



## South Carolina Department of Natural Resources

# Horseshoe crabs regularly nest in salt marshes, new research suggests



*A group of spawning horseshoe crabs is well-camouflaged against the pluff mud of a salt marsh (Photo: Mike Kendrick/SCDNR).*

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If you've ever encountered the domed shell of a horseshoe crab, chances are it was on a sandy beach.

Until recently, beaches were believed to be the only places where horseshoe crab eggs could hatch and grow. But three years ago, South Carolina Department of Natural Resources (SCDNR) [biologists discovered](#) that salt marshes might have an unexpected importance to these ancient invertebrates, offering alternate habitat where eggs and hatchlings can thrive.

Now, the same research team, in collaboration with researchers at Sacred Heart University and Plymouth State University, has shared **new findings confirming that American horseshoe crabs regularly spawn in salt marshes – not just in South Carolina, but across the Atlantic coastline.** The research was published recently in the peer-reviewed journal [Frontiers in Ecology and the Environment](#).

“While horseshoe crabs would occasionally be observed spawning in marsh areas, that behavior was always thought to be rare,” said lead author and SCDNR scientist Dr. Daniel Sasson. “This study shows that spawning in marshes is more common than we ever thought and seems to happen across much of their range.”

Horseshoe crabs are marine arthropods that have inhabited the planet for millions of years. Despite the name, they are more closely related to scorpions than crabs. Horseshoe crabs play a critical role in the coastal ecosystem and human health: by digging up sediment during spawning, they add nutrients to the water column; their eggs are an important food source for tens of thousands of shorebirds making long migrations; and a compound in their blood is collected and used to detect contamination in vaccines and medical devices.

Horseshoe crabs spend most of their lives at sea. But every spring, adult horseshoe crabs from Maine to the Yucatan Peninsula scuttle ashore under new and full moons to spawn, or lay eggs. Across their large range, the crabs belong to several different populations that are genetically distinct from one another. South Carolina is home to one population (which extends across the Southeast), while two other populations can be found in New Hampshire and Connecticut (among other states).

It was in the South Carolina population that researchers first found healthy horseshoe crab eggs, embryos and hatchlings in salt marshes, complicating the long-held assumption that the vast majority of crabs spawn on beaches.

“While we had found eggs in the marsh in South Carolina, we didn't know the degree to which horseshoe crabs used the marsh for spawning here or if it occurred at all in other states,” said Sasson. “So we worked with partners at Sacred Heart University in Connecticut and Plymouth State University in New Hampshire to compare horseshoe crab spawning activity in the beaches and marshes in all three states.”

The team collected temperature data, surveyed spawning adults and collected egg samples at three beach locations and three salt marsh locations each in South

Carolina, Connecticut and New Hampshire. They then compared the sites using statistical analysis.

The results were surprising. **In all three states, the team found that beach and salt marsh locations shared similar spawning and egg densities – but eggs were significantly more likely to be found at salt marsh sites.**

“Eggs were often found far from any beach habitat—in SC, occasionally several miles up creeks and rivers—suggesting that horseshoe crabs are seeking out marsh habitats and not simply using habitat adjacent to beaches for spawning,” the study said.

These results, the team concluded, suggest that protecting salt marshes may be critical to the survival of horseshoe crabs – and that management that assumes all horseshoe crabs spawn on beaches may need revising. The team is continuing to investigate what these findings mean for horseshoe crab populations, Sasson said.

In the meantime, SCDNR biologists are calling on members of the community to help grow their understanding of this fascinating animal. It’s horseshoe crab season right now, and if you see horseshoe crabs spawning on the South Carolina coast, [please report your sightings with photos here](#).

[Report Spawning Horseshoe Crabs Here](#)

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South Carolina Department of Natural Resources, Rembert C. Dennis Building  
1000 Assembly Street, Columbia, SC 29201

[Department Phone Numbers](#)