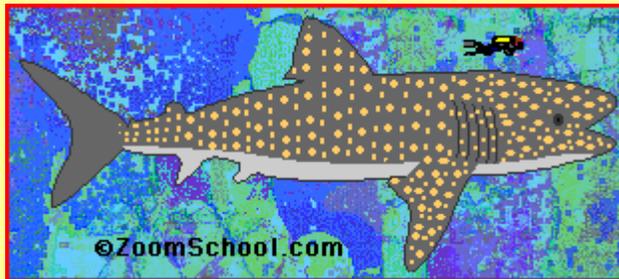


WACKY OCEAN WONDERS

1) What's the largest fish known to man?

ANSWER: The whale shark is the biggest shark and the biggest fish. It is NOT a whale. It has a huge mouth which can be up to 4 feet (1.4 m) wide. Its mouth is at the very front of its head (not on the underside of the head like in most sharks). It has a wide, flat head, a rounded snout, small eyes, 5 very large gill slits, 2 dorsal fins (on its back) and 2 pectoral fins (on its sides). The spiracle (a vestigial first gill slit used for breathing when the shark is resting on the sea floor) is located just behind the shark's eye. Its tail has a top fin much larger than the lower fin.

The whale shark has distinctive light-yellow markings (random stripes and dots) on its very thick dark gray skin. Its skin is up to 4 inches (10 cm) thick.



A scuba diver above a Whale shark.

The whale shark is up to 46 feet (14 m), weighing up to 15 tons. The average size is 25 feet (7.6 m) long. It is the largest fish in the world. Females are larger than males (like most sharks).

Whale sharks are harmless to people and usually indifferent to divers.

The whale shark is a filter feeder that sieves small animals from the water. As it swims with its mouth open, it sucks masses of water filled with prey into its mouth and through spongy tissue between its 5 large gill arches. After closing its mouth, the shark uses gill rakers that filter the nourishment from the water. Anything that doesn't pass through the gills is eaten. Gill rakers are bristly structures (the thousands of bristles are about 4 inches or 10 cm long) in the shark's mouth that trap the small organisms which the shark then swallows. The water is expelled through the shark's 5 pairs of gill slits. The prey includes plankton, krill, small fish, and squid. The shark can process over 1500 gallons of water each hour!

2) How fast can fish swim?

ANSWER: Amazingly, there are some fish that swim extremely fast---moving faster through the water than many of the speediest terrestrial animals can move across land. Some of the fastest swimmers are the sailfish and the swordfish (one unconfirmed report clocked the swordfish @ 150 miles per hour). The following list gives the approximate recorded speeds of certain ocean fish.

<u>Fish</u>	<u>Speed distance per hour</u>
Sailfish	68 mph
Swordfish	60 mph
Blue-fin tuna	50 mph

3) **How do flatfish differ from bony fish?**

ANSWER: A flatfish, such as flounder or halibut, begins its life as a normally shaped fish—complete with one eye on each side of its head. But, as it matures, the fish changes: One eye moves and the mouth twists so that as an adult, it can lie on one side---making it truly a flat fish. Weird, eh?! These fish can also change color and patterns, and bury themselves in the sands of shallow waters to protect themselves from predators.

4) **Have shark fossils *really* been found in Montana?**

ANSWER: Yes, the rocks at Bear Gulch, Montana, have yielded one of the world's richest collections of fossil fish---some 113 species, including 70 species of prehistoric sharks. Many years ago, this land was situated close to the equator and was covered by a warm, shallow sea. Here, about 60 percent of all the fish were sharks---measuring in length from a few centimeters to 97 feet! Scientists believe there was a cataclysmic die-off and sudden burial of the creatures. Thus the Bear Gulch sharks are beautifully preserved, many with heart, veins, stomach contents and skin still intact!

5) **What were some of the earliest attempts to dive underwater?**

ANSWER: The diving bell, a dome supplied with compressed air by a hose, was the first diving apparatus humans used. British astronomer, Edmond Halley (yes, he is best known for his discovery of the periodic comet named for him!), devised the first practical diving bell in 1717.

It took until 1819 before German-British inventor Augustus Siebe devised the first practical diving suit, which consisted of a leather jacket and metal helmet. Air was pumped into the helmet from the surface through a hose, and although the helmet was NOT watertight, the air's pressure kept water below the diver's chin. (Bet the first person to try out this device would have liked to be walking on water, too!) In 1830 Siebe invented another suit, complete with airtight and controllable air pressure; it was the first modern (closed) diving suit.