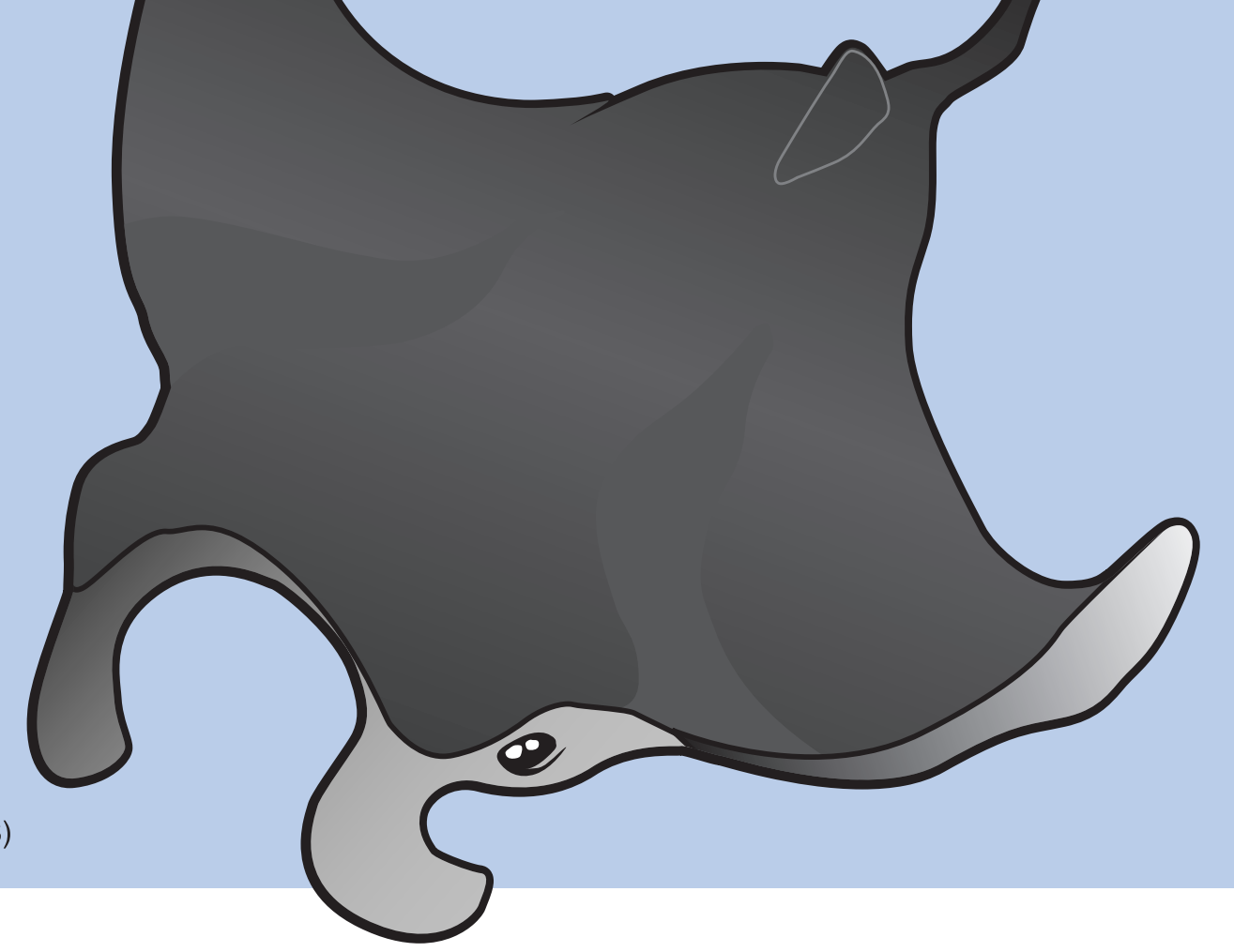


FISH



MANTARAY
(CARTILAGINOUS)

There are over 31,000 different species of fish alive today. If you think that is a lot of fish you are right! In fact fish are the most numerous group of vertebrates. Vertebrate is a name given to animals that have a backbone. Fish can be found all over the world and have adapted to life in many different environments. You can find fish thriving at the bottom of the deep oceans, in shallow ponds and rivers, in the salty waters of seas and in the freshwater of lakes.

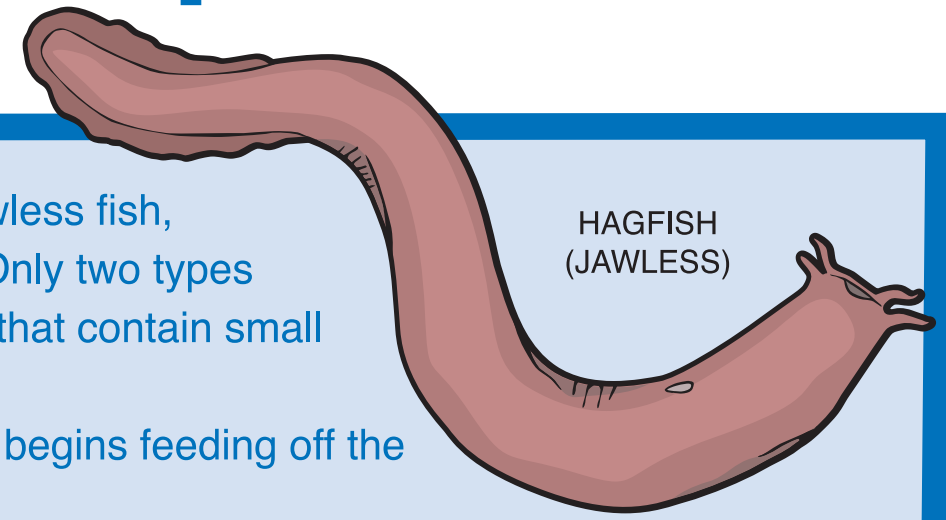
There are many different kinds of fish. Scientists have divided all fish into three separate classes.

JAWLESS FISH

This group of fish is the oldest. The earliest fossil records of jawless fish are over 500 million years old. Jawless fish, as their name suggests, do not have a mouth that can open and close. Their mouth looks like an open hole. Only two types of jawless fish are alive today. These are the lamprey and the hagfish. Both of these fish have strange tongues that contain small

teeth. These primitive fish do not have paired fins or even a bony skeleton. Both the lamprey and hagfish look like slimy-skinned snakes. The lamprey is a parasitic fish. This means it feeds off other living fish. The lamprey uses its strange circular mouth to attach itself to another fish. Once it is attached, the lamprey begins feeding off the fish's body tissue, blood and body fluids. The lamprey can be found in both freshwater and saltwater.

Unlike the lamprey, hagfish are only found in saltwater. Hagfish have a thin eel-like body and are usually a light pinkish-grey in colour. They have tiny eyes, and mostly rely on their good sense of smell and touch. The hagfish is sometimes referred to as the vulture of the deep. This is because it is often found eating its way through the body of a dead animal on the ocean floor. Hagfish, however, also eat marine worms and other invertebrates.



HAGFISH
(JAWLESS)

CARTILAGINOUS FISH

Sharks, rays and skates are members of the cartilaginous group of fish. Even though these fish look quite different they all have some important similarities. All of the fish in this group have a skeleton made up mostly of cartilage. Cartilage is sometimes called "soft bone" because it is flexible. We have cartilage in our nose and ears.

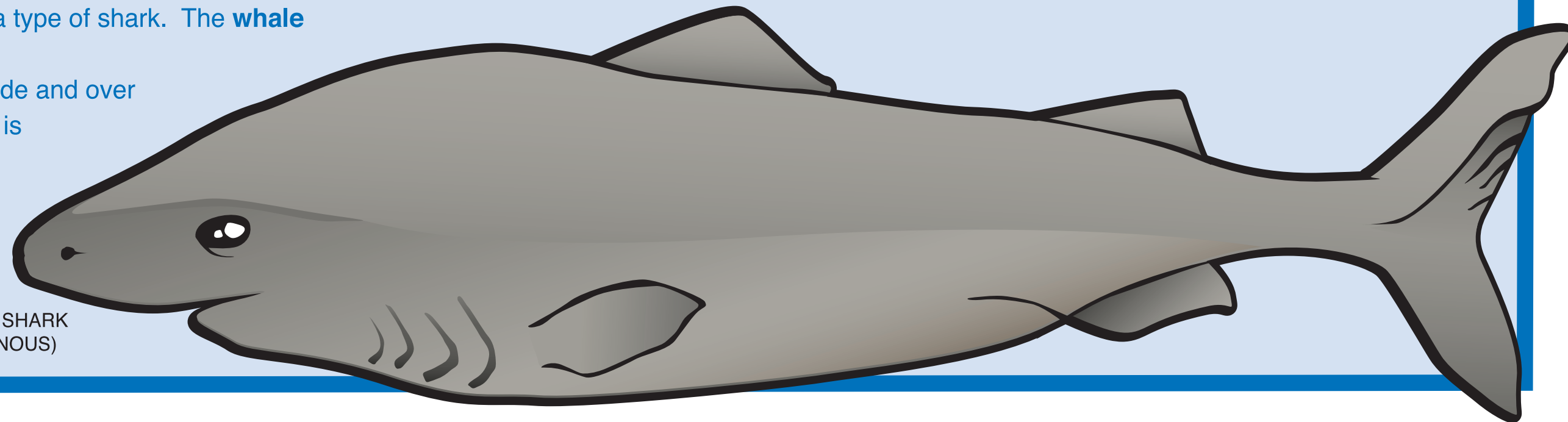
Cartilaginous fish have a strong moveable jaw and most of them have very sharp teeth. Most sharks, rays and skates have rough skin (like sandpaper) with between 5 and 7 pairs of gill openings.

The whale shark is the biggest fish in the world. Even though it is the size of a whale it is really a type of shark. The whale shark can grow up to 14 metres long and weigh as much as 15 tons.

Manta rays are very large cartilaginous fish. These gentle giants can grow to almost 7 metres wide and over 1300 kilograms in weight. As with all cartilaginous fish, the manta ray has no bones, its skeleton is made up of cartilage.

The Greenland shark is one of the few sharks that can be found in cold polar waters. These sharks usually do not move too quickly and because of this are sometimes called sleeper sharks. The largest Greenland shark ever recorded was over 6 metres long and weighed more than 1000 kilograms. A unique feature of the Greenland shark is its glow-in-the-dark eyes.

GREENLAND SHARK
(CARTILAGINOUS)



BONY FISH

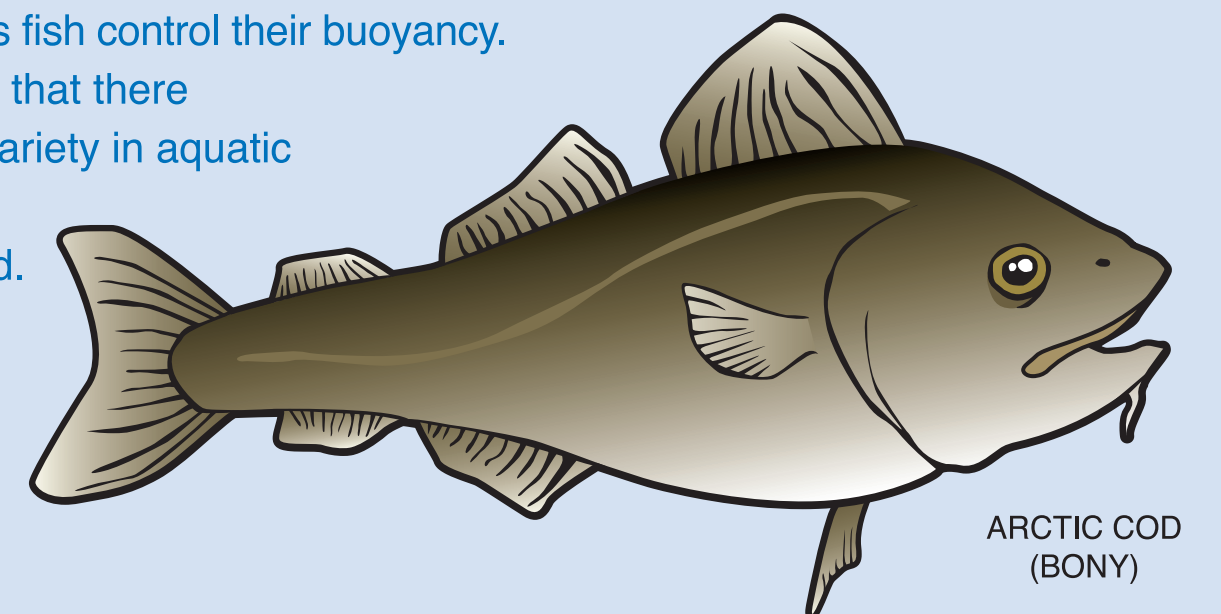
Bony fish have several unique structures that are not found in the other two groups of fish. Bony fish have a hard bony skeleton, a swim bladder and an operculum (or gill covering) protecting their gills. A swim bladder looks like a pink balloon and it helps fish control their buoyancy.

Most of the fish alive today are bony fish. Bony fish are a tremendously adaptable group. Scientists believe that there are more than 20,000 species of bony fish alive today. Bony fish can be found in almost every freshwater and saltwater environment in the world. Because of this variety in aquatic and marine habitats, bony fish come in all different shapes and colours.

Pufferfish are bony fish that can puff themselves up when they feel threatened. These fish are poisonous and can be found in warmer ocean waters around the world. The piranha is a bony fish. It originates in the warm streams and lakes of South America. These carnivorous fish are usually found in schools (groups) and prey on a variety of animals.

Arctic cod are bony fish that are common in northern waters. These fish live in large schools and are an important source of food for many arctic animals.

Halibut are a type of flatfish. These fish have unusual flattened bodies that make them suited for life on the ocean bottom. Halibut look like other baby fish when they are born, however, as they develop the body flattens and one of their eyes moves to the other side of the head.



ARCTIC COD
(BONY)

Fish breathe with gills

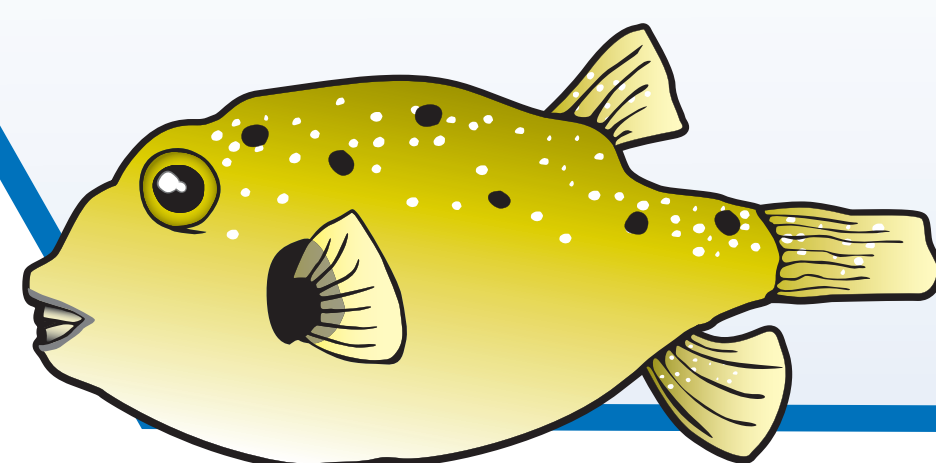
Fish have gills on either side of their bodies. Gills are organs that remove dissolved oxygen from water. Fish need this oxygen to live, just as we do.

Fish are cold-blooded

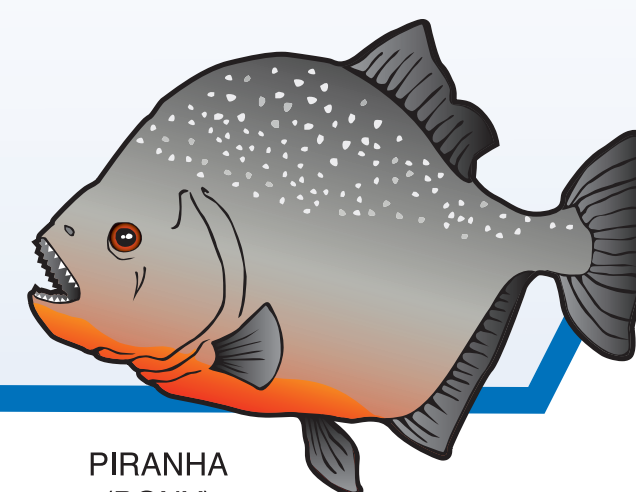
Fish are cold-blooded animals; this means their body temperature is about the same temperature as the water they are swimming in. Warm-blooded animals, like humans, use energy from the food they eat to keep their bodies warmer than the surrounding environment. Fish and other cold-blooded animals do not do this, and consequently require a lot less food to survive.

Fish have a backbone

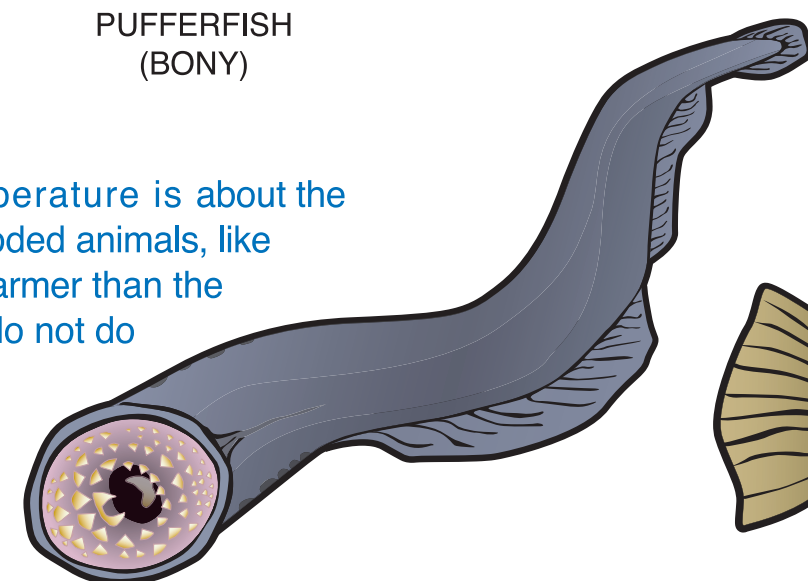
As stated before, fish have a backbone. Most animals living in the world today do not have a backbone. We call animals that do not have a backbone - invertebrates. Earthworms, sea cucumbers, beetles, spiders and butterflies are all invertebrates.



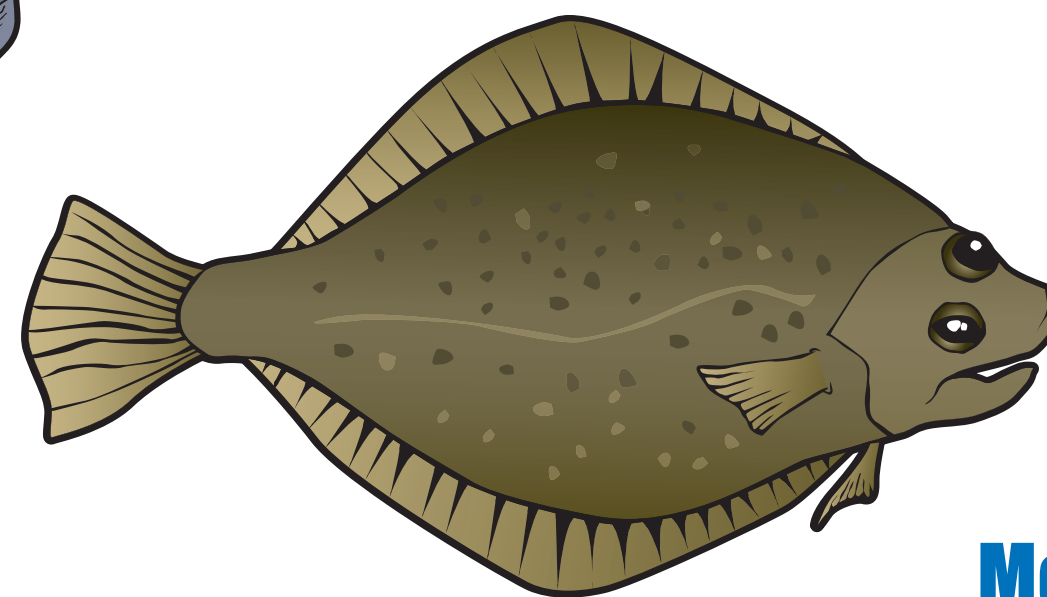
PUFFERFISH
(BONY)



PIRANHA
(BONY)



LAMPREY
(JAWLESS)



HALIBUT
(BONY)

Most fish have streamlined bodies

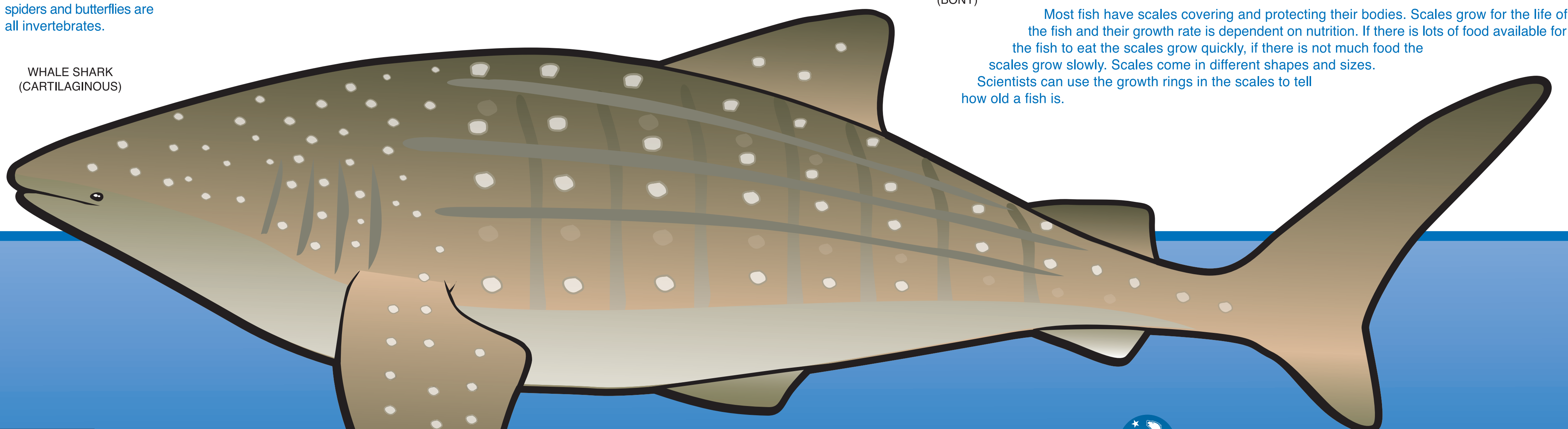
Most fish have a narrow pointed head and a flattened body. This streamlined body shape helps them move through the water without much resistance. The fastest fish are usually shaped like a torpedo. Sailfish and tuna are good examples of torpedo-shaped fish. The sailfish can swim at speeds of up to 110 kilometres per hour. Some fish have strange body shapes. These fish usually live on the ocean bottom or in other places where they do not need to move as quickly.

Fish use fins to help them move

Most fish have paired fins that help them move easily through the water. Fins allow the fish tremendous manoeuvrability. The next time you see a fish swimming watch how quickly it can change direction if it is disturbed.

Most fish have scales covering their bodies

Most fish have scales covering and protecting their bodies. Scales grow for the life of the fish and their growth rate is dependent on nutrition. If there is lots of food available for the fish to eat the scales grow quickly, if there is not much food the scales grow slowly. Scales come in different shapes and sizes. Scientists can use the growth rings in the scales to tell how old a fish is.



WHALE SHARK
(CARTILAGINOUS)