



# THE MISSION ★ ARANSAS OBSERVER

A Newsletter of the Mission ★ Aransas National Estuarine Reserve



SPRING  
2012



## A Busy Spring

by Sally Morehead,  
Reserve Manager

This has been a very busy spring season for the Reserve. With two brand-new facilities (Estuarine Research Center in Port Aransas and Bay Education Center in Rockport), our staff have been moving into the new spaces and developing programs to take advantage of these great buildings. We've also hired several new staff members to help run workshops and education events.

The Coastal Training Program has been very active and worked with several local communities to help them prepare for natural disasters. A very popular workshop was also hosted to teach environmental educators how to communicate more effectively about climate change.

Reserve researchers continue to work hard gathering valuable water quality data. They've also begun applying an innovative diagnostic test to the data called net ecosystem metabolism. Similar to those you get at the doctor's office, this test will enable us to determine the health of our bays. The Reserve is also working with the Landscape Conservation Cooperative to help solve coastal issues on a landscape scale. Staff are helping define the research needs for Texas and parts of its surrounding states. Both of these research efforts will help provide information to improve decisions for current and future coastal issues.

Our educators are continuing to offer a variety of programs that make learning fun. A new public lecture series, called Bay Talks, was held this winter in Rockport. Attendees learned from researchers about bays locally, and worldwide. Our newest educational offerings are called Habitat Hikes, which give families and individuals an opportunity to learn more about the habitats surrounding our local estuaries. Reserve educators continue to develop and offer new programs that serve our local community and school children. Flip the pages to learn more information about these initiatives and much more that the Reserve has been busy doing this spring.



## New CTP Coordinator

Kristin Hicks is the Reserve's new Coastal Training Program (CTP) Coordinator. She will be working with local and national partners to help improve decision-making related to coastal resource management. Hicks brings experience in regional ocean planning, shoreline management, beach access, and sustainable coastal development. She has a Bachelor's degree in Marine Biology from the University of North Carolina Wilmington and a Master's degree in Marine Policy from the University of Delaware.

The CTP is a national initiative within the National Estuarine Research Reserve System that provides science-based training to coastal decision-makers to foster better stewardship of coastal resources at the local and regional levels. Kristin Hicks will serve as a bridge between the science, coastal management, and policy communities within the Reserve and surrounding areas.

## INSIDE

- 2 *What is Net Ecosystem Metabolism?*
- 3 *Big Problems Need Big Ideas*
- 4 *Habitat Hikes*
- 5 *How do you tell people it's getting hotter?*
- 6 *Addressing Community Preparedness*
- 7 *Calendar of Events*

# What is Net Ecosystem Metabolism?

by Lindsey Pollard,  
Research Technician

The Reserve is exploring new ways to monitor the productivity of our estuary. We are especially interested in finding new ways to utilize the water quality and meteorological data being collected by the System Wide Monitoring Program. Calculating net ecosystem metabolism (NEM) is becoming a common method used in estuarine ecology to help understand how the bays function and what changes influence them.

So what is NEM and why is it important to our Reserve? NEM tells us the balance between the amount of oxygen that is being produced by primary producers, like algae (autotrophy) and how much is being used up by all the other organisms in the community (heterotrophy). This illustrates the activity of primary producers in making organic carbon through photosynthesis and how heterotrophs are using organic carbon supplied to them. From this we can learn more about the importance of external organic matter inputs from rivers and runoff versus organic matter produced locally from primary producers.

NEM values are either positive or negative. A positive number tells us that the ecosystem is autotrophic, or that production is greater than respiration, while a negative number indicates a heterotrophic system where respiration is greater than production. A heterotrophic system is supported in large part by carbon that was produced externally. We expect to see NEM change during drought periods and flooding events.



Freshwater plume entering the bay from the Mission River.

Calculating the NEM of the Reserve also complements an on-going nutrient study funded by the Gulf of Mexico Alliance (GOMA). The goals of the GOMA project are to determine where nutrients within the estuary are coming from and understand the importance of rain events that provide large amounts of nutrients, organic matter, and freshwater into the estuary. In Figure 1 you can see the influence of storm events. In July and late September salinity in the bay decreased from river inputs, which brought large amount of nutrients and organic matter to the bay causing spikes in primary production and respiration. By illustrating the response of primary producers and heterotrophs to storms, NEM may be able to complement the models developed in the GOMA project that suggest how much nutrient loading is too much for our estuary.

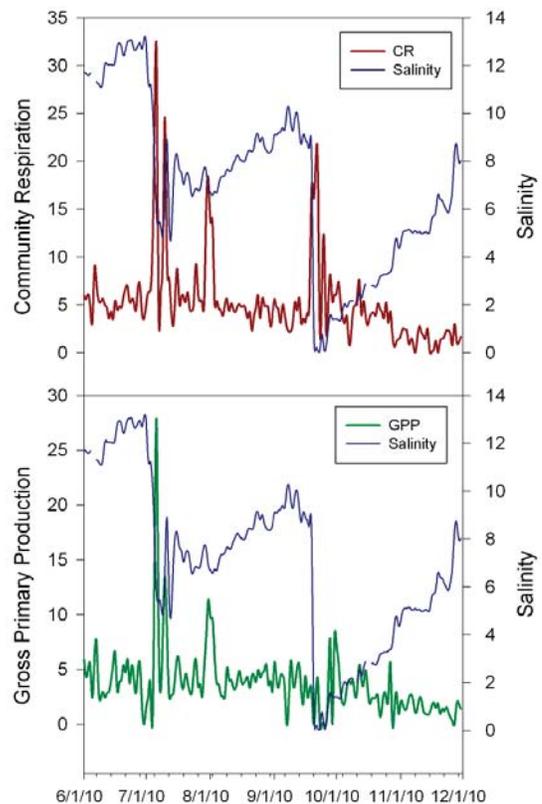
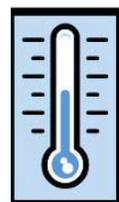


Figure 1. Graph showing community respiration (CR) and gross primary production (GPP) vs. salinity. The sharp drops in salinity indicate flooding events, which are followed by spikes in both CR and GPP.



Visit: <http://lighthouse.tamucc.edu/MissionAransas/HomePage> to get real-time water quality and weather data, collected at the System-Wide Monitoring Program stations.



Managing our nation’s resources has become increasingly complex in recent decades. Land use change, drought, wildfire, habitat fragmentation, pollution, invasive species, and a rapidly changing climate are just some of the stressors that threaten wildlife and their habitats. Recognizing that many of these management challenges transcend political and jurisdictional boundaries, the U.S. Department of the Interior called for the development of a network of Landscape Conservation Cooperatives (LCCs).

LCCs are public-private partnerships designed to use a landscape-scale conservation approach that is holistic, collaborative, adaptive, and grounded in good science. The states, tribes, federal agencies, non-governmental organizations, and universities that make up the LCCs must work together to identify best practices, connect efforts, identify gaps, and avoid duplication through improved conservation planning and design.

The LCC network consists of 22 individual LCC units, several of which cross international borders. The Mission-Aransas Reserve is located within the Gulf Coast Prairie Landscape Conservation Cooperative (abbreviated



Map showing the four ecoregions of the Gulf Coast Prairie Landscape Conservation Cooperative. (Map credit: USFWS)

GCP LCC). The GCP LCC area encompasses portions of five states (Texas, Oklahoma, Louisiana, Mississippi, and Kansas) and four terrestrial ecoregions (Oaks and Prairies, Gulf Coast Prairie, Tamaulipan Brushlands, and Edwards Plateau). Eventually, it is envisioned to also include portions of three Mexican states that share similar habitats.

In February 2012, the GCP LCC hosted a “Science Forum” in Fort Worth, Texas. The goal of this two-day meeting was to convene scientists and managers from across the GCP LCC and have them begin to identify and prioritize scientific needs that would help address conservation challenges across the landscape. Mission-Aransas Reserve staff attended the “Science Forum” and provided input on the scientific needs for the coastal regions of the GCP LCC. Ultimately, a prioritized list of science needs was produced and included such topics as: vulnerability assessments for species and habitats, habitat/population models, freshwater inflows, and landscape-scale changes in land use. The science needs were combined



with those identified for freshwater and terrestrial areas to create a complete portfolio of science needs that will serve as a critical guiding framework for future conservation planning, delivery, and applied research and monitoring efforts. For information about the LCCs, go to:

<http://www.fws.gov/science/shc/lcc.html>

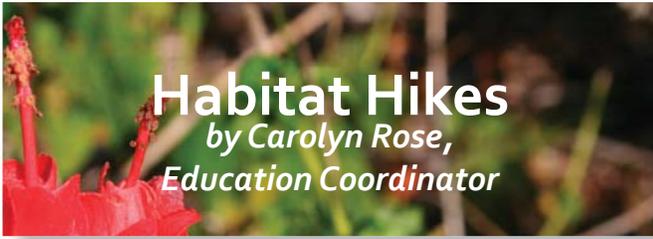
Understanding the impacts of renewable energy on focal species was identified as a need for the areas of the GCP LCC.

**Green Tip**

Gardening is a great way to get outdoors and enjoy the spring weather. Here are some tips for cutting back on the amount of water you use:



- Adjust your mower to a higher setting – longer grass retains water better.
- Water in the early morning when temperatures are cooler to avoid evaporation.
- Adjust sprinklers so only your lawn is watered and not the house, sidewalk, or street.
- Collect and use rainwater for watering.
- Direct downspouts or gutters towards shrubs or trees.
- Install a drip irrigation system around your trees and shrubs to water more efficiently.



# Habitat Hikes

by Carolyn Rose,  
Education Coordinator

The Mission-Aransas Reserve recently completed a survey of informal education providers in the nine counties that make up part of the Reserve’s watershed. When asked what types of community education programs were most popular with their visitors, most educators indicated that active programs, such as guided nature hikes, tours, and birding programs, were more popular than more passive programs, such as lectures or presentations. However, less than half of the surveyed organizations offered guided nature hikes at their sites. Considering the popularity of nature hikes and the opportunity they provide for helping people understand the importance of coastal habitats, the Reserve has initiated a series of “Habitat Hikes” that will be offered at Reserve and partner sites, one Saturday per month, from September through May.

The goal of the Habitat Hikes is to help visitors understand the importance of coastal habitats for wildlife, people, and plants, while offering them an outdoor recreation opportunity in the form of a moderate hike. Each hike will have an interactive, hands-on component and will offer adults and school age children a chance to reconnect with the natural world. During some hikes, participants will have the option of using GPS devices to search for wildlife specimens and plants that highlight the importance of the targeted habitat. Hikers enjoy “hunting” for the hidden specimens, and examining the representative plants and animals . The hidden treasures



Hikers examine the skull of a gray fox at the Goose Island State Park Habitat Hike.

also provides an opportunity for all participants to discuss the value of the habitat for wildlife and people.

Each hike will target a critical habitat at a Reserve or partner site. This spring, the Reserve will offer Habitat Hikes focused on coastal woodlands at Goose Island State Park, and freshwater wetlands at Fennessey Ranch. The Reserve is not charging a fee for the guided hikes; however, some hikes require reservations due to space limitations and some partner sites may charge an entry fee. All hikes are moderate, covering a distance of less than two miles, and they will be offered on selected Saturday mornings, from 10 am until noon.

By increasing understanding of the ecological and economic functions provided by coastal habitats to wildlife and people, Reserve visitors will better appreciate why these important habitats deserve their protection. For more information about Reserve Habitat Hikes, please contact Carolyn Rose at 361-749-3152.



Hikers discuss the importance of coastal woodland habitat at Goose Island State Park.

## Explorer Labs are Back this Summer!

Explorer Labs are interactive, hands-on programs that allow families to explore our local estuary. Program topics include estuary habitats, plants, crustaceans, mollusks, and more. Participation is limited to the first 24 visitors.

**Early Explorers:** at UTMSI, from 10-11am, for families with 3-5 year olds. Dates: Saturday 6/9, 6/23, 7/7, 7/21, 8/4. \$4/person. Contact Colleen McCue 361-749-3153.

**Estuary Explorers:** at the Bay Education Center, from 10am-12pm, for families with children age 6 and above. Dates: Saturday 6/16, 6/30 7/14, 7/28, 8/11. \$4/person. Contact Carolyn Rose 361-749-3152.

All children must be accompanied by a parent or guardian.

# How do you tell people it is getting hotter?

by Colbi Brown,  
Interim CTP Coordinator

On January 30th, the Reserve Coastal Training Program (CTP) hosted a Climate Change Communication Workshop, funded by the Gulf of Mexico Alliance. The goal of this workshop was to give environmental educators the tools they need to effectively inform the public about climate change. The participants were extremely enthusiastic about this workshop and eager to learn. Approximately 40 people attended, with many more interested in participating, but unable to do so because of limited seating.

The workshop began with a presentation by Dr. Kiersten Madden, Stewardship Coordinator for the Reserve. She provided participants with background information on observed changes in local climate, as well as information about the potential impacts of future climate change. The workshop also featured a presentation by Larry Perez, a science communicator from the National Park Service, and Shawn Davis, a PhD student at Colorado State University. Their presentations focused on tools and techniques for educators to use when communicating about climate change. They emphasized the importance of climate change communication, particularly on a place-based or local level.

Participants were given the opportunity to put what they learned to the test as they worked in teams to address comments and questions from climate change skeptics. One team member played the role of the skeptic while the other member used the information and tools they learned to respond. Additionally, participants worked together to design a place-based educational program or exhibit that would allow them to better communicate local climate change.



Presenter Larry Perez answers questions from workshop participants about climate change communication.

Participants were divided into groups. Environmental educators brainstormed a variety of exhibits and programs that not only educate the general public on local climate change, but also build stronger partnerships and communication between local organizations. Meanwhile, a group of participating scientists developed better ways to communicate about their climate change research to educators and members of the general public.



Workshop participants discuss ways to improve climate change communication.

Participants gained valuable knowledge from the workshop. One participant even stated that it was “the best workshop I have been to in years.” The Reserve looks forward to seeing how the participants use the climate change information and skills learned at this workshop to communicate and develop more educational programs.

If you are interested in receiving a recording of this workshop or information on upcoming CTP trainings, please contact the new CTP Coordinator Kristin Hicks (kristin.hicks@austin.utexas.edu; 361-749-3048) or visit our website at [www.missionaransas.org](http://www.missionaransas.org).

## Summer Science Field Program



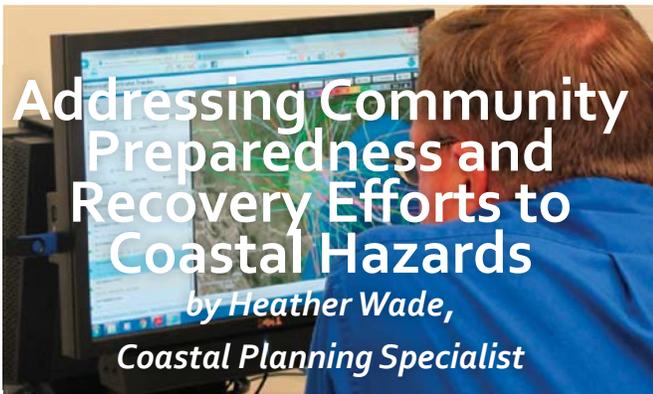
Join us for a week of fun-filled science! The summer science field program provides an opportunity for children to explore local environments. During this program, researchers will lead hands-on lessons in the field and the lab.

**June 11th - 15th, 18th - 22nd, & 25th - 29th**

For students entering 3rd - 8th grade

For more information please contact Colleen McCue, [colleen.mccue@utexas.edu](mailto:colleen.mccue@utexas.edu) or 361-749-3153.

Registration forms available at [gk12.utmsi.utexas.edu](http://gk12.utmsi.utexas.edu)



The Mission-Aransas National Estuarine Research Reserve and Texas Sea Grant have been working with community planners, emergency managers, elected officials and citizens concerned with how their community will fare during the next natural disaster. In the last year, four resiliency workshops have been held in 3 different locations around the Coastal Bend (Ingleside, Port Aransas, and Rockport).



An interactive computer resource known as the weTable displays maps from the Texas Coastal Community Planning Atlas.



A breakout group works with the weTable and Coastal Community Planning Atlas in Aransas County.

Workshop attendees used the Coastal Resilience Index, developed by the Gulf of Mexico Alliance, which is a tool that helps coastal communities self-assess their resilience to natural disasters. It serves as an efficient and cost effective method to determine the community's capacity to reach and maintain an acceptable level of function after a natural disaster.

Workshop participants heard presentations from community development and resilience experts before taking part in breakout sessions focused on using interactive computer tools from state and federal coastal hazard resources. The workshops ended with participants brainstorming on challenges in their community and finding solutions to those challenges in order to improve resiliency.

For more information on these workshops and tools, contact Heather Wade at 361-749-3049 or Kristin Hicks at 361-749-3048.

## Short & Tweet from the ARK by Amanda Terry



Springtime means baby bird season, and the ARK is currently caring for over 20 little chicks. If you find a baby bird on the ground don't assume it's abandoned. The best thing to do is make observations about the bird's condition and surroundings from afar, then call the ARK at 361-749-6793 to get advice on what to do next. If you can find the nest it came from you can safely replace the bird. Birds can't smell and the mother will return.

In turtle news, a large female Kemp's Ridley sea turtle was found laying 100+ eggs on the beach. We removed a large tumor on her back and she is currently recovering. The tumor was sent out for analysis and she will be released within the next two weeks.





**CITIZEN SCIENCE**  
by Colleen McCue,  
Outreach & Volunteer Coordinator

The Reserve has initiated a research project using volunteer "citizen scientists" to look at the larval blue crab distribution throughout the Mission-Aransas Estuary. Volunteers take daily samples from a small collector that is attached to a pier at one of five sampling locations (Goose Island State Park, Heron's Roost, UTMSI Pier, Horace Caldwell Pier, and the Aransas National Wildlife Refuge). The project will continue each year from March until November.

If you are interested in joining an observation team by helping take samples one day per week, please contact Colleen McCue at 361-749-3153.

**FACES OF AN ESTUARY  
PHOTO CONTEST WINNERS**



*First Place Child:  
Jacob White  
Curlews and Curves*



*First Place Hobbyist:  
David McCool  
Reflections*



*First Place Professional:  
Linda Fuiman  
Agility*



*Viewer's Choice:  
Sherry Halbrook  
Perfect Pair*

**CALENDAR OF EVENTS**

**MAY**

19 GLASS RECYCLING IN CORPUS CHRISTI  
WWW.CCTEXAS.COM

30 BALANCING FRESHWATER  
INFLOW NEEDS IN A CHANGING  
ENVIRONMENT (KIERSTEN.  
MADDEN@MAIL.UTEXAS.EDU OR  
361-749-3047)

**JUNE**

9&23 EARLY EXPLORER LABS AT UTMSI  
10AM-11AM

16&30 ESTUARY EXPLORER LABS AT BAY  
EDUCATION CENTER 10AM - 12PM

11-29 SUMMER SCIENCE PROGRAM FOR  
3RD - 8TH GRADERS

18 DEVELOPING A DISASTER RESPONSE  
PLAN FOR THE RESERVE (THIS EVENT  
IS BY INVITATION ONLY; CONTACT  
KRISTIN.HICKS@AUSTIN.UTEXAS.EDU  
OR 361-749-3048)

**JULY**

7&21 EARLY EXPLORER LABS AT UTMSI  
10AM-11AM

14&28 ESTUARY EXPLORER LABS AT BAY  
EDUCATION CENTER 10AM - 12PM

**AUGUST**

4 EARLY EXPLORER LABS AT UTMSI  
10AM-11AM

11 ESTUARY EXPLORER LABS AT BAY  
EDUCATION CENTER 10AM - 12PM

**TOURS OF THE WETLANDS EDUCATION CENTER**  
EVERY TUE AND THURS, 10AM  
AT UTMSI IN PORT ARANSAS

**AFTERNOON MOVIE**  
EVERY MON - THURS & SAT, 3PM  
AT THE UTMSI VISITOR CENTER IN PORT ARANSAS

**SCIENCE ON A SPHERE**  
EVERY TUES - SAT, 2PM AND 3PM  
AT THE BAY EDUCATION CENTER IN ROCKPORT





**MISSION ★ ARANSAS**  
**NATIONAL ESTUARINE**  
**RESEARCH RESERVE**  
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Marine Science Institute  
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Port Aransas, Texas 78373  
[www.missionaransas.org](http://www.missionaransas.org)



## MISSION ★ ARANSAS NATIONAL ESTUARINE RESEARCH RESERVE

### STAFF

#### Administrative

Reserve Manager: *Sally Morehead*  
Administrative Assistant: *Candace Peyton*

#### COASTAL TRAINING PROGRAM

Coastal Training Program Coordinator: *Kristin Hicks*  
Sea Grant Coastal Planning Specialist: *Heather Wade*

#### RESEARCH

Research Coordinator: *Dr. Ed Buskey*  
Research Assistants: *Cammie Hyatt & Rae Mooney*  
Cooperating Scientist: *Dr. Tracy Villareal*  
Graduate Research Fellow: *Kelly Darnell, Jena Campbell*  
Graduate Research Assistant: *John Mohan*  
Postdoctoral Fellow: *Dr. Denise Bruesewitz*

#### EDUCATION

Education Coordinator: *Carolyn Rose*  
Marine Education Services Director:  
*Sara Pelleteri*  
Education Specialists: *Suzy Citek & Dana Sjostrom*  
Outreach/Vol. Coordinator: *Colleen McCue*  
Road Scholar Coordinator: *Linda Fuiman*

#### STEWARDSHIP

Stewardship Coordinator: *Dr. Kiersten Madden*  
Cooperating Scientist: *Dr. Ken Dunton*  
Animal Rescue: *Amanda Terry & Guy Davis*  
Research Assistant: *Anne Evans*



*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.*