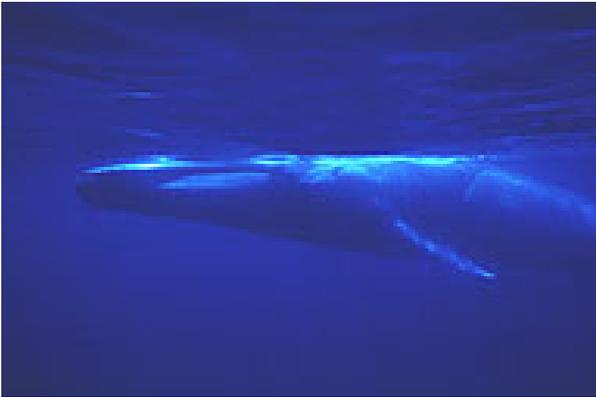


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Blue Whale



www.geocities.com/Rainforest

Underwater, the blue whale has an aquamarine color.

Did you know? Blue whales are the largest animals to ever live on earth? The largest blue whale ever recorded was 110 feet (33.6 m) long and weighed nearly 200 tons (180,000 kg).

How did the blue whale get its name?

The blue whale was named for its color, a bluish-grey that looks aquamarine under the water. They are also called "sulphur bottoms" because of the color of the underside (see below). The scientific name, *Balaenoptera musculus*, means two things. *Balaenoptera* means "winged whale" and *musculus* means "muscular" or "mouse." The latter name was probably given to the animal as a joke by Linnaeus, the Swedish **taxonomist** who named the **species**. The largest of all whales is much bigger than a mouse. There are three types of Blue whales: the **northern hemisphere** blue whale, *Balaenopter musculus musculus*; the pygmy blue whale,

Balaenoptera musculus brevicauda, and, the true blue whale in the **southern hemisphere**, *Balaenoptera musculus intermedia*.

What do they look like?

The body of a blue whale is a maximum of 98 feet (30 m) long in the southern hemisphere and 89 feet (27 m) in the northern hemisphere. Adult blue whales weigh approximately 360,000 lbs. (160 tons), equal to about 23 adult elephants. Females are somewhat larger than males. The body of the blue whale is tapered and streamlined to help increase the whale's swimming speed.

The coloration of a blue whale is blue-grey with lighter gray mottling on a darker background, like dark marble. The variation in color patterns between whales helps identify individuals. The underside of the flippers may be light colored or white, and the underside of the **fluke** is dark. In the cold waters of the Antarctic, North Atlantic, and North Pacific, **microorganisms** called **diatoms** attach themselves to the underside of the whale.



NMFS File Photo

The blue whale will arch its back when it dives.

Early whalers gave the whale the nickname of "sulphur bottoms" because the yellow-green color matched the color of the element sulphur.

The blue whale's body is smooth and mostly free of **parasites**. However, a few **barnacles** may attach to the end of the fluke, the **dorsal fin**, and the tips of the flippers. Underneath the jaw, there are 60-88 ventral pleats that run back toward the tail. The blue whale is called a **baleen** whale, meaning it has with 200-400 baleen plates on each side of the mouth. The plates are black with a coarse fringe (see "What do they eat?").

The dorsal fin is small, shaped like a triangle, and can be curved. It is located about three-fourths of the way back on the whale's body. The flippers are short and tapered. The fluke, which the whale raises when it dives, is broad and triangular. The rear edge is smooth with one **notch** in the middle. The **blow** of a blue whale is tall and goes straight up into the air like a column.

Where do they live?

Blue whales live in all the oceans of the world, and prefer coastal shelf and oceanic waters. Blue whales move as the seasons



Blue whales have **ventral pleats** (right side of photo) to help the mouth take in large amounts of water.



Photo courtesy of Mike Johnson

The head is tapered when the blue whale is not feeding.

change, but their movements are not well - understood. Many blues migrate toward the **Tropics** during the winter's colder temperatures to feed and possibly mate. There is however, evidence to suggest some individual blue whales may remain in low latitudes (closer to the equator) year round. The routes they take to and from the summer feeding grounds are difficult to follow because blue whales travel in the open ocean.

How long do they live?

Scientists think blue whales live for at least 80-90 years, possibly longer.

What do they eat?

Blue whales mainly eat **krill**. The whales eat different species depending on where they live. During the summer months, the whales will eat approximately 4 tons of food each day. Blue whales that live off of Baja California in Mexico have been known to eat red crabs.

The blue whale is a baleen whale, which means it has baleen instead of teeth. Baleen is series of overlapping plates hanging from each side of the upper jaw where teeth would be. These plates are made of **keratin**, a material like fingernails, that frays into fine hairs on the ends inside the mouth near the tongue. The whale takes a very large amount of water into its mouth, and then pushes it out again. As the water is forced out of the mouth, the baleen plates act like a sieve and trap the krill.



Bill Willis

The blue whale's ventral pleats expand when it feeds.

The ventral pleats under the mouth expand when the whale takes in water to allow the mouth to hold more water and thus, more food.

How do they behave?

The normal swimming speed for a blue whale is around 13 mph (22 km/hr), but they can swim 30 mph (48 km/hr) if frightened. Feeding is usually at depths less than 328 feet (100 m); harpooned animals have dived as deep as 1640 feet (500 m). Normal dives last from 10-20 minutes and are separated by 8-15 **blows**. The spout of blue whales can reach almost 33 feet (10 m) high. Groups of up to 60 animals have been reported, but solitary animals or **pods** of two or three are more common. Blues tend to travel alone or in small, short-lived groups. Sometimes they will travel with fin whales.

Blue whale calves are born in warm, low latitude waters in the winter months after the adults return from the high latitude feeding grounds. Blue whale mothers give birth to a single calf every 2-3 years. Twins are rare, but do occur occasionally. The calves are approximately 20-23 feet (6-7 m) long and weigh 6,000–7,900 lbs (3-4 tons) when they are born. While nursing, blue whales can gain up to 200 lbs (90 kg) in body

weight a day. Young are weaned after 7 or 8 months, usually after they have become about 52 feet (16 m) long.

What sounds do blue whales make and why?

These largest of all animals make some of the most booming sounds of any whale. Their calls have been called "trills" and "moans" or **pulses** (short sounds that are regularly repeated) lasting up to 30 seconds. The whales use slightly different combinations of pulses in sequences that can last for nearly an hour at a time and be repeated over many days. Blue whale sounds **range** from as low as 7 Hz up to about 200Hz, but most of the calls are between about 16 and 28 Hz. These loud sounds are so low in frequency that humans cannot hear some of them without special equipment to raise the pitch. We still do not know very much about exactly what blue whales use their sounds for, but considering the fact that they can be detected over 700 miles (1126 km) away, they may well be used in communicating with other individuals over very long distances. We do know that there are distinct groups of blue whales in different parts of the ocean. Differences between their vocalizations have been shown to be one useful way of telling different **populations** apart.



Bill Willis

A blue whale is larger than 23 elephants.

Blue whale sounds can be found on the web at the following websites:

www.birds.cornell.edu/BRP/soundsbluwhale.html, or

www.newport.pmel.noaa.gov/whales/bluecall.html

(Courtesy of Dr. Brandon Southall and Logan Southall)

Who are their predators?

Blue whales, because of their large size, have virtually no natural predators. They were hunted by humans extensively in the 20th century, almost to **extinction**. Blue whale calves may be vulnerable to predation by killer whales. Humans also threaten the existence of blue whale (see "What is being done to help the blue whale?").

How many blue whales are in the ocean?

The number of blue whales depends on the population. NOAA Fisheries estimates that, as of 2003, there were 1,480 whales in the Eastern North Pacific (California, Oregon, and Washington). As of 1994, there were 1,400 blue whales in the eastern tropical Pacific. In the North Atlantic Ocean, blue whales may number only in the low hundreds. The number in the North Atlantic has been unknown since the 1950s. Scientists estimate only 1,255 blue whales exist in all of the Southern Hemisphere.

Why are they in trouble?

In 1864, explosive harpoons and steam powered catch boats were introduced by Norway, which allowed whalers to start hunting blue, fin, and sei whales. Previously,

these whales were too fast for whaling ships to hunt. As the new technology spread to other parts of the world, blue whale populations began declining worldwide. A total of 360,000 blue whales were killed in the 20th century in the Southern Hemisphere. By the 1960s, blue whales were on the edge of extinction. All populations around the world were greatly reduced in size. Currently, the only thriving population is the one that summers off of California. The population once seen off of Japan has been **extirpated**.

What is being done to help the blue whale?

Blue whales gained protection after the 1965-66 whaling season. Hunting blue whales is banned nationwide by the International Whaling Commission. The U.S. also prohibits the hunting of the blue whale. Current threats include destruction or modification of habitat, vessel collisions, and entanglement in fishing gear. Human activities, such as whale watching, scientific research, photography, and the boat traffic associated with these, may disrupt the normal behavior of whales.

NOAA Fisheries is working to save the blue whales by:

- *encouraging the ban on hunting blue whales.
- *protecting blue whale habitat and access to feeding areas used by blues.
- *reducing ship collisions with blue whales.
- *understanding how pollution may affect blue whales.
- *providing guidelines to whale watching boats so they will not harm the animals.

Glossary:

Baleen: Overlapping plates that hang from each side of the upper jaw of certain species of whales

Barnacles: Marine animals with hard shells that attach to underwater surfaces

Blow: The spout of air, water, and mucus when a whale surfaces to breathe

Diatom: Microorganism

Dorsal fin: Fin on the back of whales, dolphins, porpoises, or fishes

Extinction: The worldwide absence of a species

Extirpated: Destroyed

Fluke: End of a whale's tale

Keratin: A substance like fingernails

Krill: Tiny, shrimp-like animals

Microorganism: An animal or plant that can only be seen with a microscope

Northern hemisphere: The half of the world North of the equator

Notch: Indentation

Parasite: An organism that grows, feeds, and shelters on another organism

Pod: Group of whales, dolphins, or porpoises

Population: Distinct group of animals within a species that mate only within their group

Pulse: A short sound that is regularly repeated

Range: Area where an animal can be found, includes seasonal movements; the difference between the highest and lowest sound

Southern Hemisphere: The half of the world South of the equator

Species: A group of animals with common characteristics and genetic make-up that interbreed

Taxonomist: Person who classifies organisms into categories

Tropics: Region of the earth lying between the Tropic of Capricorn and the Tropic of Cancer

Ventral pleats: Long indentations in the skin under the mouth that expand when the whale takes in water; allows the whale's mouth to hold more water than when not expanded

