

SHARKS IN YOUR NATIONAL MARINE SANCTUARY SYSTEM

Sharks have been around for a long, long time—they evolved before the dinosaurs did, and their time on Earth even predates trees! Over these hundreds of millions of years, they've adapted key features that enable them to thrive in a variety of habitats.

NURSE SHARK

The nurse shark just might win the award for laziest shark. These small sharks like to hang out on the seafloor, where they dine on small invertebrates and fish.

Barbels

Nurse sharks have whisker-like appendages on their snout called barbels, which help them sense prey along the ocean floor.



Art: Matt McIntosh | Produced by Matt McIntosh, Dayna Rignanes, Kate Thompson, Elizabeth Weinberg
Globe: GEBCO world map 2014 (modified for the Office of National Marine Sanctuaries), www.gebco.net



Sharks live in all of the sites of your National Marine Sanctuary System, with the exception of Lake Huron's Thunder Bay National Marine Sanctuary. Here are some of the most iconic species you'll find in each sanctuary. (Note: many of these species can be found in and around multiple sites of the National Marine Sanctuary System.)

- 1. PAPAĀNAUMOKUĀKEA TIGER SHARK – oceanic & shallow coastal waters
- 2. HAWAIIAN ISLANDS HUMPBACK WHALE GALAPAGOS SHARK – near reefs, seamounts, & islands
- 3. AMERICAN SAMOA BLACKTIP REEF SHARK – coral reefs

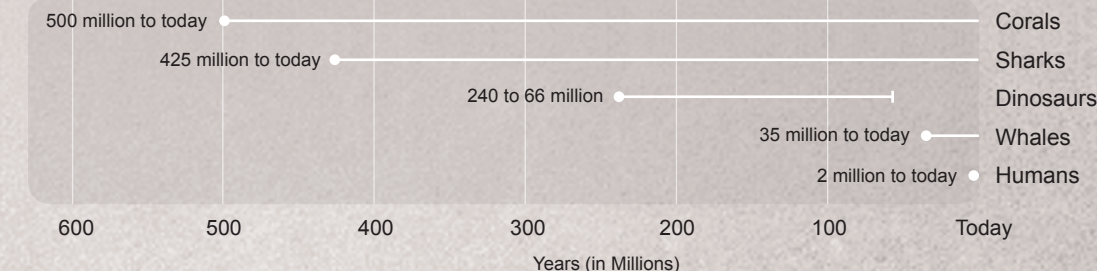
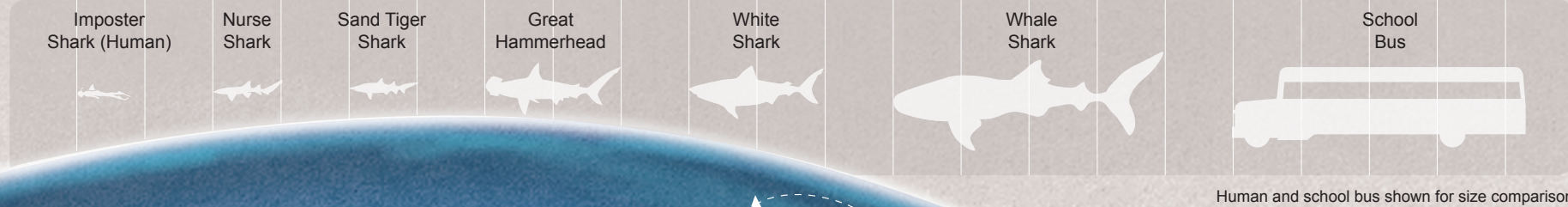
- 4. OLYMPIC COAST PACIFIC SPINY DOGFISH – intertidal zone to continental shelf
- 5. GREATER FARALLONES WHITE SHARK – coastal & open ocean
- 6. CORDELL BANK THRESHER SHARK – open ocean

- 7. MONTEREY BAY LEOPARD SHARK – kelp forests, sandy bottoms, estuaries
- 8. CHANNEL ISLANDS BLUNTNOSE SIXGILL SHARK – deep sea
- 9. THUNDER BAY IMPOSTER SHARK – land

- 10. STELLWAGEN BANK BASKING SHARK – coastal & open ocean
- 11. MONITOR SAND TIGER SHARK – coastal waters, shipwrecks
- 12. GRAY'S REEF NURSE SHARK – reefs, seagrass flats, mangrove islands

- 13. FLORIDA KEYS GREAT HAMMERHEAD – coral reefs, coastal waters
- 14. FLOWER GARDEN BANKS WHALE SHARK – open ocean

SIZE ▶
Space between lines is equal to 10 feet.



EVOLUTION
Sharks are one of the oldest kinds of animals in the ocean. They evolved more than 425 million years ago—long, long before mammals like whales roamed the seas.

TEETH

Humans go through two sets of teeth in our lifetime, but sharks may go through thousands! Many sharks have multiple rows of razor-sharp teeth. As they shed teeth, new ones move forward to replace them.

Sand Tiger Shark
Ragged-looking teeth make sand tiger sharks look quite hostile, but generally speaking, these sharks are docile around humans.



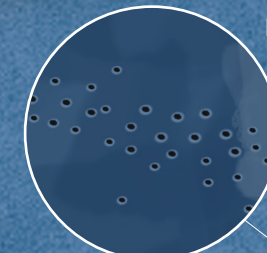
Great Hammerhead
Strong serrations help great hammerhead sharks chomp down on bony fishes, stingrays, and other marine organisms.

Nurse Shark
Small serrated teeth and strong jaws enable nurse sharks to crush hard-shelled invertebrates.



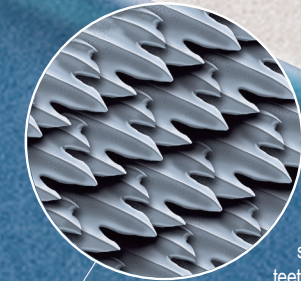
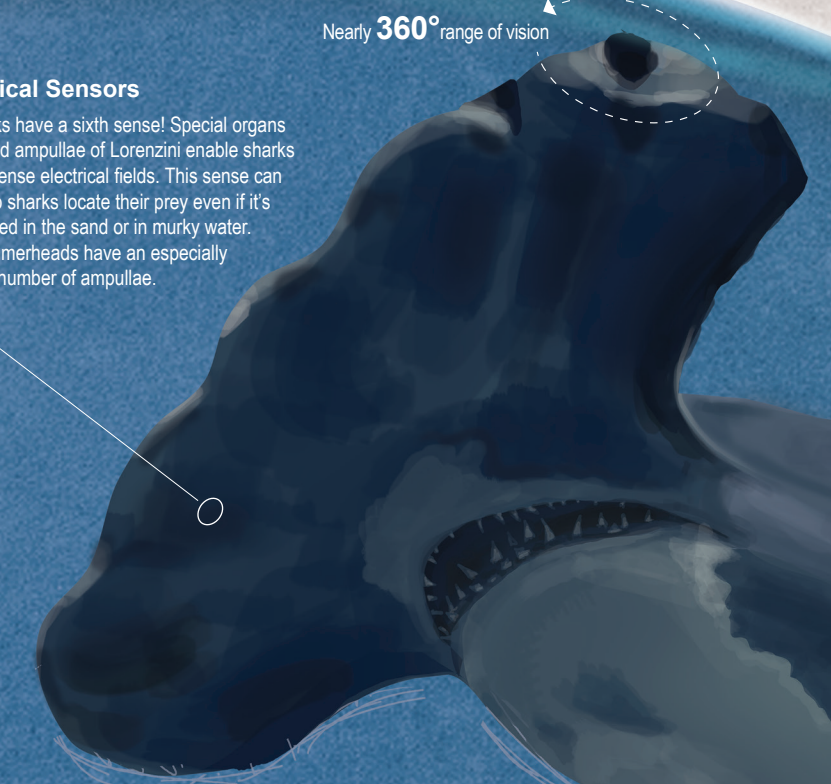
White Shark
White sharks have the quintessential triangular, serrated shark teeth. Some 300 teeth enable them to grab large prey like seals and sea lions.

Whale Shark
Hundreds of rows of tiny hooked teeth line the whale shark's mouth, but are thought to have no role in feeding.



Electrical Sensors
Sharks have a sixth sense! Special organs called ampullae of Lorenzini enable sharks to sense electrical fields. This sense can help sharks locate their prey even if it's buried in the sand or in murky water. Hammerheads have an especially large number of ampullae.

Nearly **360°** range of vision



Skin
Most sharks have rough skin that feels like sandpaper. Their skin is made up of tiny teeth-like scales, which point toward the tail and help reduce friction in the water.

Dorsal Fin

When many people think of sharks, the first thing they picture is a dorsal fin cutting through the ocean surface. Dorsal fins are key to sharks' success, helping stabilize them in the water so they can move quickly and make sharp turns.

Apex Predator

Some sharks, like white sharks, are what's known as an apex predator: they occupy the top of the food web.

Power

White sharks use their powerful tails to generate impressive speed. While hunting, white sharks are even known to breach and completely clear the ocean surface.

WHITE SHARK

Each year, adult and juvenile white sharks migrate to Greater Farallones National Marine Sanctuary to feed on abundant northern elephant seals and sea lions.

Sense of Smell

Sharks have a keen sense of smell that helps them detect prey from far away. White sharks are thought to have the largest olfactory bulb of any shark.



Coloration

Many sharks, including white sharks, are dark on the top of their body and white on the bottom. This countershading helps them hide from prey, blending in with well-lit water above or darker water below.

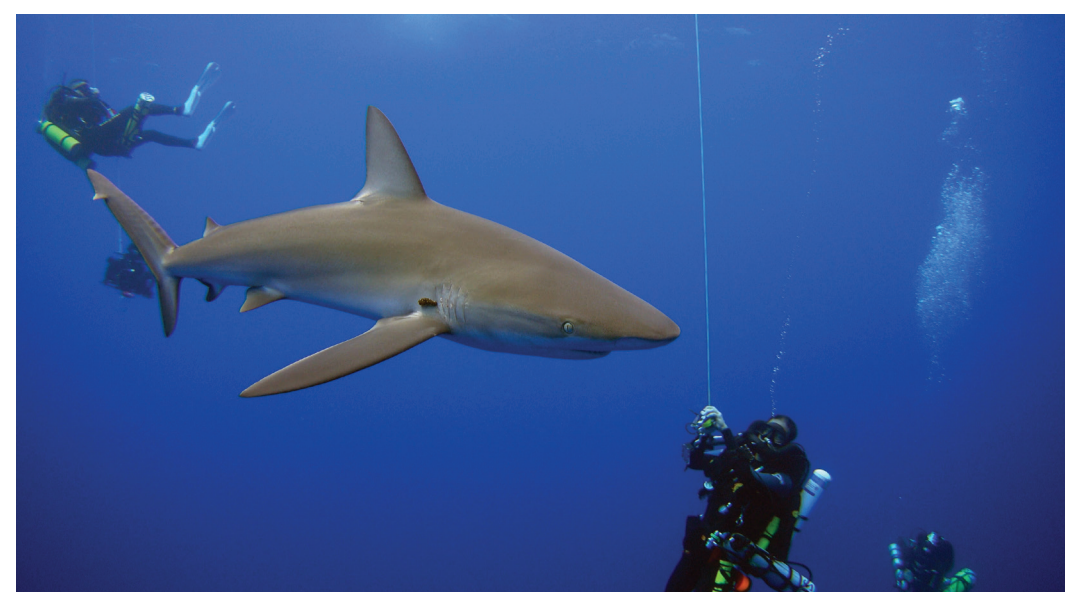
SAND TIGER SHARK

These large sharks may be toothy, but they're actually quite docile. Sand tiger sharks are common visitors to shipwrecks around the sanctuary system.

Gulps Air

Sand tiger sharks lack the swim bladder that most bony fish use to control their buoyancy. Instead, they come to the surface and gulp air into their stomach, which allows them to hover in the water column.





SHARKS

IN YOUR NATIONAL MARINE SANCTUARY SYSTEM

Sharks: mindless killers?

Think again! Sharks are more

than their scary reputation,

and play important roles in

sanctuary habitats from coral

reefs to the deep sea. As

predators, sharks help keep

food webs in balance. Your

National Marine Sanctuary

System is home to a variety

of amazing sharks.



Photos (from top to bottom, left to right): Ryan Eckert/NOAA, Joe Hoyt/NOAA, NOAA and Richard Pyle/Bishop Museum, Gregory B. Skomal, Greg McFall/NOAA, Mitchell Tartt/NOAA, Ilana Nimz/NOAA