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### Manatee

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### Mammals Encounters Education Research

Mammals Encounters Education Research (M.E.E.R e.V.) is an organization based on Project M.E.E.R. La Gomera (Mammals. Encounters. Education. Research.), and has its main seat in Berlin. It was founded in 1998 to carry out voluntary work for the protection of **whales** and **dolphins**. The main goal of the society is to support nature protection, education and research, with a special focus on the **conservation** of whales and dolphins (**cetaceans**) and their natural habitat. Research focuses on the tracking of **marine mammals**, behavioural studies and **photo-identification**. A special focus is the work on **whale-watching** regulations to cope with the increasing impact of tourism on mammals, particularly around the **Canary Islands**.

#### Related internet source

M.E.E.R e.V.: <http://www.m-e-e-r.de/home.0.html>

Friedrich M. Zimmermann

**Manatee** Manatees are grouped within the mammalian family Trichechidae and are represented today by three species: the West Indian, or **Caribbean**, manatee or sea cow, the Amazonian manatee and the West African manatee. When Christopher **Columbus** first saw manatees in the New World in 1493, he attested to their lack of beauty, noting that these "mermaids" were not quite so handsome as they had been painted'.

The West Indian manatee (*Trichechus manatus*) is considered divisible into two subspecies: *Trichechus manatus manatus*, ranging from Mexico south through Central into South America and as far south as Recife, Brazil, including the West Indies, and *Trichechus manatus latirostris*, from the southeastern USA.

The West Indian manatee can reach up to 3.5–4.1 m in length and 1620 kg in weight. They are large, torpedo-shaped, thick-skinned animals with bulky bodies tapering to a spatulate tail. They have two paddle-like mobile front 'flippers', each having three to four nails. The body is grey to brown, nearly black in the newborn. They have a thick, wrinkled skin and prominent facial vibrissae, i.e. sensory hairs around the mouth. Manatees have a thick layer of fat or blubber under the skin, which they use

as insulator and energy storage. Because fat is lighter than water it also provides buoyancy. These animals spend much of their time at or near the bottom of the sea, and thus they have developed thick, dense bones in order to achieve neutral buoyancy.

West Indian manatees live in rivers, **estuaries** and coastal areas of tropical and subtropical regions. They prefer quiet, shallow coastal waters, estuaries, rivers and canals where vegetation is abundant. Manatees can, on occasion, swim from one Caribbean island to another one nearby, as well as up coastal rivers. West Indian manatees feed mostly on a diverse diet of aquatic and semi-aquatic plants.

Adult females breed about once every 2 years. They have a gestation period of 12–13 months, nursing takes between 1 and 1.5 years and the calves start grazing vegetation at the age of 3. West Indian manatees can live up to 50+ years and are generally solitary animals. When manatees do form groups, they are typically large, loosely associated and lack any real social structure. Manatees join and leave these associations at will.

Manatees lack natural enemies. In the past, West Indian manatee populations were decimated by hunting and loss of habitat; however, there are many other causes of death, including the abandonment of calves by their mothers, low water temperatures and **red tides**. Many manatees are killed by boat strikes, drowning or crushing in **navigation** locks or flood-control gates, entanglement in **fishing** gear and ingestion of foreign material.

Manatees are an important tourist attraction in Florida where there are organized manatee-watching operations. The country of Belize is currently attempting to build a **tourism** industry around manatees, with reformed poachers and local residents being employed in order to take advantage of their knowledge.

Aldemaro Romero

Shelly Kannada

**Mangrove** Mangrove forests comprise a diverse range of species of salt-tolerant trees and associated vegetation that occupy the intertidal zones of **estuaries** in tropical, subtropical and some temperate regions, occupying a worldwide distribution of over 17