

The Sperm Whale



Taxonomy

Kingdom: Animalia
Phylum: Chordata
Class: Mammalia
Order: Cetacea
Family: Physeteridae
Genus: *Physeter*
Species: *macrocephalus*



Fast Facts!

Scientific name: *Physeter macrocephalus*

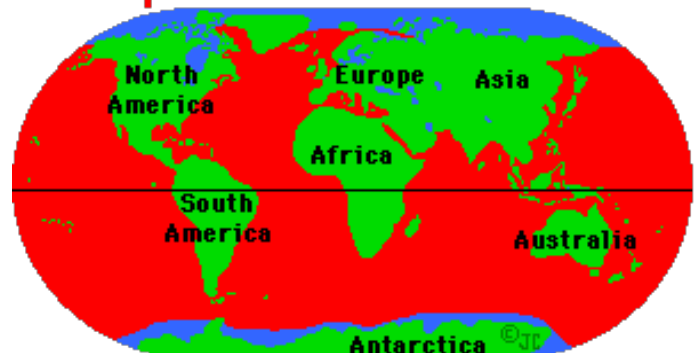
Older names: Common Cachalot (French for "tooth")

Size: The sperm whale is the largest of the toothed whales (*odontocete*). The size of a sperm whale can vary greatly between males and females. A male sperm whale can be about twice as long as a female, growing to be as long as 67 feet.

Weight: A male sperm whale can weigh more than 63 tons (126,000 lbs!) However, males usually average somewhere around 40 tons.

Color: Gray

Sperm whale distribution



Sperm whales inhabit all but polar seas world-wide. It is rarely seen near the coasts.

Location: World wide

Lifespan: 70 years

Population: 360,000

And did you know...

- The fictional Moby Dick was a sperm whale
- The heart of a sperm whale weighs about 277 pounds!

General Description

The sperm whale got its name from the large mass of fatty oil that it produces and carries in its head, known as spermaceti. The whale's enormous amount of spermaceti and blubber causes the population to be viciously hunted. The whale's head makes up two thirds of its total length so it is no surprise that the sperm whale has the largest brain in the world (weighing 17 pounds).

Their gray skin has a pruny texture, unlike the usually smooth skin of other toothed whales and there is no dorsal fin on their back. Instead they have a small hump about two thirds of the way down their back.

The thinner lower jaw measures 16 feet in length contains 50 - 60 teeth, each measuring about 7 inches and weighing around 2 pounds...clearly these massive animals are carnivorous creatures. There are some theories, however, that question whether or not the teeth of the sperm whale is necessary for feeding. This is because the teeth do not come in until the whales begin to mature, meaning that they are able to eat without them. The s-shaped blowhole of the sperm whale is located not on the top of the whale's back, but rather on the left side of the whale's head, towards the front. When a whale spouts (breathes) 3-5 times a minute, the spray shoots sideways and forward away from the whale with a 50 foot range.

Sperm whales are the deepest diving mammals in the world. They are capable of holding their breath for up to two hours and dive as deep as 10,000 feet.

Feeding Habits

The sperm whale tends to consume approximately three percent of its body weight in food each day. This may not sound like too much but if you do the math, that comes out to be about 3,780 pounds of food a day for the larger sperm whales! This food is largely made up of squid, fish, skate, and octopus.

Like the killer whale and the dolphin and other toothed whales, the sperm whale uses echolocation to hunt its food. This allows the whale to "see" prey deep in the ocean where there the sunlight does not reach. Sperm whales sometimes dive down 10,000 feet in search of deep sea squid but most often they feed about 2,600 feet down. These whales are one of the only known predators of the giant squid. The interaction of these two large creatures has never been witnessed in person but whales have been found with the marks of the giant squids suction cups on their skin and remains of squid in their stomachs.

Predators

There are two main predators of sperm whale: humans and the killer whale (orca). Pods of orca sometimes gang up on a group of sperm whales and try to separate the mothers from their young. The whales use their teeth and their tails in the violent battles.

In centuries past, sperm whales were often hunted for their oils and Ambergris, a waxy substance used in perfumes. As a result of being hunted, the population dropped from 1.1 million to around 360,000 within the past three centuries. Today the sperm whale is marked as a vulnerable species and is protected everywhere except in Indonesia and Japan where they are still hunted.

Sperm whales are also threatened by fishing nets, pollution, and ocean debris caused by humans.

Reproduction

Being mammals, sperm whales give birth to live young called calves every 3-4 years. Weighing almost 1 ton and measuring 13 feet in length, a single calf is born after a 14-16 month gestation period. The baby is typically fed its mother's milk for three and a half years; consuming 45 pounds of milk a day. Female whales reach maturity between 7 and 13 years of age while males take closer to 18 years to mature. However, the whales do not stop growing once they reach maturity. It takes a male sperm whale about 50 years to grow to its full length.

A young sperm whale

Family Life

Sperm whales form strong and long-lasting bonds with members of their "pod." These whales, usually the females and the calves, can be seen to travel in groups of 10-20 whales primarily to form a source of protection and communal care for the young. This way, the mothers can take turns diving for food while their young are protected by the rest of the pod closer to the surface of the water. The males tend to spend much of their time independent of the pods or with smaller groups and can often be found living in higher altitudes than the female pods.

Sperm Whale Footage

Diving Adaptions

Because the sperm whale inhabits such a wide range of depths (0 ft - 10,000 ft) it has had to adapt in many ways to accommodate for the drastic changes in pressure and oxygen that occurs each time the whale dives for food. While humans can't go more than about 300 feet down before their ribs collapse from the pressure, sperm whales have overcome this issue. They have flexible, and therefore, collapsible ribcages that allow their bodies to adjust as they dive deeper and deeper.

By collapsing their ribcage, sperm whales can also allow their lungs to collapse and their heart rate to decrease. In this way the whales combat the severely low oxygen levels and minimize their need for air. Blood is directed more towards the brain and other essential organs so that they can get full use of what remains of the slowly depleting oxygen level within the body. There are theories that the spermacetti may also play a part as a useful adaptation necessary for achieving such feats. These adaptations allow the sperm whale to stay under water for an hour or two.

Another adaptive feature is the size of the sperm whale's fluke. Their flukes are larger and more flexible than other whales. It is believed that this helps the whales to swim most efficiently; they travel at a relatively slow pace (typically 1.5 - 3.5 meters per second) to minimize their oxygen use as they make their way into oxygen-poor environments, so their large fluke helps to maximize movement while minimizing energy.

<https://sites.google.com/site/groupbioproject/the-sperm-whale>