

# Manatee Anatomy Facts

Although they feed in water, manatees exclude most of the water when they swallow, which makes the contents of their stomach relatively dry. Like terrestrial herbivores (plant eaters), manatees have large salivary glands (for lubrication and initial digestion of food).

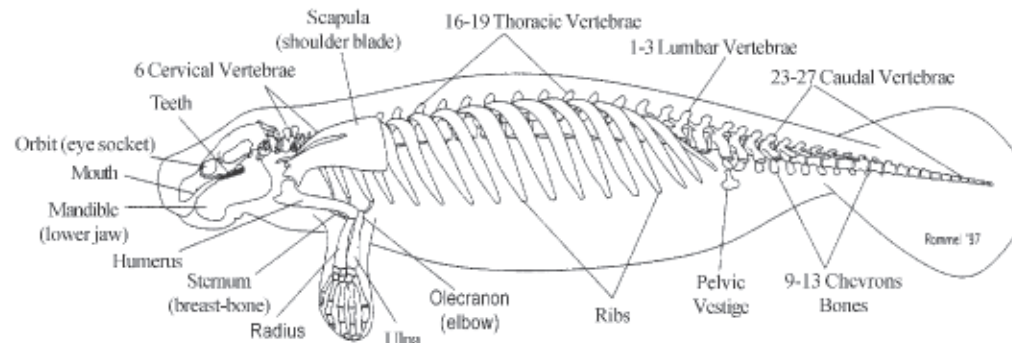
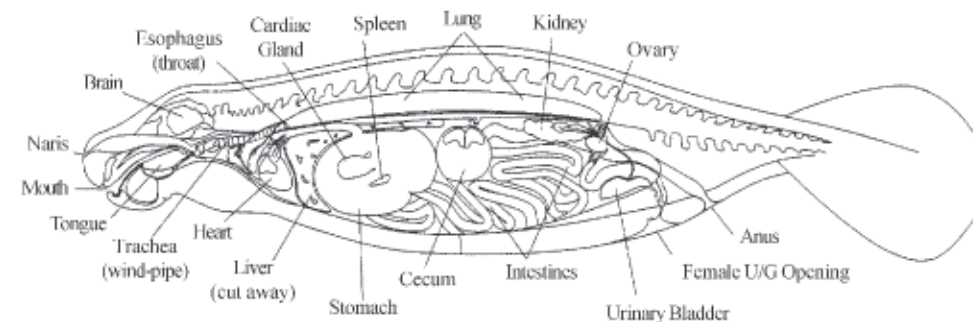
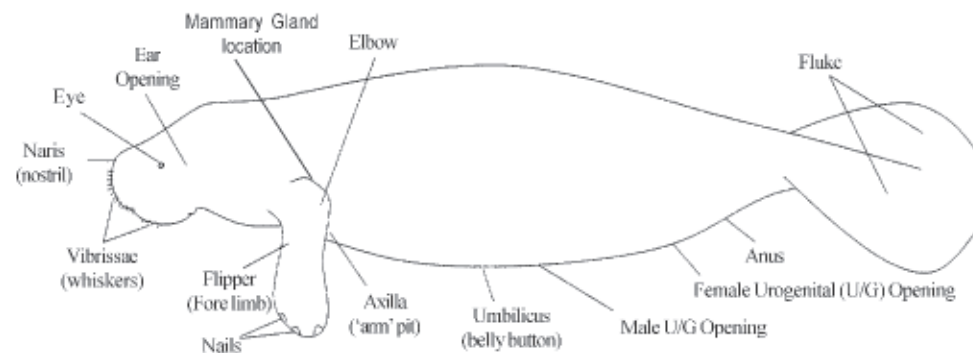
Like the horse, manatees are hind-gut digesters as opposed to fore-gut digesters (like the cow). This means that more of the digestive processes occur further along the intestinal tract. It takes about seven days for material to pass through the manatee's digestive system.

A manatee's teeth are similar to the molars of some other mammals and are located in the back half of the lower and upper jaws. Manatee teeth are unique in that they are replaced horizontally, as opposed to vertically as in most other mammals. Tooth replacement is continuous (*polyphyodont*) throughout their lives, as opposed to that of other mammals which replace a single set of teeth once in a lifetime (*diphyodont*).

The manatee's blood is very important in transporting heat and regulating body temperature.

Manatee lungs are unique—unlike other mammal lungs that are positioned around the heart and extend backwards over the stomach and liver, manatee lungs are flattened and elongated. The lungs extend horizontally along the back almost to the anus. The branching pattern of the bronchi (the primary air tubes) and blood vessels is simpler in manatees than in other mammalian lungs.

The ribs of the manatee arch up to allow the lungs to be positioned much higher along the vertebral column than is found in most other mammals. The elongated lung distributes the buoyant forces along more of the body than would be possible in a more typically shaped lung (thus helping the manatee to float horizontally). This orientation also minimizes the pressure differences between different parts of the lung.



The manatee swims with up and down (dorso-ventral) motions of its body and fluke. This is similar to the swimming motions of the cetaceans (dolphins and whales) but is unlike the side to side swimming motions of fish and seals.

The muscles of the manatee have little of the myoglobin (muscle hemoglobin) that is typical of the muscles of other diving mammals—this means manatees cannot store as much oxygen as seals and dolphins, which is reflected in their relatively short (8-15 minute) and shallow (10-20 feet) dives.

Their ribs and other long bones lack marrow cavities, which produces a dense and relatively heavy skeleton. Marrow, which produces red blood cells, is mostly restricted to the centra (bodies) of the vertebrae and possibly the sternum.

Manatees do not have hind limbs. Their pelvic bones are vestiges of the more complex structures of their ancestors. The pelvic vestiges are attachment sites for muscles.

Manatees live in both fresh and salt water. Their kidneys filter blood to control levels of salt and to maintain water balance. The urinary bladder stores urine until it is advantageous to dump it into the environment.

The manatees' mammary glands (milk glands) and teats (one per side) are located behind the fore limbs. The milk glands have no storage sacs (like cattle and goats) so manatee calves suckle frequently at short intervals.

Manatees have relatively small brains when compared to other mammals of their size. Their brains are very smooth, having few of the surface 'folds' that are associated with higher intelligence in other mammals.

For more manatee information, please visit our web site:

[www.MyFWC.com](http://www.MyFWC.com)

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Feeding, touching and chasing wildlife are forms of harassment that may put the animal in danger. Please keep your distance from all wildlife.

**To report an injured or dead manatee, or someone harassing a manatee, please call 1-888-404-FWCC (3922)**



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