

MARINE MAMMALS: A GENERAL OVERVIEW

Marine mammals are a particular group of mammals adapted to live all or part of their life in sea water. The level of dependence on the marine environment varies considerably with species. As an example cetaceans (dolphins and whales) are completely dependent on the marine environment for all stages of their life, whereas pinnipeds (true seals and otariids) mostly thrive in the ocean hauling out to breed or rest on land.

There are approximately 130 species of marine mammals, usually subdivided into five groups. Each group is descended from a different terrestrial ancestor. Morphological, physiological and behavioral similarities between these diverse groups are most of the times a result of convergent and parallel evolution. Thus, although the cetaceans and the pinnipeds for instance have some similarities in shape, diet or diving capabilities, whales are more closely related to deer than with seals, which are more closely related with terrestrial carnivores.

Some relevant adaptations to the life in the aquatic environment include:

- Most of them depend on a thick layer of blubber (fatty tissue) for thermal insulation.
- Streamlined bodies to help them swim faster.
- Many species can stay under water for long periods (storing extra oxygen amounts in muscles -myoglobin- and blood -hemoglobin-) but must come to the surface to breathe air.
- They have higher blood volumes than terrestrial mammals (in proportion to their body sizes) and can selectively direct it (shunting) to some vital organs during diving.
- They can slow their heartbeat and global oxygen demand during diving.

They are generally classified in five groups (Cetaceans, Pinnipeds, Sea otters, Sirenians and Polar Bears). To be more practical and given the most common species housed in zoos, aquariums and rehabilitation centers in Europe and North America, the formulary will be categorized in three main groups of animals:

- CETACEANS including mainly dolphins (Odontocetes or toothed whales) with few references to whales (Mysticetes or baleen whales).
- PINNIPEDS including three families: Otariids (sea lions and fur seals), Phocids (true seals) and Odobenids (walruses).
- OTHER MARINE MAMMALS including all other species not included in the two former groups, basically Sirenids (manatees and dugongs), sea otters and polar bears.