



The Coastal Current

Issue 3 | Spring 2019

Cover Story

Exploring the deep: The hidden
human impact on deep sea
ecosystems | p. 8

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On the Cover: Deep sea pagoda and hydrothermal vent in the Guaymas basin in the Gulf of California (Photo courtesy of Schmidt Ocean Institute.)

“The Coastal Current” is a newsletter designed to educate the CCU community about the events and initiatives taking place within the School of the Coastal Environment.



School of the Coastal Environment: News and updates

- CCU marine science professor Robert Young, Ph.D., was named interim dean of Coastal's new College of Graduate Studies and Research. Young is best known on campus for his teaching in the marine science department, his leadership of undergraduate research, and his personal research on bottlenose dolphins.
- Former associate provost and director of graduate studies James Luken, Ph.D., began his new role as associate dean of the College of Science in January 2019. Luken, who received his Ph.D. in botany from Duke University, has served the CCU community in numerous leadership roles in both the biology department and graduate program.
- The SCE welcomes new graduate coordinator, Cobi Christiansen. Christiansen, a former adviser in the College of Science, earned a B.S. in marine science at CCU and an M.S. in marine science at UNC Wilmington. Christiansen has taken on the role of graduate coordinator following the departure of Karen Fuss.

*Congratulations to the Spring and Summer 2019 graduates!**

Spring Graduates

John (Andrew) Crance, M.S.
Madisen Keyes, M.S.
Lorenzo D'Angelo, M.S.

Hunter Pates, M.S.
Elise Pullen, M.S.
Kaley Towns, M.S.

Summer Graduates

Nicholas Legut, M.S.
Leigha Peterson, Ph.D.

**Due to the timeline of release and vast number of students, marine science spring and summer undergraduates will be formally announced in the Fall 2019 issue.*

Leigha Peterson's graduation marks the first Ph.D. to be conferred at Coastal Carolina University. Peterson, who served as the Spring 2019 commencement speaker, will also be the first person to graduate with a B.S., M.S., and Ph.D. from CCU. At commencement, Peterson announced she has accepted a position to serve the United States in Washington, D.C., working on matters of national security. We couldn't be prouder of this Chanticleer!

(Photo by CCU photography.)



CCU alumnus works to create a sustainable oyster farm in South Carolina Lowcountry

Thomas Bierce '12 first came to South Carolina in 2005 through a Semester at Sea program in high school, eventually landing at CCU to major in marine science. While at Coastal, Bierce conducted undergraduate research and went on several school-led expeditions, such as Professor Erin Burge's coastal ecology trip to Jamaica.

After graduating in 2012 with a B.S. in marine science and coastal geology and a minor in Spanish, Bierce spent some time traveling. Eventually, Bierce moved to Folly Island, S.C., where he began working in marine construction, salvaging and repairing boats, fixing and building docks, and doing commercial diving. Today, Bierce, along with his brother Peter and sister-in-law Caitlin, run Charleston Oyster Farm—the only working oyster farm in the area.

So how does one go from working as a commercial diver to farming oysters? To answer that, you first need to understand the history of Folly Island. In the 1960s, the area was used heavily by the shrimping industry. But the combination of hurricanes, overfishing, limited dock space, increasing diesel prices, and out-of-state competitors forced the collapse of the shrimping industry in South Carolina.

Today, only rusted rail lines remain that elude to the once-thriving shrimping industry in Folly Island.

In 2016, Bierce began Charleston Oyster Farm, later joined by Peter and Caitlin. Starting with one cage of local seed, they are now permitted for 96 bottom cages. The cages hold seed, or “baby” oysters, that grow by filtering in the flowing water through the cages. The unique taste of the oysters is influenced by the conditions of the filtered water and sediment, due to their location near Strono inlet.

In addition to farming tasty seafood, the oyster farm improves the water quality. Bierce explained that farm oysters clean the water, take pressure off wild oysters, sequester carbon and nitrogen, and create shell and substrate. Because the seed oysters are reared in a hatchery, nothing is taken from the wild. The oysters are the reef, and their shells create the habitat. Bierce is also an outspoken advocate for shell recycling.

Today, Bierce partners with the College of Charleston where Caitlyn is a professor of geology. She developed an applied aquaculture course for graduate students to learn about different growing methods and factors to consider when growing shellfish. Students get experience using the lab at Charleston Oyster Company's maricultural site. The Charleston Oyster Company is also working on permits to expand the operation into floating cages.

As the oyster farm grows, the Charleston Oyster Company continues its commitment to the environment and fostering the ecological benefits of more oysters in the area.

-Kaitlin Dick

For more information about the Charleston Oyster Farm
Tom recommen



“Our mission (besides rejuvenating your taste buds) is to promote healthy ecosystems, environmental awareness, and local mariculture, while restoring the ever-fading working waterfront along the Southeast.”

-Charleston Oyster Farm



Pictured from top-left to bottom:
Stacks of oyster cages set to be deployed; Remnants of destroyed docks in the area; Bierce taking one of the boats out to retrieve cages ready to be harvested.

(Pictures courtesy of Kaitlin Dick.)

For more information, visit charlestonoysterfarm.com. Additionally, for more information on the environmental benefits of oysters, check out The Billion Oyster Project at billionoysterproject.org.

Living with intention: Lisa Swanger's mission to ec



Swanger kayaking on the Waccamaw.



Swanger using an interactive model to present to OLLI students about stormwater/upstream pollution inputs.

Lisa Swanger first came to Coastal Carolina University in 2014 after earning her master's degree in marine resource management from the College of Earth, Ocean, and Atmospheric Sciences at Oregon State University. Swanger is interested in the human dimension of coastal and marine conservation, particularly outreach and education. When she learned about an opening with the Coastal Waccamaw Stormwater Education Consortium (CWSEC), it seemed like the perfect next step for her career. She now works as the Coastal Waccamaw Watershed Education program coordinator.

The CWSEC was established in 2004 to assist local governments in meeting permit requirements for stormwater education and public involvement under the National Pollutant Discharge Elimination System Phase II permit program. Part of what the consortium does is bring together local government members and core education providers to develop and implement activity plans for the upcoming calendar year. Activities include K-12 stormwater presentations, media and outreach materials, volunteer water quality monitoring, cleanups of rivers and beaches, and more.

An important part of Swanger's job is ceating successful outreach programs that reach audiences concerned about our coastal environment. She also collaborates with other programs, members of the public and members of the scientific community to put on public engagement events. A successful event builds connections with the audience to the topic as it relates to them and promotes further engagement.

One such event is the annual Waccamaw Conference. Recently, the Waccamaw Conference titled "The Journey of Trash: Pollution to Solution" was held on Feb. 9, 2019, at the Horry County Museum in Conway, S.C. It was put on in collaboration with the Waccamaw RiverKeeper®, North Inlet-Winyah Bay National Estuarine Research Reserve and Horry County Museum. Audience members listened to experts speak about the dangers of pollution and how it relates to them. Stefanie Whitmire, Ph.D., of the Clemson Baruch Institute of Coastal Ecology and Forest Science, led a particularly impactful talk on microplastics. Attendees were shocked to hear how pervasive microplastics have become in our local fresh and marine ecosystems.

For more information on the Coastal Waccamaw Stormwater Education Consortium, visit cwsec-sc.org.

Educate local community on environmental impacts

Swanger says that she tries to live with intention, continuously striving to make a positive impact on her community in both her professional and personal choices. This allows her to reach more people on a genuine level when doing outreach. She looks forward to advancing the mission of the CWSEC and helping further educate the public about stormwater issues.

-Kaitlin Dick

(Pictures courtesy of Swanger.)

Coastal Waccamaw Stormwater Education Consortium



Staff spotlight: Robbie Moorer '10

Robbie Moorer graduated from CCU in 2010 and returned to work at the school in 2013 as a lab specialist for the School of the Coastal Environment. “My title is a lab specialist, but I am really here to help out students in any capacity I can,” he said. As a lab specialist, Moorer programs, fixes, and prepares instruments for student use. Additionally, he goes on field-related trips and assists with operations.

Moorer also assists students with projects on a continuous basis. For example, Moorer assists the swash monitoring program with grad-

uate student Nick Legut by managing the rooftop cameras that overlook the swash. When Moorer is not working on a project, he likes to help current students gain new skills. Moorer regularly emails students to see if they would like to go out on work trips to gain technical experience through on-site training.

His favorite part of the job is seeing students grow with the instrumentation and learn the technical side of data collection. “A lot of students understand the data analysis portion of research but do not realize how much instrumentation is involved in data collection,” he said.

As a coastal alumnus, Moorer also enjoys watching the school grow. If students need help with instrumentation or are interested in learning new skills, they can stop by Moorer’s office in the Coastal Science Center, Room 151L, or email rtmoorer@coastal.edu.

-Kaitlin Dick



“I am really here to help out students in any capacity I can.”

(Picture courtesy of Moorer.)

Exploring the deep: The hidden human impact on deep sea ecosystems

While Earth may be a tiny rock when compared to the huge immensity of space, in every corner there exists a massive amount of life. The global population numbers well over 7 billion, while vast expanses of flora and fauna inhabit every city, forest, and water system.

Imagining a coastal ocean teeming with ecological diversity may not be difficult, but what about the unobserved blackness and enormity of the deep sea? So little is known about these ecosystems and the communities that thrive hundreds to thousands of meters below the sea's surface, yet many scientists are devoting their time and research to explore these ecological wonderlands.

I had the privilege of being part of one such research expedition earlier this year under chief scientist Samantha Joye from the University of Georgia. The cruise, aboard the *R/V Falkor*, was a five-week voyage designed to explore the bottom depths of the Guaymas and Pescadero basins in the Gulf of California. The overall aim of the project, titled “Microbial Mysteries: Linking Microbial Communities and Environmental Drivers,” was to learn more about the microbes that thrive in the deep ocean. The Gulf of California is the perfect location for such an undertaking—the environment is a combination of hydrothermal activity and actively spreading seafloor. The young, rifting margins and explosive hydrothermal habitat offer a perfect setting for the microbes and other organisms living there.

The seafloor, not unlike a desert, covers huge expanses of flat bottom over kilometers of area and is often characterized by nothing more than sediment and the occasional octopus. The immensity of this dark void is a stark contrast to the cacophony of life found gathering in the veritable oases of these vent systems.



Hydrothermal vent erupting with *Riftia* tube worms.



ROV SUBastian picks up a Mylar balloon.

Where hydrothermal vents are found, the ingredients for life burst through the seafloor and support the existence of everything from microbes to macrofauna. In one such area, called “Big Pagoda,” mirror flanges (seen on the cover), which appear to be mirages on the desert seafloor, abound. The illusion is created by hot, hydrothermal fluid that flows up from the vents and pools along the bottom of the over-hanging chimney, trapped by the cold, dense surrounding water. The effect is breath-taking. For those of us at sea eagerly watching the ROV 4K footage, there were no greater moments of awe than the times these pagodas came into view.

In all the hours spent in the dark room of the ROV van, eyes trained on the plethora of screens showing the seafloor, there was never a second when the validity of the research, time, or money spent to get there was questioned. The excitement of discovery lay at the forefront of our minds—to see the unseen, to study the brand new. But for every image of the beautiful and mysterious that flashed across the screen, images of something much more ominous awaited us. In the deep fissures present nearby, features resulting from the actively spreading seafloor, the refuse of humanity could be found. Trash—human waste like Mylar balloons, soccer balls, and fishing gear—lined the trenches.

The most comical? A fully decorated, acrylic Christmas tree. The most tragic? A dead squid, choked on a discarded fishing net.

Astronauts do not go to space and expect to see floating polystyrene cups and exploding garbage bags. But for researchers of the deep sea—spaces no less alien than the solar system—that very expectation weighs heavily on our minds. I have seen the bottom depths of the Atlantic, Gulf of Mexico and Gulf of California, and in every place there is trash. Anthropogenic waste has no place in the world’s oceans and waterways, yet the actions we take every day continually contribute to the ever-growing issue of pollution in these environments. While choices individuals make can have a small impact, for real and lasting change there must be an opinion shift on the global scale.

Many cities have begun banning single-use plastics and foam cups, and numerous startups have created innovative ways to recycle plastics already in existence. These efforts are just the beginning, but the pressure is on. Without broad and radical change, underwater desert oases like Big Pagoda will be nothing more than the unseen landfills of human detritus—the incredible ROV footage nothing more than the memory of an extinct world. We can be better. We must be better. The time is now.

Did you know?
Approximately
8 million metric
tons of plastic
are thrown
into the ocean
annually.¹

1. Jambeck, J. R., et al. “Plastic Waste Inputs from Land into the Ocean.” *Science*, vol. 347, no. 6223, 13 Feb. 2015, pp. 768–771.



-Charlotte
Kollman

ROV SUBastian
camera footage
of trash along a
seafloor trench.

From intern to employed: The path from CCU to naval research

Physical scientist AJ Kammerer '17 spends his days working for the Naval Research Lab (NRL) in Monterey, Calif.—a place he describes as “a wonderful environment” for both the freedom to do independent research and the support from his peers and employers. Prior to working as a scientist for the government, Kammerer began developing his research skills at CCU.

As an active undergraduate in CCU's marine science program, Kammerer first got involved in research working with associate



Photo courtesy of AJ Kammerer.

professor Diance Fribance as a summer intern. He got further experience working with professor Erin Burge, participating in a Maymester class to Jamaica to study coral reef ecology. “CCU was a great place to go to school,” Kammerer said. “I loved everything.”

Kammerer also got involved in the Environmental Fluids Lab (EFL) early on. When Fribance announced in class that associate professor Erin Hackett was searching

for an intern to work in the EFL, Kammerer jumped at the chance to participate. The following summer, Kammerer worked with Hackett doing Particle Image Velocimetry, or PIV, research. PIV is an optical measurement technique that involves a laser illuminating water to measure the fluid dynamics of a specific scenario, such as the wake a shark's tail might produce. The technique is noninvasive; the laser doesn't artificially affect the water's flow, which allows for a more accurate measurement to be taken. Kammerer's work in the EFL ultimately turned into a research position under Hackett within the master's program, where his focus switched from PIV to the study of radar.

Working with Hackett also presented Kammerer the opportunity to get involved in the Naval Research Enterprise Internship Program (NREIP). This competitive internship allows students to get hands-on experience working in diverse naval labs. Kammerer, who secured an internship in Monterey, turned the opportunity into a full-time position following graduation. “It's an amazing program and an awesome opportunity to get your foot in the door if you want to work in government,” he said.

At the NRL, Kammerer works in the marine meteorology division in an effort to better understand how the environment affects radar performance. The opportunities he was exposed to at CCU and in Hackett's lab were critical to his life post-graduation.

“[Hackett] pushes you and expects a lot, but it's so worth it in the end. She was incredibly instrumental in my accomplishments,” he said. Kammerer has considered extending his studies into a Ph.D. program but is happy in his role at the NRL. “I love where I'm working right now... I don't see leaving this position any time soon.”

-Charlotte Kollman

Undergraduate spotlight: Nicholas Coleman

From the moment Nicholas Coleman came to tour Coastal Carolina, he knew this is where he wanted to further his academic career. “I grew up in the Chesapeake Bay, so I have always been interested in marine and estuarine science,” he said. “The Academic Common Market offers in-state tuition for marine science, and Coastal has a very strong program.”

Coleman, a junior major in marine science and minor in biology, is an active student within CCU’s College of Science. For example, he serves as treasurer of the American Fisheries Society—a club started in the fall of 2018 by assistant professor Derek Crane. Coleman is also a Research Fellow within the College of Science, becoming involved in research the beginning of his sophomore year. He began as a 399 student under professor Erin Burge, working on the “Fish Community Monitoring Project” using SharkCam located on Frying Pan Tower off the coast of Wilmington, N.C. (If you recall from the previous issue of “The Coastal Current,” SharkCam is a high-powered HD camera used to survey fish assemblage and the surrounding hard bottom community.)

Based on observations from the camera, Coleman developed a project that assessed the association between round scad (a small baitfish) and sand tiger sharks. He hypothesized that this relationship is mutually beneficial for the respective fish by reducing the vulnerability of the scad and increasing the predation opportunities for the sharks.

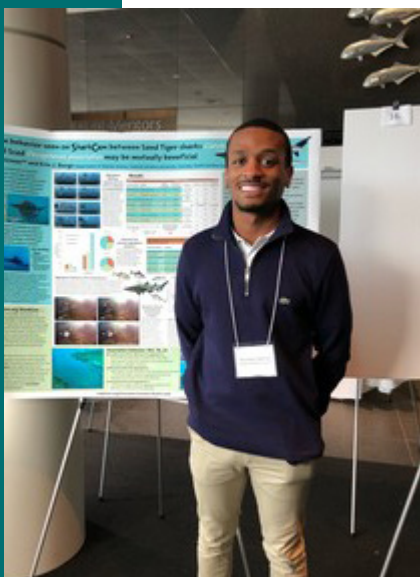
Coleman presented his findings for the project at the Southeastern Estuarine Research Society Conference in March 2019, where he won best undergraduate poster presentation. As a College of Science Research Fellow, he can conduct graduate-level research at the undergraduate level. This has been instrumental in furthering his understanding of the scientific process. His favorite thing about Coastal is the professors who are willing to go above and beyond for their students. “You really get that hands-on connection with your mentor,” he said.

“You really get that hands-on connection with your mentor.”

This summer, he is participating in the Chesapeake Research Consortium Fellowship called C-Stream. He will be working within the Chesapeake Bay area at the Virginia Institute of Marine Sciences (VIMS). Working with Mary Fabrizio, a fisheries scientist at VIMS, he will examine local summer flounder and black sea bass.

After graduation, Coleman plans on attending graduate school and continuing to learn about other ecosystems. He is looking forward to meeting and working with other scientists in the Chesapeake Bay area.

-Kaitlin Dick



Coleman presenting his winning research.

(Photo courtesy of College of Science.)

CMSS professor talks research, teaching, and the importance of the academic process



(Photo courtesy of Hackett.)

Associate professor Erin Hackett first began her career in the sciences following her graduation from Roanoke College in 2000, where she earned a B.S. in physics. Always interested in fluid

dynamics, Hackett was intrigued by marine environments but had no desire to work as a biologist. It wasn't until several years later, working through her first job as a systems engineer at the Johns Hopkins University Applied Physics Lab, that Hackett discovered the field of physical oceanography.

Hackett learned that she could combine her physics background and her interest in marine systems, so in 2004, she began the doctoral program at Johns Hopkins' Department of Earth and Planetary Sciences. During the course of her graduate work, she took extra credits to earn a Master in Civil Engineering before completing her doctorate in physical oceanography in 2010. Her dissertation, "Flow and Turbulence in the Bottom Boundary Layer of the Coastal Ocean," was just the beginning of her career studying the interaction between waves, currents, and turbulence in coastal systems.

Hackett knew she ultimately wanted to go into academia; however, she also knew she wanted to stay in the southeast region of the United States at a school with an even balance between research and teaching. While waiting for an ideal position, Hackett worked as a scientist at the Naval Surface

Warfare Center, Carderock Division in Maryland, where she also established valuable connections for her future research and students. In 2012, the position Hackett was searching for came open at CCU in the Department of Chemistry and Applied Physics, and the following year Hackett moved over to the brand new Ph.D. program in the Department of Coastal and Marine Systems Science.

During this time, Hackett began to form the Environmental Fluids Laboratory (EFL), co-directed by associate professor Roi Gurka. Hackett described this process as an "evolution," saying "labs like these take time to build up and establish." The lab, located in the CSC, is a large room full of equipment, advisers, and graduate students alike. Murals cover the walls that surround an elongated tank where students can run fluid dynamics experiments; in the corner, a state-of-the-art 3D printer makes models of things like shark fins; and large conference tables and computers invite collaboration and discussion among the lab.

Hackett describes the main goal of the lab as a space to study "fluid flows and how they affect different engineered and natural systems." Students in the EFL use a combination of lab, field, and computational studies but are also expected to learn things like proper formal and informal communication techniques, good workplace behavior and ethics, and how to publish and present

Hackett was most recently the recipient of a \$273,187 grant through the Office of Naval Research (ONR), based on a research project titled "Influence of Horizontal Inhomogeneity of Refractivity Vertical Profiles on Electromagnetic Measurements in Application to Refractivity Inversions." This grant marks her fourth ONR award since joining Coastal in 2012!

their research.

Hackett has already graduated five students from the MS program and currently advises five more between the Ph.D. and M.S. degree options. Current projects that Hackett directly advises involve shark hydrodynamics, physics of the marine atmospheric boundary layer, and remote sensing of ocean surface waves and atmospheric conditions using radar. Her favorite part about advising is taking novice students and helping develop them into capable scientists. “The degree is not what is going to distinguish you as a scientist, but rather your capability upon graduation,” she said. Hackett went on to admit that she has a reputation for being “tough.” “I’m not going to approve a student’s graduate thesis unless they are operating at a professional employable level.” All of her students typically have at least one publication based on their thesis research.

“The degree is not what is going to distinguish you as a scientist, but rather your capability upon graduation.”

One of the ways Hackett sets her students up for success is by building a bridge between the EFL and different naval labs where her students have the opportunity to go collaborate and get valuable work experience over the summer. Hackett noted that these naval labs require scientists with excellent communication and analytical skills but who are also US citizens, for security reasons. Students who enter into these collaborations get first-hand experience in data collection and analysis efforts at government labs; they can then take these experiences and apply them directly to their own research and development. In fact, several of Hackett’s students have gone on to secure excellent jobs in these naval labs upon graduation (see page 10).

Hackett also manages to find time to mentor aspiring women scientists at other institutions around the globe through her work with MPOW-IR (Mentoring Physical Oceanography Women to Increase Retention), “an organization funded/supported by science agencies including: NSF, ONR, DOE, NOAA, and NASA.” Additionally, she has served as a mentor for external undergraduates through CCU’s NSF REU program (Research Experiences for Undergraduates) with principal investigator professor Var Limpasuvan for the last three years, where she advises students doing computing and geoscience work in the coastal region.

When considering new students, Hackett pays close attention to the “work ethic, initiative, and curiosity” of each applicant. “These are skills that are difficult to teach, so it’s important for a student’s future success to possess these qualities,” she said. A few undergraduates are already getting their feet wet in the EFL, and one AIMS (Accelerated Integrated Marine Science) student is slated to begin full-time in the summer of 2020. “The real advantage of the AIMS program is to start the research early,” said Hackett, who notes that it can sometimes be hard for a student who doesn’t already have a project to complete their degree on time.

As the EFL continues to evolve, Hackett looks forward to pushing the boundary of fluid dynamics research while also sending qualified new scientists out into the field. Now that the infrastructure of the EFL is established, Hackett also hopes to recruit committed students who are both interested in the research taking place in the EFL and who also aren’t afraid to work hard and put in the hours in exchange for the wonderful experiences being offered within the lab.

If you’re interested in visiting the lab or learning more about Hackett’s research and the exciting projects taking place within the EFL, you can email ehackett@coastal.edu.

-Charlotte Kollman

Calling all shark lovers!

The Elasmobranch Society at CCU was founded on campus in 2015 to raise awareness about sharks and rays and to connect students with a passion for these animals across the SCE. Rachel Hildebrand and Rachel Salinas, current president and vice president, respectively, work under the guidance of CCU's resident shark expert, professor Dan Abel.

According to Hildebrand and Salinas, the Elasmobranch Society has been instrumental in enriching the Coastal Carolina experience for its members, who all get the opportunity to pursue experiences that they may not have had otherwise, such as their annual trip to the Georgia Aquarium or participation on graduate student field surveys.

Public outreach is a critical mission for the club, such as the beach clean-ups that are performed on Sundays throughout the year. Society members meet at a beach and pick up trash for a few hours. Speaking at elementary schools is another way the club creates ties to the local community. Members teach children about the marine environment and how sharks and rays fit into the ocean as apex predators.

The society also helps students become more involved on campus. Members are given the chance to meet with undergraduate and graduate students alike through various events and meetings, forming valuable friendships and connections. Students also have the opportunity to network with professors and professionals within the field of coastal and marine science.

As Hildebrand and Salinas look toward the future, they wish to expand membership and add to the society's event list. Together, they hope to continue building upon the foundation laid by former members and mentoring upcoming students within the club, giving them insight into how to succeed as a marine science major.

Anyone who is interested to know more can check out the society's social media handle:

@CoastalCES. The society can also be reached at sharkclub@coastal.edu.

-Kaitlin Dick



Elasmobranch -

a group of fishes that have cartilaginous skeletons and five or more gill slits on each side of the head.

*Elasmobranchs include sharks, rays, sawfishes, and skates.**

**elasmobranch.org*

A note from the editors



I was excited to join “The Coastal Current” for the Spring 2019 semester. It has been a pleasure working on the newsletter with Charlotte. During my time in the SCE, I have seen major changes, including the departure of Karen Fuss, take place. As I continue my studies, I look forward to seeing how the SCE evolves.

To everyone who graciously agreed to interviews, I would like to thank you. It was exciting to see all that our CCU community is doing for the environment and our area. It makes me proud to be a part of CCU. As I went through the interview process, it became clear that because of the education they received here at CCU, they were able to do impactful things.

I am pleased for the opportunity to work on “The Coastal Current.” I look forward to next semester and to see its progress and development.

With each issue, we look to grow and move forward, and I am excited to see how the upcoming issues will continue to evolve.
-Kaitlin



“We don't need a handful of people doing zero waste perfectly. We need millions of people doing it imperfectly.”

*~Anne Marie Bonneau,
Zero Waste Chef*

It's been an incredible year within the CMWS program. I've been lucky enough to go out to sea three times and then bring those experiences back here to share with our readers. In the last issue, I told our readers about natural hydrocarbon seeps in the Gulf of Mexico, but for this issue I really wanted to impress upon them the alarming amount of trash piling deep within the oceans. The students graduating from the SCE have a real chance to effect change as they take on roles in everything from hard science to policy making, and I'm excited to see that change take shape.

I'm always blown away by the students and professors at CCU, and learning about their research and lives has been an incredible opportunity. Next semester, Kaitlin will take over, but I hope that what I've been able to accomplish in my time here, on such a young publication, reflects my appreciation to both the school and to the environment that has allowed me to grow as a scientist and person.
-Charlotte



Contact us: scenewsletter@coastal.edu
Find us online: coastal.edu/sce/coastalcurrent

School of the Coastal Environment

coastal.edu/sce

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