

COLOR THE OCEAN: Sharks

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Predatory Players

The ocean is full of large predators, but perhaps the most famous and feared are Sharks. These ferocious fish are within the animal kingdom called **Chondrichthyes**, meaning cartilaginous. Due to the fact that, unlike humans, sharks contain a skeleton made with flexible cartilage rather than rigid bone.

There is great diversity amongst sharks, and each species has a unique set of characteristics fit for its lifestyle. However, all species exhibit an extra “**sharky sense**” which allows them to detect vibrations within their surroundings through specialized organs called **ampullae of Lorenzini**. These internal structures are filled with a jelly and pick up electrical signals within the water, helping sharks to visualize, navigate, and hunt for prey.

Inspired, scientists have employed a similar approach when designing technology to monitor these speedy swimmers. Sharks are equipped with an **acoustic tag** that communicates its position to an **AUV** or autonomous underwater vehicle, like the **REMUS 100**. The vehicle is programmed to mimic the behavior of the shark as it films the creature in its habitat. Insights gained through this technology will help us understand the role that sharks play in the underwater ecosystem.

Identify and color in the following within the shark scene:

- White Shark or *Carcharodon carcharias***
This aggressive iconic shark has a distinctive white underbelly and dusky back.
- Bull Shark or *Carcharhinus leucas***
This species has particularly aggressive tendencies, with much lighter coloring and a rounder snout.
- Hammerhead Shark or *Sphyrnidae***
Named after its wide-snout packed with ampullae of Lorenzini allowing for increased “sharky sense.”
- Whale Shark or *Rhincodon typus***
These sharks swim around slowly, feeding off tiny organisms called krill. They are also the largest fish on earth!
- Atlantic Herring or *Clupea harengus***
Smaller fish such as herring have evolved to school as a way of avoiding predators such as sharks.
- Remora or *Suckerfish Echeneidae***
These fish evolved flat plates on their heads allowing them to hitch a ride with sharks as a means of transportation and protection while keeping the shark free from parasites.
- REMUS 100 Vehicle or SharkCam**
Scientists have outfitted this AUV with multiple video recorders to track and observe sharks.
- Acoustic Tag**
Sharks are tagged and communicate to the REMUS vehicle.

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