

## UF researchers track ocean-crossing migration of blue shark

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(PhysOrg.com) -- Blue sharks are strong enough to cross the Southern Atlantic Ocean but need human protection at their destinations and points of departure, a University of Florida collaborative international tagging project finds.

The discovery of the shark's wide ranging ways shows that the species, which is subjected to heavy fishing pressure, needs multinational regulations to manage them on both sides of the Southern Atlantic, said George Burgess, director of the Florida Program for Shark Research at UF's Florida Museum of Natural History.

"This is the first evidence of the transatlantic migration of a blue shark from the southwestern Atlantic Ocean to the southeastern Atlantic Ocean," said Felipe Carvalho, a UF graduate student majoring in fisheries and aquatic sciences. He worked on a Universidade Federal Rural de Pernambuco (Brazil)-UF project that tagged a blue shark off the coast of Brazil and detected the fish off Africa 87 days later.

"We thought this migration might be happening, but we never had the data before to prove it," Carvalho said.

The suggestion that the same stock of blue shark lives on both sides of the southern Atlantic Ocean allows management agencies to consider fishing regulations that would cover both geographical areas, said Burgess, who is co-supervising Carvalho's research. Considered to act as one entity, fishes within the same stock have the same biological

characteristics and movement patterns, which allow them to be managed together, he said.

“Lots of people tag fishes and [sharks](#), and sometimes when they make a movement from one place to another, there are lots of ‘oohs’ and ‘aahs’ because it wasn’t known they could do that or go there,” Burgess said. “But this is a key piece of information that will have applicability toward fishery management.”

The most frequently caught shark species in the South Atlantic Ocean, the blue shark must be carefully managed because it is frequently captured in the nets of fishermen seeking tuna and swordfish, Burgess said. Some fishermen remove the fins and toss the sharks back into the water, dead or alive, he said.

“Sharks are of real concern to biologists because they are taken in such huge numbers all over the world,” Burgess said. Yet they are understudied because they don’t generate the economic revenue that tuna and swordfish do, he said.

Adding to sharks’ troubles are certain biological characteristics that lower their reproductive potential, Burgess said. Sharks may take 10 years or more to reach sexual maturity – compared with two to five years for many bony fishes. Pregnancies are long, typically a year or more and are followed by a resting period. As live-bearers, the number of young they can carry at one time is limited, he said.

“There are other animals that have what we call ‘life in the slow lane,’” he said. “Skates, rays, whales and sea turtles follow this same pattern of being slow growing and long lived with limited reproductive potential.”

Sharks caught and killed, especially when young, are cut off from the lengthy period of time required over a lifetime to reproduce the number

of offspring needed to sustain a population, Burgess said.

Working with a Brazilian research team, Carvalho and his co-workers have so far attached tags to 10 sharks off the coast of Brazil and plan to tag 10 additional sharks. These satellite tags provide the location as latitude and longitude, and the temperature and depth, of the water where the shark is swimming.

“These tags are like mini-computers,” Burgess said. “If the antenna breaks the water surface, it can send up a signal to a satellite, which then bounces a signal back to us telling where it is.”

Because there is some error in determining location, the tags are most useful in large bodies of water, where being off by 10 to 20 miles doesn’t make a huge difference, he said.

Although blue sharks have been documented to move across the Atlantic or Pacific Ocean in northern latitudes, this is the first time evidence has shown such migration to take place in the South [Atlantic Ocean](#), Carvalho said.

“The next step of our study will look at whether this was just one individual who got happy feet and decided to boogie all the way across the ocean or if this is part of a larger pattern,” Burgess said.

Provided by University of Florida

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