

# SHARKS ARE COOL A<sub>s</sub>F<sup>ish</sup>

Provided by Shark Allies



# WHAT ARE SHARKS?

Sharks are older than trees!

Sharks are dinosaurs! Sharks are a type of fish that have been around for over **400 million years**. Their skeleton is **made** almost entirely out of **cartilage** instead of bone.

Sharks are **cold-blooded**, live in water, have fins, and **breathe with gills**, like other fish. However, They do not have a **swim bladder** like other fish.



Image Credit: In search of a snack: Alberto Gennari

*Psst...Your nose is mostly made out of cartilage.*

# SHARKS ARE IMPORTANT!

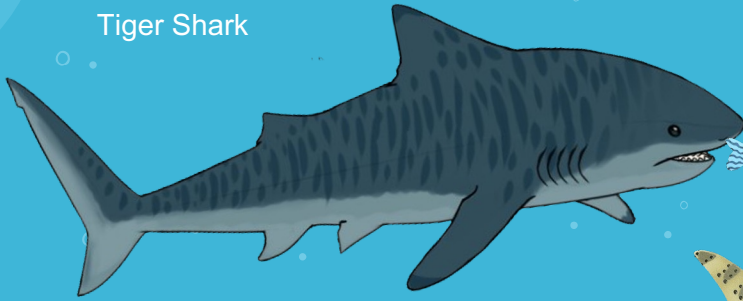
Sharks have been alive for over **400 million years**.



Goblin Shark

Over **500 species** of sharks live in the world's oceans.

Tiger Shark



Whale Shark

Some Sharks like the Tiger Shark are **top predators**. Others, like the Zebra Shark, are the **cleaning service** of the oceans.



Zebra Shark

**Most importantly, sharks keep our oceans balanced and healthy!**

# SHARKS NEED OUR HELP

**Overfishing, finning, and habitat loss** are some of the **big** reasons why **most sharks** species are **critically endangered**.

*It's too late for the Megalodon.  
But, it's **NOT** too late to help  
today's sharks!*

60-feet

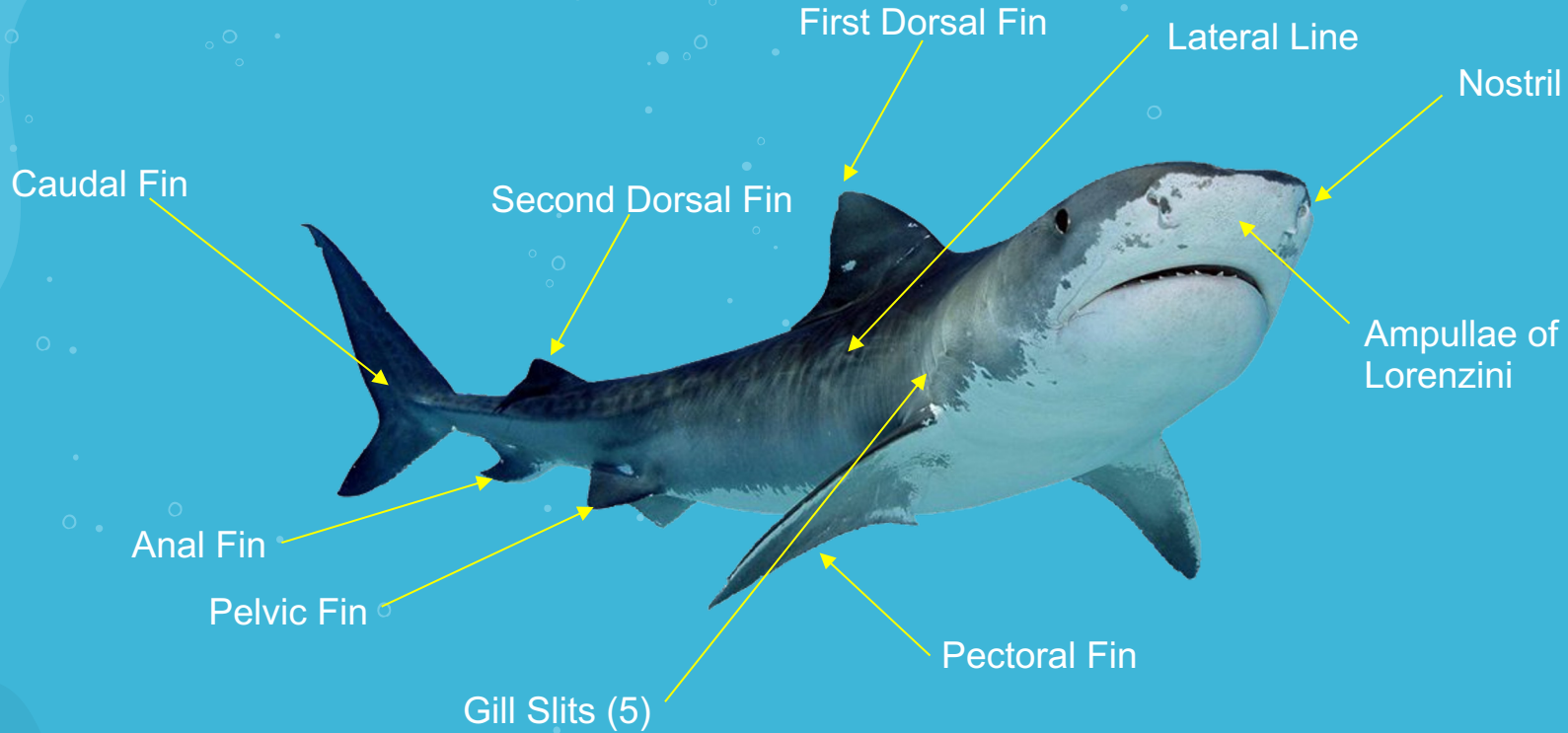


13-feet

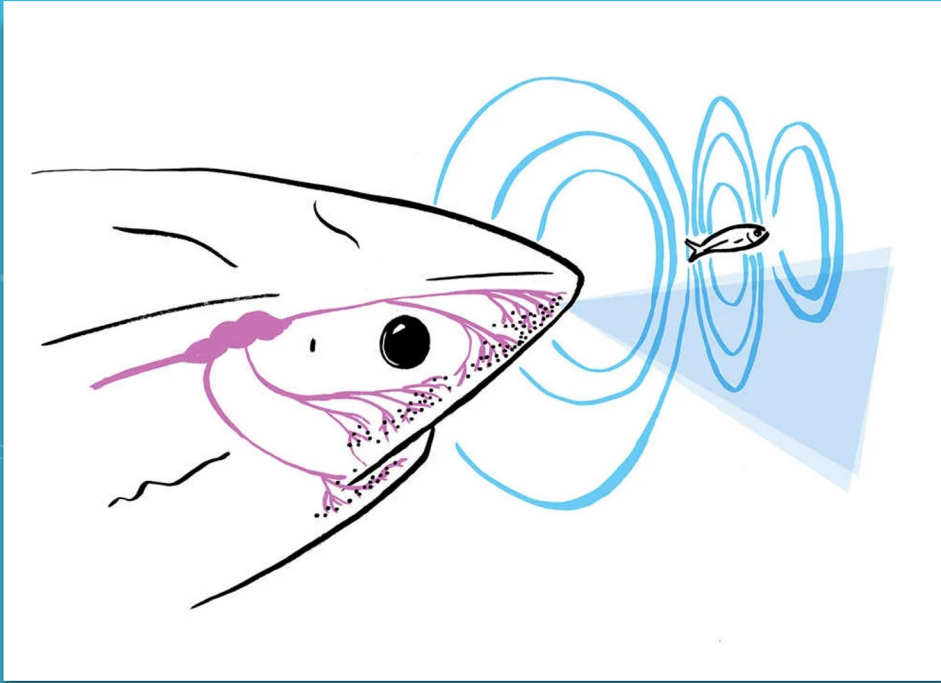


The **Megalodon** was the largest shark species to have ever existed. It went extinct due to the lack of food sources.

# SHARK ANATOMY



# AMPULLAE OF LORENZINI



The **Ampullae of Lorenzini** are little black dots all around the shark's nose and mouth.

They act as **little sensors** that pick up movement within the **electrical fields** in the water.

This is how sharks **detect** injured fish, hidden stingrays, or basically anything moving in their path.

# TEETH OF SHARKS

The type of tooth that a shark has depends on its diet and feeding habits.

There are **four** basic types of shark teeth:

- Dense flattened (nurse sharks)
- Needle-like (Bull Sharks)
- Pointed lower with triangular upper (Great White Shark)
- Non-functional (Whale Shark).



(Image credit: Victor J. Perez/ Calvert Marine Museum)



# DENTICLES

Shark skin is made up of tiny V-shaped scales called **Denticles**. The scales all point in one direction; towards the tail.

This means if you were to run your hand across a real shark skin, it would feel **smooth one way** and **very rough** the other.

Denticles decrease drag and turbulence, allowing the shark to **swim faster** and **more quietly**.

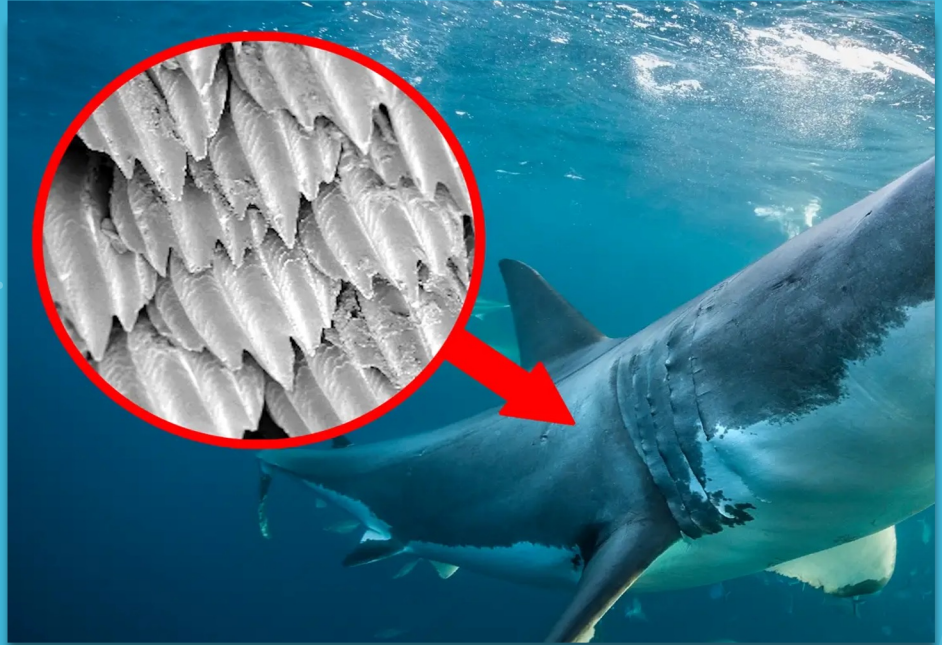


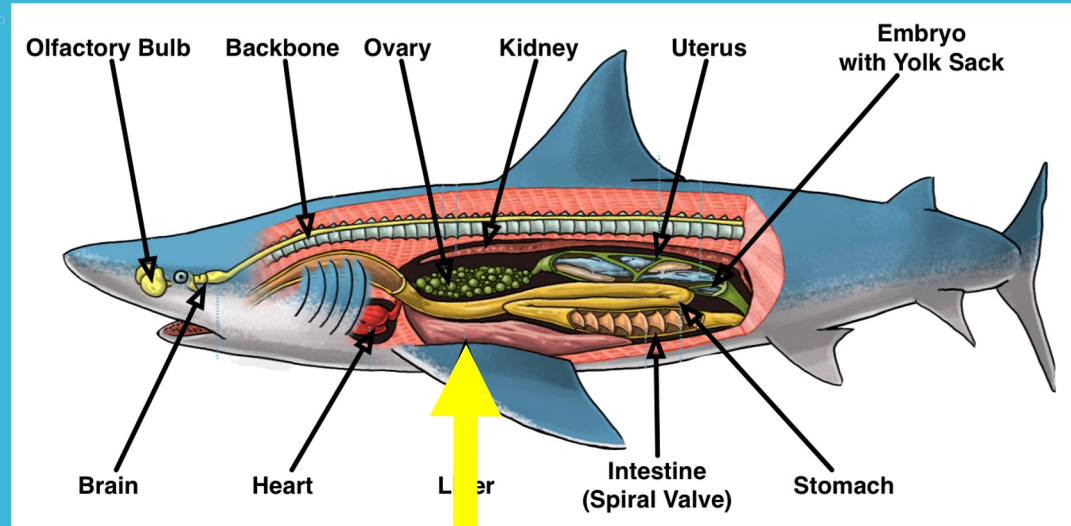
Image Credit: Michelle Yan Huang and Bob Hunt <https://www.businessinsider.com/shark-scale-design-antibacterial-film-sharklet-stop-bacteria-coronavirus-spread-2020-9>



# A SHARK'S LIVER

Similar to most animals, sharks have **livers** that aid in **digesting**. However, Shark livers are very **big**, and contain large amounts of **squalene** oil that help keep them **buoyant**.

Shark livers also assist with **converting food into energy** and store fat reserves to give **sharks energy** when they become hungry and are unable to find food.



(Image credit: <http://www.issguidebooks.org/online-2-25>)

Liver

# NURSE SHARK



These sharks are bottom dwellers and are relatively harmless.

Just don't get your hands close to their **strong jaws**, which they use to help them crack open **shellfish**.

These are one of the few species of sharks that **don't need to swim** to keep breathing.

# SAND TIGER SHARK



While they may look scary, Sand Tigers are one of the more **calm** species of shark.

They are commonly found in **aquariums** across the globe.

They have a neat ability to **hover motionless** in the water by gulping air at the water's surface.

# LEMON SHARK



Lemon sharks get their name from the **yellowish-brown color** that helps them blend into the mangrove waters they tend to frequent.

This shark is a **bottom dweller**, they often track their prey by churning up the ground for bony fish, rays, crustaceans, and sometimes even seabirds.



# HAMMERHEAD



Hammerheads have lots of sensory organs in their giant **hammer-like** heads.

Sensory organs make it easier for them to find their favorite food, **stingrays**, underneath the sand on the ocean floor.

## Fun Fact:

The longest great hammerhead shark ever recorded was 20 feet long, and the heaviest great hammerhead shark ever recorded was 991 pounds.

# GREAT WHITE SHARK



The Great White's bad reputation as one of the **deadliest** sharks on earth is unfortunate. This ultimate apex predator is actually very **curious**, and will often poke its head out of the water or follow boats. This behavior is called **spyhopping**.

These massive sharks are one of the few fish that actually pay attention to what's happening out of the water. They spend most of their adult life **migrating** the open oceans to find spots to hunt seals.

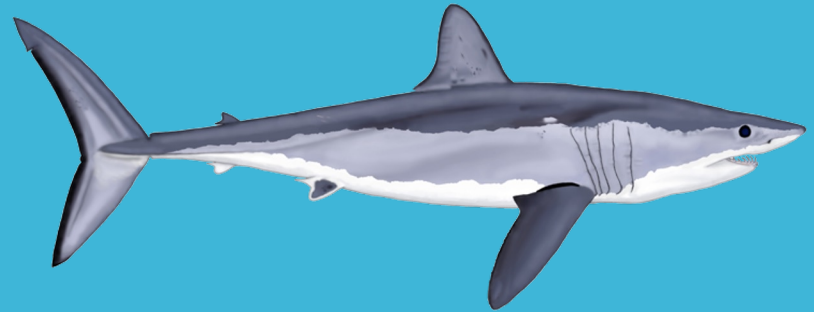


# WAIT!... DID YOU KNOW?

While almost all other fish are cold-blooded, there are **FIVE** sharks that are warm-blooded; meaning, they are able to regenerate energy faster than cold blooded animals.

More energy = Swim Faster!

The **Five** warm-blooded sharks are:  
Great White, Shortfin Mako, Longfin Mako , Porbeagle, and Salmon.



# Mako Shark



Mako sharks are the fastest sharks in the world, reaching speeds between **30–41 mph**.

A **close cousin** to the Great White, the mako uses its smaller, slimmer frame to hunt fast and powerful fish like tuna and swordfish.

# TIGER SHARK

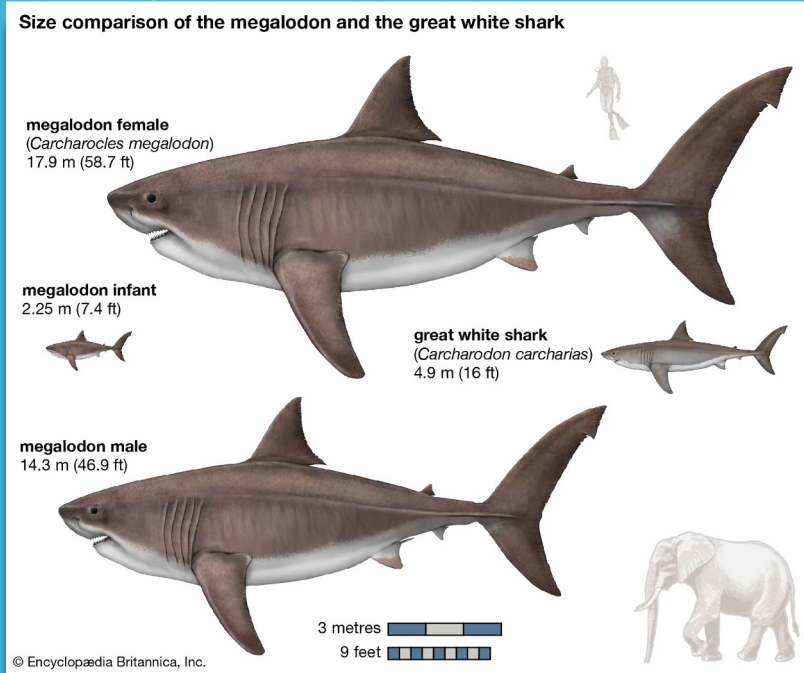


Tiger Sharks are one of the most recognizable sharks due to their “tiger-like” stripes.

They have curved serrated teeth that allow them to easily bite through the shells of their favorite food, sea turtles.

Some people think of tiger sharks as swimming garbage disposals. Unfortunately, due to all of the garbage tossed into the ocean these sharks have been known to consume paint cans, leather jackets, rubber tires, and even license plates.

# MEGALODON



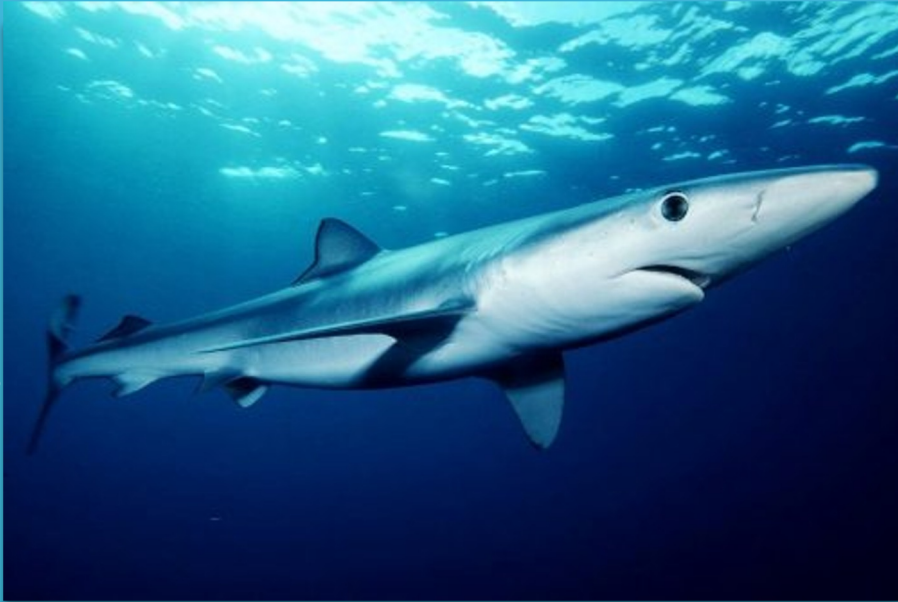
The largest shark species to have ever existed, the Megalodon went extinct around **2.6 million years ago**.

This massive 60-foot shark used to hunt **whales** as its main source of food.

Today the only skeletal remains we have of this shark are from its **teeth**.

*Psst...Did you remember sharks skeletons are made almost entirely out of cartilage instead of bone?*

# BLUE SHARK



Blue sharks one of the most abundant shark species and are also known as **the wolves of the sea** because they tend to swim in packs, following large ships, waiting for food to be tossed into the sea.

They get their name from the blue-like coloring of their **skin**.

# THRESHER SHARK



Thresher sharks are a rare species of shark that tend to live in the **open ocean**.

They use their almost **10-foot long tail** to whip and stun fish, making their prey easier to eat.



# Whale Shark



Whale Sharks are the largest living species of shark in the world, growing anywhere between **18–33 feet**.

They are **harmless** to humans and use their gigantic mouths to filter in plankton and small fish.

# BULL SHARK



Interactions between humans and bull sharks are more likely than human interactions with other species of shark because bull sharks inhabit many of the same areas as people. Bull Sharks can even live in **freshwater**.

More frequent human interactions can create the impression that humans are being specifically **targeted** by bull sharks, but this simply isn't true. We just occupy the same environment.

# BASKING SHARK



Basking Sharks are the second largest species of shark.

Like the Whale shark, they are **harmless** to humans and only feed on small organisms.

# GOBLIN SHARK



This **freaky** looking shark is found on the bottom of the ocean.

They are **pink** in color, can grow up to 12-feet long, and weigh 460 pounds.

# OCEANIC WHITETIP SHARK



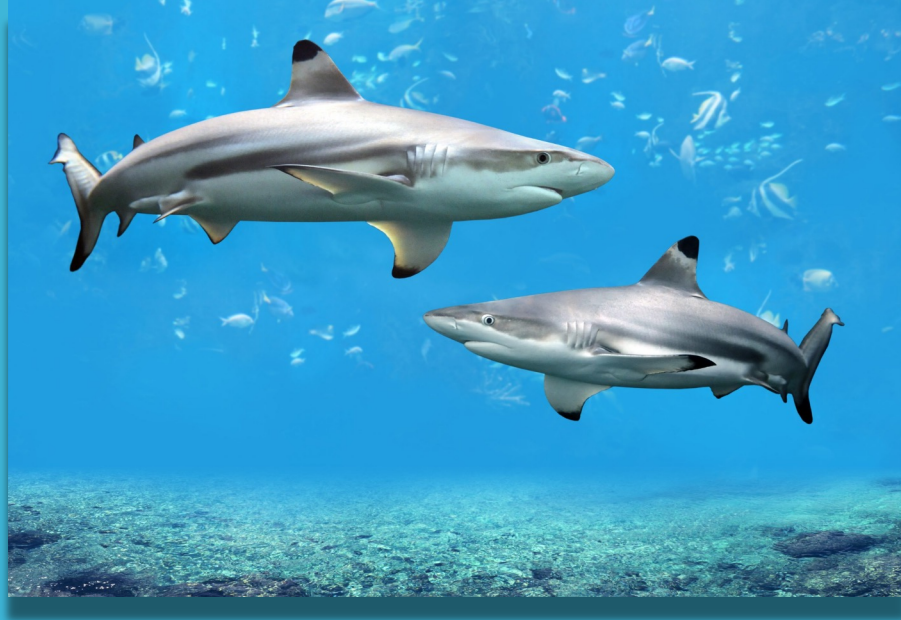
Oceanic Whitetip Sharks are a **pelagic** fish, which means they live mostly in the open ocean.

Oceanic White Tip Sharks prefer the **deeper ocean** waters, and tend to hunt in depths around **490 feet** (150 m) below the surface.

A popular nickname for Oceanic Whitetip Shark is “**sea dog**” because they often exhibit dog-like behaviors.



# BLACKTIP REEF SHARK



Blacktip reef sharks are a species of shark that live in warm coastal **reefs**.

They are often found in large groups.

They should not be confused with **Blacktip sharks**, which are a lot bigger than their counterparts.



# GREENLAND SHARK



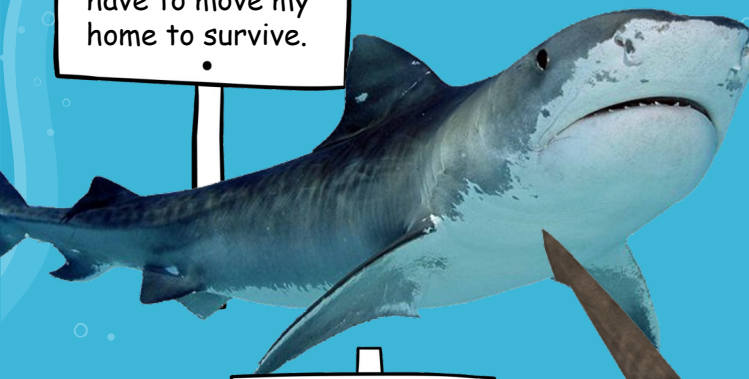
Greenland sharks are one of the largest species of sharks and can grow to be around **21 feet long**.

They are called **Sleeper Sharks**, as they move at 0.76 mph, on average.

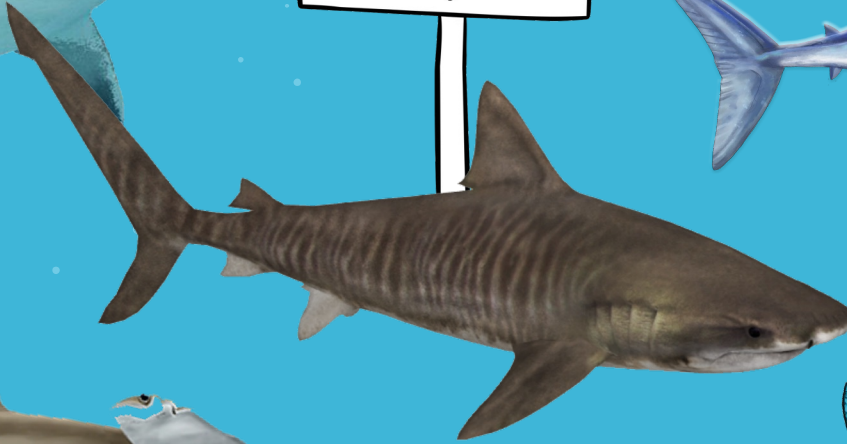
## Fun Fact:

Greenland sharks are Earth's longest living vertebrates and can live an estimated 400 years.

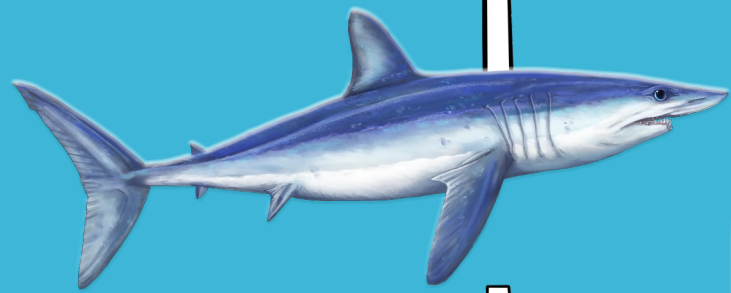
# IF SHARKS COULD TALK



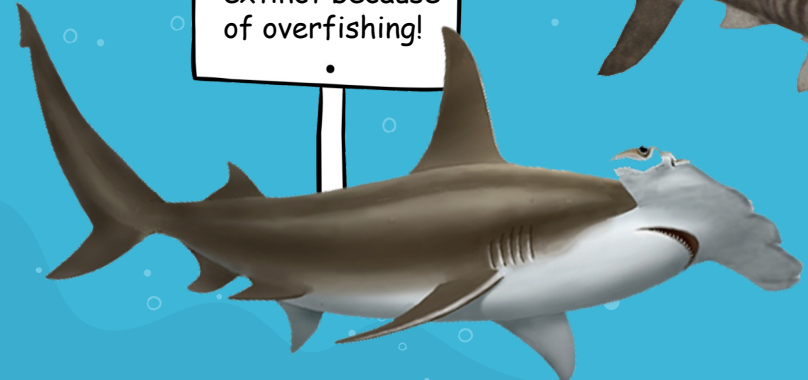
The ocean is getting so warm, I have to move my home to survive.



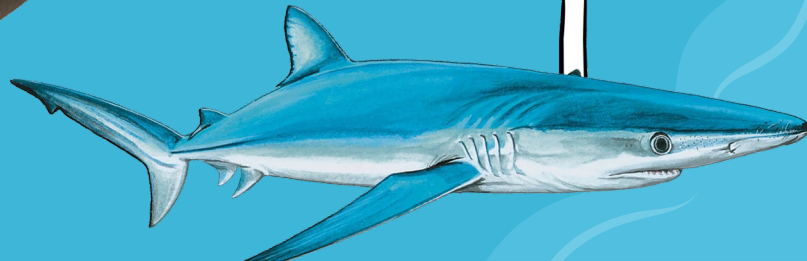
I prefer Sea Turtles, but I also eat garbage. I need more turtles, less garbage!



I can swim 31+ MPH! I am super fast. Fishermen still catch me for fun.



I am almost extinct because of overfishing!



Humans kill me for my fins.

# CONCLUSION

Sharks are part of every indigenous culture that lives near the sea.

Humans have felt the power and presence of sharks since they have first laid eyes on the ocean. They have revered them as gods, manifestations of ancestors, and guardians for as long as cultures have existed.

Sharks were part of our world long before humans appeared on Earth. We must continue to find a balance to live in harmony with sharks.



Image Credit: Jimmy Hall

## THANK YOU! SHARK ALLIES