SKYE BASAK IS UP TO HER elbows in mud. After hours of digging, she pries loose a stone, revealing a shark tooth that’s 16 centimeters (6 inches) long. A tooth that big could be from just one shark: a giant prehistoric one called a megalodon!

Basak is a fossil hunter who runs a company called Palmetto Fossil Excursions in Summerville, South Carolina. She often shares the fossils she finds with a local museum for research. Megalodon teeth are some of Basak’s favorite fossils to dig up. They can be three times as large as those of great white sharks!

Kenshu Shimada is a scientist at DePaul University in Chicago who studies fossils. In recent years, he has used megalodon teeth, like the ones Basak finds, to better understand this massive fish!

Megalodons lived around the globe between 15 million and 3.6 million years ago. They spent time in tropical waters along coastlines and used sawlike teeth to feed on large fish, seals, and whales. Scientists have found whale fossils with big bite marks that likely came from the giant sharks!

Scientists think the megalodon’s jaws had more than 200 teeth lined up in rows, explains Shimada. As the sharks fed on other animals, these teeth often fell out. This happens to today’s sharks too. When a megalodon lost a tooth, it sank to the ocean floor and was covered by sediments.

How Big Was the Megalodon?

Here’s how the megalodon’s length compares with the lengths of other animals and objects.

- Blue whale: 33 meters
- Megalodon: 15 meters
- School bus: 11 meters
- Great white shark: 7 meters
- Diver: 1.7 meters

Think: Which is longer, one blue whale or two megalodons?
How Shark Teeth Became Fossils

Fossils of shark teeth are common, but fossils of other shark body parts are rare. Here’s how the teeth of prehistoric sharks turned into fossils.

1. Millions of years ago, a shark died. Its body sank to the ocean floor.

2. Sediments such as sand and silt quickly covered the body. Over time, the sediments turned into rocks.

3. Meanwhile, the shark’s soft cartilage decayed. Minerals seeped into the teeth and hardened.

4. The rocks became exposed, leaving the fossilized teeth to be discovered!

Over millions of years, the sediments turned to rock. At the same time, minerals entered the tiny spaces in the tooth and hardened, forming a fossil. Then wind and water gradually wore away the rock in a process called weathering (see How Shark Teeth Became Fossils, above).

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Think: Why do scientists need to use teeth to study prehistoric sharks?

Just How Big?

Megalodons were giants of the ocean. But without fossils of megalodon skeletons, scientists don’t know exactly how big they were. Many researchers have calculated their size by comparing megalodon teeth with great white shark teeth. Because of similarities in the sharks’ teeth and diets, scientists assume that megalodons’ bodies grew in much the same way that great whites do. “The two sharks are like distant cousins,” says Shimada.

In 2019, Shimada used great white shark teeth to estimate the length of the megalodon. He found that the sharks could reach at least 15 meters (50 feet)—more than twice as long as a great white! The next year, Shimada’s team learned that megalodons were far larger than their extinct relatives. To find the lengths of these ancient sharks, Shimada looked at the sizes of living sharks that belong to the same group as the extinct sharks and megalodons (see The Meg’s Relatives, right). After the megalodon, the next-longest shark in the group was just 7 meters (23 feet) long.

In Shimada’s newest study, in 2021, he used fossilized teeth to calculate that megalodons were giants even at birth—about 2 meters (7 feet) long! In order to grow that large, babies would likely have eaten unhatched eggs inside their mother! Some modern shark babies eat their own species too, says Shimada.

More to Discover

The more scientists learn about megalodons, the better they can understand what the planet was like millions of years ago. “We want to know why the megalodon became so large and why it became extinct,” Shimada says. To find these answers, scientists like Shimada will continue to study fossils to look for clues about the past. Meanwhile, researchers and fossil hunters will keep digging for more megalodon teeth. For Skye Basak, each discovery is exciting. “When you find a fossil, you’re the first person on Earth to lay eyes on it or touch it,” she says.

—Dani Leviss

words to know

fossil—the preserved remains of a living thing
sediments—materials such as silt, sand, or rock that have been moved by water, wind, or glaciers
minerals—solid substances that form in rocks
weathering—the gradual wearing away of soil or rock

GOBLIN SHARKS

catch prey by thrusting their jaws 3 inches out of their mouths.

BASKING SHARKS

swim with an open mouth to eat tiny plants that live in the water.

MAKO SHARKS

are the fastest sharks alive, reaching speeds of 46 miles per hour!

Based on fossil evidence, these living sharks belong to the same group as megalodons.

Fossil hunter Skye Basak carefully digs for shark teeth in South Carolina.

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