VAQF Scientific Report Volume 2024 No. 01

Virginia Sea Turtle & Marine Mammal Stranding Network 2023 Grant Report

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VIRGINIA AQUARIUM & MARINE SCIENCE CENTER

Virginia Coastal Zone MANAGEMENT PROGRAM

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE

VIRGINIA AQUARIUM FOUNDATION STRANDING RESPONSE PROGRAM

Virginia Sea Turtle and Marine Mammal Stranding Network 2023 Grant Report

VAQF Scientific Report 2024-01
February 2024

A Final Report to the
Virginia Coastal Zone Management Program
Department of Environmental Quality
Commonwealth of Virginia
NOAA Grant NA22NOS4190187, Task 49

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This document is a final grant report and has not undergone external scientific review. As such, the data analyses and interpretation are the opinions and views of the authors and not of the Virginia Aquarium Foundation, the Commonwealth of Virginia, or NOAA.

Suggested Citation:

Epple, A.L., Daniel, J.T., McNaughton, A.L. 2024. Virginia Sea Turtle and Marine Mammal Stranding Network 2023 Grant Report. Final Report to the Virginia Coastal Zone Management Program, NOAA CZM Grant NA22NOS4190187, Task 49. VAQF Scientific Report 2024-01, Virginia Beach, VA

The mission of the Virginia Aquarium & Marine Science Center is to inspire conservation of the marine environment through education, research and sustainable practices. The Aquarium is operated by the City of Virginia Beach in cooperation with the Virginia Aquarium Foundation (VAQF). The Virginia Aquarium's Stranding Response Program is dedicated to conservation of marine animal species through stranding response, research, rehabilitation, and education.

This project was funded by the Virginia Coastal Zone Management Program at the Department of Environment Quality through Grant NA22NOS4190187, Task 49, of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended. The views expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Department of Commerce, NOAA, or any of its sub-agencies.

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Introduction

All marine mammals and sea turtles are designated as protected species by the Marine Mammal Protection Act (1972) and/or the Endangered Species Act (1973). The Virginia Aquarium & Marine Science Center's Stranding Response Program (VAQS) holds permits from state and federal authorities for all activities in this report related to marine mammal and sea turtle stranding response, rehabilitation, and research. VAQS has been responding to marine mammal and sea turtle strandings (more than 10,100) in Virginia since 1987. The Virginia Aquarium facilities, including the Darden Marine Animal Conservation Center (DMACC) that houses the Stranding Response Program facilities and rehabilitation area, are located in Virginia Beach, VA. VAQS documents all marine mammal and sea turtle strandings throughout Virginia and coordinates the Virginia Sea Turtle Stranding and Salvage Network (STSSN). All state sea turtle and marine mammal stranding data are maintained by VAQS in the state database as well as contributed to national stranding databases. For the purposes of this report, VAQS defines stranding events as any time a marine mammal or sea turtle washes ashore sick, injured, or dead, and/or any time they become entrapped or entangled and are unable to return to their natural habitats without assistance.

VAQS uses staff, volunteers, and cooperating organizations to report, record, document, recover, examine, and/or rehabilitate stranded animals. The organization and training of primary response cooperators is crucial to the stranding network. Rapid response to strandings can result in the rescue of live animals and the collection of valuable data from dead animals that may otherwise be lost due to decomposition and/or scavenging. Formalized in 1991, the Stranding Response Program team is composed of staff and volunteers trained to respond to stranded animals. VAQS staff provides training programs for approximately 80 volunteers and personnel from cooperating agencies and organizations. Instruction in biology, ecology, and both live and dead stranding response protocols are provided for marine mammal and sea turtle species found in Virginia. These cooperative training efforts have included the U.S. Coast Guard, The Nature Conservancy, Virginia Marine Resources Commission, Virginia Department of Wildlife Resources (VDWR), Virginia Institute of Marine Science (VIMS), state parks, national wildlife refuges, regional law enforcement authorities, and lifeguards. As a result of these long-standing efforts, VAQS continues to maintain and improve the statewide marine animal stranding response network.

Marine mammal groups and species found in Virginia include cetaceans (dolphins, porpoises, and whales), phocids (seals), and sirenians (manatees) (Appendix IV: Virginia Species Lists). Marine mammal strandings occur in all months of the year. During the 1990s, Virginia averaged 63 marine mammal strandings per year with a high of 106 in 1994. Since then, stranding numbers have increased dramatically. For the years 2000-2023, Virginia has averaged

~100 marine mammal strandings per year (Figure 1). This increased stranding rate could represent increased marine mammal mortalities, but may also be the result of improved state-wide stranding response and data collection. The historic total of 427 strandings in 2013, resulted from a bottlenose dolphin unusual mortality event (UME) caused by a morbillivirus outbreak.

It is important for organizations such as VAQS to examine stranded marine mammals because these species are very challenging to study in the wild. Incident and mortality rates, probable causes of mortalities, human interactions, and other trends, are often monitored through stranding records. Strandings also provide a rare opportunity to thoroughly examine many marine mammal species for which there is little known about their natural history and physiology, or the diseases and pathologies present within populations over space and time. In some species, such as pygmy/dwarf sperm whales and beaked whales, data collected from stranded animals often provides the best or only information available on their natural history. Stranding records can represent viable measures of the biological diversity and the spatial and temporal changes that are occurring in adjacent waters, especially when long-term datasets are developed and maintained. In addition, stranding data can indicate seasonal trends in presence and suggest areas of high concentrations of marine mammal species. Spatial and temporal trends in marine mammal mortalities, such as those caused by unusual mortality events and/or fisheries interactions, can also be monitored from stranding records, and these records are often used in federal stock assessment reports and take reduction planning.

Five species of sea turtles (loggerhead, Kemp's ridley, leatherback, green, and hawksbill) have been recorded in Virginia (Appendix IV: Virginia Species Lists). Sea turtle strandings occur primarily in the late spring, summer, and fall. VAQS responded to an average of 86 sea turtle strandings per year during the 1990s. Since then, strandings have increased dramatically. From 2000 to present, Virginia has recorded over 6,500 live and dead sea turtle strandings, with an average of 267 per year for the last ten years. Data are recorded for all strandings, and necropsies are performed on many stranded carcasses. When applicable, live stranded sea turtles recovered by VAQS are rehabilitated at the Darden Marine Animal Conservation Center. Sea turtle stranding trends, including probable causes of mortalities, are monitored through stranding records.

In addition to strandings, a small number of sea turtles nest on Virginia beaches each year. These are primarily loggerheads, though several green and Kemp's ridley sea turtles have been recorded nesting recently in Virginia. VAQS participates in a nesting beach monitoring program in Virginia Beach with the U.S. Fish and Wildlife Service, Back Bay National Wildlife Refuge, and Virginia Department of Wildlife Resources. In 2023, there was one loggerhead turtle nest in VAQS' jurisdiction.

In addition to day-to-day stranding response and rehabilitation efforts, VAQS conducts research on marine mammals and sea turtles. One example is participation in photo-identification programs, a non-invasive technique that takes advantage of naturally occurring marks on animals. Photo-ID is used to study both bottlenose dolphins and large whales, primarily humpback whales, in the nearshore waters of Virginia and North Carolina. In addition, marine mammal and sea turtle entanglement and human interaction-based research continues to be conducted at VAQS and with external collaborators, resulting in publications both recently completed and in progress. Finally, VAQS staff is currently conducting ongoing research regarding biosurveillance of disease in local marine mammal and sea turtle populations, as well as supravital period and wound vitality in marine mammals.

VAQS staff and volunteers present the results of their research at national and regional workshops, at professional meetings, and in numerous publications (Appendix I: Professional and Education Activities). In addition, VAQS activities have been presented to more than 16 million people through innovative Aquarium exhibits and public programs. Staff and volunteers present educational programs for the public related to stranding events and provide outreach throughout the year during active stranding response efforts. On a continual basis, staff provide training/assistance and gain valuable experience in live animal rehabilitation and response by cross-training and working with staff at other stranding network facilities. Finally, public and private organizations conducting natural resource surveys and environmental assessments routinely utilize the VAQS stranding database and expertise for information regarding protected species in Virginia.

Stranding Response Methods

When examining dead stranded marine mammals and sea turtles, VAQS follows data collection protocols developed by NMFS (Appendix III: Stranding Network Datasheets) and by VAQS staff. For marine mammals, Level A data are collected on all strandings and recorded in the marine mammal stranding database. Level A data include:

- observer
- date
- location
- species
- total body length
- sex
- condition
- weight
- findings of human interaction*

- sample collection and dissemination
- carcass disposition

*Findings of human interaction consist of clues on a carcass that the animal had previously interacted with humans or human activities, sometimes resulting in injuries and/or the death of the animal. The most common types of human interactions are fishery entanglements, vessel strikes, and marine debris ingestion. Special data collection protocols and forms have been developed by VAQS for assessing human interactions in marine mammal and sea turtle strandings.

More involved level B and C data are also recorded when appropriate. The information is collected utilizing specialized data sheets and are often shared with other collaborating research organizations. These higher-level data sets can include:

- age
- extensive body measurements
- descriptions and photographs of external & internal appearance
- parasite and pathology occurrence
- stomach contents
- reproductive status
- genetic information
- tissue contaminant levels
- information for specific research projects

In order to provide timely, accurate, and usable information, VAQS compiles these data in a relational database. The computer system, database, and software allow for analytical study of the data, including GIS mapping. When combined with the extensive VAQS photo and video catalogs, the long-term marine mammal stranding database can be an invaluable tool for scientists, natural resource managers, and other state and federal agencies.

Sea turtle data are collected similarly to marine mammals, using forms created by the STSSN (See STSSN data sheet in Appendix III: Stranding Network Datasheets) and VAQS staff. In addition to the Level A, B, and C data listed above, VAQS also examines sea turtle carcasses for several types of tags, including flipper, PIT, satellite, and acoustic tags, some of which require specialized equipment to be detected. If tags are found, they are regularly reported to NMFS and the Cooperative Marine Turtle Tagging Program.

In addition to dead strandings, VAQS responds to live marine mammals and sea turtles each year. Live stranding response is quite different from responding to dead animals. While time is important when responding to a fresh dead stranding, timely response is crucial to the welfare and survivability of live stranded animals. The level and type of response depends on

the animal and circumstance, however, once a live stranding is confirmed, staff and volunteers mobilize and respond as quickly as possible.

Sick, injured, or single stranded cetaceans (whales, dolphins, porpoises) in this region are generally either logistically impossible to rescue or unsuitable candidates for rehabilitation and humane euthanasia is indicated. Phocids (seals), are amphibious animals and can be transported in dry containers such as canine kennels. At the Darden Marine Animal Conservation Center (DMACC), VAQS currently operates a seal triage room for short-term stabilization of a seal before it is transported to a longer-term rehabilitation facility. VAQS also responds to live marine mammal emergencies in neighboring states. Recent examples include August 2021 when NOAA requested VAQS respond to Delaware to lead the humane euthanasia and postmortem examination of an endangered fin whale. Additionally, in December 2023, VAQS assistance was requested in the form of supplies for the humane euthanasia, and personnel to join the postmortem examination of a juvenile sperm whale in North Carolina.

Similarly, to marine mammals, once a live sea turtle stranding is confirmed, staff and volunteers respond as quickly as possible. Live stranded sea turtles that are candidates for rehabilitation are brought to the DMACC where they are immediately treated for life-threatening conditions. This facility includes a specialized sea turtle rehabilitation hospital that accommodates a current annual average of >50 turtles admitted for rehabilitation in Virginia. Turtles are also transferred from outside organizations in other states for care or specialized procedures in which VAQS staff are experienced. At the peak of the 2023 stranding season, the DMACC hospital housed over 30 sea turtles at one time.

Discussion of 2023 Stranding Data

Marine Mammals

A total of 89 marine mammal strandings were recorded during 2023 (Table 1). In the past ten years, the number of marine mammal strandings has varied from a low of 77 (2021) to a high of 116 (2019) (Figure 1). Temporally, marine mammal strandings occur in all months of the year, but numbers typically decrease in late fall and winter. Some marine mammal species (*i.e.* large whales, harbor porpoises, common dolphins and seals) tend to strand seasonally, while others (*i.e.* bottlenose dolphins) can occur at any time of the year (Figure 2), with peaks in spring and summer. Spatially, marine mammal strandings tend to occur throughout Virginia's ocean and bay waters, but most commonly along Virginia's eastern shore, the southern shore of the Chesapeake Bay, and the southern Atlantic coast. Strandings in 2023 followed those patterns (Figure 3). The Virginia stranding database is very diverse and now includes 32 species (Appendix IV: List of Species Stranded in Virginia). Bottlenose dolphins, however, are the most commonly sighted marine mammal in Virginia waters, as well as the most commonly stranded.

In 2023, bottlenose dolphin strandings occurred in every month of the year and comprised 76% of total marine mammal strandings, which is on par with recent averages. Sex was determined for 35 bottlenose dolphins with a ratio of 8 females and 27 males. The male bias could be explained by the fact that male reproductive organs can often be more easily visualized in photographs from the reporting party in cases when no external examination is possible. Pictures and descriptions of notable marine mammal strandings from 2023 are included in Appendix II: Case Highlights.

Marine mammals are divided into taxonomic groups for analyses. These data groups for 2023 include: (1) bottlenose dolphins, (2) large whales (represented this year by fin, minke, humpback, unidentified balaenopterid, and North Atlantic right whales), (3) other delphinids (less commonly stranded delphinids represented this year by a single striped dolphin), (4) Kogiid/Ziphiids (pygmy sperm whales, dwarf sperm whales, and beaked whales), (5) delphinids that could not be identified to species, and (6) phocids (harbor, harp, hooded, and gray seals). Unique, less common marine mammal species that stranded in 2023 included two pygmy sperm whales, not documented since 2017, and one striped dolphin, of which only 19 have been documented in Virginia since 1988. Live and dead strandings are analyzed as one data set for the purposes of this report. In 2023, Virginia had 8 known live marine mammal strandings (Table 2). These included a juvenile harbor seal with propeller injuries that was transferred to rehab at the National Aquarium, as well as a free-swimming bottlenose dolphin entangled in fishing line, an out of habitat bottlenose dolphin free swimming in a creek for an extended period of time, and several small cetaceans with a presumptive infectious cause of stranding.

Increased presence of healthy seals resting on Virginia beaches has led to a concerted outreach effort by VAQS in the form of signage, direct conversations with the public, and social media posts. Increased understanding of the healthy seasonal seal population in the region and increased public education have decreased the unwarranted interference with otherwise healthy, resting seals. Continued education and outreach, as well as research in the expanding presence of phocids in Virginia, is needed to continue to minimize negative human interactions with seals.

In marine mammals that were moderately decomposed or fresher (n=68), signs of human interaction were positively documented in 16% (n=11), were not present in 7% (n=5) and could not be determined in 76% (n=52). Two additional cases were in an advanced state of decomposition but were positive for human interaction. Of the 13 human interaction cases, four showed evidence of vessel interactions, one showed evidence of post-stranding mutilation, four were positive for fisheries interaction (two of which also exhibited mutilation), and four showed evidence of entanglement but fishery interaction status could not be confidently determined.

Large whales

Large whales strand in Virginia on an annual basis. With the exception of the sperm whale, large whales are typically baleen whales such as humpback and minke whales, and include endangered species such as the fin, sei, and North Atlantic right whales. Large whale strandings often bear a heavy logistical burden and require extensive collaboration, often with law enforcement, municipalities, and natural resource organizations. In the event of a large whale stranding, VAQS follows protocols for euthanasia and examination, whenever applicable, developed in part by previous VAQS staff.

Overall, an average of two large whale strandings occurred in Virginia between 1991 and 2015. Starting in 2016, Unusual Mortality Events (UME) were declared by the NOAA for multiple species due to the high number of large whale strandings throughout the northeast region. Since then, an average of 7 large whales have stranded each year (Figure 4), including 10 large whale strandings in 2023. These included a species diversity of fin (n=1), humpback (n=6), minke (n=1), and North Atlantic right (n=1) whales, and one baleen whale that could not be identified to species. VAQS received a certificate of appreciation from the National Oceanic and Atmospheric Administration in recognition for exemplary service during the large number of whale strandings in the Mid-Atlantic at the beginning of 2023. The associated examinations and necropsies of these animals, especially that of the critically endangered North Atlantic right whale, highlighted the strong need for funding, specifically for specialized equipment and personnel expertise, for managing the costly events of landing, towing, necropsy, and disentanglement of large whales.

Sea Turtles

During 2023, there was an above average number of sea turtle strandings (285) in Virginia (Table 2, Table 3, Figure 5). Since 2000, Virginia has experienced both extremely high (531 in 2003) and relatively low (173 in 2011) numbers of sea turtle strandings, with an average of 267 strandings per year over the past ten years. Sea turtle strandings typically peak in the late spring and summer, as was the case in 2023 (Figure 6). May saw more strandings than any other month with 87 (30% of the yearly total). During 2023, 24 sea turtle strandings were documented by stranding network cooperators from the Virginia Department of Wildlife Resources, Chincoteague National Wildlife Refuge, Fisherman Island/Eastern Shore National Wildlife Refuge, False Cape State Park, and the US Army Corp of Engineers.

Loggerheads (n=124) continued to be the most common sea turtle species to strand in Virginia, followed by Kemp's ridleys (n=104). As demonstrated in recent years, green turtles (n=46) continued to strand in Virginia in relatively high numbers. The current ten-year average (2014-2023) of stranded green turtles in Virginia is 30 per year, whereas the previous ten-year

average (2004-2013) was only eight. Additional sea turtle stranding reports in 2023 included a leatherback (n=1), and turtles that could not be identified to species (n=10) (Figure 6). The distribution of strandings was primarily along the southern eastern shore, southern ocean-facing beaches, and lower bay shorelines, as has been typical in previous years (Figure 7).

VAQS has continued to prioritize the recognition and documentation of human interaction in stranded sea turtles. In 2023, signs of human interaction were documented in 46% of cases (n=132), not present in 3% (n=9), and could not be determined in 51% (n=144). Documentation of some types of human interaction, most notably evidence of entanglements, can be more challenging to assess in sea turtles due to their hard shells and keratinized skin. Additionally, decomposition often precludes a thorough human interaction evaluation, and some carcasses are inaccessible for examination. For carcasses that are fresh enough to conduct thorough necropsies, anthropogenic injuries such as vessel, dredge, or entanglement lesions are thoroughly investigated. Necropsies of stranded turtles sometimes reveal internal signs of human interaction in the form of fishing lures, hooks, line and plastic debris in the gastrointestinal tract. In 2023, five turtles had instances of human interaction that were only discovered upon necropsy (ingested debris and fishing gear).

Turtles for which probable cause of stranding/death could be determined (n=152, 53% of total turtle strandings) included human induced stranding (n=128, 84%) and naturally caused stranding (n=24, 16%). Human induced strandings were mainly recreationally hooked turtles (n=62, 48%) and turtles with acute anthropogenic trauma, such as from a watercraft vessel or dredge (n=59, 46%). Other human causes of stranding included chronic hooking, acute entanglement, and entanglement of unknown chronicity. Naturally caused strandings consisted primarily of cold stunning cases (n= 19, 79%), but also included cases of infection/disease (n=5, 20%). Performance of high-quality necropsy examinations continues to aid in the determination of cause of stranding/death in many cases. In 2023, VAQS staff performed 78 necropsies on stranded sea turtles. Pictures and descriptions of some of the notable sea turtle strandings in 2023 are included in Appendix II: Case Highlights.

Live Strandings and Rehabilitation

Live strandings of sea turtles decreased slightly from 2022's record-breaking numbers (n=92) to 72 confirmed live strandings in 2023 (Figure 8). These turtles included 54 Kemp's ridleys, 5 loggerheads, 6 greens, and 7 of unidentified species (Table 4). The most common cause of stranding for live stranded turtles was incidental capture via recreational hook and line (n=62).

Of the 72 turtles that stranded alive, 63 were successfully recovered for rehabilitation. This included: 46 rehabilitated and released by VAQS, 6 transferred to collaborating facilities

and released, 2 transferred and still in rehabilitation, 3 still undergoing rehabilitation at VAQS, and 6 that died during rehabilitation. Two additional live turtles were transferred to VAQS for rehabilitation from Delaware due to the nature of the cases and their compatibility with VAQS' areas of expertise. One was a recreationally hooked Kemp's ridley turtle, for which VAQS staff removed the hook and successfully released the turtle. The other was a diseased loggerhead turtle that is still undergoing treatment at VAQS. In addition, 21 sea turtles that stranded in Virginia in 2021-2022 were released in 2023 after successful rehabilitation by VAQS and partner facilities.

VAQS Activities During 2023

Throughout 2023, VAQS staff participated in numerous educational and professional activities. One of the largest of these endeavors was centered on training volunteers and cooperators. VAQS continued to grow a robust volunteer program, with approximately 80 program volunteers involved in tasks such as daily husbandry, stranding response, sea turtle nest patrols, and being on-call for after-hours responses. This year, volunteers logged almost 14,000 hours supporting VAQS' operations. Training participants for these roles within the program require both initial and ongoing trainings conducted by staff (see Appendix I: Professional and Education Activities for more details). Additionally, VAQS benefits from cooperators trained to gather information on their behalf and emphasis was placed on developing training materials for cooperators on the Eastern Shore of Virginia or other areas in which stranding response can be logistically challenging in order to optimize staff resources and valuable data collection.

In addition to volunteers and cooperators, VAQS maintains a robust intern program focused on training the next generations of undergraduate and graduate students. Trainings for students focused on sea turtle and marine mammal biology, ecology, and stranding response protocols. One graduate student completed their Master of Science thesis data collection and manuscript with the program and under the mentorship of VAQS staff.

In addition to direct volunteer, intern, and cooperator trainings, VAQS conducted other outreach and educational opportunities. In-person necropsy and rehabilitation demonstrations were held for VAQ summer camps and undergraduate student groups. A virtual lecture was conducted for a sea turtle veterinary medicine course.

VAQS staff added scientific content to regional conferences and meetings while also gaining valuable experience and exposure to a wide range of topics. In February, one staff member presented at the Southeast Regional Sea Turtle meeting. In September, four VAQS staff attended the annual Greater Atlantic Regional Stranding Consortium Conference (GARSCON) in Delaware. This was a four-day event that included the Consortium meeting, the

regional marine mammal and sea turtle NOAA business meetings, scientific sessions, a volunteer retention and recruitment workshop, and an oil spill / disaster response planning workshop. VAQS staff gave two oral presentations on marine mammal and sea turtle science. Location of attendees ranged from Florida to Maine, including staff and volunteers from rehabilitation and response organizations, as well as staff from NOAA Fisheries.

Additionally, VAQS staff continue to provide valuable data and leadership roles to external working groups. In addition to active participation by multiple staff in the Greater Atlantic Regional Stranding Consortium, one staff member continues their role on the three-person steering committee. As the region remains involved in multiple federally managed marine mammal unusual mortality events (UME), staff continue to participate as stranding network liaisons within UME teams. Additionally, staff also regularly contribute to federal management and scientific teams studying the interactions of protected species with commercial fisheries and other potentially threatening human activities. Three staff members participated in a state-wide workshop for the development of a marine mammal conservation plan. This brought to light state-wide obstacles, identified potential solutions, and established necessary relationships for continued collaboration.

A complete list of all professional, educational, and training activities is included in Appendix I: Professional and Education Activities.

Summary

Though total sea turtle strandings were lower than average in both 2020 and 2021 (n=216 and 212 respectively), 2022 and 2023 exhibited higher than average turtle stranding numbers (n=325 and 284). Rebounding numbers suggest that, although there could be an ecological explanation for those lower numbers, the impacts of the COVID-19 pandemic may have played a role in how many tourists/residents were out on the beaches and the water reporting strandings. Continued monitoring of Virginia sea turtle strandings in the future will provide valuable information to help understand the causes of sea turtle strandings and whether changing numbers represent a significant and predictable trend or only a temporary change.

The total number of marine mammal strandings in 2023 (n=89) was slightly below average, but within normal limits. Overall temporal and geographic stranding trends were similar to observed historic trends. However, since 2016 the number of large whale strandings has drastically increased, and 10 large whales were documented in Virginia during 2023. Proper investigation of these large events is often expensive to complete and requires highly skilled personnel and extensive logistical planning. The most notable large whale stranding this past year was a critically endangered North Atlantic Right Whale, which exhibited evidence of blunt

trauma (consistent with a vessel interaction). Though bottlenose dolphins were the most commonly stranded species in 2023 (comprising 76% of strandings), other more rare species were also documented, including one striped dolphin and two pygmy sperm whales. Eight live-stranded marine mammals were documented throughout the year. VAQS continues to expertly monitor stranded animals for signs of human interaction and in 2023, 13 marine mammals exhibited evidence of human interaction, the most common of which were interactions with fishing gear and vessels.

Data collected by VAQS continues to be critical to the long-term monitoring efforts for sea turtle and marine mammal populations in the mid-Atlantic region. Financial support from CZM and other federal grants is critically important for VAQS' continued operations; however, all combined state and federal funding sources represent significantly less than the actual cost of sea turtle and marine mammal stranding response in Virginia. The remainder is currently supplemented through private donations and institutional support from the Virginia Aquarium & Marine Science Center Foundation. Most funding sources are competitive in nature, require lengthy application and reporting requirements, and depend on unstable and variable annual appropriations. There is a strong need to secure consistent and dependable funding to continue stranding response operations, but the Virginia Aquarium Stranding Response Program remains committed to providing the valuable service of documenting strandings of protected marine mammals and sea turtles in Virginia in 2024. We are hopeful that the vitally important data collected can be utilized by state and federal agencies to ensure continued protections for marine mammals and sea turtles.

Tables

*Table 1: Marine mammal strandings in Virginia during 2023, n=89. Notes: length measured in centimeters; * indicates estimated length; ND=not determined; F=female, M=male, U=unknown sex.*

Field Number	Strand Date	Species	City/County	Latitude	Longitude	Condition	Sex	Length
VAQS20231001	1/3/2023	Bottlenose dolphin	Virginia Beach	36.7789	75.95531	dead	U	ND
VAQS20231002	1/12/2023	Humpback whale	Virginia Beach	36.9204	-76.0648	dead	F	930
VAQS20231003	2/7/2023	Humpback whale	Virginia Beach	36.9353	-76.009	dead	M	1100
VAQS20231004	2/10/2023	Humpback whale	Northampton	37.2442	-76.0192	dead	F	ND
VAQS20231005	2/12/2023	Northern right whale	Virginia Beach	36.9157	-76.1144	dead	M	1245
VAQS20231006	2/14/2023	Bottlenose dolphin	Virginia Beach	36.6718	-75.9116	dead	U	ND
VAQS20231008	2/16/2023	Bottlenose dolphin	Northampton	37.1048	-75.9493	dead	U	ND
VAQS20231007	2/19/2023	Striped dolphin	Virginia Beach	36.8286	-75.9684	live	M	174
VAQS20231009	3/1/2023	Bottlenose dolphin	Virginia Beach	36.7733	-75.9537	dead	M	262
VAQS20231010	3/9/2023	Humpback whale	Northampton	37.2371	-76.0158	dead	F	823*
VAQS20231011	3/10/2023	Humpback whale	Accomack	37.8688	-75.2658	dead	U	ND
VAQS20231012	3/13/2023	Bottlenose dolphin	Suffolk	36.8314	-76.4832	live	U	ND
VAQS20231013	3/23/2023	Bottlenose dolphin	Virginia Beach	36.6942	-75.9221	dead	M	185.5
VAQS20231014	3/27/2023	Bottlenose dolphin	Norfolk	36.9645	-76.288	dead	M	226
VAQS20231015	3/30/2023	Bottlenose dolphin	Virginia Beach	36.9155	-76.0635	dead	M	156*
VAQS20231016	4/3/2023	Humpback whale	Accomack	37.6472	-76.0043	dead	U	ND
VAQS20231017	4/4/2023	Harbor seal	Virginia Beach	36.9808	-76.1069	live	M	114
VAQS20231019	4/9/2023	Fin whale	Northampton	37.275	-75.615	dead	M	ND
VAQS20231018	4/11/2023	Bottlenose dolphin	Northampton	37.1731	-75.8384	dead	U	163*
VAQS20231020	4/11/2023	Bottlenose dolphin	Northampton	37.1682	-75.846	dead	U	ND
VAQS20231021	4/20/2023	Bottlenose dolphin	Hampton	37.0964	-76.2581	dead	F	260
VAQS20231022	4/21/2023	Bottlenose dolphin	Northumberland	37.8335	-76.3041	dead	U	ND
VAQS20231023	4/23/2023	Bottlenose dolphin	Virginia Beach	36.6084	-75.882	dead	M	262
VAQS20231059	4/24/2023	Harbor seal	Northampton	37.1776	-75.8496	dead	U	ND
VAQS20231024	4/25/2023	Bottlenose dolphin	Hampton	37.0645	-76.2811	dead	M	ND
VAQS20231025	4/26/2023	Bottlenose dolphin	Accomack	37.8594	-75.3963	dead	U	155*
VAQS20231026	5/2/2023	Bottlenose dolphin	Northampton	37.506	-75.9561	dead	M	ND
VAQS20231027	5/4/2023	Bottlenose dolphin	Northampton	37.1628	-75.8521	dead	U	96.5*
VAQS20231029	5/4/2023	Bottlenose dolphin	Westmoreland	38.0872	-76.5615	dead	U	ND
VAQS20231028	5/6/2023	Bottlenose dolphin	Mathews	37.4926	-76.2732	dead	M	ND
VAQS20231030	5/9/2023	Bottlenose dolphin	Virginia Beach	36.5536	-75.8683	dead	U	ND
VAQS20231031	5/16/2023	Gray seal	Accomack	37.8486	-75.3854	dead	U	107*
VAQS20231032	5/17/2023	Bottlenose dolphin	Accomack	37.8561	-75.3987	dead	M	254*
VAQS20231033	5/18/2023	Bottlenose dolphin	Virginia Beach	36.7839	-75.957	dead	F	259
VAQS20231034	5/19/2023	Bottlenose dolphin	Virginia Beach	36.9064	-75.9891	dead	U	ND
VAQS20231035	5/20/2023	Bottlenose dolphin	Norfolk	36.9571	-76.2537	dead	U	ND
VAQS20231037	5/23/2023	Bottlenose dolphin	Hampton	37.0592	-76.2825	dead	M	308
VAQS20231036	5/23/2023	Bottlenose dolphin	Norfolk	36.9539	-76.2486	dead	M	200
VAQS20231038	5/26/2023	Bottlenose dolphin	Norfolk	36.9391	-76.2219	dead	M	107
VAQS20231039	5/27/2023	Bottlenose dolphin	Mathews	37.5049	-76.3509	dead	U	ND
VAQS20231040	5/29/2023	Bottlenose dolphin	Hampton	37.1064	-76.29	dead	M	ND
VAQS20231045	6/3/2023	Bottlenose dolphin	Northumberland	37.8162	-76.1661	dead	U	ND
VAQS20231042	6/4/2023	Bottlenose dolphin	Gloucester	37.2525	-76.4563	dead	U	ND
VAQS20231041	6/4/2023	Minke whale	Virginia Beach	36.5588	-75.8697	live	F	488
VAQS20231043	6/4/2023	Bottlenose dolphin	Northumberland	37.9189	-76.2838	dead	U	ND

Field Number	Strand Date	Species	City/County	Latitude	Longitude	Condition	Sex	Length
VAQS20231044	6/5/2023	Bottlenose dolphin	Lancaster	37.6016	-76.2016	dead	M	ND
VAQS20231046	6/8/2023	Bottlenose dolphin	Northampton	37.4132	-75.9825	dead	M	ND
VAQS20231047	6/10/2023	Bottlenose dolphin	Virginia Beach	36.7265	-75.9356	dead	U	ND
VAQS20231048	6/13/2023	Unidentified delphinid	Gloucester	37.2659	-76.4177	dead	U	ND
VAQS20231049	6/15/2023	Bottlenose dolphin	Northampton	37.4613	-75.9652	dead	U	ND
VAQS20231050	6/17/2023	Bottlenose dolphin	Lancaster	37.7265	-76.5601	dead	U	ND
VAQS20231051	6/21/2023	Bottlenose dolphin	Virginia Beach	36.9071	-76.0899	dead	M	109.3
VAQS20231052	6/21/2023	Bottlenose dolphin	Lancaster	37.6273	-76.286	dead	M	259*
VAQS20231053	6/23/2023	Bottlenose dolphin	Mathews	37.3453	-76.2744	dead	U	ND
VAQS20231054	6/23/2023	Bottlenose dolphin	Northumberland	37.8435	-76.2496	dead	M	ND
VAQS20231057	6/25/2023	Bottlenose dolphin	Accomack	37.8373	-75.9984	dead	U	ND
VAQS20231055	6/27/2023	Bottlenose dolphin	Virginia Beach	36.9832	-76.1064	dead	U	ND
VAQS20231056	6/29/2023	Bottlenose dolphin	Northumberland	37.8416	-76.247	dead	M	ND
VAQS20231058	7/3/2023	Bottlenose dolphin	Northumberland	37.6893	-76.315	dead	M	ND
VAQS20231060	7/8/2023	Unidentified balaenopterid	Norfolk	36.9367	-76.3311	dead	U	ND
VAQS20231061	7/9/2023	Unidentified delphinid	Virginia Beach	36.676	-75.9136	dead	U	ND
VAQS20231062	7/10/2023	Bottlenose dolphin	Virginia Beach	36.7232	-75.9343	dead	U	263*
VAQS20231063	7/18/2023	Pygmy sperm whale	Accomack	37.999	-75.2647	dead	F	276
VAQS20231064	7/19/2023	Bottlenose dolphin	Westmoreland	38.1656	-76.8147	dead	U	ND
VAQS20231089	7/21/2023	Bottlenose dolphin	Virginia Beach	36.8682	-75.9753	live	U	ND
VAQS20231065	7/26/2023	Unidentified delphinid	Isle of Wight	36.9869	-76.5378	dead	U	ND
VAQS20231066	7/30/2023	Bottlenose dolphin	Norfolk	36.9576	-76.2545	dead	F	143.8
VAQS20231067	7/31/2023	Bottlenose dolphin	Northampton	37.2264	-76.0342	dead	M	148
VAQS20231068	7/31/2023	Bottlenose dolphin	Norfolk	36.9275	-76.201	dead	M	200
VAQS20231069	8/16/2023	Bottlenose dolphin	Northampton	37.1915	-76.0024	dead	U	ND
VAQS20231070	8/18/2023	Bottlenose dolphin	Virginia Beach	36.9274	-76.0505	dead	M	251
VAQS20231071	9/10/2023	Bottlenose dolphin	Virginia Beach	36.9268	-76.159	dead	M	ND
VAQS20231072	9/24/2023	Bottlenose dolphin	Northumberland	37.9367	-76.321	dead	U	ND
VAQS20231073	9/27/2023	Bottlenose dolphin	Virginia Beach	36.9289	-76.1729	dead	F	200
VAQS20231074	10/6/2023	Bottlenose dolphin	Virginia Beach	36.6309	-75.891	dead	U	ND
VAQS20231075	10/8/2023	Bottlenose dolphin	Northampton	37.1881	-75.9982	dead	U	ND
VAQS20231076	10/28/2023	Bottlenose dolphin	Newport News	36.9972	-76.4637	dead	M	207.4
VAQS20231077	11/9/2023	Bottlenose dolphin	Mathews	37.4192	-76.2511	dead	F	ND
VAQS20231078	11/11/2023	Bottlenose dolphin	Virginia Beach	36.8914	-75.9851	live	F	182.8
VAQS20231079	11/18/2023	Pygmy sperm whale	Virginia Beach	36.8306	-75.9683	live	F	210*
VAQS20231080	11/18/2023	Bottlenose dolphin	Hampton	37.0047	-76.3023	dead	M	218
VAQS20231081	11/20/2023	Bottlenose dolphin	Virginia Beach	36.9196	-76.1306	live	M	208
VAQS20231082	11/24/2023	Unidentified delphinid	Virginia Beach	36.6422	-75.8962	dead	U	ND
VAQS20231083	11/24/2023	Bottlenose dolphin	Norfolk	36.9349	-76.2075	dead	F	252.6
VAQS20231084	11/27/2023	Bottlenose dolphin	Hampton	37.0042	-76.3021	dead	U	ND
VAQS20231085	11/29/2023	Bottlenose dolphin	Accomack	37.7378	-75.5612	dead	U	ND
VAQS20231086	11/30/2023	Bottlenose dolphin	Hampton	37.0012	-76.3143	dead	U	ND
VAQS20231087	12/5/2023	Bottlenose dolphin	Virginia Beach	36.9128	-76.0791	dead	F	232.2
VAQS20231088	12/13/2023	Unidentified delphinid	Norfolk	36.9337	-76.2016	dead	U	ND

Table 2: Live stranded marine mammals recorded by VAQS in Virginia in 2023, n=8.

Field Number	Species	Strand Date	Final Disposition
VAQS20231007	Striped dolphin	2/19	Euthanized; full necropsy
VAQS20231012	Bottlenose dolphin	3/13	Attempted herding; not resighted (presumed exited area naturally)
VAQS20231017	Harbor seal	4/4	Transferred to network facility for long-term rehabilitation
VAQS20231041	Minke whale	6/4	Euthanized; full necropsy
VAQS20231089	Bottlenose dolphin	7/21	Free-swimming; not re-sighted
VAQS20231078	Bottlenose dolphin	11/11	Euthanized; full necropsy
VAQS20231079	Pygmy sperm whale	11/18	Euthanized; partial necropsy (samples contributed to research project)
VAQS20231081	Bottlenose dolphin	11/20	Died at site; partial necropsy (samples contributed to research project)

Table 3: Dead sea turtle strandings in Virginia during 2023, n=213. Notes: length measured in centimeters; ND=not determined; F=female, M=male, U=unknown sex.

Field Number	Strand Date	Species	Location	Latitude	Longitude	Sex	Length
VAQS20232001	01/01	Green	Norfolk	36.85539	-76.2954	U	ND
VAQS20232002	01/02	Green	Virginia Beach	36.88698	-76.0096	F	25.2
VAQS20232003	02/06	Green	Norfolk	36.8557	-76.3051	U	ND
VAQS20232004	01/12	Green	Hampton	36.986	-76.3	U	29.2
VAQS20232005	01/16	Green	Norfolk	36.85984	-76.3075	F	28.7
VAQS20232006	02/01	Green	Portsmouth	36.89469	-76.3495	U	ND
VAQS20232007	02/02	Green	Norfolk	36.90756	-76.3061	U	ND
VAQS20232008	02/17	Green	Norfolk	36.84494	-76.2932	F	31.8
VAQS20232009	03/05	Loggerhead	Norfolk	36.95885	-76.2569	F	73.5
VAQS20232010	03/24	Green	Accomack	37.741	-75.561	U	29.5
VAQS20232011	04/12	Loggerhead	Accomack	37.62111	-75.6127	U	ND
VAQS20232014.1	05/21	Kemp's ridley	Mathews	37.3737	-76.336	U	ND
VAQS20232016	05/01	Loggerhead	Virginia Beach	36.61056	-75.8828	F	ND
VAQS20232020	05/05	Kemp's ridley	Northampton	37.083	-75.955	U	55.1
VAQS20232023	05/05	Loggerhead	Virginia Beach	36.83783	-75.42	U	ND
VAQS20232029	05/10	Kemp's ridley	Virginia Beach	36.75925	-75.9481	F	50.3
VAQS20232030	05/10	Kemp's ridley	Norfolk	36.9375	-76.2159	F	47.8
VAQS20232031	05/10	Loggerhead	Norfolk	36.94192	-76.2285	F	59.3
VAQS20232034	05/11	Loggerhead	Northumberland	37.7433	-76.3144	U	ND
VAQS20232038	05/14	Loggerhead	Norfolk	36.94116	-76.2268	F	69.4
VAQS20232046	05/15	Loggerhead	Mathews	37.32443	-76.2722	U	ND
VAQS20232049	05/15	Loggerhead	Norfolk	36.95569	-76.2525	U	ND
VAQS20232050	05/16	Kemp's ridley	Northumberland	37.74265	-76.3141	U	ND
VAQS20232055	05/18	Loggerhead	Accomack	37.8596	-75.3982	U	ND
VAQS20232057	05/18	Kemp's ridley	Virginia Beach	36.91441	-76.069	F	31.7
VAQS20232058	05/19	Kemp's ridley	Accomack	37.85996	-75.3987	U	33
VAQS20232060	05/19	Loggerhead	Mathews	37.81451	-76.3118	M	ND
VAQS20232062	05/20	Loggerhead	York	37.22961	-76.4199	U	ND
VAQS20232068	05/20	Loggerhead	Hampton	37.00454	-76.3022	F	57.2
VAQS20232071	05/20	Loggerhead	Northumberland	37.87697	-76.241	U	ND
VAQS20232072	05/21	Kemp's ridley	Hampton	37.03914	-76.2903	F	27.5
VAQS20232073	05/22	Kemp's ridley	Virginia Beach	36.70973	-75.929	F	25.8
VAQS20232074	05/22	Kemp's ridley	Accomack	37.85892	-75.3976	U	22.9
VAQS20232076	05/22	Unknown	York	37.1755	-76.3945	U	ND
VAQS20232077	05/23	Kemp's ridley	Virginia Beach	36.79702	-75.9611	F	28.4
VAQS20232078	05/23	Kemp's ridley	Norfolk	36.93417	-76.2044	M	32
VAQS20232079	05/23	Kemp's ridley	Norfolk	36.95583	-76.2519	U	30.2
VAQS20232080	05/23	Loggerhead	Hampton	37.08556	-76.2722	F	62.5
VAQS20232081	05/23	Kemp's ridley	Hampton	37.00226	-76.3183	U	ND

Field Number	Strand Date	Species	Location	Latitude	Longitude	Sex	Length
VAQS20232082	05/24	Loggerhead	Norfolk	36.94283	-76.2305	U	88.8
VAQS20232083	05/24	Loggerhead	Virginia Beach	36.86411	-75.9776	U	86.9
VAQS20232084	05/24	Kemp's ridley	Virginia Beach	36.91346	-76.0767	F	30.6
VAQS20232085	05/25	Loggerhead	Virginia Beach	36.75377	-75.9458	U	70
VAQS20232086	05/25	Kemp's ridley	Virginia Beach	36.65264	-75.9015	U	ND
VAQS20232087	05/24	Kemp's ridley	Isle of Wight	36.98703	-76.5386	U	ND
VAQS20232088	05/25	Loggerhead	Accomack	37.91143	-75.328	U	ND
VAQS20232089	05/25	Kemp's ridley	Accomack	37.86085	-75.3998	U	33
VAQS20232090	05/25	Loggerhead	Mathews	37.49125	-76.2721	U	ND
VAQS20232091	05/25	Loggerhead	Northumberland	37.9228	-76.2931	U	ND
VAQS20232092	05/27	Loggerhead	Northumberland	37.73293	-76.308	M	64.6
VAQS20232093	05/27	Loggerhead	York	37.20062	-76.3958	U	ND
VAQS20232094	05/27	Kemp's ridley	York	37.14468	-76.4249	U	ND
VAQS20232095	05/27	Loggerhead	Middlesex	37.57263	-76.3489	U	ND
VAQS20232096	05/28	Loggerhead	Mathews	37.42474	-76.2522	U	ND
VAQS20232097	05/26	Kemp's ridley	Northumberland	37.92266	-76.2996	U	ND
VAQS20232098	08/02	Loggerhead	Virginia Beach	36.78364	-75.957	U	ND
VAQS20232099	05/29	Kemp's ridley	Middlesex	37.57374	-76.3591	U	ND
VAQS20232100	05/26	Loggerhead	Northumberland	37.72694	-76.3294	U	ND
VAQS20232101	05/31	Loggerhead	Virginia Beach	36.75482	-75.9462	U	90
VAQS20232102	05/31	Loggerhead	Virginia Beach	36.9147	-76.0659	F	55
VAQS20232103	06/01	Kemp's ridley	Virginia Beach	36.91487	-76.0668	M	25.9
VAQS20232104	06/01	Loggerhead	Virginia Beach	36.91512	-76.0656	F	77.1
VAQS20232105	06/01	Loggerhead	Accomack	38.02259	-75.2462	U	64.1
VAQS20232106	06/02	Loggerhead	Middlesex	37.57914	-76.3233	U	ND
VAQS20232107	06/03	Loggerhead	Hampton	37.07197	-76.2793	U	ND
VAQS20232110	06/03	Loggerhead	Hampton	36.99233	-76.2991	U	ND
VAQS20232111	06/04	Kemp's ridley	Virginia Beach	36.78722	-75.9583	U	33
VAQS20232112	06/03	Loggerhead	Gloucester	37.32565	-76.3909	U	ND
VAQS20232113	06/03	Loggerhead	Gloucester	37.31623	-76.4339	U	ND
VAQS20232114	06/05	Loggerhead	Gloucester	37.2746	-76.5127	U	ND
VAQS20232116	06/07	Kemp's ridley	Virginia Beach	36.90374	-76.0746	U	ND
VAQS20232121	06/08	Loggerhead	Virginia Beach	36.89312	-75.9851	U	75.5
VAQS20232123	06/11	Loggerhead	Northampton	37.16606	-75.9875	F	69.9
VAQS20232126	06/12	Loggerhead	Northampton	37.08979	-75.9781	U	58
VAQS20232127	06/12	Loggerhead	Northampton	37.11158	-75.96	U	ND
VAQS20232128	06/12	Loggerhead	Northampton	37.09431	-75.9804	U	ND
VAQS20232130	06/13	Kemp's ridley	Northampton	37.1069	-75.9777	U	ND
VAQS20232132	06/15	Loggerhead	Northampton	37.46636	-75.9611	U	ND
VAQS20232133	06/16	Loggerhead	Norfolk	36.94192	-76.2282	U	64
VAQS20232134	06/16	Loggerhead	Northumberland	37.85015	-76.2498	U	ND
VAQS20232135	06/17	Loggerhead	Northampton	37.12153	-75.9697	U	ND

Field Number	Strand Date	Species	Location	Latitude	Longitude	Sex	Length
VAQS20232137	06/19	Loggerhead	Virginia Beach	36.90285	-75.9877	U	88
VAQS20232138	06/17	Loggerhead	Northumberland	37.82234	-76.2636	U	ND
VAQS20232140	06/20	Loggerhead	Accomack	37.84816	-75.3906	F	113
VAQS20232141	06/21	Loggerhead	Virginia Beach	36.75204	-75.9462	F	96.8
VAQS20232142	06/21	Loggerhead	Northumberland	37.74189	-76.3111	U	ND
VAQS20232143	06/22	Loggerhead	Virginia Beach	36.82861	-75.9688	F	63
VAQS20232144	06/23	Loggerhead	Middlesex	37.55606	-76.2995	M	ND
VAQS20232145	06/23	Kemp's ridley	Hampton	37.04336	-76.2883	F	55.4
VAQS20232146	06/24	Loggerhead	Hampton	37.03893	-76.2861	M	55.5
VAQS20232147	06/25	Loggerhead	Lancaster	37.64114	-76.334	U	ND
VAQS20232149	06/28	Loggerhead	Virginia Beach	36.91442	-76.0687	F	45.3
VAQS20232150	06/29	Loggerhead	Virginia Beach	36.71873	-75.9324	F	74.5
VAQS20232151	06/29	Loggerhead	Virginia Beach	36.87655	-75.9809	F	87.9
VAQS20232152	07/01	Loggerhead	Gloucester	37.25121	-76.4866	U	ND
VAQS20232153	07/01	Loggerhead	Virginia Beach	36.96249	-76.1148	U	ND
VAQS20232154	07/01	Loggerhead	Virginia Beach	36.6144	-75.8839	U	ND
VAQS20232155	07/01	Green	Hampton	37.00583	-76.3014	U	ND
VAQS20232156	07/02	Loggerhead	Accomack	37.86363	-75.446	U	ND
VAQS20232157	07/03	Loggerhead	Gloucester	37.24785	-76.5058	U	ND
VAQS20232158	07/03	Loggerhead	Virginia Beach	37.00043	-76.2191	U	ND
VAQS20232159	07/04	Loggerhead	Northampton	37.13734	-75.9728	U	ND
VAQS20232160	07/05	Loggerhead	Northampton	37.0987	-75.9799	U	ND
VAQS20232161	07/07	Kemp's ridley	Northampton	37.21729	-76.0121	U	ND
VAQS20232162	07/07	Kemp's ridley	Northumberland	37.85658	-76.2316	U	ND
VAQS20232164	07/08	Loggerhead	Virginia Beach	36.78285	-75.9567	U	ND
VAQS20232165	07/09	Loggerhead	Accomack	37.90604	-75.3309	U	69.5
VAQS20232167	07/13	Loggerhead	Accomack	37.85212	-75.3787	U	80
VAQS20232169	07/19	Kemp's ridley	Northampton	37.52046	-75.9497	U	ND
VAQS20232171	07/22	Loggerhead	Norfolk	36.94654	-76.2376	U	69.2
VAQS20232172	07/22	Loggerhead	Accomack	37.81068	-75.3914	U	ND
VAQS20232173	07/25	Loggerhead	York	37.25944	-76.3324	U	ND
VAQS20232174	07/25	Loggerhead	Accomack	37.86124	-75.451	U	ND
VAQS20232175	07/25	Loggerhead	Virginia Beach	36.92722	-76.0035	U	ND
VAQS20232176	07/27	Loggerhead	Virginia Beach	36.61194	-75.8828	F	81.8
VAQS20232177	07/27	Loggerhead	Northampton	37.08694	-75.9422	U	ND
VAQS20232178	07/27	Loggerhead	Northampton	37.08413	-75.9743	U	ND
VAQS20232179	08/03	Loggerhead	Virginia Beach	36.81332	-75.9656	U	ND
VAQS20232180	07/30	Green	Accomack	37.77927	-75.5603	U	ND
VAQS20232181	07/31	Loggerhead	Northampton	37.09086	-75.9798	U	ND
VAQS20232182	07/31	Unknown	Northampton	37.10838	-75.954	U	ND
VAQS20232183	08/02	Loggerhead	Norfolk	36.94184	-76.2289	U	88.5
VAQS20232184	08/03	Loggerhead	Virginia Beach	36.94995	-76.1505	U	ND

Field Number	Strand Date	Species	Location	Latitude	Longitude	Sex	Length
VAQS20232185	08/03	Loggerhead	Virginia Beach	36.81841	-75.9666	U	68.1
VAQS20232186	08/04	Loggerhead	Hampton	37.05083	-76.2855	U	ND
VAQS20232187	08/05	Loggerhead	Virginia Beach	36.91896	-76.1282	U	ND
VAQS20232188	08/04	Green	Northampton	37.16591	-75.9875	F	28.8
VAQS20232189	08/05	Loggerhead	Virginia Beach	36.82437	-75.9681	F	68.5
VAQS20232190	08/05	Loggerhead	Hampton	37.04268	-76.2884	U	ND
VAQS20232191	08/10	Kemp's ridley	Norfolk	36.94073	-76.2257	U	33.9
VAQS20232192	08/10	Loggerhead	Northampton	37.16603	-75.9881	U	ND
VAQS20232193	08/14	Kemp's ridley	Virginia Beach	36.69528	-75.9242	F	60.3
VAQS20232194	08/15	Loggerhead	Northampton	37.10117	-75.987	U	ND
VAQS20232195	08/18	Loggerhead	Hampton	37.01642	-76.2979	U	ND
VAQS20232196	08/22	Kemp's ridley	Hampton	36.998	-76.325	U	ND
VAQS20232197	08/22	Green	Virginia Beach	36.91795	-76.1274	M	26
VAQS20232198	08/26	Loggerhead	Norfolk	36.9324	-76.1967	F	ND
VAQS20232199	08/30	Loggerhead	Norfolk	36.89958	-76.2957	U	50.7
VAQS20232200	08/31	Loggerhead	Hampton	37.05693	-76.2831	U	70.9
VAQS20232201	08/31	Loggerhead	Virginia Beach	36.92614	-76.1577	U	ND
VAQS20232202	09/01	Loggerhead	Virginia Beach	36.71504	-75.9313	M	105.9
VAQS20232203	09/02	Loggerhead	Virginia Beach	36.72902	-75.9366	M	105.6
VAQS20232204	09/02	Loggerhead	Virginia Beach	36.9172	-75.9863	M	ND
VAQS20232206	09/08	Kemp's ridley	Northampton	37.09139	-75.9798	U	ND
VAQS20232207	09/10	Loggerhead	Norfolk	36.96573	-76.294	U	74.2
VAQS20232209	09/11	Loggerhead	Virginia Beach	36.82556	-75.9684	F	86.6
VAQS20232210	09/12	Green	Hampton	37.01315	-76.3153	U	30.6
VAQS20232211	09/13	Loggerhead	Northampton	37.136	-75.9719	U	ND
VAQS20232212	09/14	Green	Norfolk	36.96178	-76.2623	U	32.1
VAQS20232213	09/14	Kemp's ridley	Virginia Beach	36.9132	-76.1121	M	36.6
VAQS20232214	09/14	Green	Norfolk	36.94719	-76.2381	F	35.7
VAQS20232215	09/17	Kemp's ridley	Northampton	37.16587	-75.9864	U	ND
VAQS20232216	09/19	Green	Norfolk	36.93812	-76.2184	U	27
VAQS20232217	09/19	Loggerhead	Norfolk	36.93188	-76.1936	U	ND
VAQS20232218	09/19	Kemp's ridley	Virginia Beach	36.92006	-76.1326	U	ND
VAQS20232219	12/21	Loggerhead	Norfolk	36.92989	-76.1801	M	103.3
VAQS20232220	09/19	Loggerhead	Northampton	37.1788	-76.0016	U	ND
VAQS20232221	09/20	Green	Hampton	37.0684	-76.2805	F	29.5
VAQS20232222	09/23	Loggerhead	Norfolk	36.96117	-76.2619	U	66.4
VAQS20232223	09/24	Green	Hampton	37.10643	-76.2906	U	ND
VAQS20232224	10/02	Kemp's ridley	Virginia Beach	36.91431	-76.116	F	42.4
VAQS20232225	10/02	Loggerhead	Virginia Beach	36.89138	-76.0822	U	ND
VAQS20232226	10/03	Kemp's ridley	Virginia Beach	36.9249	-76.0009	M	47.8
VAQS20232227	10/04	Kemp's ridley	Virginia Beach	36.91973	-76.1319	F	40.8
VAQS20232228	10/04	Kemp's ridley	Norfolk	36.93419	-76.2037	M	51.9

Field Number	Strand Date	Species	Location	Latitude	Longitude	Sex	Length
VAQS20232229	10/05	Loggerhead	Norfolk	36.93661	-76.2141	U	ND
VAQS20232230	10/05	Green	Virginia Beach	-36.6727	75.91218	U	ND
VAQS20232231	10/06	Loggerhead	Northumberland	37.74212	-76.3124	U	ND
VAQS20232232	10/07	Kemp's ridley	Virginia Beach	36.92476	-76.0486	M	36.5
VAQS20232234	10/08	Loggerhead	Northumberland	37.97167	-76.4217	U	ND
VAQS20232235	10/07	Loggerhead	Virginia Beach	36.92712	-76.0052	U	ND
VAQS20232237	10/14	Green	Virginia Beach	36.91319	-76.1109	U	25.4
VAQS20232239	10/16	Kemp's ridley	Virginia Beach	36.91579	-76.0639	M	44.7
VAQS20232240	10/17	Kemp's ridley	Norfolk	36.92963	-76.1792	M	38.4
VAQS20232241	10/18	Loggerhead	Virginia Beach	36.91387	-76.1137	M	69.4
VAQS20232243	10/18	Loggerhead	Northampton	37.3547	-75.9954	U	ND
VAQS20232242	10/19	Kemp's ridley	Northampton	37.16588	-75.9883	U	41
VAQS20232244	10/21	Loggerhead	Northampton	37.10063	-75.9792	U	ND
VAQS20232245	10/23	Kemp's ridley	Virginia Beach	36.91374	-76.0729	U	36.2
VAQS20232246	10/24	Green	Northampton	37.24423	-76.0185	U	29.4
VAQS20232247	10/30	Green	Northampton	37.24842	-76.0209	M	21.9
VAQS20232248	11/01	Kemp's ridley	Norfolk	36.93388	-76.2036	U	ND
VAQS20232249	11/02	Leatherback	Virginia Beach	36.67222	-75.9117	U	ND
VAQS20232250	11/04	Green	Northampton	37.09771	-75.9802	U	ND
VAQS20232251	11/05	Loggerhead	Virginia Beach	36.82222	-75.9825	F	66.4
VAQS20232252	11/07	Green	Norfolk	36.96681	-76.2734	U	ND
VAQS20232253	11/07	Green	Northampton	37.21745	-76.0118	M	29.6
VAQS20232254	11/09	Kemp's ridley	Hampton	36.99025	-76.3871	U	ND
VAQS20232255	11/10	Green	Northampton	37.13738	-75.9721	F	29.7
VAQS20232256	11/11	Green	Northampton	37.1659	-75.9869	F	27.2
VAQS20232257	11/13	Green	Norfolk	36.93046	-76.1872	U	32.7
VAQS20232258	11/13	Green	Virginia Beach	36.91638	-76.062	M	31
VAQS20232259	11/13	Unknown	Norfolk	36.91586	-76.1821	U	ND
VAQS20232261	11/16	Kemp's ridley	Norfolk	36.95401	-76.3103	U	ND
VAQS20232262	11/16	Green	Northampton	37.13802	-75.9725	U	ND
VAQS20232263	11/18	Green	Northampton	37.27044	-76.0215	U	ND
VAQS20232264	11/19	Loggerhead	Norfolk	36.94552	-76.2354	U	58
VAQS20232265	11/21	Green	Virginia Beach	36.73261	-75.9382	F	33.7
VAQS20232266	11/21	Green	Virginia Beach	36.89924	-75.9866	F	33.5
VAQS20232267	11/21	Kemp's ridley	Virginia Beach	36.77886	-75.9555	U	ND
VAQS20232268	11/21	Green	Virginia Beach	36.69886	-75.925	M	28.6
VAQS20232269	11/24	Green	Norfolk	36.99668	-76.1887	F	31.6
VAQS20232270	11/27	Loggerhead	Norfolk	36.93727	-76.2163	U	ND
VAQS20232272	11/29	Kemp's ridley	Northampton	37.24321	-76.0184	F	42.2
VAQS20232274	12/02	Loggerhead	Accomack	37.86998	-75.3604	U	46
VAQS20232275	12/02	Green	Accomack	37.86941	-75.3612	U	ND
VAQS20232277	12/03	Loggerhead	Accomack	37.60558	-75.8865	U	57

Field Number	Strand Date	Species	Location	Latitude	Longitude	Sex	Length
VAQS20232278	12/09	Green	Chesapeake	36.80893	-76.2856	F	32
VAQS20232279	12/11	Loggerhead	Norfolk	36.93677	-76.2136	U	53
VAQS20232280	12/08	Green	Norfolk	36.9688	-76.2851	U	ND
VAQS20232281	12/13	Green	Norfolk	36.8576	-76.3069	U	ND
VAQS20232282	12/22	Loggerhead	Northampton	37.18887	-75.9989	U	72.5
VAQS20232283	12/22	Loggerhead	Northampton	37.13156	-75.9706	U	ND

Table 4: Live stranded sea turtles recorded by VAQS in 2023, n=72. Length measured in centimeters; ND=not determined; F=female, M=male, U=unknown sex.

Field Number	Strand Date	Species	Location	Latitude	Longitude	Sex	Length	Disposition	Disposition Date
VAQS20232012	04/25	Kemp's ridley	Virginia Beach	36.84372	-75.9701	U	41.6	Released	07/14/2023
VAQS20232013	04/29	Kemp's ridley	Hampton	37.03633	-76.2906	U	31.4	Released	06/13/2023
VAQS20232014	04/29	Kemp's ridley	Hampton	37.03633	-76.2906	U	34.8	Released	04/30/2023
VAQS20232015	04/29	Kemp's ridley	Hampton	37.03633	-76.2906	U	49.5	Released	04/30/2023
VAQS20232017	05/03	Kemp's ridley	Virginia Beach	36.84377	-75.9698	U	34.9	Released	05/26/2023
VAQS20232018	05/04	Kemp's ridley	Virginia Beach	36.8437	-75.9703	U	47	Released	05/06/2023
VAQS20232019	05/05	Kemp's ridley	Virginia Beach	36.84374	-75.9699	U	28.4	Released	05/22/2023
VAQS20232021	05/05	Kemp's ridley	Hampton	37.03655	-76.2911	U	26.7	Released	08/14/2023
VAQS20232022	05/07	Kemp's ridley	Hampton	37.03594	-76.2895	U	30.9	Released	05/26/2023
VAQS20232024	05/08	Kemp's ridley	Hampton	37.03594	-76.2895	U	34.1	Released	08/14/2023
VAQS20232025	05/08	Kemp's ridley	Hampton	37.03594	-76.2895	U	32.4	Released	05/22/2023
VAQS20232026	05/08	Kemp's ridley	Hampton	37.03594	-76.2895	U	29	Transferred to another facility	05/30/2023
VAQS20232027	05/09	Unidentified	Norfolk	36.96254	-76.2589	U	ND	Unable to recover	N/A
VAQS20232028	05/09	Unidentified	Hampton	37.03642	-76.2908	U	ND	Unable to recover	N/A
VAQS20232032	05/10	Kemp's ridley	Hampton	37.03657	-76.2912	U	32.6	Released	05/11/2023
VAQS20232033	05/10	Kemp's ridley	Hampton	37.03657	-76.2912	U	30.1	Released	06/08/2023
VAQS20232035	05/11	Loggerhead	Norfolk	36.96329	-76.2581	U	51.2	Released	06/03/2023
VAQS20232036	05/12	Kemp's ridley	Virginia Beach	36.84366	-75.9709	U	34.9	Released	05/26/2023
VAQS20232037	05/12	Unidentified	Virginia Beach	36.84378	-75.9699	U	ND	Unable to recover	N/A
VAQS20232039	05/14	Kemp's ridley	Virginia Beach	36.84377	-75.9698	U	22.9	Transferred to another facility	05/30/2023
VAQS20232040	05/14	Kemp's ridley	Virginia Beach	36.6941	-75.9226	U	29.5	Released	08/14/2023
VAQS20232041	05/14	Kemp's ridley	Hampton	37.03639	-76.2908	U	30.3	Released	05/15/2023
VAQS20232042	05/14	Kemp's ridley	Virginia Beach	36.6943	-75.9221	U	29.5	Released	06/09/2023
VAQS20232043	05/15	Kemp's ridley	Virginia Beach	36.84371	-75.9698	U	27.5	Released	05/26/2023
VAQS20232044	05/15	Kemp's ridley	Virginia Beach	36.84377	-75.9698	U	28.5	Released	08/14/2023
VAQS20232045	05/15	Kemp's ridley	Virginia Beach	36.6943	-75.9221	U	25.1	Released	05/18/2023
VAQS20232047	05/15	Kemp's ridley	Virginia Beach	36.84377	-75.9698	U	27.7	Released	08/14/2023
VAQS20232048	05/15	Kemp's ridley	Hampton	37.03639	-76.2908	U	32.4	Released	07/26/2023
VAQS20232051	05/16	Kemp's ridley	Virginia Beach	36.84377	-75.9698	U	28.1	Released	05/17/2023
VAQS20232052	05/16	Kemp's ridley	Hampton	37.03595	-76.2896	U	29.5	Released	05/26/2023
VAQS20232053	05/18	Kemp's ridley	Hampton	37.00058	-76.3072	U	27.9	Released	05/26/2023
VAQS20232054	05/18	Kemp's ridley	Virginia Beach	36.84378	-75.9699	U	27	Released	05/19/2023
VAQS20232056	05/18	Kemp's ridley	Virginia Beach	36.84356	-75.9713	U	32.5	Released	06/13/2023
VAQS20232059	05/19	Kemp's ridley	Hampton	37.00052	-76.3071	U	25	Released	06/10/2023
VAQS20232061	05/20	Kemp's ridley	Virginia Beach	36.67394	-75.9126	U	34.4	Released	08/11/2023
VAQS20232063	05/20	Kemp's ridley	Hampton	37.03633	-76.2906	U	32.3	Released	12/21/2023
VAQS20232064	05/20	Kemp's ridley	Hampton	37.03633	-76.2906	U	29.7	Released	12/21/2023
VAQS20232065	05/20	Kemp's ridley	Hampton	37.03633	-76.2906	U	29.7	Released	12/21/2023
VAQS20232066	05/20	Unidentified	Hampton	37.03633	-76.2906	U	ND	Unable to recover	N/A

Field Number	Strand Date	Species	Location	Latitude	Longitude	Sex	Length	Disposition	Disposition Date
VAQS20232067	05/21	Kemp's ridley	Hampton	37.03633	-76.2906	U	33.1	Released	08/14/2023
VAQS20232069	05/21	Kemp's ridley	Virginia Beach	36.84378	-75.9698	U	28.5	Released	06/16/2023
VAQS20232070	05/21	Kemp's ridley	Virginia Beach	36.84378	-75.9698	U	32.8	Released	06/08/2023
VAQS20232075	05/22	Kemp's ridley	Gloucester	37.24555	-76.5023	U	31.9	Released	06/10/2023
VAQS20232108	06/03	Kemp's ridley	Hampton	37.03595	-76.2896	F	28.2	Died in rehab	06/06/2023
VAQS20232109	06/03	Kemp's ridley	Virginia Beach	36.69431	-75.9219	M	28	Died in rehab	06/11/2023
VAQS20232115	06/05	Kemp's ridley	Norfolk	36.96377	-76.257	U	28.5	Released	06/16/2023
VAQS20232117	06/07	Unidentified	Hampton	37.03599	-76.2895	U	ND	Unable to recover	N/A
VAQS20232118	06/07	Kemp's ridley	Hampton	37.03644	-76.2907	U	48.3	Released	07/14/2023
VAQS20232119	06/07	Kemp's ridley	Hampton	37.03638	-76.2907	U	27.9	Released	06/16/2023
VAQS20232120	06/07	Kemp's ridley	Hampton	37.03638	-76.2907	U	25.6	Released	06/08/2023
VAQS20232122	06/08	Kemp's ridley	Virginia Beach	36.84358	-75.9712	U	35.5	Released	06/09/2023
VAQS20232124	06/11	Kemp's ridley	Virginia Beach	36.84378	-75.9697	U	33.1	Released	06/12/2023
VAQS20232125	06/11	Unidentified	Virginia Beach	36.84374	-75.9701	U	ND	Unable to recover	N/A
VAQS20232129	06/12	Kemp's ridley	Hampton	37.03657	-76.2912	U	30.4	Released	06/28/2023
VAQS20232131	06/13	Kemp's ridley	Virginia Beach	36.84369	-75.9708	U	26.7	Released	06/28/2023
VAQS20232136	06/18	Loggerhead	Hampton	37.03597	-76.2895	U	55.2	Released	07/20/2023
VAQS20232139	06/19	Loggerhead	Virginia Beach	36.84377	-75.9697	U	62.6	In rehab	N/A
VAQS20232148	06/27	Unidentified	Hampton	37.03613	-76.29	U	ND	Unable to recover	N/A
VAQS20232163	07/08	Kemp's ridley	Virginia Beach	36.84366	-75.9708	U	22.6	Released	10/05/2023
VAQS20232166	07/09	Kemp's ridley	Hampton	37.09142	-76.3344	U	27.9	Released	07/26/2023
VAQS20232168	07/15	Kemp's ridley	Hampton	37.03642	-76.2907	U	27.6	Released	08/16/2023
VAQS20232170	07/21	Kemp's ridley	Hampton	37.08839	-76.3332	U	25.7	Released	12/21/2023
VAQS20232205	09/04	Loggerhead	Virginia Beach	36.92033	-76.0993	U	ND	Unable to recover	N/A
VAQS20232208	09/04	Loggerhead	Hampton	37.10056	-76.2928	F	99.5	In rehab	N/A
VAQS20232233	10/08	Kemp's ridley	Virginia Beach	36.8437	-75.9707	U	25.3	Released	12/21/2023
VAQS20232236	10/13	Green	Virginia Beach	36.91948	-76.1303	U	35.7	Released	12/21/2023
VAQS20232238	10/13	Green	Poquoson	37.11811	-76.2987	U	ND	Unable to recover	N/A
VAQS20232260	11/13	Kemp's ridley	Virginia Beach	36.95877	-76.1366	F	29.2	Died in rehab	11/25/2023
VAQS20232271	11/29	Green	Accomack	37.82362	-75.3988	F	27.5	Euthanized in rehab	01/08/2024
VAQS20232273	12/01	Green	Norfolk	36.84781	-76.2937	U	32.6	In rehab	N/A
VAQS20232276	12/05	Green	Virginia Beach	36.91387	-76.1137	U	30.4	Euthanized in rehab	12/07/2023
VAQS20232284	12/31	Green	Newport News	37.02794	-76.465	U	33.2	Died in rehab	01/03/2024

Figures

Marine Mammals

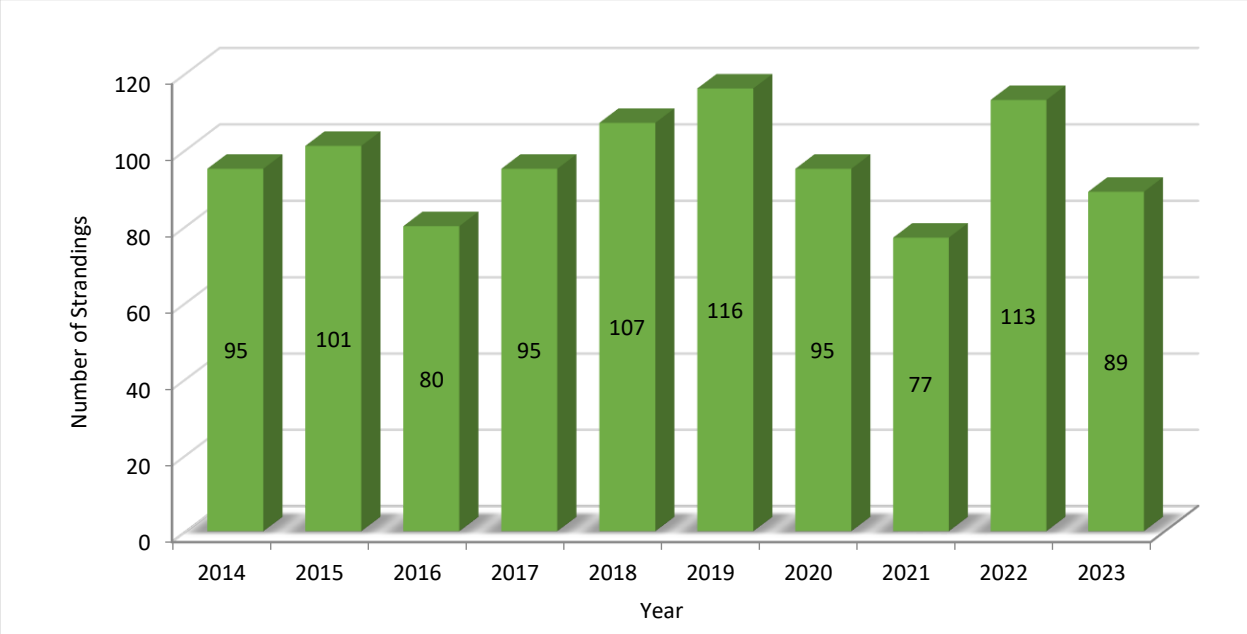


Figure 1: Yearly frequency of marine mammal strandings in Virginia, 2014-2023 (average= 97).

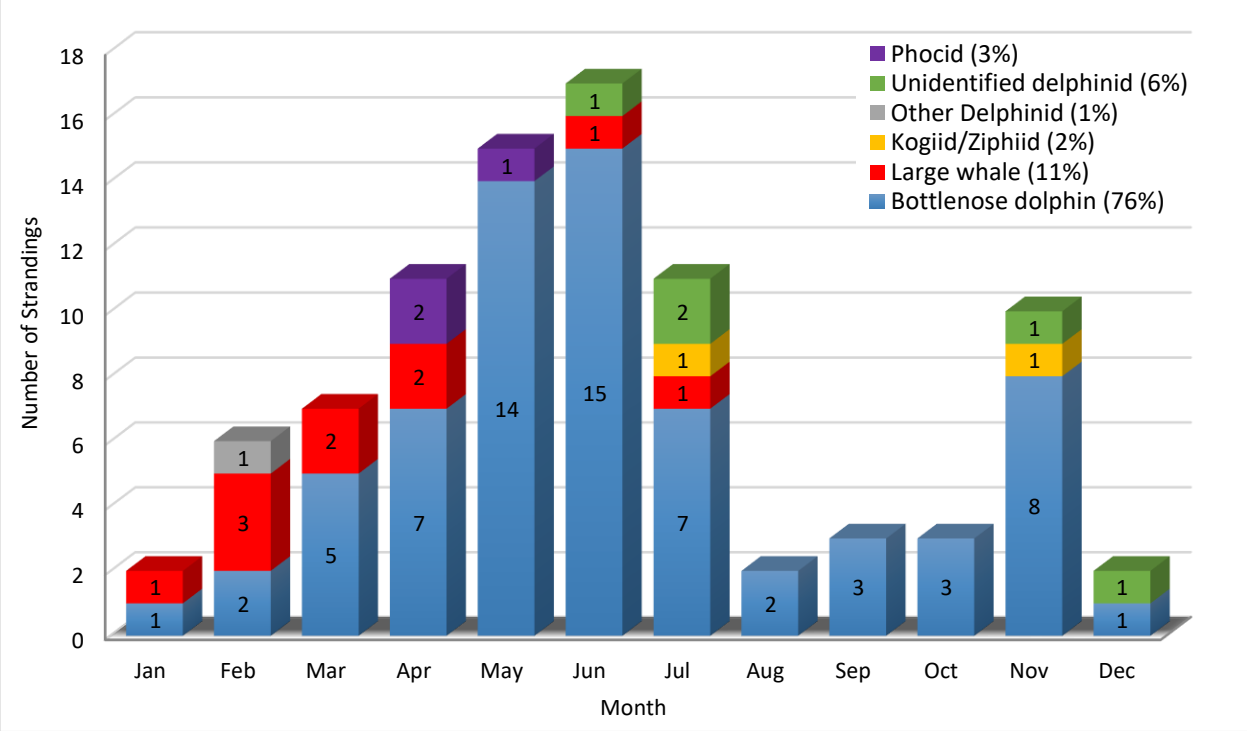


Figure 2: Monthly frequency of marine mammal strandings by species group in Virginia during 2023.

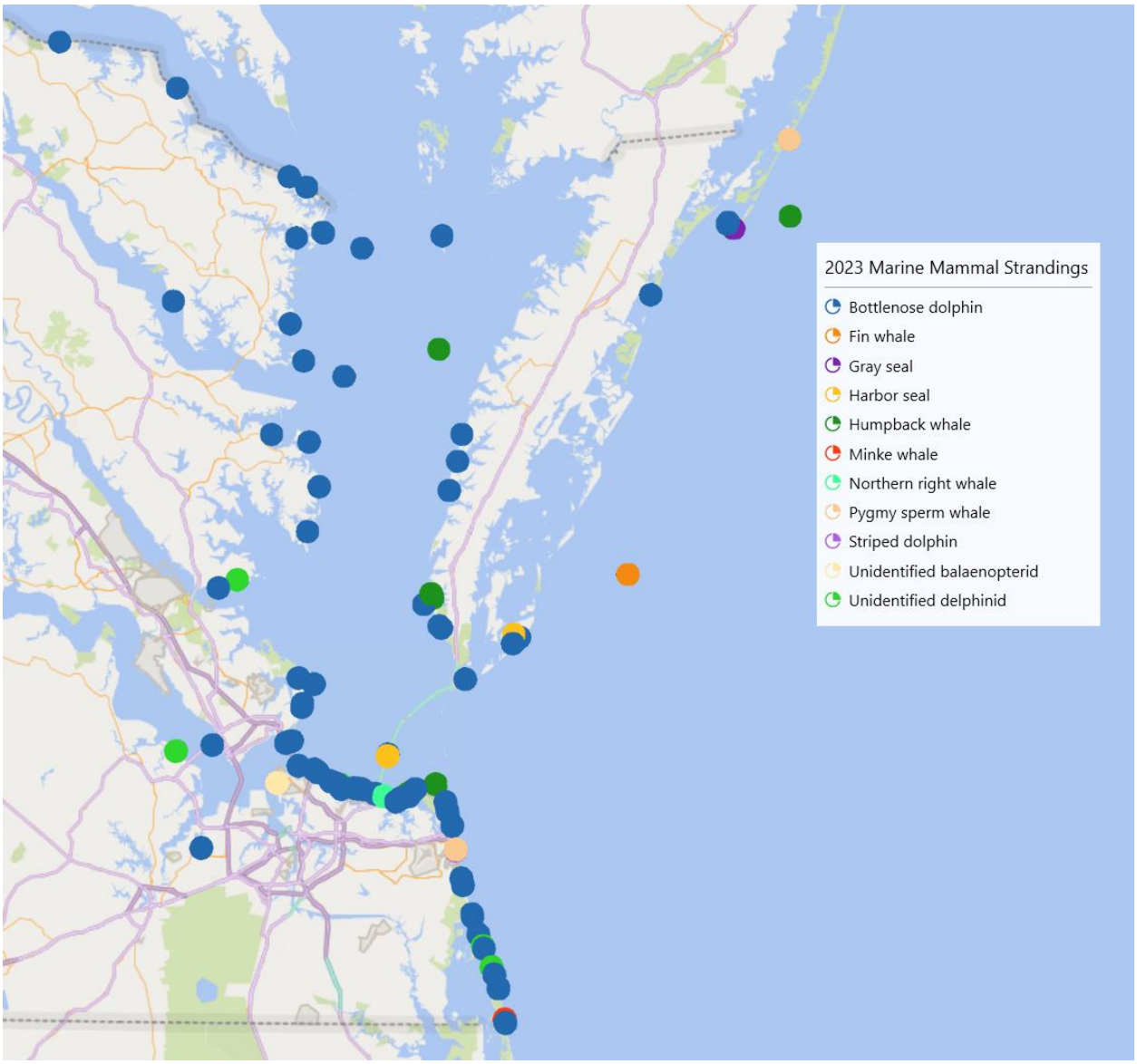


Figure 3: Locations of Virginia marine mammal strandings in 2023.

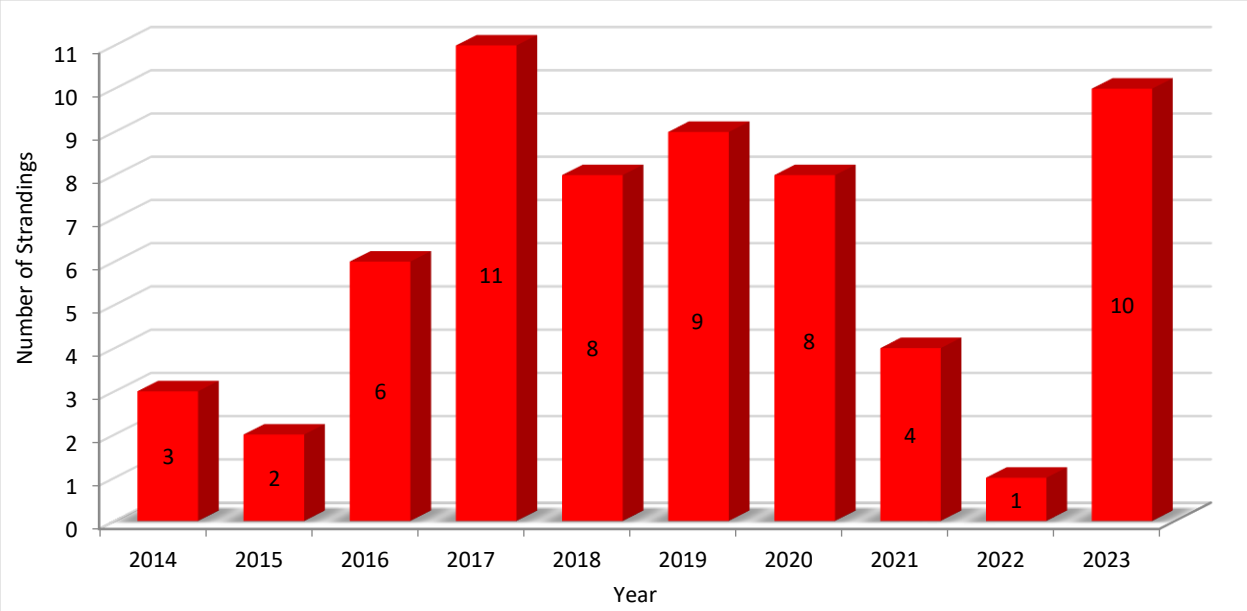


Figure 4: Yearly stranding frequency of large whales in Virginia, 2014-2023.

Sea Turtles

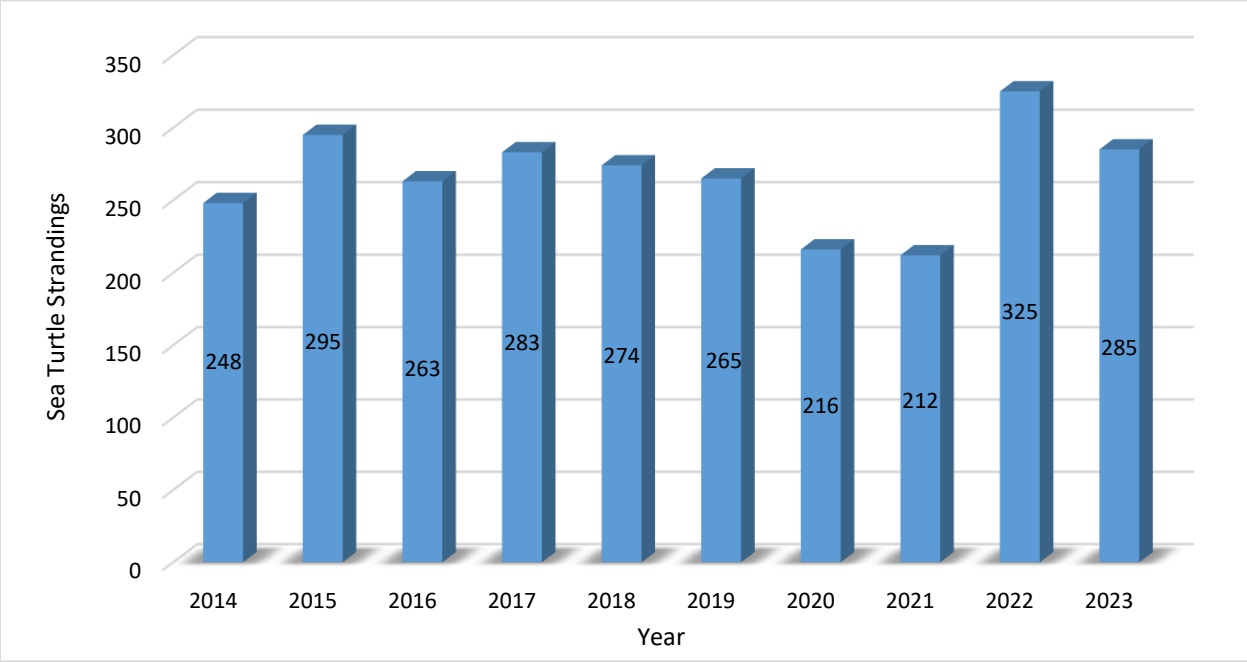


Figure 5: Yearly frequency of sea turtle strandings in Virginia, 2014-2023 (average= 267).

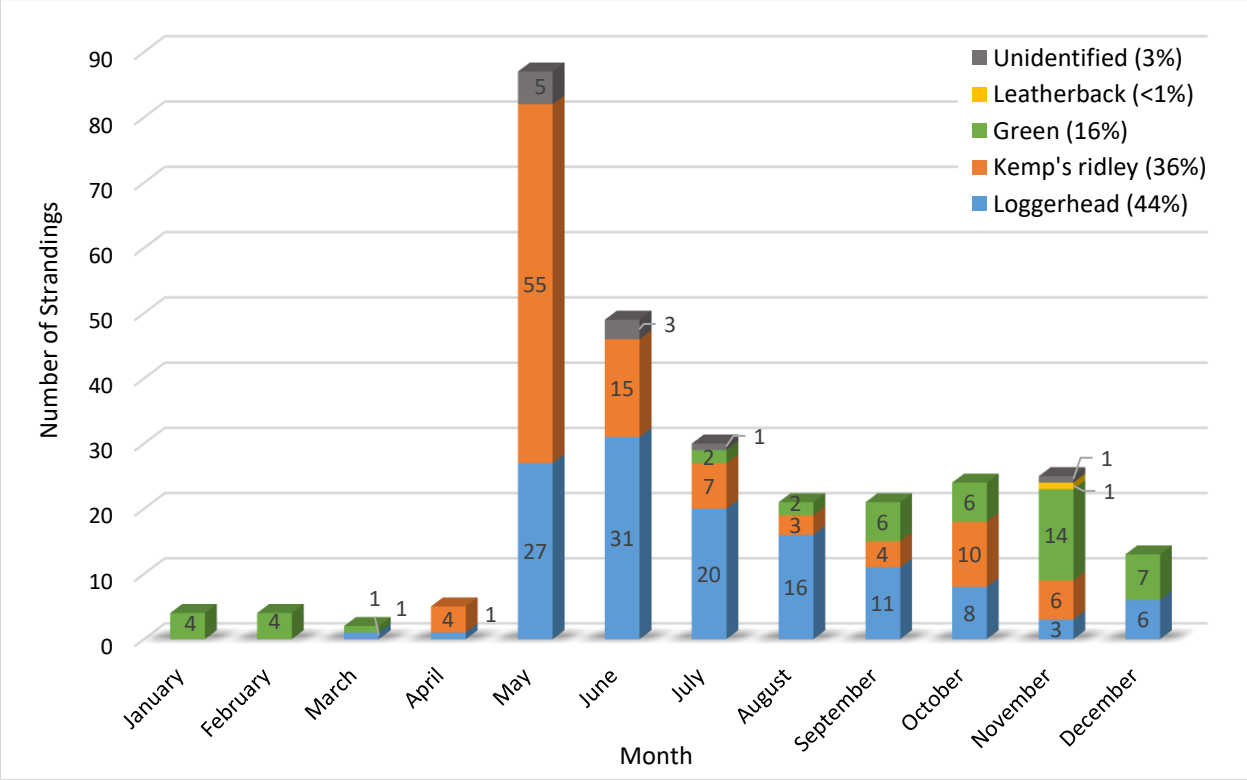


Figure 6: Monthly frequency of sea turtle strandings by species in Virginia during 2023.

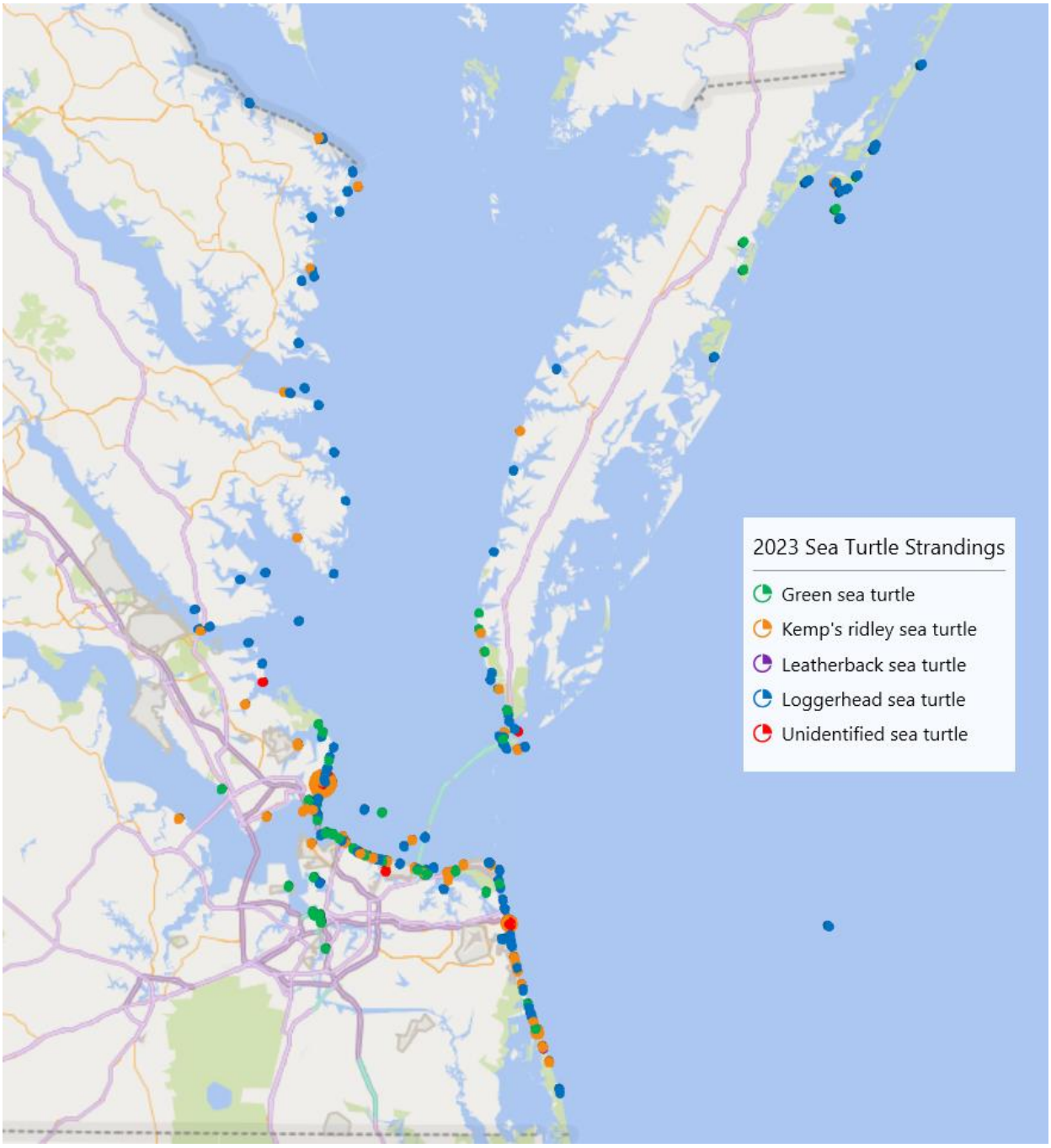


Figure 7: Locations of Virginia sea turtle strandings in 2023.

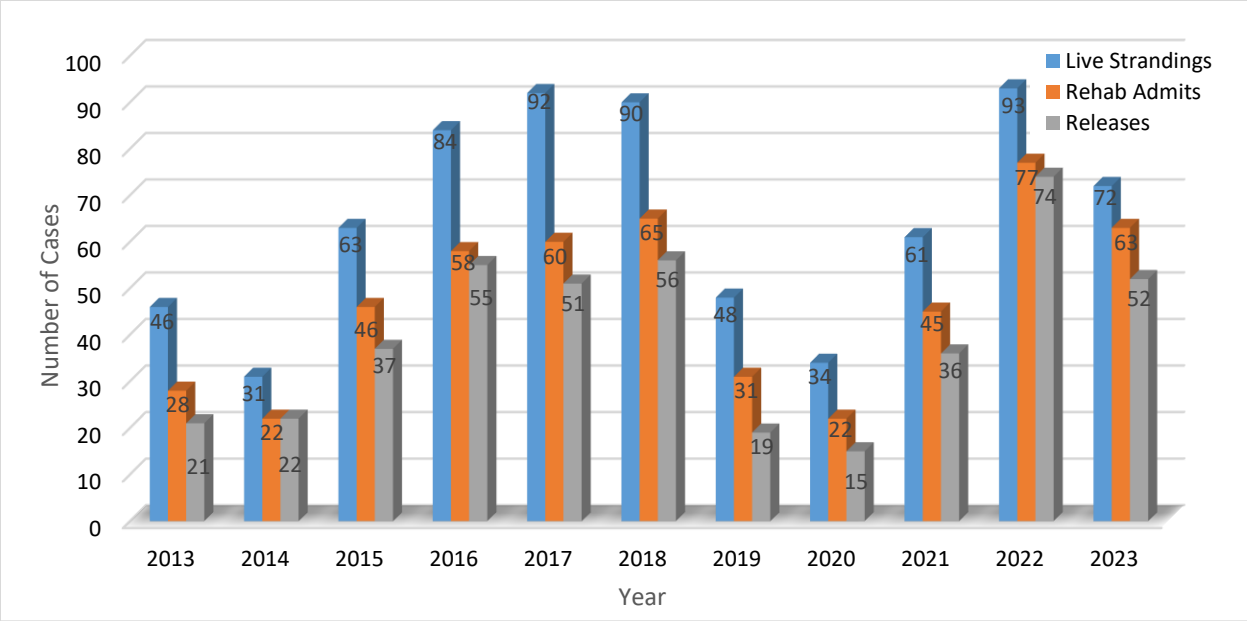


Figure 8: Live sea turtle stranding reports, rehabilitation admits, and releases from Virginia from 2013 to 2023.

Appendix I: Professional and Education Activities

Outreach	Date	Attendance	Location
Tidewater Master Naturalists – Presentation & Tour	3/11	35	DMACC
Environmental Studies Program - Mock Stranding Response & Shadowing	3/20, 3/22, 3/24, 3/30	2-4	DMACC
VAQ Life at the Aquarium Camp - Presentation & Rehab Tour	7/25	10	DMACC
VAQ Life at the Aquarium Camp - Presentation & Rehab Tour	8/17	10	DMACC
Youth Leadership Summit (4^{th}-6^{th} graders) - Recorded Presentation	11/4	Unknown	Virtual
Stranding response presentation focused on sea turtles (Preschoolers)	10/10	14	Capitol Hill Dayschool

Necropsy Demonstrations & Lectures	Date	Attendance	Location
Environmental Studies Group (High School)	3/21	2	DMACC
Dr. Soraya Bartol's University Class (University)	6/7	15	DMACC
VAQ Marine Explorers Camp (Middle/High School)	7/18	11	DMACC
Dr. Greg Silber's Marine Mammal Class (University)	8/1	22	DMACC
VAQ Marine Explorers Camp (Middle/High School)	8/8	15	DMACC
VAQ Auction Winner	8/31	5	DMACC

Virginia Aquarium Talks and Events	Date	Attendance	Location
VAQ Water Quality Department Tour & Shadow	6/29	1	DMACC
VAQ Water Quality Department Tour & Shadow	7/5	1	DMACC
VAQ Mammals Department Intern/Fellow Tour & Discussion	7/6	2	DMACC
VAQ Water Quality Department Tour & Shadow	8/1	1	DMACC
Batten Professional Development Luncheon Presentation	8/15	45	Aquarium
Lunch & Learn – Bottlenose Dolphin Entanglements in Pound Nets	11/22	~40	Virtual
VAQ Mammals Department New Staff Tour & Discussion	12/11	1	DMACC
Exhibits staff cross training	2x/month	2	DMACC

Stranding Center Introductions & Group Presentations	Date	Attendance	Location
TurtlesFlyToo pilot and family Stranding Introduction	1/19	4	DMACC
MWI Representative Stranding Introduction	3/23	2	DMACC
Auction Winner: Rehabilitation Introduction & Feeding Demonstration	6/30	4	DMACC
Chincoteague National Wildlife Refuge Stranding Introduction & Aquarium Visit	8/2	10	DMACC & Aquarium
Development/Donor Rehabilitation Introduction	8/24, 9/11	2-6	DMACC
VA Pilot/The Beacon Reporter Interview & Stranding Introduction	10/6	1	DMACC
Interview for Everyday Hero Award	10/12	15	DMACC
WAVY Reporter Interview & Stranding Introduction	11/30	1	DMACC

Conferences & Meetings	Date	Attendance	Location
Southeast Regional Sea Turtle Meeting	2/28-3/2	~300	Orange Beach, AL
Greater Atlantic Regional Stranding Conference (GARSCON)	9/18-9/21	~100	Rehoboth Beach, DE
Virginia Department of Wildlife Resources Marine Mammal Conservation Planning Workshop	10/31-11/1	~50	Virginia Beach, VA
Manatee Research Symposium	11/6	Unknown	Virtual
Marine Mammal Commission Meeting	11/14	Unknown	Virtual
Whales on the Brink Symposium	11/16	Unknown	Virtual
START Marine Mammal Disaster (Oil Spill) Workshop	12/5	~25	Virtual

Staff Training	Date	Attendance	Location
Advancements in Aquatic Invertebrate Welfare with Dr. Alissa Mones	4/19	Unknown	Virtual
Discovery of Sound in the Sea Webinar - Natural Underwater Sound Overview	4/25	Unknown	Virtual
Trailering Skills Overview and Practice	5/12	5	Virginia Beach
Discovery of Sound in the Sea Webinar - Extreme Natural Sounds	6/6	Unknown	Virtual
8Hr HAZWOPER Refresher	1/22, 6/14	2	Virtual
Sea Turtle Disentanglement Network Training	7/26	Unknown	Virtual
Live Crane Training	8/3, 8/8, 8/9	13	DMACC
Necropsy Crane Training	8/3, 8/16	9	DMACC
Scissor Lift Training	8/23	9	DMACC
MA Cold-Stunned Sea Turtle Webinar	9/13	108	Virtual
Greater Atlantic Regional Stranding Conference Oil Spill Workshop	9/21	~30	Rehoboth Beach, DE
Greater Atlantic Regional Stranding Conference Volunteer Workshop	9/21	~30	Rehoboth Beach, DE
DOSITS Marine mammals and vessel noise: exposure, impacts and potential solutions	9/27	Unknown	Virtual

Volunteer & Cooperator Trainings & Meetings	Date	Attendance	Location
Volunteer & Cooperator Annual Business Meeting	2/9	81	Virginia Beach
Pier Partner Response Training	4/25	3	DMACC
Pier Partner Response Training	4/26	5	DMACC
Nesting Training	5/1	8	Back Bay National Wildlife Refuge
Nesting Training	5/2	5	DMACC
Pier Partner Response Training	5/6	3	DMACC
Volunteer Orientation and Onboarding	5/6	25	DMACC, Aquarium
Beach Driving Training	5/13	8	Virginia Beach
Beach Driving Training	5/15	9	Virginia Beach

Intern Orientation and Onboarding	5/15	1	DMACC, Aquarium
Intern and Fellow Orientation and Onboarding	5/30	3	DMACC, Aquarium
Beach Driving Training	6/1	4	Virginia Beach
Overnight Sea Turtle Nest Monitoring Training	8/1	72	Aquarium
Intern Orientation and Onboarding	8/14	1	DMACC
Intern Orientation and Onboarding	10/11	1	DMACC
Beach Driving Training	10/16	4	Virginia Beach
Volunteer Orientation and Onboarding	10/28	23	DMACC, Aquarium
Beach Driving Training	11/13	6	Virginia Beach
Beach Driving Training	11/18	15	Virginia Beach

Stranding-Related Business	**Date**	**Attendance**	**Location**
Network Meetings	1x/month	Unknown, 1-5 staff	Virtual
Consortium Meetings	1-2x/month	~20	Virtual
Consortium Steering Committee Meetings	~2x/month	2-3	Virtual
GARSCON Planning Committee Meetings	~1x/month	6	Virtual
Large Whale UME Operational Briefings	1x/month	Unknown	Virtual
Atlantic Humpback and Minke Whale UME Core Call	1x/month	Unknown	Virtual
Prescott Technical Reviews	1/10-1/11	Unknown, 2 staff as reviewers	Virtual
NARW Decision Support Tool Peer Review	1/30-2/1	Unknown	Virtual
Harbor Porpoise Take Reduction Team Meeting	5/12	Unknown	Virtual
MMHSRP Batch Upload Webinar	6/7	Unknown	Virtual
eRA Commons/DOC Training Webinar - Introduction to eRA & eRA Commons Registration	6/8	Unknown	Virtual
Atlantic Humpback and Minke Whale UME Core Call	6/15	20	Virtual
eRA Commons/DOC Training Webinar - Account Management for Admins	6/15	Unknown	Virtual
eRA Commons/DOC Training Webinar - Account Management	6/15	Unknown	Virtual
eRA Commons/DOC Training Webinar - Application Submission & Tracking	6/21	Unknown	Virtual
Marine Mammal Rescue and Response Act Webinar	8/14	30	Virtual
NFWF Sea Turtle Grant Pre-Proposal Webinar	8/15	50	Virtual
Prescott Pre-Award Webinar	8/21	~50-75	Virtual
Marine Mammal Rescue and Response Act Webinar	8/30	30	Virtual
North Atlantic Right Whale Tagging Webinar	9/12	160	Virtual
Maine Pinniped UME Operational Briefing	10/3	Unknown	Virtual

GARSCON NOAA Follow-Up Meeting	11/15	6	Virtual
Southeast Large Whale Stranding Preparedness Call	11/21	Unknown	Virtual
Necropsy Support for NC Sperm Whale	12/28	25	Nags Head, NC

Other	**Date**	**Attendance**	**Location**
SECORE Coral Conservation Program	1/25	Unknown	Virtual
Fisheries Cooperative Research Summit	1/31	150	Newport News, VA
OPR Offshore Wind Webinar for Stranding Network	3/31	Unknown	Virtual
Business Network for Offshore Wind - Offshore Wind 101 Webinar	4/21	Unknown	Virtual
Stranding Response Programmatic Review/Workshop	7/19, 8/30	10	Virginia Beach, VA
Regional Wildlife Science Collaborative for Offshore Wind - Sea Turtle Subcommittee Meeting	8/22	25	Virtual
Webinar – Research and Regulations for Marine Mammal interactions with Offshore Wind	8/23	~100	Virtual
Atlantic Highly Migratory Species Fishery Management Plan Amendment 15, Public Webinar	8/17	25	Virtual
Women in Data Science Conference	9/14	Unknown	Virtual
Sea Turtle Medicine – Recreational Fisheries Interactions and Hook Removal Procedures	7/11	21	Virtual

Scientific Publications and Presentations (VAQS staff in bold)

Publications

- **Daniel J**, **Costidis A**, **Barco S**, 2023. Fatal entanglements of sea turtles caused by widely deployed weather instruments. Marine Pollution Bulletin. https://doi.org/10.1016/j.marpolbul.2023.115108
- Zorotrian T, Stern A, Gao H, **Costidis A**, Fontaine C, Deming A, Harms C, Adams H. 2023. Precision of the Abaxis VetScan VS2 for postmortem biochemical analysis of delphinid vitreous humor. Marine Mammal Science. https://doi.org/10.1111/mms.13014
- **Kendall A**. 2023. Determining the effectiveness of gear modifications on bottlenose dolphin (Tursiops truncatus) pound net entanglements in Virginia. Master of Science Thesis. Northeastern University.

Presentations (as Primary Presenter)

- **Bates E, McNaughton A, Barco S.** In Pursuit of Reducing Rehab Burden: A Look at the Use of Immediate Release Criteria For Incidentally Hooked Sea Turtles. Southeast Regional Sea Turtle Meeting. Feb. 28-Mar. 2, 2023. Orange Beach, AL.
- **Epple A, Steele A, Costidis A**. Causes of Stranding/Death in Virginia Bottlenose Dolphins. Oral presentation at Greater Atlantic Regional Stranding Conference; 20 Sept 2023; Rehoboth Beach, DE.
- **Witherup, C, Bates E, McNaughton A, Barco S**. Immediate Release Criteria – Identifying and Releasing Otherwise Healthy Hooked Sea Turtles. Oral presentation at Greater Atlantic Regional Stranding Conference; 20 Sept 2023; Rehoboth Beach, DE.
- **McNaughton A**, **Epple A**, **Rowlands C**. Mortality of Baleen Whales in Virginia. Invited oral presentation at Virginia Department of Wildlife Resources Marine Mammal Conservation Planning Workshop; 31 October 2023; Virginia Beach, VA.
- **Kendall A, Epple A**. Determining the Effectiveness of Gear Modifications on Bottlenose Dolphin Pound Net Entanglements in Virginia. Oral Presentation for Northeastern University Three Seas Program. 8 Dec 2023; Boston, MA.

Presentations (as Coauthor)

- Zorotrian T, Stern AW, Gao H, **Costidis A**, Fontaine C, Deming A, Harms C, & Adams HR. Applications of Postmortem Biochemical Analysis of Delphinid Vitreous Humor for Stranding Response Organizations. Oral Presentation at Greater Atlantic Regional Stranding Conference. 20 Sept 2023; Rehoboth Beach, DE.

Appendix II: Case Highlights

VAQS20231005, North Atlantic Right Whale

On 12 February 2023, a deceased North Atlantic right whale was observed washing ashore in Virginia Beach (Figure 9). The species is critically endangered and of great conservation concern; therefore, VAQS staff collaborated with stranding response and law enforcement partners from across the east coast for the recovery and thorough external and internal examination of the carcass. The whale was matched via photo-identification to a known 20-year-old male and was found to have suffered catastrophic blunt-force trauma consistent with a vessel strike.

Figure 9: Deceased adult male North Atlantic right whale from February 2023.

VAQS20231073, Bottlenose Dolphin

On 27 September 2023, a deceased bottlenose dolphin stranded with numerous monofilament impressions throughout the body, including knot impressions on the head and a wrapping “corkscrew” pattern on the peduncle. The extent of the external entanglement impressions and associated internal hemorrhage support an agonal death as a result of peracute underwater entrapment in a presumptive gillnet. Additionally, this dolphin exhibited a large ventral incision exposing internal viscera. The lack of associated tissue reaction with the wound is consistent with post-mortem mutilation.

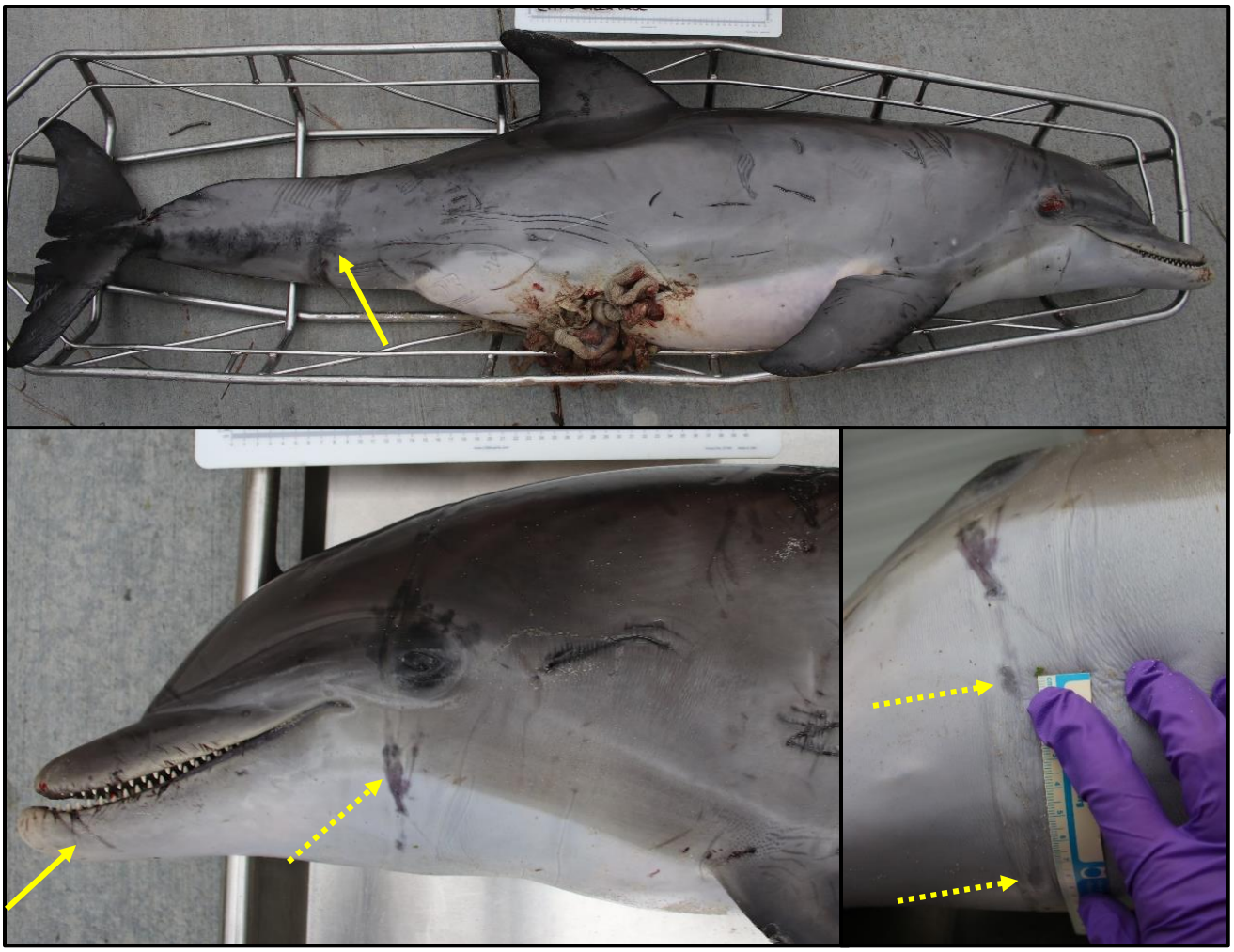


Figure 10: Deceased bottlenose dolphin with extensive evidence of entanglement in fishing gear, as well as presumptive postmortem mutilation of the abdomen. Arrows emphasize some areas of impressions, including those which involve knot impressions (dotted arrows).

VAQS20232208, Loggerhead Turtle

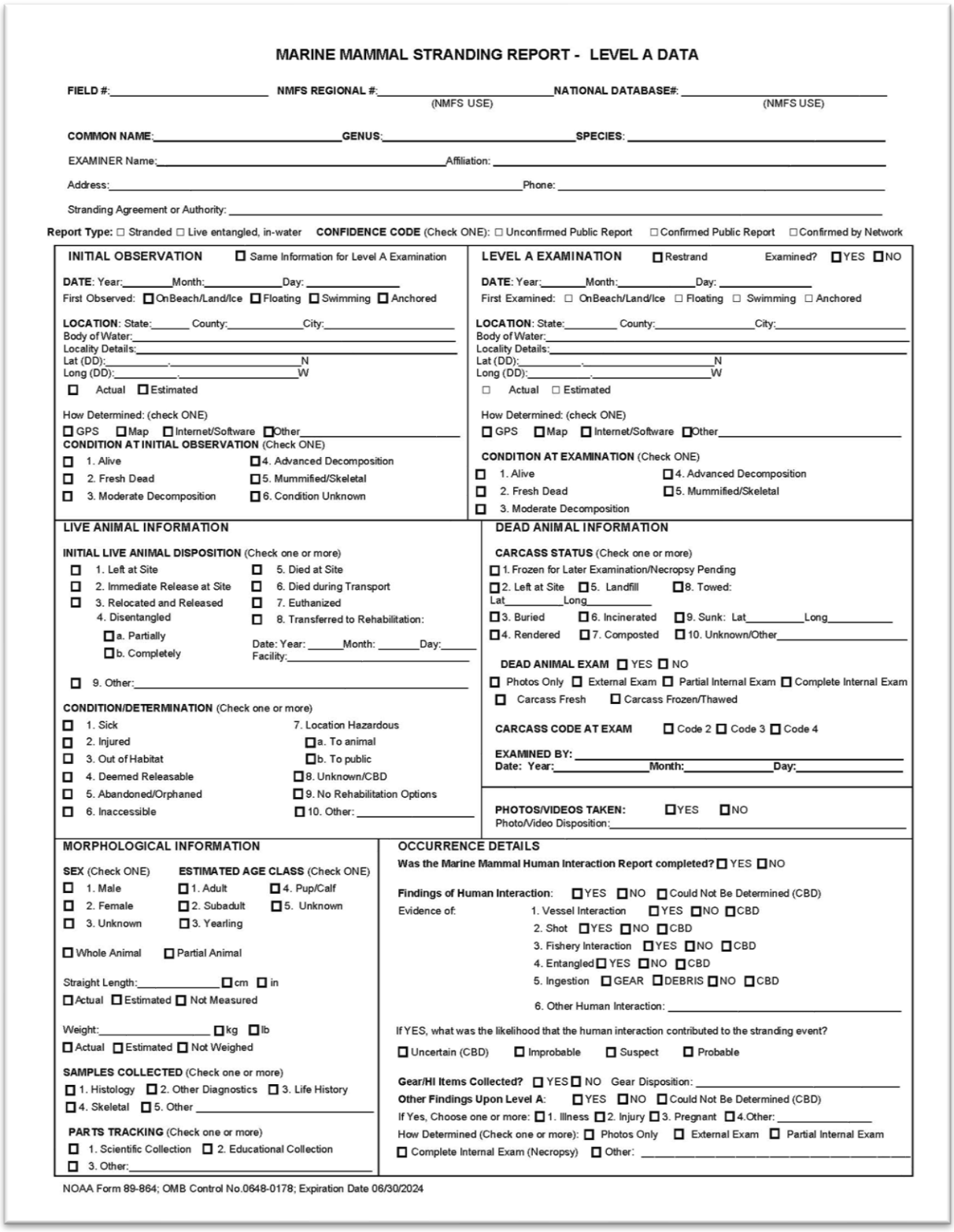
On 4 September 2023, a member of the public reported a very lethargic loggerhead turtle with extensive epibiota. Unfortunately, callers were unable to remain with the animal and attempts to relocate the turtle were unsuccessful until 12 September, when the animal was recovered with the assistance the Virginia Marine Resources Commission. The adult female turtle exhibited an extremely emaciated body condition, extensive epibiota, and bloodwork abnormalities, all of which were consistent with “debilitated loggerhead syndrome”. This was the first turtle in recent years to strand in Virginia with many of the characteristics of this syndrome, which is more commonly observed in turtles in the southeastern United States. At 99.5 cm straight carapace length, this turtle also marked the second largest turtle ever

rehabilitated by VAQS, second only to an adult female green sea turtle from 2007, measuring 101.1 cm straight carapace length. As of February 2024, the turtle has gained over 75 pounds and is continuing to progress in rehabilitation.

Figure 11: Photo of animal during admit to rehabilitation showing thin body condition and extensive epibiota.

Appendix III: Stranding Network Datasheets

A. Marine Mammal Level A data sheet



MARINE MAMMAL STRANDING REPORT - LEVEL A DATA

FIELD #:_____ **NMFS REGIONAL #:**_____ (NMFS USE) **NATIONAL DATABASE#:** _____ (NMFS USE)

COMMON NAME:_____ **GENUS:**_____ **SPECIES:** _____

EXAMINER Name:_____ Affiliation: _____

Address:_____ Phone: _____

Stranding Agreement or Authority: _____

Report Type: ☐ Stranded ☐ Live entangled, in-water **CONFIDENCE CODE** (Check ONE): ☐ Unconfirmed Public Report ☐ Confirmed Public Report ☐ Confirmed by Network

INITIAL OBSERVATION ☐ Same Information for Level A Examination

DATE: Year:_____ Month:_____ Day: _____

First Observed: ☐ OnBeach/Land/Ice ☐ Floating ☐ Swimming ☐ Anchored

LOCATION: State:_____ County:_____ City:_____

Body of Water:_____

Locality Details:_____

Lat (DD):_____._____N

Long (DD):_____._____W

☐ Actual ☐ Estimated

How Determined: (check ONE)

☐ GPS ☐ Map ☐ Internet/Software ☐ Other_____

CONDITION AT INITIAL OBSERVATION (Check ONE)

☐ 1. Alive ☐ 4. Advanced Decomposition

☐ 2. Fresh Dead ☐ 5. Mummified/Skeletal

☐ 3. Moderate Decomposition ☐ 6. Condition Unknown

LEVEL A EXAMINATION ☐ Restrand Examined? ☐ YES ☐ NO

DATE: Year:_____ Month:_____ Day: _____

First Examined: ☐ OnBeach/Land/Ice ☐ Floating ☐ Swimming ☐ Anchored

LOCATION: State:_____ County:_____ City:_____

Body of Water:_____

Locality Details:_____

Lat (DD):_____._____N

Long (DD):_____._____W

☐ Actual ☐ Estimated

How Determined: (check ONE)

☐ GPS ☐ Map ☐ Internet/Software ☐ Other_____

CONDITION AT EXAMINATION (Check ONE)

☐ 1. Alive ☐ 4. Advanced Decomposition

☐ 2. Fresh Dead ☐ 5. Mummified/Skeletal

☐ 3. Moderate Decomposition

LIVE ANIMAL INFORMATION

INITIAL LIVE ANIMAL DISPOSITION (Check one or more)

☐ 1. Left at Site ☐ 5. Died at Site

☐ 2. Immediate Release at Site ☐ 6. Died during Transport

☐ 3. Relocated and Released ☐ 7. Euthanized

4. Disentangled ☐ 8. Transferred to Rehabilitation:

☐ a. Partially

☐ b. Completely

Date: Year: _____ Month: _____ Day:_____

Facility:_____

☐ 9. Other:_____

CONDITION/DETERMINATION (Check one or more)

☐ 1. Sick

☐ 2. Injured

☐ 3. Out of Habitat

☐ 4. Deemed Releasable

☐ 5. Abandoned/Orphaned

☐ 6. Inaccessible

7. Location Hazardous

☐ a. To animal

☐ b. To public

☐ 8. Unknown/CBD

☐ 9. No Rehabilitation Options

☐ 10. Other: _____

DEAD ANIMAL INFORMATION

CARCASS STATUS (Check one or more)

☐ 1. Frozen for Later Examination/Necropsy Pending

☐ 2. Left at Site ☐ 5. Landfill ☐ 8. Towed:

Lat_____ Long_____

☐ 3. Buried ☐ 6. Incinerated ☐ 9. Sunk: Lat_____ Long_____

☐ 4. Rendered ☐ 7. Composted ☐ 10. Unknown/Other_____

DEAD ANIMAL EXAM ☐ YES ☐ NO

☐ Photos Only ☐ External Exam ☐ Partial Internal Exam ☐ Complete Internal Exam

☐ Carcass Fresh ☐ Carcass Frozen/Thawed

CARCASS CODE AT EXAM ☐ Code 2 ☐ Code 3 ☐ Code 4

EXAMINED BY: _____

Date: Year:_____ **Month:**_____ **Day:**_____

PHOTOS/VIDEOS TAKEN: ☐ YES ☐ NO

Photo/Video Disposition:_____

MORPHOLOGICAL INFORMATION

SEX (Check ONE)

☐ 1. Male

☐ 2. Female

☐ 3. Unknown

ESTIMATED AGE CLASS (Check ONE)

☐ 1. Adult ☐ 4. Pup/Calf

☐ 2. Subadult ☐ 5. Unknown

☐ 3. Yearling

☐ Whole Animal ☐ Partial Animal

Straight Length:_____ ☐ cm ☐ in

☐ Actual ☐ Estimated ☐ Not Measured

Weight:_____ ☐ kg ☐ lb

☐ Actual ☐ Estimated ☐ Not Weighed

SAMPLES COLLECTED (Check one or more)

☐ 1. Histology ☐ 2. Other Diagnostics ☐ 3. Life History

☐ 4. Skeletal ☐ 5. Other _____

PARTS TRACKING (Check one or more)

☐ 1. Scientific Collection ☐ 2. Educational Collection

☐ 3. Other:_____

OCCURRENCE DETAILS

Was the Marine Mammal Human Interaction Report completed? ☐ YES ☐ NO

Findings of Human Interaction: ☐ YES ☐ NO ☐ Could Not Be Determined (CBD)

Evidence of:

1. Vessel Interaction ☐ YES ☐ NO ☐ CBD
2. Shot ☐ YES ☐ NO ☐ CBD
3. Fishery Interaction ☐ YES ☐ NO ☐ CBD
4. Entangled ☐ YES ☐ NO ☐ CBD
5. Ingestion ☐ GEAR ☐ DEBRIS ☐ NO ☐ CBD
6. Other Human Interaction: _____

If YES, what was the likelihood that the human interaction contributed to the stranding event?

☐ Uncertain (CBD) ☐ Improbable ☐ Suspect ☐ Probable

Gear/HI Items Collected? ☐ YES ☐ NO Gear Disposition: _____

Other Findings Upon Level A: ☐ YES ☐ NO ☐ Could Not Be Determined (CBD)

If Yes, Choose one or more: ☐ 1. Illness ☐ 2. Injury ☐ 3. Pregnant ☐ 4.Other: _____

How Determined (Check one or more): ☐ Photos Only ☐ External Exam ☐ Partial Internal Exam

☐ Complete Internal Exam (Necropsy) ☐ Other: _____

NOAA Form 89-864; OMB Control No.0648-0178; Expiration Date 06/30/2024

GE# _____ (NMFS Use)

Group Event: ☐ YES ☐ NO

If Yes, Type: ☐ Cow/Calf Pair ☐ Mass Stranding ☐ UME # Animals:_____☐ Actual ☐ Estimated

TAG DATA		ID#	Color	Type	Placement* (Circle ONE)	Applied	Present	Removed
Tags Were:								
Present at Time of Stranding (Pre-existing):	☐ YES ☐ NO				D DF L R LF LR RF RR V	☐	☐	☐
Applied during Stranding Response/Release:	☐ YES ☐ NO							
Applied during Rehabilitation/Release:	☐ YES ☐ NO				D DF L R LF LR RF RR V	☐	☐	☐
Absent but Suspect Prior Tag:	☐ YES ☐ NO							
					D DF L R LF LR RF RR V	☐	☐	☐
					D DF L R LF LR RF RR V	☐	☐	☐

* D= Dorsal; DF= Dorsal Fin; L= Left Lateral Body R= Right Lateral Body LF= Left Front; LR= Left Rear; RF= Right Front; RR= Right Rear; V= Ventrum

ADDITIONAL IDENTIFIER: _____ (If animal is restranded, please indicate any previous field numbers here)

ADDITIONAL REMARKS:

DISCLAIMER

THESE DATA SHOULD NOT BE USED OUT OF CONTEXT OR WITHOUT VERIFICATION. THIS SHOULD BE STRICTLY ENFORCED WHEN REPORTING SIGNS OF HUMAN INTERACTION DATA.

DATA ACCESS FOR LEVEL A DATA

UPON WRITTEN REQUEST, CERTAIN FIELDS OF THE LEVEL A DATA SHEET WILL BE RELEASED TO THE REQUESTOR PROVIDED THAT THE REQUESTOR CREDIT THE STRANDING NETWORK AND THE NATIONAL MARINE FISHERIES SERVICE. THE NATIONAL MARINE FISHERIES SERVICE WILL NOTIFY THE CONTRIBUTING STRANDING NETWORK MEMBERS THAT THESE DATA HAVE BEEN REQUESTED AND THE INTENT OF USE. ALL OTHER DATA WILL BE RELEASED TO THE REQUESTOR PROVIDED THAT THE REQUESTOR OBTAIN PERMISSION FROM THE CONTRIBUTING STRANDING NETWORK AND THE NATIONAL MARINE FISHERIES SERVICE.

PAPERWORK REDUCTION ACT INFORMATION

PUBLIC REPORTING BURDEN FOR THE COLLECTION OF INFORMATION IS ESTIMATED TO AVERAGE 30 MINUTES PER RESPONSE, INCLUDING THE TIME FOR REVIEWING INSTRUCTIONS, SEARCHING EXISTING DATA SOURCES, GATHERING AND MAINTAINING THE DATA NEEDED, AND COMPLETING AND REVIEWING THE COLLECTION OF INFORMATION. SEND COMMENTS REGARDING THIS BURDEN ESTIMATE OR ANY OTHER ASPECT OF THE COLLECTION INFORMATION, INCLUDING SUGGESTIONS FOR REDUCING THE BURDEN TO: CHIEF, MARINE MAMMAL AND SEA TURTLE CONSERVATION DIVISION, OFFICE OF PROTECTED RESOURCES, NOAA FISHERIES, 1315 EAST-WEST HIGHWAY, SILVER SPRING, MARYLAND 20910. NOT WITHSTANDING ANY OTHER PROVISION OF THE LAW, NO PERSON IS REQUIRED TO RESPOND, NOR SHALL ANY PERSON BE SUBJECTED TO A PENALTY FOR FAILURE TO COMPLY WITH, A COLLECTION OF INFORMATION SUBJECT TO THE REQUIREMENTS OF THE PAPERWORK REDUCTION ACT, UNLESS THE COLLECTION OF INFORMATION DISPLAYS A CURRENTLY VALID OFFICE OF MANAGEMENT AND BUDGET (OMB) CONTROL NUMBER.

NOAA Form 89-864; OMB Control Number 0648-0178; Expiration Date: 06/30/2024

B. Sea Turtle Stranding and Salvage Network (STSSN) data sheet (slightly modified for VAQS' specific use)

SEA TURTLE STRANDING AND SALVAGE NETWORK — STRANDING REPORT

OBSERVER'S NAME AND CONTACT INFORMATION:
First _____ M.I. _____ Last _____
Email _____
Affiliation _____
Phone number (____) _____

STRANDING DATE: *Use two digits for date fields.*
Year 20[__][__] Month[__][__] Day[__][__]
Turtle number by day[__][__][__] *Use three digits.*
VAQS Field Number: _____

STRANDING LOCATION:
State _____ County _____
Latitude _____ ☐ est Longitude _____ ☐ est
Location description _____

SPECIES: (check one, do not guess)
☐ Loggerhead (CC) ☐ Kemp's ridley (LK)
☐ Green turtle (CM) ☐ Olive ridley (LO)
☐ Leatherback (DC) ☐ Unidentified
☐ Hawksbill (EI)

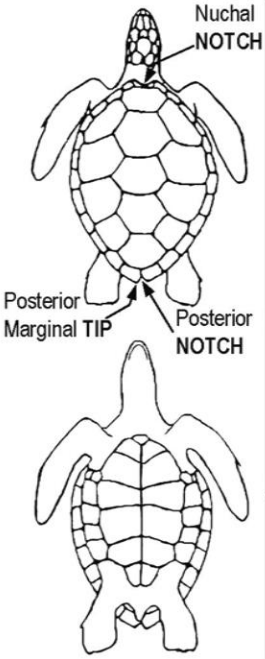
CIRCUMSTANCES OF ENCOUNTER: (check one)
Traditional Stranding
☐ Found washed ashore or washing ashore ☐ **Post-hatchling Washback**
☐ Found floating/struggling at water surface
☐ Found underwater ☐ **Cold-stunning**
Incidental Capture
☐ Caught by recreational fisherman
☐ Found in the intake canal of power plant
☐ Found in dredge equipment
☐ Entangled in line of pot/trap buoy
☐ Caught in commercial hook/line fishery
☐ Caught in commercial net fishery
☐ Captured during **relocation** efforts
☐ Captured during **research** efforts
☐ **Other** _____

NECROPSY:
Necropsied? ☐ Yes ☐ No ☐ Pending
Necropsy Date? _____
Necropsy Prosectors: _____
Necropsy type: ☐ Partial ☐ Complete

PHOTOS: (submit photos to state coordinator)
☐ YES (indicate below the completeness of photo series) ☐ NO
☐ Dorsal aspect visible ☐ Ventral aspect visible
A complete photo series includes photographs of the dorsal and ventral aspects of the turtle, and all injuries or anomalies.

CONDITION: (check one)
☐ Alive
☐ Mildly decomposed
☐ Moderately decomposed
☐ Severely decomposed
☐ Dried carcass
☐ Skeletal

SEX: (check one)
☐ Female
☐ Male
☐ Unknown
How Determined?
☐ Necropsy
☐ Tail Length



TAGS:
Contact state coordinator before disposing of a tagged turtle!
Flipper tags found? ☐ YES ☐ NO
Check all 4 flippers. If found, record tag number & location.
1. _____
2. _____
3. _____
PIT tag scan performed? ☐ YES ☐ NO
Check all 4 flippers. If found, record tag id & location.
1. _____
2. _____
Possible tag scars? ☐ YES ☐ NO
Check all locations of possible tag scars:
☐ Front left ☐ Front right ☐ Rear left ☐ Rear right
Living tag found? ☐ YES ☐ NO
If found, photograph & record scute number & side.
_____
Tracking gear found? ☐ YES ☐ NO If present, describe.
Do not dispose of turtle or remove gear; consult STSSN coordinator.
_____

CARAPACE MEASUREMENTS:
All measurements in cm, check box if estimated
Using calipers
Straight length (notch-tip) _____ ☐ est
Minimum length (notch-notch) _____ ☐ est
Straight width (widest point) _____ ☐ est
Using non-metal measuring tape
Curved length (notch-tip) _____ ☐ est
Minimum length (notch-notch) _____ ☐ est
Curved width (widest point) _____ ☐ est

EXAMINATION DETAILS:
Type of examination: (check one)
☐ In-person exam by STSSN participant
☐ Evaluated from photographs submitted by the public
Completeness of body: (check all that apply)
☐ Complete
☐ Missing head
☐ Missing one or more flippers (100%)
☐ Missing 50% or more of the shell (body)
☐ Not determined
Mouth checked? ☐ YES ☐ NO ☐ UNKNOWN

WEIGHT: (do not estimate weight)
Measured weight: _____ **kg**

TAIL MEASUREMENT:
Did the tail extend past the carapace?
At least 5cm/2in (LK or LO), 10cm/4in (CC, CM, EI), or 15cm/6in (DC)
☐ YES, directly measured: _____ **cm**
☐ NO ☐ NOT DETERMINED

FATE OR FINAL DISPOSITION:
If the stranded turtle was alive, choose one of the following:
☐ Alive, immediately released
☐ Alive, taken to rehabilitation facility; where?
_____
☐ Died before reaching rehabilitation facility
If the turtle was found dead or died, choose one of the following:
☐ Dead and left where found; marked? ☐ YES ☐ NO
If marked, describe: _____
☐ Dead; buried, rendered, or otherwise disposed of
☐ Dead and salvaged; location of salvaged remains?
_____
Salvaged for necropsy? ☐ YES ☐ NO

Revised: 19-Jan-21 **Clear Form**

ANTHROPOGENIC MATERIAL

Was there any man-made material found on the turtle (e.g., fishing gear, tar, or oil)? ☐YES ☐NO **If yes, were photos taken?** ☐YES ☐NO

If man-made material was present, please answer the following questions. (check all that apply)

Were any fishing hooks present on the turtle? ☐YES ☐NO — Where were the hooks located? ☐Mouth ☐Head ☐Neck ☐Carapace ☐Plastron ☐Front flipper ☐Rear flipper ☐Tail

If yes, was the gear collected? ☐YES ☐NO

Was line <0.5 cm dia. present on the turtle? ☐YES ☐NO ☐ — Where was the line located? ☐Mouth ☐Head ☐Neck ☐Carapace ☐Plastron ☐Front flipper ☐Rear flipper ☐Tail ☐Cloaca

If yes, was the gear collected? ☐YES ☐NO

Was the turtle entangled in line ≥0.5 cm dia.? ☐YES ☐NO Where was the line located? ☐Head ☐Neck ☐Carapace ☐Plastron ☐Front flipper ☐Rear flipper ☐Tail

If yes, was the gear collected? ☐YES ☐NO

Was the turtle entangled in fishing net? ☐YES ☐NO — Where was the net located? ☐Head ☐Neck ☐Carapace ☐Plastron ☐Front flipper ☐Rear flipper ☐Tail

If yes, was the gear collected? ☐YES ☐NO

Was there any tar or oil present? ☐YES ☐NO — Where was the tar or oil located? ☐Mouth ☐Head ☐Neck ☐Carapace ☐Plastron ☐Front flipper ☐Rear flipper ☐Tail

If yes, were any samples collected? ☐YES ☐NO

Was there any other man-made material present? ☐YES ☐NO — Where was the material located? ☐Mouth ☐Head ☐Neck ☐Carapace ☐Plastron ☐Front flipper ☐Rear flipper ☐Tail

Please describe the material: _____

INJURIES

Were any injuries externally evident? ☐YES ☐NO **If yes, were photos taken?** ☐YES ☐NO

If injuries were evident, please answer the following questions. (check all that apply)

Were there any definitive vessel-strike injuries evident? ☐YES ☐NO — Where were these injuries located? ☐Head ☐Neck ☐Carapace ☐Plastron ☐Front flipper ☐Rear flipper ☐Tail

Were there any blunt force injuries evident? ☐YES ☐NO — Where were these injuries located? ☐Head ☐Carapace ☐Plastron

Were there any shark-bite injuries evident? ☐YES ☐NO — Where were these injuries located? ☐Head ☐Neck ☐Carapace ☐Plastron ☐Front flipper ☐Rear flipper ☐Tail

Were there any amputations of unknown cause evident? ☐YES ☐NO — Where were these amputations located? ☐Front left flipper ☐Front right flipper ☐Rear left flipper ☐Rear right flipper

How many amputations were present? _____

Was there an incised wound evident? ☐YES ☐NO — Where was the wound located? ☐Head ☐Neck ☐Carapace ☐Plastron ☐Front flipper ☐Rear flipper ☐Tail

(e.g., clean cuts, as created by knife; typically longer than wide)

Was there a perforating or penetrating wound evident? ☐YES ☐NO — Where was the wound located? ☐Head ☐Neck ☐Carapace ☐Plastron ☐Front flipper ☐Rear flipper ☐Tail

(a wound that is typically deeper than wide)

Was there a wound indicative of entanglement or ingestion of anthropogenic material without this material being present? ☐YES ☐NO — Where was the wounds located? ☐Head ☐Neck ☐Carapace ☐Plastron ☐Front flipper ☐Rear flipper ☐Tail

Was there a furrow on the edge of the beak? ☐YES ☐NO

Was there some other type of injury evident (not already described)? ☐YES ☐NO

Please describe: _____

DISEASES AND LEECHES

Were any diseases or leeches externally evident? ☐YES ☐NO **If yes, were photos taken?** ☐YES ☐NO

If diseases or leeches were evident, please answer the following questions. (check all that apply)

Were there any fibropapilloma-like tumors present? ☐YES ☐NO **If yes, were photos taken?** ☐YES ☐NO

Were eye tumors present? ☐YES ☐NO

Were mouth tumors present? ☐YES ☐NO

Did any of the tumors have a papillary texture? ☐YES ☐NO

Were there any non-fibropapilloma-like tumors present? ☐YES ☐NO **If yes, were photos taken?** ☐YES ☐NO

Please describe: _____

Were there any external skin lesions evident? ☐YES ☐NO **If yes, were photos taken?** ☐YES ☐NO

Which of the following best describes the lesions? ☐Superficial crusts on the skin surface ☐Deep lesions exposing underlying tissue ☐Both superficial crusts and deep lesions were present ☐Neither

Which best describes the extent of superficial crusts? ☐Found only in single area or in a few small, isolated areas ☐Found over large areas

Where were the superficial crusts found? ☐Head ☐Neck ☐Carapace ☐Plastron ☐Front flipper ☐Rear flipper ☐Tail

Which best describes the extent of the deep lesions exposing underlying tissues?

☐Found only in single area or in a few small, isolated areas ☐Found over large areas

Where were the deep lesions found? ☐Head ☐Neck ☐Carapace ☐Plastron ☐Front flipper ☐Rear flipper ☐Tail

Were there any leeches or leech eggs evident? ☐YES, small isolated egg patches or few adults ☐YES, large egg patches or many adults ☐NO **If yes, were photos taken?** ☐YES ☐NO

ADDITIONAL COMMENTS: _____

Appendix IV: List of Species Stranded in Virginia

A. Marine mammal species in stranding records from Virginia, U.S.A. (Virginia Aquarium Marine Mammal Stranding Database, Potter 1991).

Common Name	Scientific Name	ESA Status
Order: Sirenia		
Family: Trichechidea		
West Indian manatee	*Trichechus manatus latirostris*	Threatened
Order: Cetacea		
Suborder: Mysticeti		
Family: Balaenidae		
North Atlantic Right whale	*Eubalaena glacialis*	Endangered
Family: Balaenopteridae		
Fin whale	*Balaenoptera physalus*	Endangered
Sei whale	*Balaenoptera borealis*	Endangered
Humpback whale	*Megaptera novaeangliae*	Not Listed
Minke whale	*Balaenoptera acutorostrata*	Not Listed
Suborder: Odontoceti		
Family: Physteridae		
Sperm whale	*Physeter macrocephalus*	Endangered
Pygmy sperm whale	*Kogia breviceps*	Uncertain
Dwarf sperm whale	*Kogia sima*	Uncertain
Family: Ziphiidae		
Gervais' beaked whale	*Mesoplodon europaeus*	Uncertain
True's beaked whale	*Mesoplodon mirus*	Uncertain
Sowerby's beaked whale	*Mesoplodon bidens*	Uncertain
Blainville's beaked whale	*Mesoplodon densirostris*	Uncertain
Family: Delphinidae		
Long-finned pilot whale	*Globicephala melas*	Not Listed
Short-finned pilot whale	*Globicephala macrorynchus*	Not Listed
Risso's dolphin	*Grampus griseus*	Not Listed
Bottlenose dolphin	*Tursiops truncatus*	Not Listed
Atlantic white-sided dolphin	*Lagenorhynchus acutus*	Not Listed
Pygmy killer whale	*Feresa attenuata*	Not Listed
Melon-headed whale	*Peponocephala electra*	Not Listed
Rough-toothed dolphin	*Steno bredanensis*	Uncertain
Common dolphin	*Delphinus delphis*	Not Listed
Striped dolphin	*Stenella coerubeoalba*	Not Listed
Atlantic spotted dolphin	*Stenella frontalis*	Not Listed
Family: Phocoenidae		
Harbor porpoise	*Phocoena phocoena*	Not Listed
Order: Carnivora		

Common Name	Scientific Name	ESA Status
Suborder: Pinnipedia		
Family: Phocidae		
Harbor seal	*Phoca vitulina*	Not Listed
Gray seal	*Halichoerus grypus*	Not Listed
Hooded seal	*Crystophora cristata*	Not Listed
Harp seal	*Pagophilus groenlandica*	Not Listed

B. Sea turtle species in stranding records from Virginia, U.S.A. (Virginia Aquarium Sea Turtle Stranding Database).

Common Name	Scientific Name	ESA Status
Class: Reptilia		
Order: Testudines		
Family: Dermochelyidea		
Leatherback sea turtle	*Dermochelys coriacea*	Endangered
Family: Cheloniidae		
Green sea turtle	*Chelonia mydas*	Threatened
Loggerhead sea turtle	*Caretta caretta*	Threatened
Hawksbill sea turtle	*Eretmochelys imbricata*	Endangered
Kemp's ridley sea turtle	*Lepidochelys kempii*	Endangered