Florida Manatee

Trichechus manatus latirostris

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DESCRIPTION


Photo by SC DNR

Taxonomy and Basic Description

Manatees are aquatic mammals in the order Sirenia. The order includes manatees, dugongs and the extinct Steller's sea cow. The West Indian manatee is one of three species in the family Trichechidae. Linnaeus named the single genus *Trichechus* in 1758. Two subspecies of West Indian manatee are now recognized: the Florida manatee, *T. manatus latirostris*, which occurs in the southeastern United States, and the Antillian manatee, *T. manatus manatus* that is found throughout the remainder of species' range (USFWS 1995).

Manatees are large, robust mammals. On average, manatees reach lengths of 3.5 m (11.5 ft.) with females tending to be larger than males. Average weight is approximately 1000 kg (2200 lbs.). In the murky waters of South Carolina, only the small head is sometimes seen as the animal surfaces for air. The head is rounded and indistinct from the body with no neck area apparent. Stiff vibrissae (tactile hairs) are present around the small mouth, and two circular-valved nostrils are situated on the top of the muzzle. The eyes are small with a small lid and nictitating membrane, a clear inner eyelid that protects the eye. External ear flaps are absent. Manatee pectoral flippers are flexible and aid in moving over the substrate, maneuvering in the water column, scratching, manipulating food, and embracing other manatees. The large tail is rounded and horizontally flattened for locomotion and steering. The tail is used to propel the manatee forward with a strong up-and-down pumping motion, which creates circular swirls on the surface of the water known as "foot prints."

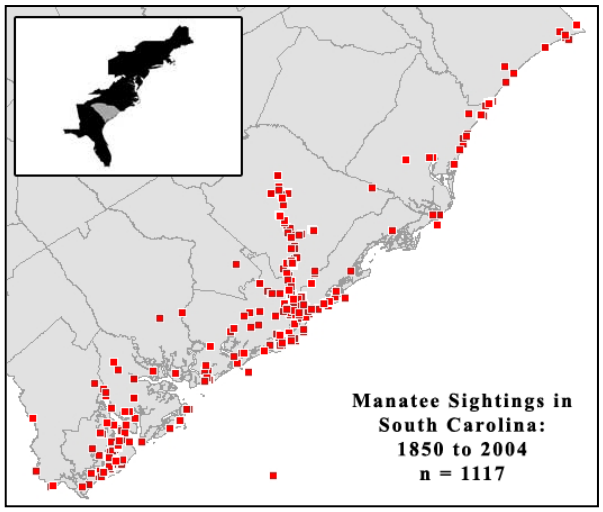
Manatees are semi-social and can be found alone or in small groups. They are not territorial. Ranges of individuals often overlap, with male ranges ("circuits") being larger and encompassing several female ranges. Manatees see fairly well and are sensitive to audible and tactile cues. They communicate with a variety of high-pitched squeaks and chirps. Manatees often return to the same wintering and summering habitats year after year. Females reach sexual maturity by 5 years of age and males by age 3 - 4 years. Lifespan can exceed 50 years. Breeding usually takes place in mating herds, which form when several males are attracted to a female in estrus. Mating herds may remain together for a few days to over a month, during which as many

as 20 males may compete intensely for access to the focal female. Manatees mate and calve year-round. Female manatees usually give birth to a single calf, but twins are born on rare occasions. Calves remain with their mothers for 1 - 2 years after birth. Newborns average 1.2 to 1.4 m (4 to 4.5 ft.) in length and weigh about 30 kg (66 lbs.) (Odell 1981). Manatees have slow metabolic rates which makes them intolerant of water colder than 20°C (68°F).

Status

The West Indian manatee is listed as endangered throughout its range under both the Endangered Species Act of 1973 as amended (16 U.S.C. 1531) and the South Carolina Nongame and Endangered Species Conservation Act. The manatee is also protected under the Marine Mammal Protection Act of 1972 as amended (16 U.S.C. 1461). Manatees have rarity rankings of G2, S1/S2 Commercial and subsistence harvests in the 1800's probably significantly reduced the population. The largest population of manatees is found in the southeastern United States. Outside the United States, manatees occur in the Greater Antilles, on the east coast of Mexico and Central America, along the north and northeast coast of South America, and in Trinidad and Tobago (Lefebvre et al. 1989). There has been some discussion lately about downlisting the manatee to threatened status under the ESA, but no action has been taken as of 2013.

POPULATION SIZE AND DISTRIBUTION



Minimum population size has been based on counts of manatees at all known winter refuges in Florida and Georgia. Aerial and ground counts at winter refuges are highly variable depending on weather, water clarity, manatee behavior and other factors (Packard et al. 1985). In 2010, a record 5,077manatees were counted. This figure is probably low due to the fact that statistically derived population estimates are still being developed for the species.

Between 1850 and 1981, a total of 23 records of manatees in South Carolina were documented (Rathbun et al. 1982). Four additional records were reported by O'Shea (1988) from 1981 through 1986. Between 1986 and 1992, an additional 25 records were recorded by SCDNR (unpublished data). Therefore, only 52 records of manatees were documented in South Carolina over a period of 142 years, suggesting that manatees are rare visitors. Since active surveillance was initiated in 1993, more than 1,000 manatee sightings have been reported in South Carolina. In 1998, a record 190 sightings were made of manatees in SC. The farthest inland a manatee has traveled in South Carolina is to Santee State Park along the shores of Lake Marion in Orangeburg County in November of 2012. The individual died due to cold-stress.

HABITAT AND NATURAL COMMUNITY REQUIREMENTS

In the Southeast, manatees are found in rivers, bays or estuaries with submerged aquatic vegetation. Manatees migrate to SC during the warm summer months and then back to Florida in

the winter. Therefore, the sightings are obviously higher from June-September than other times of the year. Any manatees sighted in SC during December-March would be outliers; possibly animals attracted to industrial warm water outfalls as mentioned below. Such individuals would likely be in imminent danger of mortality from cold stress given the low ambient water temperature in SC during winter. In South Carolina, manatees occupy fresh, brackish and marine habitats and move freely between salinity extremes. Because of our high tidal amplitude, manatees feed on abundant *Spartina alternaflora* grasses at high tide and frequently move to submerged *Ulva sp*. beds at low tide. Manatees will move up rivers until the water is too shallow for passage or is blocked by a dam. There is no evidence that manatees concentrate on the upper Cooper River, which is the only site with extensive stands of the introduced exotic plant *Hydrilla verticillata* accessible to manatees in the state.

CHALLENGES

The greatest known human-related cause of manatee mortality in the southeastern United States is collisions with watercraft. There is limited documented collision-mortality in South Carolina and few of the many manatees sighted are reported to have fresh wounds. However, the lack of extensive collision mortality may be a result of the low number of animals present. It is likely that manatees are prone to being struck by fast moving boats when foraging in shallow areas; however, most boat operators avoid shallow water hazards in South Carolina. The high tidal amplitude and abundant oyster beds present in this state reduce the frequency of collisions.

Cold-stress may have a significant effect on manatees in South Carolina because the state is in the northern range of manatees. The threat of cold-stress is complicated by use of heated water discharges at a variety of industrial sites in the fall. Unlike power plants and paper mills, many of these smaller discharge sites are not in continuous operation and do not provide a predictable source of warm water. Many are being eliminated as alternative treatments of heated effluent are being adopted. Although based on a limited sample, several manatee mortalities in South Carolina were related to low water temperature exposure.

In Florida, manatee mortality by trauma or drowning can be associated with the operation of locks and water control gates. The only such site in South Carolina is the lock on the upper Cooper River that transports boats between the river and Lake Moultrie. Manatee mortality has occurred in two ways at this site. Several manatees have died from exposure to cold-water temperatures after they failed to navigate back down the lock in the fall during its limited operation. The second source of mortality was from drowning in the lock during operation.

Although documented in Florida (O'Shea et al. 1991), harmful algal blooms have not been documented as a source of manatee mortality in South Carolina. However, documentation of the state's first large-scale marine algal bloom (*Heterosigma akashiwo*) in the spring of 2003 increases the likelihood of future blooms.

Several manatee mortalities have been associated with the shrimp trawl fishery, though not in SC. The interaction between shrimp trawlers and manatees appears to be rare because manatees should be able to out swim the approaching nets or surface to avoid them.

CONSERVATION ACCOMPLISHMENTS

There have been several accomplishments made towards conservation of the manatee in South Carolina. Geographic distribution of and seasonal use by manatees in South Carolina has been documented through reports from the public.Operation protocol changes at the Cooper River lock have reduced the likelihood that manatees will enter Lake Moultrie and subsequently die from cold-stress. Installation of grates over the entrance to water-control tunnels in the lock have prevented manatees from drowning when the lock is being drained. Additionally, close cooperation with the US Geological Survey's Sirenia Project has been established to share information from reported manatee sightings, mortality data and provide identification of individual manatees based on the Florida photo-identification catalogue. Finally, a manatee web site has been established to inform the public about manatees in South Carolina and to provide an online form for reporting manatee sightings.

CONSERVATION RECOMMENDATIONS

- Document seasonal use and evaluate the relationship between manatee reports and actual population size.
- Continue to collaborate with the Sirenia Project to document manatee activity through the US Geological Survey's Florida Integrated Science Center.
- Cooperate with the Sirenia Project in monitoring manatees tagged with radio instruments to determine manatee use areas in the northern portion of the range.
- Attempt to identify individual manatees in order to better understand patterns of use.
- Document the relationship between use of heated effluent by manatees and distribution of these animals in northern waters as well as any associated manatee mortality.
- Protect the quality of wetlands in South Carolina by preventing the rise of harmful algal blooms. This can be accomplished by reducing nutrient loading of coastal water bodies through best management practices and land use planning.
- Collaborate with port and shipping operation authorities to develop contingency plans for oil spill events that will result in protection to manatees.
- Continue to solicit and summarize sightings of manatees from the public.
- Monitor the causes of manatee injury and mortality.
- Monitor water uptake and discharge areas at industrial sites for manatee use and evaluate the potential for conflicts involving entrainment and cold-stress mortality.
- Monitor the effectiveness of Turtle Excluder Devices in preventing drowning of manatees in trawl nests.
- Maintain an updated, interactive manatee web site at www.dnr.state.sc.us/manatee/ in an effort to increase public awareness of manatee threats while continuing to solicit sightings information from the public.

MEASURES OF SUCCESS

Since low visibility in coastal waters limits the utility of aerial surveys for manatees, other means, mentioned above, will allow monitoring of manatees in South Carolina. Additional data on manatees in South Carolina will be used in the permit review process.

LITERATURE CITED

George, C. 2008. West Indian Manatee. *In* Georgia's Comprehensive Wildlife Conservation Strategy. http://www1.gadnr.org/cwcs/Documents/strategy.html.

Lefebvre, L.W., T.J. O'Shea, G.B. Rathbun and R.C. Best. 1989. Distribution, status, and biogeography of the West Indian manatee. Pp. 567-610 *In* C. A. Woods (ed.) Biogeography of the West Indies. Sandhill Crane Press, Gainesville, Florida. 608 pp.

Odell, D.K. 1981. Growth of a West Indian manatee, *Trichechus manatus*, born in captivity. Pp. 131-140 *In* R.L. Brownell, Jr. and K. Ralls (eds.), The West Indian manatee in Florida. Proceedings of a workshop held in Orlando, Florida, 27-29 March 1978. Florida Department of Natural Resources, Tallahassee, Florida. 154 pp.

O'Shea, T.J. 1988. The past, present, and future of manatees in the southeastern United States: realities, misunderstandings and enigmas. Pp. 184-204 *In* Proceedings of the Southeastern Nongame and Endangered Species Symposium, R.R. Odum, K.A. Riddleberger, and J.C. Ozier, eds. Georgia Department of Natural Resources, Game & Fish Division, Social Circle, Georgia. 253 pp.

O'Shea, T.J., G.B.Rathbun, R.K. Bonde, C.D. Buergelt and D.K. Odell. 1991. An epizootic of Florida manatees associated with a dinoflagellate bloom. Mar. Mamm. Sci. 7:165-179.

Packard, J.M., R.C. Summers and L.B. Barnes. 1985. Variation of visibility bias during aerial surveys of manatees. J. Wildl. Manage. 49:347-351.

Rathburn, G.B., R.K. Bonde and D. Clay. 1982. The status of the West Indian manatee on the Atlantic coast north of Florida. Pp. 152-165 *In* R. R. Odum and J. W. Guthrie (eds.), Proceedings of the nongame and endangered Wildlife Symposium, Technical Bulletin WL5. Georgia Department of Natural Resources, Social Circle, Georgia. 179 pp.

U.S. Fish and Wildlife Service. 1995. Florida Manatee Recovery Plan Second Revision. U.S. Fish and Wildlife Service, Atlanta, Georgia. 160 pp.