MEGALODON

Largest Shark that Ever Lived

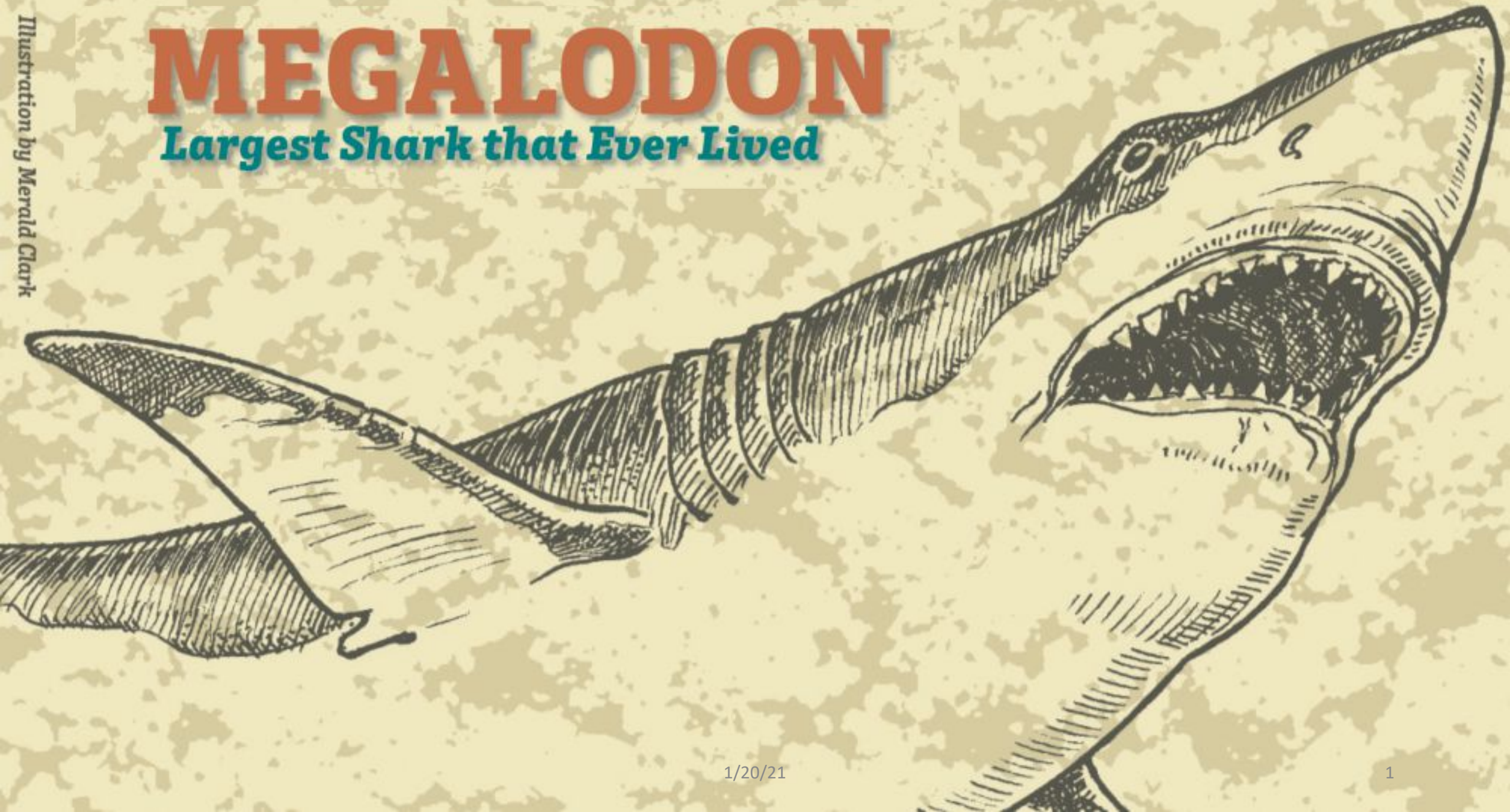

Illustration by Merald Clark

Megalodon: Largest Shark that Ever Lived **(a traveling exhibit) and this Educator's Guide were produced by the Florida Museum of Natural History, with support from the National Science Foundation.**

University of Florida Cultural Plaza
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Introduction

Megalodon is the largest shark that ever lived! Estimated to be approximately 60 feet in length, this formidable top predator occupied the world's ancient oceans 17-2 million years ago. Megalodon consumed vast quantities of marine animals and likely contributed to the stability of ecosystems – as top predators do today. Understanding Megalodon's life history is critical to improving our knowledge of evolution and living shark conservation.

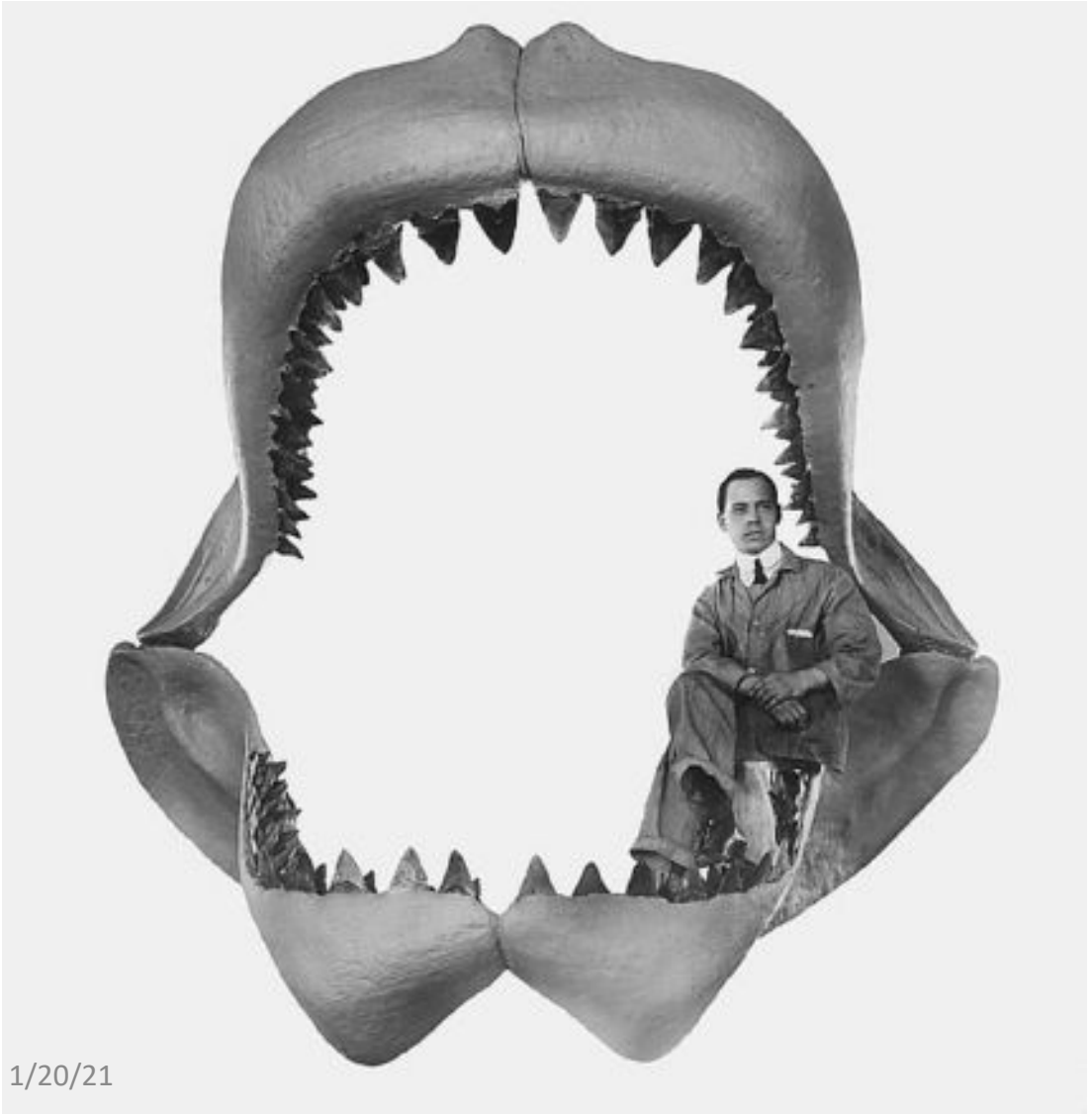
As unique as *Megalodon* was, so too is the exhibition that tells the story of this enormous creature. The exhibition showcases both fossil and modern shark specimens as well as full-scale models from several collections. Visitors enter a full-size sculpture of *Megalodon* through massive jaws and discover this shark's history and the world it inhabited, including its size, structure, diet, lifespan, relatives, neighbors, evolution, and extinction.

Enter at Your Own Risk!

Walk through full-scale jaws into a 60-foot-long Megalodon sculpture and begin to explore the story of this fantastic ancient creature – its size, structure, diet, lifespan, relatives, neighbors, evolution, extinction and the science that continues to reveal Megalodon's tale. Tooth-shaped island units support interpretive materials, which include graphics, hands-on components, and family-friendly interactives. The exhibit is object-rich, including numerous fossil specimens from several collections, and life-size and scale models of other fossil and modern sharks.

This Was One Big Shark!

At 60 feet long, *Megalodon* was the largest shark that ever lived and a dominant marine predator before vanishing two million years ago. Though *Megalodon* vanished 2 million years ago, its fascinating story inspires lessons for science and shark conservation.



If Shark Teeth Could Talk. . .

Shark teeth can identify the species, suggest body size and indicate prey or prey size.

- Touch a full set of 46 Megalodon teeth, and view real specimens showing tooth differences between upper and lower jaws, male and female sharks, and sharks' unique system of tooth replacement.
- Measure a series of hands-on Megalodon teeth to predict the size of each shark.

How Old Are These Sharks?

Growth rings are visible in shark vertebrae or “centra,” much like tree rings, and indicate a shark’s age at death. Turn a wheel with shark centra to magnify and count rings to estimate age.

What did Megalodon eat? (Anything it wanted)

Megalodon most likely ate whales, large fish, seals, sea turtles, and whatever else it wanted!

- Calculate the volume of tuna cans that represents an average daily meal.

Megalodon would have consumed the equivalent of ~6667 tuna cans per day; 46,667 tuna cans per week; and 2,433,333 tuna cans per year. An average of 2,500 lbs of food per day, 17,500 lbs of food per week, and 912,500 lbs of food per year.

Growth Series of Megalodon Jaws

View four Megalodon jaws from 30- to 60-foot-long sharks – a perfect backdrop for family photos.

When Did Megalodon Live?

Megalodon lived from 17 to 2 million years ago when the world's oceans were generally warmer.

Megalodon's presence overlaps with the geological time periods known as the Miocene (24.5 to 5 million years ago) and the Pliocene (5-1.8 million years ago). Megalodon did not overlap with modern humans (Homo sapiens) whose first occurrence was around 100,000 years ago.

Where Did Megalodon Live?

Megalodon lived throughout ancient oceans. Shark teeth, including Megalodon, are the most plentiful fossils collected worldwide They are abundant because sharks continuously grow new teeth and shed old ones, one shark can have 20,000 teeth in its lifetime

- Touch Megalodon teeth from around the world and with buttons locate where these fossils were found on a world map.

Shark Tooth Study Center

Shark teeth are the most commonly collected fossils. Bring your own shark teeth or use those provided to compare to the 52 species on display.

- Watch video of kids collecting fossil teeth in a Florida stream.

Megalodon's Extended Family

Although the debate over Megalodon's closest relative is still contentious, the front runners being the Mako Shark and the Great White Shark, there is a large amount we do know about Megalodon.

- View mackerel shark specimens and identify what makes them unique.

Megatoothed Sharks

Megalodon belongs to a group of giants called megatoothed sharks – all now extinct.

- Discover when each species lived and see the diversity of their tooth shapes and sizes.

Ancient Sharks

Megalodon lived much later than some of its early relatives but is no longer found in today's oceans. Additionally, Megalodon did not live concurrently with non-avian dinosaurs (e.g., Tyrannosaurus rex).

- It is important to discourage Megalodon reconstructions that include the presence of either humans or dinosaurs (although imaginative, it is not scientifically accurate) Sharks have been around for over 400 million years.
- View models of some of these curious early sharks and the specimens that give us clues.

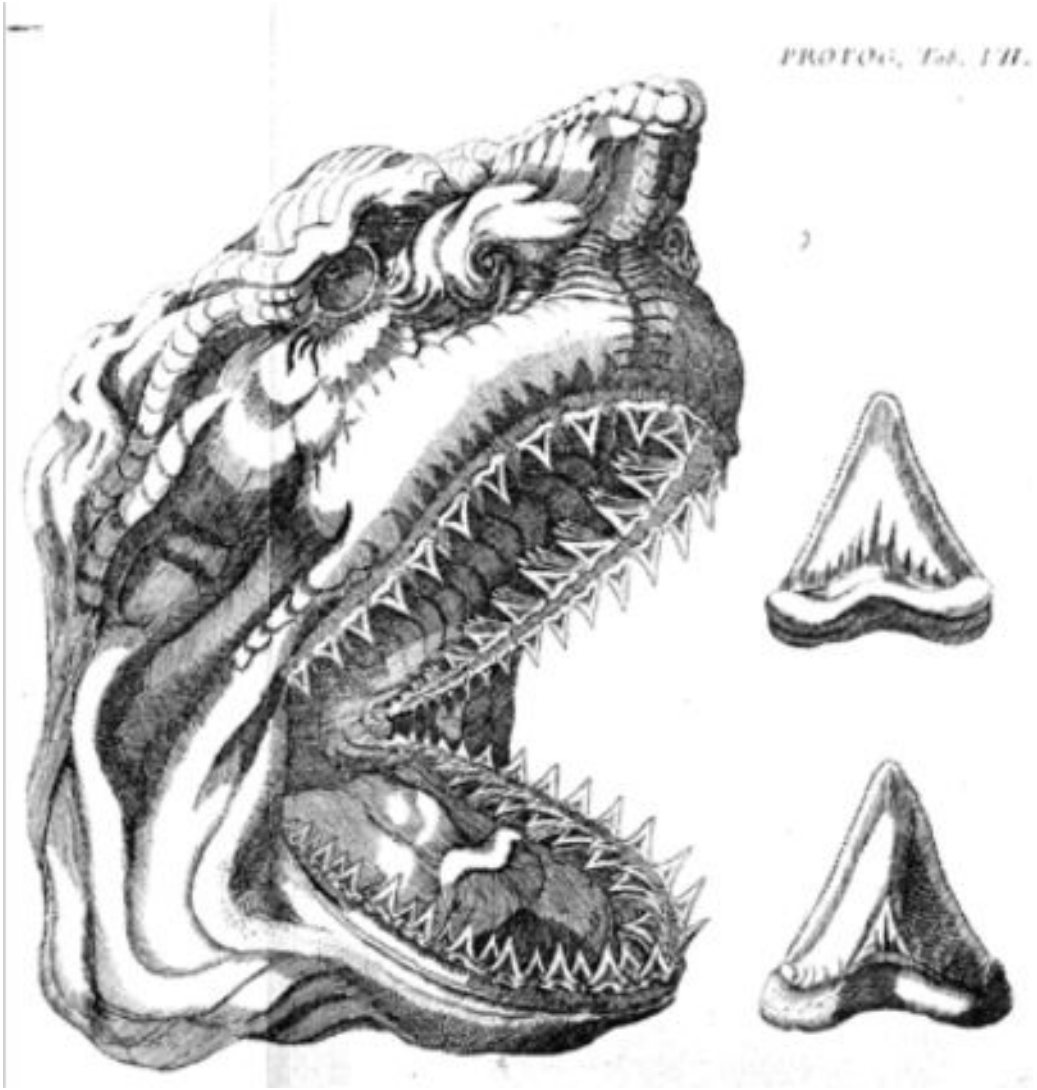
Sharks & Company

There are more than 375 species of sharks living today. They are related to skates, rays and ratfish.

- See specimens of these fishes and view six full-scale models, including a 16-foot great white.

The white shark has been credited with more fatal attacks on humans than any other species of shark. This is due primarily to its size, power and feeding behavior.

Megalodon Extinction



Several factors caused Megalodon's extinction about 2 million years ago. Climate change, reduction in the number of large whales, and competition from other predators (sharks).

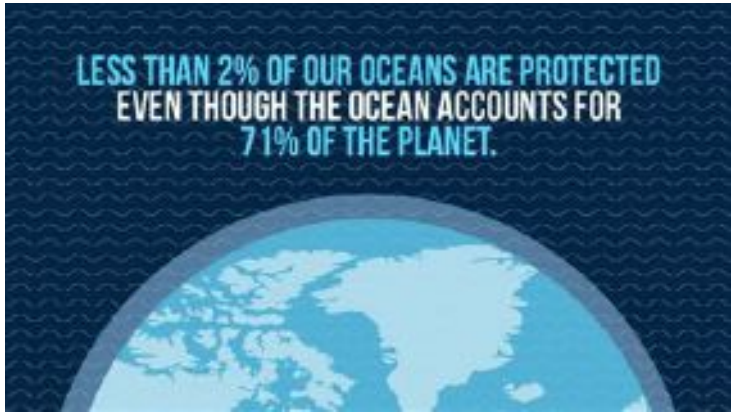
- Learn about extinction and guess which of five modern animals are in danger of extinction today.

Why Care About Megalodon?

Because of the high market value of shark fins (used in shark fin soup), millions of sharks are left to drown after their fins have been removed.

Megalodon teaches us that top marine predators can and do become extinct. Currently, several shark populations are experiencing population decline. Likely causes include commercial over-fishing, pollution, and habitat alteration. Pollution also kills sharks and their prey everyday.

- Learn what you can do to help.



Who Needs Sharks? You do.

Healthy shark populations keep carnivorous fish populations low, allowing herbivorous fish to remain large and feed on algae-covered coral reefs; therefore, healthy coral reef populations flourish

- Watch video about shark conservation and pull a lever to reveal the role sharks play in ocean health.

5% of coral reefs will be dead by the end of the year

Ove Hoegh-Guldberg, Global Change Institute at the University of Queensland

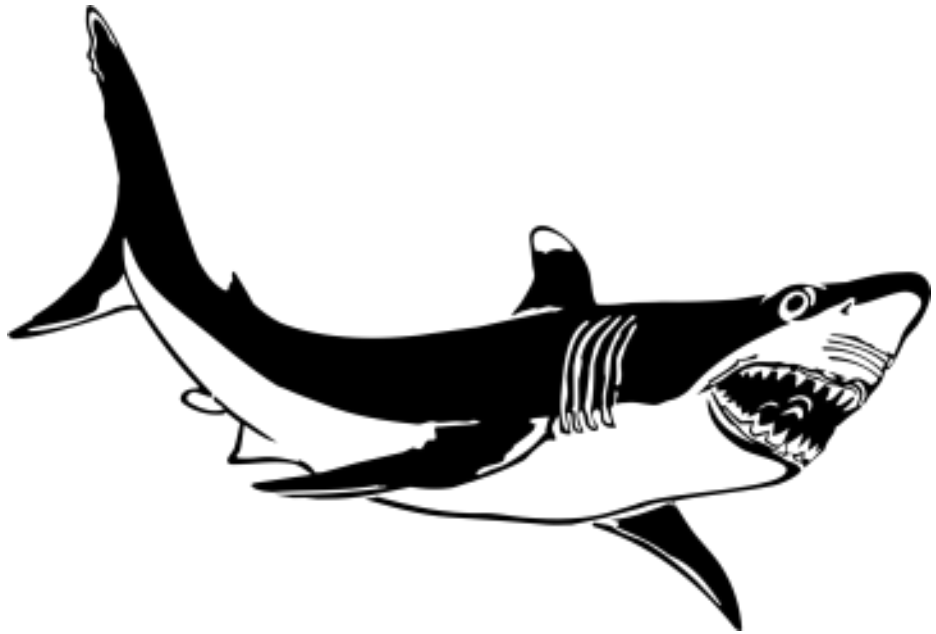
Megalomania

Megalodon has intrigued people for thousands of years, and still intrigues us today.

- View Megalodon teeth used by ancient Native Americans, and see modern books, clothing and jewelry inspired by Megalodon.

Fact or Fiction?

There are plenty of common misconceptions about sharks.



Some sharks live over 100 years. FACT

Shark skin is as smooth as silk. FICTION

Sharks sleep many hours each day. FICTION

Sharks have external ears. FICTION

The fastest shark is the white shark. FICTION

A baby shark is referred to as a pup. FACT

Sharks are found only in saltwater. FICTION

Most sharks are hot-blooded. FICTION

The chance of being attacked by a shark is very high. FICTION

Shark finning is legal in U.S. territorial waters. FICTION

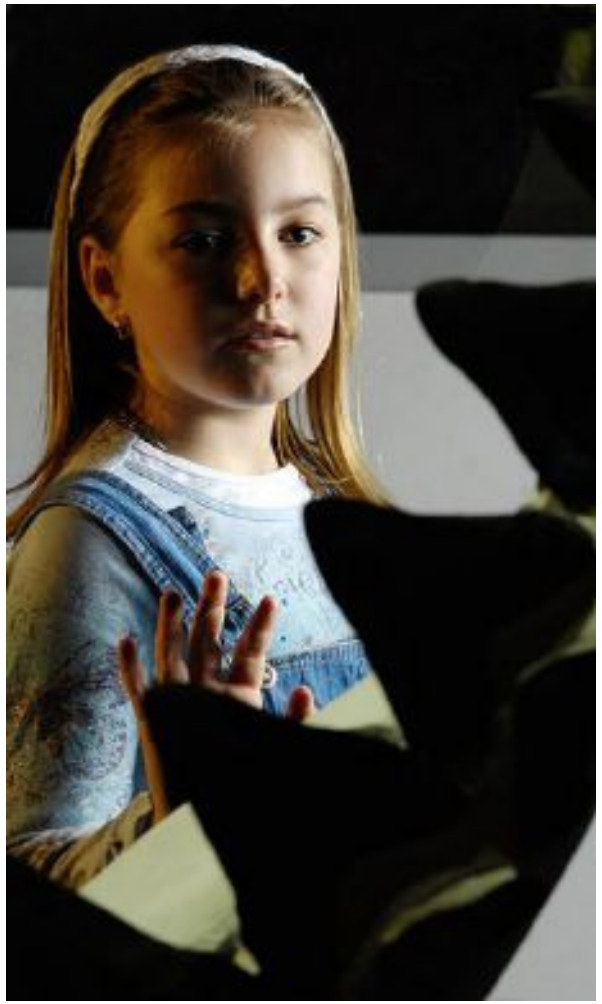
Most sharks are harmful to humans. FICTION

Sharks are vulnerable to overfishing. FACT

Exhibit Highlights

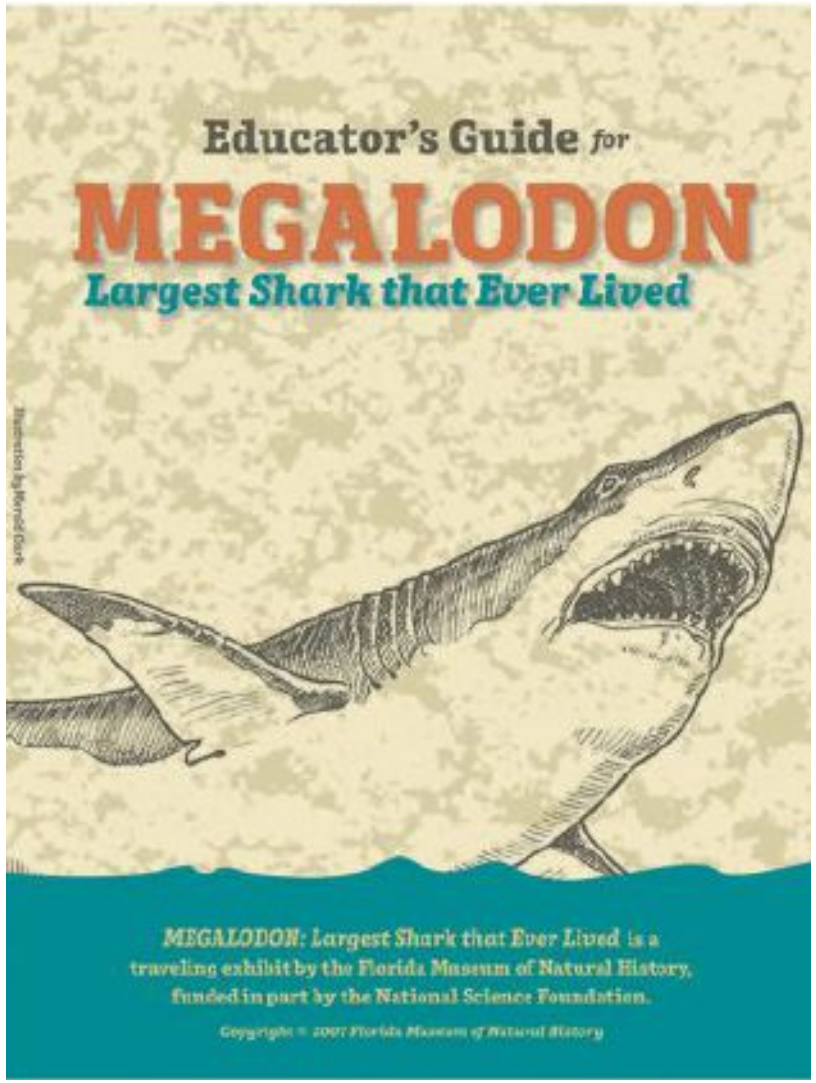
- ***Life-Size Megalodon Sculpture –*** Be amazed at the 60-foot length, compare the enormous size to modern sharks and enter the exhibit through the jaws.
- ***See Real Specimens! –*** View more than 100 objects from numerous collections including actual shark teeth and vertebrae, fossil and modern shark models, and other unique objects related to Megalodon.
- ***Hands-On Interactives –*** Touch numerous shark teeth and discover where on Earth Megalodon lived. Calculate the volume of food eaten daily. Turn a wheel to magnify and count growth rings from various shark vertebrae and estimate age. Investigate 32 drawers in the Shark Tooth Study Center and compare 52 different shark species.
- ***Megalodon Media –*** Watch videos about collecting shark teeth, shark conservation and a newly added video on a recently discovered Megalodon nursery site in Panama.

Interactives



- Photo opportunity at jaws at Megalodon sculpture entrance
- Shark size interactive
- Three exhibit modules with touchable shark teeth
- Rotating wheel with “count the rings” shark central (vertebrae)
- World map with push-button lights to see Megalodon fossil locations
- Ten flip-up Q&A’s
- Study center with 32 specimen identification drawers
- Three video displays (shark-tooth collecting, shark research, shark conservation)
- Tuna can pyramid with meal volume calculator
- Photo opportunity behind series of four large shark jaws

Education Materials



A diverse array of activities is discussed in this 58 page guide, encompassing subjects within the Science, Technology, Engineering, and Mathematics (STEM) disciplines and in non-STEM fields. These STEM fields include: anatomy, chemistry, earth sciences, geology, life sciences, mathematics, marine biology, physics, and physiology. Non-STEM subjects covered include: anthropology, economics, English, geography, history, and the social sciences.

Education Materials

The Educator's Guide will be available for download from the Western Heritage Museum website www.nmjc.edu/museum.

For more information:

To book your class tour please contact Director of Education, Mary Lyle at mlyle@nmjc.edu or call 575-492-2679.