



mud fiddler crab

the little-known world of CRABS

*North Carolina is home to an amazing number of these creatures
in very different shapes, sizes and habits.*

The lone crabber's boat drew a tight starboard circle as he let the steering wheel sit totally clockwise. He walked about the back of the boat, snagging buoyed traps as the craft drove itself in surprisingly consistent circles. Watching this crabber in May jump-started my interest in the world of crabs.

I was working as a biologist, sampling fisheries in a tributary of the Pamlico River, when the fisherman caught my eye. I was interested to know what he was hoping to catch and was soon to find out. The next morning, when we checked our fyke nets, I found myself in that fisherman's shoes as I lifted a net up to find a brilliantly colored blue crab. It was the first one I had ever seen, and it opened my eyes to a world of overlooked arthropods.

MR. POPULAR

Blue crabs, the major edible crabs in our area, are a staple in most Atlantic coast restaurants. Crab pot buoys and crabbing boats are common sights in the estuaries and sounds along North Carolina's coast. In fact, even during a bad year, in 2007, crabbing was an \$18.1 million industry in the state. And that is 35 percent below average for the last five years. That makes blue crabs the most economically important seafood species in North Carolina.

In addition to its commercial value, crabbing is perfect for those searching for an activity that allows success for young outdoorsmen. For such a sought-after species, blue crabs are surprisingly easy to catch. Serious crabbers use wire mesh traps called crab pots, but all that is really required is a dip net or some quick, tough hands. My best success at netting, or "scapping," crabs has been at night. You just wade along the edge of a marsh or sound with a flashlight and net any crabs that you see. You can be even more successful by tying some fresh chicken, eel or other meat to the end of a weighted string. If you are in a good spot, crabs will quickly find the bait and latch onto it. Then you can slowly pull them to within dip-netting distance. There are in-depth books and pamphlets on crabbing available at many bait stores along the coast. They cover everything from catching to cooking blue crabs.

WRITTEN AND PHOTOGRAPHED BY T. TRAVIS BROWN





LYNDA RICHARDSON

Blue crabs are inarguably the most recreationally and commercially important crab species in North Carolina, but they are not the only one. Part of the joy of being a naturalist and a beachcomber is that there is always some new plant or animal to learn about. By looking at smaller things or looking in new places, you can discover something colorful or interesting waiting to be found, whether it is a new flower, salamander, fish or dragonfly. Crabs were one of these discoveries for me. On the surface, a crab is a crab, but if you look closer, there is a colorful world of creatures filling very different niches.

APPLES & ORANGES

The critters that most of us would call crabs fall into two groups (infraorders), Anomura and Brachyura. Anomura is a mix-and-match infraorder that includes hermit crabs, porcelain crabs and mole crabs, and Brachyura is made up of many species of true crabs such as the blue crab. Going up the taxonomic ladder, crabs inhabit

the order Decapoda (meaning "10 legs") along with lobsters, shrimp and crayfish, which all fall into separate infraorders.

Horseshoe crabs, which share only a common name with most crabs, are in a totally different class (Merostomata) from other crabs (Crustacea).

They are considered to be more closely related to spiders and prehistoric creatures than to crabs. All of these creatures, along with insects and arachnids, fall into the phylum Arthropoda, which means "joint leg."

Eggs from the two infraorders of "crabs" hatch into tiny plankton called protozoa or zoea. The zoea swim around as plankton until, after molting several times, they grow



JOE MALAT

into juvenile crabs. Some species, such as blue crabs, spend their plankton days in the open ocean. They then make their way upstream into our marshes and estuarine creeks to develop into adults. Methods for determining the gender of a crab vary by species. For instance, males of some species, such as blue crabs, have a distinct Eiffel Tower-shaped apron (crab lingo for the abdomen), and females have a more triangular or rounded apron. In fiddler crabs, the males have one enormous claw used in dueling and various territorial displays. Females have two similar-sized, small claws.

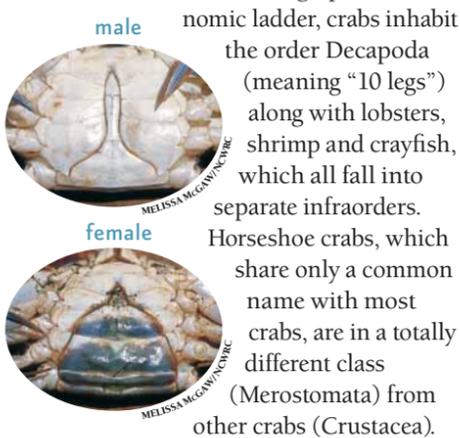
Crab species fill many marine and estuarine niches. They are generally scavengers, eating both plant and animal matter. Some of the smaller species, such as fiddler crabs, subsist on fungi and bacteria growing on decaying plant matter, but larger crabs feed on anything that they can catch or find dead. Many crab species, such as blue crabs, can be found in a wide variety of aquatic habitats (even a freshwater lake in Kentucky), and some are highly specialized. For instance, North Carolina's fiddler crabs have carved up the salt marsh into niches for three species. Although the niches overlap, sand fiddler crabs generally inhabit the sandy upper limits of the salt marsh, mud fiddler crabs inhabit the muddy lower marsh, and brackish-water fiddler crabs reside in the

portions of the marsh where freshwater enters. In other words, as you walk from the beach into the marsh, you will often encounter sand fiddlers first and then mud fiddlers, and if you walk up into the mouth of a freshwater creek, you may begin to see brackish-water fiddler crabs.

THE NEIGHBORHOOD

In fact, marshes are excellent places to find many species of crabs. Around docks and under logs near the marsh, you may spot the square-bodied marsh and wharf crabs. From a distance, they resemble spiders running for cover, but these are actually small crabs with harmless pincers. Several species of mud crabs can also be found in the marsh. These thick-shelled species are relatives of the edible stone crab. Their claws are powerful enough to crush half-inch clams and chip away at larger clams, oysters and barnacles. You may also be surprised to find some species of diminutive crabs living inside or under oysters, mussels, tube worm burrows, keyhole urchins and sand dollars. These crabs, often smaller than a dime, may be one of several species, including pea crabs, oyster crabs, mussel crabs and urchin crabs.

The beach also can be a good place to find crabs. Ghost crabs dominate this habitat. You may only see their tracks and burrows during the day, but at night they haunt



male

female

MELISSA MCGOWAN/STARR

MELISSA MCGOWAN/STARR



SHERRY WHITE



LYNDA RICHARDSON



SCOTT TAYLOR



SAM BLAND



SAM BLAND



MIKE DEJUN

Among North Carolina's many species of crabs are (counterclockwise from top left): hermit crab, wharf crab, marsh crab, fiddler crabs, mole crabs or sand fleas, and porcelain crab.

The blue crab (top) is North Carolina's most economically important seafood species. The males have blue-tipped claws, while the females' (top left) are red. The female carries fertilized eggs on her abdomen. The sponge-like appearance of the eggs spawned the nickname "sponge crab" for pregnant females. Blue crabs can be caught readily by both recreational (above left) and commercial fishermen.

the sand, scavenging for anything edible washed up along the wrack line, where waves toss up the ocean's bounty. These fast, opaque little predators may startle you when your flashlight first hits them, and they often disappear by the time your light swings back in their direction. Some other beach crabs are a little easier to find during the day. Perhaps the easiest is the speckled crab, a close relative of the blue crab, which can often be seen swimming or walking in the surf before it buries itself in the sand. Also inhabiting the surf zone are mole crabs. These anomuran crabs bury themselves in the highly unstable surf zone. Here they take a pounding, but they are constantly provided with newly washed-up food.

The beach can provide a glimpse into the world of crabs that inhabit the more inaccessible parts of the ocean. Crab parts washed up on the beach have taken me on a poor man's scuba diving trip many times. They provide a glimpse into what is happening in the offshore shipwrecks, sargassum (seaweed) beds, reefs and rock outcrops. You may find the huge, heavy claw of a stone crab or the giant spiderlike leg of a common spider crab. I have often found the brightly colored carapaces (hard outer coverings) of purse crabs, lady crabs and shore crabs mixed in with seashells. Floating mats of vegetation, dead jellyfish and other types of rafts are good places to check for a crab stow-away. Young common spider crabs make a habit of riding in the bells of mushroom-cap jellyfish. Who knows, you may even find a sargassum crab in a washed-up mat of seaweed. Christopher Columbus described seeing them in mats of floating sargassum centuries ago.

CALM OBSERVATION

No habitat has been as kind to this beachcomber as has been the sound. Seeing my first handsome blue crab certainly sparked an interest in crabs and left me wanting to know about some of the smaller crab species that my fellow biologists and I caught while surveying fish.

However, nothing piqued my interest in crabs more than one night of wading around the back side of Wrightsville Beach with a flashlight. The waters were unseasonably warm for December, and my father-in-law

and I were searching the low-tide beach for shells and stranded sea creatures. We followed the beach around the inlet to the sound side of the island. The calm waters allowed us to peer into a world that was quite active compared to the desolate beach. That night we saw a purse crab, blue crabs, speckled crabs and many mud snail shells being carried around by long-clawed hermit crabs.

Nighttime beachcombing has become my favorite way of enjoying the shore during warm months, when droves of people prevent one from seeing much wildlife during the day.

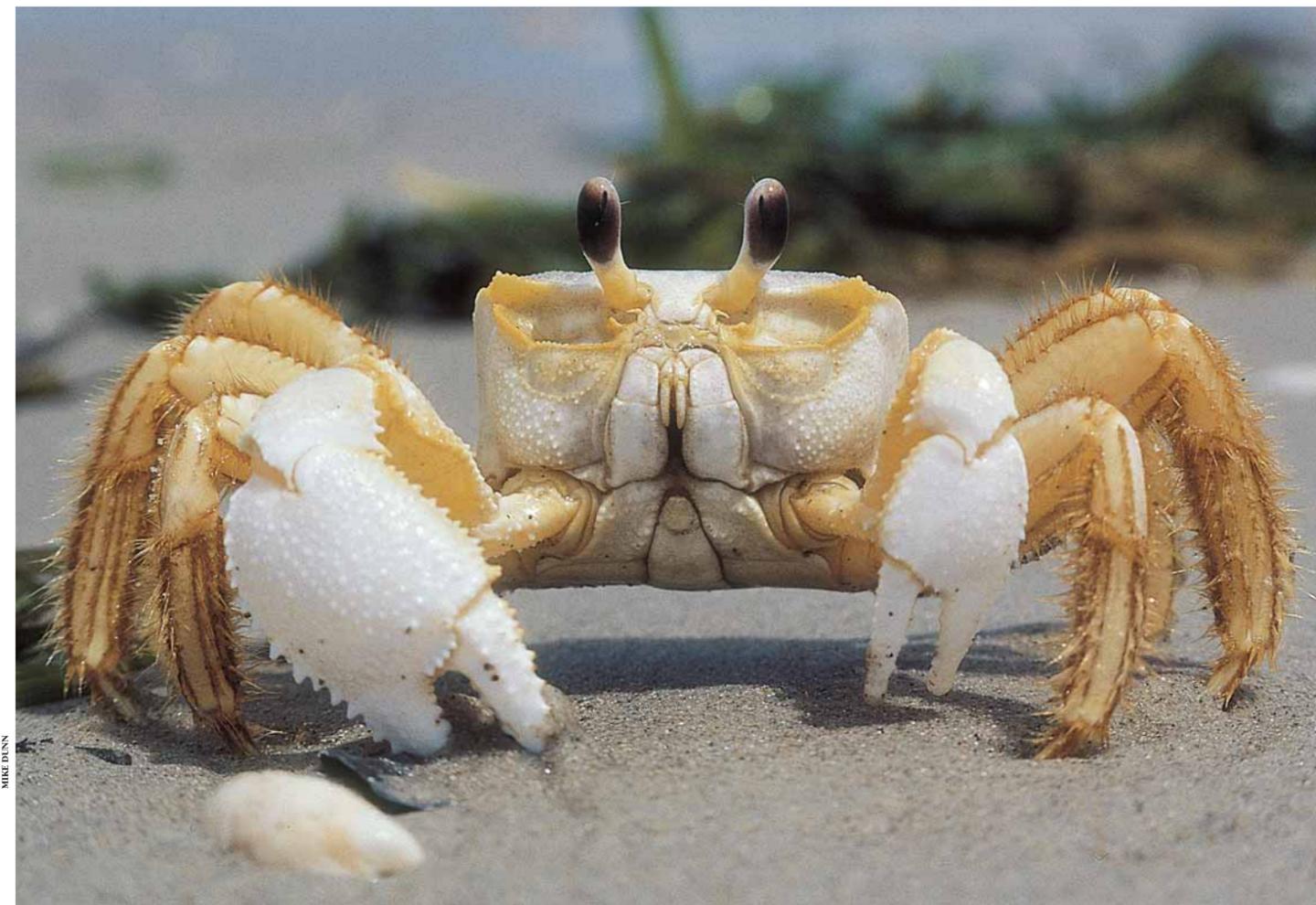
The warmer months increase the number of crab species and their abundance in shallow waters, since many crabs head to deeper water during winter. Also, being close to an inlet may provide a glimpse at some deep-water refugees from storms or strong currents. Daytime trips to the sound have also yielded smooth porcelain crabs, blue crabs and speckled crabs.

My favorite crabs to look for during nighttime beach excursions are the hermit crabs.

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North Carolina's crabs vary considerably in shape, size and color, as seen in this selection of Tar Heel species (clockwise from top left): speckled crab, lady crab, black-fingered mud crab, spray crab, ghost crab, spider crab (juvenile) and purse crab.

They range from the pipsqueak long-clawed hermit crab to the comparatively gargantuan flat-clawed hermit crab. In fact, hermit crabs are a hit with many people and are magnets for children. The number of hermit crab species (four to six) in North Carolina waters is one thing, but the diversity of their shells is astounding. They use a variety of discarded shells ranging in size from tiny auger and mud snail shells to moon snail shells and even full-grown whelks.

Many of the shells have become miniature ecosystems all their own. In fact, one study found that more than 500 species are known to live on or cohabit hermit crab shells. Of these, more than 100 species appeared to require hermit crabs for their existence. Hermit crab shells can be covered with or coinhabited by anemones, barnacles, small arthropods, polychaete worms and various cnidarians such as the aptly named "snail fur." Many large hermit crab shells begin to resemble walking coral reefs.

A GRIPPING PASTIME

I have listed many of the common North Carolina crabs, but these are not the only ones that you may find washed up on the beach or crawling slowly along the bottom of a sound. North Carolina occupies a unique position where both southern and northern species overlap.

Also, alien species may hitchhike on boats or be introduced by saltwater aquarists. For instance, the green crab, an import from Europe, has colonized many of the waters along the Atlantic coast. Species such as the green crab could have negative effects on native species, many of which are important to North Carolina incomes.

To learn more about these fascinating creatures, check out the "Peterson Field Guide to the Atlantic Seashore" and the "Peterson Field Guide to the Southeastern and Caribbean Seashores."

Also, North Carolina Aquariums provide you with unique opportunities such as a chance to actually touch hermit crabs and horseshoe crabs, and some of their tanks house deep-water species that most of us will usually see only washed up on the beach. Most important, you now have another excuse to wander the beaches and sounds of North Carolina's coast. ☺

Biologist T. Travis Brown works in the southeastern United States, including North Carolina.



How can Ghost Crabs Run so Fast?
See Nature's Ways, page 39.