

Assateague Island National Seashore, MD
Marine Animal Strandings
2003

ABSTRACT

During 2003, a total of 18 stranded dead marine animals came ashore on Assateague Island National Seashore in Maryland. Of the total animals stranded dead on the ocean shore, there were five sea turtles and 13 marine mammals. Probable cause of death could be determined in only five cases, three of which were possibly a result of human activities. Sea turtle strandings included three loggerhead turtles (*Caretta caretta*) and two leatherback turtles (*Dermochelys coriacea*). Marine mammal strandings included seven Bottlenose Dolphins (*Tursiops truncatus*), two Risso's Dolphins (*Grampus griseus*), one Harbor Porpoise (*Phocoena phocoena*), two Striped Dolphins (*Stenella coeruleoalba*) and a Pygmy Sperm Whale (*Kogia breviceps*). The Marine Mammal and Sea Turtle Stranding Network, through the Cooperative Oxford Laboratory in Maryland, examined all dead strandings and prepared written reports. Strandings were documented from 17 January through 10 October. The 18 total strandings in 2003 is one more than the average per year of 17 between 1991 and 2002 for the Maryland portion of Assateague Island. The range for 1991 through 2003 is seven to 31 animals.

INTRODUCTION

The Maryland portion of Assateague Island is approximately 35 kilometers (km) in length and is bordered by the Atlantic Ocean, and Sinepuxent and Chincoteague Bays. This portion of the island is managed by either the National Park Service (NPS) as Assateague Island National Seashore (ASIS) or Maryland Department of Natural Resources (DNR) as Assateague State Park (ASP). Assateague Island National Seashore is open year-round and the combined beach use by park staff and visitors usually results in fairly quick reports of stranded marine animals. This annual report details sea turtle and marine mammal strandings that occurred within the Maryland portion of Assateague Island in 2003.

NPS Management Policies recognizes that naturally occurring wildlife injuries, disease, and death are important factors driving the process of natural selection, and ultimately contribute to the overall health and vigor of native wildlife populations. In recognition of the scientific opportunities any live or dead marine animal offers, ASIS allows stranded animals to be examined and sampled by experienced cooperators, and occasionally removed from the park for further study or rehabilitative efforts. Ideally, animals removed or rescued from ASIS should be released from the island when possible. Only animals rescued from ASIS should be released from the island, unless extenuating circumstances warrant the release of animals taken from locations other than ASIS. Requests to release any animal from ASIS are reviewed and approved by the Chief of Resources Management. Recovery assistance is provided for federally threatened and endangered species, or non-listed species suffering from human induced injury or illness. All live and dead strandings are documented, regardless of condition or recovery efforts. Refer to the ASIS Sick, Injured and Dead Wildlife Response Protocol for more detailed handling procedures and management guidelines.

The Cooperative Oxford Laboratory (COL) is operated under a partnership between DNR and the National Oceanic and Atmospheric Administration (NOAA). Through COL, the Marine Mammal and Sea Turtle Stranding Network (MMSTSN), established in 1990, coordinates response and collects data on all dead strandings on the Delmarva Peninsula. Facilities at COL include a laboratory equipped to necropsy marine animals. Their efforts help determine stranding patterns, human interaction, and information on population health of marine animals. Dead or alive, stranded marine animals provide researchers, resource managers, and others with an invaluable source of information from species that may not otherwise be available for study. The staff at ASIS has worked cooperatively with MMSTSN since 1991, and will continue this team effort so data collection is consistent and readily available.

In addition to COL staff, other members of MMSTSN include the National Aquarium in Baltimore (NAIB) which directs the Marine Animal Rescue Program (MARP), and the Smithsonian Institution (SI). MARP focuses its efforts towards rescue and rehabilitation efforts, and SI assists with events involving unusual or rare species.

METHODS

After a dead animal was observed by or reported to ASIS staff, a simple assessment of its overall condition, estimated size, tentative species identification, and the stranding location was made. This information was reported to the stranding team either through the DNR Police Hotline or directly to Tricia Kimmel of COL. If response from MMSTSN was delayed, RM staff tried to confirm the presence and location of the carcass, especially if the carcass was near the intertidal zone and subject to tidal action. Occasionally, arrangements were made to transfer small carcasses from the beach to a more accessible area such as the ASIS Ranger Station or Seashore Headquarters.

MMSTSN staff usually conduct an examination for all responses, whether on site or in their lab. The resulting report documents evidence of human-induced or other interactions, internal and external condition of animal, abnormalities, and evidence of disease or parasites. Measurements were taken from whole and partial specimens. All reports included the location, species, sex, condition of the animal and general observations. Complete necropsies and histology could only be performed on freshly dead specimens. Following examination, the possible cause of death and final disposition of the animal was noted.

MMSTSN maintains current collection permits required by the National Marine Fisheries Service (NMFS) through NOAA, as well as a list of approved research requests for specific species or tissue. Authorization letters are specific to the individual response person and affiliation, and justification for possession of the requested samples. Carcass condition of the stranded animals was a critical factor determining the types of samples harvested. Samples collected from stranded animals from ASIS were listed on the completed stranding reports.

Reports were catalogued by MMSTSN including reports of special findings and photographs when applicable. A copy of the final stranding report for each animal was sent to ASIS for reference. Carcasses were either left to naturally decay at the original stranding location, placed on the beach

away from public areas, preserved for educational or research purposes, or incinerated at the laboratory.

DATA STORAGE

All stranded animals at ASIS are documented in NPS files. The ASIS electronic database for Stranded Marine Animals is stored in Microsoft Office Access '97 for Windows 97/NT database. The database is currently located in the Division of Resource Management's (RM) Electronic Library under H:\Electronic Library\T&E Animals\Stranded Marine Mammals\Data and Information\Stranded Marine.mdb (see Table 1 for field definitions). All hard copy stranding reports are located in the RM library in the fire safe by the Bally building.

The MMSTSN maintains records for dead strandings in Maryland, and has access to data from other states. Records for live, rescued animals are maintained by MARP, although formal documents are usually not prepared for external use. The Smithsonian has a restricted Internet accessible database, which has data and information on marine animals.

RESULTS

There were 18 dead strandings in 2003 (Figure 1), which is one more than the average per year for 1991 through 2002 (Table 2). As in most years strandings occurred throughout 2003, with at least one stranding occurring each month with the exception of November and December. Of the total animals stranded dead on the ocean beach, five were sea turtles and 13 were marine mammals. Probable cause of death could be determined in only one turtle stranding and four marine mammal strandings. Three of these were of probable human cause, including fisheries interaction, oil spill/contamination and boat strike.

The MMSTSN stranding team responded to and examined all dead strandings, regardless of carcass condition or location. The MMSTSN team was timely in response, and promptly examined and completed reports on each animal. No marked/tagged animals were recorded.

Sea Turtles

Loggerhead Turtle, *Caretta caretta*

Loggerhead turtles accounted for three of the 18 dead strandings in 2003. One had three linear cracks on the carapace which were probably due to a boat strike, but cause of death could not be determined for the other two. All three were adults. Loggerhead turtles are federally listed as a threatened species.

Leatherback Turtle, *Dermochelys coriacea*

The two leatherback turtles that stranded were in advanced stages of decomposition and cause of death was undetermined. The August stranding consisted of just a portion of carapace with some attached muscle tissue. The previous week a dead leatherback entangled in fishing gear had been reported floating two miles offshore from Ocean City, but the animal could not be relocated. Leatherback turtles are federally listed as an endangered species.

Marine Mammals

Bottlenose Dolphin, *Tursiops truncatus*

Seven Bottlenose Dolphins stranded during late spring and summer, two in fresh condition, three moderately decomposed and two in advanced decomposition. Three were neonates with fetal folds still visible, and four were adults. One adult appeared to have a systemic infection. One neonate showed signs of possible fisheries interaction as the cause of death, and one drowned but no underlying cause could be determined.

Pygmy Sperm Whale, *Kogia breviceps*

An adult female Pygmy Sperm Whale in advanced decomposition stranded in January. Although cause of death could not be determined, sub-dermal hemorrhaging and edema were apparent in the muscle behind the head.

Risso's Dolphin, *Grampus griseus*

Two Risso's Dolphins in fresh condition, one adult and one neonate, stranded in March and April. The neonate was slightly emaciated with an enlarged heart and decomposing liver; there were no bacterial pathogens. Cause of death could not be determined for either animal.

Harbor Porpoise, *Phocoena phocoena*

Necropsy on the relatively fresh adult male Harbor Porpoise revealed nothing remarkable.

Striped Dolphin, *Stenella coeruleoalba*

A fresh sub-adult male Striped Dolphin stranded in February. This animal was one of approximately 15 Striped Dolphins that stranded from New York to North Carolina within about one week's time. Stranding locations for the Striped Dolphins were: five near Indian River, Delaware, one in Maryland, two in Virginia, five in North Carolina and two in New York. Four of the five dolphins that stranded in Delaware were brought to the Oxford Lab for examination the same day that this animal stranded in Maryland. *Shewanella putrefaciens* and *Enterobacter durans* were isolated from the lungs of this animal; *Shewanella* is a bacteria typically associated with oil pipelines. There was an oil spill off the coast of New Jersey the same week that this animal stranded, but the significance of this is not known since several animals stranded much further south during the same period of time.

DISCUSSION

After record numbers of strandings in 2001 and 2002, the numbers in 2003 dropped back to about the overall average for the previous 12 years. The proportion of turtles to marine mammals stranding was also closer to the average than in the previous two years, when the high numbers were primarily due to large numbers of Loggerhead strandings. There were no known fisheries bycatch events or other notable incidents that could cause multiple strandings in 2003, with the exception of an oil spill off the coast of New Jersey. That spill could possibly have been the cause of the 15 Striped Dolphin strandings along the east coast, but only one of them stranded in Maryland. That dolphin did have *Shewanella* in its lungs, a bacteria associated with oil pipelines.

One other marine mammal stranding may have been attributable to fisheries interaction. A neonate male Bottlenose Dolphin had what appeared to be a gaff wound on its ventral surface, and torn skin at the base of the flukes. Although one neonate Bottlenose Dolphin drowned and one adult had a systemic infection, the underlying causes could not be determined. Cause of death could not be determined for the remaining nine stranded marine mammals.

Of the five turtle deaths, one could be attributed to a human cause. Three linear cracks in one Loggerhead Turtle's carapace were most likely prop wounds due to a boat strike. The portion of Leatherback Turtle carapace that was found could possibly be part of the entangled Leatherback reported floating dead off Ocean City. A crew from NAIB was unable to relocate the entangled animal, so any connection with the piece of carapace found on Assateague a week later is only speculation. The other three turtles were in moderate to advanced stages of decomposition, and cause of death could not be determined. It was interesting that although severely decomposed, nine eggs were still identifiable in one of the Loggerheads. In recent years there have been a few isolated instances of Loggerhead Turtles nesting on Assateague Island.

Where stomach contents were not too decomposed to be identifiable in Loggerhead Turtles, all contained horseshoe crabs and/or whelk bodies and opercula. Most of the Bottlenose Dolphin stomach contents were liquid, but several contained fish bones and otoliths. The coastal form of the Bottlenose Dolphin feeds mainly on fish, while the offshore form takes both fish and squid. Risso's Dolphins are squid specialists. Both of the stranded Risso's contained hundreds of squid beaks and a few fish lenses. None of the digestive tracts examined in 2003 yielded plastic or other human debris.

ACKNOWLEDGEMENTS

During the year, several employees assisted with the recovery of stranded marine animals on ASIS. Assistance included discovery and reporting from the field, protecting the animal from the surf or scavengers, or transporting a dead carcass from the beach. It also included persons in the office who reported the animal and made arrangements with the stranding team for recovery. Most stranding events this year occurred during the summer, when employee workloads were the heaviest. Their willingness to assist was appreciated by the ASIS RM staff as well as the cooperating agencies.

Undoubtedly, the initiation of the MMSTSN provided an organized system that has proven beneficial in documenting stranded species. While Assateague beaches are only a small portion of shoreline in

this region, the information collected from all marine animals is important when management decisions regarding those species is necessary. The team members of this network include those working at the Cooperative Oxford Laboratory and National Aquarium in Baltimore. Their professionalism and dedication to marine animals and to the consistency of the recovery programs was evident and that was appreciated by ASIS RM staff.

Figure 1

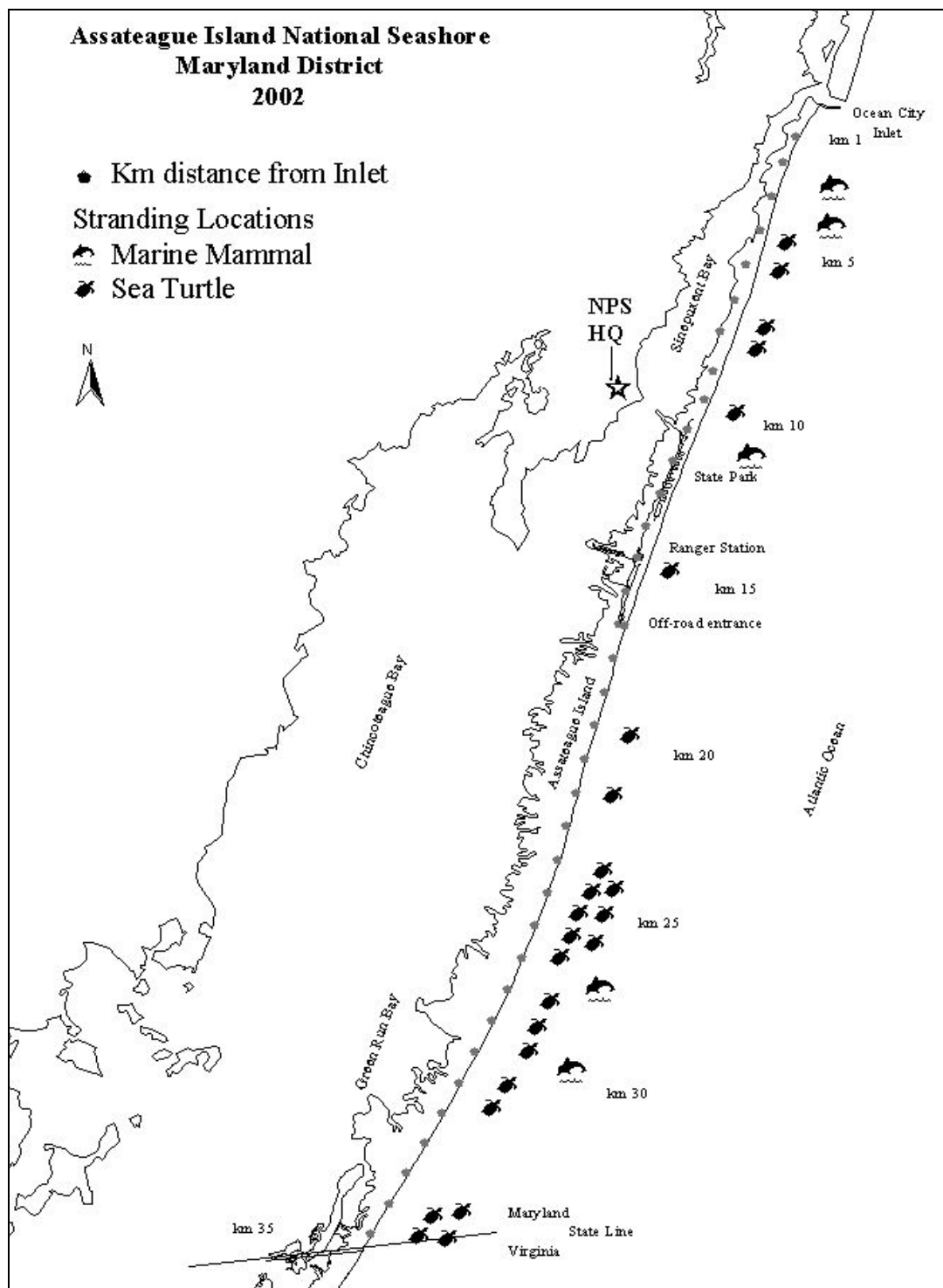


Figure 1. Approximate locations of Sea Turtle and Marine Mammal stranding locations, Assateague Island, Maryland, 2003

TABLES

Scientific Name - scientific name	Common Name – common name
Date - date of stranding	DNR ID- DNR identification number
Location – general location of animal	Northing – UTM northing
Easting – UTM easting	Alive? – animal alive? Yes No
Condition - condition of carcass	Human Act? - stranding caused by human act? Yes No Unknown
Sampled? – samples taken? Yes No	Disposed – disposition of animal/carcass
Burial Site - burial site	Notes – comments

Table 1. Field Definitions, Assateague Island National Seashore, MD, Stranded Marine Animals Database (Microsoft Office Access '97 for Windows 97/NT)

Common Name	Pre-1991	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Fin whale	*													
Humpback whale	*		1								1			
Northern Right whale													1	
Pygmy sperm whale	*													1
Sperm whale						1					1			
True's beaked whale	*													
Atlantic white-sided dolphin				1				1						
Bottlenose dolphin	*	1		3	2	1	3	1		1	1	3	4	7
Common dolphin							1				1	1		
Harbor porpoise	*			2	10	1	2	8	1	15	1	3		1
Long-finned Pilot whale				1						1				
Short-finned Pilot whale			3											
Risso's dolphin	*				1							1		2
Striped dolphin	*		1			1						1		2
Gray seal	*													
Harbor seal			1	1		1	1		1	1				
Harp seal							1		1			2		
Hooded seal								1				1		
Green turtle											1			
Kemp's Ridley turtle													1	
Leatherback turtle						1					2	2	2	2
Loggerhead turtle	*	6	7	8	6	6	9	5	3	4	6	15	23	3

Table 2. Historic Marine Animal Strandings at Assateague Island National Seashore, MD