Issue 10


Photo credit: Jace Tunnell

Marine Science News

The University of Texas at Austin
Marine Science Institute
Activities and Events (Sep - Nov)

4th Quarter 2016

DISCOVERY STARTS HERE

Faculty Facts

Arctic Found to Play Unexpectedly Large Role in Removing Nitrogen

Areas of the Arctic play a larger role than previously thought in the global nitrogen cycle—the process responsible for keeping a critical element necessary for life flowing between the atmosphere, the land and oceans. The finding is reported in a new study of the Arctic Ocean's continental shelf that was published in the prestigious journal *Nature Communications*. "Microbial nitrogen removal occurs across the globe, and we were interested in how much of an impact it was making in the Arctic," said Amber Hardison, an assistant professor of marine science at The University of Texas at Austin who was an author on the paper. Hardison and her colleagues collaborated in the first-ever study in the Arctic region to measure several different processes that can remove nitrogen. The researchers conducted the study in the Chukchi Sea, a part of the Arctic Ocean adjacent to the Pacific Ocean and Alaska. The area is of interest not only to scientists, but also to oil industry officials due to the potential for large reserves of oil and gas. "The role of this region is critically important to understand as humans put more nitrogen into the ocean via fertilizers, sewage and other sources," Hardison said. "The Arctic is also undergoing dramatic changes linked to climate change, including a rapid decline in sea ice. As sea ice shrinks, it disrupts the natural functioning of the ecosystem, including potentially limiting the vital nitrogen removal process." Sea animals like sea stars, clams and snails help bacteria in the Arctic to remove excess nitrogen in the ocean."This study was a great example of the interplay of biology and chemistry and is the first time it was shown in the Arctic," Hardison said. The paper's other authors, all at UT Austin at the

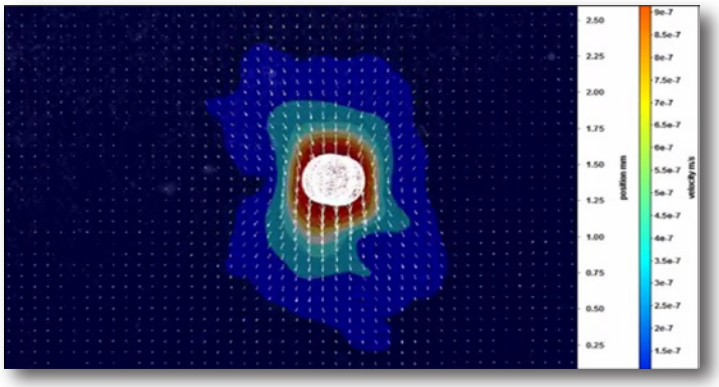
In the new study, marine chemists and biologists from The University of Texas Marine Science Institute discovered that seabed microbes remove substantial quantities of nitrogen from the Arctic Ocean. Although the Arctic accounts for only a little more than 1% of the world's continental shelves (where most nitrogen is removed), this region accounts for about 5% of the global ocean nitrogen removal. Photo credit: Nathan McTigue.

time of the research, were corresponding author Nathan McTigue, a former postdoctoral fellow in Hardison's lab now with the National Oceanic and Atmospheric Administration; and Drs. Ken Dunton and Wayne Gardner from UTMSI. *The research was supported by U.S. Department of the Interior, Bureau of Ocean Energy Management.*

Shining a Light on Oil-Degrading Bacteria

Scientists at The University of Texas Marine Science Institute, Drs. Hernando Bacosa, Zhanfei Liu, and Deana Erdner, have demonstrated how natural sunlight affects Gulf of Mexico microbial communities in the presence of dispersant (Corexit) and crude oil. They found that sunlight significantly reduced the diversity of bacterial communities in the presence of oil, Corexit, or both. While sunlight negatively affected several bacterial groups, it also preferentially selected certain bacteria. Their findings are a first to show that sunlight is a key driver for microbial community structure shifts and in determining bacterial composition and dynamics in oil-polluted surface waters. There have been several studies of bacterial communities interacting with oil in deep water; however, the sea surface is a more complex environment where oil dissolution, dispersion, emulsification, evaporation, biodegradation, and photochemical degradation all occur, often simultaneously. The recent study provides more details about other bacterial community responses under various conditions like those found at the surface. This research was published in *Frontiers in Microbiology* and *supported by the Gulf of Mexico Research Initiative (GoMRI)*.

Dr. Hernando Bacosa works at the seawater filtration system aboard the R/V Pelican 2013 cruise to the Deepwater Horizon site in the Gulf of Mexico. Courtesy photo.



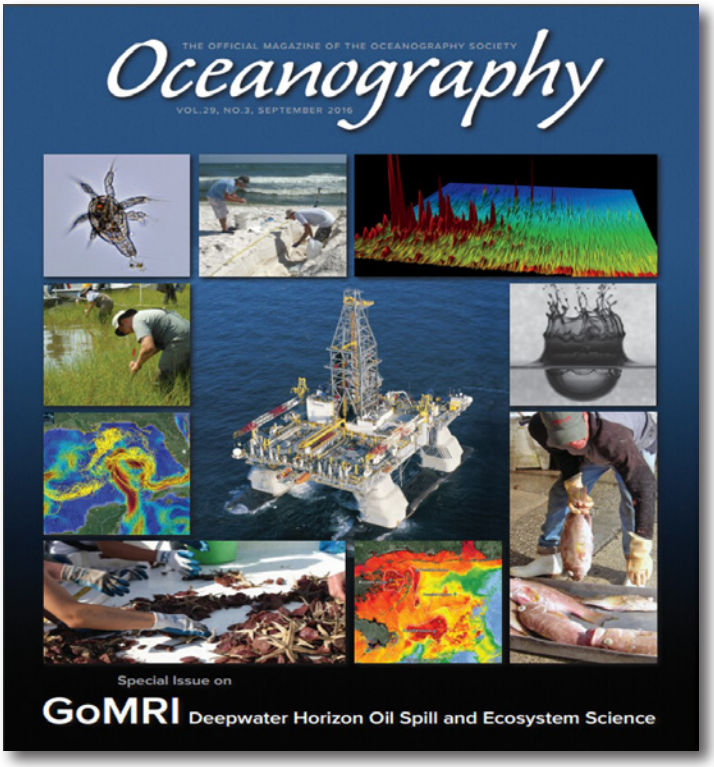
New research helps explain why diatoms, which are seemingly poor competitors, can outcompete even active swimmers for essential nutrients and contributed to our understanding of their ability to dominate the oceans. Image credit: Brad Gemmell.

Sink or Swim for Your Meal

New research shows that diatoms can exhibit novel behavior. Diatoms are one of the earth's most important organisms and are responsible for up to 40% of ocean productivity. With no physical means to move, like a tail or cilia, scientists thought that they could only use passive sinking to absorb the nutrients they need to grow. With the benefit of high-technology cameras and imaging tools, biologists recorded individual diatoms, at a microscopic scale, to discover that they actually change their sinking rates very quickly. "Once we started looking at the individual cells we discovered that diatoms can rapidly change buoyancy on time scales of milliseconds and alternate between fast and slow sinking phases," said marine biologist Dr. Brad Gemmell from the University of South Florida and previous post-doctoral fellow at UTMSI. They found this behavior primarily in large diatoms. Size matters in the plankton world and bigger diatoms are less vulnerable to small grazers in the sea, but their large size can be a problem because they need nutrients to survive. "The ability for these organisms to start and stop at such fast rates is astounding," coauthor Dr. Tracy Villareal said. "We knew that fast sinking aids in nutrient uptake, but the cells risk sinking into darkness. By rapidly changing their rates, they can get the benefit of fast sinking, but minimize their chances of being lost to the abyss." In fact, the biologists found that these diatoms alter the rates of start and stop depending on the nutrients in the water around them. *This research was supported by the National Science Foundation.*

Special Issue Magazine Features UTMSI Scientists

The recent September edition of *Oceanography* magazine was a special issue focused on the work that the Gulf of Mexico Research Initiative is sponsoring on the Deepwater Horizon oil spill. Two of the special issue magazine articles are written by UTMSI scientists. Drs. Ed Buskey and Andrew Esbaugh with coauthor Helen White wrote about how oil spills can impact marine life in the Gulf of Mexico. UTMSI Director, Dr. Robert Dickey, and coauthor Markus Huettel also wrote about the status of seafood and beach safety in the aftermath of the Deepwater Horizon oil spill. Despite ongoing research in the Gulf of Mexico prior to the spill, the body of knowledge was inadequate to fully understand how such a large oil spill affected this valuable ecosystem. These articles and other works sponsored by the Gulf of Mexico Research Initiative are part of a large body of research that is beginning to shed light on the impacts of oil spills to the Gulf of Mexico ecosystem.



A new special issue of Oceanography magazine features work from the Gulf of Mexico Research Initiative and several UTMSI scientists.

In experiments using a common coral reef fish, the blue-green damselfish, *Chromis viridis*, was acclimated to 2-4 degrees Celsius above their normal summer temperatures over a 27-week period. Photo credit: Jodie Rummer.

Clever Fish Keep Cool

A group of international scientists has new evidence that coral reef fish – which struggle to adapt to the warmer ocean temperatures brought about by global climate change – may instead relocate to cooler parts of the ocean. "When fish have to deal with increased temperature, there are physical consequences. They need more energy to cope, and they may not be able to handle stress or reproduce or even grow," says postdoctoral fellow Jacob Johansen of The University of Texas Marine Science Institute. "We found that, when given the slightest chance, fish can seek out temperatures that they've evolved to be in over thousands of years, to mitigate the impact of increasing temperatures and not sacrifice critical physiological processes," says Johansen. There is already evidence that many coral reef fish and pelagic fish such as tuna are moving in response to warmer ocean waters, and that this is beginning to affect global fisheries. Picking up and moving may not be the silver bullet for some species, particularly those coral reef fish that are dependent on reefs for habitat. In addition ocean warming does not occur as a steady slide upward on the thermometer. It often occurs as heating events. *The research was supported by General Major J.F. Classen Foundation, Frøken Ellen Backe & Margaret Munn Tovborg Jensens foundations as well as the Familien Muller-Geiels foundation and an ARC Super Science Fellowship and infrastructure and research allocation from the ARC Centre of Excellence for Coral Reef Studies at JCU.*

Boards and Awards

- Dr. Robert Dickey is one of three advisors on the advisory board for the European Food Safety Authority, Framework Partnership Agreement for "Risk characterization of ciguatera food poisoning in Europe."
- Dr. Brad Erisman received the Early-Career Research Fellowships and Science Policy Fellowship from the Gulf Research Program of the National Academies of Sciences, Engineering, and Medicine.

Dr. Lee Fuiman and colleague Randy Davis from Texas A&M Galveston visited with U.S. Secretary of State John Kerry about their research on Weddell seal navigation. Secretary Kerry is the highest ranking U.S. official to visit McMurdo Station in, Antarctica. Photo credit: Michael Lucibella.

Administrative Services

New Funding Received Since September

- Gulf Research Program Early Career Research Fellowship - Brad Erisman (National Academies of Science)
- Patterns and Changes in the Emergent Vegetation of the Rincon Bayou Delta - Ken Dunton (Texas Water Development Board)
- South Padre Island Access project: Review of Seagrass Compensatory Draft Modeling Report and Mitigation Plan - Ken Dunton (Texas Department of Transportation)
- Mission-Aransas National Estuarine Research Reserve Operations - Jace Tunnell and Ed Buskey (National Oceanic and Atmospheric Administration)
- Delta Imagery Acquisition - Ken Dunton (Coastal Bend Bays & Estuaries Program)
- A long-term seagrass monitoring program for Upper Laguna Madre, Padre Island National Seashore (National Park Service)
- South Texas Marine Debris Education Campaign - Jace Tunnell and Katie Swanson (National Fish and Wildlife Foundation)
- Habitat fragmentation effects on seagrass and fish diversity at landscape scales (National Science Foundation) - Lauren Yeager
- Stratified random survey, tagging study (conventional and telemetry), fish health evaluation, and genomics study of red snapper, *Lutjanus campechanus*, in the northern Gulf of Mexico - Brad Erisman (National Oceanic and Atmospheric Administration)

External Affairs

New Gifts

- We are pleased to announce that a generous donation has been made by a UTMSI alumni to support the aquarium renovation.
- A generous donation by a Marine Science Advisory Council Member will also enable us to purchase a new high capacity research and teaching vessel in memory of Curt Johnson.

Thanks to a generous donation from the Ed Rachal Foundation, the greenhouse, left, at the Fisheries and Mariculture Laboratory has been replaced with a metal pre-fabricated building similar to the SEALab, right. Photo credit: Jace Tunnell.

Marine Science Advisory Council

The recent council meeting in August was one of our most attended meetings. The meeting celebrated the 75 year anniversary of the institute and unveiled several new initiatives (see around campus section). There were several dignitaries in attendance including Congressman Blake Farenthold, House Representative and Chairman of Calendars Todd Hunter, The University of Texas President Gregory Fenves, Dean Linda Hicke, and Dean Dean Appling. We are also pleased to announce that 98 % of advisory members have made gifts. Gifts provide crucial discretionary funds to support the institute. Recently they've been used to purchase state-of-the-art scientific instruments, campus improvements, and help promote unity through events like the annual picnic.

Director, Dr. Robert Dickey welcomed The University of Texas President, Gregory Fenves, during his visit to the recent Marine Science Advisory Council meeting.

The first annual McCombs Properties Golf Tournament with all proceeds benefiting the University of Texas Marine Science Institute was held at Palmilla Beach Golf Club this fall. The event raised over $16,400 for the Marine Science Institute and was organized by Greg Carr and Marine Science Advisory Council member Donnie Garcia.

Community Outreach - Administration personnel participated in several outreach events this quarter, including the State of the Port, Cruise Ship Hearing, and Transportation Tuesday.

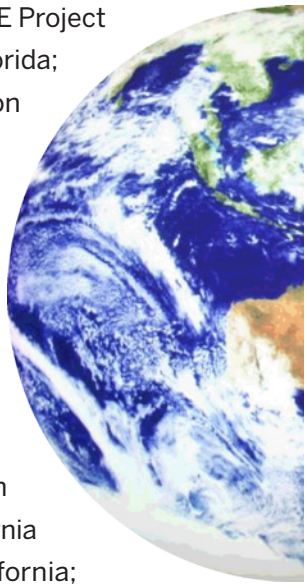
Connecting UT Libraries to the Coast and Back The Marine Science Institute recently worked with The University of Texas libraries to hosted a 2-hour seminar on Scholarly Publishing & Data Management. By inviting expert librarians from UT Libraries, a diverse audience received an informative session on topics relevant to researchers, librarians and students. Throughout the seminar, thought-provoking questions led to some great discussions. The Marine Science Library continues to find creative ideas for

Colleen Lyon covers the basics of copyright, transfer agreements associated with copyright, open access publishing and how to legally share research online. Photo credit: Liz DeHart.

its role in providing opportunities in learning and research.

Where We've Been

- In September, researchers, students, and staff presented at and/or attended the 16th International Symposium on Microbial Ecology in Montreal, Canada; NERRS Science Collaborative Advisory Board Meeting in Ann Arbor, Michigan; Emerging Toxins meeting in Bayona, Spain; NERRS Meeting at Jacques Cousteau NERR in Tuckerton, New Jersey; Extremophiles Conference in Kyoto, Japan; Woods Hole Oceanographic Institute Conference in Woods Hole, Massachusetts; and an International Wildlife Rehabilitation Course at Wildlife Rescue Clinic in Albuquerque, New Mexico.
- In October, researchers, students, and staff presented at and/or attended the RESTORE Project Workshop in St. Petersburg, Florida; RESTORE Project Seagrass Workshop in Tampa, Florida; 17th International Conference on Harmful Algae in Florianopolis, Brazil; and University of North Texas meeting in Denton, Texas.
- In November, researchers, students, and staff presented at and/or attended the 10th International Meeting on Rapid Responses to Steroid Hormone in Richmond, Virginia; collaboration meeting with University of California Berkeley in San Francisco, California; and the Society of Environmental Toxicology and Chemistry in Orlando, Florida.



Around Campus

Campus Improvements

- The engineering and physical condition assessment for the rebuilding of the marina and bulkheads has been completed. The feasibility study has also been completed and the project is currently in the bid phase. Award for construction will begin this fall. This project was made possible by our strong advisory council support and outstanding representation by Chairman Todd Hunter during the 84th State Legislature.
- UTMSI now has a one-stop system for reserving meeting rooms, classrooms, short-term housing, vehicles, boats, and R/V Katy trips through a new event management system.
- The Fisheries and Mariculture Laboratory received an improved electrical distribution system.
- New electronic entry systems have been installed at the exterior doors in the main laboratory.
- Wilson Cottage #2 has been remodeled and includes new blinds, fans, paint, tile backsplash, and tile in bathroom. The remainder of the cottages will be remodeled as they become available so as not to displace any occupants.

Wilson Cottage #2 has been remodeled with new sheetrock, paint, tile back splash, fan, and tile in bathroom. The remainder of Wilson Cottages will be remodeled as they become available so as not to displace any occupants.

- New conference tables and chairs have been placed in the auditorium. The previous tables and chairs are on a long-term loan to Port Aransas Independent School District.

Coming Soon

- The main laboratory elevator is currently being renovated with a new fire system and expected to be operational after the winter break.
- The main laboratory renovation with upgrades to the HVAC, laboratory ventilation hoods, and roof will

begin this coming June. The third floor of the Estuarine Research Center is currently being constructed to support laboratories and professors during the renovation.

- Beach Street apartment 212 is planned for a remodel and will include new storm windows, appliances, paint and additional updates. The remainder of the apartments will be remodeled as they become available so as not to displace any occupants.
- New entrance signs will be installed at the Fisheries and Mariculture Laboratory (FAML).
- New electronic entry system on exterior doors will be installed at FAML.
- Renovation of the pump house behind the main laboratory of FAML is in the design phase and is 60% complete.
- At the Animal and Rehabilitation Keep, maintenance is working on providing heat to the tanks in the Barnacle Bill Greenhouse and the Oiled Wildlife facility.
- In addition, several facilities at the Animal Rehabilitation Keep are planned for renovation including the bird building, floor surrounding the Barnacle Bill tank, and outdoor raptor cages.
- Concrete and waterproofing repairs on buildings throughout the main campus and at the FAML is ongoing.
- A previous laboratory in the administration wing is being remodeled to serve as a conference room.
- Wayfinding signs will be placed around campus.
- New composting toilets will be installed at Fennessey Ranch this spring.
- An informational kiosk is planned for the East Cotter Avenue entrance.

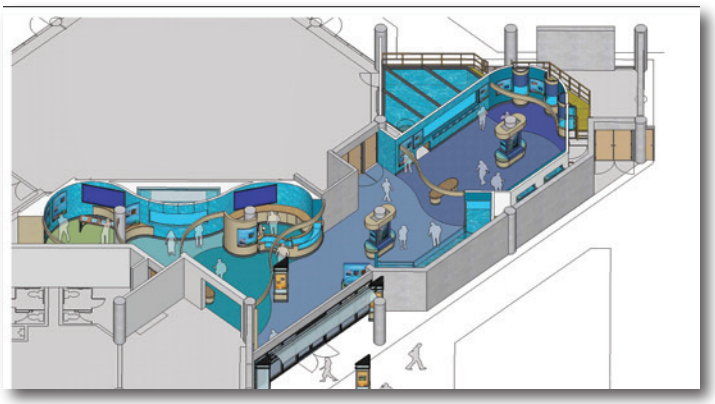
Breaking Trail on the New Dunescape

Construction of the trails for the new "Dunescape" began in October. This project will restore about two acres of dune habitat, and provide the public access and education on the importance of dune habitats on our local barrier islands, such as Mustang and North Padre Islands. The Dunescape will consist of walking paths and interpretive signage that will complement the new Water Wise Wildlife Garden. The interpretive signage will focus on the importance of dune habitats, including how these habitats provide valuable storm protection and essential food and cover for wildlife. The project will restore the area to reflect a sustainable and natural dune habitat. The 2-acre area is currently heavily impacted by the invasive Guinea grass. This restoration will include removal of the invasive grass and continuous treatment, as well as replanting/seeding of native species.

A new dunescape trail was recently constructed in the area adjacent to East Cotter Avenue and Dormitory D. Interpretive signs and benches will be placed along the trail this spring. This project is sponsored by the Mission-Aransas Reserve at The University of Texas Marine Science Institute with funding from the Coastal Bend Bays & Estuaries Program.

Aquarium Renovation

Earlier this year, Director Robert Dickey contracted a concept design for the renovation of the aquaria and their adjacent spaces in the Marine Science Education Center. A design firm that specializes in aquarium design and fabrication, Tenji Incorporated, visited the Marine Science Institute and developed a conceptual design for the space, which has not been updated since its original



A concept design was recently completed to replace and update the existing aquaria and displays in the Marine Science Education Center.

construction in 1983. The conceptual design proposes a major renovation that will create a visually appealing and thought-provoking space to help educate visitors about the marine life in the Gulf of Mexico and surrounding coastal environments. Several grant-writing and donor initiatives are underway to make the renovation a reality. In the interim, one of the existing aquariums will be refinished to display blue crabs and associated research.

New Housing

Housing in a small tourist community on a barrier island has always been a challenge. UTMSI has struggled for years to accommodate the housing needs of our students and visiting scholars who carry on our education and research mission. A concept design was recently completed by Turner and Ramirez Architects to create a plan that will provide adequate student housing on existing University land at The University of Texas Marine Science Institute campus in Port Aransas, Texas. This project would develop four single person cottages, five two-person cottages, and five duplex cottages and related infrastructure on the UTMSI campus to accommodate our student and visiting scholar needs. The concept plan provides a much needed blueprint for moving forward when additional funding and opportunities arise.

An aerial depiction of the new housing proposed at the Wilson Cottage housing complex.

Mission-Aransas Reserve and Education

MissionAransas.org

A Decade of Inspiration and Knowledge

The Mission-Aransas Reserve celebrated its 10th anniversary on National Estuaries Day, September 24th. The event was commemorated with a festival focused on the wonders of our estuaries. We had a great turn-out with lots of hands-on activities, educational booths and seminars. Visitors learned about the wonders of the oyster, protecting our beaches, and much more. This festival was a partnership with many local organizations focused on our coasts and estuaries. The festival was sponsored by The University of Texas Marine Science Institute, Mission-Aransas National Estuarine Research Reserve, Animal Rehabilitation Keep, Coastal Bend Bays & Estuaries Program, Texas Parks and Wildlife Department, Surfrider Foundation, Texas A&M University Corpus Christi Center for Coastal Studies, Texas State Aquarium, Natural Resources Conservation Service, and the National Park Service.

Educator Carolyn Rose shows participants how to tell the difference between female and male blue crabs at the National Estuaries Day festival and the Mission-Aransas Reserve's 10-year anniversary.

Science and Art Collide in a Unique Contest

This October, local 5th and 6th grade students from Flour Bluff Intermediate School created impressive art sculptures made of individual pieces of marine trash. The sculptures were submitted to a Trash to Treasure contest. The sixty-one entries turned over 300 pounds of marine debris into educational art pieces. All of the works of art were very creative, colorful and inspiring. There were two categories for the art: *Dia de los Muertos* and Creative. The award-winning pieces were displayed this fall at the Corpus Christi *Dia de los Muertos Festival* on October 29th. The contest was a joint collaboration between Flour Bluff Intermediate School and the Mission-Aransas Reserve at The University of Texas Marine Science Institute to help students understand the impact of trash on beaches and local ocean wildlife. Prior to the contest, scientists came into the classroom and discussed what marine trash is and how it can affect local wildlife. Students also received an up-close view of the problem by participating in beach clean-up events with the scientists this past spring. Through this creative process students learned about what type of trash is common to our Texas beaches. They were able to turn an ugly problem into real beauty with the creation of dynamic art pieces. This project is funded by the Texas General Land Office, and the National Oceanic and Atmospheric Administration to help future generations understand that they can make a difference in reducing trash on Texas beaches.

Flour Bluff Intermediate school students competed in the Trash to Treasure contest in categories of *Dia de los Muertos* and Creative. The goal of the project was to teach children about the impacts of marine debris. The winning sculptures will be displayed at a *Dia de los Muertos* Festival booth.

The Mission-Aransas Reserve installed the final Surface Elevation Table (SET) at Mud Island to complete the build out of their Sentinel Site. These SETs are long-term sites that collect relative sea level rise information about how marshes change over time, allowing decision makers to make better choices about managing these important areas. All 28 Reserves around the country are collecting the same information, so we can compare sea level rise changes in the Aransas Bay system to other wetlands all over the United States. Funding for this final build-out came from the Coastal Bend Bays & Estuaries Program. Photo credit: Jace Tunnell.

It's Monarch Madness!

On October 21, 2016, over 200 4-6th grade children swarmed Fennessey Ranch for the 9th annual Monarch Madness. The event occurs every fall during the migration season of the monarch butterfly. The purpose of the event is to get children outside and introduce them to nature and the wonders of science. Several local organizations were on site with engaging hands-on education activities for the students. Students were able to capture butterflies and dragonflies, learn about local wildlife, and understand the how and why many animals migrate through fun and educational games. Many schools from across the Coastal Bend participated including, Olsen Elementary, Seadrift Elementary, Austwell/Tivoli Elementary, Woodsboro Elementary, Port O'Connor Elementary, and Seashore Middle Academy. This event was hosted by Fennessey Ranch, the Mission-Aransas Reserve at The University of Texas Marine Science Institute, and the U.S. Fish and Wildlife Service. Tremendous help and presentations were provided by the hosts as well as the Texas Zoo, Coastal Bend Bays & Estuaries Program, U.S. Fish and Wildlife Service, The Texas State Aquarium, Port Aransas Nature Preserve, International Crane Foundation, and Texas Parks and Wildlife Department.

Lending Whoopers a Helping Hand

This fall over 30 volunteers participated in the fifth annual volunteer Aransas National Wildlife Refuge clean-up event. The volunteers helped rid the shoreline and the home of the wintering flock of Whooping Cranes of 63 bags of trash, 7 milk crates, 8 pieces of large rope, 1 television, 1 boat hook, 1 crab trap, 35 gallon buckets, 3 fluorescent bulbs, and 20 pieces of assorted lumber.

The clean-up event received tremendous help from volunteers and the supporting organizations, Mission-Aransas Reserve at The University of Texas Marine Science Institute, Aransas National Wildlife Refuge and Rockport Birding and Kayak Adventures and the San Antonio Bay Foundation. Photo credit: Carolyn Rose.

Spotlight on Students

In November, 15 undergraduate students from the UT Marine Science Club visited Port Aransas to get a better understanding of the Marine Science Institute and tour its facilities. For many of the students, this was their first trip to UTMSI, and for the five (of ten) Semester by the Sea 2017 students, it was a valuable orientation. Photo Credit: Ken Dunton.

Meetings for Management

The past few months, The Mission-Aransas Reserve has hosted and co-hosted several important meetings to help increase the knowledge of coastal issues for local decision-makers. One example of those meetings was a NOAA Digital Coast Workshop held in late September. During this workshop participants investigate online mapping tools to visualize and better understand how areas are affected by risks or hazards specific to coastal communities. Thirty-five participants from state agencies, local municipalities, academia, non-profit organizations, and even some private residents participated in this successful workshop.

Films are back

The *Film and Discussion Series* will run through March; Tuesdays and Thursdays from 3-4 p.m.

Guided Tours

- Wetlands Education Center: Tuesdays and Thursdays at the Marine Science Education Center
- Port Aransas Nature Preserve: Fridays from November 11th - March 24th, 3 - 4 p.m. at Charlie's Pasture Phase I pavilion

Awards

- Craig Connelly received a $500 grant from the United States Permafrost Association to support travel to the 2016 American Geophysical Union Conference in San Francisco, California where he will be giving an oral presentation on "Characterizing Groundwater Sources of Organic Matter to Arctic Coastal Waters."
- Corinne Burns received an honorable mention for her image of a late-stage metamorphosing Southern flounder in the 2016 University of Texas's College of Natural Sciences Visualizing Science contest.

Fellowships & Internships

- 2016-2017 Marine Science Research and CCA Tuition award recipients: Kaijun Lu (Barton, Batterton, Lund); Aubrey Converse (Flawn, Lund); Victoria Congdon (Barton, Stuckey); Corinne Burns (CCA-

Schwarzlose, Parr, Lund); Erin Reed (Abell, Lund, Page); Corinne Burns-$5,000 tuition award (CCA); and Angelina Dichiera-$5,000 tuition award (CCA-Allen Jacoby Memorial).

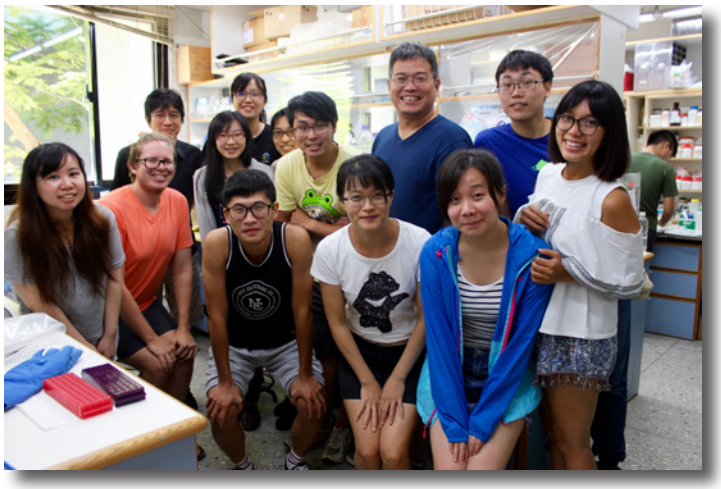
- Meaghan Cuddy and Angelina Dichiera are Scientist-in-Residence fellows.
- Craig Connolly awarded 2016-2017 Graduate Dean's Prestigious Fellowship Supplement because of his NPRB GSRA Fellowship.
- Arley Muth awarded 2016-2017 Graduate Dean's Prestigious Fellowship Supplement because of her external EPA STAR Fellowship.
- Graduate School Professional Development (Travel) Award recipients: Christina Bonsell, Corinne Burns, Erin Reed, Victoria Congdon, and Aubrey Converse.
- Chris Biggs awarded Mission-Aransas Reserve Fellowship.

Graduations

- Yesid Lozano-Duque, M.S. "Development and validation of PCR-RFLP assay for identification of gamierdiscus species in the greater Caribbean region." Advisor: Deana L. Erdner. August 2016

Taiwan and Texas - what their fish and ours have in common to survive

This past summer Joshua Lonthair, a doctoral student in Andrew Esbaugh's laboratory, traveled to Taiwan where he completed an investigatory project on the impacts of global climate change on estuarine fish species in the Indo-Pacific. While in Taiwan, Joshua applied his knowledge of Texas fish to those in the Indo-Pacific. The research he conducted will help him understand if another estuarine species, the orange-spotted grouper that is native to a completely different estuarine system, is resilient to high levels of ocean acidity. The experiments conducted this summer will help determine what mechanisms estuarine species, like the orange-spotted grouper in Taiwan and the red drum in Texas, are using to exhibit this tolerance. This research will help identify what species may be tolerant to the impacts of increased oceanic levels of carbon dioxide. Estuarine species may be tolerant to changes in level of carbon dioxide and acidity, due to the dynamic variations found in estuarine environments. Further work is needed to understand the mechanism of this tolerance. *This research trip was enabled and supported by the National Science Foundation's East Asia and Pacific Summer Institutes Fellowship Program.*



Joshua Lonthair, in orange, with Dr. Pung-Pung Hwang's laboratory. Courtesy photo.

Welcome & Celebrations

New Employees

Welcome! Jerry Chandler (IT department), Noah Krauskopf (Grounds), Michael Reckel (Gardner), Kristin Evans (NERR), Dr. Rudi Strickler (Adjunct faculty member), and Dr. Joe Kuehl (Adjunct faculty member).

NERR Rakes in the Awards

At their recent annual meeting, several members from the Mission-Aransas Reserve and its programs received awards. Dana Sjostrom received the *Coastal Training Program Service Award* and the program accepted several awards from the film festival including *Ecosystem Award* for Best Body of Work, *Snapping Shrimp Award* for Best Action Shots; and the *Tidal Award* for Film Honoring Tony Amos. Dr. Ed Buskey took home the top award for the meeting with the 2016 NERRS/NERRA Impact Award. Dr. Buskey has been the Research Coordinator and an integral part of the national system since the Mission-Aransas Reserve's

designation in 2006.

Dr. Ed Buskey, right, received the 2016 National Estuarine Research Reserve System's (NERRS) Impact Award from NERRS President Dr. William Reay, for his dedication and service to the national system. Courtesy photo.

Coastal Bend Bays Foundation Honors UTMSI's Own

Two members of The University of Texas Marine Science Institute were recognized at the 14th Annual Conservation & Environmental Stewardship Awards Banquet hosted by the Coastal Bend Bays Foundation. Director of the Animal Rehabilitation Keep, Tony Amos, was honored with the Legacy Award and educator, Carolyn Rose, received the Higher Education Award. The Legacy award is given to individuals that have made life-long contributions to the education and or protection of Coastal Bend natural resources, habitats and native species. Tony Amos, Director of the Animal Rehabilitation Keep has created a g legacy. Tony is one of the most visible people in the Texas Coastal Bend with regard to cultivating the public's interest in coastal wildlife and explaining the need for conservation of birds, sea turtles, and other wild creatures. "His passion and enthusiasm for conservation is contagious and we honor him with this year's Legacy Award," said Jace Tunnell, president of the Coastal Bend Bays Foundation. Carolyn Rose was awarded the Higher Education award for her dedication and effectiveness in educating Texans about the natural resources of the Coastal Bend. Carolyn is the Education Coordinator at the Mission-Aransas National Reserve. Carolyn's program reaches over 10,000 people per year with face to face education and hands on learning experiences within the Coastal Bend. She was also instrumental in the creation of the Estuary Explorium exhibit in the Marine Science Education Center, where over 20,000 people visit per year, including school groups and families where they have access to hands-on exhibits that talk about local research and give tips on how to be stewards of the marine environment.

Director of the Animal Rehabilitation Keep, Tony Amos, was honored by the Coastal Bend Bays Foundation with the Legacy Award and educator, Carolyn Rose, received the Higher Education Award. Courtesy photos.

Would you like to be added to our newsletter mailing list? E-mail Sally Palmer at sally.palmer@utexas.edu