2014

OUR COAST

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WWW.NCCOAST.ORG

North Carolina
Coastal Federation

Working Together for a Healthy Coast

We here at the N.C. Coastal Federation don't view our coast as a museum artifact under glass — something to be viewed but not touched. It's far too important for that.

We want people to enjoy the beauty of our coast, the way we do. We want you to join us — to marvel at its magnificent sunsets, to eat the bounty that its waters provide. We want you to paddle down a quiet river, boat out to offshore fishing grounds or hike through a stately longleaf pine forest, looking for birds, alligators or even a bear. We also want people to make their livings off our coast.

But we hope that we will all do these things responsibly, in ways that don't threaten our coast's natural health and productivity. We also hope we can all work together to make sure these places we love remain for those who come after us.

This *Our Coast* offers a few ways to do this. Yes, it's a travel guide of sorts, but it's not like the dozens of others that you can pick up this summer in stands from Corolla to Calabash. We like to call it a travel guide with a conscience.

Our Coast is about some of the most dynamic, productive and beautiful places on earth that are not far from where you are probably reading this today. The places highlighted aren't just for tourists or for local residents. They belong to all of us to be loved, used, and most importantly, to be protected and restored.

The philosophy behind *Our Coast* is simple. We believe the more you cherish and use our coast, the more invested you become in helping us keep it healthy and spectacular. Our work provides great opportunities for you to help our coast, and if you agree, we hope you'll jump aboard and join us in our efforts.

Todd Miller

— Executive Director

North Carolina Coastal Federation

Working Together for a Healthy Coast

To provide people and groups with the assistance needed to take an active role in the stewardship of North Carolina's coastal water quality and natural resources.

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WE NEED YOUR FACE

"We love the coast: it's a truly wondrous place to visit, to live, to work, to play. If you do, too, we have a bond even though we may not know each other yet. ***This is an invitation to you, right here, right now: Please join us.*** *Come spend some time with us on the coast."*

—**TODD MILLER,** *N.C. COASTAL FEDERATION FOUNDER AND EXECUTIVE DIRECTOR*

THESE ARE THE FACES OF SOME OF OUR 10,000+ MEMBERS. They are fishermen, teachers, students, small business owners, homemakers, scientists, politicians — even a belly dancer. You see, we find that everyone who loves the coast and its treasures wants to keep our coast healthy and beautiful. The reason that the federation exists is that the more people are involved in the management of North Carolina's coast, the better it will be, for all of us. And one of the easiest ways you can be involved is by joining the N.C. Coastal Federation.

We hope you will add your face to the coast. Please join today at www.nccoast.org or call 252-393-8185.

Who We Are & Where We Work

For more than 30 years, the N. C. Coastal Federation has joined people like you to safeguard the coastal rivers, creeks, sounds and beaches we love. We're the state's only nonprofit organization focused exclusively on protecting and restoring the coast of North Carolina through education, advocacy, and habitat preservation and restoration. With three fully-staffed offices in Manteo, Ocean and Wrightsville Beach, we work where we live. Over these three decades we've worked to:

Protect coastal lands to expand access to the water — for swimming, kayaking, fishing and more

Restore wetlands and other coastal habitats — very important for tasty local seafood

Advocate for better coastal rules, laws, programs and enforcement

Promote low impact development as something anyone can do to help

Get students, decision-makers and the public out on the water to see what it's all about

10 REASONS Why You'll Want To Join Today

You Will...

1 **Have fun** – Celebrate the coast with us. You'll receive our annual calendar of events, full of special happenings up and down the coast. We also bring the coast inland from time to time.

2 **Learn** – Ever wonder how you build a rain garden, an oyster reef or a living shoreline? You'll have opportunities to learn through unique, hands-on experiences.

3 **Be better informed** – Stay up-to-date on coastal issues through daily, online news stories, monthly electronic newsletters and Our Coast magazine.

4 **Save money** – You'll get discounts and special offers from our Business Friends and free or discounted federation events.

5 **Make new friends** – Join us for a field trip, a workshop or an event and you'll meet like-minded people.

6 **Have a voice** – Our advocates and lobbyists represent you and the coast's best interests.

7 **Help protect and restore habitats and water quality** – We've already saved more than 50,000 acres along our coast. We'll put your membership dues to work.

8 **Gain access to expertise** – Our staff of 23 professionals is located up and down the coast. Call or email us when you have questions.

9 **Help educate others** – We engage thousands of students in learning about the coast. Your dues help provide these programs.

10 **Feel good** – Your donation will be put to work at one of the state's most efficient nonprofit organizations. For every $1 donated, 95 cents goes directly to our program work.

join us: SCAN OR VISIT NCCOAST.ORG

Take a Drive to See Bears

BY CORINNE SAUNDERS

EAST LAKE – The caravan of cars wound its way through the wilds of Dare County as dusk approached. The drivers hailed from Maine and Connecticut, Texas and Ohio, Virginia and Manteo. They had all come to see bears.

The folks at the Alligator River National Wildlife Refuge provide that opportunity with their free Bear Necessities program each Wednesday through August. Participants meet at the parking lot of the Creef Cut Wildlife Trail at U.S. 64 and Milltail Road in East Lake.

Before taking off in search of black bears, the group was met there by Kate Hankins, an intern with the U.S. Fish and Wildlife Service. The agency runs the refuge.

She gave them history about the refuge system, noting that President Theodore Roosevelt created the first national wildlife refuge in Florida in 1903 to protect birds from hunters who wanted the feathers for ladies' hats. There are now more than 560 national wildlife refuges in the country, 10 in North Carolina.

Refuges are different from national parks, Hankins noted. The parks were created to cater to humans, while refuges are "wildlife first," she said.

The Alligator River refuge is home to the largest population of black bears in eastern North Carolina and one of the largest in the eastern United States.

Black bears are typically shy of humans. For this reason, feeding wildlife in general, but especially bears, is discouraged. If bears start coming toward people, it is not good for either species, she said.

"Our bears are mostly herbivores," Hankins said, explaining that they eat berries, grubs, roots and insects. "They're not like our red wolves that will go attack a deer."

A large mounted black bear skin was draped over the "DO NOT FEED OR DISTURB BEARS" sign, and participants were allowed to touch it and wear it and take pictures. The bears have two layers of fur, Hankins said. Guard hairs on top keep them dry and a dense under-layer keeps them warm.

"Not all black bears are black," said Hankins.

Bear cubs stay with their mother for more than a year, and many "yearlings" have been seen in the refuge. Staff members have also seen "really little fluff balls just coming out of the den," she said.

"They're very strong family units. Don't walk between a mother bear and cub," Hankins advised.

"You may have noticed the barbed wire along 64," she said, gesturing across the street.

Hankins explained that the barbed wire on the guardrails is part of a study to see where and what animals cross the road. The interns walked a section of the roadway and collected fur that was caught on the barbed wire — bear fur on the top wire and fur from smaller mammals like raccoons on the lower wire.

The animals have habits and trails they usually follow, Hankins said. The study will help determine where to build underpasses or other crossings for wildlife if the road is widened.

It was time to look for bears. A refuge truck led the way and another brought up the rear. Participants drove in their own vehicles on the gravel roads of the refuge.

The evening was quiet, with only the slow crunching of gravel as the main background noise. Layers of light gray clouds rolled into the formerly sunny sky.

Horseflies and deer flies, attracted to moving objects and carbon dioxide, bumped into the vehicles repeatedly, often hitching a ride for several minutes. The caravan of cars moved through dense forest into open emerald green fields, stopping several times along the way. Less-menacing dragonflies darted by.

People in the lead refuge truck and in the first car said they saw several bears in the woods — a mom with two cubs and, separately, another adult bear — that all were quickly spooked and ran off before the people in later vehicles could catch a glimpse.

Before the final turn of the drive, two bears were spotted at the far end of a field on the edge of distant woods. Many participants stepped out of their cars and took turns with binoculars and cameras to try to see the bears.

The interns apologized that more bears had not been seen along the drive; it was an atypical outing in their experiences so far, they said.

But the bears are surely out there, and those interested can drive by themselves or show up for the Bear Necessities program on Wednesdays from 5 to 7 p.m. You can then stick around and listen for red wolves howling. That program begins at 7:30 p.m. at the same location.

Left: The Alligator River National Wildlife Refuge has one of the largest populations of black bears in the eastern United States, like these two that posed for Sam Bland. Right: Bear cubs stay with their mother for more than a year, and many "yearlings" have been seen in the Alligator River National Wildlife Refuge. **Photos © Sam Bland**


Scotch bonnet

SEASHELL BOUNTY

BY PAT GARBER

OCRACOKE – Legend has it that Blackbeard buried his treasure on the island of Ocracoke, and every once in a while some enthusiastic believer goes treasure hunting for a stash of gold. He's not likely to find buried gold, but there is most definitely treasure to be found on barrier islands.

The beaches of our coast are often littered with interesting shells and other sea life, driftwood and odd flotsam – all gifts to the beachcomber who knows what to look for.

Objects usually wash up on the beaches of the Atlantic Ocean and Pamlico Sound because of the tides and waves. They may come from the shore a few feet away or the ocean a few hundred miles away. They may be relatively new or thousands of years old. They may be naturally occurring or man-made items like sea glass, debris from old shipwrecks or a note in a bottle.

The best time to go beachcombing is at low tide, when the water has receded and most of the beach is accessible. Use a tide chart, often found in local newspapers and bait and tackle shops, to learn the lowtide schedule. The tides are lowest when there is a full or new moon. Early morning is also a good time to go, before other folks get out and pick up prized shells. Shelling is excellent after a storm or hurricane, especially if the wind was blowing from the east.


Moonshell

Beaches along the Outer Banks offer the best shelling because long stretches of them are protected from development and closer to the Gulf Stream – that highway of water that flows along the southeast coast. Waves off the Gulf Stream carry more seashells and warmer temperatures, which is ideal for shell searching. South of the Outer Banks, shell collecting is fitful because the beaches are largely developed beaches and the Gulf Stream is further offshore.

The beaches on Portsmouth Island, part of the Cape Lookout National Seashore, provide particularly good opportunities for shelling because they are less visited by beachcombers. To get to Portsmouth you have to take a boat ride from Ocracoke and walk to the beach; or, you can take a 4-wheel-drive vehicle on a ferry from Atlantic in Carteret County and drive along the ocean shore. It is worth the trip; people often return with buckets full of whelks and other desirable shells.

Scotch bonnets, the state shell of North Carolina, can be found in abundance on our coast. If the Scotch bonnet is one of your target shells, as it is for many collectors, Portsmouth Island and Core Banks – not to mention Ocracoke – are your best bets for finding it. Not as commonly found, in the same family, is the prized emperor or queen helmet shell.

Among the many kinds of shells, or mollusks, seen on beaches are calico scallops, lightning and channeled whelks, American cockles, Atlantic surf clams and common jingle shells. Some of the favorite finds include moonshells, olive shells, American augers and several species of wentletraps; or the Sawtooth penshell, which is so thin and fragile you can almost see through it. And sometimes, a stretch of beach will reveal dozens of tiny, colorful coquina shells.

Not too long ago one fortunate beach-

Where to go Shelling

South of the Outer Banks, try these beaches to find that prized seashell. These recommendations are from the N.C. Shell Club.

SHACKLEFORD BANKS *in Carteret County at the southern end of the Cape Lookout National Seashore is limited to foot traffic so the shells last longer. Boat trips from Harkers Island and Beaufort take you across to either the east end of the island or the west and also to Cape Lookout. Small passenger ferries from Harkers Island will also take you to the east end.*

HAMMOCKS BEACH STATE PARK *in Onslow County is accessible by state ferry from park headquarters near Swansboro. Bear Island, a barrier island that is part of the park, provides a nice shelling beach.*

BALD HEAD ISLAND *is a private island in New Hanover County. A private passenger boat at South Port takes visitors there. You may want to rent a golf cart or bicycle to cross the island.*

MASONBORO ISLAND *is a barrier island south of Wrightsville Beach. It has watercraft access only. Most of it is owned by the state as part of its National Estuarine Research Reserve system.*

FORT FISHER STATE RECREATION AREA *in Kure Beach is a good place to search for small shells at low tide on an average summer day.*

BIRD ISLAND *is accessible by foot from the west end of Ocean Isle Beach in Brunswick County. The protected beach is also part of the state's National Estuarine Research Reserve system.*


Keyhole urchin

comber found the shell of a paper nautilus, most likely washed up by a storm from the deep sea. Named after the paper-thin egg case secreted by females, the paper nautilus is a relative of the octopus.

Make sure that the shell you pick up is unoccupied before you take it home. Marine hermit crabs often use moonshells and whelk shells as mobile homes. Unlike land hermit crabs purchased in gift shops, marine hermit crabs will quickly die if you take them home from the beach. They need a saltwater system to survive.

Most people search for perfect shells, but some of the most interesting are battered and broken. Oyster shells come in all sizes, shapes and colors, which may appeal to an artistic eye for creating jewelry or wind chimes.

Jane Chestnut is one of Ocracoke's most ardent shell collectors. A resident of the island for 15 years now, she began coming to Ocracoke as a child, picking up shells and other items she found. She learned to love beachcombing with her grandmother and her mother, who often left their home in Rocky Mount to vacation at Atlantic Beach.

Jane and her husband often go shelling on Ocracoke's beach and, when possible, take a boat to Portsmouth Island. Jane makes jewelry using her shell treasures and sells it at Ride the Wind, her and her husband's surf shop. Not only does she use shells, but she also makes molds of shells to fashion silver casts. She uses the shells she finds in other designs too, such as a glass-covered coffee table, mirrors bordered with scallop shells, and Christmas ornaments from sand dollars and white scallop shells.

Some of Jane's favorite collectables include helmet shells, tulip shells, wentletraps and bittersweets. Once she found a real treasure at the beach near the Pony Pens: a dried sea horse. And after one storm, her husband found a 14-inch horse conch. Atlantic carrier shells, which contain a gooey substance in their middles that other bits of shell cling to, are also some of her favorites.

Shells aren't the only treasures to pick up. Also of interest are the remains of other sea creatures. For example, the carapace of blue, calico or horseshoe crabs, or the egg cases of whelks or skates are always nice finds. Several kinds of sea stars, often called starfish, wash up on the beaches in multitudes after storms and can be dried for display.

The southern end of Ocracoke known as "South Point" is a good place to find sand dollars, a kind of echinoid with a lovely, five-petal design that bleaches white when dried. The lucky beachcomber might be a perfectly coiled and dried seahorse, carried ashore from the Gulf Stream.

Occasionally the remains of a sea turtle or a whale wash on shore. Fascinating as it is to see them, do not take them with you. It is against the law to possess parts of endangered species, and there is a stiff fine for having them in your possession.

The treasures that can be discovered walking the beaches of North Carolina's Outer Banks are endless. Although if you really want to enjoy them, take the time to learn the natural history of the creatures that left them behind. The Ocracoke Museum has on display an extensive shell collection, donated by Ruth Cochran's family, with interesting bits of information about each mollusk. The N.C. Coastal Federation also has a seashell and shellfish collection on display at its headquarters in Ocean in Carteret County. Or you can read more about them in a number of books on Atlantic seashores. Behind each shell, each piece of flotsam, each skeletal remain, is a story; and these stories are the real treasures to be found on the beaches of Ocracoke and Portsmouth Islands.

OTHER PLACES WORTH VISITING

SEE MAP ON PAGES 12-13

THE ALBATROSS FLEET (Map #18)

Hatteras, a small village at the tip of Hatteras Island, is home to a colorful commercial and charter fishing fleet, including the first charter fishing boat brought to the Outer Banks in 1937. The Albatross I, II and III boats are still fished by Capt. Ernie Foster. Charter a boat to The Point, one of the best offshore fishing areas in the western Atlantic, or just go by the docks in the late afternoon to watch the boats bring in their catches and say hello. You'll be glad you did.

» ***www.albatrossfleet.com***

ALLIGATOR RIVER GROWERS (Map #1)

You've not had an onion until you've tasted a Mattamuskeet Sweet grown on this family farm near Englehard. Visitors are encouraged at the farm where other produce is sold.

» ***www.alligatorrivergrowers.com***

ALLIGATOR RIVER NATIONAL WILDLIFE REFUGE (Map #9)

Spanning 28 miles north to south and 15 miles east to west, this refuge was established in 1984 through a land deal brokered by The Nature Conservancy. In 1987, the U.S. Fish and Wildlife Service released eight red wolves in the refuge. The release capped a decades-long search for a place large enough to re-establish a healthy Eastern wolf population. There is now a healthy population of wolves on the refuge. The refuge is also home to black bears, deer and an abundance of birds, especially in the winter when thousands of waterfowl congregate in Alligator River and nearby refuges.

» ***www.fws.gov/alligatorriver/***

BUXTON WOODS (Map #17)

South of Oregon Inlet in the crook of Hatteras Island, much of what is now the Buxton Woods portion of the N.C. Coastal Reserve was once slated to become a golfing community in the midst of the 3,000-acre maritime forest — the largest such woodland system in the state. Local residents worked closely with the N.C. Coastal Federation to save the tract. The state bought the property, creating the Buxton Woods tract of the N.C. Coastal Reserve. The reserve now contains 968 acres and includes several hiking trails.

» ***www.nccoastalreserve.net/web/crp/buxton-woods***

DISMAL SWAMP STATE PARK (Map #11)

The park in Camden County opened in 2008 and marked the first time that public access to the Great Dismal Swamp was made possible in North Carolina. Features of the park include the historic Dismal Swamp Canal, which is

used regularly by boaters, and almost 17 miles of logging trails open to hiking and mountain biking through swamp forests. Be on the lookout for butterflies, which are plentiful at the park. Forty-three species have been found here.

» ***www.ncparks.gov/Visit/parks/disw/main.php***

FULL CIRCLE SEAFOOD MARKET (Map #8)

Owned by long-time coastal advocate Willy Phillips, this shop on the eastern edge of Columbia offers the freshest local catch, along with the house specialty, smoked bluefish, and crab cakes made locally. In season it also sells local produce. Ask for a peek at the shedders, where crabs are held until they molt and can be sold as soft shells. There's also a wind turbine, which Willy will gladly show off.

» ***252-796-9696***

GOOSE CREEK STATE PARK (Map #4)

Giant old oaks draped in Spanish moss welcome you to this special world where broad, lazy Goose Creek joins the Pamlico River. A primitive camping area, picnic sites, swim beach and hiking and paddling trails offer a variety of ways to savor the tranquil surroundings at Goose Creek State Park.

» ***www.ncparks.gov/Visit/parks/gocr/main.php***

JOCKEY'S RIDGE (Map #13)

The state's most famous dune, Jockey's Ridge, owes its existence as a natural area to an Outer Banks conservation heroine, Carolista Fletcher Baum Golden. In 1973 when the ridge was slated for development, Golden took the most radical of conservation steps: She stood in front of a bulldozer that was preparing to carve a chunk out of the dune. The state subsequently obtained 426 acres of the dune and established Jockey's Ridge State Park in 1975. When you visit the park, make sure to walk back to its sound side. That's where the N.C. Coastal Federation worked with the park to restore salt marsh. You'll see an oyster bag sill and marsh plants there.

» ***www.jockeysridgestatepark.com***

MATTAMUSKEET NATIONAL WILDLIFE REFUGE (Map #2)

The state's largest natural lake is at the center of the 50,000-acre refuge that is the winter home of tens of thousands of migrating waterfowl. Bald eagles and other raptors can also be found here, along with one of the largest populations of black bear in the state and all four poisonous snakes found in North Carolina. Lake Mattamuskeet offers fine fishing for largemouth bass, bream, crappie and white perch, and some of the biggest blue crabs in the state can be caught out of the canals leading from the lake.

» ***www.fws.gov/mattamuskeet/***

NAGS HEAD WOODS ECOLOGICAL PRESERVE (Map #12)

Just off the crowded business district of Kill Devil Hills, a residential street climbs a dune and drops into a diverse deciduous forest called Nags Head Woods. It's not the kind of place you'd expect to find on a barrier island. Tall ridges with dogwoods, oaks and beeches drop precipitously into beautiful ponds.

» ***www.nature.org/nhw***

N.C. COASTAL FEDERATION OFFICE (Map #10)

Come by the federation's northeast office in Manteo to visit our rain gardens and the stormwater park that is adjacent to the office. We'd love to see you.

» ***www.nccoast.org***

OCRACOKE FISH HOUSE AND WATERMEN'S MUSEUM (Map #19)

In 2006 the last fish house on Ocracoke went up for sale, threatening the survival of the island's centuries-old fishing culture. The nonprofit Ocracoke Foundation was formed to obtain grants to buy the fish house, and a Working Watermen's Association now operates the for-profit Ocracoke Seafood Co. Watch the boats unload their catch and buy fresh local crabs, shrimp and fish at the Seafood Company and browse the exhibits at the Watermen's Museum.

» ***www.ocracokewatermen.org***

PALMETTO-PEARTREE PRESERVE (Map #7)

This 10,000-acre preserve was set aside by the Conservation Fund as habitat for threatened red-cockaded woodpeckers.

» ***palmettopeartree.org***

POCOSIN ARTS (Map #6)

This nonprofit arts cooperative in downtown Columbia has a gallery with local arts and crafts, many for sale. It offers workshops, classes and retreats and brings in visiting artists for demonstrations.

» ***www.pocosinarts.org***

POCOSIN LAKES NATIONAL WILDLIFE REFUGE (Map #5)

The 110,000 acres that make up the refuge were slated to be stripped mine for peat in 1980s. Led by the then-new N.C. Coastal Federation, commercial fishermen, farmers and local residents fought the proposal. The peat miners eventually gave up and land was donated to the federal government. It is now home to endangered red wolves and a host of birds, reptiles and mammals.

» ***www.fws.gov/pocosinlakes/***

PORTSMOUTH VILLAGE (Map #20)

Step back in time and visit this historic fishing and shipping village on the north end of Portsmouth Island. The village was founded in 1753 and largely abandoned after a series of hurricanes at the turn of the 20th century. The last resident left in 1971. The site and buildings became part of Cape Lookout National Seashore five years later and are now on the National Register of Historic Places. Private ferries from Ocracoke will take you to the village.

» ***www.nps.gov/calo/index.htm***

SWAN QUARTER NATIONAL WILDLIFE REFUGE (Map #3)

The 16,400-acre refuge includes a waterfront dock that's a great place to gain access to Pamlico Sound or just stop for quick walk or picnic. The tens of thousands of waterfowl that use the refuge each winter faced a serious threat in 2004, when the Navy announced plans to build a practice landing field nearby. Public opposition forced the Navy to drop its plans.

» ***www.fws.gov/swanquarter/***

TURTLE TALES

BY CORINNE SAUNDERS

BUXTON – Ranger Abe laid the display items on a wooden bench in the pavilion of the Cape Hatteras National Seashore's Hatteras Island Visitors Center: a large loggerhead sea turtle shell, a baby sea turtle preserved in a jar, a sea turtle skull and a transparent, cube-shaped container of Ping-Pong balls.

About 45 people – from Pennsylvania, Illinois, Ohio and various parts of North Carolina – gathered in the welcoming shade to listen to Park Ranger Abe Hartsell talk about one of our coast's most beloved visitors: sea turtles.

Ranger Abe noted that a sea turtle lays 80 to 100 eggs, which incubate for about 60 days before the babies hatch and "scurry toward the ocean."

The sea turtles then go through "the lost years" in the open sea – so-named because it's hard to track them. They eat, get bigger and find a mate, Hartsell said.

"Their ultimate goal is to make it back to the beach to lay eggs of their own," he said.

Hartsell led an interactive game to demonstrate the obstacles sea turtles face throughout their lives. Everyone drew numbered Ping-Pong balls from the container.

"If the mother digs too deep, it will be too cold, and the eggs don't develop properly," he said. "If she digs too thin, it could actually fry the eggs. If you drew a number eight, you didn't hatch." Participants returned No. 8 balls to the plastic container.

"Sea turtles like to come out at night," he said, because sand gets too hot during the day.

"They need to make it to the ocean to find food and use the moonlight reflecting off the ocean to guide them. Artificial lighting such as streetlights can lead them in the wrong direction," Hartsell said. "If you drew a number seven, you're getting confused. Put your Ping-Pong balls back." Some studies show that half of the hatchlings will head the wrong way, he added.

Predators on the beach could also intercept turtles trying to reach the ocean. He asked what predators hunt them.

"Seagulls?" guessed a young boy.

"Birds don't really hunt at night," Hartsell replied, noting that foxes, raccoons and crabs do.

Raccoons can bite right through the soft shells of the newly hatched; and "ghost crabs love baby sea turtles," he said, holding up an enlarged picture of a ghost crab.

"Their favorite part is the brain," he said. "They will kill just to eat the brains. They're like the zombies of the beach at night. Unfortunately, some of us got our brains eaten." No. 6 balls were returned.

"Other predators are waiting in the ocean to gobble us up," he continued. "We're slow swimmers. If you drew a number nine, you got eaten by a fish."

He congratulated those still holding balls at this point, noting the container rapidly refilling with Ping-Pong balls in front of him. The game wasn't over.

"It's starting to get light out," he said. "We have some birds waiting to eat us. Pelicans dive right down and scoop us up. We have fish coming from below, birds from above; it's pretty tough."

The remaining sea turtles in the audience were allowed to grow bigger. They soon learned that size, however, is not always advantageous.

"Sometimes when you get too big you get stuck," he said, explaining how larger turtles can get caught in crab pots and fishing lines and fishing nets.

Sea turtles breathe oxygen, so those stuck in nets and unable to make it to the surface will drown. More balls were returned.

"Some of us were caught on accident. Some were caught on purpose," he said, holding up the loggerhead shell.

He explained that while in some cultures people eat turtles and some poachers take more than fishing limits allow, the shell is what poachers are typically after, for jewelry-making.

"If you drew a number three, you're dangling from someone's ears."

Hartsell then held up a glass jar with a translucent form swirling in its water. "Sea turtles love to eat jellyfish. So this is a plastic bag; it looks like a jellyfish."

Plastic bags and other trash can suffocate them outright, or build up in their intestine over time. Since they can't pass plastic, it eventually kills them, he said. Also, like humans, sea turtles can get sick from tumors.

The game concluded with only two people holding Ping-Pong balls. "We started with 100," said Hartsell. "Only two made it. I've been told one in 100 is the sea turtle success rate."

If participants see a turtle nest, Hartsell said to think about the one percent that will survive to lay eggs of their own. "It's like winning the lottery for them."

The staff at Cape Hatteras National Seashore has monitored sea turtle activity in the park since 1987. Loggerheads and green sea turtles are classified as threatened under federal law. Leatherbacks, Kemp's Ridleys and hawksbills are listed as endangered.

The Outer Banks is the extreme northern nesting limit for four of the five sea turtle species. The hawksbills nesting range is farther south. According to Seashore park data, of the 222 documented turtle nests in 2012, 219 were loggerhead nests.

The National Park Service is offering a sea turtle nest excavation program beginning mid to late June. A park ranger will present a program on sea turtles as biologists dig up the nest, count eggshells and collect unhatched eggs for research. Live hatchlings are sometimes found too.

Notice of the nest excavation program occurs a day in advance, so those interested are encouraged to regularly call the program hotline at 252-475-9629.

This summer (May 22 to Sept. 1) the kids' sea turtle program "Especially for Kids" will be at the Ocracoke Island Visitor's Center every Tuesday and Thursday at 2 p.m. The Hatteras Island Visitor's Center will host two kids' programs that cover a range of topics from week to week, including "For Kids: Ocean Beach Explorers" on Tuesdays at 10 a.m. and "For Kids: Pamlico Sound Explorers" on Wednesdays at 3:30 p.m.

LIONFISH: It's What's For Dinner

BY LIZ BIRO

"Severe reactions include nausea, vomiting, abdominal cramps, tremors, abnormal heart rhythms, weakness, shortness of breath, seizures, decreased blood pressure, fainting and paralysis. Death may occur."

But that's only if they sting you.

Those symptoms are listed by Atlantis Charters Diving and Fishing Adventures in Atlantic Beach as a warning for divers encountering lionfish. Poisonous, stinging spines and the swiftness at which this invasive species has populated North Carolina waters make lionfish a menace. When lionfish are dressed and cooked, however, the only danger is eating too many.

"They remind me a lot of trigger fish," Bistro by the Sea restaurant owner Libby Eaton of Morehead City told the *Charlotte Observer* of lionfish's delicate taste when she helped arrange the inaugural "If You Can't Beat 'Em, Eat 'Em" lionfish spearfishing tournament off Morehead City (see June 24, 2013 *Coastal Review Online* for the first story in the series). The April 2013 event encouraged divers to hunt lionfish and featured the catch's tasty rewards.

Native to the South Pacific and Indian oceans, lionfish were once mere saltwater fish tank curiosities, especially in America. The National Oceanic and Atmospheric Administration reported that lionfish showed up off the U.S. East Coast in the 1990s.

Lionfish have since established themselves from North Carolina to Florida, even down to South America and north to New England, NOAA discovered. Many researchers blame the aquarium trade for the lionfish invasion.

Lionfish stings threaten divers and swimmers. Plus, "Not only are they voracious predators that out-compete many other species for food resources, but they also have few known natural predators of their own," NOAA reported.

How lionfish populations exploded so widely and rapidly is an ongoing debate, but researchers agree the invasive species' numbers will continue to grow, posing harm to humans and marine environments.

Although lionfish are venomous, their meat is safe to eat. Diners who get lionfish will be rewarded with moist, mild-flavored meat that recipe testers for the N.C. State University Seafood Laboratory found to be similar in texture and flavor to pink snapper.

Southeast coast divers encounter so many lionfish that many of them have contributed recipes to various publications, including the Lionfish Hunter Website, which boasts the "largest collection of lionfish recipes anywhere."

Also, look for the "Lionfish Cookbook" by chef Tricia Ferguson and REEF executive director Lad Akins.

REEF, or the Reef Environmental Education Foundation, is a Key Largo, Fla., grass-roots, non-profit organization of recreational divers committed to ocean conservation. Proceeds from the cookbook's sales benefit REEF.

Cooks dressing fresh lionfish must watch the fish's spines. Touching them is OK, but if the spines pierce the skin, their toxin is released, Akins warns in a "Changing Seas" South Florida Public Television series video demonstrating how to trim, skin and filet the fish.

Diners who would rather leave the cooking to professional chefs may find local restaurants that serve lionfish, said Amanda Miller, founder of Dock to Door Seafood, a wholesaler focused on sustainable and unconventional species.

"It's very difficult and very dangerous to harvest, so it's hard to get any on a regular basis," Miller said. "I only got 50 pounds once, and two restaurants purchased all 50 pounds and are ready for more."

"I've had some people say 'They're so weird-looking. How do you eat that?'" Miller said. Consider these recipes:

Lionfish *Photo © Tess Malijenovsky*

Broiled Lionfish with Garlic-Basil Butter

SERVES 6

For the garlic-basil butter:

- ½ cup margarine or butter, softened
- 1 teaspoon pressed garlic
- 1 teaspoon finely chopped fresh basil
- 1 teaspoon fresh lemon juice
- 1/8 teaspoon salt

For the fish:

- 6 small lionfish fillets
- 2 tablespoons margarine or butter, melted
- Salt
- Freshly ground black pepper

Prepare garlic-basil butter: In small bowl, combine butter or margarine, garlic, basil, lemon juice and salt. Allow to stand for one hour for flavors to develop.

Prepare fish: Place fillets on lightly greased broiler pan. Brush with melted margarine. Sprinkle lightly with salt and pepper. Broil about four inches from heat until fish flakes easily with a fork, about four to five minutes. Brush warm filets with garlic-basil butter.

Source: Mariner's Menu blog, N.C. Sea Grant

Ruby Red Grapefruit Lionfish Ceviche

SERVES 2

- 4 Ruby Red grapefruits
- 2 oranges
- 4 limes
- 3 lemons
- 4 tablespoons simple syrup
- 1 lionfish filet, diced into medium pieces
- ½ red pepper, diced into small pieces
- ¼ bunch cilantro, chopped fine
- 1 Ruby Red grapefruit, segmented
- 1 orange, segmented

Juice grapefruits, oranges, limes and lemons and strain juice into a large glass or stainless steel bowl, being sure to strain seeds and pulp from citrus juices. Stir in simple syrup. Add lionfish, peppers and cilantro. Stir mixture, cover bowl and refrigerate about three hours or until all fish has turned white.

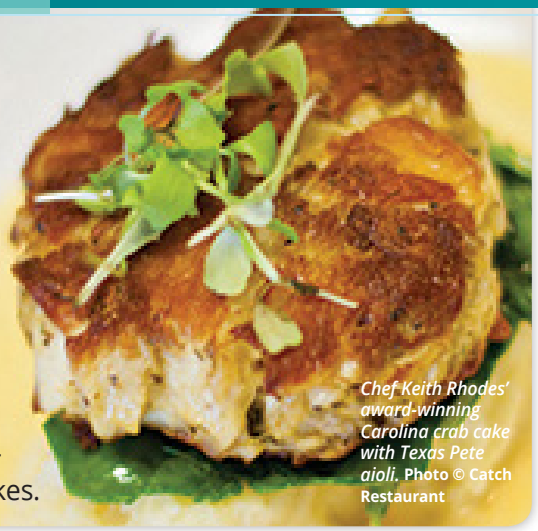
Add grapefruit and orange segments to mixture. Spoon ceviche into a chilled glass serving bowl or into chilled individual glasses or glass bowls.

Source: Chef Drew Hedlund, Fleet Landing restaurant (www.fleetlanding.net) in Charleston, S.C., for *Guy Harvey Magazine*.

CRAB CAKES

BY LIZ BIRO

Blue crabs' lives are tales of violence, cannibalism and pain – until their story turns to crab cakes.



Chef Keith Rhodes' award-winning Carolina crab cake with Texas Pete aioli. Photo © Catch Restaurant

The live crustaceans' toothy claws can bloody a finger in a single bite. Big crabs make hearty meals out of their smaller brethren. A crab even gnawed mighty Hercules' pinned foot as the Greek god battled to save the world from the nine-headed serpent Hydra.

"A crab is like a buzzard. It will eat anything," Scott Rader, a Cape Fear-area commercial fisherman, once said.

All that ferocity is forgotten when meaty, golden-brown crab cakes land on the menu.

Despite the blue crab's fierce appearance and aggressive nature, its scientific name, *Callinectes sapidus*, taken from Latin and Greek, means beautiful or savory swimmer. The crustacean's characteristic sweetness and tender, juicy meat are what crab cake fans have always been after.

Cheaper, less attractive claw meat makes delicious crab cakes, noted Joyce Taylor, author of *Mariner's Menu: 30 Years of Fresh Seafood Ideas* (University of North Carolina Press, 2003). Claw meat's brown tint and slightly coarse texture is less apparent in a crab cakes. Still, body meat, either top-of-the-line lump crab or the slightly lower-grade backfin meat, supply a sweeter taste and much finer texture.

Whatever grade is chosen, select fresh, unpasteurized crab meat, Taylor advised. Unpasteurized crab meat consists of fresh, cooked, picked and packaged crab meat. Highly perishable, it must be used within a couple days. Pasteurized meat is cooked and sealed in cans that may be kept refrigerated for several months. Taylor thinks unpasteurized, fresh crab from a reputable, local source tastes better in crab cakes.

Her other advice: Don't add too much filler, whether bread crumbs or cracker meal, and don't muddy the crab's flavor by over seasoning. Taylor's recipe, named "Deluxe Crab Cakes," contains just 1½ tablespoons of cracker crumbs to a pound of crab.

"The only problem with this recipe is it has so much crab meat it's hard to keep them (crab cakes) together," she said.

Gently forming the cakes aids the shaping process, and refrigerating them briefly before frying helps the cakes stay together in the pan.

A little seasoning is OK. Fresh parsley has been added since the 1600s. A touch of lemon juice balances the crab's richness, as Taylor's crab cakes prove. Fry crab cakes in neutral-flavored oils, as butter will overwhelm their savor.

Wilmington chef Keith Rhodes of Catch restaurant in Wilmington favors fresh ginger over lemon juice to zest his crab cakes. In 2011, Rhodes won the N.C. Seafood Festival's Cooking with the Chefs crab cake contest in Morehead City.

The competition, judged by diners and professional cooks, gave Rhodes the opportunity make the statement dreamed about by seafood restaurant chefs and home cooks alike: "Come try our award-winning crab cakes!"

SERVES 6

Deluxe Crab Cakes

- 1 egg, beaten
- 2 tablespoons mayonnaise
- ½ teaspoon dry mustard
- 1/8 teaspoon cayenne pepper
- 1/8 teaspoon Tabasco sauce
- ½ teaspoon freshly ground white pepper
- 1 pound unpasteurized lump, claw or a combination of both
- 3 tablespoons minced fresh parsley
- 1½ tablespoons fresh cracker crumbs
- Vegetable oil for frying
- Lemon wedges

In a medium bowl, whisk together egg, mayonnaise, mustard, cayenne pepper, Tabasco sauce and white pepper. Add crab meat, parsley and cracker crumbs to the bowl. Gently toss mixture together using a fork.

Shape mixture into six to eight patties, each about one inch thick. Wrap the patties in wax paper and refrigerate for 30 minutes.

Place a heavy, large skillet on the stove over medium-high heat. Pour oil into the pan to depth of about one quarter inch. Remove crab cakes from the refrigerator. When oil is hot, add crab cakes to the pan, working in batches if necessary so as not to crowd the pan.

Fry crab cakes until golden brown on one side, about four to five minutes. Flip cakes and fry the other side. Drain crab cakes on a paper-towel-lined platter. Serve with lemon wedges.

Source: *Mariner's Menu: 30 Years of Fresh Seafood Ideas* (University of North Carolina Press, 2003) by Joyce Taylor.

SERVES 5

Carolina Crab Cakes with Texas Pete Aioli

- 1 pound N.C. jumbo lump crab meat
- ½ tablespoon minced fresh ginger
- 1 teaspoon each of sea salt and white pepper
- 1 large egg yolk
- 2 tablespoons mayonnaise
- 6 saltine crackers, ground to a powder

Combine all ingredients in a large bowl and shape mixture into three-ounce cakes. You should get about five cakes per pound of crab meat. Place a large sauté pan over medium heat. Add about one third cup of soybean oil. When oil is hot, add crab cakes and cook four minutes per side until toasted brown crust appears. Remove crab cakes from pan. Drain on a paper-towel-lined platter. Serve with Texas Pete aioli.

Texas Pete Aioli

- 1 cup mayo
- 1/3 cup Texas Pete hot sauce
- 1 teaspoon garlic powder
- 1 teaspoon white pepper
- ½ tablespoon honey

Whisk all ingredients together in a medium bowl. Makes one cup.

Source: Chef Keith Rhodes, Catch restaurant, Wilmington.

James Barrie Gaskill is an Ocracoke fisherman and a board member of the Coastal Federation.

Real Tastes of the Coast

NORTHEAST

Basnight's Lone Cedar, Nags Head
The beautiful waterfront views throughout the restaurant are worth a visit. But the restaurant also serves delicious food. All the seafood is locally caught, and the fishermen are recognized on the menu.

» ***www.lonecedarcafe.com***

Café Lachine, Nags Head
This casual eatery serves breakfast, lunch, and dinner. Everything is made from scratch on-site and locally sourced whenever possible. The northeast staff makes this their go-to lunch stop.

» ***www.cafelachine.com***

Full Circle Crab Company and Call of the Wild, Columbia
As far as I'm concerned this is high dining: Love Willy's seafood trailer set up by the road side next to the Crab Co. I've been several times for lunch and would drive miles out of the way to sit on a picnic table and enjoy a freshly-cooked crab cake sandwich. They also have shrimp and oyster burgers, scallop kabobs and great onion rings. It's seasonal, so check out their web site before going if you plan to eat. The seafood market is open year round.

» ***www.fullcirclecrabco.com***

The Meeting Place, Washington
Daily lunch specials are wonderful and come served with fresh poppy seed muffins. Enjoy a stroll along the waterfront after lunch and visit the N.C. Estuarium.

Outer Banks Brewing Station, Kill Devil Hills
America's first wind-powered brewery is near the Wright Brother's Memorial where the Wright Brothers first flew. Enjoy a flight of their hand-crafted brews or take a growler to go. Their eclectic menu and relaxed atmosphere make this a favorite among locals and visitors alike. They also have live music most nights during the summer.

» ***www.obbrewing.com***

Old Salt Oyster Bar, Columbia
This new restaurant in historic downtown Columbia is worth a stop. Enjoy their seafood gumbo or oyster specials.

» ***www.oldsaltoysterbar.com***

CENTRAL

Beaufort Grocery, Beaufort
Located in Beaufort's Historic District, the restaurant is reminiscent of a French country bistro. You can even sit outside under the awning. The menu changes often, and the Sunday brunch is famous. Dinner is a little pricey, but always delicious and fresh.

» ***beaufortgrocery.com***

Big Oak Drive-In, Salter Path
Nestled in the trees off the main road, this strictly take-out drive-in serves off-the-hook shrimp burgers and onion rings. Fish plates – complete with fries, slaw, hush puppies and tea – are fresh and reasonably priced. Be prepared for crowds on busy summer weekends.

» ***bigoakdrivein.com***

Roland's Barbeque, Beaufort
It doesn't get more local than Roland's. Good pork barbecue – Eastern N.C. style, of course – with side orders not normally served in barbecue joints. Things like yams and collards.

Ruddy Duck, Morehead City
Located in the original Sanitary Fish Market building on the waterfront Evans Street, the restaurant serves fresh mostly local food, including seafood. The chef is very open to cooking something to order, depending on how busy they are. You can sit outside and watch the boats motor along the creek.

» ***ruddyducktavern.com***

The Shark Shack, Atlantic Beach
Best grouper sandwich in town. It's huge and delicious. The fish tacos, burgers and crab cake baskets aren't bad either. This is a family-friendly place where you eat outside at picnic tables. Bands play on weekends during the summer.

SOUTHEAST

Britt's Doughnuts, Carolina Beach
Doughnuts have been made the same way on this boardwalk doughnut shop since 1938. Four products: Glazed doughnuts, milk, coffee and soft drinks.

Causeway Café, Wrightsville Beach
This Wrightsville Beach eatery is an icon. Owner David Monaghan is famous for yelling out patrons' names so loud it will scare the wits out of you. Fresh local seafood, great hamburgers and, most of all, the best place in Wrightsville Beach for breakfast.

Catch Seafood, Wilmington
Federation supporter and nationally recognized chef Keith Rhodes has hosted events for the federation and has been on the TV show Top Chef. The restaurant is housed in a nondescript strip mall on Market Street but serves up some of the best seafood in the region.

Chops Deli, Wilmington
Who doesn't love a good sandwich? Chops uses fresh, locally baked bread, and most of their sandwich accoutrements – lettuce, tomatoes, sprouts, arugula – are grown locally. The meats and cheeses are all Boars Head's products. The restaurant is also committed to recycling and using biodegradable paper products to lower their impact on the landfill.

» ***www.chopsdeli.com***

Greenlands, Bolivia
Heather and Henry Burkert of Greenlands Farm believe that food should be from the farm to the fork, fresh and free from harmful additives. They practice sustainable organic agriculture. Their breads are made with organic flours that have no preservatives or trans fats. Most importantly, they believe in supporting our neighbors, community and local businesses. Eat well, live well! ón bhfeirm (on the farm).

Holland's Shelter Creek Restaurant, Burgaw
Waterfront dining usually means an ocean view. But this restaurant, east of Burgaw on N.C. 53, sits above Shelter Creek, a branch of the Northeast Cape Fear River. It started off as a bait and tackle shop with a gas pump 30 years ago, but the Holland family eventually decided that serving food was the way to go. In addition to the great view and the food, just below the restaurant they also rent kayaks, canoes, flat bottom boats, RV spaces and cabins for those who want to further enjoy the scenic setting.

Jebby's, Hampstead
This local grill and sports bar serves up local seafood, burgers and daily specials like seafood chowder and clams and oysters from Topsail Sound. It's a popular hangout for folks in Hampstead.

Mega Maki Sushi & Catering
This takeout-style restaurant a block away from the river boardwalk in downtown Wilmington serves an unlikely but brilliant pairing none the less: sushi and ice cream. It is home to customizable sushi rolls ($5-$10) made on the spot and Velvet Freeze's homemade ice cream and vegan Italian ice, which boast the most unique flavors in town—from lavender ice cream to lemon basil ice.

Riverview Café, Snead's Ferry
A great place to eat seafood in a relaxed place with stellar views of the water and a nearby fish house. Open since 1946, fresh seafood includes what's currently running in the river including spot, bluefish, croaker, shrimp and flounder.

Places worth visiting . . .

NORTHEAST COAST

1. Alligator River Growers
2. Mattamuskeet National Wildlife Refuge
3. Swan Quarter National Wildlife Refuge
4. Goose Creek State Park
5. Pocosin Lakes National Wildlife Refuge
6. Pocosin Arts
7. Palmetto-Peartree Preserve
8. Full Circle Seafood Market
9. Alligator River National Wildlife Refuge
10. N.C. Coastal Federation Office
11. Dismal Swamp State Park
12. Nags Head Woods Ecological Preserve
13. Jockey's Ridge State Park
14. Oregon Inlet Fishing Center
15. Herbert C. Bonner Bridge
16. Pea Island National Wildlife Refuge
17. Buxton Woods
18. Albatross Fleet
19. Ocracoke Fish House & Watermen's Museum
20. Portsmouth Village

CENTRAL COAST

21. Cedar Island Boat Ramp
22. Cedar Island National Wildlife Refuge
23. Thorofare Creek Boat Ramp
24. Core Sound Waterfowl Museum & Heritage Center
25. Cape Lookout National Seashore Visitors Center
26. Cape Lookout National Seashore
27. Rachel Carson Reserve
28. Fort Macon State Park
29. Hoop Pole Creek Nature Trail
30. N.C. Coastal Federation Office
31. Patsy Pond Trail
32. Emerald Isle Woods
33. Cedar Point Recreation Area
34. Huggins Island
35. Hammocks Beach State Park
36. Clyde Phillips Seafood
37. Jones Island
38. Haywood Landing Recreation Area
39. Catfish Lake
40. Great Lake
41. Croatan National Forest
42. Brices Creek
43. Neusiok Trail
44. Riverworks at Sturgeon City

SOUTHEAST COAST

45. Permuda Island
46. Morris Landing
47. Karen Beasley Sea Turtle Hospital
48. New Topsail Inlet
49. Rich Inlet
50. Mason Inlet
51. N.C. Coastal Federation Office
52. Airlie Gardens
53. Northeast Cape Fear River
54. Brunswick Nature Park
55. Lockwood Folly River
56. Tubbs Inlet
57. Bird Island

PECTACULAR COAST

SEAFOOD BIBLE

BY LIZ BIRO

If you asked her about her early days as a seafood education specialist for North Carolina Sea Grant, Joyce Taylor probably would have told the crab story.

Shortly after accepting the position in 1973, Taylor was tasked with teaching a blue crab cooking class in western North Carolina. She transported a bunch of the pinchers in the trunk of her car. They had to be alive, of course. Taylor was a stickler for using fresh seafood long before today's "eat local" mantras.

As she made the long drive across the state, Taylor heard the crabs scurrying in their container, causing her to wonder how many would dance across the demonstration room floor at her destination.

No toes were bitten, and the lesson ended up one of many that launched Taylor's reputation as North Carolina's "Guru of Seafood."

Taylor died last year, but the seafood bible she wrote with the help of coastal N.C. cooks endures.

Mariner's Menu: 30 Years of Fresh Seafood Ideas compiles not only dozens of recipes developed and carefully tested by Taylor and the team, but also details about North Carolina's seafood history, the health benefits of fish and shellfish, aquaculture, seafood safety and how to handle, clean and store seafood – as well as kitchen tips and cooking tidbits like how to clarify butter.

Although Sea Grant did not publish the book until 2003, its content began in the early 1970s when the agency enlisted the seafood cooking wisdom of Carteret Extension Homemakers, an offshoot of Cooperative Extension programs that partner with county, state and federal governments to help people gain access to research generated by public universities. The idea was to share seafood research with fishers and seafood processors and help them market the catch.

In Morehead City kitchens, Taylor directed mostly women who had a lifetime of knowledge about the North Carolina's traditional seafood cookery. Sea Grant asked Taylor and them to document those recipes but also to develop and test new ideas and techniques.

Besides creating gourmet dishes such as Soft Crabs Amandine or Flounder Filets with Black Butter Sauce, the ladies conducted various seafood experiments. No matter the recipe, Taylor made sure the seafood's flavor was apparent. Hence, many recipes in Mariner's Menu are no-fuss dishes with few ingredients.

The women also found ways to use bits of meat and bone leftover from filleting fish. They created fresh flaked fish, an alternative to canned products. They tested ways to freeze seafood to retain texture and flavor. Sometimes, the group worked on formulas for commercial food operations.

Their efforts were documented in various publications, including a quarterly newsletter titled "Mariner's Menu," edited by Taylor and distributed to 3,300 subscribers between 1990 and 1996.

Surprisingly, Taylor was an Asheville native who grew up in the Blue Ridge Mountains. Born in 1932, she didn't reach the coast until the mid-1950s when she came to Carteret County to work as a public school teacher.

Her first assignment with Sea Grant was taste-testing croakers and gray trout. Throughout her seafood career, she promoted other lesser-known species taken off the state's coast. Many recipes are recorded in Mariner's Menu.

"People have not been comfortable cooking seafood," Taylor said in the book, distributed by the University of North Carolina Press. But after reviewing a simple recipe or watching Taylor prepare seafood at one of the many classes she conducted, landlubbers gained confidence with fish and shellfish cookery, no matter if it was familiar grilled grouper or unusual catfish stir-fry.

A "Mariner's Menu" chapter is devoted to showing readers how to clean seafood. Drawings demonstrate techniques, including how to dress soft-shell crabs.

Like Taylor herself, "Mariner's Menu" makes preparing seafood seem like a breeze. Taylor said her knack for showing cooks the way came from her years as a teacher.

"I don't think learning should be tedious," she said. "I have a good time."

Hot Crab Dip

- 1 pound backfin crabmeat
- 8 ounces cream cheese
- 1 tablespoon milk
- 2 tablespoons grated onion
- 1 tablespoon fresh lemon juice
- 1 teaspoon horseradish
- ¼ teaspoon freshly ground white pepper
- Paprika
- Remove any shell or cartilage from crabmeat.

Mix cream cheese, milk, onion, lemon juice, horseradish and white pepper in a medium bowl. Gently fold in crab meat. Place mixture in an eight-inch pie dish. Sprinkle with paprika. Bake at 350 degrees for 15-20 minutes or until bubbly. Serve with assorted crackers.

Source: *Mariner's Menu: 30 Years of Fresh Seafood Ideas*

SERVES 3

Soft Crabs Amandine

- 6 soft-shell crabs, cleaned
- Salt
- Pepper
- Flour
- 3 tablespoons vegetable oil
- 4 tablespoons butter
- ¼ cup almond slivers
- 2 tablespoons fresh lemon juice

Sprinkle crabs with salt and pepper. Dredge in flour and shake off excess. Heat oil in a large skillet over medium heat. Add three tablespoons of butter. When butter sizzles, place crabs top-shell-side down in skillet. Sauté until crisp and golden, about four to five minutes. Turn crabs over and repeat cooking time. Remove crabs to warm platter.

Heat the remaining one tablespoon of butter in the same skillet. Add almonds and sauté until golden brown. Stir in lemon juice. Pour over crabs.

Source: *Mariner's Menu: 30 Years of Fresh Seafood Ideas*

Kayaking Calico Creek

BY CHRISTINE MILLER

MOREHEAD CITY – I live on Calico Creek in Morehead City. If you know anything about the town, your response to that statement is probably something along the lines of "Yuck." This small tributary of the Newport River has a long and sometimes troubled past as a place where Morehead dumps its sewage.

But, believe it or not, it's well worth a look from the cockpit of a kayak.

Before I put in, I wanted to get a little more background on the creek. At the History Place, a local museum, I pored over old maps and newspaper articles and availed myself of the encyclopedic knowledge of John Stephens, a local historian and weekly volunteer who grew up in the area. He shared both the history and his memories of growing up on the creek.

The first deed in the area is dated 1722, when land around the creek was used for timber and farming. During those early times, the creek was deep enough that its banks were a center of water-based commerce — home to a sawmill, a shark processing plant and a brick yard. The brick yard was built to supply the bricks for Fort Macon, which was built over 10 years beginning in 1826. The fort in nearby Atlantic Beach is now the centerpiece of a state park.

The creek was also known for producing large quantities of crabs. Crab Point, the name given the north side of the creek and the Newport River, reminds us of this history. Oysters, shrimp and fish were also plentiful and supplemented many a farm family.

Calico Creek, though, has been closed to shellfishing since the 1950s, which is when the Shellfish Sanitation Program of the state Division of Marine Fisheries began keeping records, reports Shannon Jenkins, an environmental senior specialist with the program. Morehead City now boasts a modern sewage treatment plant with an impeccable record, but in the bad old days, raw sewage was discharged into the headwaters of the creek. The waters remain closed to shellfishing because it's believed that the sediments, which have made the headwaters so shallow, remain contaminated.

One of the most famous residents of Calico Creek was Emeline Pigott, a young woman who became a Confederate spy during the Civil War. She was known for her daring exploits as she smuggled messages tucked in her voluminous skirts across enemy lines and hosted clandestine travelers at the family farm. At one point she was jailed and sentenced to death. She was then mysteriously released; supposedly because of the secret information she had on Union officials.

A great egret snatches its prey. Photo © Sam Bland

The Pigott homestead took up all of what is now my neighborhood; the family cemetery sits by the creek, tended by the city. Stephens remembers going on Easter egg hunts in the Pigott yard in the mid-1930s. He also has fond memories of going up the creek with his friends on a skiff, and getting back after dark, to the consternation of his parents.

There's a public access point and floating dock at 608 Bay St., at the intersection of Bay and Sixth streets. Parking is on the street. Timing is key to launching here: if the tide is low, it adds a long, boat-hauling walk over oyster shells to the trip. We put in just before high tide and floated right from the dock.

As we curved around a marshy island just north of the yacht basin, a pair of dolphins surfaced about 30 feet from our boats. They escorted us across the mouth of Calico Creek and into the Newport River, their skin gleaming in the sun, the exhalations from their blow holes sounding a husky counterpoint to the gulls' cries.

We paddled across the river to a small island beach. The short sandy spit is a common stopping point for boaters and paddlers. After a quick lunch beachside, we set out to explore the marsh. This area is known as Haystacks, and it is a haven for kayaking because much of it is generally too shallow for powerboats. We meandered along the narrow passageways, startling herons and egrets as we passed. Fish ruffled the water's surface, causing mullet to jump and taunting us. There are passages through the marsh, but we picked the wrong paths, so we retraced our way out.

With the sun starting to set, we paddled back across the river toward the mouth of the creek. Once again we were joined by a pair of dolphins that stayed with us until we passed the yacht basin.

We pulled our boats out of the water, dragging them to the banks since the tide had fallen. A couple on the dock had caught puffer fish, which actually does taste like chicken, and mullet. My companion had trolled a line behind the boat during the trip to no avail. As we loaded up, I was grateful that this beautiful trip was available to me just by crossing the street to my neighbors' yard. The public access is a much easier way to start; however, the bridge on 20th Street is impassable at high tide.

If you're looking for a local trip, give Calico Creek and the Newport River a try. You'll be glad you did.

A pair of dolphins surfaced near our boats both coming and going.

CAPE LOOKOUT

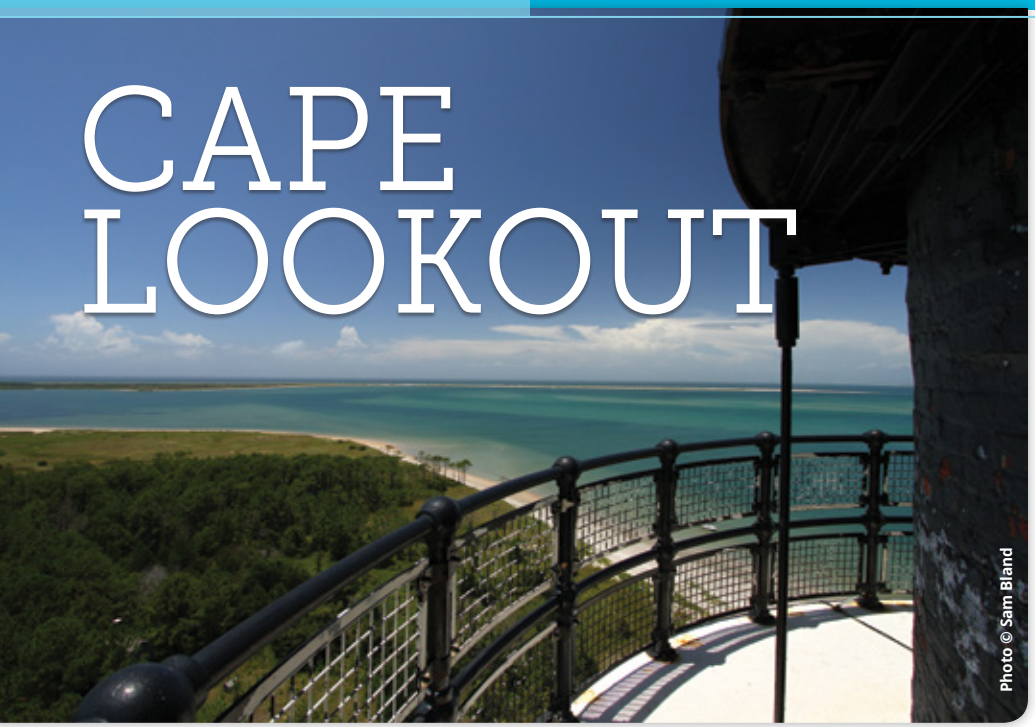


Photo © Sam Bland

BY SAM BLAND

HARKERS ISLAND – After millions of years of erosion, winds, tides, currents, storms and hurricanes, the N.C. coast is now decorated with barrier islands and three prominent capes. Each of these capes – Hatteras, Lookout and Cape Fear – has its own distinctive natural and cultural history.

As a native of Carteret County, I decided to refresh myself in the wonder of this amazing place. I hopped on one of the local ferry service skiffs out of Harkers Island for a kidney-pounding ride across Back Sound and Barden's Inlet on a brilliant but windy summer afternoon. Off in the distance, the lighthouse beacon was winking every 15 seconds as the ferry captain expertly skimmed the craft over the crystal clear, shallow, turquoise waters. As we rounded the tip of Shackelford Banks, before entering the famous Lookout Bight, we saw a welcoming committee of Banker horses lounging lazily in the hot, baking sun.

An early morning squall had left most boats anchored at the docks, leaving the Bight harbor practically empty. Lookout Bight has long been a refuge for mariners seeking shelter during a storm. The Native Americans, known as the Coree, were most likely the first to ply these waters in their dugout canoes. Over the years, Florentine explorers, Spanish and French privateers, British warships, whalers, lifesavers and the U.S. Coast Guard have all dropped anchor here. It has even been suggested that Blackbeard the pirate sailed out of the Bight to prey on merchant ships. This site was so valuable to a group of French privateers that they built a fort, called Fort Hancock, to keep the British ships at bay during the Revolutionary War.

Without a pirate in sight, the ferry captain dropped me off at a dock just a short distance from the Cape Lookout Lighthouse. Today, as a national seashore, Cape Lookout conjures up images that in no way reflect the impressions it had on ancient sailors. Some of the earliest maps of the area name this sandy hook-shaped spit as *Promontorium Tremendum*, which translates into "Horrible Headland." Extending some 16 miles off the cape, shallow sandbars snared unwary ships like a moth in a spider's web.

Owners and captains of merchant ships soon demanded that a lighthouse be built to guide ships. A 94-foot-tall, brick and wood, red and white tower was built in 1812 to provide a beacon of salvation. Yet, the height of the structure proved to be limited in providing an effective reach of light out to sea. This limitation was rectified in 1859 when a new 163-foot lighthouse was built, providing a light visible up to 18 miles.

The lighthouse still stands 154 years later; and after some safety renovations, the National Park Service is now allowing visitors to climb the tower. The early light sources were lamps fueled with whale oil or kerosene and were magnified by the powerful prisms of a first order Fresnel lens. As I began my climb up the stairs, I tried to imagine carrying a 45-pound, 5-gallon can of fuel all the way to the top. Climbing 216 steps, the lighthouse keepers must have developed enlarged quad muscles that would make a professional cyclist jealous.

The red brick interior staircase was wider than I expected, and the short steps made for an easy climb. Near the top, the short final staircase is quite narrow before reaching the landing that accesses the exterior catwalk. I needed to crouch and awkwardly step through the short, steel fortified hatch doorway that has sealed out many hurricanes. Outside on the gallery, I righted myself as the view and wind took my breath away. Involuntary reflexes allowed me to continue breathing as the beauty of Cape Lookout stretched out below me, overwhelming my senses. Every direction was pure delight – "eye candy," as some would call it.

A limited number of visitors are allowed into the gallery at a time, resulting in time limits. Reluctantly, I stepped back through the hatch and into the watch room. On this upper landing you can see into the lantern room and watch the two rotating beacons that replaced the Fresnel lens in 1975. Descending the steps I paused to look up at the twisting spiral staircase. The steps and central support post looked like a giant auger spinning in a shaft.

Once out of the lighthouse, I followed a long boardwalk that protected the fragile dune fields and emptied visitors out on the beach. Even though the wind had subsided, the gorgeous, golden beach was practically empty except for a few tourists – called "dit dots" by the locals – lying on beach towels getting sizzling sunburns on their alabaster bodies. At the end of the boardwalk I sat on a bench for a brief rest and watched the tumbling surf crash on the beach.

Throughout the dunes, sea oats – a sand-stabilizing plant – were bursting open with fresh seed heads, which danced in the breeze. The roar of the surf and the swishing of the sea oats were lulling me to sleep.

Off in a low dune valley, a blanket of firewheel flowers created a colorful meadow

that looked like an inviting place to take a nap. But once out of the cool ocean breeze, I knew that the searing sun would shrivel me up like the pink morning glories that lined the trail.

As I walked back towards the lighthouse, the black and white diamond pattern looked different. When I first approached the lighthouse from the east the diamonds were white. Now, approaching from the south they were black. This checkered, black and white diamond pattern was painted in 1873 to distinguish the lighthouse location as Cape Lookout and to indicate direction.

I finished my visit to Cape Lookout by walking along the shoreline of the Bight where I saw bits of the past in chips of broken china plates and hand blown glass bottles. Out of nowhere, a group of black skimmers glided gracefully above the surface of the water and reminded me of the wildlife surprises that the Cape has to offer. This is a place where you might see a huge female leatherback sea turtle crawl ashore to lay her eggs on a warm summer night or catch a glimpse of a harbor seal resting and sunning itself on the beach on a cool, late winter day.

I often take long bicycle rides along our coastal barrier islands. Whenever I'm on Bogue Banks, I ride to Fort Macon and look east over Beaufort Inlet to find the lighthouse silhouette on the horizon. I'll stare intently until I see the flash of the beacon. In my early 20s, I worked as a park ranger at Fort Macon State Park and loved it when the strong, cool fronts pushed through in the early fall, erasing the sticky summer haze that often obscured sight of the lighthouse. From the top of the fort, the lighthouse would pop out from the horizon against a crisp, brilliant, blue sky resembling an oil painting.

Cape Lookout is beloved by many, and in eastern North Carolina it is easy to find miniature Lookout lighthouse replicas adorning yards as lawn art. I have heard that some of the lifelong locals that live under the sweep of the beacon refer to the comforting flash of the lighthouse as the beating of their heart. Just as the deep foundation that anchors the lighthouse firmly in the sandy soil, this lighthouse is an anchor to my roots in Carteret County.

Firewheel, or Gaillarida

OTHER PLACES WORTH VISITING

SEE MAP ON PAGES 12-13

BRICES CREEK (Map #42)

Brices Creek in the northeastern tip of the Croatan National Forest is a good paddling destination. The blackwater creek winds through a freshwater swamp on its way to the Trent River. The Craven County Recreation and Parks Department has a map on its web site.

» ***www.cravencounty.com/parks/paddle/trip13.cfm***

CAPE LOOKOUT NATIONAL SEASHORE (Map #25, 26)

The seashore consists of 56 miles of undeveloped beach stretched over four barrier islands from Ocracoke Inlet on the northeast to Beaufort Inlet on the southeast. It's a great place to pitch a tent and get away from it all. Even cell-phone service is sporadic. Climb the lighthouse (Map #26) and tour the museum in the adjacent lightkeeper's house. The Visitors Center (Map #25) on Harkers Island offers exhibits and map.

» ***www.nps.gov/calo/index.htm***

CATFISH AND GREAT LAKES (Map #39, 40)

A number of freshwater lakes dot the interior of the Croatan National Forest. The best known are Catfish and Great lakes. Canoes or kayaks are best for these shallow lakes, which support a decent population of alligators.

CEDAR ISLAND NATIONAL WILDLIFE REFUGE (Map #22)

U.S. 70 leaves the pinewoods and rises atop a causeway through a vast plain of black needlerush. Almost all of the refuge's 15,000 acres are salt marsh, making it the largest tract of unaltered, irregularly flooded salt marsh in the state. Launch your shallow-draft boat, canoe or kayak at public boat ramps where N.C. 12 crosses Thorofare Creek (Map #23) and at the end of Lola Road on Cedar Island (Map #21). Glide along and look for marsh wrens, Virginia rails and other birds. Bring along a light spinning rod because the red drum fishing can be spectacular in the late spring and summer.

» ***nctc.fws.gov/resources/knowledge-resources/Refuges/cedar_island98_lowres.pdf***

CEDAR POINT RECREATION AREA (Map #33)

From here you can explore the broad, saltwater estuaries of the lower White Oak River. The elevated trail offers expansive views of the river's saltwater marshes. Launch your canoe or kayak at the boat ramp for a serene paddle up sheltered Boathouse Creek or head for the river to catch red drum, flounder and speckled trout. You can even pitch your tent or park your RV at the full-service campground.

CLYDE PHILLIPS SEAFOOD (Map #36)

The pink and white building between the bridges heading into Swansboro is among the last of its kind. Waterfront seafood markets like this are fast disappearing all along the N.C. coast. Rising costs, declining seafood prices and the high value of waterfront property are combining to threaten the very existence of the traditional seafood market. Clyde Phillips, at this location for 50 years, is the last one in Swansboro. Here you'll find shrimp, live blue crabs and local fish species, such as Virginia mullet, striped mullet and red drum. All come from Clyde's boats, which are tied up at the dock behind the store, or bought from local commercial fishermen.

» ***910-326-4468***

SEE MAP ON PAGES 12-13

CORE SOUND WATERFOWL MUSEUM AND HERITAGE CENTER (Map #24)

Any exploration of Down East Carteret County begins here. The museum at the end of the road on Harkers Island has striking displays of the traditional craft of decoy carving. Each of the 13 small communities that make up Down East also has its own exhibit. It's there that you can look through family scrapbooks, letters and photographs and get a real feel for the culture of the region.

» ***www.coresound.com***

CROATAN NATIONAL FOREST (Map #41)

The 160,000-acre forest may not be for everyone. It's buggy in the summer, and its woods can seem impenetrable year round, but it's an island of green in a sea of asphalt and concrete between New Bern and Morehead City. You'll find miles of hiking and equestrian trails, great stands of mature longleaf pines, acres of wildflowers, endangered red-cock-aded woodpeckers and other birds, lakes and rivers for canoeing and kayaking, hunting for deer and wild turkey and places to fish. For forest headquarters, call 252-638-5628.

» ***www.fs.usda.gov/nfsnc***

EMERALD ISLE WOODS (Map #32)

Emerald Isle received a state grant to buy 43 acres along Bogue Sound to build a public park that could also be used to control stormwater. The result is Emerald Isle Woods off Coast Guard Road. The park has several hiking trails, a bathhouse, picnic shelter and floating dock on Bogue Sound.

FORT MACON STATE PARK (Map #28)

The park in Atlantic Beach offers the usual amenities of a state park as well as wonderful views of ships coming through Beaufort Inlet on the way to the state port in Morehead City.

HAMMOCKS BEACH STATE PARK (Map # 35)

Hop on the ferry to visit Bear Island, an uninhabited barrier island that is part of the state park system. The birding here is exceptional and the surf fishing can be magnificent, especially when the big red drum hit the beach in the fall. The park and the N.C. Coastal Federation offer marsh cruises throughout the summer.

» ***www.ncparks.gov/Visit/parks/habe/main.php***

HAYWOOD LANDING RECREATION AREA (Map #38)

The recreation area in the Croatan National Forest on N.C. 58 south of Maysville offers a glimpse of the White Oak River that few people see. Here you can launch your canoe, kayak or shallow-draft boat to explore the freshwater river. You'll quickly see why the river's northern reaches qualify as among America's most scenic and wild rivers. A boat or kayak trip here is like traveling back in time. No houses mar the river's banks. No honking cars or roar of outboard engines. Just the river's symphony – birds, wind, splashing fish.

HUGGINS ISLAND (Map #34)

The rugged island in the mouth of the White Oak River is part of Hammocks Beach State Park. The federation helped the park buy the island after fending off plans to develop it into an exclusive residential subdivision.

N.C. COASTAL FEDERATION (Map #30)

The federation's headquarters office in Ocean has maps and displays of the organization's habitat restoration work, a nature library for members and a world-class seashell collection. People can also buy native plants year-round from the federation's garden center.

» ***www.nccoast.org***

NEUSIOK TRAIL (Map #43)

You can hike the entire trail or jump on and off at various places along it. The northern terminus at the Pine Cliff Recreation Area may be the most popular. The 2.5-mile section meanders through the woods and along the sandy beaches of the Neuse River. There are some low hills here but nothing that should prove too taxing.

» ***www.neusioktrail.org***

PATSY POND TRAIL (Map #31)

The Patsy Pond Trail in the Croatan National Forest courses through a magnificent longleaf pine forest and around natural ponds and sinkhole. The N.C. Coastal Federation maintains the trail and you can download a trail guide from our web site.

» ***www.nccoast.org***

RACHEL CARSON RESERVE (Map #27)

It takes a little bit of effort to get to this string of small islands and marshes that parallel the Beaufort waterfront in Carteret County, but you'll be rewarded for the effort by experienc-ing an undisturbed estuarine habitat that is a center of marine research and education. Accessible only by boat, the reserve is a great place to hike, kayak and look for birds. A half-mile interpretive trail on the west side of the reserve meanders through mudflats, uplands and salt marshes. A small herd of wild horses roams the islands and over 200 bird species have been recorded here.

» ***www.nccoastalreserve.net/web/crp/rachel-carson***

RIVERWORKS AT STURGEON CITY (Map #44)

This city park in Jacksonville is on the site of an old sewer plant that was responsible for polluting adjacent Wilson Bay. City leaders closed down the old plant and began restoring the bay. They made the plant into an en-vironmental education center where over 5,000 students and citizens learn annually. They have also created a big public park with boardwalks along the river.

» ***www.sturgeoncity.org***

LIFE AT THE SURF'S EDGE

BY SAM BLAND

EMERALD ISLE – As I crested the dunes, the scent of sunscreen lingered in the salty breeze, remnants from tourists down the beach who had lathered up to avoid scalding sunburn. I found a spot away from the crowd and settled into my beach chair about halfway between the aqua-colored water and the elegant primary dunes that sported a wall of slender-stalked sea oats busting with seed heads. I stared out into the ocean horizon broken only by a few, small, fluffy clouds and soon fell victim to the ocean's lullaby.

Sometime later, I sluggishly awoke and glanced about to get my bearings. I immediately saw a pair of black eyes popping up like periscopes from the rim of a hole at the base of a sand dune. These stalked eyes belong to one of the ghost crabs that reside along the open beach and in the sand dunes. The crabs are capable of seeing 360 degrees to detect potential predators and prey. Their only blind spot is directly overhead.



From left: Coquina clams; Mole crab; Willet **Photos © Sam Bland**

This crab slowly moved out of its burrow to reveal a sandy colored, box-shaped shell, four pairs of hairy walking legs and a pair of formidable-looking claws. Underneath the legs was a ball of sand that the crab deposited next to the burrow entrance of its tunnel, which I knew extended four feet under the sand. Only an adult male ghost crab will drop the excavated material next to the burrow. Female and young crabs will sling and scatter the sand away from the opening. This behavior allows female ghost crabs to easily find a mate.

In the tunnels ghost crabs find shelter from the hot sun. They usually come out in the cooler temperatures of the night. Under a darkened sky, these crabs will venture to the water's edge, allowing the incoming waves to wash over them so that their gills can absorb the oxygen-rich water. Even though most of its life is terrestrial, a ghost crab must return to the water periodically to wet its gills. If it is unable to return to the water it can wick moisture from damp sand using the fine hairs on its legs. During winter hibernation it survives by storing oxygen in special sacs near its gills.

Ghost crabs are fast and can move along at 10 mph. Their speed and coloration can make them disappear like a ghost, hence the name. Even part of its scientific name means "swift-footed." This speed allows them to easily capture sea turtle hatchlings, which they pull into their burrow and feed upon during the summer and fall months. For sea turtle lovers this sounds harsh, but a female sea turtle will deposit close to 120 eggs in her nest to absorb the high mortality due to natural predation. Ghost crabs will also scavenge along the shore to feed on critters found in the surf.

A quick dip in the ocean refreshed my senses; and as I walked out of the surf, I stopped in the high energy area of the beach known as the swash zone. This is where the water from the incoming waves spills up onto the gentle, upward slope of the shore. Here the sand is liquefied, and as a child I loved to stand here while the weight of my body would cause my legs to sink deeper into the sand with each incoming wave until it appeared that my knees were my feet. This is where my sisters would collect the wet sand to make sand castles. Without the plastic sand castle molds of today, they would grab handfuls of wet sand and dribble ropy globs of the fluid sand through their fingers creating all kinds of weird-shaped "castles."

I pulled a foot from the sand and a beige-colored mole crab plopped onto the sand then quickly reburied itself. These one-inch, oval-shaped crabs are also called sand fleas or sand crabs. Anyone, regardless of age, who has visited the beach during the summer has been captivated by the digging ability of this tiny crab. They move horizontally with the movement of the tide to stay in the swash zone where the sand is soft. If the sand is dry or hard they are unable to dig deep enough to be protected from shorebirds such as willets. Their tough heavily armored exoskeleton protects them in the rough-and-tumble world of the surf zone. Using five pairs of legs, they will dig backwards into the sand and extend feathery antennae that filter out plankton and decaying organic matter from the incoming or retreating waves.

On moonless summer evenings I have walked the beach specifically looking for mole crabs. How can I see them at night you might wonder? Well, when conditions are just right, bioluminescent material will adhere to their shell or antennae causing them to glow in the dark. As a wave recedes, greenish glowing oval shapes quickly disappear into the sand.

As I dug around in the sand to find a few mole crabs, I also found some half-inch, multi-colored clams called coquina clams. Beautiful color bands or rays wrap across the shell. This bivalve mollusk is also a fast digger. Using its wedge shape and powerful muscular foot it can quickly vanish into the sand. Sometimes not quick enough for the migrating red knots that rely on them for fuel. When the hinged halves of a dead coquina are found open on the beach they are also referred to as the "butterfly shell."

Like the mole crab, coquina clams are filter feeders; however, instead of antennae they use siphon tubes to extract algae and detritus from the sea water. These clams are sensitive to the low-frequency vibrations created when waves spill onto the beach. This allows them to gauge the location of the breaking waves with the movement of the tide, allowing them to stay in the swash zone. When they need to move higher or lower on the beach they will pop out of the sand and use the wave to push or pull them to the desired location. This is the coquina version of body surfing.

All three of these animals -- the ghost crab, mole crab and coquina clam – are indicator species that signal the health and diversity of the beach ecosystem. Their presence is important in a food chain that supports many other species. The mole crabs and coquina clams in particular are like chocolate chip cookies to pompano, red drum, blue crabs, moon snails and sanderlings. Without a healthy, natural beach, these species would not survive to support a host of other species that rely on them to exist. These creatures are also champions of the beach environment, creating moments of wonder for anyone that has ever walked barefoot through the surf on a warm summer day.

Reviving the Heartbeat of Sunset

BY TESS MALIJENOVSKY

SUNSET BEACH – The old pontoon swing bridge that opened on the hour every hour since 1958 is the symbol of Sunset Beach. Replaced a few years ago by a monster high-rise, the quaint, little bridge has been preserved. Though it no longer serves as a vital transportation link, the old bridge is still an important connection to the past.

1, 4 *Mannon Gore built the first wooden bridge to Sunset Beach on World War II barges that swung open and closed.* **Photos courtesy of Ed Gore**

2, 3 *The old pontoon bridge once served as a vital link between Sunset Beach and the mainland. It has been moved and preserved as an important connection to Sunset's past.* **Photos courtesy of Old Bridge Preservation Society**

5 *Mannon Gore.* **Photo courtesy of Ed Gore**

"The Town of Sunset Beach is the mainland and the island, which distinguishes us and gives us an identity. That bridge is a connection in more than just the literal sense," said Ann Bokelman, one of the founders of the Old Bridge Preservation Society.

For nearly three decades, Sunset Beach residents debated whether or not to replace the old bridge with a new high-rise bridge. Proponents worried about the safety of the old bridge or grew tired of the long waits to get across and the frequent break-downs. Others feared that a high-rise bridge would encourage faster development and jeopardize the island's isolation and tranquility.

When they learned that the N.C. Department of Transportation would demolish the iconic swing bridge and replace it with $31 million high-rise bridge, Bokelman and two other Sunset Beach women fought unsuccessfully to persuade the town to save it. In 2010, with the new bridge nearly completed, the women formed the Old Bridge Preservation Society and bought the bridge for $1.

Sunset Beach was only incorporated in 1963, making it a very young town that celebrated its 50th anniversary only last year. There are no 200 year-old buildings or famous historic battlegrounds. The old pontoon bridge, then, serves as an important piece of history.

In 1955 Mannon Gore, a farmer, bought the island Bald Beach and renamed it Sunset Beach because he loved watching the sunsets from there.

"Dad had a great talent and a great vision," said his son Ed Gore.

Although he never had any formal education, Gore had a genius for looking at something and understanding how it worked. "He would find a way, the poor man's way," noted his son.

Gore first built a small dredge that he called the Little Dawn. He modeled it after the much larger dredge that he served on while in the Coast Guard. He used Little Dawn to build two causeways, one on the island and the other on the mainland. Then he engineered World War II surplus barges so that they swung like a door, opening and closing the Intracoastal Waterway and connecting the two causeways.

"It was an antique thing that was doing the job that a multi-million dollar bridge would've done," said Ed Gore.

The island became accessible once the bridge was built in 1958. Gore began selling lots. "Dad made sure that there would be no large commercial district on the beach," said Ed Gore.

To this day Sunset Beach remains an unspoiled beach and a residential family town, just as Gore had originally envisioned.

Gore lived close to the bridge, which he left in the open position so that it didn't obstruct the waterway. When a motorist wanted to cross the bridge he would honk his horn or at night flash his headlights. "Mr. Gore would come out and operate the bridge, sometimes in his bathrobe flapping in the breeze and probably sometimes in the middle of dinner too, I am told," said Bokelman.

In the early 1960s, the state built a replacement bridge using Gore's basic design except that it was a pontoon that floated. The one-lane bridge that spanned 110 feet had a wooden center section and two metal ramps on either side that would connect to the causeways and accommodate for the level of the rising and falling tides.

"One of those things that people really liked about going over the bridge is that you were close to the water, you were close to the marsh, you could see everything. Going across the bridge the tires would make this ka-thump, ka-thump, ka-thump sound," said Bokelman.

The sound earned the old bridge its reputation as the heartbeat of Sunset Beach.

A small, white tender's house stood in the middle of the pontoon bridge. It contained a large diesel engine that powered three wenches: one to pull the bridge open, one to pull it closed and one to operate the counterweights. The last thing the bridge tender did was sink the cables.

Then, he would sound a siren.

"He sounded one when he was getting ready to open and let the boats go through; and then he sounded one when he was closing, and it meant if you weren't in line to go through you were out of luck," said Bokelman.

If only a few boats passed, the whole operation would take about 15 minutes; if a large barge passed, 30 minutes. However, it wasn't unusual for the bridge to break down and take several hours to reopen. Sometimes boaters would shoot through before the bridge tender dropped the cables and catch their props on them.

The bridge created inconveniences for boat and car traffic and, especially, for emergency vehicles. "It was a safety issue and I understood why the town and the state wanted to build a new bridge," said Karen Joseph, a Sunset Beach councilwoman at the time and a member of the Old Bridge Preservation Society.

For two years, residents watched as the construction of a 65-foot-tall bridge slowly dwarfed the old one. Word spread that the old bridge would soon be demolished. Karen Dombowski, Chris Wilson and Bokelman started lobbying for the town to save the bridge.

"In the beginning we really were just trying to, rather naively, make sure that the town would save the bridge," said Bokelman. "It seemed to us that something so integral to the history and the development of Sunset Beach, of course everyone would want to save it."

They launched a campaign and collected over 6,000 signatures, a considerable feat for a town with only 3,600 full-time residents. Initially the town voted to save the old bridge, but the decision was later overturned with only a couple months to spare before the old bridge would be removed and scrapped.

The women formed the Old Bridge Preservation Society, a non-profit organization, and convinced the bridge's owner—the construction company hired to build the new bridge—to give it to them. With only a month to go and nowhere to put the old bridge, Ronnie and Clarice Holden, who own Twin Lakes Seafood Restaurant and Island Breeze boutique, offered to move it onto their land.

For the last year the preservation society has been busy restoring the old swing bridge and tender house with the financial support of the community. It will serve as the island's first history museum, which is scheduled to open in May 2014.

"It's certainly understandable why we needed a new bridge, but we're happy that we were able to keep, not only the heartbeat, but the heart of Sunset Beach," said Bokelman.

OTHER PLACES WORTH VISITING

SEE MAP ON PAGES 12-13

AIRLIE GARDENS (Map #52)

Aside from impressing visitors with a drop-dead gorgeous display of azaleas and camellias, Airlie also is committed to educating them about our coastal environment. Thousands of students and adults have learned about the value of our marshes and oyster reefs through programs offered at Airlie, which has partnered with the N.C. Coastal Federation on numerous restoration projects. Birding hikes and eco-tours of Bradley Creek are offered regularly in the summer.

» ***www.airliegardens.org***

BRUNSWICK NATURE PARK (Map #54)

Opened in late 2009, the park is the newest jewel in Brunswick County. Unlike most other parks in the county, which include ball fields, playgrounds and other "active" amenities, the 911-acre nature park is a quiet, relaxing place – a place for leisurely walks in the woods or serene paddles down Town Creek. You can explore the quiet woods to look for birds or for Venus flytraps that grow in remote edges of the park. Kayakers and canoeists can use the launch to glide up Town Creek toward U.S. 17 or downstream through an old rice plantation to the Cape Fear River. You may see an alligator, if you're lucky.

» ***www.brunswickcountync.gov/Departments/CommunityServices/ParksandRecreation/ParkLocations.aspx***

KAREN BEASLEY SEA TURTLE RESCUE AND REHABILITATION CENTER (Map #47)

If you love sea turtles, this is the place. As the name implies, the center rescues sick and injured sea turtles, nurses them to health, then releases them back into the wild. The facility is small and staffed by volunteers, and the turtles' needs are large, so the hospital doors are open to the public from only 2 to 4 p.m. on weekdays, early June through Labor Day. And because the hours are limited, the lines outside the hospital can look like the cordoned lines of people in Disney World waiting to get on a fast ride. But it's worth the wait if you want to see these magnificent animals up close.

» ***www.seaturtlehospital.org***

BIRD ISLAND (Map #57)

With the help of the N.C. Coastal Federation, residents fought for 10 years to stop development on the uninhabited island near Sunset Beach. The fight ended in 2002 with one of the great conservation victories in N.C. history. The island's 1,500 acres of beaches, marshes and uplands are now permanently preserved as part of the N.C. Coastal Reserve.

» ***www.nccoastalreserve.net/web/crp/bird-island***

LOCKWOOD FOLLY RIVER (Map #55)

Travel to Varnamtown, down at the river's mouth. It is still a traditional fishing village that is home to the largest remaining shrimp-trawling fleet in Brunswick County. Since 2007, the N.C. Coastal Federation has been working with county officials and local residents on projects to control stormwater pollution in the watershed, keeping the waters clean for fishermen of all stripes.

MORRIS LANDING (Map #46)

At Morris Landing, you can experience the beauty of Stump Sound without getting in a boat. Here, you can fish, go crabbing or clamming, look for birds, launch a kayak and even roll up your sleeves to help restore the island's marshes.

The N.C. Coastal Federation in 2004 bought 52 acres at Morris Landing and now works with local people to restore the shoreline. Our volunteers plant marsh grass and build oyster reefs, and we have planned activities throughout the year. Come join us!

» ***www.nccoast.org***

PERMUDA ISLAND (Map #45)

If you haven't tried a Stump Sound oyster, you're missing one of life's treasures. It was the oysters that led to a historic fight to save an island in the sound from development. Developers in 1983 wanted to build a bridge from Topsail Island and build condominiums on Permuda. Lena Ritter, a native of nearby Holly Springs in Onslow County, had fished these waters all her life, as her father and grandfather did before her. Feisty and combative, Ritter enlisted the aid of the N.C. Coastal Federation, and led a three-year fight to save the island. The work paid off. The state finally denied the permits in 1986, and the island is now publicly owned as a natural and historic estuary preserve.

Accessible only by water, the island is worth a visit in the fall. Shorebirds feed in the marshes and mudflats. Willetts, American oystercatchers, egrets, herons, black skimmers and sandpipers are common. You may even see river otters playing in the marsh.

THE RESILIENCY OF JELLIES

BY ANDY WOOD

HAMPSTEAD – Semi-transparent saucers adorned the sandy beach, each one fluidly embedded in a precise location where the zenith of a gentle wave left it stranded. In mere minutes the unblemished seashore was transformed into a necropolis of alien beings, moon jellies, *Aurelia aurita,* whose last act of life was a single pulsate, followed by a perfect, limp stillness. For me, it seemed a sad ending to organisms that in adulthood, never knew earthen boundaries; that is, until this terrestrial beach became their final resting place.

The ill-fated sea jellies were left stranded by an inescapable confluence of ocean currents, a prevailing onshore wind and a rising tide; a sudden finale for water-borne creatures to which the full force of gravity may have been as foreign an awareness as air. Admittedly these are the very conditions that have acted on moon jellies since their beginning... time, space and physics... influencing the jelly's natural resilience, much as that might seem a counter-intuitive conclusion, judging from the beach scene in front of me.

Moon jellies are common sea animals, found in temperate regions of the world's oceans. They are members of an ancient group of animals in the Phylum *Cnidaria*. These aquatic animals include sea jellies – also called jellyfish though not technically a fish – corals, sea anemones, freshwater hydra and other invertebrate animals that bear stinging nematocysts, the business end of a cnidarian's feeding and defense system.

Simply described, a nematocyst is a sac-like structure, smaller than a grain of sand, which contains a tiny barbed harpoon attached to a coiled venom duct. When stimulated, especially by touch, the harpoon thrusts outward to pierce a victim, which is further subdued by venom.

The moon jelly's nematocyst harpoon is small and its venom relatively weak, owing to this animal's preference for tiny planktonic prey, including copepods and other crustaceans, and larva of fishes, worms and mollusks.

While standing in knee-deep water watching a helpless phalanx of moon jellies drift to shore, I brushed one of the animals from my legs; and as I did so, some of its tentacles became trapped between my watchband and wrist, resulting in a mild itching-burning sensation from the nematocysts. For someone allergic to insect venom this kind of experience could be dangerous, but for me it was little more than a reminder that all but a very few sea jellies can sting.

In a very real sense, moon jellies are themselves planktonic, a term that generally refers to plants (phytoplankton) and animals (zooplankton) that drift with water currents. Moon jellies can propel themselves by pulsing their dome-shaped bell, but only enough to rise and fall through the water column; they cannot overwhelm even a mild current.

Moon jellies are most often seen in North Carolina waters during warm seasons, especially toward late summer and early autumn, which is when I happened upon what might be described as a gelatinous carnage. Looking upon the cast-up gobs of congealed protein, the only solace I could conjure was the realization that these full-grown beings likely came to shore after casting eggs and sperm (female and male gametes) into the sea, an act of reproduction requiring laws of averages, proper timing and a good deal of natural luck.

I realize luck is not truly part of the sea jelly life cycle; it's just difficult for me to visualize little packets of genetic material (female and male chromosomes) swirling in an open ocean, and finding their respective partner... before being consumed by a plankton-eater, or otherwise simply swept into an ocean-scale flow of ecosystem energy. The odds of moon jelly reproductive success are increased because these animals congregate in the open ocean, for reasons having to do with ocean currents that also congregate plankton that moon jellies eat. But these same nurturing currents can turn tragic, in a dramatic sense of the word.

As I stood knee-deep in a beach swash zone, I couldn't help grimacing as once graceful, water-borne saucers were swept inexorably toward land, and the lifting help of small waves left one after another stranded as an inelegant heap upon the sand. And then I noticed the jellies were not alone. Each floating saucer was accompanied by an entourage of small fishes, mostly juvenile filefish, no larger than a fingernail. The filefish, along with a few striking young jacks, two inches long and boldly banded in black and yellowish-white, stayed with the jellies up to the last wave.

Moon jellies like this one can propel themselves by pulsing their dome-shaped bell, but only enough to rise and fall through the water column; they cannot overwhelm even a mild current.

The young fishes may have been using the jellies as nomadic shelter, to hide from predators. It is also possible that the fishes just used the jellies as a wandering restaurant, feeding on sea jelly gametes cast into the water. The plucky little fishes might also have gleaned tiny creatures caught by the jelly's delicate tentacles, a banquet of morsels speared by nematocyst harpoons. Not too unlike taking appetizers from toothpicks.

I watched as one group of fishes after another hop-scotched seaward, from one moon jelly to another, just in time to escape the waves that cast their cnidarian escorts to terra firma. My heartstrings were finally tugged when several young fishes raced to the shelter they believed my submerged legs might provide. If only I could have become an immobile pier piling to offer these unsettled creatures some form of shelter; or not. Much as I might have wished to be of service, these finned nomads had other places to be, with options spanning the width and breadth of a sea.

The act that took place around me on that autumn beach is a repeat performance of countless similar events that have befallen untold generations of sea jelly and fish alike; a natural scene repeated through history, with consequences that have honed jelly and fish into the finely-adapted ocean-beings we still know too little about.

So, what seemed a poignant story of dislocation, unintended abandonment and a frantic search for shelter, the sea jelly saga was really more an event to celebrate — as testimony to the resilience that is nature.

FLOUNDER GIGGING

BY SAM BLAND

Autumn along the coast is a time of transition and movement. During their migration peak in late October and early November, summer flounder are swimming out of the barrier island inlets, heading for the continental shelf where they will spawn. As they make their way through the estuaries, they are pursued by recreational fishermen lining the inlet beaches with their rods cradled in a holder firmly anchored in the sand. Other fishermen sling their bait from a boat and drift along the channels during an incoming tide. People even go out at night wading through the water to catch flounder using a method known as gigging.

One still, fall night, I was out looking for some flounder to gig along the calm waters of Beaufort Inlet. I anointed myself with the outdoorsman cologne of choice, Deep Woods Off, to keep the no-see-ums or "flying teeth" at bay and readied my gear to catch some flounder. I had a self-contained backpack rig that allowed me to carry a small lawn mower battery on my back freeing my hands to hold a light in one hand and a gig in the other. I began near the ocean side and worked my way back toward the sound. Along the way, I picked up a number of nice, fat flatfish, one was over two feet long and I was already planning the menu to bake that monster.

With my head down, I continued to slowly shuffle along the shallows intently peering into the clear water to find the tell-tale shape of a flounder with two eyes peeking out of the sand. Then, all of a sudden, my concentration and nerves were destroyed when a man's booming voice called out from the heavens, "my land, son, what are you doing"?

His exasperated voice was thick with the distinctive old English inflection passed down from the early English settlers who made a tough living fishing the waters surrounding isolated islands such as Ocracoke and Harkers. This unique dialect is referred to by some as a "high tider" or "hoi toider" accent.

This familiar Down East brogue inflection of the voice made me think that if God was from Harkers Island, that's what his voice would sound like.

I was born in Carteret County and have lived in the county most of my life; so, I am familiar with the Down East dialect. I know what a "dingbatter" and "dit dot" is, and I have been "mommicked" many times in my life.

Startled by the voice, I then looked straight ahead to see that I was about to walk headlong into the bow of a large shrimp boat that was beached perpendicular to the shore. I looked up and saw the shadowy figure of a man hovering above me on the bow of the boat.

"Flounder gigging," I slowly replied, almost like I was asking a question.

He said, "Son, you're just out here getting in somebody's way that's trying to make a living."

I replied without a word by smugly hoisting up my huge flounder with my chest stuck out like a rooster.

With a shrug, he dismissed my catch by saying "frying size." You could hear the air leave my chest as it deflated.

I asked if he had run out of gas and he seemed insulted that I would suggest that a man of the sea would make such a foolish mistake. He said that the boat had "lost its wheel" and made no attempt to provide an interpretation to address my obvious confusion.

As I made my way around the bow of the boat I attempted some small talk and said, "It sure is calm tonight."

To which the shrimper man replied, "Son, you don't know cam."

Using the bow of his boat as a pulpit, the shrimper then began to preach the three virtues of "cam," or calm, as it lies on the water.

"Cam," he explained, is when there are no whitecaps or waves, but the water surface will still show a few ripples from a light wind. A "sic cam," or slick calm, he proclaimed, is developed when the ripples are gone and the surface becomes slick, but the slickness is not completely uniform. He then finished off the trinity with the holy grail of calm, the "dea sic cam," or dead slick calm. This is when the surface is so slick that it looks like polished glass; everything that meets the water has a mirror image and the surface is so still that you can't even determine the direction of the current.

I stood there in a trance, visualizing the degrees of calm. When I looked back up to the bow of the boat the shadowy figure had retreated into the recesses of the boat.

The next morning I returned to where the boat was beached to see if the shrimper needed any help. Knowing that those who work on the water are self-reliant, I wasn't surprised to see that the boat was gone.

Since that night, every time I head out to go flounder gigging I continue to grade the stillness of the water as calm, slick calm or dead slick calm.

A younger Sam Bland shows off his gigging prowess. **Photo: Sam Bland**

dead slick calm **Photo: Sam Bland**

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