXAS - ROAD SCHOLARS
- 22-27 WHOOPING CRANE FESTIVAL - ROAD SCHOLARS
- 2/28-3/3 HISTORY AND ECOLOGY OF SOUTH TEXAS - ROAD SCHOLARS

MARCH

- 25-26 TEXAS MARINE EDUCATORS ASSOCIATION TEACHER WORKSHOP
- 3/27-4/2 THE BIG ENCHILADA OF BIRDING

MAY

- 17-18 CONCEPTUAL ECOSYSTEM MODEL WORKSHOP



**MISSION ★ ARANSAS
NATIONAL ESTUARINE
RESEARCH RESERVE**

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Marine Science Institute
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Port Aransas, Texas 78373
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MISSION ★ ARANSAS NATIONAL ESTUARINE RESEARCH RESERVE

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Cooperating Scientist: *Dr. Ken Dunton*

Animal Rescue: *Candice Mottet and Amanda Terry*

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Marine Education Services Director: *Sara Pelleteri*

Education Specialists: *John Williams,
Dr. Rick Tinnin, and Suzy Citek*

Road Scholar Coordinator: *Reta Pearson*

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Research Coordinator: *Dr. Ed Buskey*

Research Assistants: *Cammie Hyatt, Britt Dean,
and Lindsey Pollard*

Cooperating Scientist: *Dr. Tracy Villareal*

Graduate Research Fellow: *Jena Campbell*

Graduate Research Assistant: *Brad Gemmell*

Postdoctoral Fellow: *Dr. Denise Bruesewitz*



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 NERR 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.