



SPERM WHALE

Physeter macrocephalus

CLASS:	Mammalia
ORDER:	Cetacea
SUBORDER:	Odontoceti
FAMILY:	Physeteridae
GENUS:	<i>Physeter</i>
SPECIES:	<i>Physeter macrocephalus</i>



The sperm whale is the largest *odontocete*, or toothed whale. It has been portrayed frequently in art and literature as a symbol of the great whales, and is best known as the leviathan *Moby Dick* in Melville's novel by that name. Unique in appearance, the sperm whale seems to have social characteristics that, to date, also appear to be unique among whales. Sperm whales are among the deepest diving cetaceans, and are found in all oceans of the world. Females and their young travel in permanent units, whereas the much larger males rove between breeding and feeding grounds, as well as among groups of females when breeding.

PHYSICAL DESCRIPTION The head of the sperm whale is blunt and squared off, and has a small, underslung jaw. The head is also large, and makes up to 1/3 the total body length and more than 1/3 of its mass. A single blowhole is located forward on the left side of the head, and the blow, which is bushy, is projected forward rather than straight up as it is with other whales. Its body has a wrinkled, shriveled appearance, particularly behind the head.

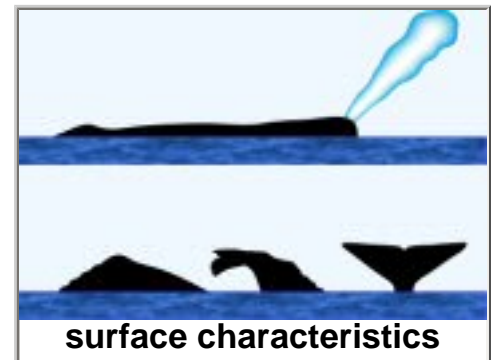
COLOR The sperm whale is usually a dark, brownish gray with light streaks, spots and scratches. The skin around its mouth, particularly near the corners, is white. The ventral (underside) of the body is a lighter gray and may have white patches.

FINS AND FLUKES The sperm whale has a squat dorsal fin, followed by knuckles along the spine. Its flippers are small and slightly tapered, while its flukes are broad, measuring as much as 16 feet (5 m) from tip to tip.

LENGTH AND WEIGHT Adult males reach lengths of 49-59 feet (15-18 m) and weigh up to 35-45 tons (31,750-40,800 kgs). Adult females are much smaller, growing to about 36 feet (11 m) and a maximum weight of 13-14 tons (12,000-12,700 kg).

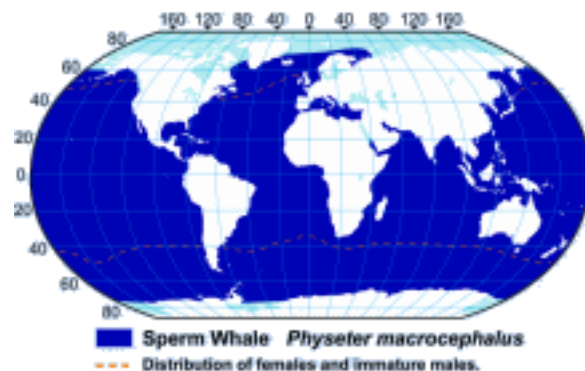
FEEDING Its main source of food is medium-sized deep water squid, but it also feeds on species of fish, skate, octopus, and smaller squid. A sperm whale consumes about one ton (907 kg) of food each day. The lower jaw contains 18-25 large teeth on each side of the jaw, 3-8 inches in length. The upper jaw may have tiny teeth but they rarely erupt. The upper jaw contains a series of sockets into which the lower teeth fit.

MATING AND BREEDING Males reach sexual maturity at approximately 33-39 feet (10-12 m), and 10 years or more of age but do not seem to take an actual part in breeding until their late 20's. Females reach sexual maturity at 27-29 feet (8-9 m), and 7-13 years of age. Gestation is 14-16 months. Newborn calves weigh approximately 1 ton (907 kg), and are 11-16 feet (3.4-4.9 m) long. Calves nurse up



to two years or longer. Contrary to earlier belief, sperm whales do not seem to have harems. Instead, large males only attend female groups a few hours at a time. These female groups (family groups) consist typically of 10-20 animals. Within these groups there appears to be communal care for the young.

DISTRIBUTION AND MIGRATION Sperm whales are found in all oceans of the world. The males, alone or in groups, are found in higher latitudes. From time to time they migrate toward lower latitudes, and only the largest mature males appear to enter the breeding grounds close to the equator. Females, calves, and juveniles remain in the warmer tropical and sub-tropical waters of the Pacific, Atlantic, and Indian Oceans year round.



range map

NATURAL HISTORY The sperm whale is the deepest diver of the great whales and can descend to depths of over 3,300 feet (1000 m) and stay submerged for over an hour. Average dives are 20-50 minutes long to a depth of 980-1,970 feet (300-600 m). At such great depths there is little or no solar light. However, organisms at these depths may produce biochemical light (bioluminescence). Sperm whales use their highly developed echolocation ability to locate food and to navigate, making nearly constant clicking sounds that pulse through the water. Sperm whales communicate using "morse-code" like patterns of clicks called codas. There is also a theory that sperm whales may stun their prey with a burst of sound.

The sperm whale's head houses a large reservoir containing spermaceti, a clear liquid oil that hardens to a waxlike consistency when cold, and has long been prized by whalers. Ambergris, a strange substance found in large lumps in the lower intestine of sperm whales, is formed around squid beaks that remain in the stomach. It was used in the making of perfume, and continues to be valuable in spite of its widespread replacement by synthetics.

STATUS Sperm whales are still fairly numerous, but selective killing of the larger breeding-age males over many years upset the male-to-female ratio, and the birth rate has seriously declined in some populations. The average size of sperm whales killed noticeably decreased during the last 40 years of hunting.

Sperm whales were killed in two massive hunts, the *Moby Dick* whalers who worked mainly between 1740-1880, and the modern whalers whose operations peaked in 1964, when 29,255 were killed. Most recent estimates suggest a global population of about 360,000 animals down from about 1,100,000 before whaling.

BIBLIOGRAPHY

- Folkens, P., R.R. Reeves, B.S. Stewart, P.J. Clapham, and J.A. Powell. 2002. *National Audubon Society Guide to the Marine Mammals of the World*. Alfred A. Knopf, New York.
- Leatherwood, S.L. and R.R. Reeves. 1983. *The Sierra Club Handbook of Whales and Dolphins*. Sierra Club Books, San Francisco
- Maptia, A. 1990. *Whales and Dolphins*. Salamander Books, London
- Whitehead, H. 2003. *Sperm whales: social evolution in the ocean*. Chicago, IL: University of Chicago Press

ACKNOWLEDGEMENTS

- We greatly appreciate the knowledge and assistance of Hal Whitehead of Dalhousie University and Tom Arnborn of Stockholm University, who contributed to the revision of this fact sheet.
- Illustrations courtesy Uko Gorter, Copyright © 2003, All Rights Reserved.

