



HUNDREDS MOVE AS ONE as the school of squid head toward a popular feeding ground, perfect for small fish. The slow, tranquil movements of the squid are like the calm before a violent storm. At these depths, it seems like a moonless night though the sun is just setting at the ocean's surface. The school appears to be cautious—and for good reason. Without warning the squid turn left sharply as they sense something coming. The once yellow and brown school of squid is now a streak of pearly white, vivid orange, and jet black as they flash their colors and expel ink to distract their hunter. A sandbar shark comes out of nowhere and manages to snag two squid with its slender teeth before disappearing back into the darkness. As quickly as the commotion started, it is now over, and as the ink dissipates a dull calmness begins to creep back.

For millions of years, sharks have been equipped with special features that have allowed them to flourish in the ocean. What makes sharks such proficient predators? Sharks' teeth are a feature that has become essential for feeding, and are specialized for certain feeding strategies. The dentition can provide a wealth of information about how certain shark species feed, what types of prey they feed on, and how they live their lives. Their teeth are adapted perfectly for a variety of feeding styles and types of prey. Because sharks are so well suited to the sea, the health of the oceanic ecosystem depends heavily on viable shark populations.

Understanding the Scariest Teeth in the

What is a shark?

SHARKS BELONG TO the group of fish called **Chondrichthyes**, or the “cartilaginous fishes.” Unlike many fish that have skeletons made of bone, members of class Chondrichthyes have a skeleton made of **cartilage**. The teeth are actually the hardest part in a shark’s body. Sharks’ teeth consist primarily of a substance called **dentine**, which is a type of connective tissue. Dentine is covered by a layer of hard **enameloid**, which is similar to the coating of enamel on our own teeth.

Sharks are able to replace their teeth numerous times. Sharks continue to grow teeth over the course of their lives. The teeth are arranged in the jaw as a “**tooth whorl**.” The tooth whorl functions like a conveyor belt, where new teeth are flipped up to replace old ones. This allows sharks to always have sharp, functional teeth for hunting.



A Closer Look:

THE MOST DRAMATIC TOOTH WHORL appeared in a shark that lived 270 million years ago in the Permian period. That tooth whorl belonged to **Helicoprion**, a bizarre looking primitive shark. Helicoprion’s tooth whorl was most likely located on the lower jaw, and actually spiraled in on itself. Scientists were baffled about its orientation and even its origin for a long time.

Today, scientists believe that they have determined the correct orientation, and that it was in fact from a shark. The buzz saw-like tooth whorl is different than most tooth whorls because the teeth in this spiral are actually old teeth. Rather than falling out, the old teeth curled around into a massive whorl. The whorl may have played a roll in stunning prey, although its real function continues to be a mystery.



Illustration by Ray Troll