



THE MISSION ★ ARANSAS OBSERVER

A Newsletter of the Mission ★ Aransas National Estuarine Reserve



SPRING
2009



NERR Beginnings

by Sally Morehead,
Reserve Manager

Welcome to the first edition of the Mission-Aransas Observer! This newsletter is a production of the Mission-Aransas National Estuarine Research Reserve (NERR). *Our mission is to develop and facilitate partnerships that enhance coastal decision making through an integrated program of research, education, and stewardship.* The Mission-Aransas NERR became part of the National Estuarine Research Reserve System on May 3, 2006. This national system is composed of 27 NERR sites, administered by the National Oceanic and Atmospheric Administration (NOAA). Our NERR site is managed by the University of Texas Marine Science Institute in Port Aransas, Texas. The Mission-Aransas NERR is 185,708 acres and is named after the two rivers that flow into the estuary, the Mission and Aransas Rivers. These rivers combine with saltwater from the bay to create the many unique wetland, terrestrial, and marine habitats, found within the Reserve.

After only three years of programming, I am proud to say that we have completed a large number of events and produced many wonderful products. One of our biggest projects is the upcoming construction of the Headquarters Building. The new building will be located on the Marine Science Institute campus and will contain office space, laboratories, space for visiting scientists and partners, a coastal training program seminar room, and a new resource center. We are very excited about the new



Architectural drawing of Mission-Aransas headquarters building

30,000 square foot building and we will break ground this summer. In addition, we are in the planning stages for the Bay Education Center that will be located in Rockport, Texas. This building is a joint partnership between the NERR, City of Rockport, and Aransas County Navigation District and will house a visitor's center with educational displays and an auditorium. Newest among the NERR sites, Mission-Aransas is growing rapidly and these new facilities will help sustain and enhance our successful programs. These projects could not have been completed without the support of our elected officials and NOAA. We are very grateful for the support they have provided in turning both of these building visions into real bricks and mortar.

We hope that this newsletter will be a valuable source of information about the activities of the Mission-Aransas NERR. Please read on to learn more about our recent activities and upcoming programs. We also invite you to visit our web site at www.utmsi.utexas.edu/nerr to learn more about our programs.

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Gulf of Mexico Alliance Nutrient Workshop Brings Together Gulf Researchers and Coastal Managers

by Ed Buskey, Ph.D., Research Coordinator

The Gulf of Mexico Alliance (GOMA) *Nutrient Criteria Research Framework Workshop*, held this spring in New Orleans, Louisiana, brought together Gulf of Mexico region scientists and state coastal managers, are charged with establishing water quality standards to reduce excess nutrients in estuaries and coastal waters. Excess nutrients or “nutrient pollution,” can lead to algal blooms and other water quality problems that may harm aquatic life and human health. Sixteen speakers at the GOMA workshop presented summaries of their nutrient research in various Western Gulf estuaries and near shore waters from South Texas to the Florida panhandle. A similar meeting was held in Florida last summer.

The presentations were intended to help coastal managers decide where to place pilot studies, to identify suitable monitoring and research tools, and develop numerical nutrient criteria for the Gulf of Mexico. In turn, these criteria will help Gulf States develop acceptable maximum daily nutrient loads, conduct assessments, improve permitting and advance the overall management of nutrients in Gulf estuaries. The researchers were asked to provide information on the various Gulf of Mexico systems using a consistent format, including information on the physical and hydrological characteristics of each system, a summary of the nutrient regime, an overview of any adverse biological effects in each system due to excess nutrients and a description of current research activities addressing nutrient flux and biological responses to excess nutrients.

I was the only representative from the National Estuarine Research Reserve System (NERRS) at the meeting. In addition to the requested nutrient information from the Mission-Aransas estuary, I presented information on the System Wide Monitoring Program (SWMP) to point out the advantages of placing pilot

nutrient studies within NERRS sites. Basic water quality and nutrient data are uniformly collected at SWMP stations at all reserves, using a consistent and well tested set of protocols and quality assurance procedures, and the SWMP stations are **already paid for**. Using the SWMP data would allow any funds available for GOMA nutrient studies to be used to address more specific research questions rather than to support basic monitoring programs, which are already in place at NERRS sites.

I presented a summary of the Mission-Aransas SWMP monitoring data at this meeting. Initial examination of these data revealed that there is a strong gradient of decreasing turbidity (water cloudiness) and phytoplankton biomass from the rivers in Copano Bay to the Aransas Ship Channel. Concentrations



SWMP station located within the Mission-Aransas NERR

of silicate and phosphate also decrease along this gradient. Inorganic nitrogen concentrations are low and variable, and often below detection limits, but concentrations are typically higher in near shore waters of the Gulf of Mexico. Nitrogen to phosphorus ratios are very low in Copano and Aransas Bays and the relatively lower amount

of nitrogen may be limiting phytoplankton growth. Nitrogen to phosphorus ratios, just offshore in the Gulf of Mexico, are higher (above 16 to one) than in these bays. It appears that the Mission-Aransas Estuary is nitrogen limited and does not export nitrogen to the Gulf of Mexico, but instead, nitrogen is often imported into the system from the Gulf of Mexico, through tidal exchange. As a result of these findings, I think the Mission Aransas NERR would make a great place for a GOMA study of a relatively pristine estuary, with minimum excess nutrient load or other human perturbations.



Thinking about spring cleaning? While you're making your home brighter and fresher, keep in mind that many of the cleaning products we use may inadvertently harm the soil, air, and water. Be sure to read labels closely and be extra careful when dumping cleaners down your drain.



Learning Currents

by Rick Tinnin, Ph.D., Education Coordinator

Spring has sprung in the reserve and the education and outreach programs are in full swing. Fourteen Elderhostel participants from the frozen north enjoyed our warm March winds during the *Big Enchilada of Texas Birding* program. The group began birding on the Gulf beach, continued through Whooping Crane country and finally toured three divisions of the King Ranch, in search of Ferruginous Pygmy Owls, Vermillion Flycatchers, Green Jays, Tropical Parulas, Curve-billed and Long-billed Thrashers and many more. The birders saw more than 180 species of birds in five days.

In late March, the Mission-Aransas National Estuarine Research Reserve hosted the Winter Sector meeting for the Education Coordinators and Coastal Training Program Coordinators from the 27 sites in the national reserve system. Over 60 participant's explored the Fennessey Ranch and studied Whooping Cranes during a boat trip through the Aransas National Wildlife Refuge. Participants also included Laurie McGilvray, Chief of the National Oceanic and Atmospheric Administration Estuarine Reserves Division (ERD) and other ERD staff.

The new Wetlands Education Center (WEC) at the University of Texas Marine Science Institute is hosting

over 300 visitors each week. Recently installed wayside interpretive signage allows visitors to enjoy self-guided tours of the WEC. Educational staff members, Reta Pearson & John Williams, are pilot-testing WEC curriculum with visiting school groups. We will hold our first WEC teacher workshop May 1-3, for K-12 classroom teachers. Workshop participants will be able to check out teaching kits and lead their own class activities at the WEC for a reduced fee. Check out the Science & the Sea website at <http://www.scienceandthesea.org> for more information about the WEC curriculum.



Site plan for Wetlands Education Center at the University of Texas Marine Science Institute



Aerial view of Wetlands Education Center



Education Coordinators from 24 nation-wide NERR sites at the Fennessey Ranch

The research vessel, RV KATY, will be very busy the remainder of this spring and into the summer with 67 half-day trips scheduled from mid-April through July, hosting over 1,800 students. Many of the May trips will host students from the Austin Marine Activities, Resources and Education (MARE) project. MARE students study a different marine habitat each year, looking at the physical setting, adaptations of plants and animals and the human impact on the habitat.

NOAA Funding Supports Coastal Training Partnership in Gulf of Mexico Region

by Chad Leister,
Coastal Training Program Coordinator

The Coastal Training Program (CTP) continues to provide needs based training to local coastal decision-makers. Decision-makers are typically defined as individuals who make routine decisions about the management of coastal and estuarine resources in a professional or volunteer capacity. Our CTP, along with the four other NERR sites in the Gulf of Mexico, was recently awarded \$300,000 from the Gulf of Mexico Alliance (GOMA). This funding supports a regional collaborative approach for training that uses proven methodologies to increase the visibility of GOMA and assist with training initiatives.

The GOMA funding will also support a full-time regional coordinator devoted to advancing coastal training in the Gulf of Mexico region. We have recently hired Amy Gohres as the Gulf Regional Training Coordinator. Amy maintains an office with the Weeks Bay Foundation in Alabama, but she will be traveling regularly to the Coastal Bend to assist in meetings, as well as trainings or workshops hosted by the Mission-Aransas NERR.

Amy recently attended the Conceptual Ecosystem Modeling Workshop held at the University of Texas Marine Science Institute on April 21-23, 2009. This workshop asked local researchers to provide information about the ecology of the Mission-Aransas Estuary. The information will be used to develop a conceptual model to help address



A group of local experts at the Conceptual Environmental Model Workshop identifying the valued ecosystem components for key habitat types in the Mission-Aransas NERR

both natural and social science issues. This workshop is just one of the many examples of the opportunities CTP is providing to the Coastal Bend.

In addition to supporting the regional training coordinator, the NOAA funding will also support a minimum of five trainings or workshops per year around the Gulf of Mexico, for three years. These workshops will provide a venue for addressing topics relating to GOMA Priority Issues such as watershed planning, storm-water management, red tides, floodplain management, land use planning, conservation planning, living shorelines, sea level rise, and climate change.

A Living Shorelines Workshop is currently being developed and is expected to occur in the summer of 2009. This workshop will explore the use of plants and other natural materials to stabilize the shoreline, minimize coastal erosion, and maintain coastal processes. The workshop will present cost-benefit analyses, case studies, and guided discussions of the permitting process from a panel of experts.

A complete list of upcoming events is included in this newsletter and is available at the following address: <http://www.utmsi.utexas.edu/manerr>.

If you have questions regarding this unique regional collaboration or other CTP opportunities please contact CTP Coordinator, Chad Leister, at cleister@mail.utexas.edu or 361.749.6782.

DESCRIPTIONS OF UPCOMING CTP EVENTS

Living Shorelines Workshop:

This one-day workshop will focus on the ecological purpose, benefit and function of living shorelines.

Bacteria Dynamics Workshop:

This one-day event will educate resource managers on coliform bacteria dynamics and potential health risks.

Introduction to Geographic Information Systems (GIS) Training:

This two-day course will provide the foundation for becoming a successful ArcGIS Desktop user.

Coastal Applications using ArcGIS Training:

This two-day course will provide trainees with opportunities to address a variety of coastal issues using ArcView 9.2 technology.

Improving Coastal Land Use Planning through Ecosystem Based Management.

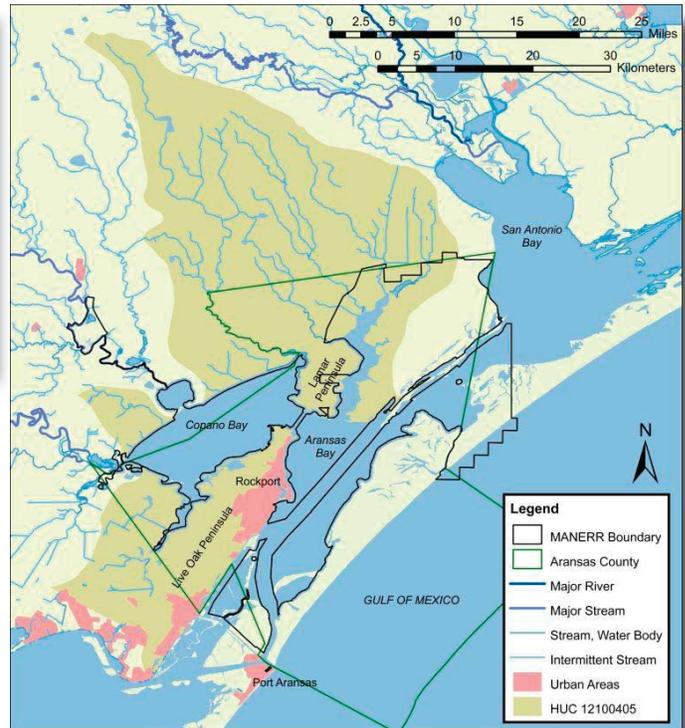
by Kiersten Madden, Ph.D., Stewardship Coordinator

The complex nature of coastal ecosystems makes it difficult for resource managers to effectively apply traditional management approaches. In order to sustain the social, economic, and ecological values of coastal communities, there must be a shift towards a more holistic management approach that integrates science, policy, and people. Ecosystem based management, or EBM, is one such approach that is gaining international momentum.

The objective of EBM is to sustain the health, productivity, resilience, and biological diversity of ecosystems while promoting an enhanced quality of life for the people that live in those systems. EBM acknowledges the inter-connectedness of the land-sea interface, the trade-offs between resource use and conservation, and the cumulative effects of various human activities. It is an interactive and multi-step process in which stakeholders, scientists, and decision makers are brought together to discuss the consequences of management actions (or inactions) and choose a preferred management strategy. Effective protection of coastal resources is more likely to be achieved when an EBM approach is used and explains why coastal managers throughout the world are beginning to utilize this technique.



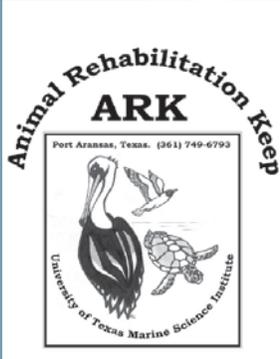
Local decision-makers and stakeholders attending an EBM workshop at the Aransas County Courthouse



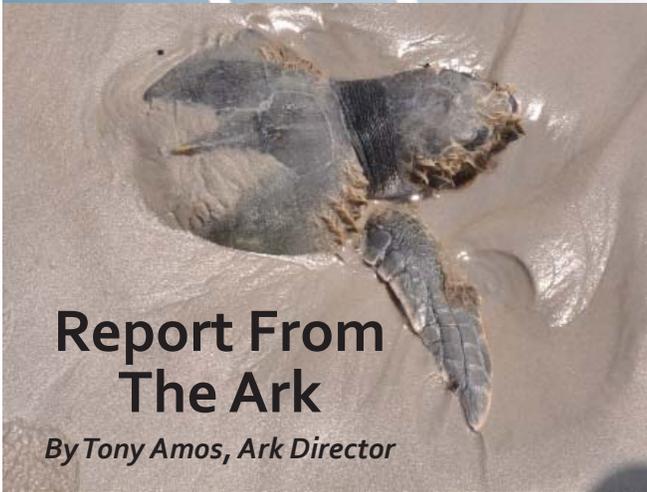
Study area of the EBM project at the Mission-Aransas NERR

The Mission-Aransas NERR is currently involved in a project to improve coastal land use planning within one area of the Reserve, using the EBM approach. Specifically, I am collaborating with the local community to apply three forms of decision support software tools in an integrated manner. The decision support tools will be used to determine current ecological, social, and economic conditions, evaluate potential trends in these conditions based on current policies and economic forces, and develop alternative management strategies to meet local ecological, social, and economic objectives.

The Mission-Aransas NERR is an ideal location for this study since it is located within a relatively undisturbed watershed that supports a healthy estuary with recreation, tourism, and commercial and recreational fisheries. The area, however, is also currently experiencing rapid population growth due to its attractive and healthy environment. The population of Aransas County, which contains 75% of the Mission-Aransas NERR, has increased by 26% from 1990 to 2000. This growth rate has resulted in strong community interest and involvement in maintaining the resource-dependent quality of life. The results of the Mission-Aransas NERR EBM project will help local stakeholders and decision makers improve land use and resource management decisions, and ultimately, will help sustain the coastal resources and high quality of life which are associated with this region.



The mission of the Animal Rehabilitation Keep is to rescue and rehabilitate sick or injured wildlife, to release recovered animals back into their native habitat and to educate the public about the problems encountered by local wildlife and the impact that the increasing human population and coastal development have on wildlife.



Report From The Ark

By Tony Amos, Ark Director

Stranded Kemp's ridley

The Animal Rehabilitation Keep (ARK) is typically busy as we enter spring, with some noteworthy special happenings. An unusual number of sea turtles have stranded so far this year. Fifty-nine turtles have stranded, compared to only 22 in the same period last year. Our experience mirrors similar events in Florida, but, as of now, nobody knows why so many turtles are stranding. Also unusual for us, are the several large, living ridleys and living and dead loggerheads that have stranded locally.

The ARK has released 29 turtles this year, mostly greens and ridleys. Recently, 16 ridleys, one hawksbill and one loggerhead were released offshore, thanks to the donated use of a 43-ft cabin cruiser, which allowed us to go 15-miles out to find a good Sargassum weed line, where we released the turtles. In early April, the public was invited to witness the release of several large loggerheads and ridleys from Mustang Island Gulf beach. Included in this group was the 128-lb loggerhead, "Judy," who was outfitted with a satellite tag that will allow us to track her wanderings. We will collaborate with Texas A&M University at Galveston

scientists in the satellite tracking program. The purchase of the \$2,000 tag was made possible through funds raised by "Friends of the ARK" (FOTA), a not-for-profit group of volunteers who are dedicated to supporting the ARK, both financially and by working at the ARK.

An unprecedented number of the Texas diamondback terrapins, a species of special concern, have stranded on Gulf beaches recently. We think that Hurricane Ike may have washed them out of the back bays and into the Gulf. Eighteen of them are currently being raised at the ARK, for future release. We will collaborate in the study of these beautiful animals with researchers from the University of Houston-Clear Lake.

Each spring and summer, the ARK and FOTA volunteers conduct regular patrols of Mustang and San Jose Island Gulf beaches, in search of Kemp's ridley nestings. Last year there were 5 ridley nests on each island and one loggerhead nest on Mustang Island. This year we expect more.

BROWN PELICAN ADVENTURE

On a recent Survey of San Jose Island Gulf beach we came across a brown pelican hopelessly ensnared in fishing line, hooks, and sinker. After freeing the injured animal, we placed him in a large



wooden crate that we found on the beach and left him in a safe place while we finished the survey, then we returned to collect him.

Because we had no suitable container to hold the bird, ARK volunteer, Bob Happle, cradled the animal for the journey back to the ARK.



Lending a Hand at the Mission-Aransas NERR

by Carolyn Rose, Volunteer Coordinator



ARK volunteers, John Ray and Guy Davis, loading a soon to be released Kemp's ridley sea turtle

Volunteers are a vital part of the Mission-Aransas NERR and much of what we do would be impossible without them. Mission-Aransas volunteers donated 2822 hours of their time to research, education and stewardship programs during the first half of this fiscal year. Volunteer contributions ranged from assisting with laboratory and field research and education programs to rehabilitating injured or ill turtles and birds. Most of the Mission-Aransas volunteers spend their time feeding and caring for the animals that are housed at the Animal Rehabilitation Keep (ARK), patrolling the beaches in search of sea turtle nests or participating in fund-raising efforts to support the work of the ARK.

Mission-Aransas volunteers are a diverse group, consisting of high school and college students, working professionals, retired individuals and members of various service groups. Some help with lab and field research in order to gain knowledge or experience. Some are motivated by their concern for injured wildlife. Others volunteer for the camaraderie they find working with other volunteers and staff. Some



ARK Volunteers, Stefanie Douglass and Marion Joseph, caring for an injured black-crowned night-heron

"WinterTexans" have formed friendships that they maintain across many miles and years.

We currently need volunteers who are interested in helping people learn about coastal wetlands and estuarine ecology to help with Mission-Aransas educational programs.



Volunteer, Charlotte Lucke, feeding fishes at the UTMSI Visitor Center

If you would like to volunteer with us in any capacity, please call Carolyn Rose, the Volunteer Coordinator, at 361.749.6832.

CALENDAR OF EVENTS

MAY

1-3 *Wetlands Education Center Teacher Workshop*

6 *Mission-Aransas NERR Anniversary Event*

JULY

Headquarters Ground-Breaking (date TBA)

SEPTEMBER

17-20 *Elderhostel Event: Rockport Hummingbird Festival*

OCTOBER

11-15 *Elderhostel Event: Barrier Island Ecology*

UPCOMING CTP EVENTS *

Introduction to Geographic Information Systems (GIS) Training

Living Shorelines Workshop

Bacteria Dynamics Workshop

Coastal Applications using ArcGIS Training

* For more information about CTP events, contact Chad Leister at 361.749.6782 or cleister@mail.utexas.edu

MISSION ★ ARANSAS NATIONAL ESTUARINE RESEARCH RESERVE
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MISSION ★ ARANSAS NATIONAL ESTUARINE RESEARCH RESERVE

STAFF

Reserve Manager: *Sally Morehead*
 Executive Director: *Georgia Neblett*

STEWARDSHIP

Stewardship Coordinator: *Dr. Kiersten Madden*
 Cooperating Scientist: *Dr. Ken Dunton*
 Animal Rescue: *Gerry Gage, Candice Mottet and Marsha Owen*
 GIS Specialist: *Dr. Jeffery Vincent*

COASTAL TRAINING

Coastal Training Program Coordinator: *Chad Leister*

EDUCATION

Education Coordinator: *Dr. Rick Tinnin*
 Education Specialist: *John Williams*
 Elderhostel Coordinator: *Reta Pearson*
 Volunteer Coordinator: *Carolyn Rose*
 Education Assistant: *Richard Lamb*



RESEARCH

Research Coordinator: *Dr. Ed Buskey*
 Research Assistants: *Cammie Hyatt and Colt Cook*
 Cooperating Scientist: *Dr. Tracy Villareal*
 Graduate Research Fellow: *Rae Mooney*
 Graduate Research Assistant: *Il Nam Kim*



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.