

Hammerhead sharks roll over and swim sideways to save energy

Slanted operator

Brian J. Skerry/NGS/Getty

By Emily Benson

They're sideways swimmers. Hammerhead sharks spend much of their time tilted to one side in what looks an awkward swimming posture, a tagging study has revealed.

But the weird habit actually makes sense: it seems to be the most energy-efficient way for them to swim.

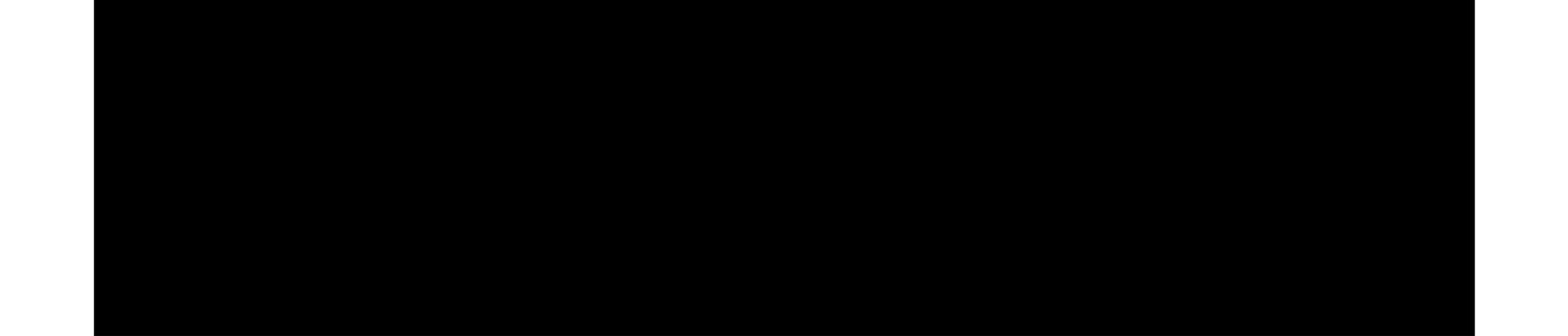
Most sharks use their large pectoral fins, on the sides of their bodies rather like aircraft wings, to keep them from sinking. The dorsal fin, on a shark's back, helps with quick turns, like the rudder on a boat.

"As far as we knew, this is how all sharks function," says Nicholas Payne at the University of Roehampton in London.

But data from accelerometers and video cameras that Payne and his colleagues attached to five great hammerhead sharks in Australia, Belize and the Bahamas showed otherwise. The tracked sharks spent up to 90 per cent of time swimming at roll angles between 50 and 75 degrees.

Unlike other sharks, the great hammerhead's dorsal fin is longer than its pectoral fins. When a great hammerhead tilts to the side, its long dorsal fin increases its "wingspan", allowing it to swim more efficiently. Wind tunnel experiments with an anatomically accurate model of a great hammerhead suggest the sharks use about 10 per cent less energy when they swim this way instead of upright.





“Here’s this animal that is reasonably famous; everybody’s heard of the hammerhead,” Payne says. “But we had really no idea that this behaviour was a normal thing for this animal.”

The energy efficiency hypothesis makes sense to Douglas Adams of the Florida Fish and Wildlife Conservation Commission, who has spotted great hammerheads swimming in a rolled position off the east coast of Florida several times. Still, much about how they behave in the wild is unknown, Adams says.

“We’re just kind of at the start of learning how a lot of these hammerhead species tick.”

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