

Scientist Finds 'Genetically Distinct' Shark

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"Cryptic species" of hammerhead shark, discovered by USC biologist Joe Quattro and collaborators, unique to South Carolina coast.

Biology professor Dr. Joe Quattro, collaborating with Dr. Jim Grady at the University of New Orleans and Dr. Trey Driggers with the National Marine Fisheries Service, has discovered a genetically distinct species of the hammerhead shark. Classified under the genus, *sphyrna*, the species is the ninth recognized in the hammerhead family and will be called the "cryptic species" until a formal description is pronounced.

Because the species appears to be rare and localized to the South Carolina coast, it is at high risk for extinction and makes the state's coastal waters crucial for conservation efforts. Many shark species in the northwestern Atlantic have declined in recent years.

According to the Florida Museum of Natural History Web site, hammerheads are considered potentially dangerous sharks. The International Shark Attack File documents 21 unprovoked attacks with 2 resulting fatalities for all species of the genus *Sphyrna*. Scalloped

hammerheads have been reported to display threatening postures when closely approached by divers on some occasions while other times they show no aggressive behaviors.

Quattro discovered the species while studying coastal fish with biologists from the S.C. Department of Natural Resources. He developed an interest in hammerhead sharks and noticed that something strange was occurring in the genetic makeup of some. He and his colleagues found that the genes in the mitochondrial DNA -- the DNA passed from mother to sons and daughters -- differed significantly among sharks that, by all other measures, were scalloped hammerhead sharks. Moreover, his studies revealed that another independent genetic marker also differed substantially between the two groups of scalloped hammerheads.

"This cryptic shark was genetically distinct," said Quattro, whose research on the cryptic hammerhead sharks was published recently in the journal, *Marine Biology*.

Quattro and his colleagues also found that the cryptic species was not as abundant as the scalloped hammerhead, which is a familiar and common coastal shark. Although young sharks of the cryptic species were found in Florida and North Carolina, only neonates -- or shark "pups" -- were showing up off the coast of South Carolina, particularly in the area of Bull's Bay near Beaufort and St. Helena's Sound.

"The apparent abundance of the cryptic species in coastal South Carolina could be a result of sampling, but it might also highlight the fact that the South Carolina bays are the more important nursery grounds for the cryptic species," Quattro said.

Although scientists don't know why the cryptic sharks appear to prefer South Carolina waters, Quattro speculates that something as simple as salinity differences in the waters may be a factor.

"Protecting this prime nursery habitat is vital to the survival of the cryptic species," said Quattro, who plans to head to the Atlantic this summer for a project to tag the cryptic sharks. The tags will enable the researchers to learn where the sharks go after leaving South Carolina's waters.

Because the cryptic shark appears to have a narrow geographic distribution, it is at a greater risk for extinction, he said, and conservation efforts are needed to protect females during their reproductive season.

"If South Carolina's waters are the primary nursery grounds for the cryptic species and females gather here to reproduce, these areas should be conservation priorities," Quattro said. "Management plans are needed to ensure that these sharks are not adversely impacted so that we can learn more."

Source: University of South Carolina

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