



## Results of Nature Foundation Marine Mammal Monitoring Project Jan-May 2011



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## 1. Abstract

The St. Maarten Nature Foundation conducted a Marine Mammal Census project which lasted from February until May 2011. The goal of this project was to conduct a wide scale census of all Marine Mammals found in St. Maarten territorial waters, including within the Man of War Shoal Marine Park. Many on St. Maarten might not be aware that there is a relatively significant Marine Mammal population in the waters surrounding St. Maarten, including numerous species of whales and dolphins. Several questions were answered as a result of this study including most numerous species, migration routes and dates and the feasibility of regulated wild whale and dolphin watching trips. The primary monitoring method employed was the reliance on sighting forms developed by the Nature Foundation and distributed to Dive Centres, Yacht Charter Companies and Marinas. The second monitoring method involved the Method Developed by the Reserve Naturelle de St. Martin involving various transects on pre-determined routes. A sailing Catamaran was used to cover the transects with four lookouts placed to monitor for Marine Mammal Activity. During the Acoustic points hydrophones were lowered in the water and vocalizations were recorded and the relevant data noted. A recording of the whale songs can be heard via [www.youtube.com/watch?v=JfpsnuUNXDW](http://www.youtube.com/watch?v=JfpsnuUNXDW).

The most abundant Marine Mammal species was the Humpback Whale, with the total number recorded at 33 individuals, including calves. The second most abundant species was the Bottle Nose Dolphin, with total of 19 individuals observed with the largest pod being seven (7) individuals. The third most abundant species was the Long Snouted Spinner Dolphin. There were nine individuals recorded within the territorial waters of St. Maarten

If current trends on the abundance and distribution of both the Humpback and Dolphin species are consistent with this initial data, than structured dolphin and whale watching tours are a real possibility on St. Maarten, especially between the months of January and March, which coincide with the peak of the tourist high season. The economic benefits of whale watching tours can be a significant boost to the economy of St. Maarten.

The Man of War Shoal Marine Park had a considerable number of recordings of both whale and dolphin species which adds considerably to the biological value of the Park

## 2. Introduction

The St. Maarten Nature Foundation conducted a Marine Mammal Census project which lasted from February until May 2011. The Nature Foundation, in cooperation with the Reserve Naturelle de St. Martin, conducted a wide scale census of all Marine Mammals found in St. Maarten territorial waters, including within the Man of War Shoal Marine Park. Many on St. Maarten might not be aware that there is a relatively significant Marine Mammal population in the waters surrounding St. Maarten, including numerous species of whales and dolphins. Previous pilot surveys have revealed that there could be a resident population of wild bottlenose dolphins (*Tursiops truncatus*) living in local waters.

St. Maarten also lies within the area of the Western Atlantic where the Humpback Whale (*Megaptera novangliae*) comes and gives birth to their young. From February to May several hundreds of Humpback Whales migrate from the northern Atlantic to areas of the Caribbean to give birth and nurse their young before heading back up to northern climates. Numerous other species, including sperm whales and several types of dolphins make their home in local waters. Several questions were answered as a result of this study, including most numerous species, migration routes and dates, and the feasibility of regulated wild whale and dolphin watching trips.

In March a wide scale monitoring expedition was carried out which monitored marine mammals in local waters over the period of a week. French St. Martin is part of the AGOA Marine Mammal Sanctuary which includes all of the French Territories in the Caribbean. The information gained from this monitoring program will be used to advise policy on the protection of Marine Mammals in both St. Maarten and St. Martin waters.

### **3. Marine Mammals in Local Waters**

There are anecdotal reports of six species of Marine Mammals present in St. Maarten waters; the Humpback Whale (*Megaptera novangliae*); the Pilot Whale (*Globicephala macrorhynchus*); the Sperm Whale (*Physeter macrocephalus*); the Atlantic Spotted Dolphin (*Stenella frontalis*); Long Snouted Spinner Dolphins (*Stenella longirostris*), and Bottlenose Dolphin (*Tursiops truncatus*). There have also been reports of Common Dolphin (*Delphinus delphis*) but based on range and distribution studies this species was more than likely confused with *S. longirostris*.

These reports are based on observation made by fishermen, yachtsmen, divers and others who spend a considerable time on the ocean. It is interesting to note that since the moratorium on whaling in the nineteen eighties, there has been a considerable increase in the number of Baleen Whales, more specifically *M. novangliae*, reported in territorial waters. Other species such as *Orcinus orca* (killer Whale) and other species of toothed whale are very infrequent and warrant little follow up investigation.

#### **3.1 Monitoring Methods**

The primary monitoring method employed was the reliance on sighting forms developed by the Nature Foundation and distributed to Dive Centres, Yacht Charter Companies and Marinas (Figure 1). Respondents were asked to fill in any sighting of a Marine Mammal within the territorial waters of St. Maarten. Fields to be filled in included location, species observed, time of day, name of the observer, sea state, weather and vessel information. A total of 56 forms were filled in and reported to the Nature Foundation.



hydrophones were lowered in the water and vocalizations were recorded and the relevant data noted. This method was only conducted twice on waters in and around St. Maarten, with the majority of surveys being conducted in French St. Martin, Anguilla and St. Barths.

**Figure2: Acoustic points taken of Marine Mammal vocalizations**



### **3.1.2. Results**

Follows are Research Summaries concluded on the Marine Mammal Census.

### **3.1.3. Species Abundance, Behaviour and Dates Observed**

Based on the methods discussed above information was gathered on the number specimens recorded. Three species of Marine Mammal were recorded during the research period: Humpback Whale (*Megaptera novangliae*) (Figure 3); the Bottlenose Dolphin (*Tursiops truncatus*) (figure4) and the Long Snouted Spinner Dolphins (*Stenella longirostris*) (Figure 5).

The most abundant of these species was the Humpback Whale (MN) (table 1, Table 2), most of which were cows with their calves. The route taken was generally in a southerly direction and the most common activity observed was breaching. March saw the highest density of MN recorded. The total number of MN recorded was 33 individuals, including calves.



Figure 3: Humpback Whale

The second most abundant species was the Bottle Nose Dolphin (TT) (table 1, Table 2). A total of 19 individuals were observed with the largest pod being seven (7) individuals. The majority of specimens were found on the eastern and south-eastern side of the island and were moving in a general southerly direction. Very few juvenile TT were recorded. It is interesting to note that most TT were observed within a specific geographic range, which may suggest that St. Maarten could have a resident population of TT. Further monitoring is needed to follow up this hypothesis.



Figure 4: Bottlenosed Dolphin

The third species observed was the Long Snouted Spinner Dolphin (SL) (table 1, Table 2.) There were nine individuals recorded within the territorial waters of St. Maarten. Again most of these individuals were recorded along the Eastern and South Eastern shore of the island. These dolphins are known to be transient and this population more than likely does not reflect a resident population.



Figure 5: Long Snouted Spinner Dolphin

**Table 1: species abundance**

	species	number	location	direction	activity
03-Feb	TT	4	E	S	
05-Feb	TT	7	E	S	
14-Feb	MN	1	NE	S	BR
03-Feb	MN	2	E		
03-Mar	MN	1	NE	S	BR
03-Mar	SL	2	E		
03-Mar	MN	1	NE	S	BL
03-Mar	TT	2	E	S	
03-Mar	MN	4	S	S	BR
05-Mar	MN	4	SW	S	BR
06-Mar	MN	1	S		
08-Mar	MN	1	SW	S	FL
10-Mar	MN	1	E	S	BL
10-Mar	MN	2	E	S	BL
13-Mar	MN	2	E	E	BR
15-Mar	MN	3	E	S	BR
20-Mar	MN	1	E	S	BR
15-Mar	MN	1	E	S	BR
03/20/2011	SL	5	W	N	
31-Mar	TT	5	W	N	
04-Apr	SL	2	E	N	
09-Apr	TT	1	E	N	
13-Apr	MN	3	NE	N	BR
20-Apr	MN	3	NE	N	BR
23-Apr	MN	3	NE	N	BR

Tt # <i>T. truncatus</i>	<b>19</b>
Tt# <i>S. longirostris</i>	<b>9</b>
Tt# <i>M. novangilae</i>	<b>33</b>

**Table 2: total number of specimens observed**



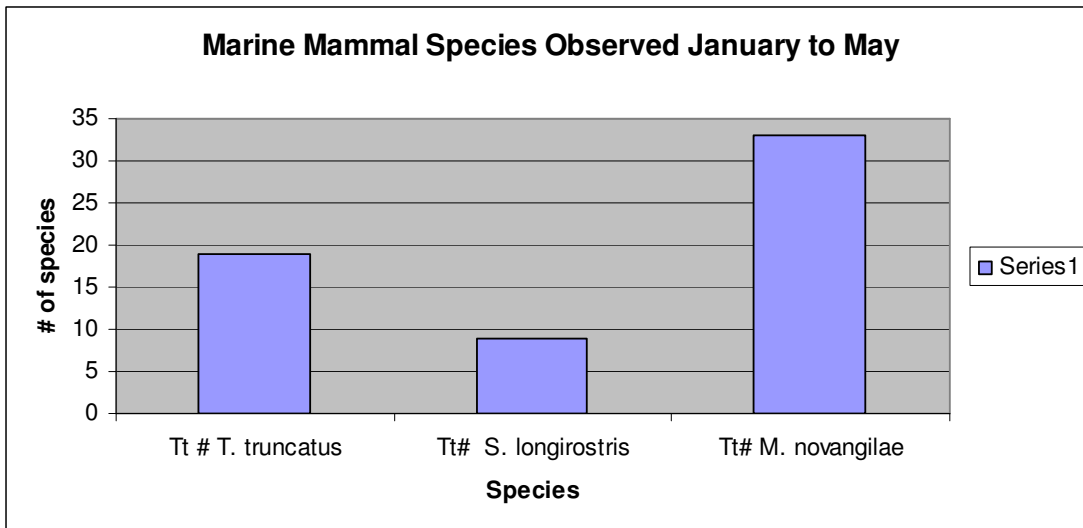
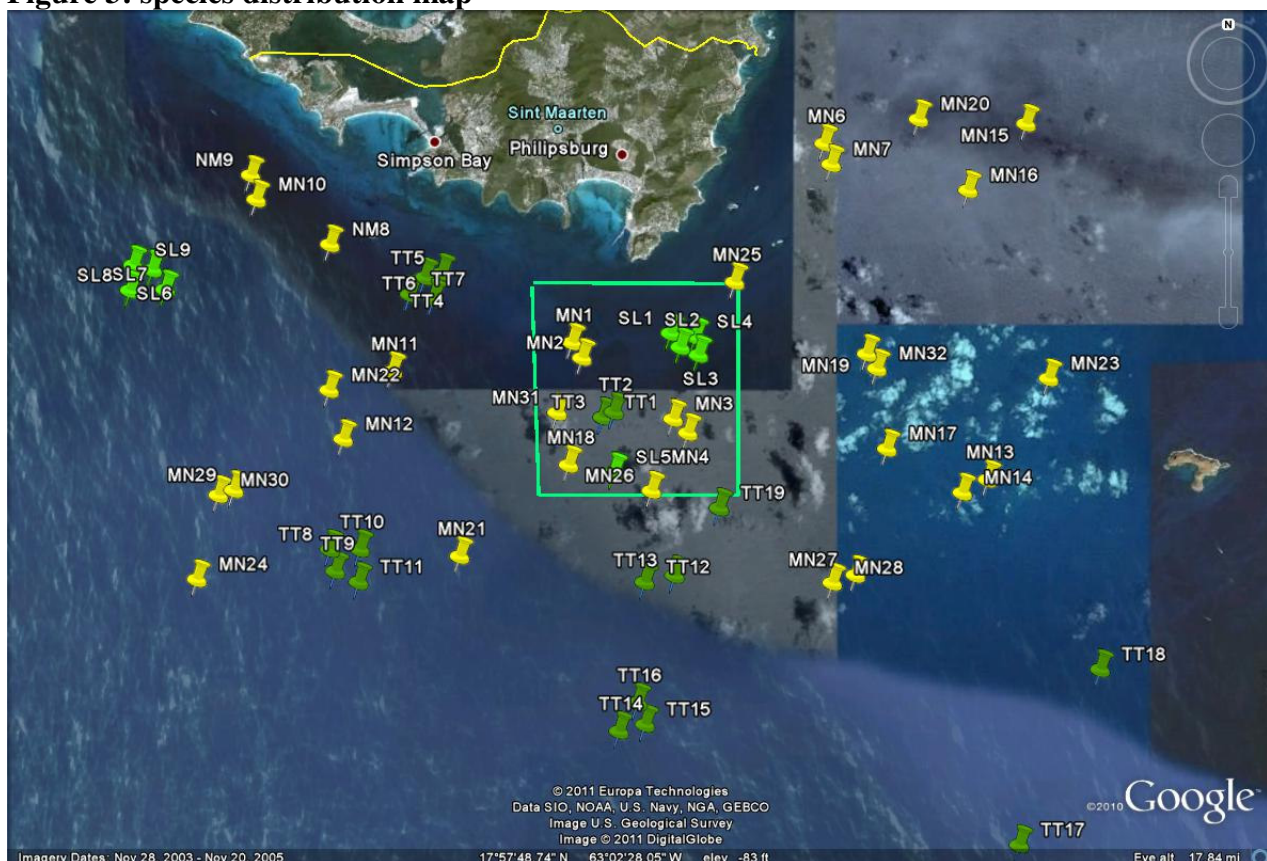


Table 3: species abundance by # of specimens

### 3.1.3. Species Distribution

The Majority of species were recorded either on the Eastern or South Eastern area of the island, with a significant amount being present within the Boundaries of the Man of War Shoals Marine Park (area in green border figure 3) with all three species being present. The species with the widest distribution is MN (Humpback Whale) as they pass through the local waters on their migratory route. It is significant to note that pods of both SL and MN are recorded on the South-Western side of the island as well.

Figure 3: species distribution map



### **3.1.4. Species Recordings**

Acoustic Recordings were also made of vocalizations using hydrophones and standard recording material during the transects conducted in conjunction with the Reserve Naturelle. Although many of the audio files showed faint whale songs made by male Humpbacks (MN), one significant ten minute recording was made and recorded. The song is being analyzed to determine if it matches any archives of songs made by individual MN elsewhere within the Atlantic Basin. A recording of the song can be heard via [www.youtube.com/watch?v=JfpsnuUNXDW](http://www.youtube.com/watch?v=JfpsnuUNXDW).

### **4. Conclusion and Recommendations**

Based on the gathered data there are a significant number of Marine Mammals which transverse local St. Maarten Waters from the months of January to May. These months were chosen based on the migratory timing of the Humpback Whale. Aside from the Humpback whale Bottlenose and Spinner Dolphin were also observed in fairly large numbers. Based on the fact that this is the first study of its kind in local St. Maarten Waters a structured monitoring program will need to be put in place in order to monitor changes in abundance and distribution of Marine Mammals in local waters.

Aside from the charisma that these species bring they can also be of economic benefit to St. Maarten. If current trends on the abundance and distribution of both the Humpback and Dolphin species are consistent with this initial data, than structured dolphin and whale watching tours are a real possibility on St. Maarten, especially between the months of January and March, which coincide with the peak of the tourist high season. The economic benefits of whale watching tours can be a significant boost to the economy of St. Maarten. However if this activity does occur, it should do so within a strict protocol so as not to cause any significant harm to the animals in their wild environment. The Man of War Shoal Marine Park had a considerable number of recordings of both whale and dolphin species which adds considerably to the biological value of the Park.