Greetings from Texas A&M University-Corpus Christi!

Welcome to our Annual Report, a glimpse into the people and programs making our University unique.

We at the Island University believe that research is the cornerstone of a thriving academic institution for our students, and a strong economic engine for our community. Research attracts professors and instructors of the highest caliber – true campus leaders who have an inquisitive sense of purpose, a natural leadership character trait and a purpose to pedagogy. Research also attracts high-caliber students – learners who seize the chance at enrichment and create opportunities for themselves and their peers.

In the following pages, you will learn about many of the people involved with research programs at The Island University. Many of these programs are grant-funded. You will read about faculty and staff who have followed passions, explored ideas and taken risks to contribute to society in new ways.

We encourage Islanders to invest in themselves through academic programs; to supplement their lives through campus activities; and to challenge themselves by searching for the next great idea in their chosen field. When they find that idea, we pride ourselves in providing a living laboratory to develop that idea into meaningful academic and scientific progress.

From our cutting-edge Marine Biology programs to our world-renowned Oil Spill Control School classes; from our post-graduate Nurse Management courses to our peer teaching, writing and review workshops on campus at The National Writing Project Center; or by studying a newly discovered toxin responsible for fish kills in farms around the world, our students and faculty are producing leading results and elevating their fields through academic research, awards and publications. Our students have chosen challenging paths on their academic journeys. They have decided to grow roots on our campus and blossom into award-winning scholars using our University’s resources, mentors and support.

Our students find a home for their research, their perseverance, their trials and their victories.

At Texas A&M University-Corpus Christi, we respect the value that research offers in terms of modern achievement, technological relevance and academic advancement. We strive to produce research that will survive generations, so that they, too, may thrive. By setting high expectations for ourselves, our students and our faculty and staff, we create a culture of knowledge. Our bold research at The Island University promotes the desire to achieve lifelong learning.

Research drives our academics. Research fuels our success.
International economist and economics professor Dr. Patrick Crowley guides students in the colleges of Business and Liberal Arts in an interdisciplinary approach when studying the European Union and the global marketplace. In 2009, Dr. Crowley succeeded in getting the University’s first Jean Monnet Module Award from the European Commission in Brussels, Belgium, in order to help launch the first European Union (EU) Studies minor in Texas. This was all the more significant as the Texas A&M University award to set up a European Union Center in College Station was not renewed by the Commission in 2010. The new EU studies minor is housed in the College of Liberal Arts, but the courses are shared with the College of Business. Much of Dr. Crowley’s research has been centered on European issues, but taking a novel approach by applying techniques that originated in signal processing and physics and applying them to economic issues. Dr. Crowley originally took a leave of absence in 2004-05 to be a Visiting Research Scholar at the Bank of Finland (Suomen Pankki) in Helsinki, and has made several repeat visits. The visit to the eurozone central bank was the original impetus for Dr. Crowley to use techniques from the physical sciences and apply them to economics in his research – but as Dr. Crowley states, “I like to utilize an interdisciplinary approach in much of my research, and I apply the same principles to my teaching as well.” This approach resulted in the development of the interdisciplinary EU Studies minor. Dr. Crowley sees this as the first step in something much bigger at the University: “I think we should be encouraging our faculty to foster long and lasting relationships with international institutions as this can lead to interesting research, which can then be used as the springboard to create new and innovative programs to serve our students better.”

The 2011 Excellence in Scholarly/Creative Activity Award

Dr. A.N.M Waheeduzzaman, a Professor of Marketing and International Business, was recently honored by President Killebrew and Dean Abdelsamad as the Outstanding Research Scholar for 2011 by the Academy Speaks at Texas A&M University-Corpus Christi.

Dr. Waheeduzzaman is a Professor of Marketing and International Business in the College of Business, Texas A&M University-Corpus Christi. He has been teaching at TAMUCC for more than 10 years at graduate and undergraduate levels. He has written 19 peer-reviewed articles, in 18 of which he is the first author. He has also published two chapters in books and five peer-reviewed articles in conference proceedings. He enjoys writing freelance for the English-language daily newspapers in Bangladesh and has published 12 articles on current topics.

His research interests are international competitiveness, globalization, marketing standardization-adaptation, modernization, economic convergence, country branding, emerging markets, business ethics. Most of these topics are interdisciplinary in nature, making his research unique. He often incorporates the research findings in his teaching. In the future, he intends to write a book on consumption in emerging markets.

He received his Ph.D. in Business Administration from Kent State University, Ohio. He has two MBAs, one in International Business from George Washington University, Washington, D.C., and the other in Marketing from Dhaka University, Bangladesh. He is on the editorial board and serves as a reviewer of various other journals and professional conferences in marketing and international business topics.

As a guest speaker, he presented at the World Affairs Council of South Texas, Young Business Professionals of America, the Rotary Club of Dhaka, the Executives Club and Delta Sigma Pi. At the Mayor’s appointment, he served for six years on the Corpus Christi Library Board.

He enjoys teaching, reading, writing, publishing and traveling and has traveled to more than 20 countries. Though he has many achievements to date, he never forgets the humble roots from which he came.
College of Education

The Antonio E. Garcia Arts & Education Center - known for its ethnic gallery shows and sprawling wall murals focused on Texas history and children's literature - is also the home of the STARS Program, aimed at helping at-risk youth and their families make healthy, smart choices as they walk the path together towards adulthood.

Funded since 2004 by a grant from the Texas Office of Juvenile Justice and Delinquency Prevention, more than 160 graduate master's students and doctoral candidates, working under the guidance of College of Education faculty, have spent time immersed in the STARS program facilitating group and family counseling sessions for program participants and tracking data such as recidivism rates and time immersed in the STARS program facilitating group and family counseling. Graduates under the guidance of College of Education (CoE) faculty have spent more than 1,200 youth have participated in the program. Of youth adjudicated and at-risk youth and their families. Graduate-level counseling students administer positive programming that focuses on family connectivity, health interactions and academic success.

Center Director Dr. Robert Garcia says the Center's location in one of the oldest and poorest zip codes in the city makes the University's outreach and research efforts seem like a true flower blooming through the crack of a very old, weathered sidewalk.

"We are in this community, day in and day out, so the counseling graduate students who administer the STARS program see the needs. As a team, we try to see the most effective ways to reach those families that are sometimes disconnected, sometimes struggling and sometimes just plain broken. If there's a need, if there's a family who needs help, they know now through the STARS program that they have access to people with a passion to help rebuild a family. The students get experience; the program produces amazing results; and ultimately, this particular community's needs are met."

The Antonio E. Garcia Arts & Education Center – known for its ethnic gallery shows and the home of the STARS Program, aimed at helping at-risk youth and their families make healthy, smart choices as they walk the path together towards adulthood.

The students get experience; the program produces amazing results; and ultimately, this particular community's needs are met.

American Association of Hispanics in Higher Education

Angelica M. Fuentes, M.Ed., is a fifth-year doctoral candidate at Texas A&M University-Corpus Christi pursuing a doctorate in Curriculum & Instruction with an emphasis in Literacy Studies. She began her academic career at TAMUCC in the Fall of 2006. Currently, she teaches developmental reading courses at The University of Texas at Brownsville/Texas Southmost College and is assisting in the redesign of their developmental education program.

The faculty at TAMUCC has supported Ms. Fuentes' research examining how student experiences living in the United States-Mexico border shape student identities with regard to culture, language and formal education. She plans to use her doctoral degree to obtain an academic faculty position at an institution of higher education. This will place her in a position to contribute to discourse communities focusing on similar research interests. Most of her doctoral research and projects have pertained to Hispanic students, postsecondary education and the Borderlands.

American Association of Hispanics in Higher Education

Angelica M. Fuentes, M.Ed., is a fifth-year doctoral candidate at Texas A&M University-Corpus Christi pursuing a doctorate in Curriculum & Instruction with an emphasis in Literacy Studies. She began her academic career at TAMUCC in the Fall of 2006. Currently, she teaches developmental reading courses at The University of Texas at Brownsville/Texas Southmost College and is assisting in the redesign of their developmental education program.

The faculty at TAMUCC has supported Ms. Fuentes’ research examining how student experiences living in the United States-Mexico border shape student identities with regard to culture, language and formal education. She plans to use her doctoral degree to obtain an academic faculty position at an institution of higher education. This will place her in a position to contribute to discourse communities focusing on similar research interests. Most of her doctoral research and projects have pertained to Hispanic students, postsecondary education and the Borderlands.

The Antonio E. Garcia Arts & Education Center – known for its ethnic gallery shows and sprawling wall murals focused on Texas history and children's literature - is also the home of the STARS Program, aimed at helping at-risk youth and their families make healthy, smart choices as they walk the path together towards adulthood.

Funded since 2004 by a grant from the Texas Office of Juvenile Justice and Delinquency Prevention, more than 160 graduate master's students and doctoral candidates, working under the guidance of College of Education faculty, have spent time immersed in the STARS program facilitating group and family counseling sessions for program participants and tracking data such as recidivism rates and time immersed in the STARS program facilitating group and family counseling. Graduates under the guidance of College of Education (CoE) faculty have spent more than 1,200 youth have participated in the program. Of youth adjudicated and at-risk youth and their families. Graduate-level counseling students administer positive programming that focuses on family connectivity, health interactions and academic success.

Center Director Dr. Robert Garcia says the Center's location in one of the oldest and poorest zip codes in the city makes the University's outreach and research efforts seem like a true flower blooming through the crack of a very old, weathered sidewalk.

"We are in this community, day in and day out, so the counseling graduate students who administer the STARS program see the needs. As a team, we try to see the most effective ways to reach those families that are sometimes disconnected, sometimes struggling and sometimes just plain broken. If there's a need, if there's a family who needs help, they know now through the STARS program that they have access to people with a passion to help rebuild a family. The students get experience; the program produces amazing results; and ultimately, this particular community's needs are met."

The Antonio E. Garcia Arts & Education Center – known for its ethnic gallery shows and the home of the STARS Program, aimed at helping at-risk youth and their families make healthy, smart choices as they walk the path together towards adulthood.

The students get experience; the program produces amazing results; and ultimately, this particular community's needs are met.

American Association of Hispanics in Higher Education

Angelica M. Fuentes, M.Ed., is a fifth-year doctoral candidate at Texas A&M University-Corpus Christi pursuing a doctorate in Curriculum & Instruction with an emphasis in Literacy Studies. She began her academic career at TAMUCC in the Fall of 2006. Currently, she teaches developmental reading courses at The University of Texas at Brownsville/Texas Southmost College and is assisting in the redesign of their developmental education program.

The faculty at TAMUCC has supported Ms. Fuentes’ research examining how student experiences living in the United States-Mexico border shape student identities with regard to culture, language and formal education. She plans to use her doctoral degree to obtain an academic faculty position at an institution of higher education. This will place her in a position to contribute to discourse communities focusing on similar research interests. Most of her doctoral research and projects have pertained to Hispanic students, postsecondary education and the Borderlands.

American Association of Hispanics in Higher Education

Angelica M. Fuentes, M.Ed., is a fifth-year doctoral candidate at Texas A&M University-Corpus Christi pursuing a doctorate in Curriculum & Instruction with an emphasis in Literacy Studies. She began her academic career at TAMUCC in the Fall of 2006. Currently, she teaches developmental reading courses at The University of Texas at Brownsville/Texas Southmost College and is assisting in the redesign of their developmental education program.

The faculty at TAMUCC has supported Ms. Fuentes’ research examining how student experiences living in the United States-Mexico border shape student identities with regard to culture, language and formal education. She plans to use her doctoral degree to obtain an academic faculty position at an institution of higher education. This will place her in a position to contribute to discourse communities focusing on similar research interests. Most of her doctoral research and projects have pertained to Hispanic students, postsecondary education and the Borderlands.

American Association of Hispanics in Higher Education

Angelica M. Fuentes, M.Ed., is a fifth-year doctoral candidate at Texas A&M University-Corpus Christi pursuing a doctorate in Curriculum & Instruction with an emphasis in Literacy Studies. She began her academic career at TAMUCC in the Fall of 2006. Currently, she teaches developmental reading courses at The University of Texas at Brownsville/Texas Southmost College and is assisting in the redesign of their developmental education program.

The faculty at TAMUCC has supported Ms. Fuentes’ research examining how student experiences living in the United States-Mexico border shape student identities with regard to culture, language and formal education. She plans to use her doctoral degree to obtain an academic faculty position at an institution of higher education. This will place her in a position to contribute to discourse communities focusing on similar research interests. Most of her doctoral research and projects have pertained to Hispanic students, postsecondary education and the Borderlands.

American Association of Hispanics in Higher Education

Angelica M. Fuentes, M.Ed., is a fifth-year doctoral candidate at Texas A&M University-Corpus Christi pursuing a doctorate in Curriculum & Instruction with an emphasis in Literacy Studies. She began her academic career at TAMUCC in the Fall of 2006. Currently, she teaches developmental reading courses at The University of Texas at Brownsville/Texas Southmost College and is assisting in the redesign of their developmental education program.

The faculty at TAMUCC has supported Ms. Fuentes’ research examining how student experiences living in the United States-Mexico border shape student identities with regard to culture, language and formal education. She plans to use her doctoral degree to obtain an academic faculty position at an institution of higher education. This will place her in a position to contribute to discourse communities focusing on similar research interests. Most of her doctoral research and projects have pertained to Hispanic students, postsecondary education and the Borderlands.

American Association of Hispanics in Higher Education

Angelica M. Fuentes, M.Ed., is a fifth-year doctoral candidate at Texas A&M University-Corpus Christi pursuing a doctorate in Curriculum & Instruction with an emphasis in Literacy Studies. She began her academic career at TAMUCC in the Fall of 2006. Currently, she teaches developmental reading courses at The University of Texas at Brownsville/Texas Southmost College and is assisting in the redesign of their developmental education program.

The faculty at TAMUCC has supported Ms. Fuentes’ research examining how student experiences living in the United States-Mexico border shape student identities with regard to culture, language and formal education. She plans to use her doctoral degree to obtain an academic faculty position at an institution of higher education. This will place her in a position to contribute to discourse communities focusing on similar research interests. Most of her doctoral research and projects have pertained to Hispanic students, postsecondary education and the Borderlands.

American Association of Hispanics in Higher Education

Angelica M. Fuentes, M.Ed., is a fifth-year doctoral candidate at Texas A&M University-Corpus Christi pursuing a doctorate in Curriculum & Instruction with an emphasis in Literacy Studies. She began her academic career at TAMUCC in the Fall of 2006. Currently, she teaches developmental reading courses at The University of Texas at Brownsville/Texas Southmost College and is assisting in the redesign of their developmental education program.

The faculty at TAMUCC has supported Ms. Fuentes’ research examining how student experiences living in the United States-Mexico border shape student identities with regard to culture, language and formal education. She plans to use her doctoral degree to obtain an academic faculty position at an institution of higher education. This will place her in a position to contribute to discourse communities focusing on similar research interests. Most of her doctoral research and projects have pertained to Hispanic students, postsecondary education and the Borderlands.

American Association of Hispanics in Higher Education

Angelica M. Fuentes, M.Ed., is a fifth-year doctoral candidate at Texas A&M University-Corpus Christi pursuing a doctorate in Curriculum & Instruction with an emphasis in Literacy Studies. She began her academic career at TAMUCC in the Fall of 2006. Currently, she teaches developmental reading courses at The University of Texas at Brownsville/Texas Southmost College and is assisting in the redesign of their developmental education program.

The faculty at TAMUCC has supported Ms. Fuentes’ research examining how student experiences living in the United States-Mexico border shape student identities with regard to culture, language and formal education. She plans to use her doctoral degree to obtain an academic faculty position at an institution of higher education. This will place her in a position to contribute to discourse communities focusing on similar research interests. Most of her doctoral research and projects have pertained to Hispanic students, postsecondary education and the Borderlands.
College of Liberal Arts

In a time when standardized testing and finding new ways to teach more with less time define the classroom, the Island University chooses to take a different path - the road less traveled - to develop professional English teachers in the art, craft and discipline of teaching writing. The University is an official satellite campus of the federally-funded National Writing Project. The Coastal Bend Writing Project (CBWP) works with local teachers and schools to improve the practice of teaching writing by creating trained, passionate writing experts. In its third year of funding, totaling more than $100,000, the CBWP has trained more than 90 teachers. Using a curriculum that emphasizes collaboration, peer review and critique, practicing learned applications and a culture of sharing what one learns, the CBWP graduates have transformed their respective teaching communities by hosting writing min-conferences for their respective schools. This shared approach to learning and professional development extends the program’s reach and reach.

“Everyone brings their expertise to the table. Everyone learns by writing and talking collaboratively. We believe and build our program around the concept that teachers are the ones who are experts in teaching,” said Dr. Catherine Quick, Director, CBWP; and Associate Professor, Department of English. “We believe that the workshop is eye-opening. It creates much better writers, which inherently makes them much better teachers.”

Participants bring all levels of experience to summer workshop, from one to 30 years of teaching experience. They experience a community of rhetorical flexibility, taking solid teaching methods and brainstorming to create new, innovative ways to teach writing. Teachers write themselves, from 30 minutes to three hours a day, in different environments and locations. Through different writing exercises, teachers find their internal muse and freedom from rubric. The experience unlocks creative, inspired ways to approach the classroom.

“We really promote the idea that teachers will help students to learn to write in any situation, in any school setting, in any neighborhood, with students of any background. CBWP graduates leave the University with a life-changing experience that influences and transforms what that teacher does best: teach.”

College of Science and Technology

One of fewer than a dozen in the United States, the Plasma Engineering Research Lab (PERL) in the College of Science and Engineering at Texas A&M University-Corpus Christi leads the charge for groundbreaking, innovative cold plasma technology research – and its findings are impacting everything from improved military medical technology to the race to find a cure for cancer.

Funded by a $700,000 grant from the U.S. Department of Defense, the lab focuses much of its research on creating a portable, lightweight, plasma-based biomedical device. Soldiers and civilians would eventually use the machine to stop hemorrhaging, accelerate wound healing and improve skin-healing treatments – in the field as well as in the hospital.

Dr. Magesh Thyagarajan is Director of the PERL. His work with plasma studies and his vision built the lab in just two years from an empty room to one of the more sophisticated plasma research centers in the country. He leads a team of undergraduate, graduate and post-doctoral student researchers. Their work has already produced two undergraduate Best Paper awards at different conferences across the country, and the team recently won the inaugural Coastal Bend Business Plan Competition. For this success, the team was awarded more than $20,000 in in-kind services from business professionals to accelerate the research and its military and commercial applications.

The PERL has gained recognition as a trailblazing facility. Texas Lt. Gov. David Dewhurst has visited the lab, and a former Texas Lt. Gov. Mandel & Health Sciences graduate nurses will successfully transition into management positions in the health-care industry. Funded by a grant from the American Organization of Nursing Executives, Keys is spearheading a study to determine why Generation X registered nurses are choosing to stay on the hospital floor rather than move into nurse manager jobs. An expert in nurse leadership and nurse management training, Keys says that, in a culture that scrutinizes return on investment, her research strives to find the balance between a demanding, growing profession and a high quality of life.

College of Nursing and Health Sciences

“We aim to examine professional successes versus personal fulfillment,” Keys says. “We’re talking to nurses across the country who are telling us why they make the choices they do. Nurses who are in their mid-30’s are the next generation of nurse leaders. Our research will help to make the nurse manager position more attractive and more fulfilling. We need to understand what success means to this generation of nurses and how that success coincides with their life priorities.”

Keys says the clues to creating the ideal job description will result from combining the profiles and data from professional nurses around the country with the observations she gains teaching her classes at the Island University.

“One of my instructors suggested my name as a researcher to the PERL, and I learned it was a perfect fit. Studying cold plasma technology is more hands on. I am allowed to work a lot by myself, which I enjoy. It allows me to process my research and results.”

Ms. Whitmill, who will enter a graduate science program in the fall, says she takes with her a special confidence afforded to her because of her work in the PERL.

While nursing students are practicing with state-of-the-art human-body simulators and attending classes in a brand new Health and Wellness Center, Assistant Professor Yolanda Keys is among the first wave of College of Nurs- ing & Health Sciences graduate nurses who will successfully transition into management positions in the health-care industry. Funded by a grant from the American Organization of Nursing Executives, Keys is spearheading a study to determine why Generation X registered nurses are choosing to stay on the hospital floor rather than move into nurse manager jobs. An expert in nurse leadership and nurse management training, Keys says that, in a culture that scrutinizes return on investment, her research strives to find the balance between a demanding, growing profession and a high quality of life.

“Amanda Whitmill
Graduated in 2011 with her Bachelor of Science in Biomedical Sciences

While nursing students are practicing with state-of-the-art human-body simulators and attending classes in a brand new Health and Wellness Center, Assistant Professor Yolanda Keys is among the first wave of College of Nursing & Health Sciences graduate nurses who will successfully transition into management positions in the health-care industry. Funded by a grant from the American Organization of Nursing Executives, Keys is spearheading a study to determine why Generation X registered nurses are choosing to stay on the hospital floor rather than move into nurse manager jobs. An expert in nurse leadership and nurse management training, Keys says that, in a culture that scrutinizes return on investment, her research strives to find the balance between a demanding, growing profession and a high quality of life.

College of Nursing and Health Sciences

“We aim to examine professional successes versus personal fulfillment,” Keys says. “We’re talking to nurses across the country who are telling us why they make the choices they do. Nurses who are in their mid-30’s are the next generation of nurse leaders. Our research will help to make the nurse manager position more attractive and more fulfilling. We need to understand what success means to this generation of nurses and how that success coincides with their life priorities.”

Keys says the clues to creating the ideal job description will result from combining the profiles and data from professional nurses around the country with the observations she gains teaching her classes at the Island University.

“One of my instructors suggested my name as a researcher to the PERL, and I learned it was a perfect fit. Studying cold plasma technology is more hands on. I am allowed to work a lot by myself, which I enjoy. It allows me to process my research and results.”

Ms. Whitmill, who will enter a graduate science program in the fall, says she takes with her a special confidence afforded to her because of her work in the PERL.

While nursing students are practicing with state-of-the-art human-body simulators and attending classes in a brand new Health and Wellness Center, Assistant Professor Yolanda Keys is among the first wave of College of Nursing & Health Sciences graduate nurses who will successfully transition into management positions in the health-care industry. Funded by a grant from the American Organization of Nursing Executives, Keys is spearheading a study to determine why Generation X registered nurses are choosing to stay on the hospital floor rather than move into nurse manager jobs. An expert in nurse leadership and nurse management training, Keys says that, in a culture that scrutinizes return on investment, her research strives to find the balance between a demanding, growing profession and a high quality of life.
The Packery Channel Monitoring Program applies RTK GPS survey technology and coastal GIS analysis to support the City of Corpus Christi in research-based management of the inlet and adjacent beach and wetland. The monitoring program supports decisions such as when to dredge and where to subsequently place sand on the beach. Seasonal sediment transport (sand movement) is interpreted through changes in depth of features such as shoals (sand mounds) and scour (deeper regions).

“Survey data allow the CBI to recommend dredge scheduling based upon; navigation safety, need for beach nourishment, environmental concerns (turtle and bird nesting seasons) and economics,” said principal investigator Deidre D. Williams. Seasonal surveys provide data every six minutes to a network of users including emergency management personnel preparing for hurricanes and other natural coastal events. The data sets, are invaluable to the operations of the sponsors that support TCOON including, the Texas General Land Office, the Texas Water Development Board, the U.S. Army Corps of Engineers, and the National Oceanic and Atmospheric Administration.

In 2008, five platforms were lost to Hurricane Ike. Now, two replacement platforms are fortified to be hurricane resistant. Their presence along the coast reflects the important contribution the CBI makes to the State of Texas.

The Texas Coastal Ocean Observation Network (TCOON) is a network of state-of-the-art water level observation platforms used to capture real-time water level and meteorological data along the Texas coast. Commissioned in 1991 by the Texas Legislature after a small network proved successful for the City of Corpus Christi, TCOON grew from three stations to 30 in just over a decade. The platforms provide data every six minutes to a network of users including emergency management personnel preparing for hurricanes and other natural coastal events. The data sets, are invaluable to the operations of the sponsors that support TCOON including, the Texas General Land Office, the Texas Water Development Board, the U.S. Army Corps of Engineers, and the National Oceanic and Atmospheric Administration.

In 2008, five platforms were lost to Hurricane Ike. Now, two replacement platforms are fortified to be hurricane resistant. Their presence along the coast reflects the important contribution the CBI makes to the State of Texas.
Texas Shoreline Type Mapping

The Texas Shoreline Type Mapping project in the Texas General Land Office Oil Spill Prevention & Response Program effectively illustrates the impact of spills in the Gulf of Mexico. More accurate mapping and improved data records could help international corporations decide where to develop in the Gulf of Mexico. By updating the Environmental Sensitivity Index (ESI) for the Texas coastline, researchers at the HRI could better assess the quality of the water of Nueces Bay, and the quality of the water found along the Gulf shore. By studying maps of the Texas shoreline, students and researchers are able to determine how the shoreline naturally erodes, reacts to deep water currents and develops with the influx of debris and fallout from spills in the water.

Evaluation of Ecosystem Services of Coastal Habitats

The Evaluation of Ecosystem Services of Coastal Habitats project is a site-specific study that maps the ecosystem of Mustang Island. This small island, categorized as typical of the Gulf barrier island ecosystem, is home to sea life and wetlands native to South Texas. For example, the project uses satellite tagging to track marine life such as sharks, which helps researchers accurately map the ecosystem and develop better understanding of the groins as a whole.

“‘We need to protect our wetlands, and we need to protect our coast from a hurricane,’ said Dr. Larry McKinney, Executive Director of the HRI. ‘For most, the ecosystem function is a mystery. Sharks are important to ecosystem, and by tracking them we are able to see where they are breeding, where they are going to find food and what other species are integral to their survival, and to the survival of the ecosystem as a whole.’”

Comparative Analysis of Marine Ecosystem Organization

The largest project of the Harte Research Institute is the Comparative Analysis of Marine Ecosystem Organization project, also known as CAMEO. A resource for experts from fields such as biology, government policy, ecology and others, the project ultimately aims to create tools for people to solve problems. Those tools are complex data sets of information that measure the sediments in three Texas estuaries. The study explores how that sediment is impacted by watering, dewatering and natural inflow. At its core, the CAMEO project translates numbers and scientific data into real-world, non-scientific language for policy, research publications and more.

McKinney said the project allows people from all disciplines to use data.

“We are marrying science and policy together,” Dr. McKinney said. “We hope to solve problems from a broader perspective, to take science and apply it to help make better, more informed decisions.”
A typical high school biology class will observe Euglena under the lens of a microscope – seemingly not much more than a single-celled organism being pushed around a microscope slide by thousands of tiny flagella. But when fish began to die in the freshwater environment of a puzzled farmer, he turned to Dr. Paul Zimba – a leading researcher at the United States Department of Agriculture at the time – to look at down the lens a little more closely. What Dr. Zimba discovered was the presence of Eugleniphycin, a toxin found in certain eugelnoids that kills fish, in what was previously thought to be the most benign and safe of euglena. His research and discovery remains unprecedented. His results were published in the world’s leading toxicology journal and has been heralded as a “must read” paper by experts across the globe.

Water samples from eight states, including fourteen ponds in Texas, and three continents later, Dr. Zimba – now the Director of the Center for Coastal Studies – works with students to grow the toxin in mass cultures to study it more closely at the Island University. The focus of the work at the Center is to understand the workings of marine ecosystems, habitats, flora, fauna and socioeconomics of the Texas coast and Gulf of Mexico through research and education. Graduate research assistants study data with the goal of learning what makes fish reproductively competent in order to provide the most up-to-date and relevant data for fish farmers. Using the bays, estuaries and waters of the Gulf of Mexico as living laboratories, Dr. Zimba and his students contribute to the improvement of the way a multi-billion dollar food industry operates around the world.
Islanders of all disciplines have access to a world-renowned emergency management training center at The National Spill Control School at Texas A&M University-Corpus Christi. Located on campus near the College of Science & Technology, the School offers a wide range of courses for students and working professionals in spill management, professional certifications, disaster preparedness and response, and industrial safety. Beyond the intensive curriculum, what’s most unique about the school is the learning environment. The school uses the Gulf of Mexico waters, Corpus Christi Bay, Mustang Island and the Padre Island National Seashore as living laboratories. In 2010, Tony Wood, the School’s Director, traveled the Gulf Coast with an Islander student collecting water samples for testing after the Deepwater Horizon oil spill in the Gulf of Mexico.

Industry-specific content taught in a variety of courses, students leave the school prepared and certified for employment within the petrochemical and refining industries as safety managers and environmental specialists.

“Models have become more sophisticated,” Hay said. “Our students are able to interpolate new, more accurate data into data sets that were not complete for years. By taking what we know now about climate change and water resources, we are able to better monitor surface water, groundwater, wells and other resources to see how much water is really available.”

Center for Water Supply Studies (CWSS)

Findings from the CWSS studies are used by the Texas Water Development Board, the Texas Commission for Environmental Quality and the Environmental Protection Agency, among others. Data is often used for numerical modeling, to forecast water flow and as the foundation for professional presentations.

“The students who come through the CWSS apply all kinds of disciplines in the research. This field work uses fundamentals of geology, environmental science and math,” Hay said. “They learn to work with large databases, which is important to research, as well as use new technology like GIS mapping. The work they do prepares them for professional presentations.”

Tony Wood
Director, National Spill Control School

Richard Hay
Assistant Director, Center for Water Supply Studies

The University’s Center for Water Supply Studies (CWSS) affords students opportunities to use advanced research techniques to determine just how much of the Earth’s most precious resource will be available for years to come in the state of Texas and around the world. Under the direction of Richard Hay, Assistant Director, the CWSS studies the quality and supply of bodies of water throughout the region. Data and findings are used by agencies across the state to address the global issues that saturate communities: the safety and availability of water.

One ongoing study monitors bacteria loading in the Oso Creek and Oso Bay in South Texas. Using surface-water modeling, students working in the CWSS do field research to determine the cause of high bacteria concentrations in these areas and how natural shifts in ecosystems affect the overall findings.

“We train students in the fundamentals of spill management so they can ask the question, ‘Now what?’” Wood said. “We hope our students can look beyond the mission of the school so they can create environmental responsibility for the new world economy.”

Wood says the school does just that by offering innovative courses in out-of-the-box settings. A hazardous materials (HAZMAT) course offers students the opportunity to gain certification on the beach during spring break, and boom drills are performed in Corpus Christi Bay, just a few waves from mammoth oil tankers making their way into the Port of Corpus Christi, the sixth-largest port in the United States in total tonnage.

“For the past 30 years, the National Spill Control School led the way for the latest spill control techniques and practical drills,” Wood said. “Going into the next 30 years, we’re modernizing the school, publishing our course content online and making our expertise available to people around the world who want to come to this University and learn at this school.”

The Mesoamerican Reef (MAR) is the Atlantic Ocean’s largest coral reef and the second largest barrier reef in the world. The reef stretches across 1,000 kilometers of the continental shelf from Honduras to Mexico. The continental slope adjacent to the reef drops quickly to bathyal depths of 3,500 meters and more. The substrate and topography of the deep escarpment are well suited to deep-sea corals, including “stony” reef building corals, soft corals, cup corals, sea fans and black corals.

To date only two or three sites along the Mesoamerican Reef have been explored with submersibles. Where studies were conducted, rich and abundant assemblages of hard and soft corals were found. Some sea fans were large enough to suggest the colonies were hundreds to thousands of years old. Species composition of the Caribbean deep reefs is similar to U.S. deep-coral reefs, so it is logical to ask whether deep-sea communities along the MAR are connected to the Gulf of Mexico and Straits of Florida through larval dispersal.

The Mesoamerican Reef (MAR) is the Atlantic Ocean’s largest coral reef and the second largest barrier reef in the world. The reef stretches across 1,000 kilometers of the continental shelf from Honduras to Mexico. The continental slope adjacent to the reef drops quickly to bathyal depths of 3,500 meters and more. The substrate and topography of the deep escarpment are well suited to deep-sea corals, including “stony” reef building corals, soft corals, cup corals, sea fans and black corals.

To date only two or three sites along the Mesoamerican Reef have been explored with submersibles. Where studies were conducted, rich and abundant assemblages of hard and soft corals were found. Some sea fans were large enough to suggest the colonies were hundreds to thousands of years old. Species composition of the Caribbean deep reefs is similar to U.S. deep-coral reefs, so it is logical to ask whether deep-sea communities along the MAR are connected to the Gulf of Mexico and Straits of Florida through larval dispersal.

The National Spill Control School

Dr. Tom Shinsky and Dr. Peter Ensmoyer with Idabel: The submersible carries a pilot (Karl Stanley, not shown) and two observers. The sub can dive to depths exceeding 3,000 ft. and has excellent visibility.

Deep Coral and Associated Species
Taxonomy and Ecology (DeepCAST) Expedition

The Mesoamerican Reef (MAR) is the Atlantic Ocean’s largest coral reef and the second largest barrier reef in the world. The reef stretches across 1,000 kilometers of the continental shelf from Honduras to Mexico. The continental slope adjacent to the reef drops quickly to bathyal depths of 3,500 meters and more. The substrate and topography of the deep escarpment are well suited to deep-sea corals, including “stony” reef building corals, soft corals, cup corals, sea fans and black corals.

To date only two or three sites along the Mesoamerican Reef have been explored with submersibles. Where studies were conducted, rich and abundant assemblages of hard and soft corals were found. Some sea fans were large enough to suggest the colonies were hundreds to thousands of years old. Species composition of the Caribbean deep reefs is similar to U.S. deep-coral reefs, so it is logical to ask whether deep-sea communities along the MAR are connected to the Gulf of Mexico and Straits of Florida through larval dispersal.
‘Sink Your Shucks’

Lauren Hutchison is an Environmental Science graduate student at TAMU-CC interested in conservation through education, film and the sciences. An underlying goal of Hutchison’s work is to bridge the gap between scientists and the general public, including decision-makers. Under the guidance of Dr. Paul Montagna, HRI’s Endowed Chair for Ecosystems and Modeling, Hutchison has focused on incorporating ecosystem services provided to humans by the environment into management decisions. In addition to her academic endeavors in graduate school, Lauren directed two documentaries, including the award-winning film, “Sink Your Shucks,” which won Best Conservation Film at the Beneath the Waves film festival in March 2011. The film introduces HRI’s Oyster Recycling Program, the life cycle of an oyster, and the concept of ecosystem services provided by oyster reefs.

Hutchison plans to continue her academic endeavors in the Coastal and Marine Systems Science doctoral program at TAMU-CC. She will focus on ecosystem services provided by coastal and marine environments under the guidance of Dr. David Yooskowitz, HRI’s Endowed Chair for Socio-Economics. Lauren plans to continue to incorporate education initiatives, including online learning tools, into her work in an effort to reach out to the community and to help maintain the ecosystem services that enhance our well-being.

To view “Sink Your Shucks,” visit http://www.youtube.com/watch?v=BiUocvMoQYF&feature=player_embedded

8th Annual Pathways Symposium

Texas A&M University-Corpus Christi ELITE Cohort member Meagan Bryand recently won 1st place in oral presentations—social science humanities division at the 8th Annual Pathways Symposium at West Texas A&M University, in Canyon.

Ms. Bryand has been an active member in the Texas A&M University-Corpus Christi community since 2005. She began her career at TAMU-CC with an undergraduate degree in Communication Studies, going on to pursue a Master of Arts in Communication. During her educational career she has given more than 25 presentations on topics including Managing Conflict in Romantic Relationships: Racial and Gender Differences, The Affects of Nonverbal Cues during the Interview Process, Organizing Your Studies, and Sex, Lies and Advertising. Ms. Bryand also has been active in graduate-level research including “College Students’ Self-Disclosure towards Professors on Facebook.” She assisted Dr. Virginia Wheeless and Dr. Michelle Maresh in a research project titled ‘Instructor Credibility as a Mediator of Instructor Communication and Students’ Intent to Persist in College.’ She has received numerous honors, including McNair Scholar, Madison’s Who’s Who Among Executives and Professionals, and Lambda Pi Eta Honors Society.

Ms. Bryand works as an intervention specialist with Title-V Undergraduate Programs at the Center for Academic Student Achievement, where her academic and professional achievements exemplify student success.