

Blacktip sharks are suspected of being the leading cause of shark bites off the Southeastern coast of the United States, but the numbers counted off Palm Beach County have dwindled in recent years. PROVIDED BY FLORIDA ATLANTIC UNIVERSITY

Why are blacktip sharks such excellent hunters?

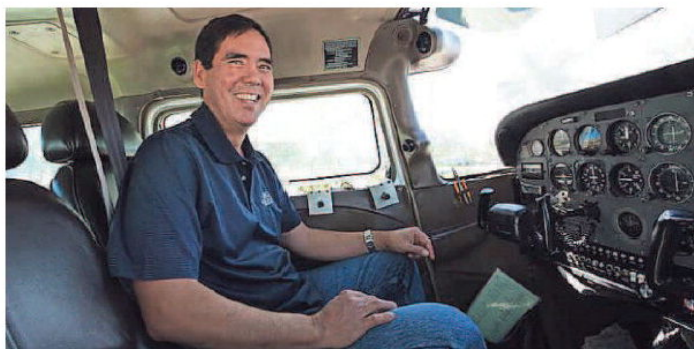
New research reveals flexibility that could help them maneuver

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Palm Beach Post
USA TODAY NETWORK

From high above, the annual blacktip shark migration along Palm Beach County's coast may appear a symphony — schools of toothy predators swimming in rhythm with tails beating like metronomes in fluid full-body sweeps.

But new research from Florida Atlantic University found sharks are even more flexible than first thought and can move the front part of their bodies in a different wavelength than their back end. It's a change in motion that likely helps in hunting, swimming in large groups, and maneuvering in the near-beach shallows.

"This is important because if you can decouple these movements, that means the front end of your body can be doing sensory work and the back end can focus on swimming," said Marianne Porter, an assistant professor in FAU's Charles E. Schmidt College of Science. "This is exciting because most of us don't think of fish swimming this way."



Shark researcher Stephen Kajiura pilots weekly flights to document how many blacktip sharks congregate close to Palm Beach County's shores.

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Porter, who last year became the first FAU biologist to win the National Science Foundation's early career award, was featured this month on an expert panel that answered questions about the blacktip shark migration and the research opportunities it provides in South Florida.

The panel discussion was sponsored by the ANGARI Foundation, FAU, Florida International University and The Palm Beach Post.

It also included FIU Assistant Professor Yannis Papastamatiou, nature film producer and ANGARI Foundation co-founder Kari Rosenberg, and Stephen Kajiura, director of FAU's Elasmobranch Lab.

"Palm Beach County is a unique coastal location, and there's so much important research happening in our own backyard," said Angela Rosen-

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Weather

High 83° | Low 77°
Sunny. Forecast, 6C

Sharks

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berg, co-founder and president of the West Palm Beach-based ANGARI Foundation.

“The blacktip shark migration is something that affects our local community every year, and we wanted to share this local phenomenon and create an opportunity for the public to engage with local experts.”

Kajiura is well known for his annual blacktip shark census where he flies a plane along the coast to count the number of sharks making their way to South Florida’s more temperate waters.

“I like to say that where Stephen studies where they are and where they go, I study how they go,” said Porter, who in December published a paper that showed how drones aided in her studies of blacktips off John D. MacArthur State Park on Singer Island.

The National Science Foundation award of \$637,000 will help pay for Porter’s research, including her study of shark skin, or what Porter calls “shapewear for sharks.”

Shark skin is stretchy, but at the same time covered in arrowheadshaped scales called denticles.

The shape and number of denticles on different species of sharks affects how water flows around their bodies, and how fast they can swim.

Porter said her type of research can be used in designing more fuel-efficient vehicles, the skin of airplanes, or swimsuits that increase speed.

“These guys have been around for 450 million years,” she said about sharks. “Arguably, they’re doing pretty well because they’ve survived.”

South Florida’s clear water is a key benefit for studying sharks, which are also fairly punctual in their late January arrival. Typically, they leave coastal Virginia and North Carolina around September or October, beginning their return north from Florida around March.

In recent years, Kajiura has reported a decrease in the number of blacktips migrating.

Warmer coastal waters may be the reason.

A 1.8-degree increase in coastal waters in the past decade between Boca Raton and Jupiter may have thrown the sharks off course, halting their journey north of the area or pushing them farther out to sea.

“As we’re getting fewer and fewer blacktips coming down here, it could have large effects on the local reef fish population and that might have cascading effects across the entire food web,” Kajiura said.

Most people who see the now-common aerial images of blacktips near the beach aren’t thinking about headtail movements or food web disruption. They want to know whether it’s safe to be in the water.

“These are very, very shy sharks,” Papastamatiou said.

“They just want to avoid you, and for the most part, you don’t have to be concerned.”

And what if you see a shark while you are snorkeling or diving?

“Count yourself fortunate,” Kajiura said.

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Angela Rosenberg steers the 65-foot research vessel Angari off Palm Beach in 2019.

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