

Tiger sharks return to nurseries, new study finds

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As conservationists learn better ways to preserve and protect marine life, new Florida Tech research investigating the movement patterns of tiger sharks may help safeguard the near-threatened species.

"Age-Dependent Dispersal and Relatedness in Tiger Sharks (*Galeocerdo cuvier*)," is a new publication featuring Florida Tech shark biologist Toby Daly-Engel, Margaret (Maggie) McClain, an MS graduate from the University of West Florida (UWF) and a student of Daly-Engel's when she taught at UWF, and researchers from the University of Miami, Florida State University, Mississippi State University, South Carolina Department of Natural Resources, Saving the Blue, Bimini Biological Field Station, Beneath the Waves and the Mississippi-Alabama Sea Grant Consortium. The paper was published in the July edition of *Frontiers in Marine Sciences* and the research looked at the northeastern Gulf of Mexico, Bahamas, Florida and South Carolina coasts to study the dispersal patterns of tiger sharks.

Researchers discovered that not only do female sharks return to nurseries for reproduction, but so do male sharks, with the goal of finding mates. They also discovered 8.9% of the tiger sharks studied were closely related to one another, showing that sharks returned repeatedly to the areas studied, but also that the species is declining in numbers, likely due to overfishing and [environmental changes](#).

Sharks are what Daly-Engel and other researchers call, "roving predators," in that they don't have a specific territory, making the discovery of their consistent return to specific areas even more noteworthy. The mother sharks will use shallow areas, such as river lagoons, as nurseries. This includes the Indian River Lagoon, a common nursery for bull sharks. Past research showed that a lot of female sharks use the same habitats where they were born to give birth to their own pups, but researchers assumed that since male sharks didn't have to give birth, they didn't return to the nursery habitats.

In a diverse shark population Daly-Engel referred to as "taking a bunch of watercolors and mixing them together," McClain dug deeper into the data by taking out the largest sharks from the sample and reanalyzing it.

When McClain got down to sharks that were under 8.5 feet, the team saw there were three unique genetic populations of sharks just in this small part of the world.

"It's this repeated behavior that males are apparently doing as well," Daly-Engel said. "What we were able to see in our data, the signal that they were looking at, we found it while looking at nuclear DNA, the DNA that an animal inherits from both its mom and its dad. Because that signal showed up nice and strong, we know that it must result from both male and female sharks, going back to the same areas year after year to reproduce over hundreds of thousands of years."

Knowing the movement patterns of sharks can help with conservation. Currently, the World Conservation Union lists the [tiger shark](#) as "near threatened" throughout its range, as the species is targeted for its fins, flesh and oil and indirectly as bycatch in commercial and recreational fisheries worldwide. Having a better understanding of their movement patterns also re-emphasizes the importance of nursery habitats, like the Indian River Lagoon, which are facing environmental threats due to nutrient pollution and stormwater run-off leading to harmful algal blooms.

The tiger sharks may be known as roving predators, but this study shows they in fact stay close to specific area.

"It's amazing that there are these separate gene pools," Daly-Engel said. "Instead of one big world of [tiger](#) sharks, you have all these different countries, and there's differences going back over thousands and even millions of years. You could say that they're creatures of habit."

More information: Margaret A. McClain et al, Age-Dependent Dispersal and Relatedness in Tiger Sharks (*Galeocerdo cuvier*), *Frontiers in Marine Science* (2022). [DOI: 10.3389/fmars.2022.900107](https://doi.org/10.3389/fmars.2022.900107)

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