



Cape Hatteras National Seashore Marine Mammal Strandings and Seal Sightings

2018 Summary



ON THE COVER

CAHA 426: Male Gervais' beaked whale that stranded on Ocracoke, North Carolina in May 2018.
Photograph courtesy of Lisa Loos; via the Ocracoke Observer

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2018 Summary

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Abstract

Cape Hatteras National Seashore (Seashore), located on the Outer Banks of North Carolina, experiences a high number of marine mammal strandings each year. This includes cetaceans (whales, dolphins, and porpoises), pinnipeds (seals), and on rare occasions sirenians (manatees). In 2018, 38 strandings were documented, which is below the 10-year average of 52 strandings. Seven species were stranded, the majority of which were bottlenose dolphin (*Tursiops truncatus*). Most strandings occurred on Hatteras Island. Nine animals were live stranded, which is higher than the typical two to three animals, and most notably included three beaked whales (*Mesoplodon* spp.) and a short-finned pilot whale (*Globicephala macrorhynchus*). Of those nine animals, four were euthanized, three were pushed back into the ocean by members of the general public, and two died on their own.

Given its proximity to the continental shelf, the Seashore continues to be the most likely location of marine mammal strandings, accounting for 56% of all animals on the Outer Banks and 33% of all North Carolina strandings. Two animals were documented as having human interaction lesions; the lesions on both animals suggested fisheries interactions.

Introduction

Cape Hatteras National Seashore (Seashore) was established to preserve significant segments of unspoiled barrier islands along the Outer Banks of North Carolina from Nags Head, NC, to Ocracoke Inlet. The Seashore's 67-mile long series of dynamic barrier islands face the Atlantic Ocean on the east side and the Pamlico sound on the west side. The waters off the Outer Banks, known for their history, hurricanes, and shipwrecks, also happen to be a hotspot for marine mammal activity, and unfortunately, strandings. A stranding is defined as a marine mammal found on the beach that is unable to return to the water on its own and they can occur any time of the year. Recorded strandings date back to 1884, and the Outer Banks likely has the longest running record of marine mammal strandings in the world.

The barrier island chains of the Seashore extend into the Atlantic Ocean in very close proximity to the continental shelf. There are three main islands: Hatteras, Bodie, and Ocracoke. The waters around these islands are influenced chiefly by the collision of the southern Gulf Stream and the northern Labrador Current just off the coast. The surrounding water temperatures can vary considerably as a result. At any

given time, a wide diversity of marine mammals swim and feed very close to the Seashore. The warmer temperatures of the Gulf Stream bring southern species closer to the islands while the colder temperatures of the northern Labrador Current bring northern species closer to the islands. This increases the chances of marine mammals becoming stranded on the Seashore beaches. Additionally, fisheries operations, strong hurricanes and Nor'easters, and infectious diseases may adversely affect mammal health and lead to a higher risk of stranding events along the Seashore.

A variety of military training exercises occur on a yearly basis along the east coast from Virginia to Florida; some include sonar. There is experimental evidence suggesting that anthropogenic sonar disorients and causes harm to marine mammals (Richardson 1995). The Outer Banks Marine Mammal Stranding Network (OBXMMSN) is notified prior to these military activities and given special instructions if unusual strandings should occur during the exercises. In the case of single stranded animals, National Oceanic and Atmospheric Administration (NOAA) personnel are notified immediately.



Cape Hatteras National Seashore. NPS



A short-finned pilot whale calf that live stranded in North Avon and was euthanized. NPS

Over time, the Seashore has recorded individuals from a resident bottlenose dolphin population that resides in the local coastal environment, with some individuals exceeding 50 years of age. Due to their year-round presence in social groups, bottlenose dolphins are the most commonly stranded species at the Seashore.

The Seashore provides approximately 70 miles of Oceanside shoreline for seals. The colder, northern waters of New England and Canada are home to multiple species of seals that reside there year-round. Seals will travel away from these areas in search of food when ocean conditions (temperature) are favorable. When ocean temperatures on the Outer Banks plummet during winter and spring months, seal sightings are a common occurrence at the Seashore. Seals can be found “hauled out” to rest, avoid predators,

and for thermoregulation on Seashore beaches. Four species of pinnipeds have been documented on the Seashore: harbor seals (*Phoca vitulina*), gray seals (*Halichoerus grypus*), hooded seals (*Cystophora cristata*), and harp seals (*Pagophilus groenlandica*). By far, the most common species documented on Seashore beaches is the harbor seal. Most seals observed at the Seashore are young animals, approximately four months to two years old, and as such are often in various stages of body condition. The largest documented haul-out site within the Seashore occurs on Green Island (SW of Bonner Bridge), where more than 30 individuals have been observed at one time.

Each year, we monitor Seashore beaches for stranded marine mammals and live seals. In this report, we summarize the 2018 stranding and seal sighting data at Cape Hatteras National Seashore.

Methods

By adhering to the Seashore’s cetacean response and pinniped response protocols (NPS 2017a, b), National Park Service technicians locate live and dead marine mammals by patrolling the beaches of the three islands daily using a 4x4 truck or utility terrain vehicle, and conducting walkthroughs on the Pamlico sound side of the islands during winter and spring. Technicians also receive and respond to many strandings reported by the general public and the Outer Banks Marine Mammal Stranding Network (OBXMMSN), of which the Seashore is a member. The network is chiefly comprised of the National Park Service and the North Carolina Wildlife Resources Commission, and is governed by the North Carolina State Stranding Coordinator based out of the University of North Carolina—Wilmington. Any member of the OBXMMSN can assist with any live or dead stranding event.

Once an animal is found, the condition of the animal is assessed to first determine whether it is alive or dead. If dead, the state of decomposition is assessed and if fresh or only moderately decomposed, a

necropsy is conducted with the goal of determining what may have contributed to the stranding. Tissue samples are taken from each animal, preserved, and transferred to university research labs where they are used for research projects. In some cases, animals are found alive. Generally, due to the animal’s poor condition and the lack of rehabilitation facilities, trained staff administer chemical euthanasia. University researchers, typically from University of North Carolina—Wilmington or North Carolina State University, regularly receive tissue samples from the Seashore for histological analysis and assist with large-whale strandings.

The seals haul out on Seashore beaches primarily from December to April. They are generally healthy and strict monitoring protocols are followed to safely observe the seal at a distance so as not to alter its behavior. An intervention is acceptable only if an abnormality is observed (e.g. poor health, entanglement, broken appendage, open wounds). If necessary, a capture and rehabilitation plan is devised and implemented by OBXMMSN members.



A live stranded pregnant female bottlenose dolphin (2018). NPS

Results and Discussion

Strandings

In 2018, there were 38 strandings recorded at the Seashore, with the peak occurring in the summer–fall transition (September; Figure 1). It is unusual for the peak to occur this late in the year, and is the result of an unusually high number of beaked whale strandings in September. The majority of the strandings, however, were observed in the winter-spring months; this follows the typical annual pattern of strandings for the Seashore. There were no strandings observed in June, July, and October.

Given its size and characteristic protrusion near the Gulf Stream, Hatteras Island typically encounters the most marine mammal strandings (Figure 2). Both Bodie and Ocracoke Islands had an average number of strandings and accounted for approximately one-quarter of the 2018 strandings.

The condition in which an animal arrives on the beach determines the level of data collection and sampling that follows. Very few animals experienced advanced stages of decomposition in 2018 (Figure 3). This is fortunate because advanced necropsy and sampling (histological, genetic, pathological, clinical, life history) can be carried out on less decomposed animals to provide further insight into potential cause of death or reason for stranding. Nine animals (24%) were live stranded. Four of these, three bottlenose dolphins and a short-finned pilot whale, were euthanized while two animals, a Gervais’ beaked whale and bottlenose dolphin, died on their own on site. The remaining three, a spotted dolphin (*Stenella frontalis*) and two beaked whales, were pushed back out into the ocean by the general public before staff members could arrive to assess the health of the animals.

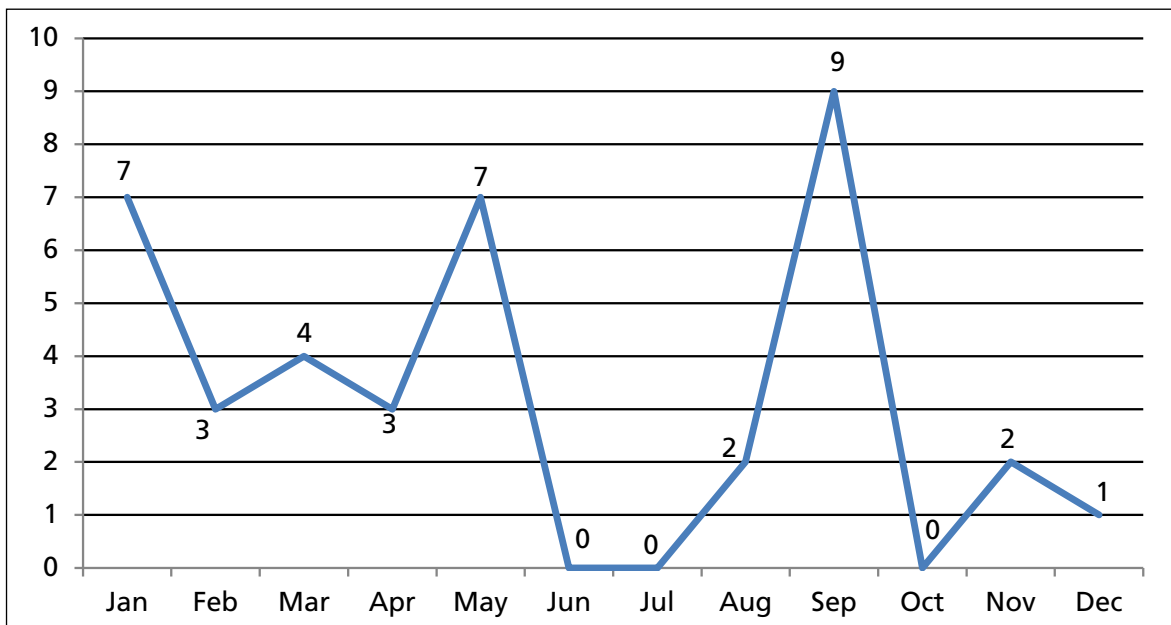


Figure 1. Marine mammal strandings by month at Cape Hatteras National Seashore, North Carolina, in 2018.

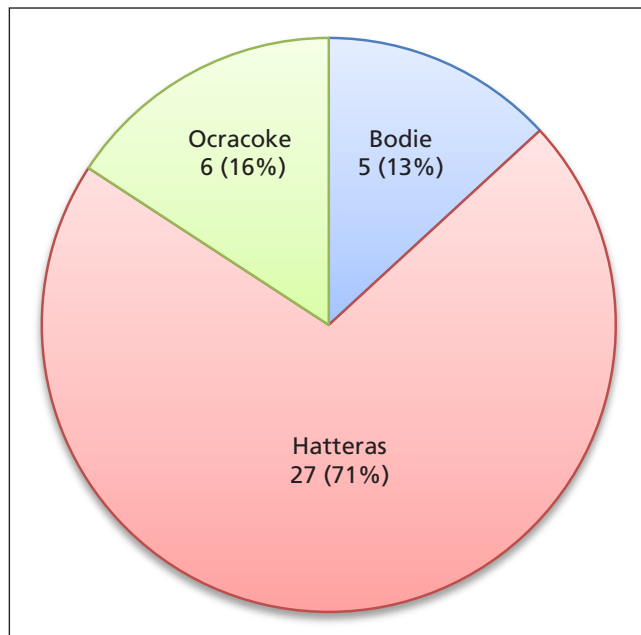


Figure 2. Strandings by island at Cape Hatteras National Seashore in 2018.

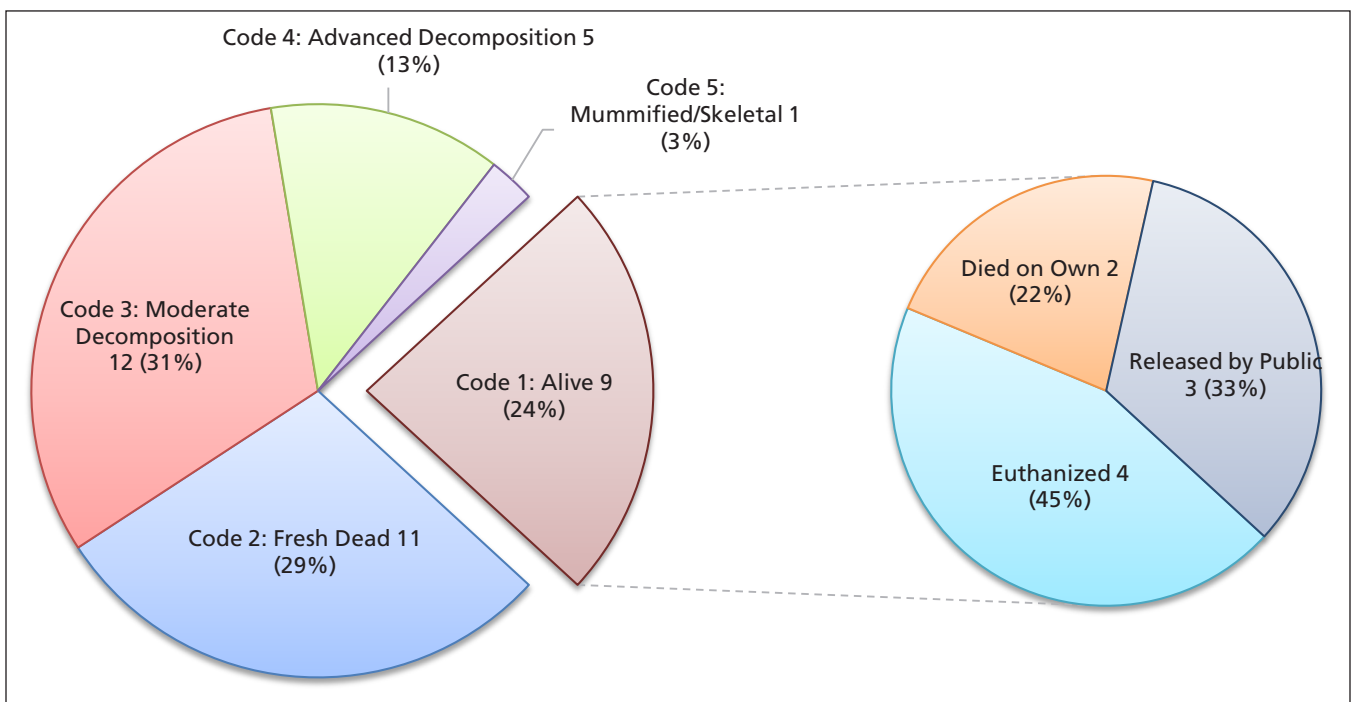


Figure 3. Condition codes of 2018 marine mammal strandings at Cape Hatteras National Seashore.

Seven stranded species were observed in 2018, which is within the range of stranded species (6–14) typically observed (Figure 4). One yearly trend that remains unchanged is the abundant presence of stranded bottlenose dolphins; 55% of 2018 animals were bottlenose dolphins, which is within the historical range. Three pinnipeds, harbor

seals, were documented as stranded in the winter/spring months; two were fresh dead and one was in advanced stages of decomposition. An unusually high number of beaked whales (6) stranded on Seashore beaches in 2018. Two Gervais’ beaked whales stranded on Ocracoke in early May; one alive and one fresh dead. In September, two Gervais’ beaked

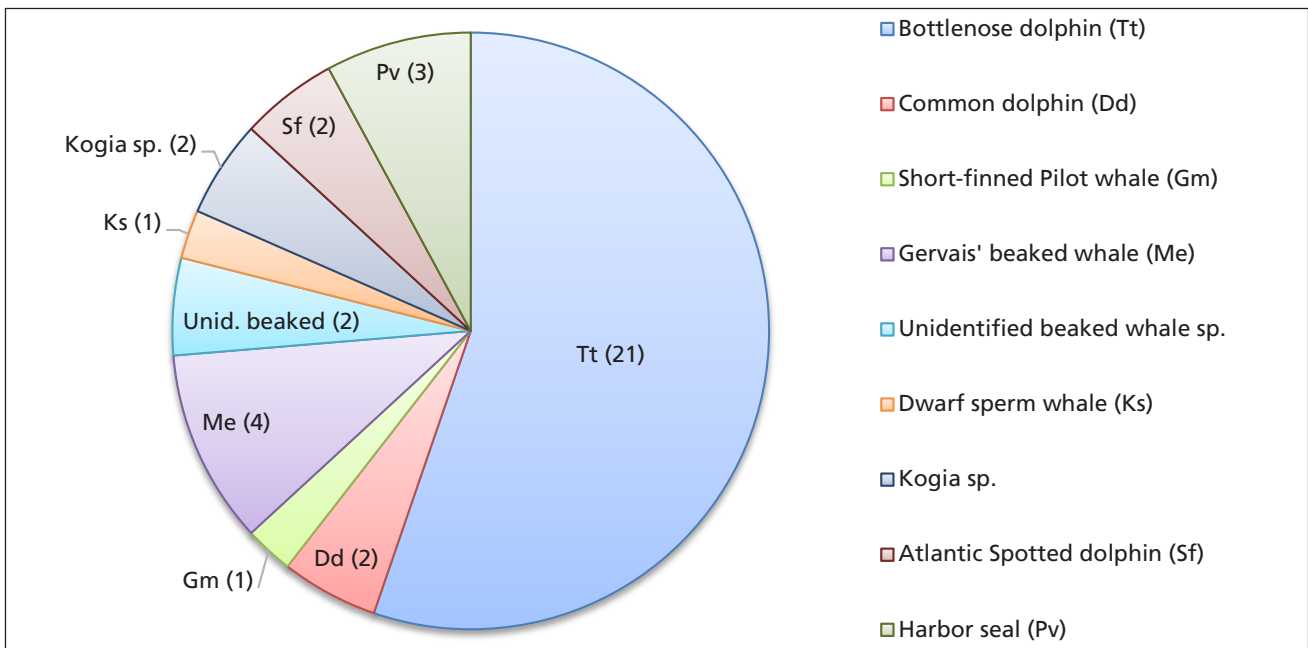


Figure 4. Species and number of individuals stranded at Cape Hatteras National Seashore in 2018.

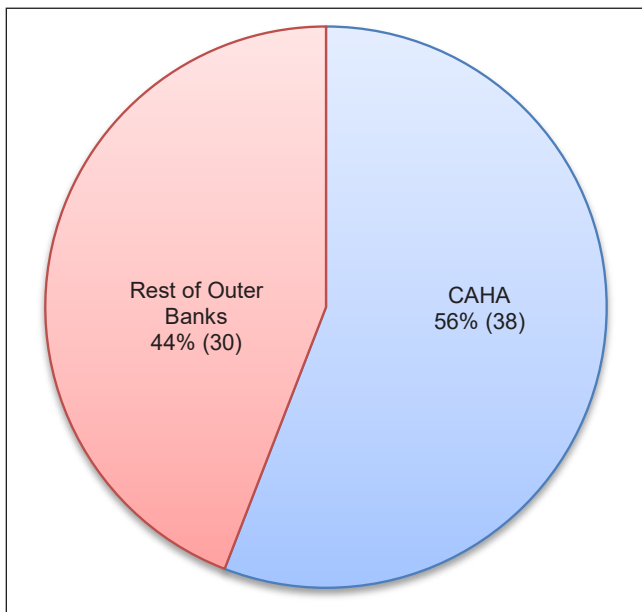


Figure 5. Comparison of strandings at Cape Hatteras National Seashore (CAHA) to strandings in the rest of the Outer Banks (2018).

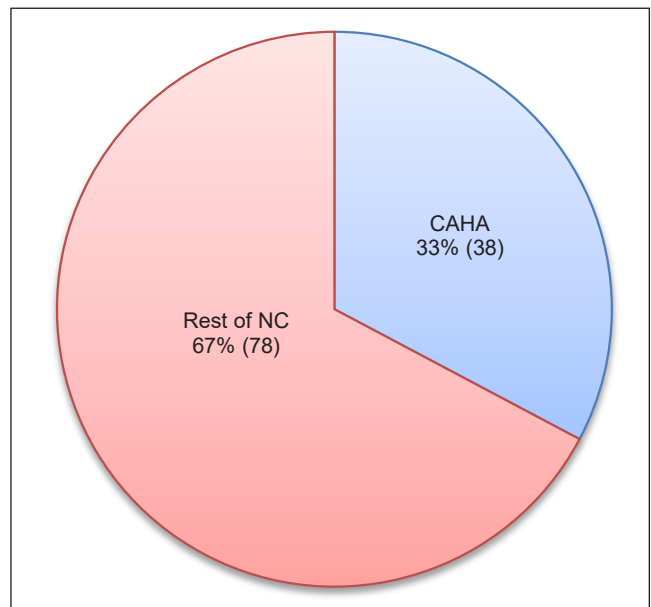


Figure 6. Comparison of strandings at Cape Hatteras National Seashore (CAHA; 67 miles of shoreline) to strandings in the rest of North Carolina (~322 miles of shoreline).

whales and two unidentified beaked whales stranded within a one-week period. The four Seashore animals in September are part of a state total of eleven beaked whales that stranded during the same weeklong period (September 14 to September 21). The unusual stranding event came soon after Hurricane Florence passed over the region and may be associated with this significant storm event.

The marine mammal strandings documented in 2018 at the Seashore encompassed over 50% of total strandings documented on the Outer Banks and roughly one-third of total North Carolina strandings (Figure 5 and Figure 6, respectively).

Table 1. Observations of human interactions associated with marine mammal strandings at Cape Hatteras National Shore, North Carolina, in 2018.

Field ID	Species	Type	Human Interaction Case Description
CAHA422	Tt	Fisheries Interaction	The animal had healed lesions at the insertion of both pectoral fins. There are also healed lesions at the peduncle; dorsal and lateral.
CAHA434	Tt	Fisheries Interaction	The animal had evidence of fresh fishing interaction (line impressions/lacerations) at both pectoral fins, the fluke, the head and mandible, and the peduncle.

Human interaction is one common stranding element that is observed on a yearly basis. Whether or not human interactions directly contributed to each animal stranding remains hard to determine. Examples of human interactions include entanglement (fishery), hooking, ingestion of unnatural material, vessel trauma (e.g. boat-strike or propeller hits), gunshot, harassment, or mutilation. Of the 38 stranded animals recorded on the Seashore, two (5%) showed signs of human interaction (Table 1). Both cases of human interaction involved bottlenose dolphins; both having lesions consistent with fisheries interactions.

Live Seal Sightings

In 2018, seal presence was abundant on the Seashore and occurred from January through April. Two

species of seals were documented on the Seashore for a total of 37 sightings (some sightings are of the same individual). Generally, the most common seal observed at the Seashore is the harbor seal (*Phoca vitulina*); 22 individuals were observed out of the 28 separate harbor seal sightings. Gray seals (*Halichoerus grypus*) were also present in 2018, one sighting in March (Figure 7) and the rest in April. Three individuals comprised the six total gray seal sightings.

Harp seals (*Pagophilus groenlandica*) are less common; none were observed in 2018. Three unidentified seal sightings occurred. The majority of seal sightings this year occurred on Hatteras Island, with a few on Bodie Island and one on Ocracoke Island. Monthly, this can be summarized as 18 in January, six in February, five in March, seven in April, and one in December.



Figure 7. Grey seal near Coquina Beach on March 26, 2018.

Historically, the south end of Green Island has been used by harbor seals as a haul-out site; therefore, a sighting doesn't necessarily imply one individual. Previously, up to 33 seals have been observed resting on the island; however, none have been observed since the spring of 2015. Dredging and bridge-building equipment has been present at Oregon Inlet for multiple years, which is 0.4 miles from the Green Island haul-out site. The reduction in seal activity in/around Oregon Inlet may be attributed to the large equipment and anthropogenic noise within the 0.3-mile-wide inlet and the associated bridge construction project. Additionally, multiple storm systems during the spring months have taken a toll on the island. All vegetation has been washed away, and the island now exhibits shoal-like characteristics. Staff will continue to monitor this area into the future to determine if seals will return.

Atlantic Fleet Training and Testing

A variety of military training exercises associated with Atlantic Fleet Training and Testing (AFTT) occur on a yearly basis along the east coast from Virginia to Florida; some include sonar. There is experimental evidence suggesting that anthropogenic sonar disorients and causes harm to marine mammals (Richardson, 1995). The Outer Banks Marine Mammal Stranding Network (OBXMMSN) is notified prior to these military activities and given special instructions if unusual strandings should occur during the exercises. In the case of live stranded animals, National Oceanic and Atmospheric Administration (NOAA) personnel are notified immediately. In 2018, the Seashore was notified of only one military training exercise, which occurred in February (Table 2). During this event, three

strandings were observed, all of which were bottle-nose dolphins. Two dolphins were fresh dead, while the third live stranded on Ocracoke Island and was euthanized.

Table 2. Military training exercise (MTE) activity and associated strandings during 2018.

Military Training Exercise	Duration	# Strandings
MTE 1 (NC-FL)	26 Days (2/1–2/26)	3

Historical Data

The Seashore receives a large portion of the total strandings in the Outer Banks and the state of North Carolina (Figures 8 and 9). Strandings on the Seashore accounted for an average of 52 individual animals per year from 2009 to 2018. This is an average of nearly two-thirds of all Outer Banks strandings and one-third of all North Carolina strandings during this same period.

Since 2001, there has been a consistent effort in locating and documenting stranded marine mammals on the Seashore; animals were located by an established stranding network. The number of strandings at the Seashore has varied from 29 to 103 individuals, and a recent noticeable decreasing trend is observed beyond 2013 (Figure 10). Due to the Seashore's close geographic position to the continental shelf (and Gulf Stream), the range of 29 to 103 individuals is still high compared to bordering states that are farther from the shelf (i.e. Virginia and South Carolina). This trend is expected to continue into the future.

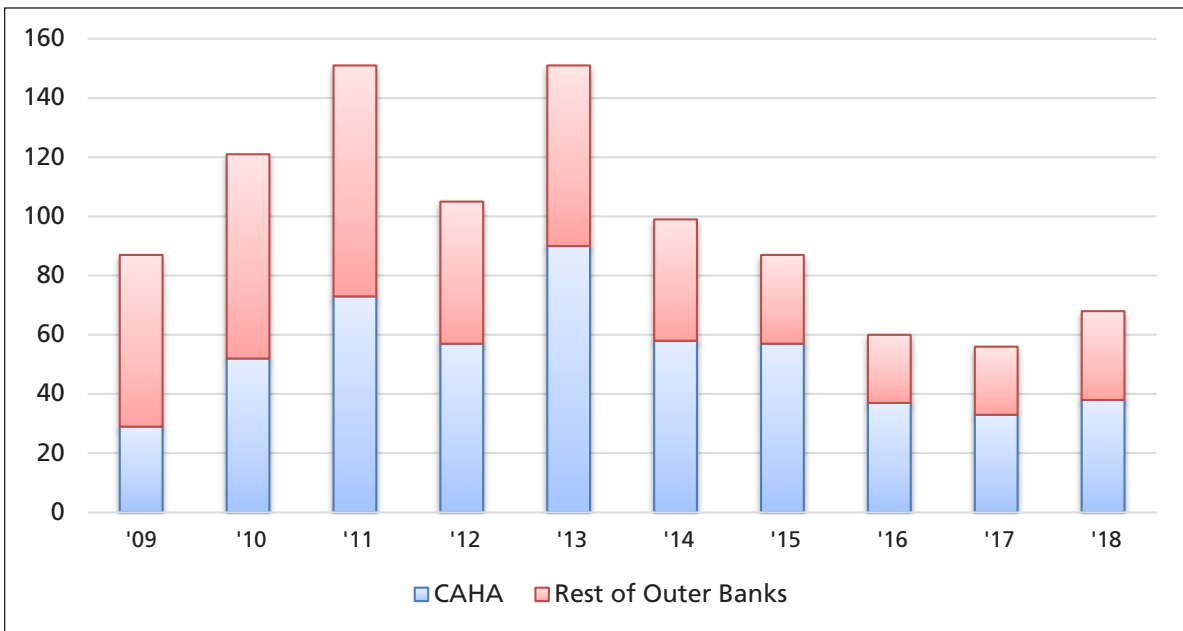


Figure 8. Stranding history at Cape Hatteras National Seashore (CAHA) compared to the rest of the Outer Banks.

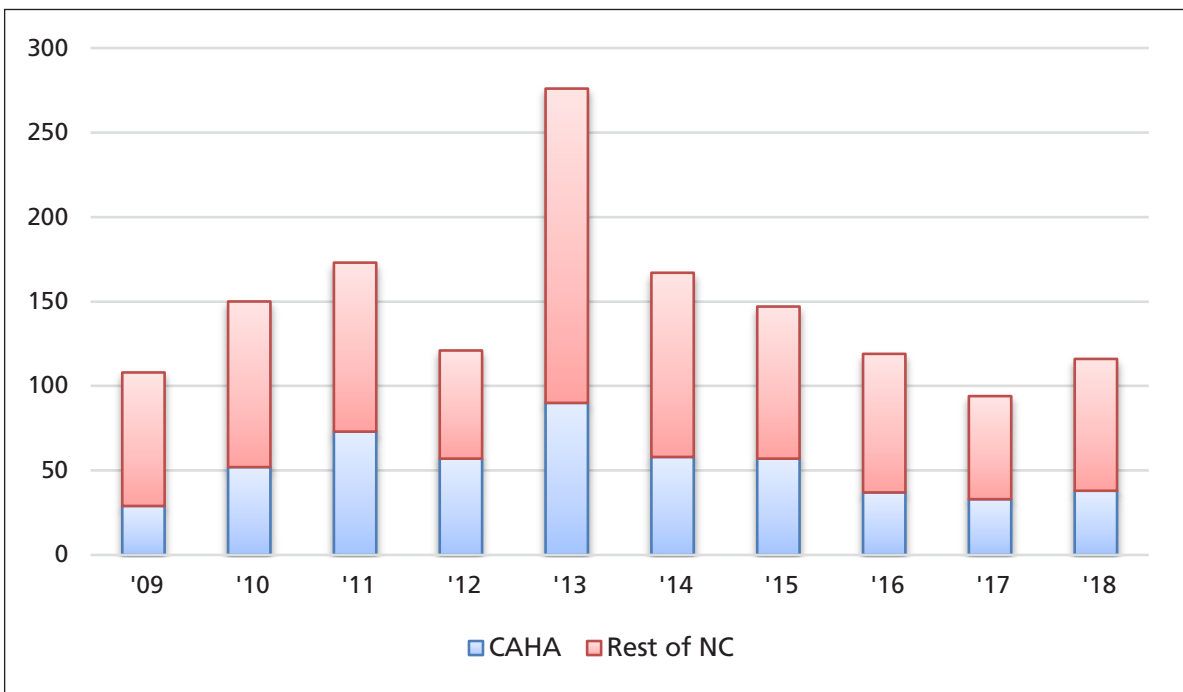


Figure 9. Stranding history at Cape Hatteras National Seashore (CAHA) compared to the rest of North Carolina.

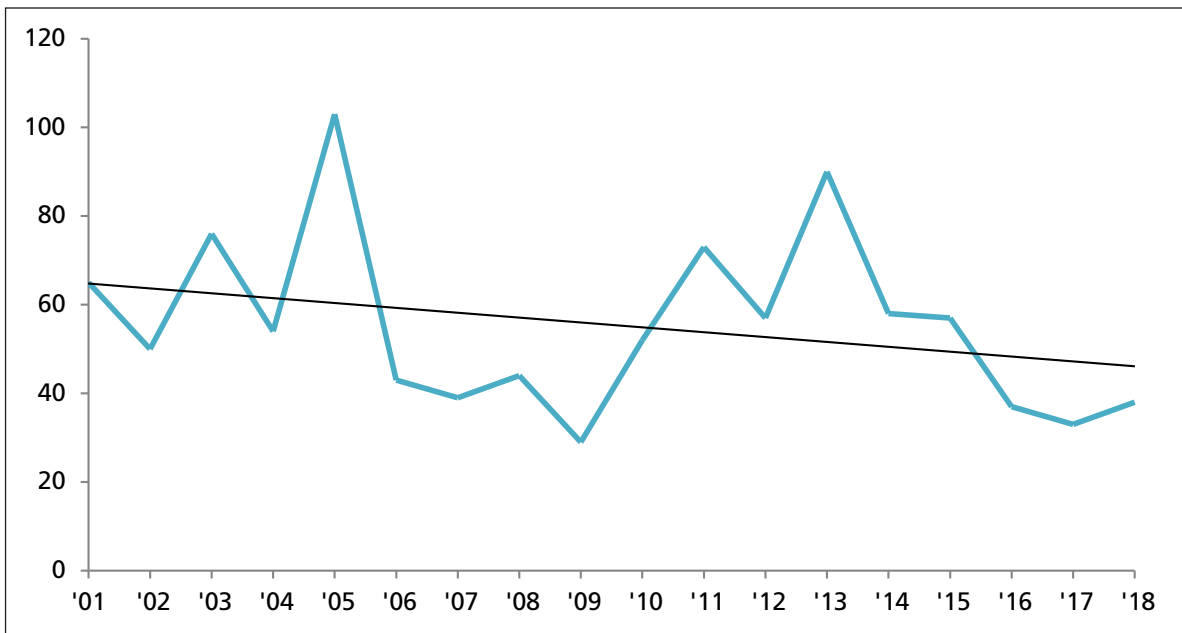


Figure 10. Historical stranding numbers on the Seashore, 2001–2018.

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