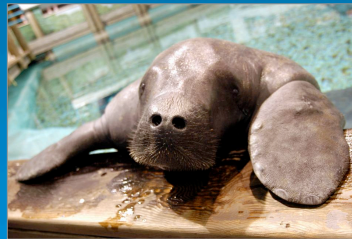


# Snooty

# Research



A juvenile male manatee in Crystal River, FL.



A mother and calf in Crystal River, FL.

## Why study a manatee in captivity?

Studying manatees in captivity can help scientists to understand wild animals. Observing how an animal reacts to changes in their environment when factors are controlled allows for a safe experimental situation. If successful, these experiments can then be translated to animals in the wild.

## The life of a wild manatee:

Manatees live in both freshwater and saltwater systems. As many people know they spend most of the cold winter months at and around springs or other warm water refuges (Figure 1). In the summer they spread out all over areas of Florida and as far west as Texas and as far north as Massachusetts (Figure 2).



Figure 1: Approximate Florida manatee distribution in winter months.



Figure 2: Approximate Florida manatee distribution in summer months.

Although manatees do not have a certain breeding time they are more likely to breed during the warmer spring and summer months. Males are able to find a female who is ready to mate despite the large distances separating them. This has led scientists to wonder how a male manatee can find a female manatee when she is ready to breed.

One hypothesis is that the male manatee uses their chemosensory abilities, taste and/or smell, to sense a female in estrus. This has been recorded in many species including the elephant, which is related to the manatee.

Therefore, this experiment is setup to answer these three questions:

- Do manatees use their sense of smell for reproduction?
- Do manatees use their sense of taste for reproduction?
- How do male manatees find female manatees?

## How the experiment works:

Elephants, like many other mammals, release signals in urine. For this reason researchers from the University of Florida will test Snooty's ability to distinguish between water and different types of urine. Snooty will be the first manatee tested using this technique. He will be separated from the other manatees in the aquarium in the medical pool at the back of the aquarium. Snooty will be observed with no interaction for 15 minutes. Researchers will record the number and duration of his behaviors, including his breathing rate.



I'm Bored...

Ten milliliters of one of four types of samples will be added to the water and Snooty's behavior recorded for 20 minutes. These samples include two controls (salt water or water from the tank) or two different urine samples from a female manatee. His 'interest' in the added sample will be estimated by his distance from the site of sample entrance and increased movement near the sample. The observer will not know what type of sample has been added to the tank and neither will Snooty, also known as a double blind study.



Ooo... What's that?!

The behavior will be videotaped for retrospective analysis. The same trials will occur with each type of signal three times for a total of 12 trials. Then the data will be compared between trials and before and after signal addition.

## Expected Results:

We predict that Snooty will be able to tell that something is being put into the water. He will probably be more interested in samples of urine than water but anything could happen.

We hope to discern if he is using his sense of taste, his sense of smell or both to determine what is being added to the water.

## What this could mean:

If Snooty does react to the changes in water and urine then this will be the first scientific proof that a manatee can taste or smell outside of feeding. If these experiments are successful they will be repeated with other male manatees in captivity. Eventually these experiments will be conducted with wild animals.

## Related Research:

In addition to studying the behavioral reactions of live manatees we are also studying the anatomy of animals that died in the wild or captivity. In this way we can determine what these animals are physically capable of and relate that to what they exhibit behaviorally.

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## Permit #'s:

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US Fish and Wildlife permit #: MA066878-0  
UF IACUC Study #: 200902684

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## For more information:

On Manatees: The Florida Manatee: Biology and Conservation by Roger Reep and Robert Bonde.

On chemical signaling: Pheromones and Animal Behaviour by Tristram Wyatt.

Manatee research at the University of Florida: <http://www.vetmed.ufl.edu/extension/aquatic/research>