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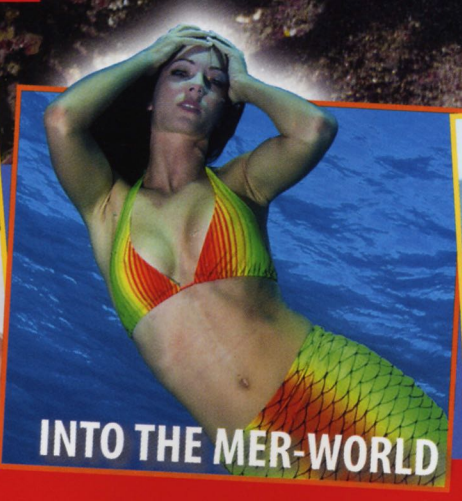

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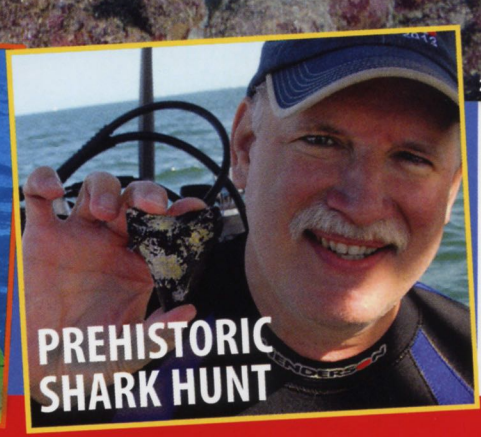

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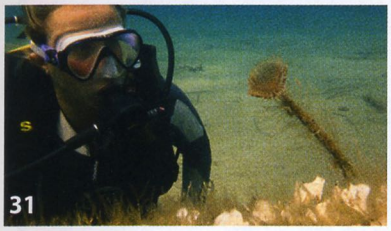

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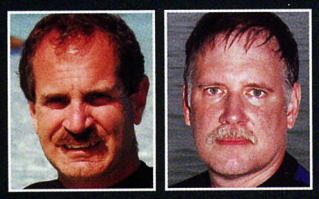


'Touch everything!', divers MICHAEL SALVAREZZA and CHRISTOPHER WEAVER are told, and the reality of hunting for the remains of million-year-old giant sharks in the Gulf of Mexico soon starts to bite

Top: A diver examines a fossilised mammoth tooth.

Above: The first dive yields dugong bones, shell castings, turtle-shell fragments – and a prized megalodon tooth.

THE BOTTOM WAS A MIX of pebbles, loose gravel, mud and clay, covered in a fine layer of silt and with only an occasional outcropping of coral and seaweed to break the monotony. Visibility was only a few murky feet at best, but when the silt kicked up it dropped to almost zero.

The water was warm, almost too warm, at 31°C, and we found ourselves frequently opening our wetsuits to let in a brief shot of water to cool us down.

Despite these marginal conditions, we were excited to be there, anxious to extend our bottom time and transfixed on the purpose of our dives. We were searching for fossilised shark teeth in the waters off Venice, Florida in the Gulf of Mexico.

Specifically, we were looking for megalodon shark teeth from 20 million years ago.

"Touch everything, go slow, keep your focus and, if you're in doubt, bring it up and let's have a look." Those had been the simple instructions from the dive briefing moments earlier.

It sounded easy at the surface, but now that we were crawling around in 9m of water with almost no visibility, the dive was turning out to be more challenging than we had thought. To our untrained eyes in the dim light of the cloudy water, everything looked like a fossil!

Our hands skimmed over the bottom, pausing with each rock and outcropping to feel if the tell-tale shape of a tooth could be discerned.

At first other fossils emerged, fascinating in their own way but not the immediate subject of our search.

Black-coloured bones from long-lost dugongs and fossil teeth from mammoths, horses and whales were the largest and easiest to find. We also uncovered large fossilised 7cm clams, totally intact with both bottom and top

shells. Smaller items, such as the fossilised mouth-plates and barb-tips of a sting ray, were next to emerge from the silt.

As we crept and crawled along the bottom, a pack of opportunistic fish followed our trail, eager to find tiny morsels of food in the clouds of silt we were creating along the way. They were finding what they wanted, but would we find what we wanted?

Suddenly, a tantalizing discovery.

Top right: Divers listen intently to the dive briefing.

Below: Venice beach.

There in the palm of our hand, emerging from a scoop of newly dug-up mud, was a tooth. This one, however, was too small to be megalodon… indeed, it was the fossilised tooth of a bull shark.

WE KEPT ON DIGGING and searching. Our eyes tried to peer through the gloom and our fingertips tried to deconstruct the bottom, all in search of our elusive quarry.

Lifting a medium-sized rock caused a bloom of silt in the water. We dug into the exposed clay. One scoop… nothing. We dug deeper… still nothing. For some reason, we dug a third time, even deeper.

And then, as we lifted the mud and clay into the water, and let the fine particulate drift away, there it was – a 7cm tooth!

This was the fossil we had sought, a tooth from the long-extinct megalodon shark. According to an established formula the size of the shark can be established from that of the tooth, and this one came from a specimen that measured about 9m in length.

We were thrilled, exhilarated and eager to continue our search. Now that we had one, we wanted more…

Finding fossilised shark teeth, or any type of fossil, is not easy. Although the diving conditions were marginal in Venice, Florida, the dives themselves are not challenging. Rather, the difficulty comes in learning how to spot a potential fossil, and to become proficient in the art of patient searching.

Shark teeth can be lying right on the bottom, exposed and ready to be found, or they can lie buried inches below the mud, clay and sandy bottom.

Because of the limited visibility, it's easy for divers to pass an exposed tooth just a foot or two away.

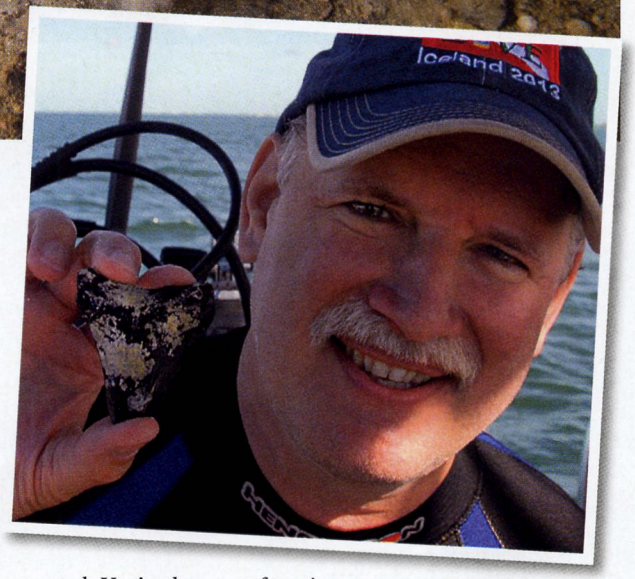
The best techniques involve slow movement, careful examination of the bottom and the persistence to examine every rock and object.

The seabed we were searching consisted mostly of mud, clay and silt, in an area devoid of coral reef, so digging and turning over rocks doesn't harm the environment, and there is no danger to divers from concealed teeth, spines or stingers either.

FOSSIL SHARK TEETH can be found in many locations across North America, but Florida's west coast, and in particular the waters off Venice, is an ideal location for finding them.

The first primitive sharks appeared about 400 million years ago and the first modern sharks emerged about 100 million years ago. What is now known as the Florida peninsula was once a submerged landmass that began to emerge from the water only about 65 million years ago.

At first, Florida was just a shallow body of sediments from the sea, but it eventually grew into the finger of land



that today juts out from the USA.

However, because of fluctuations in the Earth's climate, Florida was periodically submerged and exposed as water levels rose and fell with the freezing and thawing of polar ice.

By about 2 million years ago, Florida had re-emerged as a spine of land that runs roughly down the centre of the peninsula for about half the state. At its highest, the elevation here is about 90m above sea level. The rest of Florida is only a few metres above sea level.

When the spine of Florida rose from the sea, the waters to the south and west (the present-day Gulf of Mexico) were very shallow. These waters were home to large populations of fish and sharks, including the famed megalodon. As these marine creatures died, they were quickly covered with sediment. The conditions were perfect for fossilisation.

The same applied to land animals, as their remains were quickly washed by rivers and streams into the oceans. Because of the unique geology of Florida, the fossilised remains of these organisms are concentrated in the waters off both coasts of the state.

However, as the Gulf of Mexico tends to stay shallow for great distances, it's easier to search for these fossils on that side of the state. The area south of Tampa towards Venice, because of a unique confluence of rivers and streams, is the epicentre of these fossil beds.

WHILE MANY SPECIES of sharks lived in these waters, the most notable between 2 and 30 million years ago was the megalodon shark. It could grow to more than 20m long, with a mouth some 2m wide and 2m high.

Because the shark's skeleton is made of cartilage, the only fossil remains that divers can find are the teeth, which can measure 15-18cm.

Megalodon teeth resemble those of the great white shark, but are distinguished by the large dental band that separates the blade of the tooth from the root.

Despite recent sensational TV programmes claiming to have uncovered evidence of living megalodons, these sharks are long extinct.

Diving for their teeth, and uncovering the fossil remains of these once-majestic predators, is the closest we can come to touching these creatures today.

Fossil-hunting divers visiting Venice can choose from several dive operators offering expert guidance and service. You can explore the waters from shore, but it's a long swim to the productive fossil-beds, and a boat-dive is preferable.

Divers will typically enjoy two-tank dives of 90 minutes or more bottom time. Depths rarely exceed 9m or so.

TO MAXIMISE THE CHANCES of finding teeth, divers should plan on several days of diving. We did four dives over two days and discovered two megalodon teeth, along with a variety of other fossils.

Some of the teeth and other items can be very small, so it's advisable to carry a small fine-mesh bag to hold whatever you find. Dive operators sell these.

Shark-tooth diving is conducted year-round. In summer, be prepared for extremely hot weather, strong sun and very warm water – more than 30°C in late summer. In winter, water temperatures can dip as low as 15°C.

The water is generally calm, and experienced operators choose only those sites most conducive to safe diving and productive searching. When the search is over, the operators also charter their boats for visits to offshore reefs and wrecks, with much clearer water and better conditions.

Non-divers too find small fossilised teeth off Venice beach in waist-deep water, using beach-sifting scoops with a screened cage at one end and a long shaft on the other.

The dive-sites inshore near Venice are not beautiful or picturesque. But the thrill of the hunt for fossils is alluring, and despite the conditions divers may wish to return again and again to search for the remains of the most magnificent shark ever to roam the seas – megalodon.

Top: Lifting the tooth stirs the silt – a small grunt looks on.

Above: Christopher Weaver holds a megalodon tooth.

Below: A boat heads towards the open water of the Gulf of Mexico.

Below right: Close-up of a megalodon tooth.