

Florida Manatee

Trichechus manatus latirostris

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DESCRIPTION

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 Antillean manatee, *T. manatus manatus* that is found throughout the remainder of species' range (USFWS 1995).



Manatees are large, rotund mammals with a large round, horizontally flattened tail. Forelimbs are paddle-like and visible hind limbs are lacking. On average, manatees reach lengths of 3.5 m (11.5 feet) with females tending to be larger than males. Average weight is approximately 1000 kg (2200 pounds). Newborns average 1.2 to 1.4 m (4 to 4.5 ft) in length and weigh about 30 kg (66 pounds) (Odell 1981). In the murky waters of South Carolina, only the small head is sometimes seen as the animal surfaces for air. The skin is dark gray and sparsely covered with hair. The backs of manatees in South Carolina are frequently covered by

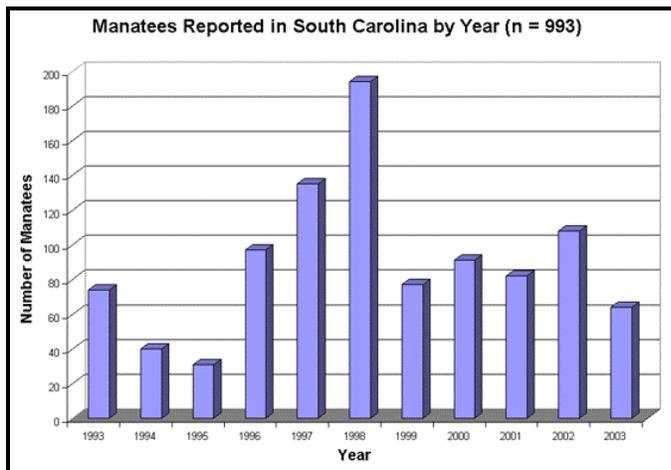
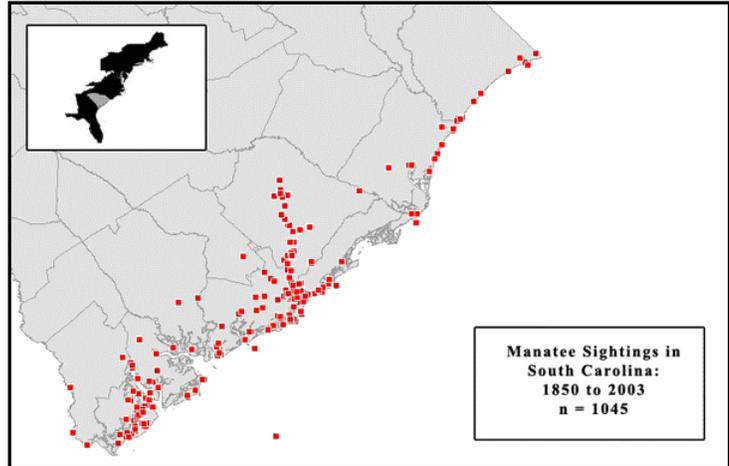
a variety of marine organisms.

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 are considered one of the most endangered marine mammals in the United States. 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).

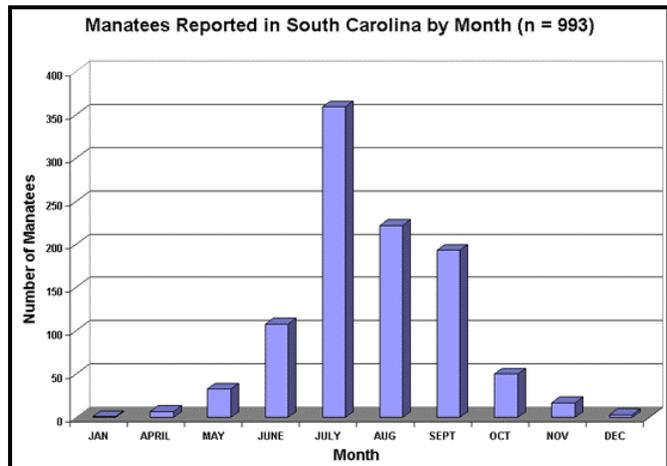
POPULATION DISTRIBUTION AND SIZE

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 February 1996, a record 2,639 manatees were counted. However, standardized aerial survey methods for monitoring trends in manatee abundance have yet to be developed.



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. The number of manatees in the state at any given time appears to be in the tens of manatees during the warmer months. The total number of individual manatees using South Carolina waters in a given year is much higher than the number of resident manatees because several individuals use the state during part of a season or on less than an annual basis. The following two graphs demonstrate the frequency of manatee sightings by year and month, respectively.



HABITAT AND NATURAL COMMUNITY REQUIREMENTS

In the southeast, manatees are found in rivers, bays or estuaries with submerged aquatic vegetation and water temperatures above 20 degrees C (68 degrees F). 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 alterniflora* 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 ship/boat hulls and/or propellers. 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 stunning may have a significant effect on manatees in South Carolina because the state is in the northern range of manatees. The threat of cold stunning 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. 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 cold stun. 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 Sirenia Project has been established to share information from reported manatee sightings, mortality data and provide identification of individual manatees based on the Florida 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 annual residents, 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 stunning.
- 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.

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