National Park Service
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Natural Resource Stewardship and Science

Sea Turtle Monitoring and Management at Cape Hatteras National Seashore

2017 Annual Report

Natural Resource Report NPS/CAHA/NRR—2018/1652



ON THE COVER
Sea turtle nesting at Cape Hatteras National Seashore
Photography by NPS

Sea Turtle Monitoring and Management at Cape Hatteras National Seashore

2017 Annual Report

Natural Resource Report NPS/CAHA/NRR—2018/1652

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Abstract

Cape Hatteras National Seashore (Seashore), located on the Outer Banks of North Carolina from Nags Head, NC to Oracoke Inlet, contains many ecologically important habitats including those that support sea turtles. Sea turtle nesting activity is monitored annually on the Seashore from May through September. In 2017, 250 sea turtle nests (240 loggerhead, and 10 green) and 219 false crawls (208 loggerhead, 9 green, and 2 unidentified crawls) were documented at the Seashore. The first nesting activity was documented on May 9 and the last nesting activity was documented on September 30. The mean number of eggs per nest (clutch size) was 112.8. Mean hatch success for all nests was 60.5% while mean emergence success was 53.4%. Seashore staff found 0.8% of eggs depredated and 0.1% of the hatchlings lost. Significant storm and tide events resulted in 13 nests washed away, 41 complete nest failures and 24 partial nest failures. Pedestrian, ORV, and dog intrusions were documented in protected areas, but there was no evidence that these intrusions affected nest success. The Seashore documented 280 stranded sea turtles in 2017.

Acknowledgments

We would like to thank David Hallac, Stacey Sigler, Jon Altman and Kristin Legg for reviewing this report and our partners, Matthew Godfrey and Sara Schweitzer, with the North Carolina Wildlife Resources Commission who provided technical assistance throughout the year.

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 Seashore contains ecologically important ecosystems including habitat for sea turtles. Five species of sea turtles nest on the Seashore's beaches: loggerhead (*Caretta caretta*), green (*Chelonia mydas*), leatherback (*Dermochelys coriacea*), hawksbill (*Eretmochelys imbricata*), and Kemp's ridley (*Lepidochelys kempii*). In the 1970's the leatherback, Kemp's ridley, and hawksbill were listed under the Endangered Species Act as endangered and the loggerhead and green as threatened.

Non-breeding sea turtles of all five species can be found in the near-shore waters during much of the year (Epperly et al. 1995). The Seashore lies near the extreme northern limit of the nesting range for four of the five sea turtle species: the loggerhead, green, Kemp's ridley and leatherback. Hawksbill sea turtles are only known to exist on the Seashore through strandings and very rare nesting activity.

The Seashore has been monitoring sea turtle activity since 1987, and standard monitoring protocols have been developed during this time. Sea turtle monitoring and management at the Seashore follows management guidelines defined by the North Carolina Wildlife Resources Commission (NCWRC) in the *Handbook for Sea Turtle Volunteers in North Carolina* (NCWRC 2006), U.S. Fish & Wildlife Service (USFWS) species recovery plans (NMFS and USFWS 1991, 1992, 1993, 2008; NMFS, USFWS, and SEMARNAT 2011), and the Cape Hatteras National Seashore Off-Road Vehicle Management Plan, as amended by the Review and Adjustment of Wildlife Protection Buffers Environmental Assessment (NPS 2010a, 2010b, 2015a, 2015b).

Cape Hatteras National Seashore Off-Road Vehicle Management Plan

The Off-Road Vehicle (ORV) Management Plan protects resources, minimizes conflicts among users, and promotes visitor safety. The ORV Management Plan includes establishment of areas temporarily closed to public entry (such as protection areas around sea turtle nests) and requires that ORVs have a permit to drive on Seashore beaches. The ORV Management Plan was developed from 2007–2010 and was accompanied by a special regulation detailing requirements for ORV use at the Seashore. Copies of the plan and related documents are available at http://parkplanning.nps.gov/caha.



Off-road vehicle (ORV) on the beach, Cape Hatteras National Seashore. NPS

The National Defense Authorization Act of 2014 directed the Seashore to conduct a review of established wildlife protection buffers and modify them, based on peer-reviewed science, to the shortest duration possible and the smallest area possible. The Seashore made a decision to implement modified buffers (NPS 2015b) in June 2015 and those buffers were partially implemented in 2015 and fully implemented in 2016.

Cooperating Agencies and Organizations

The Seashore cooperates with the National Marine Fisheries Service, USFWS, and NCWRC on sea turtle protection. All nesting activity and stranding data are reported to the North Carolina Sea Turtle Program Coordinator at NCWRC through the SEATURTLE.ORG website. An annual permit is issued to the Seashore by NCWRC under the authority of the USFWS for the possession and disposition of stranded marine turtles and relocation of nests. Seashore resource management staff cooperate with Hatteras Island Ocean Center and Nerds Without Borders to install remote nest sensors and collect and analyze data on an annual basis. The Network for Endangered Sea Turtles (N.E.S.T.) assists NPS staff with cold stun surveys and transportation of lethargic sea turtles. The Sea Turtle Assistance and Rehabilitation (STAR) center with the North Carolina Aquarium on Roanoke Island receives and rehabilitates live stranded sea turtles found on the Seashore. The University of Georgia analyzes and reports results of an ongoing genetic study within North Carolina, South Carolina, and Georgia looking at the overall demographics of the Northern Recovery Unit for loggerhead sea turtles. Night time turtle monitoring staff were contracted through Coastal Science and Engineering for a beach nourishment project in the Buxton area that occurred during summer and fall 2017.

Methods

Nest Monitoring and Management

Per the Cape Hatteras National Seashore Off-Road Vehicle Management Plan, monitoring for sea turtle nest activities starts on May 1 annually, but in 2017, monitoring for sea turtle nests began on April 30 so that staff could become familiar with shoreline features. Patrols were conducted in utility task vehicles (UTVs) or 4X4 trucks in the morning, beginning between 4:30 a.m. and 5:00 a.m. Staff observed the beach looking for characteristic crawl patterns indicating that sea turtles emerged from the ocean to attempt nesting. Each occurrence of nesting activity was recorded as either a false crawl or a nest. The location of each nest was recorded using Global Positioning System (GPS) devices and distances from the nearest ORV ramps and other beach access points (in miles rounding to the nearest tenth of a mile).

All nests were confirmed by locating eggs at the dig site; sediment was excavated to a depth of approximately 15–30 cm. One egg was taken from each clutch for DNA research purposes. If no eggs were laid, the nesting activity was considered a false crawl and recorded by collecting a GPS location at the apex of the crawl. In order to maximize sea turtle nest success, monitoring staff evaluated each nest to determine if relocation was advisable. Results of a 2017 annual habitat assessment, current beach conditions, the NCWRC recommendations (NCWRC 2006, pgs. 14–16), and guidance provided by North Carolina Sea Turtle Program Coordinator were all used to help make these decisions daily. Relocation methods recommended by NCWRC, found in the *Handbook for Sea Turtle Volunteers in North Carolina* (NCWRC 2006), were followed. Sea turtle monitoring data were reported to NCWRC using the Sea Turtle Nest Monitoring System through the SEATURTLE.ORG website. Monitoring efforts to locate new nests ended October 14, two weeks after the last nesting activity was observed.

All nests were protected from human disturbance by installing a 10-m x 10-m signed area around the nest site. After 50–55 days of incubation, or earlier if hatch activity was observed, the protected area was expanded to 30 m wide (15 m on either side of a nest site) and extended to the water line. In addition, black filter fence was installed around each nest and extended just above the average high tide lines. The filter fence stands roughly 36 inches above the surface of the sand and reduces artificial light pollution from housing, beach fires, ORV headlights, and flashlights in the immediate area. Ultimately the filter fencing shielded much of the artificial light produced and helped funnel hatchlings to the ocean unaided. These larger enclosed areas protected the nest site



A protected seat turtle nest at Cape Hatteras National Seashore. NPS



A loggerhead sea turtle crawl on the beach, Cape Hatteras National Seashore. NPS

and potential hatching events from excessive human disturbance and allowed for a disturbance-free area for emerging turtles to reach the ocean. Each nest site was checked daily and any disturbance or hatching events were recorded.

Approximately three to five days after an initial hatching event, nests were excavated and the protection areas were removed. The remaining egg shells, unhatched eggs, and live/dead hatchlings were counted to determine hatch and emergence success for each nest excavated. Hatching success is the percentage of eggs in a nest that produce hatchlings. Mean hatch success rates were calculated by taking the mean of all the individual nest hatch successes. Emergence success is the total number of hatchlings that emerged unaided from the nest cavity relative to the total number of eggs in the nest. Mean emergence success was calculated by taking the mean of all the individual nest emergence successes. Any hatchlings found during excavations were not considered to have emerged. Any nest that had an inventory date or was marked as lost was included in these calculations (Appendix A). Live hatchlings discovered during nest excavations were collected and released at or after dusk on the same day.



A loggerhead sea turtle hatchling, Cape Hatteras National Seashore. NPS

Late Nest Management

Any new nest discovered on or after August 21 in any year is considered a late laid nest. Following NCWRC recommendations, after 90 days of incubation, excavations began on any late laid nests (NCWRC 2006). If a viable embryo was observed, the excavation ended and the nest was left in place. If hatching activity was not observed after 100 days of incubation, the nest stayed in place and the protection area was reduced back to a 10-m x 10-m square area, thus eliminating any beach access issues. The eggs were checked approximately every 10 days for viability. Nests were fully excavated and protection areas were removed when no viable embryos were observed.

Beach Nourishment

In the 2017 nesting season, a beach nourishment project occurred that involved dredging sand from offshore and pumping it onto the shoreline. This project was contracted through Dare County to increase beach area in the Buxton Village area in order to protect Highway 12 from ocean overwash. The project area extended for approximately 2.9 miles. Due to the inherent risk to the eggs and hatchlings from heavy equipment operating on the beach, and large pipes blocking access to the ocean, all nests laid in the project area were relocated. Night time turtle monitoring staff were contracted through Coastal Science and Engineering to patrol the active work zone (100-200 m) each night to identify nesting females and locate nests. When a nest was located, monitoring staff informed NPS staff immediately and all nourishment activity was halted until the nest was relocated outside of the project area. The non-active work zones were patrolled by NPS staff no later than 7 a.m. each day.

ORV Corridors

When ORV corridors could not be established behind nests on ORV beaches, and there were no alternative ORV access routes, ORV corridors were established on the seaward side of nests. This is a modified sea turtle management action from the 2015 Environmental Assessment: Review and Adjustment of Wildlife Protection Buffers (NPS 2015a, 2015b). When nests meeting these conditions were located, Seashore staff and volunteers intensively monitored the nests and smoothed out ORV tire ruts (between 6 p.m. and 9 p.m. each night). Nests were monitored when their protected areas were expanded (at around 50 – 55 days of incubation) until the night before the nest was excavated.

Depredation/Loss

NPS resource management staff documented sea turtle egg and hatchling loss as part of their routine monitoring efforts throughout the nesting/hatching season. Evidence of loss from humans, terrestrial mammals, and birds was documented when observed. In addition, loss due to collection of permitted research samples was recorded.

Storm, Tide, and Overwash

Seashore staff monitored nests for loss due to storms, tide, and overwash and recorded the loss as washed away, complete failure, or partial failure. Washed away is defined as a nest that no longer exists in the ground and, thus was unable to be inventoried. Complete failure is defined as a nest that showed 0% hatch and 0% emergence upon inventory of the nest. Partial failure is a nest that produced a low percentage of emergence.



A green sea turtle nesting at Cape Hatteras National Seashore. NPS

Incidental Take/Human Disturbance

All species of sea turtles nesting at the Seashore are protected under the Endangered Species Act of 1973. Under this act, "take" is any human induced threat to a species that is listed. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, capture or collect, or to attempt to engage in any such conduct." Harm is further defined to include significant habitat modification or degradation that results in the death or injury of listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Much of the Seashore's shoreline remains open to pedestrians and Seashore staff is unable to monitor the entire shoreline for nesting turtles 24 hours a day. While it is difficult to determine whether human activities have disrupted or disturbed sea turtle nesting, Seashore staff minimized these potential effects by closing the shorelines to non-essential ORV use from 9:00 p.m. until 6:00 a.m. to provide for sea turtle protection.

Protected Area Intrusions

Intrusions into protected areas are documented whenever possible by Seashore staff. Protected area intrusion is defined as observations of individual human or predator activity within protected areas and does not necessarily mean that any disturbance to nests or turtles occurred. Examples include pedestrians, ORV traffic, and pets that could harm a turtle nest site inside of a protective, fenced area. An instance is defined as each time (date) intrusions occur separately (e.g., one instance on May 30 led to 5 pedestrian intrusions at nest site NH003).

Artificial Lighting

Artificial light is known to disturb nesting females and disorient hatchlings. Outdoor lights, beach fires, and headlights may deter nesting females from laying their nests along stretches of optimal beach. Hatchlings use natural light to navigate toward the water. When artificial lights are brighter than the natural light reflecting off the surface of the ocean, hatchlings will become disoriented and crawl away from the shoreline and toward these brighter lights and the dunes. This causes hatchling mortality due to exhaustion and an increased chance of predation.

The Seashore continues to try and decrease the effects of artificial lighting on sea turtles. Since 2005, black silt fencing has been utilized around most turtle nests to decrease the amount of artificial light shone onto the beach, thereby decreasing the negative effects of light on hatchlings. In 2012, a Superintendent's Order was established that sets outdoor lighting guidelines within the Seashore boundaries. Since 2015, Seashore staff have continued their efforts to educate the public on artificial lighting by dispersing brochures to the public at sea turtle nests due to hatch or be excavated. Volunteer nest watchers also passed out brochures so they could educate the



Artificial light filter fencing at Cape Hatteras National Seashore. NPS

public as they waited for nests to hatch in the evening in areas where light pollution occurs regularly. Efforts were also made by staff and volunteers to encourage vacationers at their rental homes to shut off all artificial lighting not being used during nighttime hours.

Since 2012, the Seashore has regulated off-road night driving; headlights from vehicles can disturb nesting female turtles and hatchlings. Night driving was not permitted from May 1 through September 15 from 9:00 p.m. to 6:00 a.m. As of September 16, night driving was systematically reopened as nests were excavated and protected areas were removed.

Strandings

A stranded turtle is a non-nesting turtle that comes to shore either sick, injured, or dead. Data were collected for each reported or observed stranding. In an attempt to discover cause of death, necropsies were performed on dead strandings when possible. Live stranded turtles were transported to the Sea Turtle Assistance and Rehabilitation Center at the North Carolina Aquarium on Roanoke Island for treatment and recovery. All data were reported to NCWRC using the Sea Turtle Rehabilitation and Necropsy Database (STRAND) through the SEATURTLE.ORG website.

Based on cold weather patterns and average oceanside and soundside water temperatures, an increased effort to locate stranded turtles began in early November 2017 and continued throughout the winter due to the increased chance of "cold stunned" turtles. Cold stunning refers to the hypothermic reaction that occurs when sea turtles are exposed to prolonged cold water temperatures. Initial symptoms include decreased heart rate, decreased circulation, and lethargy followed by shock, pneumonia and possibly death" (http://www.nero.noaa.gov/prot_res/stranding/cold.html, accessed March 15, 2018). Searches for cold stunned turtles were emphasized on the soundside shorelines and inlets of the Seashore, where the majority of cold stunned turtles have been found in past years.

Turtle Sensor Studies: Hatteras Island Ocean Center/ Nerds without Borders

Starting in 2013, the Seashore collaborated with Samuel Wantman and David Hermeyer of Nerds Without Borders and Eric Kaplan of the Hatteras Island Ocean Center to develop a sensor that could monitor movement and temperature fluctuations in nests. The goal is to correlate these measurements with hatching and emergence events. The Seashore purchased the sensors and communication towers, and was responsible for implementing the project in the field during the 2013–2015 seasons. In 2016 and 2017, Seashore resource staff worked directly with a researcher from Hampden-Sydney College, who helped install sensors, collected monitoring data, and collaborated with Hatteras Island Ocean Center and Nerds Without Borders. Hatching events were predicted using data from the sensors (detecting movement only) and nest-specific monitoring data.



Nest sensor in a sea turtle nest, Cape Hatteras National Seashore. NPS

Genetic Study

Since 2010, the Seashore, along with all other North Carolina, South Carolina, and Georgia beaches, has participated in a genetic mark-recapture study of Northern Recovery Unit nesting female loggerheads using DNA derived from eggs. The study is coordinated by the Georgia Department of Natural Resources, the University of Georgia, and NCWRC. One egg from each nest was taken and sampled for maternal DNA. The sample allows each nest from North Carolina, South Carolina, and Georgia to be "assigned" to a nesting female. The ultimate goal of the research is to answer questions about the total number of nesting females in the population, the number of nests each female lays per season, the distance between nests laid by individual females, and other information that is important to understanding the population dynamics of sea turtles. More information can be found at http://www.seaturtle.org/nestdb/genetics.shtml.

Results

Nest Monitoring and Management

A total of 250 nests (240 loggerhead, and 10 green) were observed at the Seashore in 2017 (Figure 1). Of the confirmed nests, two (0.8%) were found on Bodie Island, 162 (64.8%) on Hatteras Island, and 86 (34.4%) on Ocracoke Island (Appendix B and E). This was the fourth greatest number of nests recorded in a single nesting season since monitoring began at the Seashore (Figure 1). The first nest was observed on May 9 and the last nest was observed on September 30. Peak nesting occurred between July 8 and July 14 (Figure 2). Preliminary DNA results from the samples collected at each nest indicate a total of 101 females utilizing Seashore beaches to nest, resulting in an average of 2.84 nests laid per female with a mean inter-nesting period of 14.99 days (Table 1; Godfrey, n.d.).

Nest Relocation

Of the 250 nests found in 2017, 72 (28.8%) were relocated (Appendix A). Most nests were moved due to natural factors including nests located at or below daily high tide lines or nests that were laid in an area susceptible to high erosion and flooding.

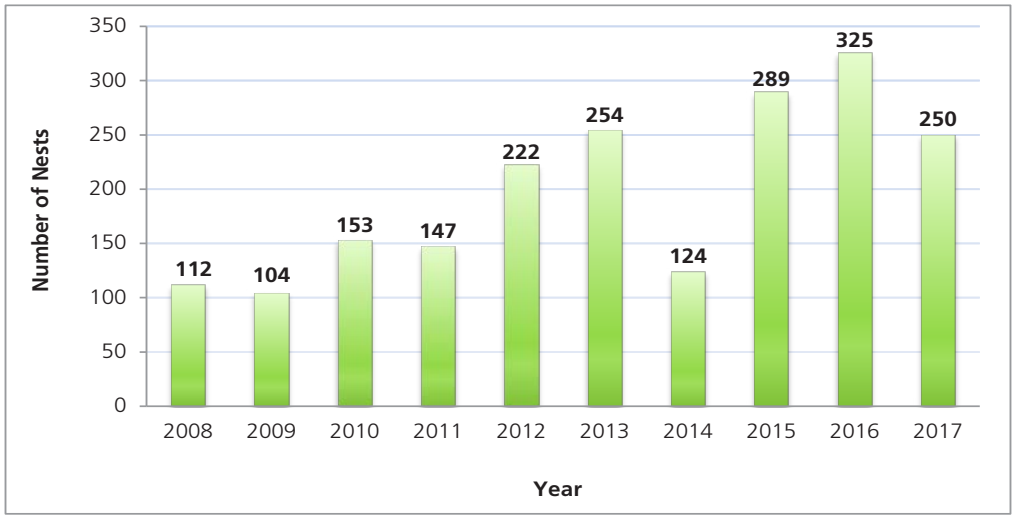


Figure 1. Sea turtle nests at Cape Hatteras National Seashore, 2008–2017.

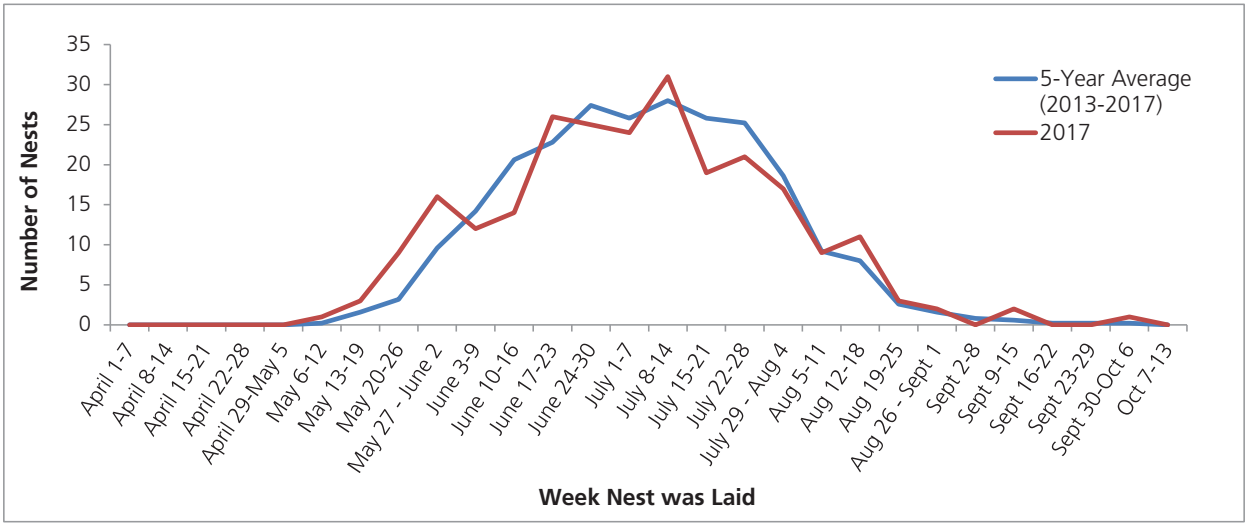


Figure 2. Number of nests laid per week in 2017 and averages of the previous five years by week at Cape Hatteras National Seashore.

Table 1. Number of Individual nesting sea turtles, number of nests per female, and mean internesting periods based on DNA results, Cape Hatteras National Seashore (2010-2017).

Year	Individual Nesting Females	Nests per female	Mean Inter-nesting Period
2010	87	1.97	14.14
2011	77	2.23	14.52
2012	113	2.24	14.6
2013	127	2.22	15.22
2014	64	2.06	14.83
2015	129	2.54	14.5
2016	142	2.61	13.92
2017[1]	101	2.84	14.99

Late Nest Management

In 2017, eight nests were laid after August 21, ranging from August 22 through September 30. Only one late nest showed any hatch activity at 68 days of incubation. Two nests perished due to inundation by multiple overwash events. One nest was lost to Hurricane Jose. Four nests incubated for 90, 120, 137, and 142 days respectively, but did not survive the colder winter temperatures.

False Crawls

During the 2017 breeding season, 219 false crawls or aborted nesting attempts were recorded. False crawls accounted for 46.7% of the 469 total turtle activities. Of the 219 false crawls, three (1.3%) were documented on Bodie Island, 146 (66.7%) on Hatteras Island, and 70 (32.0%) on Ocracoke Island (Appendix C and F). There were nine green, 208 loggerhead, and two unidentified sea turtle false crawls documented.

Beach Nourishment

One nest was laid in the active work zone on a night when the dredge was not operating. A total of 15 nests were laid within the nourishment project area and were relocated, comprising 22.2% of the 72 relocated nests for the Seashore in 2017.

Hatching

Mean clutch size was based on total egg counts at time of relocation from relocated nests only. Mean clutch count was 112.8 eggs per nest in 2017 (Table 2; Appendix A). Average incubation period of nests with known lay and emergence dates was 59.5 days. Incubation periods depend mostly upon sand temperature (Bustard and Greenham 1968);

Table 2. Sea turtle hatch summary 2001–2017.

Year	# of Nests	Avg. Clutch	Average Incubation (days)	Total Eggs	# Emerged	EMR%
2001	75	111.7	64.5	6257	3402	54%
2002	99	108.7	58.6	10108	7201	71%
2003	87	115.7	69.1	4627	2708	58%
2004	43	103.4	58.5	2999	1609	53%
2005	73	114.6	58	6072	4142	68%
2006	76	114.8	62.9	7059	4444	63%
2007	82	112.1	60.7	9078	6075	58%
2008	112	109.0	59.7	11573	5965	52%
2009	104	114.9	65	11121	3430	31%
2010	152	110.9	57	16300	7843	48%
2011	147	116	58	13661	6483	48%
2012	222	105.3	60.1	24107	17965	73%
2013	254	116.9	62.3	28863	16860	56%
2014	124	105.3	62.2	12474	6172	45%
2015	289	116.5	56.9	30168	15960	49%
2016	325	118.6	53.6	34359	20385	54%
2017	250	112.8	59.5	27313	15365	54%



Loggerhead sea turtle hatchlings crawling to sea at Cape Hatteras National Seashore. NPS

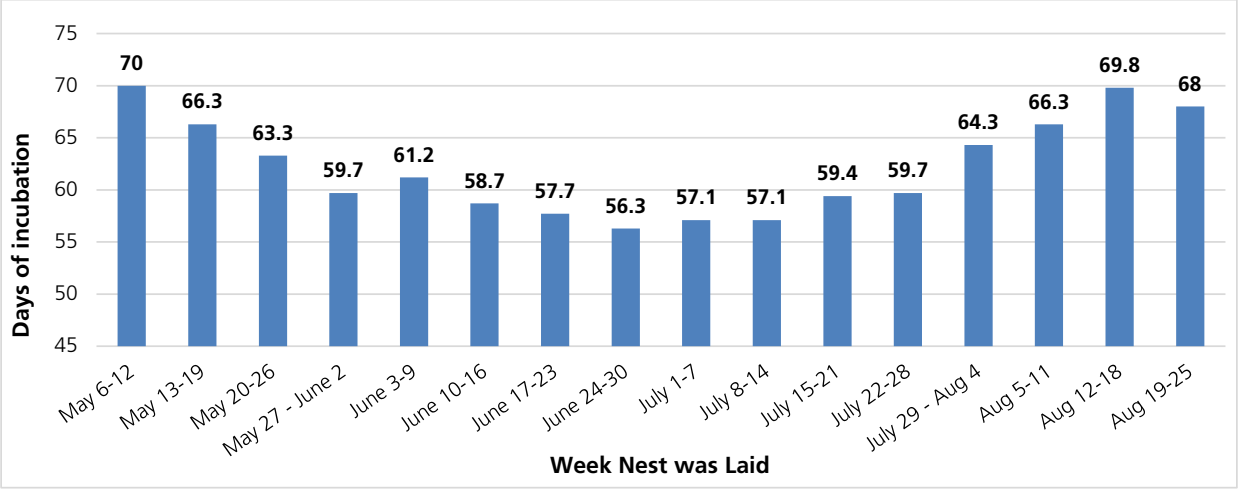


Figure 3. Mean incubation time (days) of sea turtle nests by week (2017) at Cape Hatteras National Seashore.

higher average temperatures during overall incubation decrease incubation periods while lower mean temperatures increase incubation periods. The 2017 mean incubation periods ranged from 56.3 to 70 days. All nests with known incubation days were organized by the week laid so a mean incubation period could be calculated and compared through the nesting season (Figure 3). The mean hatch success was 60.5% and the mean emergence success was 53.4% (Appendix A). Any hatchlings found during excavations, live or dead, were considered hatched but not emerged (Figure 4). Some emergences went undetected due to rain, wind, tides and storm events and were not counted in these calculations.

ORV Corridors

A total of 106 evenings/nights of intensive nest monitoring and ORV tire rut raking occurred for the 14 nests that were monitored. This increased the amount of beach that was accessible to vehicles from July 16, date of the first nest with an ORV corridor, through September 10, date of the last nest with an ORV corridor (56 calendar days).

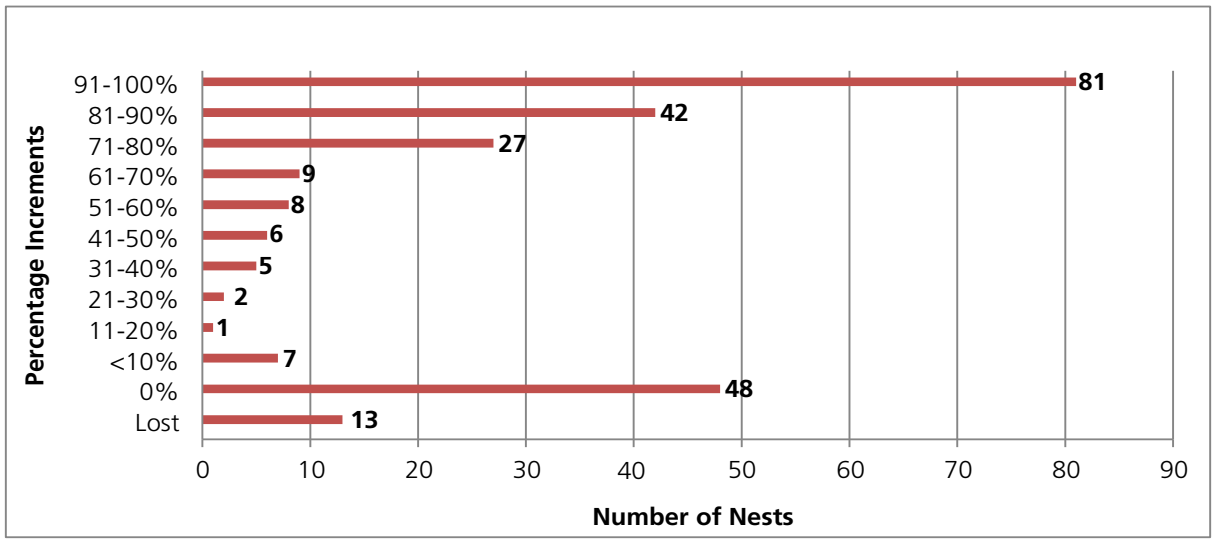


Figure 4. 2017 sea turtle nest hatch success at Cape Hatteras National Seashore.

Depredation/Loss

Of the 27,313 eggs produced in 2017, 226 eggs (~0.8%) were observed to be depredated (Appendix A). In the 2016 breeding season, the first recorded sea turtle nest depredation by canids was recorded on the Seashore. Observations of canid predation were also recorded in the 2017 season. There was evidence that indicated a partial depredation of an incubating nest by coyote on Bodie Island; upon investigation, 68 of 107 eggs were depredated. Hatteras Island had two nests partially depredated by canids with a total of 56 eggs depredated or damaged; 30 of 93 eggs were depredated in the first nest and 26 of 100 eggs in the second. Tracks in the areas of both nests indicated the predator to be fox. A full nest depredation by an unknown bird species occurred on Ocracoke Island. Seashore Staff reported 61 eggs were depredated, likely due to exposed eggs at the surface of the sand. Across the Seashore, ghost crabs depredated 41 eggs from 17 different nests prior to nest excavations; this was usually observed by discovering eggshell fragments at the specific nest sites near known ghost crab burrows.

Of the 15,365 emerged hatchlings produced, 19 hatchlings (~0.1%) were lost before reaching the water; these were not associated with disorientation events. An unknown bird species depredated a single hatchling on Hatteras Island, based on the hatchling tracks being terminated at a set of bird tracks. Two dead hatchlings from an unprotected wild nest were found in ORV tire ruts. Ghost crab depredation of 13 hatchlings from 10 nests was documented, but the full extent of hatchling depredation by ghost crabs is unknown. Observations were made of ghost crabs in the act of depredating hatchlings. These observations occurred within nest cavities during excavations as well as after hatching events based on finding the hatchlings inside of ghost crab holes in the vicinity of the nest site. In addition to these confirmed hatchling losses, three hatchlings from three separate nests were found deceased outside of the nest cavity between the nest and high tide line; no cause of death was apparent (Appendix A).

Storm, Tide and Overwash Loss

During the 2017 season, 13 nests were completely washed away by significant storm and tide events (Figure 4; Appendix A) and 41 nests completely failed due to storm and tide activity. An additional 24 nests were partial failures. An unusually high tide event (May 23–May 26) washed away a single nest. Erosion and above average high tide cycles associated with Tropical Storm #10 (August 28–September 1) washed away two nests. Nine nests were washed away from storm tides and severe erosion that stemmed from a combination of Hurricane Jose and Hurricane Maria (September 16–September 28). A final nest was washed away from erosion associated with an unusual high tide event (October 8–October 14).

It can be difficult to attribute a complete nest failure to a particular storm when many of the nests were heavily overwashed and/or inundated by multiple storms. The total number of nests overwashed or



A green sea turtle nesting at Cape Hatteras National Seashore. NPS

inundated during storms included 23 nests during Tropical Storm #10, 15 nests during Tropical Storm Gert, 20 nests during Hurricane Irma, 29 nests during Hurricane Jose, and 20 nests during Hurricane Maria. Forty-one of these nests ended up as complete failures. During these tropical systems, nests were overwashed almost continually until the system passed. Many of these nests were on beaches with very little slope or in some instances a backslope toward the dunes that held water. The 24 nests that exhibited partial failures were often areas of the beach with steeper slope or located higher on the dunes. Though these nests were still heavily overwashed, the slopes enabled the water to drain away more quickly and nests were unlikely to be inundated.

Incidental Take / Human Disturbance

Little is known about the extent to which human activities may have disrupted sea turtle nesting during the 2017 nesting season. People on the beach at night can disturb female turtles during the egg laying process. From the time a female exits the surf until she has begun covering her nest, she is highly vulnerable to disturbance, especially prior to and during the early stages of egg-laying.

Protected Area Intrusions

A total of 447 pedestrian intrusions (110 instances), 1 bicycle intrusion (1 instance), and 34 ORV intrusions (18 instances) into sea turtle protected areas were documented. In addition, 40 cat (40 instances), 50 domestic dog (43 instances), 42 unknown canine species (35 instances), 4 fox, (4 instances), 2 mink (2 instances), 3 raccoon (3 instances), and 5 opossum (5 instances) tracks were observed in sea turtle protection areas. Overall, there was no evidence that these intrusions affected nest success; they were simply human intrusions in clearly signed sea turtle protection areas or signs of potential predators within those areas.

Artificial Lighting

In 2017, misorientation (directed movement of a hatchling towards an inappropriate object or goal) or disorientation (lack of directed movement towards a specific area or goal) was documented at 32 nests, totaling approximately 442 hatchlings (~2.9% of the 15,365 emerged hatchlings) or hatchling tracks observed to be affected (Appendix A). In most situations, hatchling tracks were the only evidence to show hatchlings were being disrupted from their normal movement to the ocean. Little is known about the fate of these hatchlings because, in most

cases, they were never recovered. In some instances, hatchling tracks were observed eventually making it to the edge of waterline indicating they successfully made it to the ocean. Since the majority of nests are not observed during hatching events, the extent of hatchling loss due to artificial lighting at the Seashore is unknown.

Strandings

In the 2017 calendar year, 280 stranded sea turtles were documented within the Seashore (Table 3). Volunteers with The Network for Endangered Sea Turtles assisted resource management staff by reporting and sometimes responding to observed strandings. Of the 280 strandings, 112 (40%) were found alive and were transferred to the North Carolina Aquarium Sea Turtle Assistance and Rehabilitation Center on Roanoke Island or a similar facility for rehabilitation. Of the 112 live turtles: 46 (41.1%) were treated and released, 31 (27.7%) have remained in rehabilitation at the Sea Turtle Assistance and Rehabilitation Center, 24 (21.4%) were transferred to other rehabilitation centers, eight (7.1%) died of their ailments and three (2.7%) have unknown dispositions.

Efforts were made to necropsy dead strandings to determine possible cause of death, gender, any abnormalities, and to collect requested tissue samples for ongoing research. Gender was determined in 67 strandings (29 male, 38 female). Samples collected during necropsies (i.e. eyes, flippers, muscle, foreign debris, and tags) were provided to cooperating researchers. Probable cause of death, when possible, was determined by NCWRC. During periods of cold water temperatures (7–10°C), sea turtles are most prone to cold stunning (stranding due to hypothermia; Spotilla 2004).

Turtle Sensor Studies: Hatteras Island Ocean Center/ Nerds without Borders

In 2017, the fifth year of the turtle sensor study, 12 sensors from Nerds Without Borders and the Hatteras Island Ocean Center were deployed. Of those 12 nests, eight had hatchling emergence success. The sensors successfully detected movement from these eight nests during emergence. Due to a high frequency of overwash events from storms and tides, the remaining four nests had zero emergence success. Three of the four nests had a 0% hatch rate and one had 0.9% hatch rate.

Genetic Study

In 2017, 237 eggs were taken specifically for DNA analysis out of the 250 total nests. In the remaining 13 nests, DNA was obtained from freshly predated eggs, broken eggs in shallow nests, or from dead hatchlings in wild nests (nests that were undetected until after hatching).

Table 3. Sea turtle strandings at Cape Hatteras National Seashore, 2017 calendar year.

Month	No Apparent Injuries	Cold Stun	Other/UNK	Watercraft	Entanglement	Pollution/ Debris	Disease	Shark	Unable to Assess	Total
January	18	23	0	0	0	0	0	0	6	47
February	3	0	1	1	0	0	0	0	2	7
March	1	3	4	0	0	0	1	0	0	9
April	0	0	4	1	2	0	1	0	2	10
May	2	0	4	2	0	0	2	0	1	11
June	1	0	3	1	2	0	0	0	2	9
July	0	0	0	2	0	0	0	0	0	2
August	1	0	4	3	1	0	0	0	3	12
September	1	0	1	1	2	0	0	0	1	6
October	2	0	3	2	0	0	0	0	0	7
November	4	0	1	1	1	0	0	0	7	14
December	24	100	2	7	1	0	1	0	11	146
Total:	57	126	27	21	9	0	5	0	35	280

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Appendix A. 2017 Sea Turtle Nest Monitoring Project Summaries

Table A-1. 2017 sea turtle monitoring details and results at Cape Hatteras National Seashore. The north boundary of the sea turtle surveying/monitoring is Ramp 1, Bodie Island (excludes Pea Island NWR). The south boundary is South Point on Ocracoke Island.

Metric	Result
Length of Daily Survey (km; km = miles x 1.6)	100.7 km (62.6 mi)
Total Length Surveyed (km)	16,917.6 km
Total Days Surveyed	168
Days per Week Surveyed	7
Time of Day Surveyed	Morning
Number of Participants	24
Date Surveys Began	4/30/2017
Date Surveys Ended	10/14/2017
Date of First Crawl	5/9/2017
Date of Last Crawl	9/1/2017
Date of First Nest	5/9/2017
Date of Last Nest	9/30/2017
Total Nests	250
Total Nests Undetected by Staff	4
Total Crawls	469
Nesting density (nests/km)	2.5
In Situ Nests (not relocated)	178
Relocated Nests	72 (28.8%)
False Crawls	219
Misoriented/Disoriented (nests)	32
Nests Washed Away Tide/Storm	13
Nests Depradated	31
Unknown Nests[1]	1
Mean Clutch Count	112.2
Mean Incubation Duration (All)	59.5
Mean Incubation Duration (In Situ)	59.5
Mean Incubation Duration (Relocated)	59.2
Hatchlings Produced	17,531
Hatchlings Emerged	15,365

[1]Unknown nests are excluded from mean hatch and emergence success rates and overall nest and beach success. Unknown nests indicates the fate of the nest is unknown due to overwash and lack of data on how many eggs hatched prior to the overwash.

Table A-2. 2017 sea turtle success rates at Cape Hatteras National Seashore.

Metric	All Nests	In Situ Nests	Relocated Nests
Mean Hatch Success	60.5%	61.1%	59.2%
Mean Emergence Success	53.4%	54.3%	51.1%
Nest Success	67.8%	67.2%	69.4%
Overall Beach Success[1]	53.3%	–	–

[1] Number of nests laid vs. number of crawls.

Table A-3. 2017 sea turtle egg loss summary, Cape Hatteras National Seashore.

Cause of Egg Loss	Number of Eggs Lost
Research	246
Coyote	68
Fox spp.	56
Birds	61
Ghost Crab	41
Shallow Nest	4
Tide/Storm[1]	193
Total Egg Loss (All Causes)	669

[1]Tide/Storm Egg Loss: 14 total nests resulted in a known egg loss of 193 eggs; one nest was a partial loss (38 out of 90-120 eggs lost) and 13 were complete losses. This is a significant underestimate of eggs lost. Twelve of 14 nests were "in situ" and total eggs in each clutch were unknown. Two of 14 nests were relocated and accurate egg losses were recorded, these two nests make up 177 of the 193 known eggs lost. The remaining 16 eggs were recovered from one "in situ" nest site, eggs were observed in the surf zone near the nest during a storm event. On average, 80 – 120 eggs are laid in a typical *Caretta caretta* nest. Estimated egg loss ranges from 1,137 – 1,617 based on the average eggs laid per *Caretta caretta* nest and the known eggs loss (12 x 80-120 eggs + 177 known eggs).

Table A-4. 2017 sea turtle hatchling loss summary, Cape Hatteras National Seashore.

Cause of Hatchling Loss	Number of Hatchlings Lost
Ghost Crab	13
Birds	1
Vehicle Tire Ruts	2
Misorientation/Disorientation[1]	442
Other[2]	3
Total Hatchling Loss (All Causes)	461

[1]The numbers of hatchlings lost due to mis/disorientation are from 32 separate nests. This total includes physical hatchlings observed as well as estimates of hatchling tracks left behind.

[2]Hatchling loss defined as "other" includes 3 separate nests that lost 1 hatchling each for unknown reasons. Lack of evidence was the reason for the unknown losses.

Appendix B. 2017 Sea Turtle Nests

Table B-1. 2017 sea turtle nests at Cape Hatteras National Seashore.

Nest #	Ref #	Lay Date[1]	Species[2]	Original Latitude DD	Original Longitude DD	Treatment	Relocated Latitude DD	Relocated Longitude DD	Hatch Success %	Emergence Success %
17	NBH01	5/29/2017	Cc	35.4939	-75.47723	in situ	–	–	51.33	42
36	NBH02	6/5/2017	Cc	35.52979	-75.46849	in situ	–	–	1.82	1.82
39	NBH03	6/6/2017	Cc	35.48671	-75.47877	in situ	–	–	55.34	55.34
43	NBH04	6/11/2017	Cc	35.5054	-75.47477	in situ	–	–	76.34	67.74
51	NBH05	6/13/2017	Cc	35.52723	-75.46934	in situ	–	–	42.37	41.53
52	NBH06	6/14/2017	Cc	35.46041	-75.48257	in situ	–	–	92.86	92.86
69	NBH07	6/18/2017	Cc	35.47723	-75.48045	relocated	35.47725	-75.48045	52	35
90	NBH08	6/26/2017	Cc	35.47558	-75.48077	in situ	–	–	72.58	70.97
92	NBH09	6/27/2017	Cc	35.50572	-75.47456	in situ	–	–	95.65	94.93
93	NBH10	6/27/2017	Cc	35.46019	-75.48245	in situ	–	–	90.35	88.6
109	NBH11	7/2/2017	Cc	35.55431	-75.4632	in situ	–	–	97.32	55.36
119	NBH12	7/5/2017	Cc	35.57212	-75.46124	in situ	–	–	92.31	75.96
120	NBH13	7/5/2017	Cc	35.46114	-75.48232	in situ	–	–	94.52	87.67
121	NBH14	7/7/2017	Cc	35.49453	-75.47707	in situ			0	0
136	NBH15	7/8/2017	Cc	35.60197	-75.46431	relocated	35.56796	-75.46164	79	74
137	NBH16	7/10/2017	Cc	35.45159	-75.48311	in situ	–	–	82.03	58.59
138	NBH17	7/10/2017	Cc	35.43972	-75.48419	in situ	–	–	80.41	75.26
140	NBH18	7/11/2017	Cc	35.57511	-75.46101	in situ	–	–	5.17	0
149	NBH19	7/13/2017	Cc	35.49929	-75.47601	in situ	–	–	0	0
154	NBH20	7/14/2017	Cm	35.4944	-75.4772	in situ	–	–	57.02	4.39
164	NBH21	7/16/2017	Cc	35.48387	-75.47929	in situ	–	–	0	0
165	NBH22	7/16/2017	Cm	35.47048	-75.48165	in situ	–	–	0	0
180	NBH23	7/22/2017	Cc	35.52394	-75.47041	in situ	–	–	0	0
181	NBH24	7/23/2017	Cc	35.53721	-75.46659	in situ	–	–	0	0
222	NBH25	8/9/2017	Cc	35.49555	-75.47709	in situ	–	–	95.93	95.12
221	NBH26	8/10/2017	Cc	35.49995	-75.47609	in situ	–	–	79.84	75.81
224	NBH27	8/11/2017	Cc	35.59277	-75.46285	relocated	35.56935	-75.46154	0	0
246	NBH28	9/30/2017	Cm	35.5444	-75.46515	in situ	–	–	0	0
152	NBI01	7/14/2017	Cc	35.82272	-75.55297	in situ	–	–	0	0
230	NBI02	8/13/2017	Cc	35.78773	-75.53645	relocated	35.79379	-75.5386	0	0
1	NH001	5/9/2017	Cc	35.36547	-75.49546	relocated	35.36547	-75.49583	89	73
2	NH002	5/16/2017	Cc	35.21088	-75.68589	in situ	–	–	79.1	77.61
3	NH003	5/18/2017	Cc	35.23356	-75.56661	in situ	–	–	4	3.2
8	NH004	5/20/2017	Cc	35.32088	-75.50748	relocated	35.29918	-75.51215	94	87
9	NH005	5/20/2017	Cc	35.28272	-75.51593	relocated	35.29946	-75.51209	78	75
10	NH006	5/22/2017	Cc	35.23175	-75.60884	relocated	35.23192	-75.60837	44	44
7	NH007	5/22/2017	Cc	35.33967	-75.50323	in situ	–	–	94.4	93.6
8	NH008	5/25/2017	Cc	35.3702	-75.49454	in situ	–	–	80.23	76.74
12	NH009	5/26/2017	Cc	35.23299	-75.52737	relocated	35.24218	-75.52564	83	73

[1] Lay Date: date when nest was observed

[2] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*

Table B-1 (continued). 2017 sea turtle nests at Cape Hatteras National Seashore.

Nest #	Ref #	Lay Date[1]	Species[2]	Original Latitude DD	Original Longitude DD	Treatment	Relocated Latitude DD	Relocated Longitude DD	Hatch Success %	Emergence Success %
16	NH010	5/27/2017	Cc	35.22935	-75.52798	in situ	–	–	94.16	89.05
14	NH011	5/28/2017	Cc	35.29969	-75.51424	relocated	35.29969	-75.5121	89	80
20	NH012	5/29/2017	Cc	35.20754	-75.69529	relocated	35.20877	-75.69191	63	57
15	NH013	5/29/2017	Cc	35.43201	-75.48466	in situ	–	–	92.31	92.31
19	NH014	5/29/2017	Cc	35.3914	-75.48846	in situ	–	–	67.16	59.7
21	NH015	5/30/2017	Cc	35.39358	-75.48798	in situ	–	–	80.71	77.86
23	NH016	5/30/2017	Cc	35.2343	-75.58801	in situ	–	–	94.23	93.27
22	NH017	5/30/2017	Cc	35.24263	-75.52525	in situ	–	–	86.73	86.73
26	NH018	6/1/2017	Cc	35.23341	-75.59785	in situ	–	–	77.93	77.24
27	NH019	6/2/2017	Cc	35.40441	-75.48602	in situ	–	–	82.86	76.19
30	NH020	6/3/2017	Cc	35.2028	-75.70905	relocated	35.20685	-75.6973	87	82
34	NH021	6/4/2017	Cc	35.29231	-75.51375	relocated	35.30043	-75.51189	70	70
33	NH022	6/4/2017	Cc	35.23365	-75.56488	in situ	–	–	64.66	42.11
35	NH023	6/5/2017	Cc	35.20714	-75.69656	in situ	–	–	81.82	81.06
40	NH024	6/7/2017	Cc	35.25959	-75.51955	relocated	35.24306	-75.52526	86	76
46	NH025	6/12/2017	Cc	35.23399	-75.58939	in situ	–	–	90.78	82.98
50	NH026	6/15/2017	Cc	35.22181	-75.65199	in situ	–	–	97.32	96.43
61	NH027	6/17/2017	Cc	35.23395	-75.59236	in situ	–	–	93.69	92.79
59	NH028	6/17/2017	Cc	35.42446	-75.48488	in situ	–	–	96.39	96.39
60	NH029	6/17/2017	Cc	35.39583	-75.48743	relocated	35.39759	-75.48727	92	91
62	NH030	6/18/2017	Cm	35.26978	-75.5182	relocated	35.3012	-75.51176	27	26
63	NH031	6/18/2017	Cc	35.22562	-75.53889	relocated	35.23076	-75.55023	31	31
70	NH032	6/18/2017	Cc	35.20979	-75.68896	in situ	–	–	86.26	83.21
66	NH033	6/18/2017	Cc	35.23138	-75.61072	in situ	–	–	94.07	94.07
68	NH034	6/19/2017	Cc	35.20858	-75.69243	in situ	–	–	94.94	89.24
72	NH035	6/19/2017	Cc	35.20909	-75.69089	in situ	–	–	87.39	85.71
67	NH036	6/19/2017	Cc	35.22115	-75.65431	in situ	–	–	94.68	94.68
74	NH037	6/20/2017	Cc	35.20266	-75.70913	relocated	35.20768	-75.69501	90	90
77	NH038	6/20/2017	Cc	35.28198	-75.51615	relocated	35.30198	-75.51166	90	87
73	NH039	6/20/2017	Cc	35.22297	-75.64764	in situ	–	–	96.81	92.55
78	NH040	6/23/2017	Cc	35.2564	-75.52013	relocated	35.24287	-75.52539	87	66
78	NH041	6/23/2017	Cc	35.42764	-75.4847	in situ	–	–	89.71	83.82
79	NH042	6/23/2017	Cc	35.35074	-75.50047	in situ	–	–	96.84	92.63
80	NH043	6/24/2017	Cc	35.22309	-75.52918	relocated	35.23756	-75.52652	88	82
80	NH044	6/24/2017	Cc	35.30634	-75.51057	in situ	–	–	86.73	84.69
81	NH045	6/24/2017	Cc	35.19925	-75.72012	relocated	35.20679	-75.69759	92	91
86	NH046	6/25/2017	Cc	35.31208	-75.50924	in situ	–	–	90.43	80.87
87	NH047	6/26/2017	Cc	35.23333	-75.59688	in situ	–	–	92.31	87.69
89	NH048	6/26/2017	Cc	35.23282	-75.56102	in situ	–	–	95.45	95.45
88	NH049	6/26/2017	Cc	35.2062	-75.69942	in situ	–	–	88.39	81.29
94	NH050	6/28/2017	Cc	35.3106	-75.50948	in situ	–	–	78.15	72.85
97	NH051	6/29/2017	Cc	35.21761	-75.66589	relocated	35.21579	-75.67158	65	56

[1] Lay Date: date when nest was observed

[2] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*

Table B-1 (continued). 2017 sea turtle nests at Cape Hatteras National Seashore.

Nest #	Ref #	Lay Date[1]	Species[2]	Original Latitude DD	Original Longitude DD	Treatment	Relocated Latitude DD	Relocated Longitude DD	Hatch Success %	Emergence Success %
98	NH052	6/30/2017	Cc	35.23284	-75.60101	in situ	–	–	0	0
103	NH053	6/30/2017	Cc	35.32594	-75.50642	in situ	–	–	78.63	67.94
104	NH054	7/1/2017	Cc	35.25907	-75.51965	relocated	35.24396	-75.52513	90	59
107	NH055	7/1/2017	Cc	35.19745	-75.72659	relocated	35.2081	-75.69379	80	64
108	NH056	7/1/2017	Cc	35.4312	-75.4846	in situ	–	–	80.38	73.42
110	NH057	7/2/2017	Cc	35.2331	-75.56316	in situ	–	–	37.35	22.89
111	NH058	7/3/2017	Cc	35.23357	-75.5954	in situ	–	–	85.61	65.15
112	NH059	7/3/2017	Cc	35.38807	-75.48909	in situ	–	–		
113	NH060	7/4/2017	Cc	35.22309	-75.6475	in situ	–	–	92.47	76.03
114	NH061	7/4/2017	Cc	35.23339	-75.56542	in situ	–	–	86.55	71.43
118	NH062	7/5/2017	Cc	35.21019	-75.68737	relocated	35.21042	-75.68741	93	79
118	NH063	7/5/2017	Cc	35.2341	-75.56536	in situ			93.46	75.7
122	NH064	7/7/2017	Cc	35.23196	-75.60645	relocated	35.2327	-75.60645	0	0
127	NH065	7/8/2017	Cc	35.23932	-75.52596	in situ	–	–	93.52	83.33
128	NH066	7/8/2017	Cc	35.20102	-75.71413	relocated	35.20742	-75.69602	36	33
129	NH067	7/8/2017	Cc	35.20756	-75.69523	in situ	–	–	95.71	92.86
126	NH068	7/8/2017	Cc	35.38133	-75.49097	in situ	–	–	67.69	1.54
130	NH069	7/9/2017	Cc	35.22397	-75.64346	in situ	–	–	86.11	82.41
133	NH070	7/9/2017	Cc	35.24019	-75.52588	relocated	35.24019	-75.52588	88	72
132	NH071	7/9/2017	Cc	35.26401	-75.51917	relocated	35.24466	-75.52496	93	54
134	NH072	7/9/2017	Cc	35.25243	-75.52244	relocated	35.25088	-75.52319	100	95
139	NH073	7/10/2017	Cc	35.2149	-75.67444	relocated	35.21486	-75.67451	80	66
145	NH074	7/12/2017	Cc	35.24749	-75.52404	relocated	35.24751	-75.52422	81	79
144	NH075	7/12/2017	Cc	35.23441	-75.5831	relocated	35.23449	-75.58336	80	46
146	NH076	7/12/2017	Cc	35.23414	-75.57774	relocated	35.23427	-75.57772	97	97
147	NH077	7/12/2017	Cc	35.22456	-75.64143	in situ	–	–	95.12	65.04
148	NH078	7/13/2017	Cc	35.22856	-75.62511	in situ	–	–	67.15	1.46
151	NH079	7/13/2017	Cc	35.32344	-75.50689	in situ	–	–	0	0
153	NH080	7/14/2017	Cc	35.43055	-75.48457	in situ	–	–	44.44	1.23
155	NH081	7/15/2017	Cc	35.22501	-75.63931	in situ	–	–	97.62	96.03
161	NH082	7/16/2017	Cc	35.23328	-75.56453	relocated	35.23455	-75.57179	88	78
162	NH083	7/16/2017	Cc	35.29001	-75.51454	relocated	35.29981	-75.51206	97	90
163	NH084	7/17/2017	Cc	35.2144	-75.67541	in situ	–	–	0	0
168	NH085	7/17/2017	Cc	35.2498	-75.52341	in situ	–	–	0.92	0
166	NH086	7/17/2017	Cc	35.25253	-75.52205	relocated	35.25035	-75.52337	97	96
170	NH087	7/18/2017	Cc	35.23426	-75.57558	in situ	–	–	92.06	0.79
169	NH088	7/18/2017	Cc	35.35329	-75.49944	in situ	–	–	17.65	0
171	NH089	7/19/2017	Cc	35.23134	-75.61089	in situ	–	–	0	0
172	NH090	7/20/2017	Cc	35.21919	-75.6606	relocated	35.21939	-75.66039	89	1
174	NH091	7/21/2017	Cc	35.22915	-75.54577	in situ	–	–	0	0
176	NH092	7/22/2017	Cc	35.19922	-75.72015	relocated	35.20635	-75.69888	28	0
175	NH093	7/22/2017	Cc	35.39471	-75.48773	in situ	–	–	0	0

[1] Lay Date: date when nest was observed

[2] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*

Table B-1 (continued). 2017 sea turtle nests at Cape Hatteras National Seashore.

Nest #	Ref #	Lay Date[1]	Species[2]	Original Latitude DD	Original Longitude DD	Treatment	Relocated Latitude DD	Relocated Longitude DD	Hatch Success %	Emergence Success %
182	NH094	7/23/2017	Cc	35.22383	-75.52901	relocated	35.22957	-75.52795	0	0
180	NH095	7/23/2017	Cc	35.21045	-75.68722	in situ	–	–	98.29	84.62
183	NH096	7/23/2017	Cc	35.23412	-75.57353	relocated	35.23441	-75.57339	0	0
187	NH097	7/24/2017	Cc	35.21756	-75.52865	relocated	35.24592	-75.52456	2	1
186	NH098	7/24/2017	Cc	35.24911	-75.52368	in situ	–	–	0	0
185	NH099	7/24/2017	Cc	35.40065	-75.48645	in situ	–	–	0	0
189	NH100	7/25/2017	Cc	35.23095	-75.61396	in situ	–	–	79.23	78.46
190	NH101	7/25/2017	Cc	35.2344	-75.58423	in situ	–	–	0	0
192	NH102	7/27/2017	Cc	35.23369	-75.59413	in situ	–	–	0	0
193	NH103	7/28/2017	Cm	35.22612	-75.52849	relocated	35.24432	-75.52508	0	0
194	NH104	7/28/2017	Cc	35.23067	-75.61453	in situ	–	–	0	0
195	NH105	7/29/2017	Cc	35.43837	-75.48423	relocated	35.42252	-75.48493	32	0
200	NH106	7/29/2017	Cm	35.22474	-75.5288	relocated	35.2424	-75.52553	0	0
196	NH107	7/29/2017	Cc	35.29593	-75.51246	relocated	35.29917	-75.51217	0	0
201	NH108	7/30/2017	Cm	35.22485	-75.64037	in situ	–	–	95.73	94.51
203	NH109	7/31/2017	Cc	35.2285	-75.62526	in situ	–	–	0	0
204	NH110	7/31/2017	Cc	35.2877	-75.51469	relocated	35.30368	-75.51137	90	81
210	NH111	8/1/2017	Cc	35.20339	-75.70696	relocated	35.20947	-75.69009	54	40
206	NH112	8/1/2017	Cc	35.42326	-75.48499	relocated	35.4229	-75.48507	93	90
209	NH113	8/1/2017	Cc	35.32704	-75.5061	in situ	–	–	0	0
214	NH114	8/4/2017	Cc	35.28817	-75.51498	relocated	35.305	-75.51099	81	58
215	NH115	8/5/2017	Cc	35.23387	-75.58875	relocated	35.234	-75.58877	0	0
216	NH116	8/6/2017	Cc	35.23106	-75.5528	in situ	–	–	0	0
218	NH117	8/6/2017	Cc	35.23381	-75.56934	relocated	35.2342	-75.5696	0	0
220	NH118	8/9/2017	Cc	35.23487	-75.57621	relocated	35.23474	-75.57614	0	0
223	NH119	8/11/2017	Cc	35.21347	-75.67822	relocated	35.21358	-75.67808	78	77
226	NH120	8/12/2017	Cc	35.22368	-75.52908	relocated	35.24183	-75.52552	0	0
225	NH121	8/12/2017	Cc	35.25124	-75.5232	in situ	–	–	80	75
226	NH122	8/12/2017	Cc	35.30985	-75.50968	in situ	–	–	0	0
231	NH123	8/13/2017	Cm	35.2308	-75.52772	in situ	–	–	43.7	27.73
228	NH124	8/13/2017	Cc	35.2853	-75.51537	relocated	35.30278	-75.5115	71	55
227	NH125	8/13/2017	Cc	35.23422	-75.58907	relocated	35.23415	-75.58901	0	0
232	NH126	8/14/2017	Cc	35.27903	-75.51648	relocated	35.30043	-75.51192	0	0
234	NH127	Undetected	Cc	35.35187	-75.50011	in situ	–	–	93.39	90.91
235	NH128	8/18/2017	Cc	35.35893	-75.49756	in situ	–	–	0	0
239	NH129	8/21/2017	Cm	35.40661	-75.4862	in situ	–	–	91.97	88.32
240	NH130	8/22/2017	Cc	35.32445	-75.50674	in situ	–	–	0	0
241	NH131	Undetected	Cc	35.23264	-75.60331	in situ	–	–	63.2	24
242	NH132	8/26/2017	Cc	35.27566	-75.51715	relocated	35.30177	-75.51164	0	0
243	NH133	9/1/2017	Cm	35.31374	-75.50907	in situ	–	–	0	0
245	NH134	9/12/2017	Cm	35.42155	-75.485	relocated	35.42168	-75.48514	0	0

[1] Lay Date: date when nest was observed

[2] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*

Table B-1 (continued). 2017 sea turtle nests at Cape Hatteras National Seashore.

Nest #	Ref #	Lay Date[1]	Species[2]	Original Latitude DD	Original Longitude DD	Treatment	Relocated Latitude DD	Relocated Longitude DD	Hatch Success %	Emergence Success %
4	NO01	5/19/2017	Cc	35.1048	-75.95652	in situ	–	–	95.08	95.08
5	NO02	5/20/2017	Cc	35.15827	-75.8428	in situ	–	–	0	0
6	NO03	5/22/2017	Cc	35.11777	-75.93267	in situ	–	–	0	0
11	NO04	5/25/2017	Cc	35.15263	-75.85728	in situ	–	–	97.66	94.53
13	NO05	5/28/2017	Cc	35.16429	-75.828	in situ	–	–	86.57	86.57
24	NO06	5/30/2017	Cc	35.16142	-75.83556	in situ	–	–	91.45	91.45
25	NO07	5/31/2017	Cc	35.16582	-75.82396	in situ	–	–	93.2	93.2
28	NO08	6/2/2017	Cc	35.13148	-75.90492	in situ	–	–	82.35	81.18
29	NO09	6/2/2017	Cc	35.16288	-75.83136	in situ	–	–	88.62	88.62
31	NO10	6/3/2017	Cc	35.17624	-75.79537	in situ	–	–	79.11	77.85
32	NO11	6/3/2017	Cc	35.17808	-75.79008	in situ	–	–	97.39	97.39
37	NO12	6/5/2017	Cc	35.16449	-75.82728	in situ	–	–	92.54	91.79
38	NO13	6/6/2017	Cc	35.08927	-75.98064	in situ	–	–	93.75	93.75
41	NO14	6/7/2017	Cc	35.13775	-75.89132	in situ	–	–	92.11	92.11
42	NO15	6/11/2017	Cc	35.16116	-75.83577	in situ	–	–	62.37	59.14
44	NO16	6/12/2017	Cc	35.07668	-75.99468	in situ	–	–	74.81	15.27
45	NO17	6/12/2017	Cc	35.15677	-75.84705	in situ	–	–	96.26	93.46
47	NO18	6/13/2017	Cc	35.14141	-75.88314	in situ	–	–	97.54	95.9
48	NO19	6/14/2017	Cc	35.14185	-75.88213	in situ	–	–	96.39	96.39
49	NO20	6/14/2017	Cc	35.15451	-75.85226	in situ	–	–	78.12	78.12
53	NO21	6/16/2017	Cc	35.10041	-75.96322	relocated	35.10108	-75.96338	92	88
54	NO22	6/16/2017	Cc	35.08916	-75.98053	in situ	–	–	77.33	6.67
55	NO23	6/16/2017	Cc	35.15668	-75.84738	in situ	–	–	95.16	93.55
56	NO24	6/17/2017	Cc	35.07725	-75.99379	relocated	35.08313	-75.98947	98	92
57	NO25	6/17/2017	Cc	35.13465	-75.89792	in situ	–	–	85.59	83.78
58	NO26	6/17/2017	Cc	35.14188	-75.88196	in situ	–	–	96.12	96.12
64	NO27	6/18/2017	Cc	35.10526	-75.95525	relocated	35.10618	-75.95401	91	91
65	NO28	6/18/2017	Cc	35.12396	-75.9207	in situ	–	–	56.3	55.46
71	NO29	6/19/2017	Cc	35.11593	-75.93652	in situ	–	–	95.04	92.91
75	NO30	6/20/2017	Cc	35.12181	-75.92465	in situ	–	–	80.8	78.4
76	NO31	6/20/2017	Cc	35.15028	-75.8625	in situ	–	–	73.74	73.74
82	NO32	6/23/2017	Cc	35.13213	-75.90333	in situ	–	–	90.24	89.43
83	NO33	6/24/2017	Cc	35.11705	-75.93445	in situ	–	–	86.24	84.4
84	NO34	6/24/2017	Cc	35.14183	-75.88196	in situ	–	–	95	94
85	NO35	6/25/2017	Cc	35.12899	-75.91019	in situ	–	–	94.39	94.39
88	NO36	6/26/2017	Cc	35.17464	-75.79992	in situ	–	–	2.6	1.3
91	NO37	6/27/2017	Cc	35.13976	-75.88699	in situ	–	–	97.69	97.69
95	NO38	6/28/2017	Cc	35.1223	-75.92348	relocated	35.12337	-75.92196	98	98
96	NO39	6/28/2017	Cc	35.17662	-75.79349	in situ	–	–	0	0
99	NO40	6/30/2017	Cc	35.13915	-75.88788	in situ	–	–	52.07	48.76
100	NO41	6/30/2017	Cc	35.14096	-75.88382	in situ	–	–	48.33	40

[1] Lay Date: date when nest was observed

[2] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*

Table B-1 (continued). 2017 sea turtle nests at Cape Hatteras National Seashore.

Nest #	Ref #	Lay Date[1]	Species[2]	Original Latitude DD	Original Longitude DD	Treatment	Relocated Latitude DD	Relocated Longitude DD	Hatch Success %	Emergence Success %
101	NO42	6/30/2017	Cc	35.16451	-75.82712	in situ	–	–	90.1	90.1
102	NO43	6/30/2017	Cc	35.16983	-75.81329	relocated	35.16453	-75.82713	96	86
105	NO44	7/1/2017	Cc	35.13588	-75.89527	in situ	–	–	92.31	88.89
106	NO45	7/1/2.17	Cc	35.13716	-75.8922	in situ	–	–	84.75	84.75
110	NO46	7/2/2017	Cc	35.18555	-75.77341	relocated	35.17845	-75.78704	57	53
115	NO47	7/3/2017	Cc	35.17563	-75.79737	in situ	–	–	95.49	94.74
116	NO48	7/4/2017	Cc	35.0778	-75.99313	in situ	–	–	0	0
117	NO49	7/4/2017	Cc	35.11552	-75.93702	in situ	–	–	97.64	96.85
123	NO50	7/7/2017	Cc	35.08976	-75.97971	in situ	–	–	0	0
124	NO51	7/7/2017	Cc	35.15594	-75.84903	in situ	–	–	92.77	92.77
125	NO52	7/7/2017	Cc	35.17637	-75.79414	in situ	–	–	0	0
131	NO53	7/9/2017	Cc	35.15867	-75.84178	relocated	35.15891	-75.84189	84	84
135	NO54	7/10/2017	Cc	35.14328	-75.87851	in situ	–	–	96.43	92.86
141	NO55	7/11/2017	Cc	35.07887	-75.99229	in situ	–	–	0	0
142	NO56	7/11/2017	Cc	35.13144	-75.90477	in situ	–	–	45.45	0
143	NO57	7/11/2017	Cc	35.14756	-75.86876	in situ	–	–	96.64	95.8
150	NO58	7/13/2017	Cc	35.17292	-75.80463	relocated	35.17606	-75.7961	97	97
156	NO59	7/14/2017	Cc	35.14286	-75.87956	in situ	–	–	98.1	98.1
157	NO60	7/14/2017	Cc	35.17904	-75.78185	in situ	–	–	0	0
158	NO61	7/15/2017	Cc	35.10649	-75.9536	in situ	–	–	98.51	94.78
159	NO62	7/15/2017	Cc	35.10913	-75.94856	in situ	–	–	93.86	0
160	NO63	7/15/2017	Cc	35.17398	-75.80178	in situ	–	–	0	0
167	NO64	7/17/2017	Cc	35.09563	-75.97172	in situ	–	–	93.9	93.9
173	NO65	7/20/2017	Cc	35.17748	-75.79199	in situ	–	–	97.48	95.8
177	NO66	7/21/2017	Cc	35.14523	-75.87408	in situ	–	–	96.88	94.53
178	NO67	7/22/2017	Cc	35.11108	-75.94515	in situ	–	–	2.91	0
179	NO68	7/22/2017	Cc	35.14	-75.8858	relocated	35.14013	-75.88587	0	0
184	NO69	7/24/2017	Cc	35.0919	-75.97656	in situ	–	–	0	0
188	NO70	7/25/2017	Cc	35.11927	-75.92995	in situ	–	–	71.05	48.25
191	NO71	7/26/2017	Cc	35.1544	-75.85255	in situ	–	–	0	0
198	NO72	7/28/2017	Cc	35.11615	-75.93613	in situ	–	–	39.05	39.05
197	NO73	7/29/2017	Cc	35.1556	-75.84974	in situ	–	–	94.06	90.1
199	NO74	7/29/2017	Cc	35.1661	-75.82327	in situ	–	–	94.32	94.32
202	NO75	7/30/2017	Cc	35.14421	-75.87672	in situ	–	–	93.33	92.38
207	NO76	7/30/2017	Cc	35.13321	-75.9011	in situ	–	–	0	0
208	NO77	8/1/2017	Cc	35.07816	-75.99304	in situ	–	–	0	0
211	NO78	8/2/2017	Cc	35.10923	-75.9486	in situ	–	–	97.25	95.41
212	NO79	8/3/2017	Cc	35.17896	-75.78398	in situ	–	–	0	0
236	NO80	Undetected	Cc	35.17797	-75.78991	in situ	–	–	94.07	92.37
237	NO81	Undetected	Cc	35.08062	-75.99178	in situ	–	–	0	0

[1] Lay Date: date when nest was observed

[2] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*

Table B-1 (continued). 2017 sea turtle nests at Cape Hatteras National Seashore.

Nest #	Ref #	Lay Date[1]	Species[2]	Original Latitude DD	Original Longitude DD	Treatment	Relocated Latitude DD	Relocated Longitude DD	Hatch Success %	Emergence Success %
219	NO82	8/9/2017	Cc	35.16864	-75.8166	relocated	35.16608	-75.82333	87	72
229	NO83	8/13/2017	Cc	35.08416	-75.98637	relocated	35.08441	-75.98675	0	0
233	NO84	8/15/2017	Cc	35.09023	-75.97926	in situ	–	–	87.5	65.62
238	NO85	8/21/2017	Cc	35.12944	-75.90903	in situ	–	–	0	0
244	NO86	9/9/2017	Cc	35.16257	-75.83228	in situ	–	–	0	0

[1] Lay Date: date when nest was observed

[2] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*

Appendix C. 2017 Sea Turtle False Crawls

Table C-1. 2017 sea turtle false crawls, Cape Hatteras National Seashore.

Activity #	Crawl #	Activity Date	Species[1]	Latitude DD	Longitude DD
21	CBH01	5/27/2017	Cc	35.59764	-75.46299
49	CBH02	6/1/2017	Cc	35.43993	-75.4842
71	CBH03	6/10/2017	Cc	35.47302	-75.48113
100	CBH04	6/17/2017	Cc	35.58045	-75.46115
136	CBH05	6/21/2017	Cc	35.542	-75.46538
140	CBH06	6/23/2017	Cc	35.54153	-75.46536
152	CBH07	6/26/2017	Cc	35.46854	-75.48154
153	CBH08	6/26/2017	Cc	35.46703	-75.48188
154	CBH09	6/26/2017	Cc	35.46595	-75.4819
186	CBH10	7/1/2017	Cc	35.48066	-75.47979
216	CBH11	7/7/2017	Cc	35.60207	-75.46412
247	CBH12	7/11/2017	Cm	35.60397	-75.46449
259	CBH13	7/13/2017	Cc	35.53149	-75.4677
260	CBH14	7/13/2017	Cc	35.51958	-75.47115
286	CBH15	7/15/2017	Cc	35.56847	-75.4614
287	CBH16	7/15/2017	Cc	35.467	-75.48299
288	CBH17	7/15/2017	Cc	35.4479	-75.48309
289	CBH18	7/15/2017	Cc	35.4548	-75.48337
290	CBH19	7/16/2017	Cc	35.47005	-75.48156
291	CBH20	7/16/2017	Cc	35.56838	-75.46133
292	CBH21	7/16/2017	Cc	35.4859	-75.47913
293	CBH22	7/16/2017	Cc	35.46461	-75.48235
319	CBH23	7/20/2017	Cc	35.48993	-75.47796
320	CBH24	7/21/2017	Cc	35.53181	-75.46774
321	CBH25	7/21/2017	Cc	35.53437	-75.46719
414	CBH26	8/9/2017	Cc	35.49224	-75.47773
398	CBH27	8/10/2017	Cc	35.51735	-75.47222
399	CBH28	8/10/2017	Cc	35.52122	-75.47124
257	CBI01	7/13/2017	Cc	35.79499	-75.53893
258	CBI02	7/13/2017	Cc	35.8359	-75.55879
329	CBI03	7/22/2017	Cc	35.83589	-75.55898
29	CH001	5/20/2017	Cc	35.26547	-75.51869
30	CH002	5/27/2017	Cc	35.32784	-75.50588
31	CH003	5/28/2017	Cc	35.23275	-75.56068
32	CH004	5/29/2017	Cc	35.22334	-75.53541
33	CH005	5/29/2017	Cc	35.23272	-75.56034
34	CH006	5/29/2017	Cc	35.23429	-75.5797
56	CH007	6/3/2017	Cc	35.23277	-75.60301
61	CH008	6/4/2017	Cc	35.43719	-75.48424
73	CH009	6/10/2017	Cc	35.23019	-75.61753

[1] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*; UN = unknown

Table C-1 (continued). 2017 sea turtle false crawls, Cape Hatteras National Seashore.

Activity #	Crawl #	Activity Date	Species[1]	Latitude DD	Longitude DD
74	CH010	6/10/2017	Cc	35.41523	-75.48524
79	CH011	6/11/2017	Cc	35.23021	-75.61771
80	CH012	6/11/2017	Cc	35.22909	-75.62306
87	CH013	6/14/2017	Cc	35.229	-75.54713
93	CH014	6/15/2017	Cc	35.21995	-75.53129
94	CH015	6/15/2017	Cc	35.21865	-75.66222
105	CH016	6/17/2017	Cc	35.23184	-75.55628
118	CH017	6/19/2017	Cc	35.20409	-75.70513
121	CH018	6/19/2017	Cc	35.38615	-75.48939
122	CH019	6/19/2017	Cc	35.38363	-75.49014
123	CH020	6/19/2017	Cc	35.35713	-75.49781
133	CH021	6/20/2017	Cc	35.4361	-75.48456
168	CH022	6/22/2017	Cc	35.23273	-75.60022
449	CH023	6/26/2017	Cc	35.23328	-75.59846
450	CH024	6/26/2017	Cc	35.23144	-75.61089
166	CH025	6/27/2017	Cc	35.22118	-75.65372
169	CH026	6/28/2017	Cc	35.22419	-75.52895
181	CH027	6/30/2017	Cc	35.34176	-75.50238
182	CH028	6/30/2017	Cc	35.33203	-75.50478
183	CH029	6/30/2017	Cc	35.32438	-75.50648
184	CH030	6/30/2017	Cc	35.3228	-75.50672
185	CH031	6/30/2017	Cc	35.32268	-75.5067
188	CH032	7/1/2017	Cc	35.25942	-75.51953
451	CH033	7/1/2017	Cc	35.42556	-75.48481
196	CH034	7/2/2017	Cc	35.21626	-75.67045
200	CH035	7/3/2017	Cc	35.38947	-75.4881
201	CH036	7/3/2017	Cc	35.34541	-75.50175
202	CH037	7/3/2017	Cc	35.3635	-75.49581
224	CH038	7/8/2017	Cc	35.22787	-75.52827
225	CH039	7/8/2017	Cc	35.21873	-75.52924
226	CH040	7/8/2017	Cc	35.25052	-75.52279
227	CH041	7/8/2017	Cc	35.26149	-75.51923
228	CH042	7/8/2017	Cc	35.24574	-75.53385
231	CH043	7/9/2017	Cc	35.28056	-75.51627
235	CH044	7/9/2017	Cc	35.22202	-75.52934
236	CH045	7/9/2017	Cc	35.22031	-75.52937
237	CH046	7/9/2017	Cc	35.25261	-75.52239
452	CH047	7/10/2017	Cc	35.23134	-75.61172
248	CH048	7/11/2017	Cc	35.23431	-75.58701
266	CH049	7/14/2017	Cc	35.24954	-75.52326
281	CH050	7/15/2017	Cc	35.39763	-75.48726
282	CH051	7/16/2017	Cc	35.33497	-75.50419

[1] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*; UN = unknown

Table C-1. 2017 sea turtle false crawls, Cape Hatteras National Seashore.

Activity #	Crawl #	Activity Date	Species[1]	Latitude DD	Longitude DD
453	CH052	7/16/2017	Cc	35.30985	-75.50943
454	CH053	7/16/2017	Cc	35.29748	-75.51218
283	CH054	7/16/2017	Cc	35.3075	-75.51019
455	CH055	7/17/2017	Cc	35.22055	-75.65598
300	CH056	7/18/2017	Cc	35.2341	-75.58669
301	CH057	7/18/2017	Cc	35.23389	-75.5873
302	CH058	7/18/2017	Cc	35.23352	-75.59725
302	CH059	7/18/2017	Cm	35.41833	-75.48335
308	CH060	7/20/2017	Cc	35.2196	-75.65687
311	CH061	7/21/2017	Cc	35.22622	-75.5407
312	CH062	7/21/2017	Cc	35.33617	-75.50395
324	CH063	7/23/2017	Cc	35.22504	-75.52872
325	CH064	7/23/2017	Cc	35.22242	-75.52924
326	CH065	7/23/2017	Cc	35.22	-75.52932
327	CH066	7/23/2017	Cc	35.35863	-75.49746
332	CH067	7/24/2017	Cc	35.37214	-75.49377
333	CH068	7/24/2017	Cc	35.32101	-75.50707
334	CH069	7/24/2017	Cc	35.28739	-75.51457
335	CH070	7/24/2017	Cc	35.27053	-75.51738
336	CH071	7/24/2017	Cc	35.2674	-75.51842
456	CH072	7/25/2017	Cc	35.23077	-75.61496
348	CH073	7/27/2017	Cm	35.23117	-75.5276
349	CH074	7/27/2017	Cm	35.21901	-75.52985
344	CH075	7/27/2017	Cc	35.38241	-75.49039
345	CH076	7/27/2017	Cc	35.37458	-75.49302
346	CH077	7/27/2017	Cc	35.2969	-75.51218
347	CH078	7/27/2017	Cc	35.39005	-75.48869
351	CH079	7/28/2017	Cc	35.3033	-75.51142
353	CH080	7/28/2017	Cm	35.22863	-75.52789
354	CH081	7/28/2017	Cm	35.22044	-75.52925
355	CH082	7/28/2017	Cc	35.22703	-75.54233
358	CH083	7/29/2017	Cc	35.32915	-75.50571
380	CH084	8/5/2017	Cc	35.23056	-75.55189
382	CH085	8/8/2017	Cc	35.29451	-75.51295
386	CH086	8/9/2017	Cc	35.36343	-75.49574
387	CH087	8/9/2017	Cc	35.35349	-75.49968
388	CH088	8/9/2017	Cc	35.34376	-75.50214
389	CH089	8/9/2017	Cc	35.33516	-75.50434
401	CH090	8/10/2017	Cc	35.23172	-75.55514
402	CH091	8/10/2017	Cc	35.23271	-75.55991
403	CH092	8/10/2017	Cc	35.12259	-75.56537
404	CH093	8/10/2017	Cc	35.23394	-75.5694

[1] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*; UN = unknown

Table C-1. 2017 sea turtle false crawls, Cape Hatteras National Seashore.

Activity #	Crawl #	Activity Date	Species[1]	Latitude DD	Longitude DD
394	CH094	8/10/2017	Cc	35.22318	-75.52908
395	CH095	8/10/2017	Cc	35.23336	-75.5274
396	CH096	8/10/2017	Cc	35.2476	-75.52441
406	CH097	8/11/2017	Cc	35.22105	-75.65457
407	CH098	8/11/2017	Cc	35.21738	-75.66614
408	CH099	8/11/2017	Cc	35.21618	-75.66965
409	CH100	7/22/2017	UN	35.2346	-75.5828
410	CH101	7/22/2017	UN	35.23428	-75.58707
457	CH102	8/11/2017	Cc	35.27665	-75.51722
420	CH103	8/13/2017	Cc	35.28933	-75.5146
421	CH104	8/13/2017	Cc	35.29225	-75.51368
422	CH105	8/14/2017	Cc	35.37743	-75.49242
424	CH106	8/14/2017	Cc	35.26665	-75.51816
427	CH107	8/18/2017	Cc	35.3745	-75.49319
429	CH108	8/20/2017	Cc	35.3022	-75.51153
430	CH109	8/20/2017	Cc	35.29024	-75.51436
431	CH110	8/20/2017	Cc	35.28534	-75.5154
434	CH111	8/21/2017	Cc	35.36786	-75.49493
435	CH112	8/21/2017	Cc	35.3429	-75.50247
442	CH113	8/22/2017	Cc	35.33426	-75.50426
439	CH114	8/26/2017	Cc	35.27564	-75.51633
440	CH115	8/26/2017	Cc	35.27559	-75.51634
441	CH116	8/26/2017	Cc	35.27543	-75.51622
444	CH117	9/1/2017	Cm	35.37067	-75.49432
269	CH118	7/15/2017	Cc	35.23152	-75.55463
2	CO01	5/13/2017	Cc	35.09401	-75.9735
3	CO02	5/15/2017	Cc	35.14216	-75.88094
8	CO03	5/21/2017	Cc	35.17068	-75.81081
9	CO04	5/21/2017	Cc	35.11359	-75.94063
18	CO05	5/23/2017	Cc	35.11602	-75.93636
19	CO06	5/24/2017	Cc	35.14269	-75.88016
16	CO07	5/25/2017	Cc	35.15321	-75.85561
17	CO08	5/25/2017	Cc	35.17656	-75.79453
22	CO09	5/27/2017	Cc	35.10748	-75.95159
23	CO10	5/27/2017	Cc	35.11593	-75.93605
25	CO11	5/28/2017	Cc	35.17801	-75.78989
37	CO12	5/29/2017	Cc	35.14466	-75.87562
42	CO13	5/31/2017	Cc	35.12363	-75.92126
44	CO14	6/1/2017	Cc	35.10502	-75.95614
45	CO15	6/1/2017	Cc	35.17279	-75.80514
46	CO16	6/1/2017	Cc	35.17632	-75.79523
47	CO17	6/1/2017	Cc	35.17936	-75.78046

[1] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*; UN = unknown

Table C-1. 2017 sea turtle false crawls, Cape Hatteras National Seashore.

Activity #	Crawl #	Activity Date	Species[1]	Latitude DD	Longitude DD
53	CO18	6/2/2017	Cc	35.16463	-75.82696
54	CO19	6/2/2017	Cc	35.18337	-75.77435
59	CO20	6/4/2017	Cc	35.08353	-75.98737
67	CO21	6/6/2017	Cc	35.16899	-75.81562
72	CO22	6/10/2017	Cc	35.08142	-75.98947
75	CO23	6/11/2017	Cc	35.07175	-75.99776
76	CO24	6/11/2017	Cc	35.13064	-75.9071
77	CO25	6/11/2017	Cc	35.14626	-75.872
86	CO26	6/13/2017	Cc	35.16253	-75.83208
98	CO27	6/16/2017	Cc	35.09556	-75.97095
99	CO28	6/16/2017	Cm	35.11767	-75.93331
104	CO29	6/17/2017	Cc	35.14376	-75.87782
114	CO30	6/18/2017	Cc	35.17397	-75.80157
125	CO31	6/19/2017	Cc	35.17516	-75.79832
131	CO32	6/20/2017	Cc	35.17402	-75.80164
132	CO33	6/20/2017	Cc	35.17629	-75.79445
135	CO34	6/21/2017	Cc	35.07293	-75.99747
137	CO35	6/22/2017	Cc	35.0822	-75.98869
138	CO36	6/22/2017	Cc	35.09283	-75.97501
139	CO37	6/22/2017	Cc	35.11142	-75.94454
144	CO38	6/23/2017	Cc	35.11639	-75.935
145	CO39	6/23/2017	Cc	35.11808	-75.93247
156	CO40	6/26/2017	Cc	35.17358	-75.80322
158	CO41	6/26/2017	Cc	35.17516	-75.79853
159	CO42	6/26/2017	Cc	35.17796	-75.78841
162	CO43	6/27/2017	Cc	35.13643	-75.89362
164	CO44	6/27/2017	Cc	35.16444	-75.82687
179	CO45	6/30/2017	Cc	35.15436	-75.85236
189	CO46	7/1/2017	Cc	35.07448	-75.99535
190	CO47	7/1/2017	Cc	35.18646	-75.77238
196	CO48	7/2/2017	Cc	35.17844	-75.78822
208	CO49	7/3/2017	Cm	35.18431	-75.77486
209	CO50	7/4/2017	Cc	35.15351	-75.85533
213	CO51	7/6/2017	Cc	35.07744	-75.99329
214	CO52	7/6/2017	Cc	35.06783	-76.00694
218	CO53	7/7/2017	Cc	35.08263	-75.98797
232	CO54	7/9/2017	Cc	35.11659	-75.93534
240	CO55	7/10/2017	Cc	35.10394	-75.95764
262	CO56	7/13/2017	Cc	35.15488	-75.85193
273	CO57	7/14/2017	Cc	35.08512	-75.98521
274	CO58	7/15/2017	Cc	35.09249	-75.97585
275	CO59	7/15/2017	Cc	35.17799	-75.78824

[1] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*; UN = unknown

Table C-1. 2017 sea turtle false crawls, Cape Hatteras National Seashore.

Activity #	Crawl #	Activity Date	Species[1]	Latitude DD	Longitude DD
276	CO60	7/15/2017	Cc	35.17924	-75.78044
277	CO61	7/15/2017	Cc	35.18625	-75.77327
305	CO62	7/19/2017	Cc	35.17879	-75.78297
306	CO63	7/19/2017	Cc	35.18093	-75.77717
364	CO64	7/30/2017	Cc	35.15731	-75.84544
368	CO65	7/31/2017	Cc	35.14647	-75.87119
372	CO66	8/1/2017	Cc	35.07537	-75.9947
390	CO67	8/9/2017	Cc	35.153	-75.85639
391	CO68	8/9/2017	Cc	35.15615	-75.84872
405	CO69	8/10/2017	Cc	35.17553	-75.79776
447	CO70	7/28/2017	Cc	35.17253	-75.80585

[1] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*; UN = unknown

Appendix D. 2017 Sea Turtle Strandings

Table D-1. 2017 sea turtle strandings at Cape Hatteras National Seashore.

Turtle ID Number	Date	Species[1]	Sex	Strand Site	Beach	Strand Location	Latitude DD	Longitude DD	Probable Cause of Strand
WPT2017010501	1/5/2017	Cm	F	I	Hatteras Island	Between S.S. access #58 and Haulover Parking area.	35.2998	-75.51469	Cold Stunning
NBS2017010801	1/8/2017	Cm	F	I	Hatteras Island	Sandy Bay	35.21895	-75.66561	Cold Stunning
NBS2017010805	1/8/2017	Cm	U	I	Hatteras Island	Cannonball Beach	35.20033	-75.73203	Cold Stunning
NBS2017010806	1/8/2017	Cm	U	I	Hatteras Island	Haul Over Beach	35.29512	-75.51482	Cold Stunning
NBS2017010804	1/8/2017	Cm	U	I	Hatteras Island	Small overwash	35.2016	-75.72576	Cold Stunning
NBS2017010803	1/8/2017	Cm	U	I	Hatteras Island	Coast Guard Beach	35.20863	-75.70639	Cold Stunning
NBS2017010802	1/8/2017	Cm	F	I	Hatteras Island	Sandy Bay	35.2016	-75.72576	Cold Stunning
NBS2017010901	1/9/2017	Cm	M	I	Hatteras Island	Between soundside access #54/#53	35.37366	-75.4996	Cold Stunning
JNW2017010901	1/9/2017	Cm	U	O	Ocracoke Island	1.78 mi S R59	35.17163	-75.80814	No Apparent Injuries
FGW2017010902	1/9/2017	Cm	U	I	Hatteras Island	Hatteras Coast Guard Station	35.2046	-75.704	Cold Stunning
RDM2017010901	1/9/2017	Cm	U	I	Hatteras Island	By hatteras Ferry Basin	35.208732	-75.705441	Cold Stunning
JNW2017011001	1/10/2017	Cc	U	O	Ocracoke Island	1.08 mi S R72	35.07427	-75.99565	Cold Stunning
TEA2017011101	1/11/2017	Cm	M	I	Hatteras Island	Little Overwash	35.20152	-75.72464	Cold Stunning
TEA2017011102	1/11/2017	Lk	U	I	Hatteras Island	Canadian Hole	35.29195	-75.51593	Unable to Assess
TEA2017011301	1/13/2017	Cm	F	I	Hatteras Island	Cannonball Beach	35.20011	-75.73257	Unable to Assess
WPT2017011301	1/13/2017	Cm	M	O	Hatteras Island	0.4 miles north of ramp 55	35.20723	-75.69656	Cold Stunning
KEF2017011301	1/13/2017	Cm	U	O	Ocracoke Island	R 59	35.17992	-75.77831	Cold Stunning
CAC2017011401	1/14/2017	Lk	F	I	Hatteras Island	Haulover	35.29807	-75.51444	Cold Stunning
KEF2017011401	1/14/2017	Cm	U	I	Ocracoke Island	0.5 mi West R 59 Dredge spoil beach	35.18908	-75.78082	No Apparent Injuries
KEF2017011402	1/14/2017	Cm	U	I	Ocracoke Island	1.3 mi S R72	35.0755	-76.00224	No Apparent Injuries
KEF2017011403	1/14/2017	Cm	U	I	Ocracoke Island	1.3 mi S R72	35.07664	-76.00352	Cold Stunning
KEF2017011404	1/14/2017	Cm	U	I	Ocracoke Island	1.3 mi S R72	35.07708	-76.00392	Cold Stunning
KEF2017011405	1/14/2017	Cm	U	I	Ocracoke Island	1.3 mi S R72	35.07737	-76.00379	Cold Stunning
KEF2017011406	1/14/2017	Cm	U	I	Ocracoke Island	1.3 mi S R72	35.07775	-76.00326	Cold Stunning
KEF2017011407	1/14/2017	Cm	U	I	Ocracoke Island	1.24 mi S R72	35.07776	-76.00321	Unable to Assess
KEF2017011408	1/14/2017	Lk	U	I	Ocracoke Island	1.1 mi S R59	35.07933	-76.00058	Cold Stunning

[1] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*; Dc = *Dermochelys coriacea*; Lk = *Lepidochelys kempii*; UN = unknown

Table D-1 (continued). 2017 sea turtle strandings at Cape Hatteras National Seashore.

Turtle ID Number	Date	Species[1]	Sex	Strand Site	Beach	Strand Location	Latitude DD	Longitude DD	Probable Cause of Strand
TEA2017011801	1/18/2017	Lk	M	I	Hatteras Island	Sandy Bay	35.21885	-75.6649	Cold Stunning
KEF2017011901	1/19/2017	Cm	U	I	Ocracoke Island	1.3 mi S R72	35.0776	-76.00359	Cold Stunning
KEF2017011902	1/19/2017	Cm	U	I	Ocracoke Island	1.3 mi S R72	35.07776	-76.00337	No Apparent Injuries
KEF2017011903	1/19/2017	Cm	U	I	Ocracoke Island	1.1 mi S R72	35.07884	-76.00093	No Apparent Injuries
KEF2017011904	1/19/2017	Cm	U	I	Ocracoke Island	1.1 mi S R72	35.07894	-76.00075	No Apparent Injuries
KEF2017011905	1/19/2017	Lk	U	I	Ocracoke Island	1.4 mi S R72	35.07552	-76.0043	Cold Stunning
KEF2017011906	1/19/2017	Cm	U	I	Ocracoke Island	1.4 mi S R72	35.07526	-76.00316	No Apparent Injuries
KEF2017011907	1/19/2017	Cm	U	I	Ocracoke Island	1.4 mi S R72	35.07515	-76.00352	No Apparent Injuries
KEF2017011908	1/19/2017	Cm	U	I	Ocracoke Island	1.4 mi S R72	35.0751	-76.00362	No Apparent Injuries
KEF2017011909	1/19/2017	Cm	U	I	Ocracoke Island	1.4 mi S R72	35.07507	-76.00364	No Apparent Injuries
KEF2017011910	1/19/2017	Cm	U	I	Ocracoke Island	1.5 mi S R72	35.07458	-76.0047	No Apparent Injuries
KEF2017011911	1/19/2017	Cm	U	I	Ocracoke Island	1.4 mi S R72	35.07505	-76.00439	No Apparent Injuries
KEF2017012001	1/20/2017	Cm	U	I	Ocracoke Island	Ferry Beach 0.7 mi N R59	35.19073	-75.77827	No Apparent Injuries
KEF2017012002	1/20/2017	Cm	U	O	Ocracoke Island	1.5 mi S R59	35.17326	-75.80383	Unable to Assess
NBS2017012301	1/23/2017	Cm	U	O	Hatteras Island	1.41 miles S of R55	35.19698	-75.72755	No Apparent Injuries
CAC2017012701	1/27/2017	Cm	U	I	Hatteras Island	Canadian Hole	35.29096	-75.51529	Unable to Assess
PKD2017012701	1/27/2017	Cm	U	I	Hatteras Island	0.45 miles South of Soundside access # 46	35.47945	-75.48474	Unable to Assess
KEF2017012701	1/27/2017	Lk	U	O	Ocracoke Island	0.2 mi N R59	35.1818	-75.7756	No Apparent Injuries
KEF2017012702	1/27/2017	Cm	U	I	Ocracoke Island	0.55 mi N R59 Ferry Beach	35.18849	-75.77478	No Apparent Injuries
KEF2017012801	1/28/2017	Cm	U	I	Ocracoke Island	1.3 mi S R72	35.07489	-76.00173	No Apparent Injuries
KEF2017012802	1/28/2017	Cm	U	I	Ocracoke Island	1.4 mi S R72	35.07357	-76.00242	No Apparent Injuries
CAC2017020401	2/4/2017	Cm	M	I	Hatteras Island	Sound Side access #50	35.40565	-75.49397	No Apparent Injuries
KEF2017020401	2/4/2017	Cm	U	I	Ocracoke Island	1.8 mi S R59	35.06892	-76.00648	Unable to Assess
AEB2017020401	2/4/2017	Cm	U	I	Hatteras Island	Frisco Beach	35.22	-75.661	No Apparent Injuries
CAC2017022602	2/26/2017	Cm	U	O	Hatteras Island	0.41 mi E of R45	35.22594	-75.53954	Unable to Assess
CAC2017022601	2/26/2017	Lk	F	O	Hatteras Island	0.91 miles South R 44	35.21758	-75.52904	Watercraft
NBS2017022701	2/27/2017	Lk	F	O	Hatteras Island	1.37 miles S of R34	35.35711	-75.49786	Unknown
NBS2017022801	2/28/2017	Lk	M	O	Hatteras Island	1.99 miles W of R49	35.22501	-75.63869	No Apparent Injuries
WPT2017031601	3/16/2017	Cc	U	I	Hatteras Island	Canadian Hole	35.28994	-75.51566	Cold Stunning
WPT2017031602	3/16/2017	Cm	U	I	Hatteras Island	Canadian Hole	35.28948	-75.51586	Disease

[1] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*; Dc = *Dermochelys coriacea*; Lk = *Lepidochelys kempii*; UN = unknown

Table D-1 (continued). 2017 sea turtle strandings at Cape Hatteras National Seashore.

Turtle ID Number	Date	Species[1]	Sex	Strand Site	Beach	Strand Location	Latitude DD	Longitude DD	Probable Cause of Strand
FGW2017031603	3/16/2017	Cm	U	I	Ocracoke Island	South Beach	35.0944	-75.9896	Cold Stunning
LLB2017031701	3/17/2017	Cm	U	I	Ocracoke Island	Ocracoke Ferry basin (north)	35.1892	-75.7807	Cold Stunning
KEF2017031901	3/19/2017	Cm	U	I	Ocracoke Island	0.5 mi N R59	35.18616	-75.77289	Unknown
KEF2017031902	3/19/2017	Cm	U	O	Ocracoke Island	0.83 mi N R72	35.09427	-75.97276	Unknown
KEF2017031903	3/19/2017	Cm	U	I	Ocracoke Island	1.4 mi S R72	35.07052	-75.99831	Unknown
KEF2017032301	3/23/2017	Lk	U	I	Ocracoke Island	2.0 mi S R72	35.0736	-76.01607	Unknown
CAC2017032601	3/26/2017	Cc	F	O	Hatteras Island	1.62 mi S R38	35.29766	-75.51171	No Apparent Injuries
KEF2017040101	4/1/2017	Cc	U	O	Ocracoke Island	0.2 mi S R68	35.12219	-75.92358	Unknown
CAC2017040701	4/7/2017	Cm	M	O	Hatteras Island	0.66 miles South of Ramp 55	35.20086	-75.71482	Unable to Assess
KEF2017041501	4/15/2017	Cm	U	O	Ocracoke Island	1.8 mi N R63	35.16751	-75.8191	Unknown
PKD2017041901	4/19/2017	Lk	F	O	Hatteras Island	1.0 mile south of Ramp 27.	35.45477	-75.48272	Entanglement--incidental
PKD2017041902	4/19/2017	Lk	F	O	Hatteras Island	4.6 miles north of Ramp 23; Rodanthe.	35.5978	-75.4631	Unknown
PKD2017042001	4/20/2017	Cm	F	O	Hatteras Island	4.6 miles north of Ramp 23.	35.60157	-75.4639	Disease
NBS2017042001	4/20/2017	Lk	U	O	Hatteras Island	2.75 mi S R38	35.28167	-75.51595	Unable to Assess
PKD2017042001	4/20/2017	Lk	M	O	Hatteras Island	1.1 miles south of Ramp 2.	35.81621	-75.54998	Watercraft
WPT2017042401	4/24/2017	Cc	M	O	Hatteras Island	0.22 miles N of R44	35.23285	-75.52718	Entanglement--incidental
CAC2017042701	4/27/2017	Cc	F	O	Hatteras Island	0.37 mi W R49	35.23131	-75.61108	Unknown
ACR2017050401	5/4/2017	Cc	M	O	Hatteras Island	0.75 miles south of Ramp 23.	35.52071	-75.47903	Unknown
LLB2017050701	5/7/2017	Cm	U	I	Hatteras Island	Haul Over	35.2983	-75.5147	Disease
PKD2017050801	5/8/2017	Cc	F	O	Bodie Island	1.0 miles south of Ramp 2.	35.81696	-75.55029	Watercraft
ACR2017050801	5/8/2017	Cc	F	O	Hatteras Island	0.92 miles north of Ramp 27.	35.48298	-75.47936	Disease
ACR2017051501	5/15/2017	Cm	U	O	Hatteras Island	0.1 mile north of Ramp 23.	35.53289	-75.46771	Unable to Assess
JNW2017051701	5/17/2017	Cc	U	O	Ocracoke Island	1.47 mi S R72	35.06922	-75.99892	Unknown
NBS2017052201	5/22/2017	Cm	M	O	Hatteras Island	1.65 mi S of R34	35.35324	-75.49934	Unknown
TEA2017052301	5/23/2017	Cc	M	O	Hatteras Island	0.57 Mi. E of Ramp 45	35.22713	-75.54276	No Apparent Injuries
NBS2017052201	5/23/2017	UN	U	O	Hatteras Island	0.85 mi W of R55	35.19979	-75.71802	No Apparent Injuries
NBS2017052302	5/23/2017	Cm	M	O	Hatteras Island	0.81 mi E of R48	35.23354	-75.56678	Other-describe below
PKD2017052901	5/29/2017	Cc	F	O	Bodie Island	1.47 miles south of Ramp 4.	35.77758	-75.53467	Watercraft
ACR2017060401	6/4/2017	Cc	F	I	Hatteras Island	Salvo Day Use Area	35.5351	-75.47524	Unknown

[1] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*; Dc = *Dermochelys coriacea*; Lk = *Lepidochelys kempii*; UN = unknown

Table D-1 (continued). 2017 sea turtle strandings at Cape Hatteras National Seashore.

Turtle ID Number	Date	Species[1]	Sex	Strand Site	Beach	Strand Location	Latitude DD	Longitude DD	Probable Cause of Strand
CAC2017060401	6/4/2017	Cc	U	O	Hatteras Island	0.43 mi South Ramp 44	35.2238	-75.52877	No Apparent Injuries
MAV2017060601	6/6/2017	Lk	U	O	Hatteras Island	0.66 miles north of Ramp 27.	35.47924	-75.47996	Unknown
CAC2017060701	6/7/2017	Cc	M	O	Hatteras Island	0.5mi S R55	35.20162	-75.71213	Watercraft
JXH2017061301	6/13/2017	Dc	U	I	Hatteras Island	~30 Meters off of beach sound side behind the old Kinnakeet life saving station	35.4066	-75.49413	Entanglement--incidental
ACR2017061501	6/15/2017	UN	U	O	Hatteras Island	307 miles North of Ramp 23	35.58419	-75.4612	Unable to Assess
NBS2017061801	6/18/2017	Cm	F	O	Hatteras Island	1.67 mi W of R55	35.19592	-75.73191	Unknown
MAV2017061901	6/19/2017	Cc	U	O	Hatteras Island	1.73 miles South of Ramp 38 at high tide line.	35.29613	-75.51242	Unable to Assess
WPT2017063001	6/30/2017	Lk	U	O	Hatteras Island	Cape Point	35.2278	-75.5244	Entanglement--incidental
CAC2017071301	7/13/2017	Cc	M	O	Hatteras Island	0.12mi W R 55	35.20361	-75.70588	Watercraft
MAV2017071401	7/14/2017	Cc	M	O	Hatteras Island	0.42mi S Sandy Bay Parking Lot	35.21813	-75.66378	Watercraft
TEA2017080301	8/3/2017	Cc	F	O	Hatteras Island	0.76 mi S of R38 in the tideline	35.30994	-75.5093	Unknown
TEA2017080401	8/4/2017	Cc	U	O	Hatteras Island	0.91 mi N0f R34	35.389912	-75.48866	Unable to Assess
ZMB2017080801	8/8/2017	Cm	M	O	Hatteras Island	1.06 miles W R55	35.19877	-75.72142	Unknown
NBS2017081602	8/16/2017	Cc	U	O	Hatteras Island	2.62mi S R38	35.28361	-75.51577	No Apparent Injuries
NBS2017081601	8/16/2017	Cc	M	O	Hatteras Island	2.58mi S R38	35.28424	-75.51566	Watercraft
TEA2017081801	8/18/2017	Cc	U	O	Hatteras Island	2.21 miles south of ramp 38	35.28936	-75.51412	Watercraft
CAC2017081801	8/18/2017	Cc	U	O	Hatteras Island	Lifeguard Beach	35.25367	-75.52113	Unable to Assess
CAC2017081802	8/18/2017	Cm	F	O	Hatteras Island	1.30mi S R38	35.30237	-75.51133	Unable to Assess
CAC2017082001	8/20/2017	Lk	M	O	Hatteras Island	0.2mi W R45	35.22975	-75.54898	Unknown
WPT2017082201	8/22/2017	Lk	U	O	Hatteras Island	0.15 mi SW of Ramp 49	35.23162	-75.60717	Entanglement--incidental
WPT2017082401	8/24/2017	Cc	F	O	Hatteras Island	0.9 mi S Ramp 44	35.21695	-75.52744	Watercraft
SCK2017083101	8/31/2017	Cm	U	O	Ocracoke Island	0.2 mi N R59	35.18193	-75.77518	Unknown
ACR2017090801	9/8/2017	Cc	F	O	Hatteras Island	0.98 miles North of Ramp 27	35.4838	-75.479	Entanglement--passive gear
ACR2017091001	9/10/2017	Cc	M	O	Hatteras Island	1.2 miles North of Ramp 23	35.54807	-75.46392	Unknown
CAC2017092001	9/20/2017	Cc	F	O	Hatteras Island	0.79m N R43	35.24667	-75.52435	Watercraft
MMM2017092201	9/22/2017	Cm	U	O	Hatteras Island	In lagoon between 'Shelly Island' and south facing beaches of Cape Point	35.21934	-75.53055	Entanglement--incidental

[1] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*; Dc = *Dermochelys coriacea*; Lk = *Lepidochelys kempii*; UN = unknown

Table D-1 (continued). 2017 sea turtle strandings at Cape Hatteras National Seashore.

Turtle ID Number	Date	Species[1]	Sex	Strand Site	Beach	Strand Location	Latitude DD	Longitude DD	Probable Cause of Strand
JNW2017092801	9/28/2017	Cc	U	I	Ocracoke Island	South Point	35.06631	-76.00298	No Apparent Injuries
CAC2017093001	9/30/2017	Cc	F	O	Hatteras Island	0.73 mi S R38	35.31046	-75.50952	Unable to Assess
KMR2017100101	10/1/2017	Cm	U	I	Ocracoke Island	at the beach adjacent to the Hatteras-Ocracoke ferry	35.19088	-75.78027	Unknown
KMR2017100102	10/1/2017	Cc	U	I	Ocracoke Island	at the beach adjacent to the Hatteras-Ocracoke ferry	35.19008	-75.77747	Unknown
CAC2017100701	10/7/2017	Cc	F	O	Hatteras Island	1.31 mi S R34	35.3579	-75.49744	Watercraft
KMR2017100801	10/8/2017	Cc	U	O	Ocracoke Island	0.6 mi north of Ramp 68	35.12827	-75.91151	Watercraft
CAC2017101301	10/13/2017	Cm	M	O	Hatteras Island	0.99mi S R32	35.39664	-75.48733	No Apparent Injuries
NBS2017102401	10/24/2017	Cc	M	O	Hatteras Island	0.73 miles W of R55	35.20066	-75.71594	No Apparent Injuries
KEF2017102901	10/29/2017	Cm	U	I	Ocracoke Island	1.3 mi S R72	35.07709	-76.00391	Unknown
NBS2017110601	11/6/2017	Lk	U	O	Hatteras Island	1.69 miles S of R34	35.3525	-75.49962	Unable to Assess
WPT2017110801	11/8/2017	Cm	F	I	Hatteras Island	Canadian Hole	35.28832	-75.51633	No Apparent Injuries
KEF2017110901	11/9/2017	Cm	U	I	Ocracoke Island	Dune Spoil Beach 0.7 mi NW R59	35.19074	-75.78339	Unable to Assess
TEA2017110901	11/9/2017	Cm	U	I	Hatteras Island	Coast Guard Beach	35.2079	-75.70863	No Apparent Injuries
TEA2017111601	11/16/2017	Lk	U	I	Hatteras Island	Haul Over	35.29661	-75.5144	Unable to Assess
ACR2017111701	11/17/2017	Cc	M	O	Bodie Island	0.6 miles South of Ramp 1 on beach	35.83898	-75.56012	No Apparent Injuries
KEF2017111801	11/18/2017	Cm	U	I	Ocracoke Island	0.6 mi N R59 on Ferry Beach	35.19022	-75.77766	Entanglement--incidental
KEF2017112401	11/24/2017	Cm	U	I	Ocracoke Island	1.3 mi S R72	35.0747	-76.00549	Unable to Assess
KEF2017112402	11/24/2017	Lk	U	I	Ocracoke Island	1.5 mi S R72	35.0747	-76.00549	Other-describe below
KEF2017112403	11/24/2017	Cc	F	I	Ocracoke Island	0.6 mi N R59 Ferry Beach	35.19074	-75.77912	Watercraft
KEF2017112404	11/24/2017	Lk	U	I	Ocracoke Island	0.6 mi N R59 Ferry Beach	35.1907	-75.7793	Unable to Assess
KEF2017112405	11/24/2017	Lk	U	I	Ocracoke Island	0.5 mi NW R59 Spoil Dunes	35.19074	-75.77912	Unable to Assess
KEF2017112501	11/25/2017	Lk	U	I	Ocracoke Island	0.6 mi N R 59 Ferry Beach	35.1907	-75.77884	Unable to Assess
CAC2017112501	11/25/2017	Lk	F	O	Hatteras Island	0.33mi S R34	35.37158	-75.49409	No Apparent Injuries
KEF2017120301	12/3/2017	Lk	U	I	Ocracoke Island	0.7 mi N R59	35.19093	-75.78043	No Apparent Injuries
KEF2017120302	12/3/2017	Lk	U	I	Ocracoke Island	0.7 mi S R72	35.19078	-75.77972	No Apparent Injuries
KEF2017120303	12/3/2017	Lk	U	I	Ocracoke Island	0.7 mi N R59 Ferry beach	35.19077	-75.77956	No Apparent Injuries
KEF2017120304	12/3/2017	Cm	U	I	Ocracoke Island	0.6 mi N R59 Ferry Beach	35.19049	-75.77881	Watercraft
KEF2017120305	12/3/2017	Cm	U	O	Ocracoke Island	0.7 mi N R63	35.15921	-75.84094	No Apparent Injuries

[1] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*; Dc = *Dermochelys coriacea*; Lk = *Lepidochelys kempii*; UN = unknown

Table D-1 (continued). 2017 sea turtle strandings at Cape Hatteras National Seashore.

Turtle ID Number	Date	Species[1]	Sex	Strand Site	Beach	Strand Location	Latitude DD	Longitude DD	Probable Cause of Strand
KEF2017120306	12/3/2017	Cm	U	I	Ocracoke Island	1.9 mi S R72	35.07275	-76.01291	No Apparent Injuries
KEF2017120307	12/3/2017	Cm	U	I	Ocracoke Island	1.2 mi S R72	35.07782	-76.00288	No Apparent Injuries
CAC2017120301	12/3/2017	Cc	U	O	Pea Island NWR	0.2mi N Rodanthe	35.61084	-75.46572	Unknown
KEF2017120401	12/4/2017	Cm	U	I	Ocracoke Island	0.5 mi NW R59 Dune Spoil Beach	35.1893	-75.78127	No Apparent Injuries
KEF2017120402	12/4/2017	Cm	U	I	Ocracoke Island	0.6 mi N R59	35.189	-75.7757	No Apparent Injuries
KEF2017120403	12/4/2017	Cc	F	I	Ocracoke Island	0.54 mi N R59	35.18834	-75.77448	Watercraft
PKD2017120401	12/4/2017	Cc	F	O	Bodie Island	0.43 miles south of Ramp 4.	35.79273	-75.53719	Disease
JNW2017120601	12/6/2017	Cm	U	O	Ocracoke Island	Pony Pen Walkover	35.14691	-75.87043	Unable to Assess
JNW2017120602	12/6/2017	Cm	U	O	Ocracoke Island	Pony Pen Walkover	35.14771	-75.86845	Unable to Assess
KEF2017120701	12/7/2017	Lk	U	I	Ocracoke Island	1.85 mi S R72	35.06618	-76.00503	No Apparent Injuries
KEF2017120702	12/7/2017	Cc	U	O	Ocracoke Island	0.8 mi N R 70	35.10987	-75.94676	Watercraft
JNW2017120703	12/7/2017	Cm	U	O	Ocracoke Island	0.74 mi S R68	35.1179373	-75.931946	Unable to Assess
FGW2017120701	12/7/2017	Cm	U	I	Hatteras Island	Frisco Bath House	35.2264	-75.6502	Entanglement--incidental
FGW2017120702	12/7/2017	Lk	U	I	Hatteras Island	Frisco Bath House	35.2269	-75.6487	No Apparent Injuries
FGW2017120703	12/7/2017	Cm	U	I	Hatteras Island	Frisco Bath House	35.2272	-75.6454	No Apparent Injuries
CAC2017120701	12/7/2017	Cm	M	O	Hatteras Island	1.89mi S R 49	35.22551	-75.63708	No Apparent Injuries
CAC2017120702	12/7/2017	Cm	U	I	Hatteras Island	Small Overwash	35.20144	-75.72647	Unable to Assess
CAC2017120703	12/7/2017	Cm	U	I	Hatteras Island	Sandy Bay	35.21937	-75.6631	No Apparent Injuries
KEF2017120801	12/8/2017	Lk	U	I	Ocracoke Island	0.55 N R 59	35.18849	-75.7747	No Apparent Injuries
KEF2017120803	12/8/2017	Cm	U	I	Ocracoke Island	1.81 mi S R 72	35.06559	-76.00295	Unable to Assess
KEF2017120802	12/8/2017	Lk	U	O	Ocracoke Island	0.33 mi N R 67	35.13482	-75.89729	No Apparent Injuries
FGW2017120801	12/8/2017	Cm	U	O	Hatteras Island	Ramp 55 CHNS	35.2019	-75.7112	No Apparent Injuries
CAC2017120801	12/8/2017	Cm	M	I	Hatteras Island	Coast Guard	35.20696	-75.70945	No Apparent Injuries
CAC2017120802	12/8/2017	Cm	F	I	Hatteras Island	Canadian Hole	35.28937	-75.51587	No Apparent Injuries
CAC2017120803	12/8/2017	Cm	U	I	Hatteras Island	Canadian Hole	35.29091	-75.51532	Unable to Assess
KEF2017121001	12/10/2017	Cm	U	I	Ocracoke Island	0.49 mi N R59	35.18727	-75.77412	Unable to Assess
KEF2017121002	12/10/2017	Cm	U	O	Ocracoke Island	1.31 mi N R 70	35.11354	-75.94054	Unable to Assess
PDW2017121001	12/10/2017	Cm	U	I	Hatteras Island	Salvo Day Use Area	35.5322262	-75.4763632	Cold Stunning

[1] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*; Dc = *Dermochelys coriacea*; Lk = *Lepidochelys kempii*; UN = unknown

Table D-1 (continued). 2017 sea turtle strandings at Cape Hatteras National Seashore.

Turtle ID Number	Date	Species[1]	Sex	Strand Site	Beach	Strand Location	Latitude DD	Longitude DD	Probable Cause of Strand
PKD2017121101	12/11/2017	Cm	U	I	Hatteras Island	0.38 miles south of Kinnakeet sound side access.	35.401264	-75.495766	Cold Stunning
PKD2017121102	12/11/2017	Cm	U	I	Hatteras Island	70 meters south of sound side access #48.	35.458641	-75.485794	Cold Stunning
FGW2017121102	12/11/2017	Lk	U	I	Hatteras Island	Frisco Bath house	35.2263	-75.6502	No Apparent Injuries
FGW2017121103	12/11/2017	Lk	U	I	Hatteras Island	Frisco Bath house	35.227	-75.6484	No Apparent Injuries
NBS2017121101	12/11/2017	Cc	F	O	Hatteras Island	Cape Point	35.21418	-75.52308	Watercraft
NBS2017121103	12/11/2017	Cc	F	O	Hatteras Island	0.9 miles N of R43	35.24806	-75.524	Watercraft
ACR2017121101	12/11/2017	Cc	U	I	Hatteras Island	0.07 miles north of sound side access #48.	35.4664	-75.48512	No Apparent Injuries
ACR2017121102	12/11/2017	Cc	F	I	Hatteras Island	0.5 miles north of sound side access #48.	35.46006	-75.48605	No Apparent Injuries
NBS2017121102	12/11/2017	Lk	U	I	Hatteras Island	Haul Over Day Use Area	35.29532	-75.51474	Cold Stunning
PKD2017121201	12/12/2017	Cm	U	I	Hatteras Island	170 meters south of sound side access #46.	35.484196	-75.482933	Cold Stunning
NBS2017121201	12/12/2017	Cm	U	I	Hatteras Island	Sound side access #52	35.39048	-75.49494	Unknown
WPT2017121201	12/12/2017	Cm	U	I	Hatteras Island	Soundside access #58	35.30321	-75.51387	Unable to Assess
WPT2017121301	12/13/2017	Cm	U	I	Hatteras Island	Canadian Hole	35.28857	-75.51613	Cold Stunning
WPT2017121302	12/13/2017	Cm	U	I	Hatteras Island	Haul Over Day Use Area	35.29428	-75.51517	Cold Stunning
WPT2017121303	12/13/2017	Lk	U	I	Hatteras Island	Haulover Day Use Area	35.29694	-75.51425	Cold Stunning
WPT2017121304	12/13/2017	Cm	U	I	Hatteras Island	Haulover Day Use Area	35.29889	-75.5145	Cold Stunning
PKD2017121303	12/13/2017	Lk	U	I	Hatteras Island	0.22 miles south of Kinnakeet soundside access.	35.40349	-75.49497	Cold Stunning
PKD2017121301	12/13/2017	Cm	U	I	Hatteras Island	100 meters south of soundside access #48.	35.45859	-75.48579	Cold Stunning
PKD2017121302	12/13/2017	Cm	U	I	Hatteras Island	200 meters south of Salvo Day-use.	35.532024	-75.476616	Cold Stunning
WPT2017121305	12/13/2017	Cm	U	I	Hatteras Island	Soundside access #58	35.30251	-75.51366	Cold Stunning
MDS2017121301	12/13/2017	Cm	U	I	Hatteras Island	Between soundside accesses 54 and 53	35.3829	-75.4967	Cold Stunning
MDS2017121302	12/13/2017	Lk	U	I	Hatteras Island	Between soundside accesses 54 and 53	35.3829	-75.4967	Cold Stunning
MDS2017121303	12/13/2017	Cm	U	I	Hatteras Island	between soundside accesses 54 and 53	35.3829	-75.4967	Cold Stunning
MDS2017121304	12/13/2017	Cm	U	I	Hatteras Island	100 m North of soundside access 54	35.3746	-75.4996	Cold Stunning
FGW2017121301	12/13/2017	Cm	U	I	Hatteras Island	north of Canadian Hole	35.30451	-75.515026	Cold Stunning
MDS2017121305	12/13/2017	Cm	U	I	Hatteras Island	Avon - Kinnakeet Shores. Down the dirt road off of Portside Dr.	35.3746	-75.4996	Cold Stunning
LAS2017121301	12/13/2017	Cm	U	I	Hatteras Island	Haulover Parking lot - NPS property South of Avon	35.2907	-75.5153	Cold Stunning

[1] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*; Dc = *Dermochelys coriacea*; Lk = *Lepidochelys kempii*; UN = unknown

Table D-1 (continued). 2017 sea turtle strandings at Cape Hatteras National Seashore.

Turtle ID Number	Date	Species[1]	Sex	Strand Site	Beach	Strand Location	Latitude DD	Longitude DD	Probable Cause of Strand
LAS2017121302	12/13/2017	Lk	U	I	Hatteras Island	Haulover Parking lot - NPS property South of Avon	35.2898	-75.5156	Cold Stunning
LAS2017121303	12/13/2017	Cm	U	I	Hatteras Island	Haulover Parking lot - NPS property South of Avon	35.2917	-75.515	Cold Stunning
LAS2017121304	12/13/2017	Cm	U	I	Hatteras Island	Haulover Parking lot - NPS property South of Avon	35.297	-75.5143	Cold Stunning
LAS2017121305	12/13/2017	Cm	U	I	Hatteras Island	Haulover Parking lot - NPS property North of Avon	35.380268	-75.498058	Cold Stunning
NBS2017121405	12/14/2017	Cm	M	I	Hatteras Island	Between sound side access # 53 - 54	35.3782	-75.49853	Cold Stunning
NBS2017121401	12/14/2017	Cm	U	I	Hatteras Island	Canadian Hole	35.29307	-75.51583	Cold Stunning
NBS2017121402	12/14/2017	Cm	U	I	Hatteras Island	Canadian Hole	35.29316	-75.51585	Cold Stunning
PKD2017121402	12/14/2017	Cm	U	I	Hatteras Island	260 meters north of sound side access #48.	35.46109	-75.485611	Cold Stunning
PKD2017121403	12/14/2017	Cc	U	I	Hatteras Island	0.75 miles north of sound side access #48.	35.470009	-75.485214	Cold Stunning
NBS2017121403	12/14/2017	Cm	U	I	Hatteras Island	Between Haulover day use area and sound-side access #58	35.29926	-75.51468	Cold Stunning
PKD2017121404	12/14/2017	Cm	U	I	Hatteras Island	300 meters south of Salvo Day-Use Area.	35.531052	-75.476753	Unable to Assess
NBS2017121404	12/14/2017	Lk	U	I	Hatteras Island	between haulover and soundside access #58	35.30135	-75.51423	Cold Stunning
ACR2017121401	12/14/2017	Cm	U	I	Hatteras Island	0.1 miles south of sound side access Kinnakeet.	35.405852	-75.49392	Cold Stunning
NBS2017121406	12/14/2017	Cm	U	I	Hatteras Island	Between sound side access # 53 & 52	35.39185	-75.4947	Cold Stunning
ACR2017121402	12/14/2017	Cm	U	I	Hatteras Island	South of sound side access #48.	35.448795	-75.486677	Cold Stunning
ACR2017121403	12/14/2017	Cm	F	I	Hatteras Island	North of sound side access #46	35.448795	-75.486677	Cold Stunning
MDS2017121401	12/14/2017	Lk	U	I	Hatteras Island	NPS Property - north of sound side ramp 54	35.3786	-75.4987	Cold Stunning
FGW2017121401	12/14/2017	Cc	U	I	Hatteras Island	NPS - North of Canadian Hole	35.306181	-75.514846	Cold Stunning
FGW2017121402	12/14/2017	Lk	U	I	Hatteras Island	NPS - North of Canadian Hole	35.308042	-75.515955	Cold Stunning
FGW2017121403	12/14/2017	Cm	U	I	Hatteras Island	NPS - North of Canadian Hole	35.30987	-75.516194	Cold Stunning
FGW2017121404	12/14/2017	Cm	U	I	Hatteras Island	NPS - North of Canadian Hole	35.30987	-75.516194	Cold Stunning
LLB2017121401	12/14/2017	Lk	U	I	Hatteras Island	NPS - Frisco - across from bath house	35.2242	-75.6505	Cold Stunning
LLB2017121402	12/14/2017	Cm	U	I	Hatteras Island	NPS -100 yards north of haulover just north of Buxton	35.3003	-75.5147	Cold Stunning
PKD2017121401	12/14/2017	Cm	U	I	Hatteras Island	175 meters north of Kinnakeet sound side access	35.408222	-75.493935	Cold Stunning
KEF2017121501	12/15/2017	Lk	U	I	Ocracoke Island	0.7 mi N R59 Ferry Beach	35.19088	-75.78062	Unable to assess

[1] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*; Dc = *Dermochelys coriacea*; Lk = *Lepidochelys kempii*; UN = unknown

Table D-1 (continued). 2017 sea turtle strandings at Cape Hatteras National Seashore.

Turtle ID Number	Date	Species[1]	Sex	Strand Site	Beach	Strand Location	Latitude DD	Longitude DD	Probable Cause of Strand
KEF2017121502	12/15/2017	Cc	U	I	Ocracoke Island	1.5 mi S R72	35.07455	-76.0116	Cold Stunning
ACR2017121503	12/15/2017	Cm	U	I	Hatteras Island	South of SSA #46	35.47996	-75.4855	Cold Stunning
PKD2017121501	12/15/2017	Cm	F	I	Hatteras Island	0.74 miles north of Kinnakeet sound side access.	35.417324	-75.492348	Cold Stunning
ACR2017121502	12/15/2017	Cm	U	I	Hatteras Island	0.1 mi North of SSA 48	35.46062	-75.4857	Cold Stunning
ACR2017121501	12/15/2017	Cm	M	I	Hatteras Island	0.14 mile South of SSA Kinnakeet	35.40471	-75.49422	Cold Stunning
PKD2017121502	12/15/2017	Cc	U	I	Hatteras Island	1.7 miles south of soundside access #48	35.436222	-75.490234	Watercraft
BSF2017121601	12/16/2017	Lk	U	I	Hatteras Island	Left bank of Canadian Hole	35.2874	-75.5165	Cold Stunning
ACR2017121601	12/16/2017	Cm	U	I	Hatteras Island	North of SSA Kinnakeet	35.408012	-75.494169	Cold Stunning
ACR2017121602	12/16/2017	Cm	U	I	Hatteras Island	North of SSA 48	35.467485	-75.484816	Cold Stunning
LAS2017121602	12/16/2017	Cm	U	I	Hatteras Island	1/4 MILE North of Haulover Lot CAHA	35.286877	-75.517367	Cold Stunning
PDW2017121601	12/16/2017	Cm	U	I	Hatteras Island	North of Avon- Day Use Area	35.390805	-75.4949187	Cold Stunning
SJG2017121601	12/16/2017	Cm	U	I	Hatteras Island	Canadian Hole/NPS	35.2924	-75.5154	Cold Stunning
SJG2017121602	12/16/2017	Cm	U	I	Hatteras Island	Canadian Hole, CAHA Hatteras, NC	35.2924	-75.5154	Cold Stunning
SJG2017121603	12/16/2017	Cm	U	I	Hatteras Island	Canadian Hole, CAHA Hatteras, NC	35.2976	-75.5142	Cold Stunning
SJG2017121604	12/16/2017	Cc	U	I	Hatteras Island	Canadian Hole, CAHA Hatteras, NC	35.2998	-75.5146	Cold Stunning
ACR2017121603	12/16/2017	Lk	M	I	Hatteras Island	North of SSA 48	35.470828	-75.484809	No Apparent Injuries
ACR2017121701	12/17/2017	Lk	U	I	Hatteras Island	South of SSA 46	35.482735	-75.483126	Cold Stunning
LLB2017121703	12/17/2017	Lk	U	I	Hatteras Island	1 mile north of Avon in NPS	35.3991	-75.4985	Cold Stunning
NBS2017121701	12/17/2017	Cm	U	I	Hatteras Island	Between sound side access #54 & 53	35.38125	-75.49743	Cold Stunning
NBS2017121702	12/17/2017	Cm	U	I	Hatteras Island	Between sound side accesses # 54 & 53	35.37695	-75.49886	Cold Stunning
NBS2017121703	12/17/2017	Cm	U	I	Hatteras Island	Between sound side accesses # 54 & 53	35.37551	-75.49927	Cold Stunning
NBS2017121704	12/17/2017	Cc	U	I	Hatteras Island	between sound side accesses # 54 & 53	35.37642	-75.49905	Cold Stunning
NBS2017121705	12/17/2017	Cm	U	I	Hatteras Island	@ soundside access #54	35.37309	-75.49979	Cold Stunning
NBS2017121706	12/17/2017	Cm	U	I	Hatteras Island	Haulover day use area	35.29765	-75.51448	Cold Stunning
NBS2017121707	12/17/2017	Lk	U	I	Hatteras Island	Haulover day use area	35.29332	-75.51591	Cold Stunning
NBS2017121708	12/17/2017	Cm	U	I	Hatteras Island	Kite point	35.29236	-75.51613	Cold Stunning
NBS2017121709	12/17/2017	Cm	U	I	Hatteras Island	Canadian Hole	35.28619	-75.51733	Cold Stunning
NBS2017121710	12/17/2017	Cm	U	I	Hatteras Island	Canadian Hole	35.28601	-75.5173	Cold Stunning
NBS2017121711	12/17/2017	Cm	U	I	Hatteras Island	Sandy Bay	35.22009	-75.66108	Cold Stunning
FGW2017121701	12/17/2017	Cm	U	I	Hatteras Island	North of Canadian Hole	35.3087	-75.5156	Cold Stunning

[1] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*; Dc = *Dermochelys coriacea*; Lk = *Lepidochelys kempii*; UN = unknown

Table D-1 (continued). 2017 sea turtle strandings at Cape Hatteras National Seashore.

Turtle ID Number	Date	Species[1]	Sex	Strand Site	Beach	Strand Location	Latitude DD	Longitude DD	Probable Cause of Strand
FGW2017121702	12/17/2017	Cm	U	I	Hatteras Island	North of Canadian Hole	35.3098	-75.5162	Cold Stunning
FGW2017121703	12/17/2017	Cm	U	I	Hatteras Island	Salvo day use	35.534	-75.4753	Cold Stunning
NBS2017121801	12/18/2017	Cc	U	I	Hatteras Island	Coast Guard beach	35.2086	-75.70687	Watercraft
LAS2017121901	12/19/2017	Cm	U	I	Hatteras Island	Kite Point	35.3026	-75.5141	Cold Stunning
PKD2017122001	12/20/2017	Cc	U	I	Hatteras Island	0.71 miles South of Salvo Day-Use area.	35.52573	-75.484024	No Apparent Injuries
NBS2017122801	12/28/2017	Cm	U	I	Hatteras Island	Sandy Bay	35.21883	-75.66476	Cold Stunning
NBS2017122802	12/28/2017	Cm	U	I	Hatteras Island	Sandy Bay	35.21944	-75.66311	Cold Stunning
NBS2017122803	12/28/2017	Cm	U	I	Hatteras Island	Small Overwash	35.20155	-75.72453	Cold Stunning
NBS2017122804	12/28/2017	Lk	U	I	Hatteras Island	Small Overwash	35.2016	-75.72478	Cold Stunning
FGW2017122805	12/28/2017	Cm	U	I	Hatteras Island	Frisco Beth House	35.2273	-75.6494	Cold Stunning
LLB2017122801	12/28/2017	Cc	U	I	Hatteras Island	Frisco Bath House	35.2269	-75.6491	Cold Stunning
LLB2017122802	12/28/2017	Cm	U	I	Hatteras Island	Frisco Bath House	35.2242	-75.6536	Cold Stunning
KLC2017122901	12/29/2017	Cc	U	I	Ocracoke Island	North End of Ocracoke (NPS)	35.1882	-75.7739	Cold Stunning
KLC2017122902	12/29/2017	Cm	U	I	Ocracoke Island	North End of Ocracoke (NPS)	35.1882	-75.7739	Cold Stunning
KLC2017122903	12/29/2017	Cm	U	I	Ocracoke Island	North End of Ocracoke (NPS)	35.1882	-75.7739	Cold Stunning
KLC2017122904	12/29/2017	Cm	U	I	Ocracoke Island	North End of Ocracoke (NPS)	35.1882	-75.7739	Cold Stunning
KLC2017122905	12/29/2017	Cm	U	I	Hatteras Island	Canadian Hole (NPS)	35.290985	-75.515841	Cold Stunning
KLC2017122906	12/29/2017	Lk	U	I	Ocracoke Island	North End of Ocracoke (NPS)	35.1882	-75.7739	Cold Stunning
NBS2017122901	12/29/2017	Cm	U	I	Hatteras Island	Small Overwash	35.20148	-75.7239	Cold Stunning
NBS2017122902	12/29/2017	Cm	U	I	Hatteras Island	Small Overwash	35.20146	-75.72412	Cold Stunning
LLB2017123001	12/30/2017	Cm	U	O	Hatteras Island	on beach at Hatteras inlet	35.196	-75.7233	Cold Stunning
FGW2017123006	12/30/2017	Cc	U	I	Ocracoke Island	South beach - Ocracoke Island	35.0915	-75.9901	Cold Stunning
FGW2017123003	12/30/2017	Cm	U	I	Hatteras Island	wash over - Hatteras	35.2011	-75.7213	Cold Stunning
FGW2017123001	12/30/2017	Cm	U	I	Ocracoke Island	North end of Ocracoke	35.1814	-75.7711	Cold Stunning
ACR2017123001	12/30/2017	Cm	F	I	Hatteras Island	South of SSA 51	35.390151	-75.494945	Cold Stunning
ACR2017123002	12/30/2017	Cc	F	I	Hatteras Island	South of SSA Kinnakeet	35.397927	-75.497005	Cold Stunning
ACR2017123003	12/30/2017	Cm	F	I	Hatteras Island	South of SSA Kinnakeet	35.399414	-75.496843	Cold Stunning
ACR2017123004	12/30/2017	Lk	U	I	Hatteras Island	North of SSA Kinnakeet	35.399352	-75.496852	Cold Stunning
NBS2017123102	12/31/2017	Lk	U	I	Hatteras Island	Coast Guard Beach	35.20862	-75.70639	Cold Stunning
NBS2017123103	12/31/2017	Cm	U	I	Hatteras Island	Canadian hole	35.28584	-75.51725	Cold Stunning
NBS2017123101	12/31/2017	Cm	M	I	Hatteras Island	Small Overwash	35.20142	-75.72141	Cold Stunning

[1] Species: Cc = *Caretta caretta*; Cm = *Chelonia mydas*; Dc = *Dermochelys coriacea*; Lk = *Lepidochelys kempii*; UN = unknown

Appendix E. 2017 Sea Turtle Nesting Activity Maps



Map E-1. 2017 Bodie Island sea turtle nesting activity, Cape Hatteras National Seashore.



Map E-2. 2017 Bodie Hatteras sea turtle nesting activity, Cape Hatteras National Seashore.



Map E-3. 2017 North Hatteras Island sea turtle nesting activity, Cape Hatteras National Seashore.



Map E-4. 2017 South Hatteras Island sea turtle nesting activity, Cape Hatteras National Seashore.

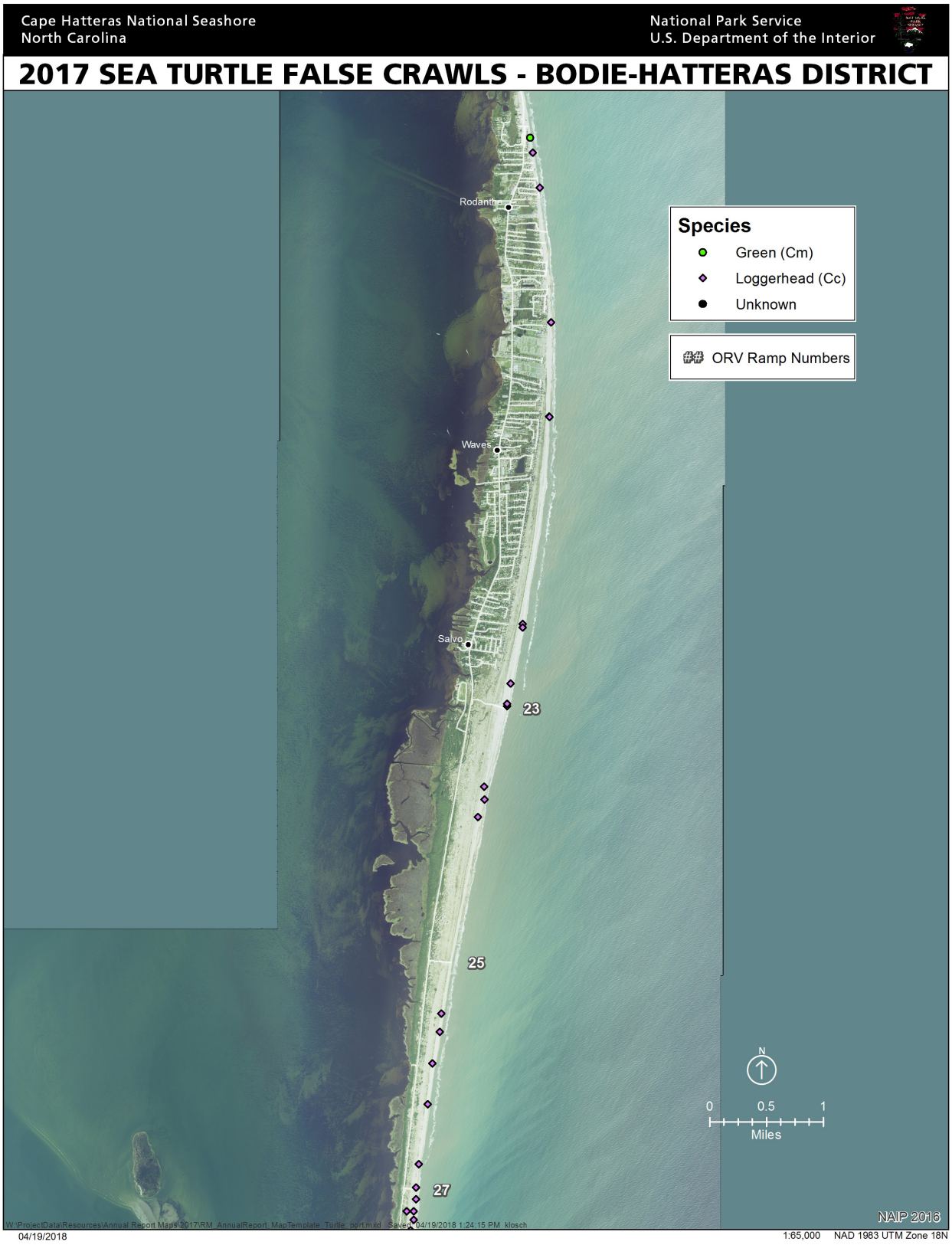


Map E-5. 2017 Ocracoke Island sea turtle nesting activity, Cape Hatteras National Seashore.

Appendix F. 2017 Sea Turtle False Crawl Maps



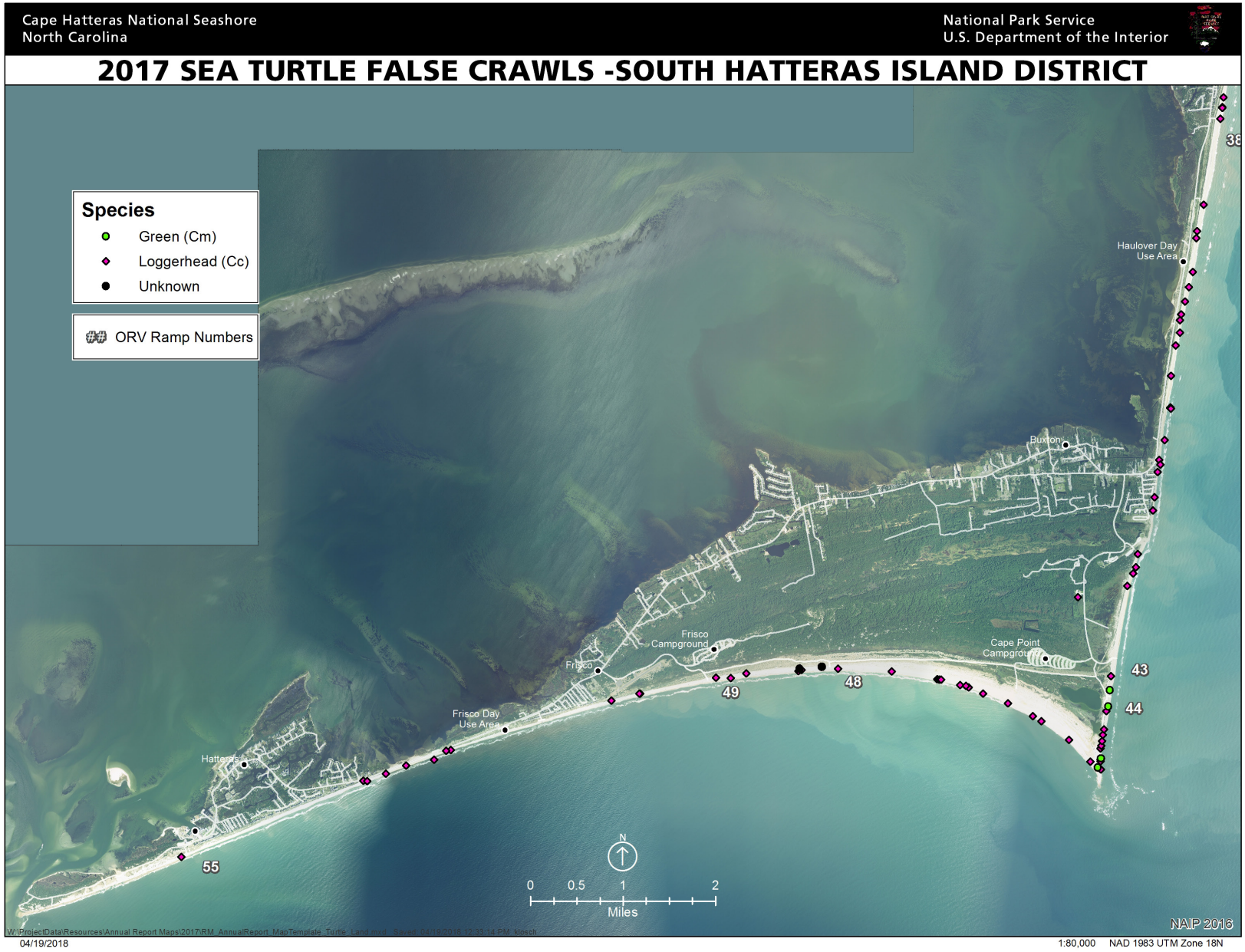
Map F-1. 2017 Bodie Island sea turtle false crawls, Cape Hatteras National Seashore.



Map F-2. 2017 Bodie Hatteras sea turtle false crawls, Cape Hatteras National Seashore.



Map F-3. 2017 North Hatteras Island sea turtle false crawls, Cape Hatteras National Seashore.



Map F-4. 2017 South Hatteras Island sea turtle false crawls, Cape Hatteras National Seashore.



Map F-5. 2017 Ocracoke Island sea turtle false crawls, Cape Hatteras National Seashore.

Appendix G. 2017 Sea Turtle Stranding Maps



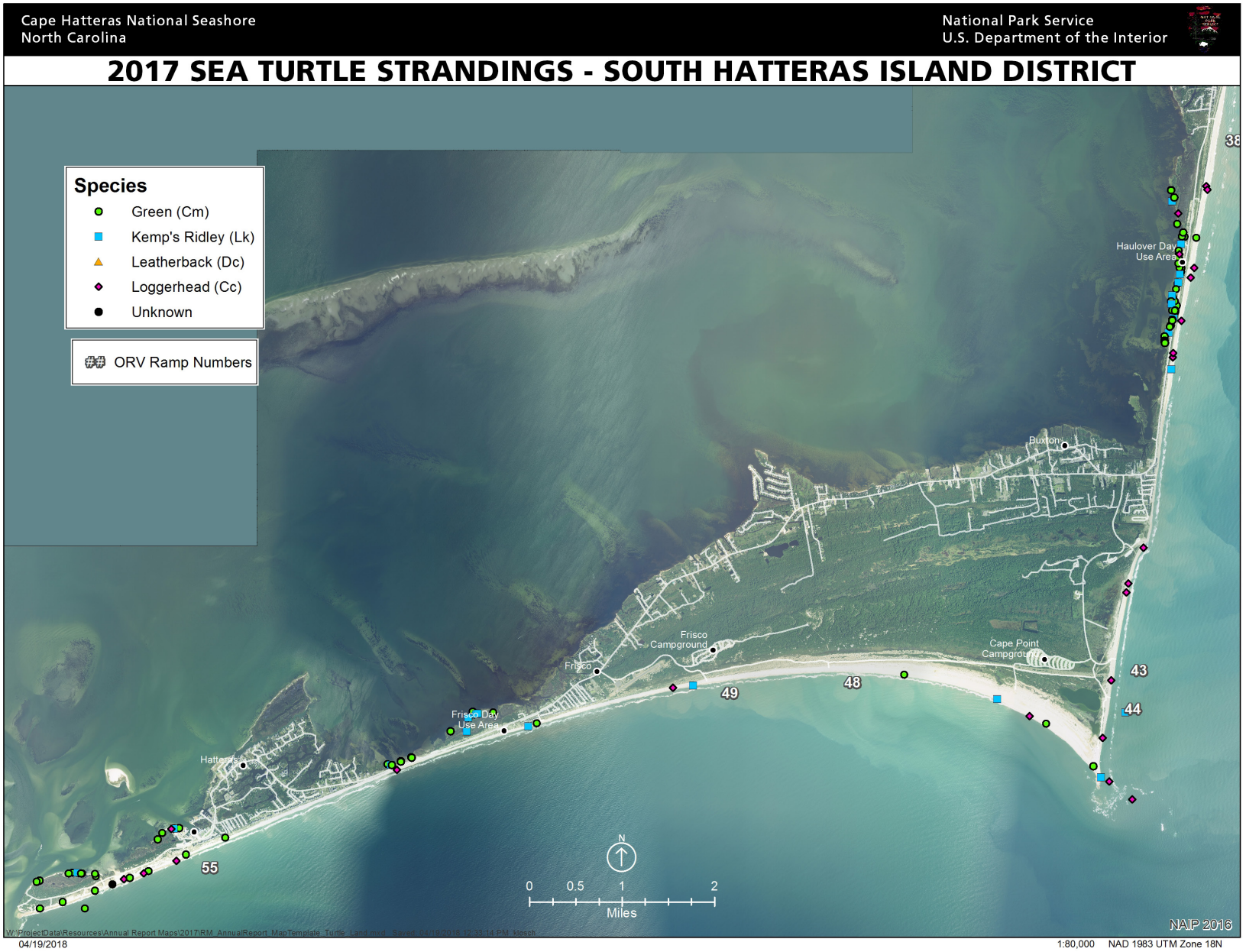
Map G-1. 2017 Bodie Island sea turtle strandings, Cape Hatteras National Seashore.



Map G-2. 2017 Bodie Hatteras sea turtle strandings, Cape Hatteras National Seashore.



Map G-3. 2017 North Hatteras Island sea turtle strandings, Cape Hatteras National Seashore.



Map G-4. 2017 South Hatteras Island sea turtle strandings, Cape Hatteras National Seashore.



Map G-5. 2017 Ocracoke Island sea turtle strandings, Cape Hatteras National Seashore.

The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

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