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## Turtles, snakes and salt marshes. Research projects abound in Beaufort County for USCB staff.

BY TONY KUKULICH TKUKULICH@POSTANDCOURIER.COM

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Pritchards Island, located south of Fripp Island in Beaufort County, was donated to the University of South Carolina Beaufort in the 1980s. With little human impact on the island, it serves as a laboratory for a variety of the university's research efforts.

TONY KUKULICH/STAFF

**PRITCHARDS ISLAND** — Mosquitos buzzed incessantly in the soft, pre-dawn light on the north shore bank of Station Creek on St. Helena Island while a team of [University of South Carolina Beaufort](#) researchers waited for their ride.

A steady stream of fisherman launched their boats from the ramp, anxious to get the day's work underway as the team patiently stood by.

Given the early hour, there wasn't much talk. The sun peeked above the horizon into a narrow sliver of clear skies before climbing into the clouds. The blue light warmed and soon a diffused golden glow melted over the dead calm creek. Nature's early-morning display didn't demand silent appreciation, but it seemed appropriate.



The sun rises over Station Creek on St. Helena Island, June 28, 2024.

TONY KUKULICH/STAFF

Before long, Robert and Abby Morris worked to back their pontoon boat down the ramp. With the boat in the water, the USCB crew climbed aboard for a 60-minute trip through a mystifying maze of waterways and marsh to their destination: **Pritchards Island**.

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Donated to the university by Phillip Rhodes in the 1980s, Pritchards is a unique island laboratory that stands practically unmolested by man. The natural order of the island is, by and large, still intact. A recent influx of grant money offers the school the opportunity to conduct a wide range of studies here.

"One of the really nice things to do with Pritchards is study it as a pristine barrier island that's been undisturbed," said [Kim Ritchie](#), associate professor in USCB's Department of Natural Science and the director of research for Pritchards Island. "That's what the Phillips family wanted us to be able to do. It's a great opportunity for comparison studies."



#### BEAUFORT COUNTY

Marines tackle a shoreline mission: Volunteers work to restore habitat, protect housing

BY TONY KUKULICH [TKUKULICH@POSTANDCOURIER.COM](mailto:TKUKULICH@POSTANDCOURIER.COM)

## Reaching Pritchards

Measuring about a mile wide and 2-1/2 miles long, Pritchards is a stone's throw from Fripp Island. Skull Inlet, which separates the two, is a football field or so across. The two islands, however, couldn't be more different. Pritchards is a wild place where the last remnants of human habitation are disappearing rapidly. Fripp is an extensively developed, gated community open only to residents and guests.



**PRITCHARDS ISLAND:** Located south of Fripp Island, Pritchards Island was given to USC Beaufort in the 1980s. The island remains in a mostly natural state and serves as a unique outdoor laboratory for the school. (Source: Esri)

**BRANDON LOCKETT/STAFF**

The narrow width of the inlet can lull people into thinking it's possible to walk between the islands, though it is a trip that's hardly advisable. With a tidal fluctuation of about 8 feet, the water rushes in and out four times a day with astonishing speed and strength. Getting caught in the middle of the inlet on a fast-flowing tide is sure to make for a bad day.

Ritchie makes a daily trip to the island during sea turtle nesting season, which runs from May through October. It's a commitment she relishes.

"If you're going to manage resources you need to be on the island, seeing what's changing and seeing what's there," Ritchie said.



#### BEAUFORT COUNTY

Years after tragic drownings, new mental health patient shuttling service in SC goes statewide

BY MITCHELL BLACK MBLACK@POSTANDCOURIER.COM

Getting to Pritchards can have its challenges. Arrivals and departures by boat have to be carefully timed to catch the right tide. If it's too low, there's a risk of running aground on a sand bar or oyster reef. If the tide is in full flood, most of the beach is underwater and navigating over the abundant deadfall hidden under the water is difficult and dangerous.

## Role of the salt marsh

The research opportunities afforded by Pritchards Island may play a key role in expanding USCB's presence in marine research and education. The school does not currently offer a marine biology major, though students can enhance their major with a marine biology concentration. There are people who'd like to see that change.

Twenty years ago, Beaufort resident Dick Stewart played an instrumental role in expanding USCB from a two-year to a four-program. With access to research on Pritchards and the school's location among one of the largest expanses of salt marsh on the

East Coast, Stewart sees an opportunity to develop a leading marine biology degree program and marine research center in Beaufort.

"The area from the May River all the way to the Whale Branch River where it empties into the St. Helena Sound is special. It's special for a few reasons," Stewart said.

The 8-foot tidal amplitude is one of those factors. A high tide covers hundreds of thousands of acres of land with relatively clean, high-salinity water. This creates perfect salt marsh habitat, he said. Beaufort and Jasper counties account for more than half of the salt marsh habitat in the state, and South Carolina has more salt marsh than any other state on the East Coast.



A whimbrel feeds on a fiddler crab plucked from its silty burrow.

ANDY JOHNSON/CORNELL LAB OF ORNITHOLOGY/PROVIDED

There are myriad environmental benefits attributed to the salt marsh, including its role as a nursery for a wide variety of fish, animals and plants. Not the least of its benefits is carbon sequestration. Each acre of salt marsh absorbs one ton of carbon a year. The region's 200,000 acres of salt marsh capture 400 million pounds of carbon every year.

At the same time, salt marshes are imperiled for reasons that are not always clear. Sea level rise is one threat to salt marshes around the world. Experiments with living shorelines, which are artificial reefs planted along the shore that grow by providing oysters a place to attach, are ongoing in several locations in Beaufort County. Early results show some promise, but it's unknown if they can be deployed on a larger scale.

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"We don't know because nobody's done that research. We'll need additional professors, additional students and additional resources to do it, but that's pretty important," Stewart said, adding that USCB is in the right place to deploy the right scientists and the right students to create the needed body of research.



**MILITARY DIGEST**

Oysters to fortify shoreline, fight climate change at Parris Island

BY TONY KUKULICH TKUKULICH@POSTANDCOURIER.COM

The **Pritchards Island Research and Living Shores initiative** was recently established to help facilitate the goals outlined by Stewart.

There are several entities conducting research in the region including the **Port Royal Sound Foundation**, the **Coastal Discovery Museum**, **Nemours Wildlife Foundation** and the **Waddell Mariculture Center**. Stewart believes there is an opportunity for USCB to take a leadership role coordinating research with those institutions.

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"We have the perfect opportunity to with those four agencies and with the university, if we bring in somebody to command some programming, to make a huge stride forward in protecting this place before it goes away," Stewart said.

That missing piece could be the [National Estuary Program](#), a non-regulatory program established by the Environmental Protection Agency to protect and restore the ecological integrity of estuaries of national significance. There are about 20 sites around the country currently participating in the program, though none are in South Carolina. The last site added to the National Estuary Program was in 1995.

Federal funding for a site is estimated at \$1 million a year, and participation requires the completion of a management plan for the region.

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On the basis of size alone, Stewart said, it's difficult to imagine a salt marsh with greater significance than the one that spreads across Beaufort and Jasper counties. An application for participation in the National Estuary Program is being prepared by the Pritchards Island Research and Living Shores initiative. It is expected to be submitted sometime next year.

"You can imagine if we get that program and contract USCB students and scientists to do this, and we can grow the number of USCB's marine sciences students to 1,000 from 90, the health and well being of the waterways around here are going to be vastly increased," Stewart said. "That's what we need to do."

## **Monitoring sea turtle nests**

Robert Morris pulled up to the beach on the north end of Pritchards and the team disembarked. He promised to pick them up on the island's south end in a few hours, then eased the boat back into the current. He and the vessel are soon out of sight.



The objective for the day was to find sea turtle nests and eggs laid the prior night. Ritchie reviewed the plan with her three interns before they set off down the beach, joined by Abby Morris and Kathy Haught, a volunteer researcher who lives on Fripp Island.



Kim Ritchie, Kathy Haught and Abby Morris head down the beach in search of new sea turtle nests on Pritchards Island, June 28, 2024. Ritchie is the director of research for Pritchards Island, which is owned by the University of South Carolina Beaufort.

TONY KUKULICH/STAFF

Along with her husband, Abby Morris has been patrolling the beach and monitoring turtle nests on Pritchards Island for 11 years. She now is sharing her knowledge and experience as this will likely be her last season on Pritchards. USCB is in the process of taking over the island's turtle monitoring program.

Over their 11-year tenure, the Morrises made the trip to Pritchards daily during the six-month nesting season. Using some rough math, that's nearly 2,000 visits. They only skipped days when weather made it too dangerous to be on the water, and the pair are looking forward to having more time for sailing. They will continue to monitor turtle activity on nearby Capers Island, so they're not completely getting out of the game.



#### BEAUFORT COUNTY

Years after tragic drownings, new mental health patient shuttling service in SC goes statewide

BY MITCHELL BLACK MBLACK@POSTANDCOURIER.COM

The team checked on previously identified nests, performing maintenance when necessary on the wire cages put in place to keep the island's predators away from the eggs. About halfway down the beach, fresh impressions in the sand hinted that a turtle came ashore the prior night. Intern Jenna McCarty used a probe to determine if eggs were laid. According to Ritchie, turtles can make three or four trips onto the beach before they deposit their eggs.

The team got lucky. McCarty detected a new nest.



A sea turtle nest containing 111 eggs is located on Pritchards Island by a team of USCB researchers, June 28, 2024. The eggs were moved, an action allowed by SCDNR permit

The interns got to work uncovering the eggs. The soil was dark and loamy, a bad sign for eggs as it can promote deadly bacterial growth. After some searching and discussion about the characteristics of an optimal nest location, a site was chosen and the new nest was dug in the sand. Care was taken to match the depth of the original nest, and 110 of the 111

#MTP559, to a new location to improve the turtles' chances of survival.

TONY KUKULICH/STAFF

eggs were moved to their new — albeit temporary — home. The team kept one egg for DNA testing.

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Thermometers were placed at the bottom and top of the nest. Useful research data can be retrieved by simply waiving a smart phone with the appropriate app over the nest. The thermometers can be recovered at the end of the season and used again next year.

The work was as hard as it was dirty. There's little shade and no facilities on the island, meaning everything needed must be carried. Thick cloud cover moderated the temperatures for a while. Once the skies cleared, temperatures soared. Still, the team hardly seemed to notice.

Last summer, the state Legislature earmarked an annual disbursement of \$500,000 to USCB for research on Pritchards. The funding allows Ritchie to pay her interns, and there is a waiting list to participate in the program despite the hard work involved. The field work provides important experience for the students.

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USCB interns Jenna McCarty, Haylee Vierra and Kiersten Griffith maintain a sea turtle nest on Pritchards Island, June 28, 2024. The island was donated to USCB in the 1980s and supports a variety of the school's research projects, many made possible by an annual disbursement of \$500,000 from the S.C. legislature.

TONY KUKULICH/STAFF

"I don't think you can beat a job where you're getting paid to walk on the beach and hang out in the sun. It's so beautiful," McCarty said.

## Research opportunities abound

Mercer Brugler, associate professor of marine biology at USCB, said little is known about the flora and fauna living on Pritchards or in the surrounding waters. He called the island a gold mine of research opportunities. That opinion is borne out by the variety of studies already underway.

BEAUFORT COUNTY NEWS



## Friends, family celebrate late author Roger Pinckney XI on Daufuskie

BY JESSICA WADE JWADE@POSTANDCOURIER.COM

Some of Brugler's students are spending the summer looking closely at the meiofauna — multicell animals less than 1 millimeter in length — in Pritchards Island sand, which is unique among other Lowcountry islands.

"The reason is that Pritchards beaches have never been renourished. It's natural sand versus Hunting and Hilton Head, which have been renourished," Brugler said. "I want to see how the community differs."

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Another project includes collecting DNA samples from the surf and the land on Pritchards.

"You get the genetic sequence, and it tells you who's home. We're going to learn what's in the water on Pritchards," Brugler added. "We're also going to be swabbing leaves on the island so you can know what mammals, reptiles and amphibians are on the island."



Kim Ritchie, associate professor at USCB and director of research on Pritchards Island, displays swabs of bacteria taken from a turtle egg on Pritchards Island. Ritchie's research looks for beneficial bacteria that could have human applications.

TONY KUKULICH/STAFF

Ritchie's background is in marine microbiology. She studied beneficial microbes that grow on marine organisms like coral reefs and worked with some decidedly more difficult subjects.

"I studied wound healing on sharks and finding novel antibiotics for human use on sharks. So, novel antibiotics from a novel hard to catch source, like great white sharks," Ritchie said.

Once she started seeing turtle eggs on a daily basis, Ritchie realized that no one has ever looked for beneficial bacteria in sea turtle eggs. Acknowledging that talking about beneficial bacteria on sea turtle eggs doesn't generate quite the same visceral reaction as studying bacteria on great white sharks, the work is no less significant.

"I can't get anyone excited," Ritchie jokes. "Nobody understands what a big deal this is going to be."



Kim Ritchie, associate professor at USCB and director of research on Pritchards Island, displays swabs of bacteria taken from a turtle egg on Pritchards Island. Ritchie's research looks for beneficial bacteria that could have human applications.

TONY KUKULICH/STAFF

Another researcher, Tye Pettay, assistant professor of biological oceanography at USCB, explained that having the opportunity to study on Pritchards has given him and other researchers a chance to expand their work beyond their established expertise. Much of his past research has focused on environmental monitoring to determine the impacts of climate change. While he continues to run environmental monitoring programs locally, Pettay is also involved with a project to study the population of eastern diamondback rattlesnakes on Pritchards.

The project is using camera traps to capture photos of the snakes. In the fall, the research team will put down sheets of tin that will warm in the sun and attract snakes, making it easier track their population.

"With Pritchards, it's opening up all kinds of new opportunities. I'm doing a bunch of weird, random things that I never planned on doing," Pettay said.

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MORE INFORMATION

After recapture, Jasper Co. escapee charged with human trafficking in Beaufort Co.

**TONY KUKULICH**