

**Cumberland Island
Manatee Watch 1986**

CPSU Technical Report No. 37

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March 1987

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ABSTRACT

National Park Service records show that manatees have frequented the waters in and surrounding Cumberland Island National Seashore (CUIS) for the past several years. In June 1986, the University of Georgia Cooperative Studies Unit began a "manatee watch" to learn more about the number of manatees visiting CUIS, and to identify their preferred habitats.

Prior to this survey, all of the eight Park Service manatee sightings on record were made at Dungeness Dock, with the exception of a sighting of two manatees in Old House Creek. During the summer of 1986, five sightings occurred at Dungeness Dock, four sightings occurred at Seacamp Dock, three sightings occurred between Dungeness and Seacamp Docks, two sightings occurred in Beach Creek, two sightings occurred in the St. Mary's River, two sightings (at least) occurred in the ocean near the south jetty, and one sighting occurred in Old House Creek. The number of sightings as well as the number of locations where sightings occurred exceeded the total number of sightings previously on record. The increased number of sightings is probably due to increased effort to record manatees rather than a recent increase in manatee use of Cumberland Sound.

There were no previous reports on file of manatees exhibiting mating behaviors near Cumberland Island. There were also no reports of calves in Cumberland waters. During 1986, there were at least two separate incidents where manatees exhibited sexual behavior and there were two reports of calves.

Information on use of specific sites, indicates manatees remain in the areas around the docks primarily at low tide and are more likely to be seen traveling along the shoreline or in tidal creeks when the tide is higher.

Data collected during the summer of 1986 indicate manatee utilization of waters in and surrounding Cumberland Island National Seashore is more extensive than previously believed. Not only was the number of individual manatees occurring at Cumberland greater than anticipated, but observers recorded several different types of behavior including feeding.

INTRODUCTION AND METHODS

As development and boat traffic in the Cumberland Sound area have increased, the potential for disturbance of manatees and manatee habitat has also grown. The managers of Cumberland Island National Seashore need to know how many manatees are using the area and how they are using different habitats. The purpose of this survey is to provide a continuing record of manatee sightings and to acquire information that may be used for protection of manatees while they are within the park.

The Manatee Watch has asked all park staff to radio their manatee sightings, as well as those made by visitors or island residents, to a biological technician stationed on the island. When the technician is not available one of the other scientific or biological staff investigates the incident. If the animal has already left the area, the technician attempts to get accurate information from the people who originally saw the animal.

The survey uses standardized forms. The form asks for the name and address of the person seeing the animal(s), the number of animals, the time and location (as exactly as possible) of the sighting, and their behavior by general category: feeding, resting, cavorting, or swimming. The investigators do not handle the animals. Where possible, however, estimates are made of animal length (usually by comparison to a known length object, like the edge of a dock or the side of a boat). An animal's sex may be determined if it rolls over or if it is nursing a calf.

When possible photographs are also taken of the scar patterns (white tissue or nicks and cuts) on the heads, backs, tails, or sides of the manatees. Drawings may be substituted when a camera is not available. This information is for comparison with and addition to the computerized scar catalog maintained by the State of Florida. The photographic technique follows the protocol in "Instructions for Photographing Scarred Manatees" distributed by the Sirenian Project of the U.S. Fish and Wildlife Service office in Gainesville, Florida.

RESULTS AND DISCUSSION

There were a total of nineteen sightings during summer, 1986. Sightings ranged from one manatee to six manatees seen simultaneously (see the list of manatee sightings at the end of this report). Observers definitely identified 12 different animals from scar patterns or the presence of a mother and calf pair. The first recorded sighting was on June 5 and the last was October 14. Over about a sixteen week period, there was, therefore, an average of slightly more than one sighting a week.

The manatees visiting Cumberland Island waters varied in size (see Table 1). The smallest individual was a calf with an estimated length of one meter. The largest individual was a male 3.5 meters long (actual measurement). Table 2 illustrates the wide variance in individual length of manatees occurring at Cumberland Island. This difference in size suggests manatees of all ages are utilizing these waters. Similarly, both sexes were observed. It was possible to determine the sexes of three females and two males.

**Table 1: *Lengths of six manatees
observed near Cumberland Island***

<u>Sex</u>	<u>Date</u>	<u>Length in cm</u>
Female	6-29	180
Female	8-10	315
Male	8-10	325
Female	8-10	293
Male	8-11	350
Calf	9-28	100(~)

Manatees were observed swimming, feeding, cavorting, resting and mating, or at least attempting to mate. (For details concerning these behaviors see descriptions of the individual sightings). Mating incidents were in late July and early August.

Manatee habitat use appeared to have been correlated to the tide. Prior to the beginning of this survey, a number of people reported or remembered seeing manatees at either Seacamp or Dungeness Dock at or near low tide. The manatees do seem to frequent these areas at low water (Fig. 1). Manatees were seen to simply swim by the docks in the St. Mary's River at or near high tide (Fig. 2). Both times manatees were observed in the ocean the tide was high. When manatees were observed in a tidal creek (either Beach Creek or Old House Creek) the tide was high on two occasions but near low (80 minutes from ebb) on a third. The average time of the sightings from low tide is shown in Fig. 3.

Of the three sightings involving manatees in tidal creeks, two are on file with detailed accounts of what the manatees were doing. On 12 July, one manatee was seen to swim up Beach Creek until shallow water forced the manatee to reverse its course. On 26 August, an aerial observation was made of 2 or 3 manatees in Old House Creek. One manatee was observed with its head next to the bank. On two separate occasions, therefore, a manatee was seen to have its nose up against the vegetation growings on the bank, suggesting the animals were feeding. A manatee was observed eating *Ulva* sp. at Sea Camp dock.

Manatees have been known to consume *Spartina alterniflora*, which would be most readily accessible to manatees at high tide. When water levels drop leaving the marsh grasses above the water level on the bank, manatees would be forced to go elsewhere in search of food. The salt marsh thus differs from some other potential feeding areas, such as fresh water rivers, in that the most common food item may only be available for part of the day. This may influence the pattern of low tide use observed at the docks.

Since manatees are more difficult to observe in tidal creeks or the open Sound than around docks, the relative number of observations for different types of locations, probably does not indicate actual frequency of use. Use of the creeks and inlets could be better evaluated from the air. These data do indicate manatees are at least occasionally utilizing Beach Creek and Old House Creek and are probably foraging in these areas.

Since manatees are difficult to see in turbid Cumberland waters, the high frequency of sightings suggests manatees are probably continually present in the Cumberland Sound area for most of the summer season. Further data collection is necessary to determine if the same animals return from year to year or are remaining in the Cumberland area for the summer.

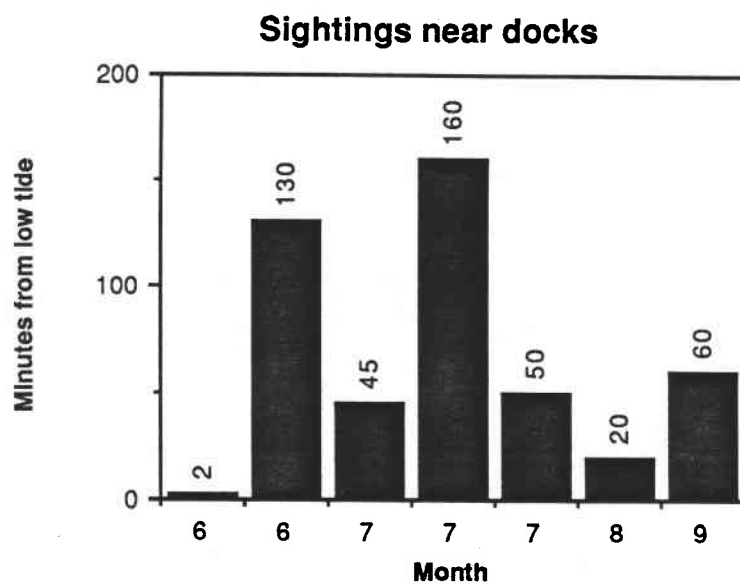


Figure 1: Time in minutes of manatee sightings at docks from the nearest low tide.

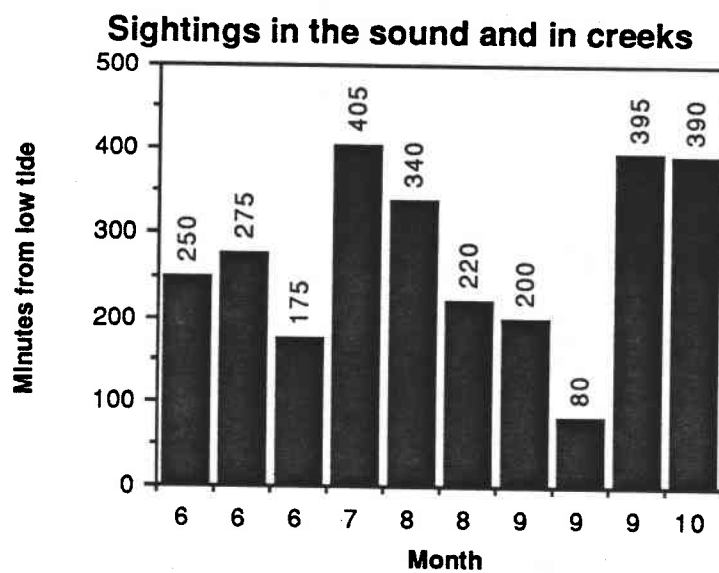


Figure 2: Time of manatee sightings in sounds and creeks from the nearest low tide.

These data indicate that Dungeness and Sea Camp dock are potential sites for collisions between boats and manatees, although in the case of smaller craft, the manatees should be able to get out of the way. Boats in Beach Creek or Old House Creek could also encounter manatees. A boat moving a high speed in a creek may represent more of a threat, because a manatee has less room to move away from the center of the channel. If the 1987 sightings indicate similar sites for manatee use the park should evaluate potential for collisions and establish speed zones. It should also be noted that protecting feeding areas in the marshes is probably important to continuing manatee use of the National Seashore.

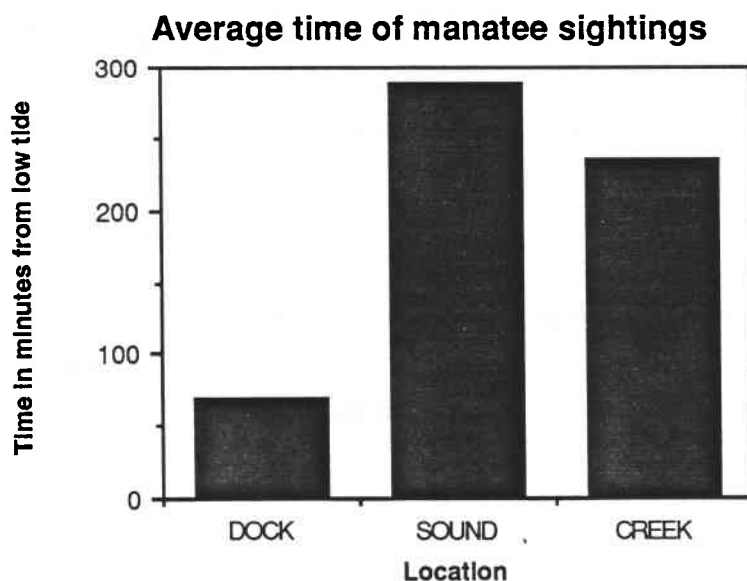


Figure 3: Average time from nearest low tide of manatee sightings in three different habitats.

17 July, 1986

1348-1516 hours

One manatee was observed 50-100 feet north of Dungeness Dock. Mark White reported that "the manatee spent most of the time within 50 feet of where it was first spotted. It would surface usually three times within one minute, and then remain submerged for 3 to 5 minutes, and then surface three times etc... At 1516 hours it swam below the surface, past the dock, at which time the scar pattern was observed."

On file: completed sighting form, sketch of scar pattern

Note: Mark mentioned that this manatee was significantly larger than CIM #1F.

25 July, 1986

approximately 1900 hours

Two manatees were observed near Dungeness Dock approximately 10-15 feet from shore. The sound of a loud splash caught the initial attention of Lynne Roberson. Apparently the manatees were exhibiting sexual behavior. Observers were led to believe this due to physical orientation of the manatees to each other, physical contact was maintained and a "slow bouncing movement" by one manatee while the two individuals were parallel to each other. One manatee appeared to be more aggressive than the other. Actual copulation was not witnessed and neither of the individuals' sex was determined.

After a short time the manatees broke contact and swam to the northwest toward deeper water.

On file: Lynnes' account of the sighting.

6 August, 1986

1002 hours

One manatee was spotted near Channel marker number 2 in Cumberland Sound. Charles Tambiah believed there was possibly a second manatee nearby.

The manatee came up and took a breath, it then spent time at or just below the surface of the water. The animal was seen to roll over exposing flippers and part of its abdomen.

On file: partially completed sighting form.

10 August , 1986

1500 to approximately 2000 or 2100

Three manatees were observed trapped in a tidal pool on the south side of the jetty. The pool was approximately 4 feet deep in the center and remained this deep until the tide came in. All three manatees were able to maneuver about in the pool.

One manatee, a male, was seen to repeatedly attempt escape from the pool. Escape attempts were made by swimming up on the pool bank and "walking" on his front flippers. The manatee never came more than 1/4 of the way out of water before pushing himself back into the pool.

While in the pool one manatee was seen to approach another, some thrashing about occurred. The manatees otherwise remained relatively calm.

There was opportunity to measure the lengths of the animals and to determine the sex of two of the manatees. A female measured 3.15 meters, a male measured 3.25 meters and the third manatee measured 2.93 meters (the third manatee was identified on 11 August as being female). Scat samples were collected. Carol Ruckdeschel who has a stranding permit was present and took measurements and other information.

Reports of onlookers indicated that prior to the tide receding there had been five or six manatees originally. One man stated that he had seen the manatees at this location for four or five days before this stranding.

On file: Sketches of tails, lengths of 3 individuals and sex of two manatees; photographs.

11 August, 1986

1345 hours

Five or six manatees were observed on the south side of the jetty at high tide. The manatees were close to shore. Two and sometimes three manatees were consistently in water no deeper than two to three feet. Upon occasion all manatees were in exceedingly shallow water.

Lynne Roberson observed the manatees from 1345 to 1415. The manatees were still present when she left the area.

1510 hours

Barb Zoodsma and Mark White observed the manatees at the same location. The manatees were still exhibiting behaviors as mentioned earlier.

On at least one occasion a pair of manatees would come in contact with each other. Contact was made along the long axis of the animals, one manatee on top of the other. One manatee appeared to be the female from 10 August with the notched tail.

By 1605 it became apparent that two manatees were again trapped in a tidal pool. Of the two, one, later identified as being male, repeatedly attempted to nudge the other, a female, out to the deeper water. The female resisted these attempts. This behavior was observed before there were any indications that the two individuals would become stranded.

While in the pool the male tried on several occasions to "walk" out of the pool using his flippers. All attempts were unsuccessful terminating with the manatee pushing himself back into the tidal pool. The female made little movement and showed no indications of being alarmed at the situation.

At approximately 1700 hours, the remaining manatees were no longer observed in the open ocean. At 1800 hours, the two manatees were totally out of water. Researchers determined that the male had not previously been identified on Cumberland, however, the female had. She had been stranded in the tidal pool the night before (10 August).

The male, because of his thrashing about on rocks and oyster shells, self-inflicted several minor cuts. There was no thrashing about on the part of the female, however, there were extensive wounds on her abdomen. It appeared as if she might have rammed into jagged objects (eg. rocks laden with oyster shells).

By 2330 the manatees were again totally submerged. At 2345 the female swam a short distance out and appeared to be awaiting the male. The male stayed near the jetty in shallow water and appeared somewhat disoriented. As the tide came in, it created a current through the large gape between the rocks of the jetty. The "current" was north to south in direction. It appeared as if this current is what confused the manatee. He oriented his body in such a way that he would be swimming directly into the current.

Slack high tide was at 2446. At this time the male ceased attempts to "swim through the jetty." Within minutes both manatees had disappeared.

On file: lengths of individuals, sketches of tails, photographs, breathing rate.

16 August, 1986

1221 hours

One manatee was observed to repeatedly surface and submerge just north of Dungeness Dock. The manatee remained at the edge of the rocks for approximately 10 minutes. Marian Robinson's and Karl Adams observations were made in the same location as Mark White's 17 July sighting.

On file: completed sighting form, breathing rate.

26 August, 1986

1130

During an aerial over flight some large objects were spotted in Old House Creek. After several passes it was determined that from shape and behavior these were manatees. At least two, quite possibly three manatees were spotted. One manatee was estimated to be at least 3 meters in length, and it was seen to have its nose up on the bank.

On file: Susan Bratton's account of sighting.

17 September, 1986

1800

One manatee was observed swimming up the St. Mary's River past Seacamp Dock. The manatee surfaced for air twice and was not seen again.

On file: partially completed sighting form.

28 September, 1986

0915-1950

Two manatees, a mother and calf, were observed on the north side of Dungeness Dock. The manatees remained in the same location, surfacing only to breathe. The calf was estimated at being one meter in length and was covered with barnacles.

On file: partially completed sighting form.

14 October, 1986

1810

Two adult manatees were seen traveling southward past Seacamp Dock. Despite a strong incoming tide the manatees were swimming rapidly.

One manatee managed to swim through a wire fence beneath the dock. The second manatee attempted to follow the first but apparently was unable to negotiate the wire. The manatee eventually swam around the dock and presumably joined the first manatee on the other side.

On file: Kevin Kacer's account.