

# Megalodon shark became extinct 2.6 million years ago

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University of Florida doctoral candidate Catalina Pimiento, pictured here measuring a megalodon shark tooth at the Smithsonian Tropical Research Institute in Panama, is lead author of a PLOS ONE study appearing online today (Oct. 22, 2014) establishing megalodon became extinct 2.6 million years ago. Credit: Jeff Gage

(Phys.org) —A new University of Florida study dismisses claims that megalodon is still alive by determining a date of extinction for the largest predatory shark to ever live.

Researchers from UF and the University of Zurich hope the study appearing online today in the journal *PLOS ONE* showing the species became extinct 2.6 million years ago will clarify public confusion. The study may also one day help scientists better understand the potential widespread effects of losing the planet's top predators, said lead author Catalina Pimiento.

"I was drawn to the study of *Carcharocles megalodon*'s [extinction](#) because it is fundamental to know when species became extinct to then begin to understand the causes and consequences of such an event," said Pimiento, a doctoral candidate at the Florida Museum of Natural History on the UF campus. "I also think people who are interested in this animal deserve to know what the scientific evidence shows, especially following Discovery Channel specials that implied megalodon may still be alive."

The study represents the first phase of Pimiento's ongoing reconstruction of megalodon's extinction. As modern top predators, especially large sharks, are significantly declining worldwide due to the current biodiversity crisis, Pimiento said this study serves as the basis to better understand the consequences of these changes.

"When you remove large sharks, then small sharks are very abundant and they consume more of the invertebrates that we humans eat," Pimiento said. "Recent estimations show that large-bodied, shallow-water species of sharks are at greatest risk among marine animals, and the overall risk of shark extinction is substantially higher than for most other vertebrates."

Pimiento plans to further investigate possible correlations between

changes in megalodon's distribution and the evolutionary trends of marine mammals, such as whales and other sharks.

"When we calculated the time of megalodon's extinction, we noticed that the modern function and gigantic sizes of filter feeder whales became established around that time," Pimiento said. "Future research will investigate if megalodon's extinction played a part in the evolution of these new classes of whales."

The slowly unraveling details of megalodon's extinction and various aspects of its natural history have consumed Pimiento's research for the past six years, including ongoing analysis of megalodon's body size and a 2010 PLOS ONE study that proposed Panama served as a nursery habitat for the species.

For the new study, researchers used databases and scientific literature of the most recent megalodon records and calculated the extinction using a novel mathematical model proven reliable in recent experimental testing by study co-author Christopher F. Clements with the Institute of Evolutionary Biology and Environmental Studies at the University of Zurich.

Vertebrate paleontologist Jorge Velez-Juarbe with the Natural History Museum of Los Angeles County said the study will not only serve as a key reference for debunking the myth that [megalodon](#) still exists, but its novel methods will influence the future of scientific research of extinct animals and plants.

"The methodology that the authors used had only been previously employed to determine extinction dates in historical times, such as to estimate the extinction date of the dodo bird," Velez-Juarbe said. "In this work, scientists applied that same methodology to determine the extinction of an organism millions of years ago, instead of hundreds. It's

a new tool that paleo biologists didn't have, or rather had not thought of using before."

Provided by University of Florida

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