The Linden Times

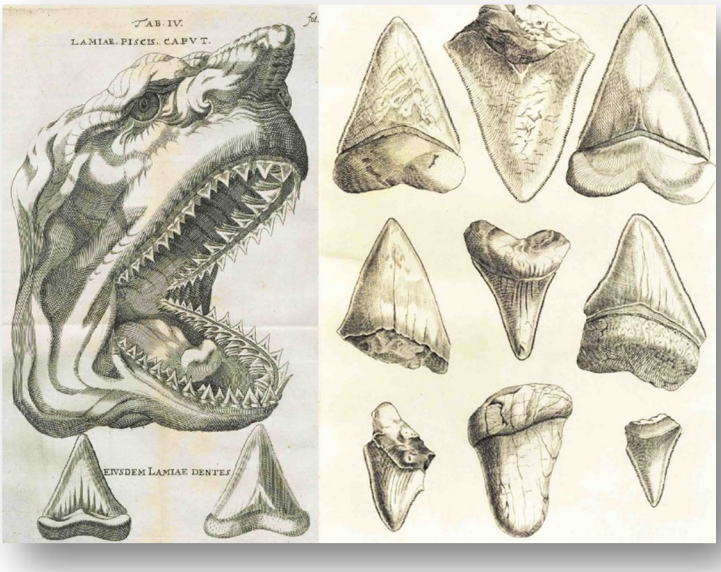
A bi-weekly newsletter for the members & friends of the Calvert County Historical Society – July 9, 2021

Megalodon and human. National Geographic: Sizing Up Sharks, the Lords of the Sea.

Megalodon (*Carcharocles Megalodon*), meaning "big tooth", is an extinct species of shark that lived approximately 23 to 3.6 million years ago during the Early Miocene to the Pliocene eras. While regarded as one of the largest and most powerful predators to have ever lived, Megalodon is known from fragmentary remains, and its appearance and maximum size are uncertain. Scientists differ on whether it would have more closely resembled a stockier version of the great white shark, the basking shark or the sand tiger shark of today.

Most estimates of Megalodon's size are extrapolated from teeth; with maximum length estimates up to 59 feet and average length estimates of 34 feet. Their teeth were thick and robust, built for grabbing prey and breaking bone. Estimates suggest their large jaws could exert a bite force of up to 180,000 Newtons; 40,000 pounds of force (lbf). For comparison, a Tyrannosaurus Rex which weighed about 8 tons had a bite force of 57,000 newtons (12,814 lbf), which sounds pretty impressive, and a human can exert a bite force between 1,100 and 1,300 Newtons, 292 pounds of force.

Megalodon probably targeted large prey, such as whales, seals and sea turtles. Juveniles inhabited warm coastal waters and fed on fish and small whales. The animal faced competition from whale-eating cetaceans, such as *Livyatan* and other macroraptorial sperm whales and possibly smaller ancestral killer whales.



The Head of a Great White Shark Dissected, by Nicolas Steno - 1667

It is thought that their extinction began as a result of cooling oceans around 3.6 to 4 million years ago associated with the onset of the ice ages, coupled with the lowering of sea levels and the resulting loss of suitable nursery areas. A 2019 study reviewed newer evidence suggesting that competition from the modern great white shark may have also contributed to the extinction of Megalodon.

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Carcharocles Megalodon at the Calvert Marine Museum.

Shark skeletons are primarily made up of soft cartilage and most of their bodies are very unlikely to fossilize. Lucky for us, their teeth and jaws did. According to Renaissance accounts, on the other side of the pond, their gigantic triangular fossil teeth were once believed to be the petrified tongues of dragons and snakes.

Long before the invasion of Normandy was simulated on the lower Cliffs of Calvert over 600 species of fossils from the Miocene era, including our large toothed subject, have been found at our very own Calvert Cliffs. The Cliffs are the largest fossil-bearing deposit of Miocene marine sediments exposed on the East Coast of North America. These sediments were laid down 10 to 20 million years ago during the Miocene Epoch, when the Atlantic Coast was repeatedly submerged beneath the sea. It is thought to have been used as a calving ground for many species of early dolphins and whales. Since there were so many marine mammals here the largest of prehistoric sharks, Megalodon, spent a lot of time feeding here. The climate was warmer than it is now, so on the shore, a diversity of plants grew here, from Cyprus trees to Oak trees.

Miocene, Pliocene Epoch oceans

Studies of fossil animals and plants indicate that in those times, a warm shallow ocean covered this area. Shells and bones of dead animals sank to the bottom of the sea and were buried in sand and mud, building up over many thousands of years layer upon layer of fossil deposits. Millions of years later, the ocean retreated and what once was sea bottom is now exposed in the cliff face. The cliffs are continually eroded by wave action which undercuts the base, by landslides and by storms and frost. Fossils falling into the surf are tossed around, cleaned, and then cast back on shore. The Calvert Cliffs are justly famous as a fossil collecting area. Virtually all the shark teeth and the fossil bones and shells found on the beach wash or weather out of the cliffs. Also, parts of land mammals are occasionally found, the most common being the peccary, a pig like animal and mastodons, wooly rhinos, and camels have been found.

The Calvert Marine Museum paleontology gallery “Treasures from Our Cliffs” exhibit includes fossils of seals, whales, invertebrates and assorted prehistoric terrestrial mammals and of course, the gargantuan reconstruction of a *Carcharocles Megalodon* skeleton. The museum also features the modern history of southern Maryland including Native Patuxent Indian culture, the War of 1812 and the local fishing industry.

Did you know… the Calvert Marine Museum, designed and built by volunteers was established on Solomon's Island on October 18, 1970 under the aegis of the Calvert County Historical Society. With the growth of museum programs, collections, and visitation, in 1979 the CCHS asked that Calvert County designate the museum a separate department of the county government. The museum met the criteria set by the American Association of Museums and was fully accredited.

Source: https://en.wikipedia.org/wiki/Megalodon

“Kids like their fossils. I've taken my godson fossil-hunting and there's nothing more magical than finding a shiny shell and knowing you're the first person to have seen it for 150 million years.” - Sir David Attenborough'

Capacity is limited!

Saturday, July 10, 2021

10:00 AM - 5:00 PM

Calvert Marine Museum
14200 Solomons Island Road S
Solomons, MD 20688

Celebrate all things shark, all day, at the Calvert Marine Museum!
Live sharks will be featured in the Corbin Pavilion for viewing. Learn fascinating 'sharktoids', examine evidence of prehistoric sharks, and take a picture in the life-size jaws of a Megalodon shark or in a real shark cage and so much more. Cost: Museum admission applies; Members are FREE. Capacity is limited. They strongly recommend you purchase admission tickets in advance. To purchase tickets: https://calvertmarinemuseum.doubleknot.com/event/day/admission-tickets/25986

Calvert Marine MUSEUM

Phone: 410-326-2042
www.calvertmarinemuseum.com

"Music on the Porch at Linden"

Next week!

The Calvert County Historical Society presents the second of our FREE Outdoor Summer Concert Series! Bring your lawn chairs, blankets and coolers and come to enjoy!

Featuring the New Orleans Jazz Band Sound of

Zachary Smith and the Dixie Power Trio

Thursday, July 15, 7:30pm to 9:00pm

Snacks including Calvert Kettle Corn and Calvert Kona Ice will be for sale. Overflow parking at Trinity United Methodist Church parking lot. If inclement weather, concert will be cancelled.
Questions? Call CCHS at 410-535-2452.