Beloved by Floridians for its whimsical, whiskered face and gentle nature, the manatee is among the state's most recognizable and popular native inhabitants. It is also one of the most imperiled. Its low reproductive rate, combined with loss of habitat and high rates of mortality, often from human-related causes, threaten the manatee's survival. The manatee is the subject of intense research and protection efforts by federal, state, and local agencies, as well as by universities, corporations, and non-profit conservation organizations.

Description

It's difficult to understand how the manatee, weighing up to 3,500 pounds and having a bulbous face and distinctly rotund shape, could have been mistaken for a mermaid by even the most sea-weary sailor, but that is indeed part of the historical lore surrounding these creatures. The disparity between fact and fiction regarding these creatures prompted Christopher Columbus to remark, after first seeing manatees in the New World in 1493, that "these mermaids were not quite so handsome as they had been painted." However, what the manatee lacks in beauty is compensated for by its graceful movement and docile disposition. Manatees are warm-blooded marine mammals that breathe air just as we do; however, manatees surface to breathe about every four minutes. Although they may reach lengths of 13 feet, the average manatee is about 10 feet long and weighs 1,200 pounds. Female manatees tend to be larger than males. At birth, manatee calves weigh about 66 pounds and are four feet long. Calves are dark gray (darker than adults) but change to the typical light gray or coffee-brown color when about one month old.

The skin of the manatee is rough and finely wrinkled. Bristly hairs are scattered over the body, and many hairs grow around its split upper lip. These whiskers may function as those on a cat do and help manatees sense what's around them. Manatees also have short, spiky bristles inside their lips to help them draw food into their mouths and hold it while they chew. The manatee has a wide, paddle-shaped tail and two front flippers, each with three or four fingernails. The flippers help manatees gather and hold the vast amounts of plant material they consume. In fact, an adult manatee can eat as much as 200 pounds of seagrass and other aquatic plants a day.

Manatee eyes are small and located near the sides of the head; an inner membrane can be closed over the eyeballs for protection. Studies indicate that manatees can see in both dim and bright light (a boon in murky water) and can distinguish colors, shapes, and patterns. The nostrils are located on the

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<th>At a Glance</th>
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<tr>
<td>Common name</td>
<td>West Indian manatee</td>
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<tr>
<td>Scientific name</td>
<td><em>Trichechus manatus</em></td>
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<tr>
<td>Estimated population</td>
<td>2,600 individuals as of early 1996</td>
</tr>
<tr>
<td>Range</td>
<td>Found throughout rivers, springs, and shallow coastal waters of Florida and adjacent states</td>
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<tr>
<td>Population status</td>
<td>Endangered</td>
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top of the snout and are covered by flaps when the manatee is underwater. Manatees do not have external ears; their ear openings are located just behind the eyes and are very small and difficult to find. Despite this, research has shown that manatees hear quite well and can even detect frequencies too low for humans to hear. Studies suggest that low-frequency sounds produced by females may help guide male manatees to them during mating cycles. Scientists don’t know for certain how long manatees live, but it is believed they may live for 50 or more years. One manatee has been maintained in captivity since 1948. Manatees reach sexual maturity at 4–7 years, and the female reproductive rate is an average of one birth every two to three years. The gestation period is 13 months, and usually one calf is produced, although twin births are known to occur. Calves remain with their mothers for up to 2½ years. Manatee teeth deserve special mention because they are continually replaced throughout the animal’s lifetime—an adaptation that is necessary because of the manatee’s abrasive diet of plants often mixed with sand. As older molars at the front of the manatee’s jaw wear down and fall out, new molars move forward from the rear to replace them. Manatees share this unique arrangement with only one other mammal, a type of kangaroo. Because of this continual renewal, the manatee’s teeth—unlike those of most other mammals—do not give scientists any clues about the animal’s age.

**Behavior**

Manatees are essentially solitary creatures. Except for massive aggregations at winter refuges, the basic social unit is the female and her calf. Other groupings seem to be temporary. Several males, for instance, may remain with a single female for up to one month, jostling for her attention during mating. Temporary groups may form among bachelor male manatees, and other groups may travel together to feeding or resting areas. This loose-knit society is a product of evolution: because manatees have no natural enemies and do not hunt their food, they do not need to band together to fend off predators or to gather nourishment.

Despite their somewhat lonesome lifestyles, manatees are very playful, executing somersaults, barrel rolls, and other acrobatic maneuvers. They also enjoy contact with each other—mouth ing, rubbing, bumping, and chasing. Bodysurfing is also a popular pastime, and groups of manatees have been spotted riding the powerful currents generated below partially open flood gates or frolicking in the surf along the coast. Manatees are very curious and will investigate new objects with relish—a trait that often gets them into trouble.

Much of a manatee’s day is spent eating and resting. The remainder of their time is spent traveling, playing, and investigating their surroundings. Manatees are able to remain submerged for only 20 minutes, so they sleep in a series of naps. They often rest in shallow areas such as seagrass flats, and researchers suspect this may be one reason why manatees are frequently struck by boats. It’s not that the manatees don’t hear the boats, but rather that because the manatees are in shallow water, they can’t dive deep enough to avoid being hit.

**Evolution**

Although manatees somewhat resemble walruses and elephant seals, the manatee and its Pacific cousin, the dugong, are actually more closely related to elephants. A member of the order Sirenia, named for the sirens (mermaids) of ancient Greek mythology, the manatee began its evolutionary journey as a four-footed land mammal before venturing into the water about 45 million years ago. The fossil record has revealed more than a dozen types of related ancestors in Florida, indicating that sirenians were

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**Fast Fact**

Manatees consume 5-10 percent of their body weight daily and spend 6-8 hours a day feeding.

Like most plant-eaters, manatees have large digestive tracts. Food takes about seven days to pass through the manatee’s digestive tract, and digestion is accompanied by the production of large amounts of methane gas—the release of which can provide a telltale way of locating submerged manatees. Fresh water is crucial for manatees. Scientists don’t know whether manatees must have fresh water, but they certainly seek out freshwater sources and can often be seen drinking from hoses or drainage pipes along rivers. Researchers take advantage of this behavior to photograph or capture and tag manatees at known “watering holes.”
once much more plentiful and widespread than they are today. Only four living examples of sirens remain: a fifth, the arctic Steller's sea cow, was hunted to extinction within 27 years after its discovery by Bering Sea explorers in 1741. The four surviving sirenians all reside in tropical and subtropical areas and include three species of manatees (West African, Amazonian, and West Indian) and the dugong of the coastal Indian and western Pacific oceans.

Manatees in Florida are members of the West Indian manatee species, which is found from the southern United States to the northeast coast of Brazil. Recent studies show that manatees of the southeastern United States are in a subspecies different from that of manatees found in the West Indies, Caribbean, and South America and can correctly be called the Florida manatee.

**Range**

Manatees are found throughout Florida's rivers, estuaries, and bays, and a few range as far west as Louisiana and as far north as Virginia. By attaching satellite transmitters to manatees, scientists are learning more about where and how far manatees migrate. One intrepid male, nicknamed "Chessie," boldly went where no manatee had gone before during a summer 1994 voyage that took him to the Chesapeake Bay. As winter approached, scientists feared he would not make it back to Florida before cold weather arrived, and Chessie was flown back home in a specially equipped airplane—only to resume his pioneering explorations the next summer, swimming all the way to Rhode Island. Chessie returned to his winter home base of Ft. Lauderdale on his own that winter, but he took off again the following summer and was tracked as far north as North Carolina before he lost his radio transmitter. In August 1996, a manatee was reported in Annapolis, Maryland. Maybe this was Chessie! Chessie's journeys were extraordinary; most manatees are content to stay closer to warm waters.

Tracking studies have shown that some manatees travel as fast as 30 miles a day, although others are homebodies that remain in one area for months at a time. Individuals typically use the same travel corridors over and over, probably passing on knowledge of those nautical highways from one generation to the next.

Because manatees are warm-blooded and thus vulnerable to climate changes, they must seek refuge from cold temperatures, even in Florida. Historically, manatee populations were once centered in south Florida, where water temperatures rarely dropped below the danger level for manatees, about 55°F. Over the past 30 years, however, the construction of power plants and other industrial facilities that have warm-water discharges has enabled manatees to survive the winter as far north as Jacksonville.

About 24 warm-water sources—six of them natural springs—now host winter aggregations of manatees. Some of these refuges may attract hundreds of manatees at a time. The highest number of manatees that have been counted in the thermal plumes near the Tampa Electric Co. plant in southern Hillsborough County during cold spells was 120, and in excess of 300 manatees have been reported near Florida Power & Light Co.'s Ft. Myers plant. Natural warm-water refuges include Blue Springs on the St. Johns River and springs forming the Homosassa and Crystal rivers of Florida's west coast.

**Threats to Survival**

Manatees have long been hunted for their meat, hides, bones, and fat. They were well known to prehistoric Indians, who fashioned leather shields and shoes from manatee hides and used the bones for tools. However, because the manatee's large size, sensitive hearing, and tough skin probably made them difficult for primitive hunters to catch and kill, historians do not believe this exploitation had much impact on overall manatee populations.

European settlers in Florida first hunted manatees with harpoons and then with rifles and considered the manatee's tail, soaked in brine, to be a delicacy. In the late 1800s, manatee specimens became popular additions to museum collections, and a cleaned skeleton and hide could fetch as much as $100. Because of this exploitation, Florida's first manatee protection law was passed in 1893 to restrict the hunting of manatees, but the hunting continued to reduce the population until about 1950.

The U.S. Marine Mammal Protection Act of 1972 banned the hunting of manatees and most marine mammals, imposed a permit system to capture manatees for research, and forbade the importing or exporting of manatee parts or products. Additional
protection resulted from the Endangered Species Act of 1973, which classifies the manatee as “endangered,” meaning that the species is “in danger of extinction without human protection.” Nevertheless, hunting is still an occasional problem; as recently as 1980 two butchered manatees were found in the Miami River in downtown Miami. Florida’s booming human population poses the greater threat, however. Coastal development has destroyed some manatee feeding and refuge areas, and pleasure boats and their deadly propellers have become abundant in our inland waterways.

In response to mounting evidence of the negative effects that boats have upon manatees, the state legislature in 1978 passed the Florida Manatee Sanctuary Act, which allows the state to establish and enforce boating restrictions in important manatee habitats. The responsibility for administering the law now lies with the Florida Department of Environmental Protection (FDEP). So far, a dozen important manatee sanctuaries have been designated as off-limits to power boats altogether, and state or local officials have established boating speed restrictions in dozens of other areas.

**Fast Fact**

Propeller scars are so common on manatees that scientists have developed a computerized catalog of photographs that enables them to identify individual manatees by their scar patterns.

Despite these protective efforts, and the growing popularity of the manatee as an endearing symbol of wild Florida, manatee deaths have continued at a troubling rate. Scientists have been documenting manatee mortality since 1974, and each year, the number of manatee deaths has exceeded 10 percent of the estimated total population. Human-related incidents cause most manatee deaths. These incidents include manatees colliding with boats, becoming entangled in crab traps or fishing gear, or being crushed in canal locks or flood gates. The death rate of newborn calves has also been high, although scientists aren’t sure what is killing these young animals.

Cold weather has also taken a severe toll on Florida’s manatees. Sudden freezes can catch manatees unaware, and they can die quickly if they do not find warm havens. For instance, an extreme cold snap in the winter of 1989–90 killed more than 50 manatees around the state.

Manatee populations appeared to be rebounding somewhat in recent years, and in February 1996, more than 2,600 animals were counted in aerial surveys throughout the state. Although that tally may have resulted at least partly from excellent viewing conditions, researchers were cautiously optimistic about the manatee’s future. However, just a month later, an unusually high number of dead manatees began to appear in waters off southwestern Florida. In just two months, March and April, 151 dead manatees were found from Sarasota to Collier counties—more than had died statewide in most entire years prior to this event. An extensive investigation revealed that the deaths were most likely caused by an outbreak of red tide, which is caused by a microscopic algae that produces a natural marine toxin. The long-term effects of this unprecedented manatee die-off will not be known for some time, but this single episode eliminated 6 percent of the Florida population.

As Florida’s human population continues to grow, making room for manatees will require a strong commitment by Florida’s citizens to protect existing habitats and reduce the number of watercraft-related manatee deaths. Repeatedly over the years, Floridians have expressed their support for saving this “gentle giant.” A license plate featuring the manatee has been an overwhelming success, and the revenues generated by the license plate provide much-needed dollars for manatee research and conservation and environmental education. Given this ground swell of public support, the manatee will hopefully remain one of the most enduring of Florida’s wild inhabitants; with its natural charm, it is already one of the most endearing.