

Order: Cetacea

Cetaceans are separated into two groups: toothed and baleen whales. As their name suggests, **toothed whales (or odontocetes)** have teeth. They also have one opening at their blowhole. There are over 73 species of toothed whales, including sperm and beaked whales, belugas and narwhals, porpoises and dolphins, and even fresh water dolphins that live in rivers. They range in size from the 60-foot (21.1 m) sperm whale to the 5-foot (1.5 m) vaquita. Some toothed whales are quite unusual. For instance, the beaked whales spend most of their time in the deep water and, therefore, are rarely encountered by people, and new species are still being discovered! Some beaked whales are odd looking and often only the males will have teeth. The straptoothed whales have only two teeth, which wrap around the top of their jaws so they cannot fully open their mouths!

Toothed whales tend to be social and live in groups. Like bats, they use echolocation or sonar to detect objects in their environment. They produce sounds in the air passages in their heads, which are then projected out in front of them. The sound bounces off solid objects and returns to them (like an echo), so the animals are able to get a "picture" of what is around them. A lot of research is being done on whale sounds. Many species, such as the humpback and sperm whales, seem to have individually identifiable calls. Orcas (killer whales) live in groups or pods and each pod has a dialect or accent, just like we have accents depending upon which part of the world we are from.

The **baleen whales (or mysticetes)** are the other group of cetaceans. This group includes 11 species ranging in length from the pygmy right whale at 21 feet (6.4 m) to the largest whale, the blue whale at 100 feet (30.5 m). Baleen whales have two blowholes and instead of teeth, have hundreds of rows of baleen plates, which are made of keratin, a substance in our hair and fingernails. The baleen strains out small fish and plankton from the water for food. Most baleen whales feed by taking a large mouthful of food and water, and then push the water out gaps between their baleen plates with their tongues. The food gets trapped on the inside fringed edge of the baleen. Most baleen whales eat krill (shrimp-like animals) or small fish. Right and bowhead whales are baleen whales that feed in a slightly different way called skimming. Water and food flows through a gap in the front of their mouth where the baleen is missing and the food gets trapped in the baleen fringe while the water flows out between the baleen plates.

Even though baleen whales eat very small animals, which are low on the food chain, these whales are all very large and eat great quantities at once. For instance, the blue whale is the largest animal on earth, weighing up to 150 tons. Baby blue whales gain 10 pounds (4.5 kg) an hour!

Family *Balaenopteridae* - Rorquals (6 species in 2 genera)

This family contains the largest **animals** ever to live; all balaenopterids have **adult** body lengths of over 7 m, and some are much larger. The rorquals are streamlined **animals** (the humpback whale somewhat less so than the others), with a series of long pleats extending from the snout tip to as far back as the navel on the **ventral** surface. Balaenopterids are fast and active lunge feeders; their **morphology** allows them to open their jaws very widely and distend their throats to take in huge mouthfuls of water during feeding. The **baleen plates** are of moderate length and fringe fineness. Density and fringe diameter vary among species, and along with plate number and width to length ratio, are **diagnostic characters**. Rorquals have **dorsal** fins (varying in size and shape) set behind the midpoint of the back. The upper jaw has a relatively flat profile, a feature reflecting the structure of the skull. Within a given feature, differences among balaenopterids are often subtle **variations** on a theme, rather than class distinctions. Therefore, information on many features may be needed to distinguish among them and reliance on a single **character** for **identification** is discouraged.

Family *Delphinidae* - Ocean Dolphins (32 species in 17 genera)

The family *Delphinidae* has been called a “**taxonomic** trash basket,” because many small to medium-sized odontocetes of various **forms** have been lumped together in this group for centuries. Consequently, the so-called delphinids are diverse in **form**. They range in size from the 1 to 1.8 m dolphins of the genera *Sotalia* and *Cephalorhynchus* to the killer whale, in which **males** can reach lengths of at least 9.8 m. However, most delphinids share the following characteristics: a **marine habitat**, a noticeable beak, **conical** teeth, and a large **falcate dorsal fin** set near the middle of the back. There are exceptions to every one of these rules, except the presence of basically **conical** teeth.

Family: *Physeteridae*

The sperm whale family has just three species, all of which occur in Indian waters. The Sperm Whale *Physeter macrocephalus*, growing to more than 18 m in length, is much larger than the Pygmy and Dwarf Sperm Whales *Kogia breviceps* and *K. simus*, which attain lengths of only 3 m or so. The Dwarf Sperm Whale is one of the smallest cetaceans known as a ‘whale’. Features common to the three species include a large melon, which is particularly pronounced in the Sperm Whale, a narrow lower jaw under the head, and a lack of functioning teeth in the upper jaw. Some taxonomists consider that the two smaller species should be placed in the separate family Kogiidae.

Sperm Whales were subjected to intense whaling for valuable substances like spermaceti oil and ambergris during the 19th and 20th centuries. Despite this, they are relatively abundant still. Many of the open boat whalers lost their lives hunting Sperm Whales.

The Pygmy and Dwarf Sperm Whales differ from the Sperm Whale in having dorsal fins. Little is known about them. They are small and unobtrusive, and most of what is known comes from strandings. Both species feed on squid, cuttlefish and fish, obtaining these from the slopes of continental shelves. They dive down to about 300 m in search of food.

Family *Odobenidae* - Walrus (1 species in 1 genus)

Walruses are enormous **animals** that combine features of both otariids (moderately long **foreflippers** that can lift the body off the ground) and phocids (lack of **ear pinnae**). The neck is long and the **hindflippers** can rotate under the body and permit walking, although walruses are so bulky they cannot walk as easily as most otariids. The tail is **sheathed** in skin and not readily visible or free, as in other pinnipeds. The tusks, which are enlarged **canines** are a unique feature, and are important in fighting and assisting with hauling out. Walruses have numerous short smooth **vibrissae** on their thick fleshy mystacial (“moustache”) pads. The **testes** of walruses are internal, not scrotal, and **females** have 4 retractable mammary teats. The skin is dark in younger **animals** and lightens with age. Walruses swim with phocid-like side-to-side strokes of the **hindflippers**, with assistance from the **foreflippers**.

Order Sirenia

Sirenians are slow and passive [mammals](#) of tropical and sub-tropical waters. Their large thick bodies betray their heritage as [relatives of elephants](#). There are only five living species of sirenians, known collectively as "sea-cows," including the dugong and the manatees. Until about 1770, an additional species known as the Stellar Sea-cow (*Hydrodamalis*) existed along the Eastern Pacific coast, but the last of these were hunted to extinction for their meat and fat in by American explorers. The West Indian Manatees are currently in danger of also becoming extinct.

The first Sirenians appeared in the early [Eocene](#) in Europe, but by the close of this epoch, they had spread to tropical Asia and North America. Dugongs were the prevalent group in the Caribbean and Mediterranean until the Late Miocene, when all but the Indo-Pacific species went extinct. Subsequently, the manatees of South America entered these areas in the Pliocene.

Sea-cows are herbivores that graze on sea-grasses and related plants, though some will eat algae and floating monocots, such as *Pistia* and *Eichhornia*, and they will occasionally eat shellfish and dead fish. Adults may eat as much as 30 pounds of food a day, and may reach more than 500 kg.

Sirenians are solitary creatures, who come together only to mate, or when favorable local conditions attract individuals for a short time. They may live more than 70 years.

Order: Carnivora

[Carnivora](#) is an order of [placental mammals](#) that includes about 270 species of bears, cats, dogs, weasels, pinnipeds, and many other meat-eaters. This order is divided into about 11 families. Carnivora does not include all meat-eating mammals (and not all members of the order Carnivora eat meat). The earliest members of this order evolved during the late Paleocene.

Members of the order Carnivora have a simple stomach and a characteristic tooth pattern that includes the carnassial pair (an enlarged fourth upper premolar and lower first molar); most carnivora have a primitive number of incisor teeth.

Order Carnivora:

Superfamily Caniformia (Dog-like):

- Family Canidae ([dogs](#), [wolves](#), [foxes](#), [coyotes](#))
- Family Odobenidae ([walruses](#))
- Family Mustelidae ([mustelids](#): [weasels](#), [ferrets](#), [minks](#), [wolverines](#), [skunks](#), [badgers](#))
- Family Otariidae (eared seals: [sea lions](#), [northern fur seal](#))
- Family Phocidae (true seals: [Weddell seal](#), [harbor seal](#))
- Family Procyonidae ([raccoons](#), [kinkajous](#), [coatimundi](#))
- Family Ursidae ([bears](#) and the [giant panda](#))

Superfamily Feliformia (Cat-like):

- Family Felidae ([cats](#), [lions](#), [tigers](#), [cheetahs](#), [Smilodon](#))
- Family Herpestidae ([mongooses](#), [meerkats](#), [suricats](#), [fossas](#))
- Family Hyaenidae ([hyenas](#), [aardwolves](#))
- Family Viverridae ([civets](#), [bi](#))

Family *Otariidae* - Eared seals (14 species in 7 genera)

All sea lions and fur seals have a polygynous mating system and pronounced sexual dimorphism.

Characteristics of this family are: small external ear flaps (pinnae), smooth vibrissae, light skin, a dense double layer of fur with short underfur and longer guard hairs, partially hairless fore- and hindflippers, 4 teats in females, scrotal testes, and skulls with supraorbital processes and sagittal crests (the latter enlarged in adult males only). Eared seals swim with their large foreflippers and can rotate their hindflippers forward to walk and climb on all fours on land. While resting at sea most elevate flippers in various combinations out of the water.

Family *Phocidae* - True seals (19 species in 10 genera)

The true, or earless, seals include the largest of the pinnipeds, the elephant seals. Species within the group have variable degrees of [sexual dimorphism](#) (in some species, [females](#) are the larger [sex](#)). Phocids are characterized by the absence of external [ear pinnae](#), a short [muzzle](#), beaded [vibrissae](#), dark skin, short fur, generally 2 teats in [females](#), internal [testes](#), furred fore- and [hindflippers](#), and the absence of [supraorbital processes](#) or an enlarged [sagittal crest](#) on the skull. Propulsion in water is provided by figure-eight movements of the [hindflippers](#), except in leopard seals which primarily swim like otariids with [foreflipper](#) strokes. Movement on land is by inch-worming or "galumphing," without much help from the relatively small [foreflippers](#); movement on ice is accomplished by combinations of rapid pulling strokes with the [foreflippers](#) or sculling with [hindflippers](#), and snake-like writhing of the body depending on the species and the situation.

Family *Ursidae*

The bears include the largest living carnivores—the Grizzly and the Polar bears. Bears have large bodies with short, thick, strong limbs and short tails. They can run well for a short distance, and most can climb trees. Bears are mostly plant-eaters, but do occasionally eat meat. The exception is the Polar bear, which mostly live on seals. All bears go into some form of dormancy during the winter, although not all bears [hibernate](#) 🐻. Bears are found in North and South America, Europe, and Asia.

Family *Mustelidae* - badgers, otters, martens, weasels

There are 59 species in this family. They are found in all parts of the world, except Australia and Antarctica. They are found in diverse habitats. Some species are found primarily on land, while others, like the otters, are found in freshwater and marine environments.

Most species have long, cylindrical bodies and short legs. Other species, like the wolverine and the badger, have broad, flat bodies and powerful front legs that they use for digging. All of the species in this family have scent glands that produce strong smelling musk. Most of the species in this family are [carnivores](#).