

"Killer" Whales May Have Killed Off Megalodon

Were organized, pack-hunting Orcas responsible for driving the giant prehistoric shark Megalodon to extinction?

BUCKINGHAM, PA, US, February 27, 2022 /EINPresswire.com/ -- Otodus megalodon was a Miocene mackerel shark that hunted whales. It was one of the largest and most powerful marine predators of all time - a super-predator capable of swallowing a hippo. It's also (thankfully) extinct. Paleontologists and shark enthusiasts wonder why. We still have whales; what happened to the colossus that once preyed on them? Killer whales are also still here, and they eat whales, too. Could Orcas have been responsible for killing off Megalodon? Did they take out their larger competitor?



Hypothetical clash between killer whales and a Megalodon shark

Addressing these questions is award-winning author and paleo-researcher, Max Hawthorne. Known for his bestselling Kronos Rising series of sci-fi thrillers, the "Prince of Paleo-fiction" is also an amateur paleontologist, with credits including [solving the mystery of plesiosaur locomotion](#). "The extinction of Megalodon is a hot topic," Hawthorne said. "There have been many theories. One suggested that energy from a supernova killed off the shark. I guess some liked the idea that it took a cosmic explosion to kill off an otherwise indestructible 'monster'. Sadly, that theory went extinct just like Megalodon. We know now that said explosion took place around 2.6mya, whereas the shark died off a million years earlier."

In terms of inter-species predation, Hawthorne stated, "The notion that white sharks preyed on Megalodon pups is interesting. I'm sure it happened occasionally, but was it enough of a factor to cause its extinction? Carcharodon carcharias didn't just magically appear one day. The two species coexisted for 3 million years. How often do you hear about a juvenile great white being eaten by another kind of shark? I should think if white sharks did have an impact on Megalodon populations, it wasn't a very big one."

In terms of Orcas, Hawthorne said, "We know that killer whales are pack hunters, and that some actively target sharks as prey, including the great white. We also know the white shark is easily dispatched by the smarter, more powerful Orca. The question is, could Orcas kill a Megalodon?" Hawthorne went on to discuss the two species. "The earliest Orcas weren't as large as those of today. *Orcinus citoniensis*, which, coincidentally, appeared right around the time Megalodon died off, was a nasty customer, but it was only 13 feet long. There were other orcinine cetaceans then too, including *Hemisyntrachelus*, which grew to 16 feet in length. Could these whales have killed young and sub-adult Megalodons? Quite possibly. And let's not forget that, over the course of its reign, Megalodon shared the seas other macropredatory whales such as *Brygmophyseter* and *Zygophyseter*. Both of these were aggressive hunters that almost certainly lived in pods. They were larger than the first Orcas, closer to the size of the extant *Orcinus orca*, at around 23 feet. Last but not least, was *Livyatan melvillei*. This beast must have been a nightmare for Megalodon. It was bigger, faster, smarter, had sonar and a battering ram head, and had the largest functional fangs of any animal. Even a single *Livyatan* could take down a Megalodon. A pod? Ouch."

When asked about a hypothetical [Orca versus Megalodon match-up](#), Hawthorne smiled. "Could an organized pack of Orcas - or the like - dispatch a full-grown Megalodon? The short answer is yes, and with little difficulty." When asked why, he explicated. "First, the shark was not as big as people think. It maxed out at around 50 feet in length (Shimada, 2019) and second, the adult were relatively slow swimmers. Why? Because the bigger a shark gets, the slower it gets. It's all about the skeleton. Muscles attached to soft cartilage can't contract as powerfully as those affixed to bone. Hence, a 50' whale shark can only swim as fast as we can jog, while blue whales 4X its mass top out at ~30mph."

Hawthorne used comparative science to estimate an adult Megalodon's speed. "Since we don't have a live specimen, our best bet is to reference existing sharks. The basking shark is a perfect example. Like the Megalodon and great white, it's a mackerel shark, and the two probably shared a similar body plan. In 2018, Jonathan Houghton, from Queen's University in Belfast, studied atypical breaching behavior in basking sharks. A monitoring device was attached to a 26-foot specimen (estimated weight ~5 tons). When breaching, the shark maxed out at 11mph and (per the researchers) generated the same energy and speed as a great white. This suggests a 26-foot Megalodon also topped out at around 11mph. A 50-footer would be slower."

Hawthorne continued. "Point is, a big Megalodon could not catch a healthy Orca, or most whales. And it would have a hard time getting away from them. Additionally, Orcas are experts at exploiting opponents' weaknesses. In this case, there are several. Speed is one, next; the shark only has teeth at one end. Orcas would avoid the head as they harried it, tearing at its fins, tail, and genital region. Picture a squadron of WW2 Messerschmitt fighter planes going after a B-24 Liberator bomber with a nose gun only." Hawthorne added, "But the Megalodon's Achilles heel is, like the related great white, mako, and salmon shark, it was an obligate ram ventilator. That means it had to keep swimming to breathe. If it stopped, it died. Orcas clamp down on the flukes of blue whales several times the size of a Megalodon and stop them dead in the water. They

would do the same thing to the shark – seize its tail and, as it suffocated, batter it to death.”

“Did this happen to Megalodon with other species?” Hawthorne offered. “Probably. It’s also possible that proto-Orcas did the same thing to the baby and sub-adult sharks. Did that cause Megalodon’s disappearance? I think loss of prey, i.e., the extinction of the smallish baleen whales it preyed upon, was the main reason. But I’m sure losing individuals here and there to rival predators didn’t help any.”

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