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Welcome to the inaugural biennial report from the Division of Research, Commercialization and Outreach at Texas A&M University-Corpus Christi. This division is new to our university and was formed in May of 2012. Our mission is to increase visibility, recognition and evaluation of Texas A&M University-Corpus Christi through state-of-the-art research and creative scholarship, commercialization of promising technologies that grow local, regional and national economies and service to the community. To accomplish this mission, we split Graduate Studies, which remained in the Division of Academic Affairs, from the Office of Research and Graduate Studies, combined it with the Office of Community Outreach and added a technology commercialization component that will, when fully developed, provide faculty, research staff and students with the infrastructure needed to commercialize the intellectual property they create. The merger of a research office with university outreach is unique nationwide, and underscores our University’s commitment to economic, workforce and regional development.

Over the past two years we gained significant momentum towards reaching our goal of becoming an emerging research university in Texas. Sponsored program expenditures averaged $14.5 million annually, led by the College of Science and Engineering, Harte Research Institute for Gulf of Mexico Studies, Conrad Blucher Institute for Surveying and Science and Center for Coastal Studies. Faculty hires in marine science, environmental science, genomics and engineering grew and diversified our research portfolio. Existing and new hires in our colleges of Business, Education, Liberal Arts and Nursing and Health Sciences produced great scholarship, bringing accolades to our University and helping to maintain a comprehensive teaching and learning environment that is attracting more and higher quality students every year. We invested significantly in our research infrastructure, creating new facilities including the iCORE laboratory for innovation in computing research, the Genomics Core Laboratory for marine genomic studies, and the Plasma Engineering Research Lab (PERL) for environmental and health applications. Through a strong public-private partnership, the growth of our unmanned aircraft system (UAS) program resulted in our University leading Texas’ effort to compete for one of six FAA UAS test sites. Finally, owing to the dynamic growth in research programs throughout the campus, undergraduate students now have greater access to innovative, hands-on research experiences enhancing their chances for success.

DR. LUIS CIFUENTES
Researchers in the College of Business are working to understand digital age issues such as reduced attention spans, improved technology tools and social media in schools and workplaces through various studies and publications.

Recently, Drs. Robert Cutshall, Associate Professor of Management Information Systems, Eugene Bland, Associate Professor of Finance, and Joseph S. Mollick, Associate Professor of Finance, studied the use of e-textbooks and web-based homework as compared to traditional print and paper. While e-textbooks do not seem to meet the needs of students yet, their study found significant benefits to carefully designed web-based homework.

In their research, Drs. Chuleeporn Changchit, Professor of Management Information Systems, and Timothy Klaus, Assistant Professor, discovered students in an online classroom were more satisfied with their experience than those attending the same class in a traditional classroom. Because this contradicts earlier research, Changchit and Klaus also identified ways instructors can structure their online programs to more effectively build community among students, a key factor in student satisfaction.

Studies conducted by Changchit and Cutshall examined the online buying behavior of consumers, identifying the top reasons why consumers do not complete their online shopping purchases and revealing the principle difference between Anglo and Hispanic online shopping decisions.

Dr. Monica Hernandez, Assistant Professor, studied online advergames, concluding brands that use online games as a means of engaging with potential consumers should be focused on developing a strong sense of flow, defined as “a sensation present when individuals are totally involved in their actions.” Increased flow experience encourages positive attitudes toward advergames, games that promote specific brands and/or products, which in turn improves positive attitudes toward the company.

How to effectively manage employees who are increasingly online is the subject of Drs. Brian Elzweig, Associate Professor of Business Law, Margaret Lucero, Professor of Management and Robert Allen’s work. These researchers provide a survey of current legal practices, most of which are still based on traditional precedent. While they conclude employees do have a right to privacy, companies also have an obligation to monitor and protect commercial interests. A rule of thumb offered to employees is, if it will get you in trouble at work, it will likely get you in trouble online. A number of suggestions are offered for companies to develop a social media policy to clearly articulate expectations.

Of course, the College of Business is not exclusively focused on the implications of the online world to business. Take a look at their list of published, peer-reviewed journal articles to learn more about what researchers in Texas A&M University-Corpus Christi’s College of Business have been doing.

Twice nominated for research awards, Dr. Brian Elzweig is a strong example of the dedicated professors housed at the College of Business. An Associate Professor of business law, Elzweig’s research is featured in scholarly journals, magazines and in collegiate text books.

“Much of my research is interdisciplinary,” he said. “I believe that interdisciplinary research greatly expands knowledge and brings new ideas to the areas being addressed.”

Much of his research has focused on legal issues facing managers of the millennial and the younger generations. He has also done research on securities and administrative law.

An article co-written with Dr. Donna K. Peeples, Associate Professor of Management at Texas A&M University-Corpus Christi, was featured in the SAM Advanced Management Journal and in the McGraw-Hill textbook Taking Sides: Clashing Views in Business Ethics and Society. The research also informed a guest blog post entitled “When are Facebook updates a firing offense?” which he and Peeples wrote for the Harvard Business review as invited scholars.

Elzweig, with Dr. Valerie Chambers, Professor of Accounting at Texas A&M University-Corpus Christi, won the best paper award in the Business Law Track of the General Business Conference in Huntsville, Texas in 2009 for an article about below market leases or sales after eminent domain.

In keeping with the times, much of Elzweig’s research with securities law has focused on Ponzi schemes and protection of people who fall for them. Another article co-written with Chambers discussing victims of Ponzi schemes and their rights was recently cited by the United States Court of Federal Claims as authority that there is a need to change the law in this area.

Currently teaching three advanced level classes, Elzweig’s research continues to be valuable to the College of Business and the University.
College of Business students earned distinction during the 2012 Mid-South region of the Certified Financial Analyst Research Challenge held in Memphis, Tennessee on February 2, 2012.

Bringing home third place, the Texas A&M University-Corpus Christi team had an especially difficult challenge as the company they were assigned to assess, Chicago Bridge & Iron (CB&I), was in the process of a merger at the time of the competition.

"Think about the challenges of merging a company that generated over $4.5 billion with its competitor that generated over $5.2 billion," said David Fonseca, one of the student members of the team. "The competition challenge was extremely demanding this year. The amount of data and analysis that the merger of these two ‘titans’ required was barely quantifiable. I not only enjoyed the development of our analysis, but also listening to the other competitors’ thought processes."

To compete, each team participating in the challenge researched a specific company, providing a financial analysis and prediction on whether the stock should be a Buy, Hold or Sell. The teams also had to provide narrative as to how they reached their conclusion.

Because of the merger, the team had to look at both companies and understand how the merger would affect the business overall.

"It was a challenging but interesting experience when analyzing CB&I, especially with the Shaw acquisition deal," said Chau Hoang, one of the team members. "We had to analyze all business segments of the two companies which doubled the workload for all of us. We worked extremely hard to figure out the intrinsic value of the combined entity, as there was limited data of the merger. Valuing companies is difficult, and valuing a multinational corporation with complex segments and its unfinished acquisition deal is much more challenging."

The team consisted of five members: David Fonseca, J.D. Henshall, Ronny Pigg and Shelly Nelson. Dr. Eugene Bland, Associate Professor of Finance, from the College of Business was the team’s advisor. The team also received professional consultation from Mary E. Sullivan, Executive Vice President, Treasurer and Chief Financial Officer of Susser Holdings Corporation.

David Fonseca, J.D. Henshall and Ronny Pigg have since graduated with MBAs. Chau Hoang and Shelly Nelson are currently enrolled in the MBA program.

"Chartered Financial Analysts (CFA) competition required us to develop an understanding of all aspects of a business. It has contributed to my progress for becoming a better and more pro-active business professional," Fonseca said.

Although the challenge was tough, the students focused on the overall benefits of their project.

“This analysis afforded me a lot of real-world training. It was a challenge to evaluate such large, diverse and complex companies such as CB&I and Shaw, and further consider what effects things like their merger, governmental actions like the ‘fiscal cliff’ and ‘sequestration’ and economic trends like the recession and energy prices all had on the company,” Henshall said.

“Thanks to the CFA Memphis Competition, I got chances to work with my amazing teammates and the respectful professor and mentor, and together we achieved the success of today,” Hoang added.
**Dr. Richard Balkin Takes Over Flagship Journal**

Dr. Richard Balkin, Associate Professor for the Department of Counseling and Educational Psychology, was officially appointed to the office of Editor of the *Journal of Counseling and Development*, the flagship journal of the American Counselors’ Association (ACA), on July 1, 2013.

With more than 55,000 members, the ACA has international membership representing a broad range of interest areas including marriage, multicultural issues, adult aging and child rearing. In all, the journal covers at least 20 different interest areas.

Published quarterly and averaging 14 articles an issue, the journal has a 10 percent acceptance rate. Each manuscript submitted is reviewed for quality, relevance and level of expertise.

Balkin accomplishes these reviews with the help of a 79 member editorial board and his experience. He was editor for the *Journal of Professional Counseling: Practice, Theory, and Research* for four years before moving into the ACA portfolio. He served one year as editor of *Measurement and Evaluation in Counseling and Development* and another year as editor of *Counseling and Values*. Both are national publications.

“Working for the journal really gives you perspective on what’s out there,” Balkin said. “You learn what’s fantastic, how to recognize quality and where we need to do better. I also have a great team of people I respect to turn to for support and to solve challenges.”

Balkin’s focus areas of study also assist him. He has partnered to write a book on the subject of assessment and he has published a Master’s level textbook on psychometrics that is already being used on some university campuses.

Balkin says, “This is a great mechanism to serve students, get them involved, that’s exciting. When you do something like this, support from your department head [Robert Smith], college dean [Art Hernandez], and the University as a whole is vital.” The ACA is funding a doctoral student assistant to work with Balkin.

Balkin will serve as active editor for the ACA’s Journal of Counseling and Development for one year. This appointment is renewable at the discretion of the editorial board, Balkin himself, and the ACA community.

**Robert Smith Takes the Reins as ACA President**

The Department of Counseling and Educational Psychology in the College of Education is making waves. Dr. Robert Smith, Professor and Chair of the department, began his term as the 63rd President of the American Counseling Association (ACA) on July 1, 2013.

“It’s a great honor to be able to serve the association,” Smith said. “It’s good for the college and good for the University.”

Smith is heading the approximately 55,000 member association, the largest association of counselors across the globe. He is on the second year of a 3-year commitment. When he finishes his term of presidency, he will serve for one additional year while the president elect becomes familiar with the position. Smith may serve more than one active year as president.

Smith said the college’s strong reputation may have contributed to his selection. Texas A&M University-Corpus Christi’s College of Education offers a large selection of continuing education units and implemented the university’s first PhD program. It graduates the most PhD Hispanic students across the country, with about half of each graduating class identifying as Hispanic.

This strong program has placed about 60 PhDs. They are teaching in various institutions across the country, putting the college on the national map for instructor education. According to Smith, it is one of the strongest programs in the field, with numerous institutions seeking referrals.

Smith’s involvement with the ACA has made it possible for him to attend a number of conferences. He’s sat on national boards and has been president of two major ACA divisions – National Career Development and Family Counseling. He has published eight textbooks and is referenced in about 100 articles and book chapters. His latest book, identifying and discussing eight different process addictions, is due out this fall through Pearson.
Kinesiology Research Goes International

The Texas A&M University-Corpus Christi Kinesiology Lab has gained international name recognition through its studies into how to improve sports performance.

Dr. Frank Spaniol, Professor of Kinesiology and one of the department’s leading researchers, has worked with China’s national baseball coaches and Portugal’s national tennis teams. The first beneficiaries of his research are right here on the island. Students not only improve their physical performance, but also benefit from their academic ability to actively participate in self-selected research projects.

Through grant funding, the department has developed a very high-tech visual performance lab, second to none in the state according to Department Chair Dr. Randy Bonnette, to test how visual performance can affect sports performance overall.

Delivered via a row of lab computers, the lab began using Vizial Edge Performance Training (VEPT) software a few years ago. Behaving like a 3D video game, it guides users through visual exercises that test and train peripheral vision, coordination, and response. According to Bonnette, there is a positive correlation between increased VEPT scores and physical performance on the playing field. The lab recently added a $6000 serving machine and the D2 biomechanics peripheral vision lab.

In addition to benefitting from the high-tech training applications available in the lab, the kinesiology program provides all undergraduate students the rare opportunity to conduct hands-on research.

“All students have to participate in a research project,” Bonnette said. “They are required to have a journal-ready paper by graduation and the department assists them with the submission process. At the end of their program, they give presentations about their project.”

Because of the strength of its training capabilities and its academic program, the department continues to attract international attention. While the studies conducted in the lab have a strong emphasis on sports, the applications of this research extend well beyond the playing field.

Four days before the Sandy Hook school shooting at Newtown, Connecticut, an event which brought children’s mental health to the nation’s attention, Dr. Guang Zeng’s article examining U.S. federal policies on the co-occurring crises in child mental health and public education was published online by the journal School Mental Health.

Drawing on her expertise in public policy, child psychology, psychiatry, and quantitative research methods, Zeng, Assistant Professor in the College of Education, has been studying children’s social-emotional and mental health problems for nearly a decade.

Her interdisciplinary approach has provided a special edge to the research, resulting in publications in high impact journals and presentations both in the United States and abroad.

“The U.S. Department of Health and Human Services has long noticed an increase in youth violence, declaring the years 1983-1993 as a ‘deadly decade’,” Zeng said. “We seem to forget about children’s mental health until the next shooting occurs. Instead, we should be proactive and try to prevent these events of violence through primary intervention and early detection.”

This approach is reflected in another recent study by Zeng in which a nationally representative sample of kindergarteners were followed through fifth grade to examine the developmental trajectories of their internalizing problems.

It was found that younger children in the class were at a greater risk of developing internalizing problems, and such problems persisted through fifth grade. Zeng proposes providing special support services to young children to address this issue.

On the national level, Zeng advocates for a broader accountability system in the schools for both academic performance and social-emotional development.

Zeng is passionate about the well-being of young children. Her research is making an impact far beyond our community. “We must do this for our nation’s children.” Zeng said with a smile.
Bringing History to the People

Dr. Cristina Kirklighter

In the College of Liberal Arts, Dr. Cristina Kirklighter, Professor of English, is stirring up new research into important but too often ignored cultural influences.

According to Kirklighter, the presence of Latinos/as in Louisiana has been greatly overshadowed by the Black and White racial dichotomy that largely characterizes the South. As a result, this important element of the cultural mix has been mostly ignored in scholarship, everyday decisions, attitudes and even large-scale political and business relationships. What documentary evidence does exist of their history is widely scattered and becoming lost on dusty library shelves.

"Roots provide validation, and recent Southern Latino/a communities struggle with invisibility and oppression," Kirklighter wrote in a 2009 article in Reflections Journal, a journal dedicated to civic writing and scholarship that she has since taken over as editor.

Latino/a roots in Louisiana extend prior to 1765 under Spanish leaders, introducing the first U.S. Spanish newspaper, El Misisipi, in New Orleans in 1808. Trade relations with Latin America transformed New Orleans into the Gateway to Latin America. Settlers came from Cuba, Mexico, the Caribbean, Colombia and Honduras, among other places. New Orleans still has the highest population of Hondurans in the world next to Honduras itself.

Having received a $5000 Research Enhancement grant from the university for this purpose, Kirklighter met with and encouraged Latino/a leaders in New Orleans to write personal essays, Kirklighter's academic specialty, about their experiences in a city focused so heavily on the Black/White question. Her objective is both to bring this information together and share it with the Latino/a community at large.

"It is one of the most gratifying book projects I have worked on ... It is one thing to be an academic expert and teacher on the personal essay. It is another to bring this knowledge and skills to a city’s Latino/a community leaders and help them write their stories."

Her book project features essays from important New Orleans Latino/a leaders who embody strength, survival, transition, and success.

As they wrapped up the project, Kirklighter took some of her writers on a bus tour last summer, stopping at significant historical sites within the city and reading some of the essays from the book for impromptu audiences.

When the book is published, it will not only capture some of the history of Latino/a influence in the area, but also make the Latino/a contributions to the region more readily available to a wider public.

A New Understanding of the Civil War and Collective Memory

Dr. Sharon Talley

Many books have been written about the effects of the Civil War, but none quite like the recent research conducted by Dr. Sharon Talley, Professor of English in the College of Liberal Arts English Department. In her book Southern Women Novelist and the Civil War: Trauma and Collective Memory in the American Literary Tradition since 1861, Talley explores how southern women have experienced and expressed the war from their own points of view. As the subtitle suggests, the viewpoints examined include those of women who lived during the Civil War era as well as women who have lived since that time into the modern age.

Talley’s work examines how collective memory of the Civil War contributed to the fictional works of female authors. While the dominant narrative about the war on either side came from white males, the female voice presents counter-memories that enrich and inform what we thought we knew.

The text also explores how the authors’ understandings of the war and the nation as expressed in their novels contributed to collective memory and future interpretation of history and identification. Talley’s research helps us understand, to some degree, how similar national traumas might be dealt with on a collective level and through the shifting lens of time.

In the book, Talley explores the writings of 17 different female novelists, each writing about the Civil War from her own perspective. Dividing her analysis into five sections based upon major shifts in social thought, Talley demonstrates how literary movements, social change and events contemporary to the authors affected how these authors interpreted what they saw, learned and experienced regarding the war era.
Community Support in Ground-breaking Campaign Results in $40,000 Funding for the Food Bank of Corpus Christi

Students in Dr. Charles Etheridge’s grant writing class won a $40,000 grant for the Food Bank of Corpus Christi through their research and active participation in a campaign to provide homeless children in Corpus Christi with backpacks full of evening meals.

Etheridge, Associate Professor of English, and his class received a request for proposal (RFP) from the Walmart Foundation in late January 2013. The proposal was released as data pieces, meaning that several portions of the application were due at different times.

“It took a long time to fill out forms because we spent about 90% of the time brainstorming and doing research before actually writing the proposal,” Etheridge said.

Once the proposals had been received, the Walmart Fighting Hunger Together Voting Campaign Live event was launched, a month-long social media campaign which determined the winning submissions via popular vote.

Although neither Etheridge nor his students had any expertise in social media campaigning, they interacted with other groups to learn more about this innovative method of crowdsourcing. The class initially spread awareness of their project by talking to friends and family, emailing constituents and sending press releases to the local media.

The campaign did not always look promising for the class. “After a few weeks, we had about 700 votes, which was far behind what we needed,” Etheridge said. “So we asked ourselves, ‘What more can we do?’”

His class discovered that they won the grant in early May.

“If I could choose one word for the entire experience, it would be ‘humbling,’” Etheridge said. “My students deserve a lot of the credit. Our success was really a result of the community, both here in Corpus Christi, and at far-reaching areas.”

Etheridge has partnered his class with the Food Bank of Corpus Christi since 2005, with most grant proposals submitted being funded.

Tracing History through the History Department

Nearly half of the History Department published books in a single 12-month period. The three books, published from March 2012 through February 2013, individually represent some of the recent work of Dr.’s Peter Moore, Sandrine Sanos, and David Blanke co-authoring with David Steigerwald and each highlights significant moments of great cultural changes with important messages to convey for today’s generations.

Dr. Peter Moore, Assistant Professor, is editor and annotator for The South Carolina Diary of Reverend Archibald Simpson: Part 1, May 1754-April 1770. Consisting of a selection of journal entries from a low-country Presbyterian pastor and planter, the text explores some of the religious, social and cultural changes that were occurring in both Scotland and colonial America during the revolutionary era. This volume contains journal entries from 1754 through 1770 to give an accurate reflection of the pastor’s observations on personal failings, community issues, revolutionary sentiment in America and the imperial crisis of Great Britain during this pivotal moment in time.

In The Aesthetics of Hate: Far-Right Intellectuals, Antisemitism, and Gender in 1930s France, Dr. Sandrine Sanos, Assistant Professor, examines the writings of Maulnier, Brasillach, Céline and Blanchot, revealing how these French writers used rhetorics of abjection, disgust and dissolution as they described the nation through those they considered to be inferior - Jews, colonial subjects, homosexuals and women. Together, she claims these writers reinvented the language of far-right nationalism into an aesthetic of hate by appealing to the realm of beauty and the sublime and how these basic concepts continue to influence thinking today.

Moving into the Cold War, Dr. David Blanke, Professor of History and department Chair, co-authored A Destiny of Choice: New Directions in American Consumer History with Dr. David Steigerwald, Ohio State University. It is a collection of scholarship exploring the rise of the idea of choice over previous American ideals of freedom, opportunity and equality. The essays explore two of the leading interpretations of modern American consumer culture as the nation shifted from a local producer economy characterized by scarcity to one of mass-produced, massively available goods and readily available credit. As part of these studies, the book also explores how this change is reflected in society, culture, the economy and in American politics.

From the confusion of an emerging nation to the divisive rhetoric that helped lead to war to the dramatic effects of a Cold War culture, these scholars provide excellent food for thought and perhaps a few cautionary notes to be heeded as we move forward.

Dr. Charles Etheridge and his grant writing class raised a $40,000 grant for the Food Bank of Corpus Christi
One of the most in-demand careers today is nursing and, although approximately 10 percent of the 240,000-360,000 service members separating from the military each year have some form of medical training, few of these are able to fill vacant civilian positions because they lack the required certifications.

While the military provides highly valuable experience at working in difficult situations and under pressure, depending on the nature of the job performed within the military, medical training can be sporadic, too narrowly or broadly focused and can omit some of the needed prerequisite education to performing the expected functions of a civilian registered nurse.

Texas A&M University-Corpus Christi’s College of Nursing and Health Sciences (CONHS) streamlines that transition with its eLine Military Program, offering individualized curriculum development for each applicant by awarding credit toward a BSN for previous military experience and training. The program can reduce training time by as much as one year and is delivered entirely online to overcome other common barriers to entry such as mid-semester deployment. The “Vets to Nurses Working Group” strives to further identify barriers to entry and completion and improve diversity in the workforce.

“I can’t think of anyone else who’s doing what we’re doing,” said Dr. Mary Jane Hamilton, Dean. “Students are very enthusiastic about our program. They say our method captures the other 90% of their experience and our retention rate is high.”

The program was featured in the 2013 White House report “The Fast Track to Civilian Employment” as a positive example of programs sought nationally. Hamilton, along with other nursing leaders, was invited to the “Rolling out of Joining Forces” with First Lady Michelle Obama and Dr. Jill Biden and to participate in the White House round table discussion and planning for returning veterans.

More than 400 military service members have been enrolled in the program since its inception with approximately 350 currently in advisement. The program celebrated its first three graduates this summer with several more on track to graduate in the fall.

The program also recently won the Texas A&M University-Corpus Christi Silver Wave Award.

Improving Nursing Education with Technology

Dr. Connie Barker and Dr. Eva Bell

Dr. Connie Barker, Associate Professor, and Dr. Eva Bell, Adjunct Professor, are dedicated to helping our graduate nursing students succeed through the Texas A&M University-Corpus Christi Family Nurse Practitioner (FNP) program, by using a common tool in a slightly different way.

All graduate FNP nursing students are required to enter non-identifying information about the patients they treat during their clinical coursework into an electronic database called Typhon. This includes ICD9 codes (International Classification of Diseases), case specifics, subjective observations, objective observations and assessment plans, always non-identifying.

Other than checking students’ work on a case by case basis, the database is not generally employed for many other uses. Barker’s idea is to expand faculty members’ use of the database to ensure students gain well-rounded and intentional training.

Barker and Bell want to know if there is something that can be done early in students’ clinical experience to improve their overall outcome. They will begin researching what the database has to say in what Barker describes as a three-part project. The first part is to collect retrospective data to get a general sense of what information is available.

The second part of the research will be quantitative as differences between groups of students are examined on-going.

“I’m wondering if there is some way we can use the database to make recommendations to help students have a better clinical experience,” Barker said. “For example, chronic care needs to be among our main foci as much money is being spent on individuals with chronic healthcare needs. Some of the student portfolios I’ve looked at don’t reflect many chronic care cases.”

The projected third part of Barker’s study is qualitative as she begins talking with clinical faculty to better understand how they are using data contained within Typhon and if the data can be used to improve the clinical experience.

In addition, Barker will be looking into other ways the database might be useful beyond certification and beyond graduation. While she does not have any clear concepts yet, she is a member of one of the Eagle Ford Consortium subcommittees trying to develop strategies to meet increasing demands for medical services within the areas experiencing the greatest effects of the boom.
Challenging the Face of Breast Cancer in Asian American Women

Dr. Meng Zhao’s research, part of which is conducted in collaboration with Dr. Sara Baldwin, Associate Professor, focuses on the prevalence of breast cancer in Asian American women and their unique risk factors.

One of the greatest of these risk factors is low screening rates. Statistically, Asian American screening rates for breast cancer are much lower than that of the general population.

“They tend to not see it as important,” Zhao, an Assistant Professor, said. “I feel it is cultural. Screening for potential health issues is not a common thing to do in many Asian cultures and the women tend to believe there is nothing they can do about it anyway.”

The Center for Disease Control has identified Asian American women among those most susceptible to breast cancer, with cancer rates tending to increase as they immerse themselves into American culture.

“We’re not sure what that means,” Zhao said. “It could be environmental risk factors in the air, water, food supply or dietary choices. It could also be specific hormones reacting in different ways. More study is needed.”

Zhao has been developing a measurement tool to assess Asian American women’s beliefs, views and perspectives regarding screening since her studies in North Carolina. Upon taking a position with Texas A&M University-Corpus Christi, she received college and University level support to refine the tool to new sophistication.

Once it has been tested and approved for use, the tool is expected to help identify those individuals less likely to seek cancer screening, why they are less likely to have this life-saving testing done, and how medical professionals can help.

Empowering Women to Defeat Diabetes

Sara Baldwin PhD, RN

Reaching out into a community with strong needs, Sara Baldwin PhD, RN, Associate Professor in the College of Nursing and Health Sciences, spent two and a half years researching how to lower diabetes and cardiovascular risk factors with a Hispanic population. Funded by a collaborative grant with Dr. Robert Garcia and the College of Education, Baldwin worked through the Antonio E. Garcia Center, which serves a predominantly Hispanic, highly impoverished Corpus Christi neighborhood, to develop a community-based intervention focused on empowering women to make positive changes for themselves.

Research focused on preventing or delaying Type 2 diabetes (T2D) is important because T2D has a 22% prevalence rate in the Coastal Bend area and Hispanic women are at a 66% higher risk of developing the illness. The state spends at least $29.5 billion per year on diabetic care due to disease complications.

Baldwin hoped to encourage Hispanic women to take proactive measures to discourage T2D onset. “Not only are they most at risk, but they also have the greatest influence on dietary decisions within the home and set the example for the next generation.”

Ten Community Health Nursing (CHN) students helped initiate the program, conducting interviews and reaching out to the community. “My students played a major role in developing and implementing health counseling study protocols and measuring study outcomes.”

Providing undergraduates with the ability to participate in hands-on, real-world research is a distinguishing feature of the nursing program and a part of every student’s Community Health Nursing clinical rotation.

“It was a multi-departmental, interdisciplinary effort,” Baldwin said of the entire project, involving components from nursing, kinesiology, education and counseling.

The 12-week study intervention was delivered as a multi-level lifestyle program. Baldwin said she expected to focus primarily on exercise, but once the pilot program started she discovered none of the women understood what it meant to be pre-diabetic or high risk and few believed they could do anything about it.

“In most cases, they’ve been told they don’t have diabetes yet, but its likely. Women didn’t know what that means for them or how to tackle it. They’ve received insufficient education, counseling or help with prevention” Baldwin said. “Some of them were so afraid of what to eat that they weren’t eating.”

For the two 12-week program groups that followed, the program expanded to include health counseling, social support, motivational interviewing, physical activity and lifestyle modification classes.

The short-term effects are promising and Baldwin is currently publishing the results of her work. With future interventions, Baldwin says program designs should address health care access issues and offer bilingual support. They should also expand the sample size through use of a specific recruitment plan and extend the study outcome measures to six, twelve and eighteen-months for sustainable behavior change.
**Unmanned Aerial Systems**

The university’s research division took a bold step in late 2012 by leading a statewide effort to win federal designation as a test site for unmanned aircraft systems (UAS). Texas A&M University-Corpus Christi led a team of 16 public- and private-sector entities that submitted Texas’ bid to be one of six test sites reporting to the Federal Aviation Administration (FAA).

The effort builds upon the university’s previous UAS research experience and opened collaboration with the Texas A&M Engineering Experiment Station (TEES), bringing new opportunities for technological commercialization and economic development for the Coastal Bend region of Texas.

The University launched its first UAS mission in 2011 with an RS-16 Arcturus aircraft modified for research by a private-sector partner. In March 2013, the UAS captured images of the terrain around the Gulf of Mexico in visible, infrared and ultraviolet frequency ranges using an onboard spectral camera. The images provided researchers with data that can be used to study algae distribution along the Gulf coast.

“There is not much research in the UAS field including a maritime environment,” said Dr. David Bridges, Director of the Unmanned Aircraft Systems Initiative and Assistant Professor of Mechanical Engineering. “The high-definition images can help track algal blooms, hurricanes, harmful pollutants and serve a variety of purposes over land and water.”

The FAA proposal establishes the Lone Star UAS Center of Excellence and Innovation with TEES as a major partner. The proposal establishes test ranges from South Texas to the Big Bend region with a command and control center at the university’s Coastal Bend Business Innovation Center in Flour Bluff.

Dr. Luis Cifuentes, Vice President for Research, Commercialization and Outreach, said UAS research and development in Texas will have profound and far-reaching effects on the state’s economy.

“We’ve spent much of our effort in UAS technology, which is a new industry that has the potential to create more jobs and generate more revenue throughout the state,” Cifuentes said.

A FAA UAS test site will be a boon for Texas’ aviation industry and a magnet for UAS industry. The University, however, is committed to UAS technological research and industrial development even without the FAA test-site designation.

“UAS research and development promises to be what some are calling the next ‘Kitty Hawk moment’ in aviation history,” said University President Dr. Flavius Killebrew. “For the sake of our economic growth, Texas must be a player.”
Deep-sea research is an emerging field of study that hasn’t gone unnoticed by Dr. Dugan Um, Assistant Professor of Engineering. In addition to increasing understanding of unmanned technology, Um seeks to make the community aware of how underwater vehicles can make a difference to our daily lives.

Um is researching whether an autonomous underwater vehicle (AUV) can move by itself when density of the vehicle is altered due to corresponding temperature changes underwater while also mapping the ocean for visibility purposes.

“We are focused on underwater cleaning,” Um said. “To do this, our remotely operated vehicle (ROV) needs the capabilities of navigation, manipulation and sensors data processing to pick up underwater debris. As part of our research, these tools should be designed.”

Um hopes to make a difference to our community by improving underwater activities and implementing several STEM programs.

“We want to help aid in underwater activities, such as shipwrecks, treasure hunting and response and rescue operations,” Um said. “If more people knew about our research and education programs on campus, they would be more focused on STEM activities. We want to make our community notice the changes that will impact ourselves. For instance, we can help slow down or prevent issues such as ocean debris and global warming from happening as more people know about those issues.”
Research Vessel Cruises Provide Opportunity to Study Unexplored Parts of the Gulf of Mexico

Research vessel (R/V) Falkor, loaned by the Schmidt Ocean Institute (SOI) in 2012, provided many scientists at the Harte Research Institute (HRI) and the College of Science and Engineering the opportunity to view uncharted areas of the Gulf of Mexico.

“We know more about the surface of the moon than we do about the depths of the Gulf of Mexico,” said Dr. Greg Stunz, endowed chair for Fisheries and Ocean Health at HRI.

R/V Falkor has multiple state-of-the-art capabilities including over-the-side deployments, access to wet and dry lab areas, acoustic analysis using special instrumentation, weather-protected observation decks and continuous global internet access.

Two trips were taken in September and October 2012, each lasting twelve days, to accomplish a variety of scientific missions. The first leg of each trip involved mapping mid-shelf ocean banks in great detail along the South Texas coast. The University of Texas at Brownsville and Rice University accompanied Texas A&M University-Corpus Christi during the first cruise.

On the second trip, Texas A&M University-Corpus Christi researchers teamed up with the University of Georgia to analyze artificial reefs and understand the sustainability of reef fish, along with determining the causes of harmful algal blooms in the Gulf of Mexico and how red tide occurs.

“One of the key aspects of these cruises is that we have doctoral level students all the way down to undergraduates. The state of the field is moving towards the use of observing systems and autonomous vehicles.” Dr. Michael Wetz, Assistant Professor of Marine Biology, said. “Most undergraduate and graduate programs in the nation don’t have access to this equipment.”

The ramifications from the R/V Falkor missions are huge for marine sciences along the Gulf of Mexico, both in the present and well into the future.
The Plasma Engineering Research Lab’s (PERL) latest project, the ability to kill “superbug” bacteria using cold plasma, is just one of several promising discoveries that can change the medical community worldwide.

Dr. Magesh Thiyagarajan, Director of PERL and Assistant Professor of Engineering, developed the cold-plasma technology in an effort to fight deadly microorganisms with high resistance to antibiotics.

Superbugs are considered one of the biggest health threats for humans, with the Center for Disease Control (CDC) reporting more than 100,000 deaths from these bacteria each year. New strains of superbugs appear often and without warning, providing no time to develop new medications capable of killing them.

Recent cold plasma experiments ended with remarkable results for Thiyagarajan and his research team at PERL as it killed bacteria that currently available antibiotics can not eliminate. One of the most significant findings from Thiyagarajan’s research is that the bacteria can not develop immunity to cold plasma.

Plasma, an ionized gas, is typically heated up by adding or removing electrons to a gas, resulting in a highly energized conductive state of matter. Thiyagarajan developed a novel technique of creating plasma under very low temperatures that can aid in sterilization of heat sensitive materials including treating human wounds more effectively.

“This is an extremely powerful technology that produces what are called reactive oxygen species. They react with bacteria pathogens, killing them in a matter of seconds,” Thiyagarajan said. “Because of the higher efficiency, compared to current technologies for sterilization, the cost of treatment is much lower.”

The effectiveness of many hospital sterilization procedures are restricted by time and heat. Thiyagarajan’s plasma method of sterilization shows potential because it avoids these issues with greater effectiveness.

In addition to improving hospital sterilization techniques, cold plasma can also help prevent food-borne illnesses caused by eating contaminated foods.

“This cold plasma technology can also be used for food sterilization,” Thiyagarajan said. “Almost daily, you hear about food recalls on the news. From poultry to produce, this new technology can be used to sterilize all of these food products.”

While Thiyagarajan’s findings are still in the preliminary stages and cold plasma technology has not yet been released for public use, people should expect it to combat superbug bacteria and food poisoning illnesses in the near future.
Eating oysters at local restaurants may contribute to restoring oyster reef habitats in our bays while increasing the health of nearby ecosystems.

Dr. Jennifer Beseres Pollack, Assistant Professor of Marine Biology, began the “Sink Your Shucks” Oyster Recycling Program in 2009, along with Dr. Paul Montagna, Endowed Chair for Ecosystems and Modeling and Gail Sutton, Assistant Director at Harte Research Institute. The program was the first of its kind in Texas to reclaim oyster shells from local restaurants and return them to local bays and has received the 2012 State of Texas Alliance for Recycling’s (STAR) Outstanding “Closing the Loop” Program Award for recycling efforts.

“Besides the fact that oyster reefs provide people with a food resource, they also provide very important habitats for sportfish, crabs and other types of organisms,” Pollack said.

More than 2.6 million pounds of oysters were harvested from Texas waters in 2008, making it the second largest commercial harvest in the country. However, oyster reefs have been degraded for a variety of reasons, from water quality degradation to destructive fishing practices. When oyster shells end up in landfills, larval oysters float around in the water column without anything to attach to, disrupting the process that maintains living oyster reefs.

As part of the project, oyster shells are picked up twice a week from participating restaurants and sent into the Port of Corpus Christi where any possible diseased tissue decomposes. The shells are then loaded into various bays where they act to replenish reefs in bay waters. More than 300,000 pounds of shells have been returned to our local waters to date.

Oyster reef restoration not only results in an increase in the abundance of oysters and other marine life, but it also significantly improves water quality. Oysters filter water by consuming algae and can improve clarity of the water, providing valuable sunlight to sea grasses, which in turn can increase oxygen levels for the ecosystem.

Through their research, Pollack and her team of student scientists have developed a better understanding of how their restored reefs work. “We have learned that it is not only important to restore these reefs, but also to study their development through time. These studies allow us to adapt our restoration methods to best mimic the important functions provided by natural reefs,” Pollack said.

Volunteers smile for the camera as they prepare to pass bagged oyster shells to the end of the formed line on April 6, 2013.
Student Spotlight:
EDY VALDES & VALERIE FERDIN

Two student researchers in Dr. Magesh Thiyagarajan’s PERL (Plasma Engineering Research Lab) group achieved recognition at the Ninth Annual LSAMP Symposium, held February 21-23 at Texas A&M University-College Station.

Eduardo Valdes, a senior mechanical engineering undergraduate, received first place honors for his presentation on “Surface modification of Polyurethane sheets using an atmospheric pressure RF plasma jet in helium/oxygen gas mixture.”

Valerie Ferdin, a senior mechanical engineering undergraduate, received third place for her presentation in “Surface Modification of Polyethylene Terephthalate by Atmospheric Pressure Non-Thermal Plasma Jet”.

Valdes’ research consists of measuring and analyzing the properties of cold plasma under atmospheric pressure. Following the first stage of research, he conducted research on applying the cold plasma to enhance the surface energy of biopolymers and obtained very impressive results.

The research that Ferdin is working on involves modifying the surface energy of different polymeric substrates using an atmospheric pressure radiofrequency cold plasma jet with helium-oxygen gas mixture. Her findings are useful when applied to bandage adhesives, sterile packaging, catheters and other small tubing.

In addition, Valdes received the Best Poster Presentation Award for this presentation at the national SACNAS conference held October 11-14, 2012 with approximately 3,000 students in attendance.

When Valdes and Ferdin won, it gave them more confidence; a trend that Thiyagarajan usually sees with students in his research lab.

“I strongly encourage our plasma research students to present their research projects from the initial stages of their affiliation with PERL. As they gain more research experience and contribute to their research expectations, the students tend to shine by the time they are ready to graduate,” Thiyagarajan said.

This approach has been successful so far. “This was my first time to win anything and it felt great. It really helped to build my confidence and encourages me to keep improving,” Ferdin said.

In addition to these accomplishments, Valdes and Ferdin are the first two students to present undergraduate research theses in the mechanical engineering program’s history.

“The research experience is a rare opportunity that most undergraduate students will not have at large institutions where they are mostly received by graduate students,” Thiyagarajan said. “Students at our engineering program get the opportunity to have direct research training and experience, which may not be possible in larger programs elsewhere.”

“The program here is about so much more than just science and doing research. It’s also about building skills we will need later in life, no matter what we do,” Valdes said.

“Going into some of these other programs and seeing students from other campuses makes me realize that we have so much more experience,” Ferdin added. “We’re so much more prepared for graduate school and beyond, thanks to what we’ve learned through this program.”
The Wild, Wild West of Genome Technology

What happens to a native species population when an aggressive, foreign population moves in? University researchers Drs. Chris Bird and Derek Hogan, Assistant Professors of Biology, are studying that question on a genomic level.

“We use genomics to study evolution,” Bird said. “Recently, an invasive species of fish, called the lionfish was discovered. We need to see how they will change game fish populations and ecosystem functioning of South Texas waters, both in the short and long term.”

Genomics is the study of the sequence of genes in an organism that represents the coding of their DNA. Bird and Hogan, along with Sharon Furiness, Genomics Lab Coordinator, are studying the genomes of several different organisms, including Hawaiian limpets, Texas oysters and lionfish in an effort to learn more about their DNA for ocean management and understanding their food supply chain.

“Research on genomic studies can cost millions of dollars, but starting in 2010, there was a major breakthrough in technological advancements,” Bird said. “This made genomes easier to study, with only basic lab techniques being required to start the research.”

“This technique can be applied to the studies of bacteria, viruses, fungi and other organisms,” Hogan added.

The Genomics Core Lab samples DNA from many species and sends these samples to Texas A&M University-College Station for sequencing. Texas A&M University-Corpus Christi offers a new graduate course on genomics which also participates in these experiments.

Data discovered through this research has the potential to change many areas of our daily lives.

“We can now look at genomics as a tool for understanding natural selection. We can use these studies to understand the effects of fisheries and climate change on natural populations,” Hogan said.

“It’s an exciting time due to technological breakthroughs and scientific discoveries,” Bird added. “We are living in the ‘Wild, Wild West’ of technological advancements. We can have a major influence on the future of this field on a worldwide scale.”

Transit Time!

The Conrad Blucher Institute for Surveying and Science (CBI) in collaboration with the National Ocean and Atmospheric Administration (NOAA) recently finalized Transit Time!, a free mobile app designed for navigation along the Houston Ship Channel. It provides ship captains and pilots with state-of-the-art technology to easily access the latest measurements and predictions for a safer and more efficient navigation.

The app takes hydrodynamic predictions typically communicated as netCDF files and translates this information into an easily read topographic map of predicted water depths and currents which can be displayed on a cell phone or other mobile device. It uses the position and speed of the mobile device to predict the timing of the ship’s transit and provides captains with relevant information for the time of their ship passage.

Principal Investigator Dr. Philippe Tissot, Associate Director of the Conrad Blucher Institute, and Co-Principal Investigator Scott Duff, Assistant Director for IT Operations at CBI, led the project working with student research assistants Julien Clifford, Francesca Picarazzi and former student Cristián Romo.

“Visualizing and simplification of existing data was an idea we wanted to pursue for a long time,” Duff said. “We had to figure out how and where to apply it.”

The idea for a portable mobile app came from Richard Edwing, director of NOAA’s Center for Operational and Oceanographic Products and Services (NOAA-CO-OPS). Development of the first prototype was initially supported by the NOAA Environmental Cooperative Science Center (ECSC). Tissot and Duff received $25,000 in grant funding from NOAA to fully develop the project.

Innovation at CBI continues to be a priority. “CBI has always been at the forefront of technology. CBI started very early to manage its coastal observation network entirely from the World Wide Web in the mid-nineties and has been using Artificial Intelligence (AI) for its operational predictions since the early 2000’s,” explained Tissot. “These mobile apps and the use of smartphones and geospatial computing technologies have become our latest advancement.”

The Genomics Core Lab at Texas A&M University-Corpus Christi can sample and analyze DNA from many species.

A Sentinel structure built in 2011 as part of the Conrad Blucher Institute’s Texas Coastal Ocean Observation Network (TCOON) system.
In addition to his accomplishments here on campus, Julien Clifford, Geographic Information Science (GIS) major and undergraduate research assistant at the Conrad Blucher Institute, won several awards at the 12th annual Undergraduate Research Symposium which took place on March 2, 2013. He won first place for his oral presentation, as well as the prize for the “most innovative with the greatest potential for impact” work.

The winning presentation detailed the TransitTime! mobile app (see associated article), which helps ship pilots navigate the Houston shipping channel more easily. In addition, he has contributed to the development of another app that visualizes TCOON wind data along the Texas coast.

Clifford also won a national award for his essay “The Future of Surveying” published in the February 2013 issue of Professional Surveyor Magazine. For his effort, he received a Trimble R10 GNSS rover as the grand prize. “It might not look like much to the average person, but to someone like me, this is a very valuable prize,” Clifford said.

According to his mentor, Scott Duff, Clifford is curious about everything and likes to learn. “It’s a cool feeling to be able to share my knowledge in order to help the community,” Clifford said.

He plans to graduate in 2014 as a GIS/Geomatics major with a minor in Computer Science, and strives to grab every opportunity brought upon him. “I’m pretty much interested in everything,” Clifford said. “I’m looking forward to what I will do next.”

Dr. Richard Smith

Dr. Richard Smith at the Conrad Blucher Institute for Surveying and Science has been working on some exciting new developments in cartography after successfully defending his doctoral dissertation in 2012. His research focus was to successfully express cartographic knowledge in an artificial intelligence system, partially automating the cartographic design process. Such exciting research may one day help map hard-to-access areas when coupled with UAS or other technology.

To complete his research, Smith had to construct a map ontology, model useful information and patterns from geospatial data, and develop an expert system capable of intelligently applying that information to produce a general reference map. Through the successful development of these three innovations, Smith has paved the way for the democratization of cartography.

Smith is Island grown, having earned a B.S. in Geographic Information Science in 2003 as well as an M.S. in Computer Science in 2006 here on the Island before going on to the University of Georgia to get his PhD in Geography.

He is currently a member of the North American Cartographic Information Society, the Association of American Geographers and the Cartography and Geographic Information Society. He won a Travel Award to the 25th International Cartographic Conference in Paris, France in association with the U.S. National Committee to the International Cartographic Association. His other awards include an Outstanding Teaching Assistant Award from the University of Georgia in 2008 and the Star Award from Lockheed Martin Space Operations, Stennis Programs in 2003, plus grant work, several publications, workshops, and conference presentations.

Continuing his work in the field, Smith’s latest publication, “Experimenting with GIS in Doing Damage Assessments: A Trial Run at Disaster City,” was published in the Journal of Homeland Security and Emergency Management in May of 2011.

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Dr. Richard Smith, Assistant Professor of GISC and GSEN

Student Spotlight:

JULIEN CLIFFORD

Research assistants Francesca Picarazzi (left) and Julien Clifford (right) work on “Transit Time!”, one of several mobile apps developed by the CBI.
Dr. Paul Montagna’s approach to science includes a conscious recognition that humans and the environment are intricately linked. His methods emphasize that science can be more successful by embracing the human component as part of natural landscapes.

Montagna is part of the Harte Research Institute for Gulf of Mexico Studies (HRI). He receives approximately $1 million in research funding each year to support his work assessing the short and long-term impacts of the Deepwater Horizon event on the Gulf of Mexico ecosystem.

“The approach here is not to just look at the natural science, but also to understand social science, integrating the two to find workable solutions for the future,” he said.

HRI brings together a number of researchers investigating different but interconnecting disciplines under the same roof. Montagna says this creates a synergy of effort not possible for researchers working alone and difficult for researchers working virtually through new media.

Montagna became a member of HRI in 2006 and focused his research around the study of freshwater inflows. He began researching the impact of the Deepwater Horizon oil spill because of the vast impact on the Gulf of Mexico. Montagna is the only researcher who collected data about deep sea sediments immediately following the spill.

“The spill had a significant impact on the bottom dwellers of the Gulf,” Montagna said. “The information we’ve found is now being used in the Natural Resource Damage Assessment (NRDA) process that will guide various legal actions against BP. I’ve given several presentations on the topic and have many papers going out for publication.”

Montagna’s research still involves the study of environmental flow issues. His research demonstrates that humans have changed the water cycle on earth to meet human consumption demands, and shifting the water cycle can result in unexpected consequences. Increased consumption is leading to changes in the course of rivers and coasts and is drastically affecting estuaries where salt water and fresh water meet.

The results of Montagna’s environmental flow research have been published in the book *Hydrological Changes and Estuarine Dynamics*. The book addresses the question of how much fresh water needs to flow to the coast to maintain estuary health.

Montagna’s research of the Deepwater Horizon oil spill and environmental flow issues are interconnected. Montagna said “The connection is the sediment. The bottom (benthic zone) is the memory of the ecosystem. Meanwhile, there are small animals filtering the water column 24/7. So, the bottom contains a record of everything that happens over time. We use the same indicators for both oil and water studies, because we look at the ecosystem from the bottom up.”
James Gibeaut, Endowed Associate Research Professor with the Harte Research Institute for Gulf of Mexico Studies (HRI), is coordinating the development of the Gulf of Mexico Research Initiative Information and Data Cooperative (GRIIDC). The GRIIDC is part of the Gulf of Mexico Alliance, a partnership among the five U.S. states surrounding the Gulf of Mexico: Texas, Louisiana, Mississippi, Alabama, and Florida. The partnership was created in 2004 to resolve issues impacting the health of the Gulf of Mexico.

The goal of the GRIIDC is to understand the effects of and methods for cleaning up oil spills.

GRIIDC encourages a culture of collaboration by connecting researchers and computer networking and storage technologies to develop methods for data sharing. Gibeaut described that as part of the overall mission, "We have to develop the culture and help researchers become comfortable with it."

The GRIIDC network operations center includes 100 terabytes of storage and backup and recovery systems. A duplicate system is housed in College Station as further backup. Systems architects and software engineers have been designing methods to track data, developing databases and creating programs to ensure data remains widely and publicly available.

"Right now, the greatest part of our effort is going into developing metadata information," Gibeaut said. "It needs to be checked for quality, accuracy and wide availability. We want the data catalog to be robust and keep it moving in near real time. This is a new idea, to track data as research is conducted."

More than 1,000 investigators at more than 100 universities are contributing to GRIIDC so far. One of the greatest challenges Gibeaut and his team face involve developing the data warehouse because of the diversity of data and formats. The GRIIDC includes a wide variety of disciplinary research data, from lab chemicals to large scale physical oceanography, marsh ecology and deep sea benthos studies. Data formats collected include video, photographs, digital data and print data. The data has been acquired through various standards of measurement and data collection tools and includes potentially mismatched terminology.
The new Harte Research Institute Center for Sportfish Science & Conservation (CSSC) was established with a $500,000 pledge from the Coastal Conservation Association (CCA)-Texas. Dr. Greg Stunz is the Executive Director of CSSC and Endowed Chair for Fisheries and Ocean Health at the Harte Research Institute. The center focuses on research to help fishermen and the community by assessing key Gulf of Mexico ecological and conservation issues.

Through the Center, Stunz and his research team are currently implementing several projects integral to the conservation of sportfish resources in the Gulf. One such project is “TEXAAN”, an acoustic array network capable of tracking movements of marine life along the Texas coast.

Other projects include a four year study that examines how reef fish interact with artificial reef habitats in the Gulf of Mexico. Red snapper management strategies are being developed using advanced data collection methods such as retrieving data with the “iSnapper” mobile application.

The Harte Research Support Foundation pledged $300,000 for a new 36 foot Yellowfin offshore research vessel and other required equipment to further support the research mission of the Center. The scientific discoveries of the CSSC will help local recreational fishermen across South Texas, legislators and scientists from across the Gulf of Mexico regions with planning from economic, environmental and recreational standpoints. Research programs also support efforts to conserve sportfish habitats and improve the ecosystem of the Gulf waters.

Multi-view of the remotely operated vehicle being sent into the water and in action while underwater
Beneath the surface of the water at several manmade sites within the Gulf of Mexico exists a colorful world with thriving marine life populations that can, arguably, be deemed an underwater wonder of the world.

These structures such as decommissioned oil rig platforms can potentially become habitats for fish communities that are crucial to the Gulf’s ecosystem and surrounding local economies. The Center for Sportfish Science and Conservation (CSSC) seeks to provide answers of how artificial reef structures from oil and gas platforms can be best managed as sportfish habitats.

Dr. Greg Stunz, Executive Director of CSSC and Endowed Chair for Fisheries and Ocean Health at the Harte Research Institute, and his research team are interested in how reef fish interact with artificial habitats at different locations. Their study will provide scientists with a better understanding of artificial habitats provided by platforms at different depths, distances from shore, complexity and numbers of structures. The Texas Parks and Wildlife Artificial Reef Program is providing funding for the project.

The project is expected to last four years with a specific plan of action for the research. Initially, Stunz will gather information by establishing baseline attributes and surveying fish communities using fish census methods.

During the next phase of the study, researchers will analyze fish species and their abundance at 15 different artificial reef sites. These sites will be sampled using techniques such as the gathering of samples with a VideoRay Pro4 remotely operated vehicle (ROV), SCUBA diving and vertical longline fishing.

In the final phase, several of these artificial reef sites will be evaluated in greater detail by testing hypotheses and scientific questions that are proposed. In detail, Stunz and his team will analyze vertical distribution patterns of fish, seasonal patterns of each species at the selected sites and determine how water depth, complexity of the site and distance from shorelines affect species abundance and richness.

By gathering all of the research data, the CSSC plans to provide artificial reefs with optimal structure conditions for fishing communities. In adding to increasing efficiency in conservation efforts, this information will provide the CSSC, local fishermen and the scientific community with new knowledge of the behavior of these reef sites previously thought to be used exclusively for human purposes.
Harriet Nash, a PhD fellow and researcher at the Harte Research Institute for Gulf of Mexico Studies (HRI), is dedicated to preserving the Gulf of Mexico through policy work and a unified approach to science. Her interest in marine sciences began when she went scuba diving with her dad at the age of 13, eventually leading her to achieve a doctoral degree in Coastal and Marine System Science this past summer.

Nash joined HRI in August 2010 after being attracted to the Harte model, which consists of interdisciplinary collaboration among sciences, policy and socioeconomics to promote protection of our local ecosystem. The Harte model also includes tri-national collaboration with Mexico and Cuba to protect the Gulf of Mexico.

Throughout her studies, Nash has worked to preserve the natural resiliency of the Gulf by conserving biodiversity and protecting ecological connectivity and biodiversity hotspots. She focuses on the policy work needed for the three countries to sustainably manage shared ecosystem resources including fish, oysters and coral reef habitats.

Nash and other researchers work to better understand the routes and patterns of invasive Gulf species such as the lionfish. Nash’s dissertation research focused on developing workshops and programs shared by the United States, Mexico and Cuba to control invasive species and coordinate research on other shared issues through the Gulf of Mexico Marine Protected Area (MPA) network.

While developing the MPA, Nash worked to understand the features of the Gulf of Mexico and the legal systems and governments of the three countries.

“This line of work is rewarding and was a great learning experience. I hope the network becomes officially recognized by the federal government, allowing the three countries to come together to save the Gulf of Mexico,” Nash said.

Nash encourages the community to volunteer or get involved in organizations to help our ecosystem. “It’s about the public outreach component, awareness and education to inform people about our ecosystem and how they can help,” Nash said.
What does it take to be one of only seven projects to win a stipend from the prestigious Encyclopedia of Life (EOL) Rubenstein Fellows Program? Dr. James Simons, Associate Research Scientist at the Center for Coastal Studies, knows.

EOL’s mission is to provide global access to knowledge about all life on Earth through a single, open-sourced and actively curated website. It was a natural step for Simons, who was already working on placing all Gulf of Mexico species interaction data on the web.

Working with software engineers Jorrit Poelen and Robert Reiz and bioinformatist Dr. Chris Mungall, the team is attempting to visualize and analyze complex species interaction networks such as food webs in the Gulf of Mexico. “The goal is to take our species interaction data that we’ve collected and make them available to Encyclopedia of Life data and content to really unleash EOL data sets and global biotic interactions,” Simons said.

According to Simons, his project really took off when he met Poelen at an Ecological Integration Symposium at Texas A&M University-College Station, where Poelen was giving a presentation on visualizing large datasets. “I thought it was a pretty neat approach, but I didn’t think it would work for the complex data I was working with,” Simons said. “When I talked with him, he challenged me to give him some of my data and in 20 minutes, he came back with a really nice visualization of it.”

Simons and Poelen and numerous other colleagues have worked to create the Gulf of Mexico Species Interactions (GoMexSI) database and website (at http://gomexsi.tamucc.edu/) with support from the Gulf of Mexico Alliance, NOAA, and NatureServe.

For his latest project, Simons will be making species interaction information such as predator prey, symbiosis and parasitic relationships available through the Encyclopedia of Life website as well. Simons has also been involved in authoring a bibliography of references to Gulf of Mexico fish diet data that will be published by Harte Research Institute as an ebook, and a GLO Coastal Management Program project on which he is assessing mercury levels in the food webs of spotted seatrout, black and red drum.

The Center for Coastal Studies and the Center for Water Supply Studies have been busy trying to discover what’s going on in the waters of Corpus Christi Bay. Brien A. Nicolau, Assistant Director, and Erin M Hill, Research Associate, of the Center for Coastal Studies, and Rick Hay, Assistant Director of the Center for Water Supply Studies were awarded funding from the Texas Commission on Environmental Quality (TCEQ) starting in 2011 to investigate elevated levels of enterococcus bacteria in the water at two public beach parks along Corpus Christi Bay.

Most of the area beaches are routinely monitored by the General Land Office as part of the Texas Beach Watch Program. Based on the number of Beach Advisories issued, data assessment indicated bacteria concentrations were higher (>25% of the days sampled) at Cole Park and Ropes Park beaches. High concentrations of bacteria may indicate a health risk to people who swim or wade in a water body—activities called “contact recreation” in the state’s standards for water quality.

According to Nicolau, beaches along Ocean Drive have a greater risk in that they exist within the heart of a city. As urban beaches, they face greater challenges as a result of municipal stormwater runoff. With the goal to reduce bacteria levels in order to protect people who swim at the beaches, Texas A&M University-Corpus Christi scientists and the Coastal Bend Bays Foundation are working together on data collection and modeling, outreach, public implementation plans, best management practices and city policies. Project personnel have been collecting additional water-quality data over the past three years under ambient conditions and after rain events and are working on identifying all possible sources of bacteria to achieve a management solution.
Written in Mud—the Nueces Bay Zinc Legacy Project

The Center for Coastal Studies, the Earth System Science Laboratory and the Sediment Analysis and Radioanalysis Laboratory at the Conrad Blucher Institute are engaged in a collaborative study to investigate whether the sediments of Nueces Bay hold a legacy zinc contamination layer.

The project was funded by the Coastal Bend Bays & Estuaries Program because oysters in Nueces Bay have high levels of zinc that exceed the State of Texas’s criteria limit.

According to Brien A. Nicolau, Assistant Director of the Center for Coastal Studies, and Principal Investigator of the ongoing multi-year Texas Commission on Environmental Quality (TCEQ) funded Nueces Bay Zinc Total Maximum Daily Load (TMDL) project, “the Legacy Project adds a new dimension to finding a possible management solution to this public health concern”.

“Nueces Bay received effluent from the Asarco zinc smelter plant on the south shore of the bay while the plant was in operation from 1942-1985. Even though the plant has been shut down for nearly three decades, the oysters still have high zinc concentrations,” stated Erin M. Hill, a Research Associate with the Center for Coastal Studies and the Principal Investigator of this project. “If a legacy zinc contamination layer is present in the sediments at the bottom of the bay, it may get reactivated when the water gets turbulent like during a storm or from high winds.”

The project is focused around sediment cores of mud taken from the bay bottom which serve as an environmental history book for the area.

Dr. Mark Besonen, also a Principal Investigator and Director of the Earth System Science Laboratory, noted while this specific project is focused on zinc, the sediments also hold information about other things like droughts, the variability of freshwater inflows, algal blooms and potentially catastrophic events like hurricanes.

“Sedimentary records let us look back in time, even long before the first European explorer set eyes on Texas. If we want to protect and restore the health our coastal water bodies, we really need to understand the natural variability and true baseline conditions for these systems prior to modern disturbance,” he said.

The sediment cores will be dated using Cesium-137 and Lead-210. This dating work is being conducted by Dr. Philippe Tissot, Director of the CBI Sediment Analysis and Radioanalysis Laboratory.

“This project was instrumental in acquiring a new detector system to make this dating work possible. We are thrilled that Texas A&M University-Corpus Christi now has this dating capability, and it will be a great resource for many other projects in the future,” added Hill and Besonen.
Chasing Bacteria in the Water

Rick Hay, assistant director of Water Supply Studies, has been working on a series of projects on Oso Creek to identify the source of high bacterial counts in the water. The creek has more than its total maximum daily load (TMDL) of a specific type of bacteria. “You can enter the numbers that come in from the environmental microbiology lab and the model will tell you what a safe load is, what the current load is and the general area of source,” Hay said.

Hay has been working with Brien Nicolau, Assistant Director for the Center for Coastal Studies, as part of a contract with Texas Commission on Environmental Quality (TCEQ) for just such research. What is not in question is whether the creek is contaminated. What remains unknown is just how contaminated it is and where the contamination is coming from.

According to Hay, trying to discover the source was one of the biggest challenges in this project. Scientists continued to discover more contributing factors as the project ensued.

“We found high concentrations of fecal bacteria coming from agricultural areas,” Hay said. However, this area does not have enough livestock to account for all the bacteria nor does the bacteria originate from fertilizers.

The bacterial load in the creek seemed to be increasing without input. Scientists tested for ground water inflow that could be affecting the surface water bacteria and ruled out that possibility. They sent students walking and kayaking up the creek documenting locations of inflow and testing for bacterial load, ruling that out as well. Ground water overall showed a low probability as the cause.

“We did find some flows that came out of residential areas that carried bacterial inflow,” Hay said, “but it wasn’t enough to explain the load in the creek.”

In addition, it was determined that human waste contributed less than 8% of the load. The best theory so far, according to Hay, is that bacteria from birds, wildlife and livestock remains living in the soil until it is washed into the creek.

“We found out that the bacteria can survive in the soil for several days in warm weather and as much as a month or more in cold weather,” he said. “All it needs is a little bit of moisture to keep it alive and in Texas, there’s a lot of clay, so there’s a lot of moisture available.”

Some Much-Needed Attention for Colonias

While Rick Hay has been tracking down bacteria sources in our waterways, he has also been working to improve conditions for the colonias located around the Corpus Christi area.

Colonias usually lack city infrastructure, operating with cesspools and outhouses rather than running water or sewer services. Drilling wells and putting in septic systems is frequently too expensive for individual homesteads.

According to Hay, the groundwater in these areas tends to have high levels of arsenic, radon and fluorides, exceeding Environmental Protection Agency (EPA) standards. While a single glass of water will not harm you, Hay said there is a possibility that drinking this water for years could increase individuals’ chances for certain types of cancers or other illnesses.

Working with the Nueces County Colonia Initiative, the United States Department of Agriculture, County Commissioner, Texas Commission on Environmental Quality (TCEQ), local water suppliers, UT Health Science Center, the Kingsville pharmacy program, Council of Governments, and the Regional Transit Authority, Hay has been exploring means of bringing better water, infrastructure, and health to the colonias.

Some solutions have been attempted. Residents in the Cindy Park 1 colonia worked together to share a well among less than 8 houses, defraying the expense among many. A similar approach was used in Cindy Park 2, providing water to 16 houses, but this size qualifies it as a public water supply, governed by state and federal regulatory standards. The well was unable to meet those standards.

After extensive testing, Hay found most of the available water in the area exceeds EPA standards. Having reported his findings to TCEQ, he has been helping the community discover other options.

“We have discovered a deeper aquifer that has better water quality, but drilling another well is too expensive and installing a treatment system would require them to hire someone full-time to maintain it,” he said.
National Spill Control School (NSCS)-trained oil spill response teams are among the best-trained in our community, regionally and across the state and nation in part due to contributions made by BP to the Island University.

“The NSCS truly has the best equipment in the world to teach and it is ready and available for use should there ever be a local emergency,” Tony Wood, Director of NSCS, said.

Contributions include a 30 foot skimmer vessel capable of removing and storing up to 1000 gallons of recovered oil and transferring it to another vessel at a rate of 250 gallons per minute, approximately 4000 feet of containment boom, 11 laptops, three skimmers, generators, pumps and other assorted items.

Wood believes luck was a big factor in receiving the mostly unused equipment valued at nearly $500,000 when a suggestion to BP during the 2011 Clean Gulf Conference resulted in a donation.

“We were at the right place, at the right time, asking the right questions,” Wood said.

The university paid approximately $2,800 for the beneficial contribution, a fraction of the depreciated value and BP continues to support the Island University, paying more than $14,000 for boat maintenance and donating hundreds of thousands of dollars worth of scientific equipment.

Several organizations aided in preparing the vessel for use including the US Coast Guard, the Corpus Christi Municipal Marina, the Coastal Bend Bays & Estuaries Program and, of course, BP.

“It was the collaboration between these organizations and Texas A&M University-Corpus Christi that helped to make this contribution a reality,” Wood said.

Some of the contributed BP equipment will be stored at the Corpus Christi Marina where students and staff will have easier and quicker access to spill response equipment during classes or an actual emergency.

Since the 2010 Deepwater Horizon oil spill, the NSCS has offered more than three times as many oil spill, hazardous material (HAZMAT) and emergency management courses on a yearly basis; something that provides a sense of pride for Wood.

“As the NSCS and Texas A&M University-Corpus Christi continue to grow, we want to let everybody know that we are an integral part of the Corpus Christi emergency response community,” Wood said. “We are an asset to the entire local community and our courses attract hundreds of national and international attendees each year. The BP equipment contributions enhance our capacity to provide excellent hands-on instruction.”

The skimmer vessel being viewed on the Corpus Christi Marina in 2012
Rachel Fern, Graduate Assistant through the College of Science and Engineering, is researching how available oil spill dispersants used in the field affect ecosystem health as well as how effective they really are in cleaning up the mess. Her efforts have been significant enough to win the James D. Watkins Student Award for Excellence in Research at the Gulf of Mexico Research Initiative (GoMRI) conference last winter.

Fern said she wanted to understand the baseline toxicity of the most common dispersants used during the BP oil spill cleanup efforts and how that compared with naturally and manually degraded oil in seawater.

“MicroBlaze is a surfactant and consists of a concentrated form of microbes already naturally existing in the water column,” she explained. “It is commercially produced and used as a dispersant in a number of cases, usually in terrestrial [land-based] spills.”

During her preliminary research, Fern discovered that there hasn’t been a lot of testing conducted on the various dispersants available, including MicroBlaze. She wanted to know if MicroBlaze could be effectively used as a microbial bioremediation agent in the case of spills.

Phase 1 of her research established the baseline toxicity of two of the most commonly used dispersants, Corexit 9500 (C9500) and Corexit 9527 (C9527), as well as MicroBlaze. She tested each alone and in combination with crude oil on the blue crab, which has a key phase transition during development that provides additional biological information beyond just live or dead.

Results indicated the most toxic combination possible was that of crude oil and C9527 dispersant. Depression of development also occurred with C9500, but it was not as severe. MicroBlaze, however, was not toxic and did not cause mutations or delayed development in the crabs.

These results encouraged Fern to pursue the second phase of her research, which was to understand if there were any impacts, positive or negative, to adding MicroBlaze to marginally dispersed oil. By ‘marginally dispersed oil,’ she means oil that has already been treated with low, but still toxic levels of either C9527 or C9500.

“The main idea was that the MicroBlaze might be used as a bioremediation agent since it contains naturally existing microbes that help degrade oil in the water column,” she said.

Her research showed that the most effective treatment was to mix MicroBlaze with C9500. After 24 hours, she discovered that this combination reduced mortality of the crabs by 95% as compared to other treatment combinations. This compared to only a 65% reduction when the oil is allowed to degrade in the seawater with no added microbes. The addition of MicroBlaze also decreased the likelihood of delayed development in most treatments.

Further research needs to be conducted, and Fern said she will be seeking research funding to continue her work.
COMMUNITY OUTREACH

Ensuring Readiness for Success

For students graduating from high school or college, University Test Prep offers solid, intensive test preparation courses to prepare students for standardized entrance exams. For high school graduates, University Test Prep offers a multi-week SAT prep course during the academic year that reviews math, critical reading and writing. The course is also offered in a summer institute format. For college graduates, the department offers test preparation for the GRE, the GMAT and the LSAT.

Deanne Hubenak, Business Coordinator, manages the Test Prep program. She says the outreach program, funded entirely by registration, provides a very important component in higher education.

“Our goal with the Test Prep program is to provide students with the preparation to perform successfully on college entrance exams,” Hubenak said. “For our college graduates in particular, we want to be as helpful as we can in coordinating the resources to prepare them to take graduate school entrance exams. We have served them throughout their undergraduate years. We should set them up for success.”

Local contractors teach courses, and all instructors have earned a PhD in their respective fields of studies. Only in its second year, the program attracts students using grassroots advertising. Flyers and posters hang on campus bulletin boards for the graduate level exams, and letters are mailed to high schools in the area promoting the service.

Hubenak said the program especially helps with recent graduates who have been away from the classroom for a few years; and older graduates who are seeking to return to an academic environment. She believes the test prep program is a resource that rests at the very core of Community Outreach.

“It is extremely important to support our students and to support our community members who are looking to return to an environment of learning and higher education,” she said. “We prepare them for the next academic endeavor. Because we understand that college entrance exams and graduate entrance exams are usually the first steps on a long journey, we help them take those first steps - and to be successful.”

Workforce Development

The Community Outreach Workforce Development program trains educators and skilled workers for the fields of the future and sharpens skill sets for today’s in demand careers.

Through a unique partnership with the Texas Education Agency, the Workforce Development program reaches out to educators, professional school counselors and administrators to train them in the successful implementation of relevant and on-trend Career Technology Education (CTE) Programs.

For CTE teachers, the New CTE Teacher Conference targets educators who have been teaching CTE classes for less than four years. Teachers are invited to attend a three-day conference where they participate in workshops that address subjects like the Texas Education Knowledge and Skills (TEKS) standards for Career and Technical Education and effective training for high-demand jobs. For administrators, the partnership offers the CTE Leadership Academy; a rigorous three-phase, nine-month professional development program that targets individuals responsible for implementing CTE programs at the campus or district level. A similar program is offered for counselors, The Professional School Counselor Academy, that focuses on providing high quality academic counseling and career guidance to students. Both academies include a speaker symposium that brings TEA staff, Regional Education Service Center CTE specialists and influential leaders in the industry to talk about current issues like workforce globalization; workforce trends; leadership and special populations, just to name a few.

Workforce Development also offers online Continuing Education and professional training for industries unique to the Coastal Bend. One program works with the Corpus Christi Army Depot (CCAD), located on the Naval Air Station Corpus Christi. One of the largest employers in South Texas, CCAD sends its mid-level managers through 120 hour Business Acumen training sessions that teach business administration, project management and operations management.

Jim Needham, Dean of Community Outreach, said that the department, under the direction of Carole Moody, Director of Workforce Development, was one of the original components of Community Outreach that started in 1993.

“The idea of Workforce Development is to serve the community with continuing education and training opportunities,” Needham said. “We work with local workforce agencies, and they have lists of high demand jobs. Our online career development programs provide the training to teach those skills.”

“Danell Reilly is working with Workforce Development Boards across the State to link Outreach’s online training programs to in-demand occupations, making programs eligible for funding through the Workforce Investment Act.”
Youth Outreach

While most college level students leave the University for summer break, younger students from around the state converge on the University’s campus for more than 40 summer camps in disciplines such as sports, art, band and writing. Youth Outreach oversees summer camps that zees more than 2200 school age children and teenagers annually to the University environment, allowing them to experience a bit of college life and the campus atmosphere.

Joe Miller, Director of Education and Youth Issues, extends the University’s efforts by offering unique outdoor summer camps funded through private underwriting. Kayaking camps bring underprivileged youth to campus where they participate in introductory kayaking courses in the University athletics pool. Next, they take the boats on paddle trips through the natural habitats around campus; local fish hatcheries or to nearby Mustang Island State Park.

Outreach offers unique outdoor programming to the general public as well, with field-based open enrollment classes in kayaking, birding and saltwater fly fishing, for example. These experiences give people in the community the opportunity to learn about the richness of the coastal environment from respected experts in the field.

Miller also offers specialty camps for young students, like the LEGO Collision Cars Camp. Children ages nine to twelve meet for one week to use LEGO parts to learn the fundamentals of simple and complex machines and applied physics. The week ends with a competition where battery-operated LEGO cars, built by the campers, battle it out to race, flip and crash. Miller developed the camp in response to multiple requests for a program that engaged the science-minded child.

“The Youth Outreach summer camps program is a way for the University to connect with youth at a pretty important age,” Miller said. “These programs in the summer allow kids to find out what they can expect to learn when they get to college. For a lot of these kids, it’s their first time on a university campus.”

Miller believes that the more a child is familiar with a college campus, the more likely that child will seek a higher education. The Elite Islander Dual Credit program, also under Miller's direction, allows high school juniors and seniors to take college level classes for college credit and earn everything else that comes with credit hours. Students must register online; arrange transportation to and from class; attend classes and live the life of a college student – all after high school classes end for the day. Students are not taught in private sections, nor do they gain special privileges.

According to Miller, it’s the best way to recruit Islanders.

"We have to interest these kids and captivate them when they are young. The more they see what they can learn and experience in college, the more excited they will be to obtain a college degree."

Pollution Prevention

In 1995, The Pollution Prevention Partnership, or P3, was born in an effort to help small businesses and the community do their part for the environment. Today, P3 primarily focuses on helping both individuals and businesses lessen their carbon footprint through vehicle emissions testing.

The major components of P3 are the Autocheck and CleanFleet vehicle emissions testing programs. Autocheck is designed to cater to the general public by hosting events where individuals can have the emissions levels of their cars tested at no cost to them. “Tailpipe Tuesdays” are held twice a month on the University campus to determine whether a vehicle is running “clean.” Every emissions test also includes testing of the car's gas cap. A leaky gas cap can cause both the vehicle operator money through evaporation of fuel and unnecessary emissions into our environment. After testing, if a vehicle is found to be polluting it may quality for a voucher for a repair, depending in the availability of funding. CleanFleet’s major focus is forming relationships with local fleet owners and providing them emissions testing at no cost to help them ensure they are getting as much as they can from their vehicles while still being mindful of maintaining our air quality.

“Thirty percent of the emissions in our area come from mobile sources, or our vehicles”, said Christina Cisneros-Guzman, Program Manager for P3. “In a time when every community member is trying to find ways to preserve our environment, we are happy to provide this testing to ensure the vehicles on our streets are running as efficiently as possible.”

What’s next for P3? “Lots of things!” Cisneros-Guzman said. “The advances in the work we do are ever changing and we want to be a part of it.” One of those things is forming a Clean Cities Coalition. Clean Cities is a national project that promotes the use of clean and alternative fuels. The Coastal Bend will become the fifth Clean Cities Coalition in the state of Texas and only the second to participate in the Clean Cities National Parks Initiative.

Plans are being laid and ground is being covered. One thing is certain, P3 is here to do their part to make sure the air we breathe is as clean as possible.
The Island University, highly regarded as one of the most innovative campuses in the nation, continues its trend of progressive and exciting projects on green energy, such as wind turbines and the recent installation of solar panel arrays.

A low maintenance, 100 photovoltaic panel solar array, funded by a $75,000 donation from the Green Mountain Energy Sun Club and capable of producing 30,000kWh of electrical energy, was mounted on the roof of the Engineering Building this past year and officially switched on in early fall 2013.

This is the second solar array to be installed in a Texas A&M University-Corpus Christi affiliated building. The Art Museum of South Texas received a grant, also funded by Green Mountain Energy, for a solar array on Earth Day 2011.

In addition, there are currently eleven wind turbines distributed among three university locations in the city: three large 20 kilowatt (kW) turbines and one 4kW turbine on the main campus, three 4kW turbines at Momentum Campus, and four 4kW turbines along the parking lot of the Coastal Bend Business Innovation Center in Flour Bluff.

“The wind turbine project is an exciting opportunity to show how the university is emerging as a leader in renewable energy,” said Flavius Killebrew, Texas A&M University-Corpus Christi President. “This initiative will not only provide students and faculty with excellent learning and research opportunities, but will open doors for future generations who want to pursue this green technology.”

Yearly energy production is estimated to be 48,000 kilowatt hours (kWh) from each of the 20 kW turbines and 9,600kWh from the 4kW turbines. The average home in the United States uses approximately 10,000kWh of electricity each year. Winds must be steady at 15-16 miles per hour (mph) to achieve maximum output, making the shoreline terrain an exceptional location.

The wind turbines also have weather monitoring stations in their areas.

“The long term goal is to get meter readings for all wind turbines and solar panels in order to see how much energy is being saved,” Michael Cornachione, Energy Conservation Coordinator, said.

Although the uses of wind turbines and solar panels alone are not significant enough to meet the University’s future energy demands, they can provide an excellent form of research, promote awareness of viable energy alternatives available and alleviate some of the campus’ energy demands.

Four Hydration Stations Located Across The University Promote Reduced Plastic Water Bottle Waste

Thanks to one student’s proposal to help the Island University go green, many Islander students, faculty and staff are utilizing recently installed hydration stations and preventing nearly 22,000 plastic water bottles from ending up in local landfills or bays.

The four hydration stations, located at the Student Welcome Center, Corpus Christi Hall, the Physical Plant building and the Conrad Blucher Institute, are part of the green initiatives on campus.

Former environmental sciences major Evan Paret proposed the idea to the Student Government Association where it was passed and eventually implemented by the University.

“I’m always looking for new ways to improve the environment,” Paret said. “I was aware of similar projects taking place at other universities, so I decided to do some research. I quickly learned that hydration stations are a good investment.”

The hydration stations operate by placing a bottle in front of a motion sensor. The station fills the bottle for 30 seconds unless the bottle is removed from the sensor’s range. Each refilled bottle is recorded on a green screen located near the top of the station, indicating how many 16 ounce bottles have been saved.

To view more about green initiatives occurring on campus as part of the Islander Green program, or to submit green ideas, visit http://islandergreen.tamucc.edu.
Faculty and staff members were recognized with Excellence Awards during the 16th and 17th annual Islander Awards Celebrations, held on April 27, 2012 and April 19, 2013:

The Excellence in Scholarship/Creative Activity Award is presented to faculty members who participate in scholarly/creative activities, provide models for fellow faculty and encourage all faculty to continue conducting and improving scholarly/creative work.

*Dr. Matthew McClung,* Assistant Professor of Percussion in the College of Liberal Arts- 2012 Excellence in Scholarly/Creative Activity Award

*Dr. Magesh Thiyagarajan,* Assistant Professor in the College of Science and Engineering- 2013 Excellence in Scholarly/Creative Activity Award

The Excellence in Teaching Award is given to a faculty member who has demonstrated excellence in teaching within the university classroom and who has shown a genuine concern for students outside the classroom.

*Dr. Janis Haswell,* Professor of English in the College of Liberal Arts- 2012 Excellence in Teaching Award

*Dr. Karen Paciotti,* Associate Professor in the College of Education- 2013 Excellence in Teaching Award

Texas A&M University-Corpus Christi presents an annual “Excellence in Service” Award for a faculty member who has contributed to the success of the University through service to the University, to the community and to the profession.

*Dr. Elizabeth Sefcik,* Professor in the College of Nursing and Health Sciences- 2012 Excellence in Service Award

*Dr. Charles Etheridge,* Associate Professor of English- 2013 Excellence in Service Award

Texas A&M University-Corpus Christi presents an annual “Excellence in Librarianship” Award for a professional librarian who has demonstrated excellence in the practice of librarianship. The award recognizes a librarian who has made an outstanding contribution to the Library, to the University or to the Library Profession in any aspect of librarianship.

*Jennifer Anderson,* Catalog Librarian at the Mary and Jeff Bell Library- 2012 Excellence in Librarianship Award
**Annual Proposal Production**

- Amount requested per proposal submitted vs. proposals count.

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</tr>
<tr>
<td>2012</td>
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**Proposal Submitted Vs. Award**

- Percentage of proposals submitted vs. awarded.

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<tr>
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**Total Sponsored Projects Awards for the last 5 Years**

- Total sponsored projects awards for the last 5 years.

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</tr>
<tr>
<td>2012</td>
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**Annual Direct Sponsored Project Expenditures for the Last 6 Years**

- Annual direct sponsored project expenditures for the last 6 years.

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<thead>
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<td>2011</td>
<td>$7</td>
</tr>
<tr>
<td>2012</td>
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Total Sponsored Projects Awards by Funding Type for FY12

- Federal: 9.73%
- Federal P/T: 16.87%
- Local: 44.60%
- Private: 19.62%
- State: 9.18%

Unit Comparison Total Sponsored Project Award by College for FY12

- College of Business: 8.61%
- College of Education: 6.59%
- College of Liberal Arts: 5.37%
- College of Nursing: 20.15%
- College of S&E: 20.38%
- HRI: 0.99%
- Title V: 1.83%

Total Sponsored Projects Direct Expenditures by Functional Category for FY12

- Instruction: 59%
- Research: 19%
- Public Service: 7%
- Academic Support: 3%
- Student Service: 1%
- Institutional Support: 1%
- Scholarships & Fellowships: 9%

Annual Restricted Research Expenditures for the Last 6 Years

- 2007: $250
- 2008: $-10
- 2009: $10
- 2010: $11
- 2011: $15
- 2012: $35

Source: [www.thecb.state.tx.us/reports/xls/1260.xls](http://www.thecb.state.tx.us/reports/xls/1260.xls)