

## **The Blue Whale** (*Balaenoptera musculus*)

By Karen Worthington

Blue Whales are the largest mammals known to the planet (larger than dinosaurs) and have a heart the size of a Volkswagen beetle! The largest known Blue Whale was a female weighing in at 181 metric tons (400,000 pounds). Blue Whales do not have teeth; they live on a diet of small creatures called krill that are filtered out of the water by their baleen in their mouths. They live in all oceans of the world and can live up to 80 years of age. Due to severe hunting practices by whalers in the early 1900's, the Blue Whale is on the endangered species list with an uncertain future.

### **Characteristics**

Blue Whales are the largest animal known to inhabit the earth ---- ever! They are nearly twice the size of the largest prehistoric land dwelling dinosaur, the *Brachiosaurus*.

Known as the giant of the sea, the Blue Whale, *Balaenoptera musculus* can reach 30 to 37 meters (100 to 120 feet) long, have a girth of 14 meters (45 feet) and weigh on average between 90 and 136 metric tons (200,000 to 300,000 pounds). In comparison, an elephant can weigh up to 10 metric tons (22,046 pounds). The heaviest recorded Blue Whale was a female at 181 metric tons (400,000 pounds). Females are often larger than males - an adaptation enabling a mother to cope with the physical demands of calving and nursing.

The Blue Whale is very streamlined and slender, with a small rounded dorsal fin located about three-quarters of the way along the back. The tail flukes are large and notched, and flippers are slender and pointed. They have a darkish blue-grey mottled skin color and a pale underside that often gets a sulphur yellow hue to it due to algae. They have 55-88 throat grooves that extend while feeding and have about 540-790 coarse black baleen plates each about 1 meter (3.3 feet) in length in their mouths instead of teeth.

The Blue Whale has two blow holes (large enough for a small child to crawl through) and when they blow at the oceans surface, spray can reach 9 meters (30 feet) into the air and can be seen and heard for miles. When seen from a distance, Blue Whales swimming or resting just below the surface of the ocean appear to be large sandbars. Blue Whales are capable of sustaining speeds of 9 to 18.5 km per hour (5 to 10 knots or 6 to 12 miles per hour) while traveling or foraging for food, and have been known to be able to sprint as fast as 37 km per hour (20 knots or 23 miles per hour).

A Blue Whale's heart is the size of a Volkswagen Beetle (a small child could crawl through the aorta)! As the Blue Whale's body is supported by water, and not bones, and has a large supply of food available, this has made it possible for the Blue Whale to reach such enormous sizes. An animal of this size on land would need a serious weight supporting bone structure - otherwise it would be crushed by its own weight.

### **Classification**

Carl Linnaeus classified the Blue Whale in 1758, calling it *Balaenoptera musculus*, meaning "Little Mouse". It is thought that Carl had a good laugh at the irony of the name, since the Blue Whale is the largest mammal on the planet....

Other common names for the Blue Whale are: Sulphur bottom whale (referring to the yellow-brown algae on the skin of the belly after the whales have inhabited polar waters), Sibbald's rorqual, blue rorqual, Great Blue Whale, great northern rorqual, among many others.

CLASS: Mammalia  
ORDER: Cetacea  
SUBORDER: Mysticeti

FAMILY: Balaenopteridae  
GENUS: *Balaenoptera*  
SPECIES: *Musculus*

### **Habitat**

Blue Whales live throughout all of the oceans of the world. They cover thousands of kilometers every year as they migrate to polar waters in the summer and to tropical-to-temperate waters during winter to mate and give birth to calves. They do not frequent coastal waters except in Polar Regions, where sometimes they can get trapped by ice.

As Blue Whales do not have teeth, they eat tiny plankton, which is filtered through their baleen plates. When they feed, large volumes of food and water are taken into their mouth as the throat grooves expand. When they close their mouth water is expelled through the baleen plates, and food is trapped on the inside near their tongue to be swallowed. Trapped plankton may include small shrimp like creatures called krill (euphausiids) or small crustaceans called copepods and has also been known to include pelagic red crabs. In the summer, the Blue Whale gorges itself, and can consume an amazing 3.6 metric tons (8,000 pounds) or more of food each day. It is estimated to fill a Blue Whale's stomach it takes approximately 1 metric ton (2,200 pounds) of food.

### **Lifecycle**

Because Blue Whales do not have teeth (which can be used to estimate age in other mammals), it is difficult to tell how old Blue Whales are when they die. It is believed they live past 50 years old and possibly up to 80 years.

Blue Whales reach sexual maturity between 6 and 10 years old, and a female will give birth every 2-3 years. After about a 12 month gestation period, a new born Blue Whale can be up to 8 meters (27 feet) long, and 2.7 metric tons (6,000 pounds). Blue Whale calves will form a very close bond with their mother, and will nurse for approximately a year before being weaned (when they can be 16 meters (52 feet) in length and weigh about 20 metric tons (46,000 pounds). During the nursing period, calves may consume 379 liters (100 gallons) of milk and gain 0.09 metric tons or 90 kg (200 pounds) per day. This is equivalent to gaining 3.6 kg (8 pounds) an hour and growing 3.8 cm (1 and 1/2 inches) in length a day.

### **Communication and Social Characteristics**

Blue Whales are usually found either in pairs (as in mother and calf), in small groups, or as a solitary animal, but they have been found to congregate in larger numbers of 50 to 60 in feeding grounds. As a rule, they do not dive too deeply - a maximum of 200 meters (650 feet). Although they are capable of swimming 48 km per hour (26 knots or

30 miles per hour) when alarmed, they usually cruise along at about 19 km per hour (10 knots or 12 miles per hour).

It is generally thought that Blue Whales have excellent hearing, which is valuable in the dark ocean environment where vision is less useful. The sounds they make travel through hundreds of kilometers of ocean to communicate to other Blue Whales. These sounds range from deep low frequency rumbling sounds, which can be felt as much as heard, to moans, pulses, clicks, rasps and buzzes. Blue Whales are actually considered to be the loudest mammals in the world.

In addition to making sounds to communicate, they have been seen to breach (jump high out of the water and slap loudly onto the water as they come down) and lobtail (stick their tail out of the water, swing it around, and then slap it on the water).

### **Status / Threats**

By 1966 when Blue Whales received global protection only a century after it became the most hunted creature on Earth, over a third of a million Blue Whales had been slaughtered for oil, meat, and apparel materials (for corset stays, umbrella ribs, buggy whips etc.). Prior to 1868, the Blue Whale was safe from early whalers as the whalers did not have the means to hunt the large whale. But with the invention of the exploding harpoon gun in 1868, the whaling industry took off. The slaughter peaked in 1931 when over 29,000 Blue Whales were killed in one season. After 1931 Blue Whales became so scarce that the whalers turned to other species. The largest creature in existence had almost left the planet forever. The International Whaling Commission (IWC) banned all hunting of Blue Whales in 1966 and gave them worldwide protection.

Blue Whales are listed as endangered.

Presently there are an estimated 5-10,000 Blue Whales in the Southern Hemisphere, and only around 3-4,000 in the Northern Hemisphere. Pre-whaling estimates were over 350,000 whales.

Blue Whale populations are also effected by natural causes, packs of Killer whales who prey on them, pollution, ship strikes, or entanglement in fishing gear.

Although Blue Whales are protected, their recovery seems uncertain. You can read more about the Blue Whale stocks in the [NMFS Alaska and Atlantic stock assessment reports](#).

### **Bibliography**

#### ***Book Resources***

[Blue Whale: Vanishing Leviathan](#) by Joseph J. Cook & William L. Wisner

[The Twilight Seas](#) --- A Blue Whale's Journey by Sally Carrighar

[The Blue Whale](#) by George L. Small

[Blue Whales](#) by John Calambokidis & Gretchen Steiger

**Web Resources**

The National Marine Mammal Laboratory's Education website:

<http://nmml.afsc.noaa.gov/education/cetaceans/blue1.htm>

Oceanlight website:

[http://www.oceanlight.com/html/blue\\_whale.html](http://www.oceanlight.com/html/blue_whale.html)

NOAA Fisheries National Marine Fisheries Service website:

[http://www.nmfs.noaa.gov/prot\\_res/PR2/Stock\\_Assessment\\_Program/sars.html](http://www.nmfs.noaa.gov/prot_res/PR2/Stock_Assessment_Program/sars.html)

National Parks Conservation Association website:

[http://www.npca.org/marine\\_and\\_coastal/marine\\_wildlife/bluewhale.asp](http://www.npca.org/marine_and_coastal/marine_wildlife/bluewhale.asp)

Cetacea website:

<http://www.cetacea.org/blue.htm>

The Marine Mammal Center website:

<http://www.tmmc.org/learning/education/whales/blue.asp>

Enchanted Learning website:

<http://www.enchantedlearning.com/subjects/whales/species/Bluewhale.shtml>