

MARINE MAMMAL AND SEA TURTLE STRANDING RESPONSE 2012 GRANT REPORT

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VIRGINIA
AQUARIUM
STRANDING RESPONSE



Virginia Coastal Zone
MANAGEMENT PROGRAM

*VIRGINIA AQUARIUM FOUNDATION
STRANDING RESPONSE PROGRAM*

*Marine Mammal and Sea Turtle
Stranding Response
2012 Grant Report*

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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) and the Commonwealth of Virginia.

The Virginia Aquarium Research & Conservation Division is responsible for directing the organization's efforts in these areas. With primary support from the VAQF, the division is dedicated to conservation of the marine environment through research, partnerships, marine animal rescue and education.



Virginia Coastal Zone MANAGEMENT PROGRAM

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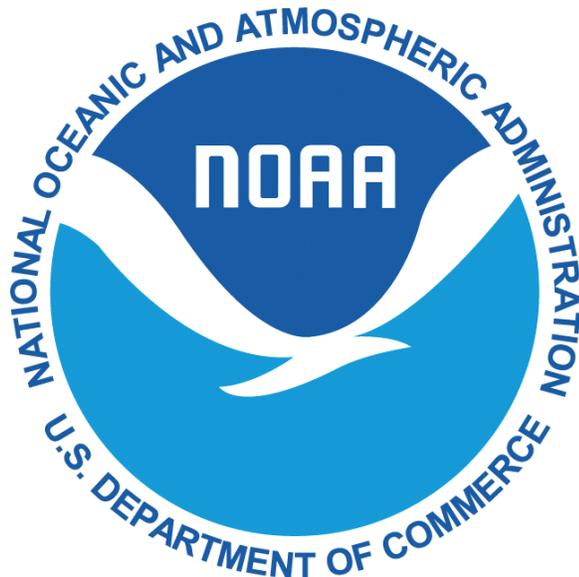


TABLE OF CONTENTS

Introduction.....	2
Stranding Response Methods.....	4
Discussion of 2012 Stranding Data.....	5
VAQS Activities During 2012	8
Summary	9
Literature Cited	10
Tables	11
Figures.....	20
Appendix I: Professional and Education Activities	28
Appendix II: Highlights of the Year - Marine Mammals.....	32
Appendix III: Highlights of the Year - Sea Turtles	33
Appendix IV: Stranding Network Datasheets.....	34

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 Foundation 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 and research. VAQS has been responding to marine mammal and sea turtle strandings (more than 5,000) in Virginia since 1987. The Aquarium and the Aquarium's Marine Animal Care Center are located in Virginia Beach, VA. VAQS responds to all marine mammal strandings in Virginia and currently maintains the state marine mammal stranding database. In addition, VAQS and their cooperators coordinate the Virginia Sea Turtle Stranding and Salvage Network throughout Virginia. Sea turtle stranding data are recorded in the VAQS database and the state sea turtle stranding database.

VAQS uses staff, volunteers and other organizations (cooperators) to report, record, document, examine and recover 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 that may otherwise be lost due to decomposition and/or scavenging. Formed in 1991, the VAQS Stranding Response Team (Team) is composed of staff and volunteers trained to respond to stranded animals. VAQS staff provides training programs for 65 Team 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, U.S. Fish and Wildlife Service, NOAA Fisheries Service (NMFS), The Nature Conservancy, Virginia Marine Resources Commission, Virginia Department of Game and Inland Fisheries, Virginia Institute of Marine Science (VIMS), state parks, national wildlife refuges, and regional law enforcement authorities. As a result of these continuing efforts, VAQS continues to maintain and improve statewide marine animal stranding response.

Marine mammal groups found in Virginia include cetaceans (dolphins, porpoises and whales), pinnipeds (seals) and sirenians (manatees). Marine mammal strandings occur in all months of the year. During the 1990s, Virginia averaged 61 marine mammal strandings per year with a high of 105 in 1994. Since then, strandings have increased dramatically. For the years 2003-2012, Virginia has averaged 99 marine mammal strandings (Fig. 1).

It is important for organizations such as VAQS to examine stranded marine mammals because these species are very difficult to study in the wild. Very little is known about the natural history of many marine mammal species and strandings provide a rare opportunity to thoroughly examine these animals. With the advent of new techniques, such as molecular genetic analyses, stranded animals provide a wealth of information about wild populations that are difficult and expensive to study *in situ*. In some species, such as pygmy/dwarf sperm whales and beaked whales, data collected from stranded animals provides the best information available on the animals' natural history. Stranding records can indicate seasonal trends in presence and suggest areas of high concentration of marine mammal species such as bottlenose dolphins and harbor porpoises (Read and Murray, 2000). 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. Each stranded marine mammal is thoroughly examined whenever possible, including body measurements, external appearance, and internal condition (via necropsy). Data and tissues are collected for life history, histological and toxicological studies. Samples are collected by VAQS and have been supplied to the Smithsonian Institution, Armed Forces Institute of Pathology, NMFS and numerous other research organizations.

In addition to dead strandings, the VAQS Team responds to several live marine mammals each year. The level of response depends on the type of animal. Sick or injured baleen whales and toothed whales larger than 10 feet in length are virtually impossible to rescue and often

must be humanely euthanized. Some smaller cetaceans can be rescued if found quickly and in suitable condition. They must be supported in water as soon as possible and treated for shock. Successful cetacean rehabilitation requires large tanks, experienced personnel and access to sophisticated equipment. Currently, VAQS is not equipped to attempt long-term cetacean rehabilitation. As soon as possible, animals that are good candidates for rehab are transferred to other facilities. Pinnipeds (seals), on the other hand, are amphibious animals and can be transported in canine kennels. The VAQS Stranding Center has a seal holding pen adequate for short-term triage and a seal rehabilitation unit capable of holding one seal. Seals in triage can be held in a 4' x 4' dry pen with gated entry into a 4' x 4' pool. Following triage, animals are placed in a seal rehabilitation area (large enough for one animal) or are transferred to other facilities in the stranding network that specialize in long-term rehabilitation and release of pinnipeds. Since 2003, VAQS has responded to an average of 4.7 cetaceans and 3.9 pinniped live strandings in Virginia each year. The VAQS Team also responds to marine mammal emergencies in northeastern North Carolina (7.9 per year since 2003).

Five species of sea turtles (loggerhead, Kemp's ridley, leatherback, green, and hawksbill) are found in Virginia. Sea turtle strandings occur primarily in the late spring, summer and fall. The VAQS Team responded to an average of 83 sea turtle strandings per year during the 1990s. Since then, strandings have increased dramatically. Since 2003, Virginia has recorded an average of 262 sea turtle strandings per year (Fig. 6).

Sea turtles are examined in much the same way as marine mammals. Data are recorded for all strandings, and necropsies are performed on many fresh stranded carcasses. Stranding trends, including probable causes of mortalities, are monitored through stranding records. Stranded sea turtles are checked for flipper and PIT tags and results are reported to NMFS. A small number of loggerhead sea turtles nest on Virginia beaches each year. In addition, several green sea turtles and single Kemp's ridley have been recorded nesting for the first time in Virginia. The VAQS Team participates in a nesting beach monitoring program with the Back Bay National Wildlife Refuge and the Virginia Department of Game and Inland Fisheries (VDGIF). Live strandings of sea turtles have also increased and the VAQS Team has successfully rehabilitated and released many of the stranded turtles. Since 2003, an average of 13.0 live sea turtles have stranded in Virginia each year. In addition, VAQS Team expertise in sea turtle rehabilitation has resulted in many turtles (more than 65) that have stranded outside Virginia being transferred to VAQS for rehabilitation.

In addition to stranding response, VAQS conducts research on marine mammals and sea turtles. Photo-identification is 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. VAQS has also been conducting research on loggerhead sea turtles since 1990. Early research involved the study of growth potentials of loggerhead hatchlings in controlled environments. Post-release satellite tracking of aquarium-reared loggerheads was conducted with the help of VIMS in the 1990s. Growth and nutritional studies continue with hatchling loggerheads and non-releasable loggerheads, Kemp's ridleys and greens. With the support of additional grants and donations in recent years, VAQS has been able to conduct numerous satellite tagging projects with rehabilitated sea turtles.

VAQS Team staff and volunteers present the results of their research at national and regional workshops, at professional meetings and in numerous publications (Appendix I). In addition, VAQS research has been presented to more than 13 million people through innovative Aquarium exhibits and public programs. Staff and volunteers present educational programs related to stranding events, on-going stranding response and research throughout the year. On an ongoing basis, staff provide training/assistance and gain valuable experience in live animal rehab by visiting and working with staff at other facilities. VAQS staff also serves on federal management and scientific teams studying the interactions of protected species with commercial fisheries and other potentially threatening human activities. They regularly use their expertise

and data to comment on projects that may have an effect on regional marine mammal and sea turtle populations, including a proposed naval undersea training range off Virginia's eastern shore, and possible offshore energy exploration and development. 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, the VAQS Team follows data collection protocols developed by NMFS (Appendix IV). 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
species	location
condition	body length
weight	gender
findings of human interaction *	
sample collection and dissemination	
disposition of carcass	

(* Findings of human interaction consist of clues on a carcass that human activities were responsible for injuries and/or the death of the animal. The two most common types of human interactions are fishery entanglements and vessel strikes. In addition, special data collection protocols and forms have been developed by VAQS for assessing human interactions in marine mammal and sea turtle strandings).

Level B and C data are collected from fresh carcasses. Level B and C data are recorded on numerous other data sheets often provided by other research organizations. These more involved data 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

In order to provide timely, accurate and usable data, VAQS compiles these data in a 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 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 in much the same manner as for marine mammals (Appendix IV). In addition to the Level A data listed above, the VAQS Team also examines sea turtle carcasses for several types of tags. PIT tags and wire tags require specialized equipment in order to be detected. Fresh turtles are examined for stomach contents, gender and findings of human interaction.

Live marine mammals and sea turtles have become an increasing part of stranding response for the VAQS Team. 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 potential survival of live stranded animals. Once a live stranding is confirmed, staff and volunteers can be ready to respond in minutes. Cooperating agencies,

especially on Virginia's eastern shore, have immensely improved the VAQS Team's ability to rescue animals. Whenever possible, live stranded animals are rushed to the Stranding Center where they are immediately treated for shock and other obvious injuries. VAQS veterinary staff and the Team veterinary technician have developed protocols and data sheets for live animal response and rehabilitation. VAQS staff has established an excellent working relationship with medical diagnostic service companies and with local vet clinics that provide valuable services in the form of blood and sample analyses, radiograph support and doses of less common drugs. In addition, the medical team works with several specialized veterinarians and technicians, including eye specialists and advanced diagnostic technicians, on special cases. The VAQS Team is now experienced at working with live stranded sea turtles and seals and has gained valuable experience with live cetaceans. VAQS sea turtle rehabilitation experience was put into action during response to the BP Deepwater Horizon Oil Spill in the Gulf of Mexico in 2010. Three VAQS staff were deployed over a total period of more than five weeks to assist sea turtle recovery and rehabilitation efforts in Louisiana and Florida.

DISCUSSION OF 2012 VIRGINIA STRANDING DATA

MARINE MAMMALS

VAQS stranding data are presented for the calendar year 2012. A total of 75 marine mammal strandings were recorded in Virginia during 2012 (Table 1). This was the lowest number of annual marine mammal strandings in the state in the last 12 years (since 2000). In the past ten years, the number of marine mammal strandings has varied, with the highest level of 119 occurring in 2005 (Fig. 1). The high numbers of strandings in 2003 and 2005 were accompanied by high numbers of harbor porpoise strandings (Fig. 5B). Marine mammal strandings occur in all months of the year, but some marine mammals (i.e. bottlenose dolphins, harbor porpoises and seals) tend to strand seasonally, while others (i.e. large whales and other cetaceans) can occur at any time of the year (Fig. 2). In the past ten years, bottlenose dolphins have comprised the majority of the marine mammals that strand each year. 2012 was another active year for VAQS with bottlenose dolphins comprising 85% of the strandings (Fig. 3). Marine mammal strandings occur throughout Virginia's ocean and bay waters. Normally, the strandings are most common along the eastern shore and southern shore of the Chesapeake Bay mouth and the southern ocean coast (Fig. 4). Pictures of some of the notable marine mammal strandings from 2012 are included in Appendix II.

Marine mammals are divided into five data groups for analyses. These data groups are: (1) bottlenose dolphin - the most common marine mammal in Virginia, (2) harbor porpoise - a common small cetacean that occurs in late winter and spring, (3) large whales - primarily baleen whales such as humpback, fin, right and minke whales, (4) other cetaceans - primarily oceanic species with low stranding rates such as pilot whales, pygmy and dwarf sperm whales, pelagic dolphins and beaked whales, and (5) pinnipeds - harbor, harp, hooded and gray seals. Live stranded animals are included in these analyses and are also addressed separately below.

Live strandings

In 2012, VAQS responded to two live marine mammal strandings (Table 2). These strandings occurred at various times throughout the year and consisted of two cetaceans, one bottlenose dolphin and one humpback whale. Both of the cetaceans that stranded were humanely euthanized.

Bottlenose dolphin

Bottlenose dolphins (*Tursiops truncatus*) are the most common marine mammals sighted in Virginia waters. They are also the most commonly stranded marine mammals in the state. Most dolphins strand from April to October, which is concurrent with their seasonal appearance in Virginia coastal waters (Barco *et al.* 1999; Fig. 2). During 2012, 64 bottlenose dolphin strandings were recorded in Virginia (Figure 5A). This number was higher than 2010 (58) and 2011 (57), but much lower than 2009 when 80 dolphins were stranded. 2009 represents the record high number for Virginia since the 1987 bottlenose dolphin mortality event. Dolphin strandings in 2012 occurred primarily along the Atlantic Ocean and lower Chesapeake Bay shorelines, although they were also recovered inside the bay, as well (Fig. 4). In 2012, 37.5% (24) of the strandings occurred in Virginia Beach, 37.5% (24) on the eastern shore, 4.7% (3) in Norfolk/Portsmouth and 20.3% (13) on the western shores of Chesapeake Bay north of the James River. Gender was determined for 43 of the 57 stranded dolphins. Females comprised 37% (18) and males comprised 63% (31) of the known gender animals. Twenty seven (42%) of the stranded dolphins (includes estimated lengths and observer descriptions) were less than 160 cm (defined as “young of the year”, YOY), the approximate size of a one-year old dolphin (Fig. 5A; Urian *et al.* 1996). Examination of YOY has revealed evidence of infanticide in the form of broken bones, hemorrhaging and organ damage (Dunn *et al.* 2002). Of the dolphins that were fresh to moderately decomposed (n = 31), signs of human interaction could not be determined in 17 (55%), were positive in six (19%), were not observed in seven (23%) and there was no data for one animal. Most of the signs of interactions were related to fisheries entanglements.

Harbor porpoise

Harbor porpoise (*Phocoena phocoena*) were observed only occasionally in Virginia stranding records during the 1980's. Increases in harbor porpoise strandings occurred along the mid-Atlantic coast in 1993-1994 and the increases were most dramatic in Virginia (Cox *et al.* 1998, Swingle *et al.* 1995). In recent years, they have often been the second most commonly stranded marine mammals in Virginia. Harbor porpoises typically strand in late winter and early spring (Fig. 2), and strandings occur along the ocean shorelines (Fig. 4). During 1999, 40 harbor porpoise strandings were recorded in Virginia, but in 2000, that number dropped precipitously to only four. 2001 was another big year (30 strandings), followed by only six harbor porpoise strandings in 2002. Subsequent years have seen the numbers vary widely, from a high of 22 strandings in 2005, to a low of two strandings in 2011. There were two harbor porpoise strandings in Virginia in 2012 (Fig. 5B). Whether these stranding patterns relate to fluctuations in abundance of the population or stocks, a threat that is cyclical in nature (such as potential fisheries bycatch), or other factors, is not yet known.

Large whales

Large whales do not strand often in Virginia. With the exception of the sperm whale, large whales are typically baleen whales such as humpbacks or fins. All of the large whales normally found in Virginia are endangered species. Because of the logistics involved in examinations of large whales, an extensive large whale response protocol was developed (Blaylock *et al.* 1996). The protocol was developed in response to increased strandings of humpback whales in Virginia and North Carolina in the early 1990's (Swingle *et al.* 1993, Barco *et al.* 2002). The response protocol has since been further developed and is specifically applied to northern right whales (McLellan *et al.* 2004). During 2008, there were no large whale strandings in Virginia. In 2012, VAQS responded to one humpback whale (*Megaptera novaeangliae*) and one fin whale (*Balaenoptera physalus*) in Virginia, and one humpback whale in North Carolina. Overall, there

have been 2.5 large whale strandings per year in Virginia since 2003 (Fig. 5C). In addition to strandings, VAQS also responds to large whale entanglements. VAQS staff has been qualified to respond to entangled whales by the Provincetown Center for Coastal Studies in MA. In addition, specialized whale disentanglement gear and supplies are stored at the VAQS Stranding Center for use in the mid-Atlantic region. This equipment and training were essential in the successful disentanglement of a humpback whale in the waters off Virginia Beach in 2007.

Other cetaceans

“Other cetacean” species generally include pelagic delphinids, *Kogia* species and beaked whales. This group accounted for seven strandings during 2012. These strandings typically occur along the ocean and lower bay shorelines and sometimes involve live animals. In 2012, there were four common dolphins (*Delphinus delphis*), one long-finned pilot whale (*Globicephala melas*), one dwarf sperm whale (*Kogia sima*) and one small cetacean that was unable to be identified to species.

Pinnipeds

Pinniped strandings have generally increased in Virginia since the early 1990s, though there were no strandings recorded from Virginia during 2012 (Fig. 3, 5D). Regular sightings of seals in Virginia continue to be common occurrences in winter and early spring.

Improved education and training of stranding network personnel have decreased the unwarranted captures of otherwise healthy seals which have hauled-out to rest on Virginia shorelines, piers, jetties and rock islands.

SEA TURTLES

During 2012, there was a significant increase in the level of sea turtle strandings (232) in Virginia (Table 3). Since 2003, Virginia has experienced both extremely high (531 in 2003) and relatively low (173 in 2011) numbers of sea turtle strandings, with an average of 262 per year (Fig. 6). The VAQS Team responded to 189 sea turtle strandings during the year and an additional 43 strandings were reported by stranding network cooperators trained by VAQS (Table 3). Cooperators' reports are given VASC, VDGIF, and other unique numbers in the database. VASC reports originate from Chincoteague, Eastern Shore and Back Bay National Wildlife Refuges, and The Nature Conservancy. May was the busiest month with 66 strandings (28%), followed by June with 50 strandings (22%). Significant numbers of strandings were also recorded in the months of July through December, as well (Fig. 7). Loggerheads (*Caretta caretta*, n = 170) were the primary species recorded, followed by Kemp's ridleys (*Lepidochelys kempii*, n = 47), greens (*Chelonia mydas*, n = 12), leatherbacks (*Dermochelys coriacea*, n = 1) and two sea turtles that were unidentified to species (Fig. 8). The distribution of strandings was primarily along the ocean and lower bay shorelines (Fig. 9). The eastern shore of Virginia was the area where 41% (94) of the sea turtle strandings were found. Accomack County accounted for 32% (30) and Northampton County for 68% (64) of the eastern shore total. Strandings in Virginia Beach, Norfolk and other southside cities contributed to 43% (100) of the total. The remainder 16% (38) originated from the western shores of the Chesapeake Bay north of the James River.

Improved efforts by VAQS to recruit and train cooperators have greatly enhanced stranding response on the eastern shore. Externally, a number of dead stranded turtles appeared to have been hit by vessels (n = 37, 16%). In some cases, the carcasses were fresh enough to conduct thorough necropsies. Necropsies on stranded turtles sometimes reveal signs of human interaction in the form of fish lures, hooks, line and plastic debris in the gut. The fishing

equipment could be from recreational or commercial (long-line) gear and may have been actively fishing or was “ghost” gear. Further understanding the impacts that recreational and commercial fishing have on turtles is needed. Lastly, the VAQS Team participated in several research projects with NMFS and USFWS. Flippers were collected from sea turtles for studies on aging, and skin and muscle samples were collected for genetic studies. Live turtles rehabilitated by VAQS were used in tracking studies of post-release movements. Pictures of some of the notable sea turtle strandings in 2012 are included in Appendix III.

Live strandings

2012 was a very busy year for the VAQS Team with 22 live sea turtle strandings from Virginia – 12 loggerheads, six Kemp’s ridley, three greens and one leatherback. Nine of these turtles were successfully recovered, rehabilitated and released, and eight remained in rehab at the end of the year. In addition, six sea turtles (2 from New Jersey, 4 from Massachusetts) were transferred to the VAQS Stranding Center from other stranding network facilities outside of Virginia. During the year, two of these sea turtles were released. Throughout the year, the VAQS Team spent many hours medicating and feeding sea turtles. Some of the sea turtles had stranded in previous years and had been in rehabilitation for many months prior to release. When the year ended, there were 13 sea turtles in rehabilitation at the VAQS Stranding Center (Table 4).

VAQS ACTIVITIES DURING 2012

VAQS conducted trainings on biology, ecology and stranding response protocols for sea turtles and marine mammals during the year. Trainings were provided to Virginia Aquarium Outreach Instructors, VAQS Team volunteers and to other cooperators in the state stranding network including: Back Bay National Wildlife Refuge, Eastern Shore National Wildlife Refuge, Chincoteague National Wildlife Refuge; Virginia Beach police, animal control and beach maintenance personnel; U.S. Coast Guard; Dam Neck and other military base natural resources personnel; personnel from VMRC, VDGIF, and state parks; The Nature Conservancy and other natural resources groups. In addition, lectures were presented on the topics of marine mammal and sea turtle necropsies, new findings from sea turtle research, and federal efforts to manage and protect marine mammals. VAQS staff attended numerous conferences and workshops and shared knowledge of sea turtle and marine mammal strandings in Virginia. Educational programs were presented at many local and regional festivals, to school groups and civic organizations as well as during special VAQ events. A portable exhibit was utilized showing the activities of the VAQS and the Virginia stranding network, and promoting conservation of marine animal species and their habitats. A complete list of all professional, education and training activities is included in Appendix I of this report.

Grant funds were used in conjunction with funds from the Virginia Aquarium Foundation to staff the Aquarium’s Marine Animal Care Center with a full-time stranding response manager, stranding response volunteer & information specialist, two full-time stranding response technicians, and two hourly stranding assistants. The VAQS Team completed another calendar year using an on-call system developed to ensure that volunteers were available for stranding response, seven days per week, for the entire year. Created and managed by volunteer team response leaders, the on-call system greatly enhances the Team’s readiness and rapid response. VAQS Team volunteers logged more than 13,000 hours during 2012.

VAQS continued several research projects that have been ongoing for many years. The 20th annual Dolphin Count was conducted in July. Bottlenose dolphins were recorded by shore-based and boat-based observers along Virginia’s ocean coast. While not a scientific abundance study, the results of the annual dolphin count indicate the importance of Virginia’s coastal waters

as habitat for bottlenose dolphins. Photo-identification research on bottlenose dolphins continued for the 22nd year. The photo-ID catalog now contains more than 1250 individual dolphins, some of which are regular visitors to Virginia and have been observed in multiple years. VAQS continued to curate the Mid-Atlantic Humpback Whale Photo-Identification Catalog. Results of matching efforts between the mid-Atlantic catalog and others from the western North Atlantic continues to result in new data about the origin of many whales observed in Virginia (Barco et al. 2002). The catalog contains images from stranded and live whales observed in coastal waters from New Jersey through North Carolina. VAQS staff continues to conduct advanced necropsies on fresh-dead sea turtles to investigate causes of mortalities and to determine baseline health information for regional populations. Finally, nutritional and growth studies continued with sea turtles in the Virginia Aquarium's long-term and short-term collections.

SUMMARY

Data collected by VAQS and the Virginia stranding network continue to be critical to the long-term monitoring efforts for sea turtle and marine mammal populations in the mid-Atlantic region. Fresh-stranded cetaceans continue to be extensively sampled as part of a cooperative research project (involving the University of North Carolina at Wilmington, Duke University and the NC State Vet School) to better assess marine mammal health. These studies are crucial to developing a better understanding of the overall health status of marine mammal populations in the wild. Stranding records from Virginia indicate that marine mammal strandings, particularly bottlenose dolphins, remain very high and that a significant percentage of the mortalities are related to human activities such as commercial fishing. For this reason, VAQS staff serves as expert members on three federal Take Reduction Teams to reduce the incidental mortalities of marine mammals in commercial fishing operations. The recently enacted changes to the rules regulating pound net leaders, supported by VAQS research efforts, are reducing the incidental takes of dolphins and sea turtles. Sea turtle strandings increased significantly in 2012 following several years of reduced numbers in 2010 and 2011. Monitoring sea turtle strandings in 2013 should continue to provide valuable information to help understand if this increase represents a significant trend, or only a temporary change. The VAQS continues to work closely to monitor and investigate the high rates of sea turtle strandings on Virginia's eastern shore. In addition, data collected from strandings provides excellent information on life histories of the many species of marine mammals and sea turtles that inhabit Virginia waters. Stranded animals are the only source of this type of scientific information for most species of marine mammals. The sei whale and True's beaked whale strandings in 2003, the melonheaded whale strandings in 2008 and the Sowerby's beaked whale strandings in 2009 provide excellent examples of the unique opportunities that strandings provide to study rare and previously unknown species from Virginia.

The VAQS Stranding Center has increased its role in the response, rescue and rehabilitation of sea turtles and seals. The high level of live stranding responses continued in 2012, and the need for a fully functional response and rehabilitation facility is clear. VAQS is planning to continue its efforts on behalf of live stranded sea turtles and marine mammals in Virginia and northeastern North Carolina and plans are being developed for a larger and better-equipped marine animal care facility.

Marine mammal and sea turtle strandings in Virginia remained at significantly high levels during 2012. Though marine mammals as a whole were stranding in lower numbers, there remains much more work to do. It is hoped that management efforts informed by stranding data will begin to reduce the high levels of sea turtle and marine mammal mortalities in Virginia. Continued monitoring and reporting of these trends in strandings of protected species will be priorities for the stranding network in 2013.

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Table 1: Marine mammal strandings in Virginia during 2012, n = 75.

(Data from the VAQS Marine Mammal Stranding Database)

[Length=cm; * indicates estimated length; ND = no data; U = unknown; F = fetus]

<u>Field #</u>	<u>Date</u>	<u>Species</u>	<u>Location</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Condition</u>	<u>Length</u>	<u>Sex</u>
VAQS20121001	1/6/2012	bottlenose dolphin	Northampton	37.0891	-75.9772	Dead	210*	M
VAQS20121002	1/6/2012	bottlenose dolphin	Northampton	37.1072	-75.9541	Dead	215	M
VAQS20121004	2/19/2012	fin whale	Norfolk	36.9562	-76.2522	Dead	1271	M
VAQS20121003	3/6/2012	bottlenose dolphin	Virginia Beach	36.6740	-75.9129	Dead	188*	U
VAQS20121005	3/11/2012	common dolphin	Accomack	37.8630	-75.3902	Dead	205	F
VAQS20121006	3/14/2012	harbor porpoise	Virginia Beach	36.6671	-75.9092	Dead	120	U
VAQS20121007	3/14/2012	bottlenose dolphin	Virginia Beach	36.6656	-75.9083	Dead	210	M
VAQS20121008	3/15/2012	bottlenose dolphin	Virginia Beach	36.6645	-75.9049	Dead	206	M
VAQS20121009	3/19/2012	dwarf sperm whale	Virginia Beach	36.7150	-75.9313	Dead	219	F
VAQS20121009F	3/19/2012	dwarf sperm whale	Virginia Beach	36.7150	-75.9313	Dead	26	F
VAQS20121010	3/26/2012	bottlenose dolphin	Virginia Beach	36.7571	-75.9474	Dead	220*	F
VAQS20121011	4/1/2012	bottlenose dolphin	Virginia Beach	36.7711	-75.9529	Dead	231	M
VAQS20121012	4/2/2012	bottlenose dolphin	Virginia Beach	36.9280	-76.0068	Dead	113	M
VAQS20121013	4/3/2012	common dolphin	Accomack	37.8535	-75.3913	Dead	228	M
VAQS20121014	4/6/2012	bottlenose dolphin	Northampton	37.2564	-76.0246	Dead	183	U
VAQS20121016	4/8/2012	long-finned pilot whale	Isle of Wight	36.9773	-76.5255	Dead	449	F
VAQS20121015	4/9/2012	harbor porpoise	Northampton	37.4568	-75.6177	Dead	100	M
VAQS20121017	4/18/2012	bottlenose dolphin	Virginia Beach	36.7034	-75.9274	Dead	201	M
VAQS20121018	4/19/2012	bottlenose dolphin	Lancaster	37.6520	-76.3383	Dead	226	M
VAQS20121019	4/20/2012	bottlenose dolphin	Northampton	37.1368	-75.9722	Dead	208	M
VAQS20121020	4/21/2012	common dolphin	Norfolk	36.9606	-76.2604	Dead	ND	U
VAQS20121021	4/21/2012	bottlenose dolphin	Northampton	37.1757	-75.9900	Dead	188	M
VAQS20121022	4/24/2012	bottlenose dolphin	Northampton	37.1343	-75.9716	Dead	ND	U
VAQS20121024	4/24/2012	bottlenose dolphin	York	37.2188	-76.4380	Dead	251	U
VAQS20121025	4/30/2012	bottlenose dolphin	Virginia Beach	36.5899	-75.8761	Dead	109	F
VAQS20121026	4/30/2012	bottlenose dolphin	Virginia Beach	36.5527	-75.8683	Dead	111	M
VAQS20121023	5/2/2012	bottlenose dolphin	Northampton	37.3934	-75.7120	Dead	ND	U
VAQS20121027	5/3/2012	bottlenose dolphin	Poquoson	37.1132	-76.3239	Dead	226*	M
VAQS20121028	5/7/2012	bottlenose dolphin	Virginia Beach	36.6600	-75.9055	Dead	107*	M
VAQS20121029	5/7/2012	bottlenose dolphin	Virginia Beach	36.9131	-75.9911	Dead	115	F
VAQS20121031	5/7/2012	bottlenose dolphin	Virginia Beach	36.7668	-75.9513	Dead	ND	U
VAQS20121032	5/7/2012	bottlenose dolphin	Virginia Beach	36.9287	-76.1709	Dead	108*	M
VAQS20121030	5/8/2012	bottlenose dolphin	Portsmouth	36.8813	-76.3511	Dead	113	M
VAQS20121033	5/8/2012	bottlenose dolphin	Hampton	37.0506	-76.2856	Dead	184*	F
VAQS20121034	5/10/2012	bottlenose dolphin	Accomack	37.8754	-75.3523	Dead	123	M
VAQS20121035	5/11/2012	bottlenose dolphin	Virginia Beach	36.7939	-75.9607	Dead	119	U
VAQS20121036	5/15/2012	bottlenose dolphin	Northampton	37.1661	-75.9882	Dead	109	M
VAQS20121037	5/16/2012	bottlenose dolphin	Northampton	37.0981	-75.9802	Dead	250	F
VAQS20121038	5/18/2012	bottlenose dolphin	Hampton	37.1084	-76.2946	Dead	ND	U
VAQS20121040	5/18/2012	bottlenose dolphin	Hampton	37.0675	-76.2809	Dead	114	F
VAQS20121041	5/18/2012	bottlenose dolphin	Middlesex	37.5347	-76.3293	Dead	274	F
VAQS20121044	5/18/2012	bottlenose dolphin	Accomack	37.8653	-75.4481	Dead	203*	U
VAQS20121039	5/19/2012	bottlenose dolphin	Virginia Beach	36.9275	-76.0459	Alive	107	F
VAQS20121042	5/19/2012	bottlenose dolphin	Virginia Beach	36.6719	-75.9123	Dead	ND	U
VAQS20121043	5/23/2012	bottlenose dolphin	Middlesex	37.5485	-76.3281	Dead	192	M
VAQS20121047	5/24/2012	bottlenose dolphin	Northampton	37.4037	-75.9732	Dead	122	U

Table 1: Marine mammal strandings *cont.*

<u>Field #</u>	<u>Date</u>	<u>Species</u>	<u>Location</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Condition</u>	<u>Length</u>	<u>Sex</u>
VAQS20121046	5/25/2012	bottlenose dolphin	Virginia Beach	36.7454	-75.9441	Dead	283*	M
VAQS20121048	5/28/2012	bottlenose dolphin	Virginia Beach	36.9317	-76.0376	Dead	189	F
VAQS20121045	5/29/2012	bottlenose dolphin	Accomack	37.8247	-75.4957	Dead	193	M
VAQS20121049	5/31/2012	bottlenose dolphin	Newport News	37.0966	-76.5466	Dead	191*	F
VAQS20121050	6/3/2012	bottlenose dolphin	Northampton	37.5217	-75.9500	Dead	ND	F
VAQS20121052	6/4/2012	common dolphin	Northampton	37.3835	-75.7091	Dead	190*	U
VAQS20121051	6/5/2012	bottlenose dolphin	Virginia Beach	36.5652	-75.8711	Dead	241*	F
VAQS20121051F	6/5/2012	bottlenose dolphin	Virginia Beach	36.5652	-75.8711	Dead	ND	F
VAQS20121053	6/5/2012	bottlenose dolphin	Virginia Beach	36.9117	-75.9899	Dead	284*	M
VAQS20121054	6/17/2012	bottlenose dolphin	Northumberland	37.7318	-76.3265	Dead	188*	F
VAQS20121055	7/11/2012	bottlenose dolphin	Norfolk	36.9560	-76.3173	Dead	109	M
VAQS20121056	7/12/2012	unknown dolphin	Gloucester	37.2546	-76.4259	Dead	252*	U
VAQS20121057	7/14/2012	bottlenose dolphin	Northampton	37.2876	-76.0159	Dead	129*	M
VAQS20121059	7/27/2012	bottlenose dolphin	Northampton	37.3841	-75.9849	Dead	262	F
VAQS20121060	7/28/2012	bottlenose dolphin	Northampton	37.1375	-75.9723	Dead	113	M
VAQS20121061	8/4/2012	bottlenose dolphin	Northampton	37.1998	-76.0105	Dead	124*	M
VAQS20121062	8/5/2012	bottlenose dolphin	Accomack	37.6265	-75.6051	Dead	ND	U
VAQS20121063	8/11/2012	bottlenose dolphin	Northampton	37.2496	-76.0220	Dead	267	F
VAQS20121058	8/23/2012	bottlenose dolphin	Accomack	37.7905	-75.5255	Dead	132	F
VAQS20121065	8/23/2012	bottlenose dolphin	Virginia Beach	36.8788	-75.9820	Dead	116	M
VAQS20121064	8/26/2012	bottlenose dolphin	Northumberland	37.8590	-76.8590	Dead	220*	U
VAQS20121066	9/6/2012	bottlenose dolphin	Virginia Beach	36.7585	-75.9490	Dead	139	F
VAQS20121067	9/10/2012	bottlenose dolphin	Norfolk	36.9609	-76.2610	Dead	157	M
VAQS20121068	9/26/2012	humpback whale	Accomack	37.8676	-75.4333	Alive	1085	F
VAQS20121069	9/30/2012	bottlenose dolphin	Accomack	37.8681	-75.3625	Dead	215	M
VAQS20121070	10/2/2012	bottlenose dolphin	Virginia Beach	36.9224	-75.9973	Dead	245*	M
VAQS20121071	10/16/2012	bottlenose dolphin	Accomack	38.0014	-75.2633	Dead	244	U
VAQS20121072	10/17/2012	bottlenose dolphin	Norfolk	36.9498	-76.2421	Dead	236	M
VAQS20121073	10/27/2012	bottlenose dolphin	Hampton	37.0161	-76.2983	Dead	153	M
VAQS20121074	11/9/2012	bottlenose dolphin	Northampton	37.0840	-75.9630	Dead	ND	U
VAQS20121075	12/14/2012	bottlenose dolphin	Virginia Beach	36.6380	-75.8944	Dead	175	F

Table 2: Live stranded marine mammals recorded by VAQS in 2012.

<u>Field #</u>	<u>Species</u>	<u>Strand Date</u>	<u>State</u>	<u>Final Disposition</u>
VAQS20121039	bottlenose dolphin	5/19/2012	VA	Euthanized 19 May 2012
VAQS20121068	humpback whale	9/26/2012	VA	Euthanized 26 September 2012

Table 3: Sea turtle strandings in Virginia during 2011, n=232. (Data from the VAQS Sea Turtle Stranding Database)

[Length = carapace length notch to tip cm; ND = no data; U = unknown]

<u>Field #</u>	<u>Date</u>	<u>Species</u>	<u>Location</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Condition</u>	<u>Length</u>	<u>Sex</u>
VAQS20122001	1/1/2012	green	Virginia Beach	36.7375	-75.9399	Alive	33	U
VAQS20122002	1/5/2012	Kemp's ridley	Northampton	37.1281	-75.8858	Dead	26	U
VAQS20122003	4/5/2012	loggerhead	Northampton	37.4286	-75.9809	Dead	ND	U
VAQS20122004	4/6/2012	loggerhead	Northampton	37.2732	-76.0207	Dead	ND	U
VAQS20122005	4/29/2012	loggerhead	Virginia Beach	36.9154	-76.0647	Dead	ND	U
VAQS20122006	4/30/2012	loggerhead	Northampton	37.0872	-75.9766	Dead	73	F
VAQS20122007	4/30/2012	Kemp's ridley	Virginia Beach	36.6464	-75.8990	Dead	ND	U
VAQS20122008	5/3/2012	loggerhead	Virginia Beach	36.6159	-75.8846	Dead	67	M
VAQS20122009	5/4/2012	loggerhead	Virginia Beach	36.6833	-75.9167	Dead	91	U
VAQS20122010	5/4/2012	loggerhead	Yorktown	37.1693	-76.4098	Dead	72	M
VAQS20122011	5/5/2012	loggerhead	Norfolk	36.9349	-76.2066	Dead	67	M
VAQS20122012	5/5/2012	loggerhead	Norfolk	36.9418	-76.2281	Dead	87	F
VAQS20122015	5/7/2012	loggerhead	Hampton	36.9905	-76.3868	Dead	ND	U
VAQS20122013	5/8/2012	Kemp's ridley	Hampton	36.9905	-76.3868	Dead	40	M
VAQS20122014	5/8/2012	loggerhead	Virginia Beach	36.7679	-75.9517	Dead	83	F
VAQS20122016	5/8/2012	Kemp's ridley	Norfolk	36.9493	-76.2428	Dead	40	F
VAQS20122017	5/11/2012	loggerhead	Virginia Beach	36.8517	-75.9741	Dead	65	F
VAQS20122018	5/11/2012	loggerhead	Norfolk	36.9688	-76.2832	Dead	65	F
VAQS20122019	5/11/2012	loggerhead	Northampton	37.1736	-75.9886	Dead	80	F
VAQS20122022	5/11/2012	Kemp's ridley	Virginia Beach	36.6928	-75.9228	Dead	36	M
VAQS20122020	5/12/2012	Kemp's ridley	Norfolk	36.9625	-76.2637	Dead	39	M
VAQS20122021	5/12/2012	loggerhead	Northampton	37.0901	-75.9398	Dead	84	M
VASC20122015	5/12/2012	Kemp's ridley	Accomack	37.5999	-75.6155	Dead	ND	U
VAQS20122023	5/17/2012	Kemp's ridley	Norfolk	36.9686	-76.2824	Dead	36	F
VAQS20122024	5/18/2012	loggerhead	Virginia Beach	36.8785	-75.9820	Dead	68	M
VAQS20122025	5/18/2012	loggerhead	Hampton	37.0605	-76.2820	Dead	77	F
VAQS20122026	5/18/2012	Kemp's ridley	Virginia Beach	36.8834	-75.9833	Dead	28	F
VAQS20122027	5/18/2012	Kemp's ridley	Hampton	37.0553	-76.2836	Dead	41	M
VAQS20122028	5/18/2012	loggerhead	Middlesex	37.5349	-76.3293	Dead	63	F
VAQS20122029	5/19/2012	loggerhead	Yorktown	37.2395	-76.5098	Dead	61	F
VAQS20122030	5/19/2012	loggerhead	Norfolk	36.9327	-76.1982	Dead	64	F
VAQS20122031	5/20/2012	loggerhead	Hampton	37.0958	-76.2755	Dead	53	U
VAQS20122032	5/20/2012	Kemp's ridley	Yorktown	37.2345	-76.5046	Dead	41	F
VAQS20122033	5/20/2012	Kemp's ridley	Norfolk	36.9607	-76.2608	Dead	30	M
VAQS20122037	5/21/2012	loggerhead	Mathews	37.4892	-76.2729	Dead	70	M
VASC20122001	5/21/2012	loggerhead	Northampton	37.0881	-75.9773	Dead	ND	U
VAQS20122034	5/22/2012	loggerhead	Northumberland	37.8010	-76.2628	Dead	63	U
VAQS20122035	5/22/2012	Kemp's ridley	Norfolk	36.9663	-76.2719	Dead	47	M
VAQS20122036	5/22/2012	loggerhead	Hampton	37.0777	-76.3048	Dead	60	F
VAQS20122038	5/22/2012	loggerhead	Northampton	37.3225	-76.0167	Dead	ND	U
VAQS20122039	5/23/2012	Kemp's ridley	Virginia Beach	36.6194	-75.8858	Dead	26	F
VAQS20122040	5/23/2012	loggerhead	Virginia Beach	36.8465	-75.9730	Dead	70	F
VAQS20122042	5/24/2012	loggerhead	Gloucester	37.3765	-76.3448	Dead	82	F
VAQS20122044	5/24/2012	loggerhead	Accomack	37.8692	-75.4243	Dead	63	M
VAQS20122046	5/24/2012	loggerhead	Hampton	37.0412	-76.2897	Dead	73	F
VAQS20122041	5/25/2012	loggerhead	Hampton	37.0240	-76.2962	Dead	66	F

Table 3: Sea turtle strandings *cont.*

<u>Field #</u>	<u>Date</u>	<u>Species</u>	<u>Location</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Condition</u>	<u>Length</u>	<u>Sex</u>
VAQS20122043	5/25/2012	loggerhead	Norfolk	36.9603	-76.2598	Dead	65	F
VAQS20122045	5/25/2012	loggerhead	Northampton	37.0858	-75.9467	Dead	72	M
VAQS20122047	5/25/2012	loggerhead	Northumberland	37.6861	-76.3281	Dead	71	M
VAQS20122048	5/25/2012	loggerhead	Lancaster	37.6149	-76.2871	Dead	65	U
VDGIF2012001	5/25/2012	loggerhead	Accomack	37.7273	-75.5670	Dead	ND	U
VAQS20122049	5/26/2012	loggerhead	Virginia Beach	36.7128	-75.9305	Dead	79	F
VAQS20122050	5/26/2012	loggerhead	Lancaster	37.6153	-76.2926	Dead	68	F
VAQS20122051	5/26/2012	loggerhead	Lancaster	37.6197	-76.3037	Dead	68	F
VAQS20122052	5/26/2012	unidentified	Lancaster	37.6152	-76.2947	Dead	ND	U
VAQS20122053	5/27/2012	loggerhead	Virginia Beach	36.6980	-75.9248	Dead	90	F
VAQS20122054	5/27/2012	loggerhead	Lancaster	37.6153	-76.2879	Dead	72	M
VAQS20122056	5/27/2012	loggerhead	Virginia Beach	36.6418	-75.8961	Dead	68	U
VAQS20122057	5/27/2012	loggerhead	Virginia Beach	36.5528	-75.8681	Dead	98	F
VAQS20122060	5/27/2012	loggerhead	Accomack	37.8890	-75.3416	Dead	80	M
VASC20122003	5/27/2012	loggerhead	Accomack	37.9291	-75.3160	Dead	72	U
VDGIF2012002	5/27/2012	loggerhead	Northampton	37.4847	-75.7352	Dead	ND	F
VASC20122002	5/28/2012	loggerhead	Accomack	37.9685	-75.2895	Dead	73	F
VAQS20122059	5/29/2012	loggerhead	Gloucester	37.2492	-76.4952	Dead	72	M
VASC20122004	5/29/2012	loggerhead	Accomack	37.8015	-75.5171	Dead	62	M
VASC20122005	5/29/2012	loggerhead	Accomack	37.9293	-75.3160	Dead	72	U
VASC20122006	5/29/2012	loggerhead	Accomack	37.9586	-75.2969	Dead	71	U
VASC20122007	5/29/2012	loggerhead	Accomack	37.8871	-75.3434	Dead	ND	U
VASC20122023	5/29/2012	loggerhead	Northampton	37.2140	-75.8140	Dead	ND	U
VASC20122024	5/29/2012	loggerhead	Northampton	37.2136	-75.8149	Dead	ND	U
VAQS20122055	5/30/2012	Kemp's ridley	Northampton	37.3526	-75.9963	Dead	23	M
VAQS20122061	5/30/2012	loggerhead	Northampton	37.4177	-75.9588	Dead	68	F
VASC20122008	5/31/2012	loggerhead	Accomack	37.6686	-75.5908	Dead	ND	F
VASC20122010	6/1/2012	loggerhead	Northampton	37.1235	-75.8907	Dead	ND	U
VASC20122011	6/1/2012	loggerhead	Northampton	37.1253	-75.8890	Dead	ND	U
VASC20122012	6/1/2012	loggerhead	Northampton	37.1284	-75.8859	Dead	ND	U
VASC20122013	6/1/2012	loggerhead	Northampton	37.1701	-75.8389	Dead	ND	U
VAQS20122058	6/2/2012	loggerhead	Virginia Beach	36.9302	-76.0132	Dead	65	M
VASC20122009	6/2/2012	loggerhead	Accomack	37.9720	-75.2731	Dead	68	U
VASC20122014	6/3/2012	loggerhead	Northampton	37.0935	-75.9804	Dead	78	F
VASC20122027	6/3/2012	loggerhead	Northampton	37.0966	-75.9806	Dead	ND	U
VAQS20122062	6/4/2012	loggerhead	Northampton	37.1743	-75.9888	Dead	ND	U
VAQS20122063	6/4/2012	loggerhead	Northampton	37.4517	-75.6590	Dead	56	U
VAQS20122064	6/4/2012	loggerhead	Northampton	37.4422	-75.6643	Dead	71	F
VAQS20122065	6/4/2012	loggerhead	Northampton	37.4415	-75.6649	Dead	60	U
VAQS20122066	6/4/2012	loggerhead	Northampton	37.4194	-75.6847	Dead	84	F
VAQS20122067	6/4/2012	loggerhead	Northampton	37.4089	-75.6924	Dead	68	M
VAQS20122068	6/4/2012	loggerhead	Northampton	37.3717	-75.7181	Dead	73	F
VAQS20122069	6/4/2012	loggerhead	Northampton	37.4485	-75.8077	Dead	72	M
VAQS20122071	6/4/2012	loggerhead	Northampton	37.0870	-75.9716	Dead	68	F
VDGIF2012004	6/4/2012	loggerhead	Accomack	37.5766	-75.6104	Dead	ND	U
VAQS20122070	6/5/2012	loggerhead	Virginia Beach	36.9149	-75.9917	Dead	ND	U

Table 3: Sea Turtle Strandings *cont.*

<u>Field #</u>	<u>Date</u>	<u>Species</u>	<u>Location</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Condition</u>	<u>Length</u>	<u>Sex</u>
VAQS20122072	6/6/2012	Kemp's ridley	Norfolk	36.9326	-76.1981	Dead	65	F
VAQS20122073	6/6/2012	loggerhead	Mathews	37.4945	-76.3302	Dead	67	U
VAQS20122075	6/6/2012	loggerhead	Virginia Beach	36.7611	-75.9491	Dead	99	F
VAQS20122076	6/6/2012	loggerhead	Virginia Beach	36.9262	-76.0048	Dead	59	F
VAQS20122078	6/6/2012	Kemp's ridley	Virginia Beach	36.5750	-75.8720	Dead	41	F
VAQS20122079	6/6/2012	loggerhead	Virginia Beach	36.6239	-75.8892	Dead	60	M
VASC20122022	6/6/2012	loggerhead	Northampton	37.2906	-75.9117	Dead	ND	U
VDGIF2012005	6/6/2012	loggerhead	Mathews	37.3872	-76.2476	Dead	ND	F
VAQS20122074	6/7/2012	loggerhead	Northampton	37.4040	-75.9799	Dead	83	M
VAQS20122077	6/7/2012	loggerhead	Virginia Beach	36.7988	-75.9619	Dead	ND	U
VAQS20122080	6/7/2012	loggerhead	Northampton	37.5188	-75.9506	Dead	76	F
VAQS20122081	6/7/2012	Kemp's ridley	Virginia Beach	36.9262	-76.1570	Dead	35	U
VDGIF2012006	6/7/2012	loggerhead	Northampton	37.2693	-75.7952	Dead	86	U
VASC20122019	6/12/2012	loggerhead	Accomack	37.8533	-75.3776	Dead	ND	U
VAQS20122084	6/13/2012	loggerhead	Virginia Beach	36.9265	-76.0464	Dead	70	F
VAQS20122085	6/13/2012	loggerhead	Northampton	37.3812	-75.9861	Dead	81	U
VAQS20122083	6/14/2012	loggerhead	Virginia Beach	36.5771	-75.8734	Dead	89	U
VAQS20122086	6/14/2012	loggerhead	Virginia Beach	36.9197	-76.1318	Dead	61	F
VAQS20122082	6/15/2012	loggerhead	Virginia Beach	36.6010	-75.8795	Dead	82	F
VAQS20122087	6/15/2012	loggerhead	Virginia Beach	36.5999	-75.8794	Dead	70	U
VDGIF2012007	6/15/2012	Kemp's ridley	Accomack	37.7219	-75.5689	Dead	19	U
VASC20122017	6/16/2012	loggerhead	Accomack	37.9554	-75.2990	Dead	64	U
VASC20122018	6/17/2012	loggerhead	Accomack	38.0227	-75.2460	Dead	58	U
VAQS20122089	6/19/2012	loggerhead	Virginia Beach	36.5970	-75.8779	Dead	80	F
VASC20122020	6/20/2012	loggerhead	York	37.2271	-76.3872	Dead	65	U
VASC20122016	6/21/2012	loggerhead	Accomack	37.8556	-75.3748	Dead	75	M
VAQS20122090	6/24/2012	loggerhead	Norfolk	36.9615	-76.2600	Alive	58	U
VAQS20122091	6/24/2012	loggerhead	Virginia Beach	36.9126	-76.1089	Dead	70	M
VAQS20122088	6/29/2012	loggerhead	Northampton	37.3710	-75.7272	Dead	71	M
VAQS20122092	6/29/2012	loggerhead	Virginia Beach	36.8577	-75.9759	Dead	63	F
VAQS20122093	6/30/2012	Kemp's ridley	Virginia Beach	36.9117	-76.0592	Dead	60	U
VASC20122021	7/1/2012	loggerhead	Accomack	37.8525	-75.3651	Dead	79	M
VAQS20122094	7/2/2012	loggerhead	Northampton	37.0487	-76.1013	Dead	80	U
VDGIF2012008	7/2/2012	loggerhead	Accomack	37.4880	-75.6651	Dead	70	U
VAQS20122096	7/5/2012	loggerhead	Accomack	37.7199	-75.8591	Alive	76	U
VAQS20122095	7/6/2012	Kemp's ridley	Accomack	37.8655	-75.4475	Dead	ND	U
VAQS20122098	7/6/2012	leatherback	Hampton	37.0666	-76.6659	Alive	ND	U
VAQS20122097	7/7/2012	loggerhead	Northampton	37.0916	-75.9797	Dead	64	M
VAQS20122099	7/9/2012	loggerhead	Gloucester	37.2604	-76.5219	Alive	59	F
VASC20122025	7/9/2012	loggerhead	Northampton	37.1205	-75.9697	Dead	ND	U
VASC20122026	7/9/2012	loggerhead	Northampton	37.1288	-75.9699	Dead	ND	U
VAQS20122101	7/10/2012	loggerhead	Virginia Beach	36.9108	-75.9897	Dead	94	F
VAQS20122106	7/10/2012	loggerhead	Virginia Beach	36.6172	-75.8851	Dead	76	M
VAQS20122100	7/11/2012	Kemp's ridley	Virginia Beach	36.9196	-76.1319	Dead	32	M
VAQS20122102	7/11/2012	loggerhead	Hampton	37.0025	-76.3035	Dead	57	F
VAQS20122103	7/11/2012	loggerhead	Norfolk	36.9560	-76.3173	Dead	ND	U

Table 3: Sea Turtle Strandings *cont.*

<u>Field #</u>	<u>Date</u>	<u>Species</u>	<u>Location</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Condition</u>	<u>Length</u>	<u>Sex</u>
VAQS20122104	7/11/2012	loggerhead	Norfolk	36.9294	-76.1727	Dead	70	F
VAQS20122105	7/14/2012	loggerhead	Mathews	37.5079	-76.2818	Dead	ND	U
VAQS20122107	7/14/2012	Kemp's ridley	Yorktown	37.1576	-76.4166	Dead	49	F
VAQS20122108	7/14/2012	loggerhead	Newport News	36.9647	-76.4106	Alive	65	U
VAQS20122109	7/15/2012	loggerhead	Newport News	36.9852	-76.4396	Alive	71	F
VAQS20122110	7/17/2012	loggerhead	Virginia Beach	36.9149	-76.0668	Dead	66	M
VAQS20122111	8/3/2012	loggerhead	Virginia Beach	36.8981	-75.9867	Dead	88	F
VAQS20122112	8/3/2012	Kemp's ridley	York	37.1804	-76.4069	Alive	27	U
VAQS20122114	8/4/2012	Kemp's ridley	Northampton	37.1620	-75.9808	Dead	ND	U
VAQS20122113	8/8/2012	loggerhead	Northampton	37.1669	-75.9886	Dead	ND	U
VAQS20122115	8/11/2012	loggerhead	Virginia Beach	36.6890	-75.9210	Dead	76	U
VAQS20122116	8/13/2012	loggerhead	Virginia Beach	36.6889	-75.9207	Dead	98	U
VAQS20122117	8/15/2012	Kemp's ridley	Virginia Beach	36.8491	-75.9734	Dead	31	F
VAQS20122118	8/18/2012	loggerhead	Virginia Beach	36.6903	-75.9192	Dead	85	F
VAQS20122119	8/20/2012	loggerhead	Norfolk	36.9589	-76.2573	Dead	61	U
VAQS20122120	8/20/2012	loggerhead	Norfolk	36.9508	-76.2439	Dead	90	F
VASC20122028	8/23/2012	loggerhead	Accomack	37.9470	-75.3052	Dead	89	M
VAQS20122121	8/24/2012	loggerhead	Norfolk	36.9686	-76.2881	Dead	67	M
VAQS20122122	8/25/2012	loggerhead	Virginia Beach	36.9291	-76.0090	Dead	64	F
VAQS20122123	8/29/2012	loggerhead	Virginia Beach	36.9154	-76.0655	Dead	78	F
VAQS20122124	8/29/2012	loggerhead	Northumberland	37.9988	-76.4626	Dead	78	F
VAQS20122125	8/31/2012	loggerhead	Northampton	37.4835	-75.9622	Dead	47	U
VAQS20122126	9/2/2012	loggerhead	Virginia Beach	36.7055	-75.9278	Dead	72	F
VAQS20122127	9/2/2012	loggerhead	Norfolk	36.9496	-76.2419	Dead	62	U
VAQS20122128	9/2/2012	loggerhead	Virginia Beach	36.8968	-75.9867	Alive	55	U
VAQS20122129	9/7/2012	green	Hampton	37.0373	-76.2918	Dead	27	M
VAQS20122130	9/9/2012	loggerhead	Virginia Beach	36.6730	-75.9125	Dead	65	F
VAQS20122131	9/10/2012	loggerhead	Virginia Beach	36.9204	-76.1340	Dead	65	F
VAQS20122132	9/12/2012	loggerhead	Norfolk	36.9679	-76.2774	Dead	62	F
VAQS20122133	9/18/2012	green	Northampton	37.1676	-75.9878	Dead	31	M
VAQS20122134	9/20/2012	loggerhead	Hampton	37.0076	-76.3011	Dead	74	U
VAQS20122135	9/21/2012	loggerhead	Norfolk	36.9356	-76.2097	Dead	ND	U
VAQS20122136	9/21/2012	unidentified	Newport News	36.9880	-76.3895	Dead	ND	U
VAQS20122138	9/23/2012	loggerhead	Virginia Beach	36.9274	-76.0463	Dead	ND	U
VAQS20122137	9/24/2012	loggerhead	Virginia Beach	36.8389	-75.9706	Dead	ND	F
VAQS20122139	9/30/2012	loggerhead	Northampton	37.1764	-75.9899	Dead	ND	U
VAQS20122140	10/3/2012	Kemp's ridley	Virginia Beach	36.5977	-75.8783	Dead	47	M
VASC20122029	10/4/2012	Kemp's ridley	Accomack	37.8647	-75.3914	Dead	55	U
VAQS20122141	10/8/2012	loggerhead	Virginia Beach	36.9284	-76.0442	Alive	4	U
VAQS20122142	10/8/2012	loggerhead	Virginia Beach	36.6732	-75.9124	Dead	76	M
VAQS20122143	10/11/2012	Kemp's ridley	Norfolk	36.9371	-76.2150	Dead	38	U
VAQS20092087	10/12/2012	loggerhead	Virginia Beach	36.6050	-75.8806	Dead	66	F
VAQS20122144	10/12/2012	loggerhead	Virginia Beach	36.7401	-75.9410	Dead	61	U
VAQS20122146	10/13/2012	loggerhead	Northampton	37.2294	-76.0067	Dead	83	M
VAQS20122145	10/16/2012	loggerhead	Norfolk	36.9373	-76.2187	Dead	71	F
VAQS20122147	10/16/2012	green	Virginia Beach	36.9175	-76.0584	Dead	27	M

Table 3: Sea Turtle Strandings *cont.*

<u>Field #</u>	<u>Date</u>	<u>Species</u>	<u>Location</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Condition</u>	<u>Length</u>	<u>Sex</u>
VAQS20122148	10/17/2012	Kemp's ridley	Virginia Beach	36.8503	-76.0632	Alive	35	U
VAQS20122149	10/19/2012	loggerhead	Virginia Beach	36.8838	-75.9834	Dead	105	M
VAQS20122150	10/20/2012	loggerhead	Northampton	37.3795	-75.9848	Dead	92	F
VAQS20122151	10/22/2012	Kemp's ridley	Virginia Beach	36.7483	-75.9440	Dead	48	F
VAQS20122152	10/22/2012	loggerhead	Virginia Beach	36.9725	-76.1037	Dead	78	F
VAQS20122153	10/24/2012	Kemp's ridley	Hampton	37.0132	-76.3310	Dead	40	F
VAQS20122154	10/25/2012	loggerhead	Northampton	37.1600	-75.9791	Dead	74	U
VAQS20122155	10/25/2012	loggerhead	Norfolk	36.9624	-76.2789	Alive	62	U
VAQS20122157	10/26/2012	loggerhead	Northampton	37.1395	-75.9729	Dead	92	U
VAQS20122158	10/27/2012	Kemp's ridley	Norfolk	36.9533	-76.2478	Dead	48	F
VAQS20122156	10/30/2012	loggerhead	Virginia Beach	36.9126	-75.9916	Alive	ND	U
VAQS20122160	10/30/2012	loggerhead	Virginia Beach	36.9300	-76.0383	Dead	86	F
VAQS20122159	11/3/2012	loggerhead	Virginia Beach	36.8991	-76.0250	Dead	ND	U
VAQS20122161	11/8/2012	loggerhead	Virginia Beach	36.8902	-76.0214	Dead	66	F
VAQS20122163	11/9/2012	loggerhead	Virginia Beach	36.8261	-75.9812	Alive	63	U
VASC20122030	11/12/2012	loggerhead	Northampton	37.0925	-75.9801	Dead	ND	U
VAQS20122164	11/14/2012	loggerhead	Norfolk	36.9555	-76.2513	Dead	86	F
VAQS20122162	11/16/2012	Kemp's ridley	Virginia Beach	36.8547	-75.9749	Dead	47	U
VAQS20122165	11/19/2012	loggerhead	Northampton	37.1566	-75.9770	Dead	68	F
VAQS20122166	11/21/2012	Kemp's ridley	Norfolk	36.9487	-76.2409	Dead	43	F
VAQS20122167	11/25/2012	Kemp's ridley	Accomack	37.7685	-75.7500	Alive	34	U
VAQS20122168	11/26/2012	green	Virginia Beach	36.9232	-76.0500	Dead	25	F
VAQS20122169	11/30/2012	loggerhead	Norfolk	36.8626	-76.3092	Dead	65	F
VDGIF2012009	11/30/2012	loggerhead	Northampton	37.4260	-75.9820	Dead	87	M
VASC20122031	12/2/2012	green	Accomack	37.8741	-75.3554	Dead	27	M
VDGIF20122010	12/5/2012	green	Northampton	37.2021	-75.8181	Dead	30	U
VASC20122032	12/10/2012	green	Accomack	37.8569	-75.3925	Dead	27	U
VAQS20122170	12/12/2012	loggerhead	Norfolk	36.8621	-76.3145	Dead	63	F
VAQS20122171	12/14/2012	green	Virginia Beach	36.9284	-76.0081	Alive	29	U
VAQS20122172	12/14/2012	Kemp's ridley	Virginia Beach	36.5728	-75.8727	Dead	38	F
VAQS20122173	12/14/2012	green	Norfolk	36.9506	-76.2439	Dead	31	M
VAQS20122179	12/16/2012	Kemp's ridley	Northampton	37.7265	-75.8302	Dead	ND	U
VAQS20122174	12/17/2012	loggerhead	Accomack	37.9415	-75.6394	Dead	ND	U
VAQS20122175	12/23/2012	Kemp's ridley	Northampton	37.4260	-75.9820	Alive	43	U
VAQS20122176	12/23/2012	loggerhead	Accomack	37.8732	-75.3566	Alive	61	U
VAQS20122177	12/24/2012	loggerhead	Northampton	37.4293	-75.9811	Alive	77	U
VAQS20122178	12/24/2012	Kemp's ridley	Northampton	37.4373	-75.9797	Dead	42	U
VDGIF20122012	12/24/2012	loggerhead	Northampton	37.3195	-76.0180	Dead	73	F
VAQS20122180	12/26/2012	Kemp's ridley	Virginia Beach	36.9223	-76.1364	Alive	37	U
VAQS20122182	12/28/2012	Kemp's ridley	Northampton	37.1108	-75.9732	Dead	40	U
VAQS20122183	12/28/2012	Kemp's ridley	Northampton	37.2041	-76.0123	Dead	27	F
VAQS20122184	12/28/2012	Kemp's ridley	Northampton	37.2041	-76.0123	Dead	ND	U
VAQS20122186	12/28/2012	loggerhead	Northampton	37.4242	-75.9817	Alive	55	U
VDGIF20122011	12/28/2012	Kemp's ridley	Northampton	37.1294	-75.9701	Dead	41	M
VAQS20122185	12/29/2012	green	Virginia Beach	36.5966	-75.8780	Alive	28	U
VAQS20122188	12/29/2012	Kemp's ridley	Northampton	37.4992	-75.9586	Dead	45	F
VAQS20122189	12/29/2012	green	Accomack	37.9443	-75.3639	Dead	ND	U
VAQS20122187	12/30/2012	Kemp's ridley	Northampton	37.2181	-76.0122	Dead	40	U

Table 4: Live stranded sea turtles recorded by VAQS in 2012.

<u>Field #</u>	<u>Species</u>	<u>Strand Date</u>	<u>Name</u>	<u>State</u>	<u>Final Disposition</u>
VAQS20112059	loggerhead	7/4/2011	Fireworks	VA	Released 13 June 2012 from offshore Virginia Beach, VA
VAQS20112115	loggerhead	10/4/2011	Boise	VA	Pending
VAQS20122001	green	1/1/2012	Makahiki	VA	Released 13 June 2012 from Virginia Beach, VA
MMSC-12-048 (*a)	Kemp's ridley	6/15/2012	Dottie	NJ	Released 6 September 2012 from offshore Virginia Beach, VA
VAQS20122090	loggerhead	6/24/2012	PacMan	VA	Released 27 July 2012 from Virginia Beach, VA
VAQS20122096	loggerhead	7/5/2012	Troutle	VA	Released 7 September 2012 from Cape Charles, VA
VAQS20122098	leatherback	7/6/2012	N/A	VA	Disentangled and released on 6 July 2012
VAQS20122099	loggerhead	7/9/2012	Clue	VA	Died 10 July 2012
VAQS20122108	loggerhead	7/14/2012	Battleship	VA	Released 5 October 2012 from offshore Virginia Beach, VA
VAQS20122109	loggerhead	7/15/2012	Chutes & Ladders	VA	Euthanized 26 July 2012
MMSC-12-079 (*a)	loggerhead	7/20/2012	Jenga	NJ	Released 14 January 2013 from Jacksonville, FL
VAQS20122112	Kemp's ridley	8/3/2012	Twister	VA	Released 6 September 2012 from offshore Virginia Beach, VA
VAQS20122128	Kemp's ridley	9/2/2012	N/A	VA	Euthanized 2 September 2012
VAQS20122141	loggerhead	10/8/2012	Mine	VA	Released 13 October 2012 from offshore NC
VAQS20122148	Kemp's ridley	10/17/2012	Zombie of Nemo	VA	Died 8 December 2012
VAQS20122155	loggerhead	10/25/2012	Ghost of Crush	VA	Released 1 December 2012 from offshore NC
VAQS20122156	loggerhead	10/30/2012	Hocus Pocus	VA	Died 31 October 2012
NEST12-027-Lk (*b)	Kemp's ridley	11/8/2012	Chunky Monkey	MA	Pending
VAQS20122163	loggerhead	11/9/2012	BB Turkey	VA	Pending
NEST12-038-Lk (*b)	Kemp's ridley	11/17/2012	Phish Food	MA	Pending
NEST12-039-Lk (*b)	Kemp's ridley	11/17/2012	Cherry Garcia	MA	Pending
NEST12-045-Lk (*b)	Kemp's ridley	11/18/2012	What a Cluster	MA	Pending
VAQS20122167	Kemp's ridley	11/25/2012	DC	VA	Released 14 January 2013 from Jacksonville, FL
VAQS20122171	green	12/14/2012	Chocolate Mint Cookie	VA	Pending
VAQS20122175	Kemp's ridley	12/23/2012	Triple Caramel Chunk	VA	Pending
VAQS20122176	loggerhead	12/23/2012	Mud Pie	VA	Pending
VAQS20122177	loggerhead	12/24/2012	Dublin Mudslide	VA	Pending
VAQS20122180	Kemp's ridley	12/26/2012	Heath	VA	Pending
VAQS20122186	loggerhead	12/28/2012	Cannoli	VA	Pending
VAQS20122185	green	12/29/2012	Pistachio	VA	Pending

(*a) Transferred from Marine Mammal Stranding Center, Brigantine, NJ for rehabilitation

(*b) Transferred from New England Aquarium, Quincy, MA for rehabilitation

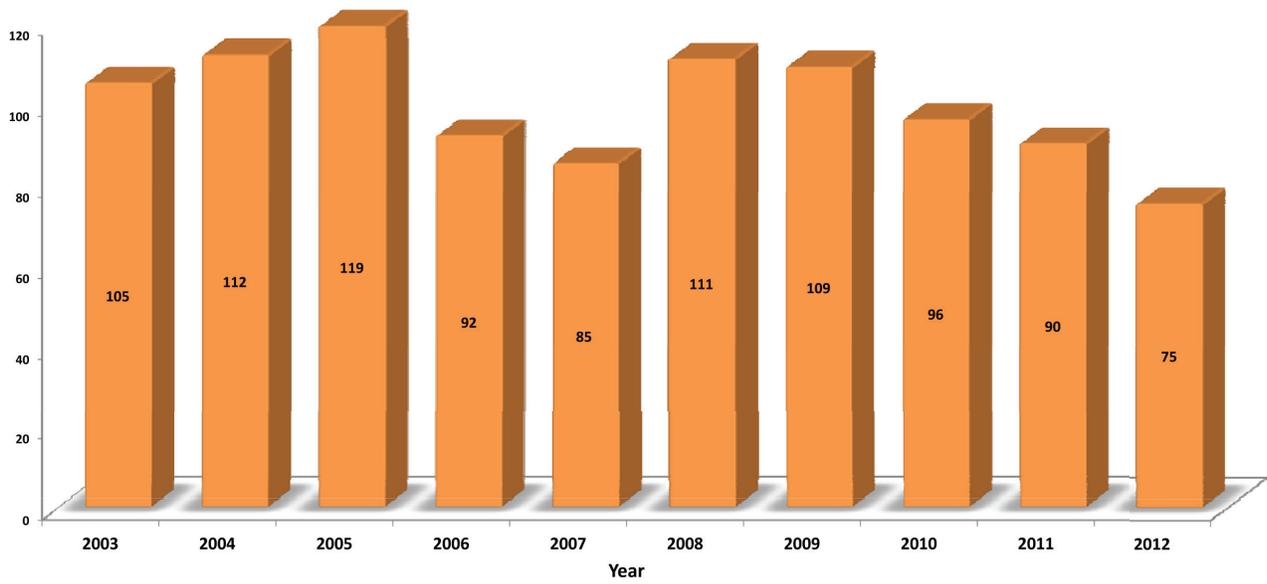


Figure 1: Yearly frequency of marine mammal strandings in Virginia, 2003-2012.

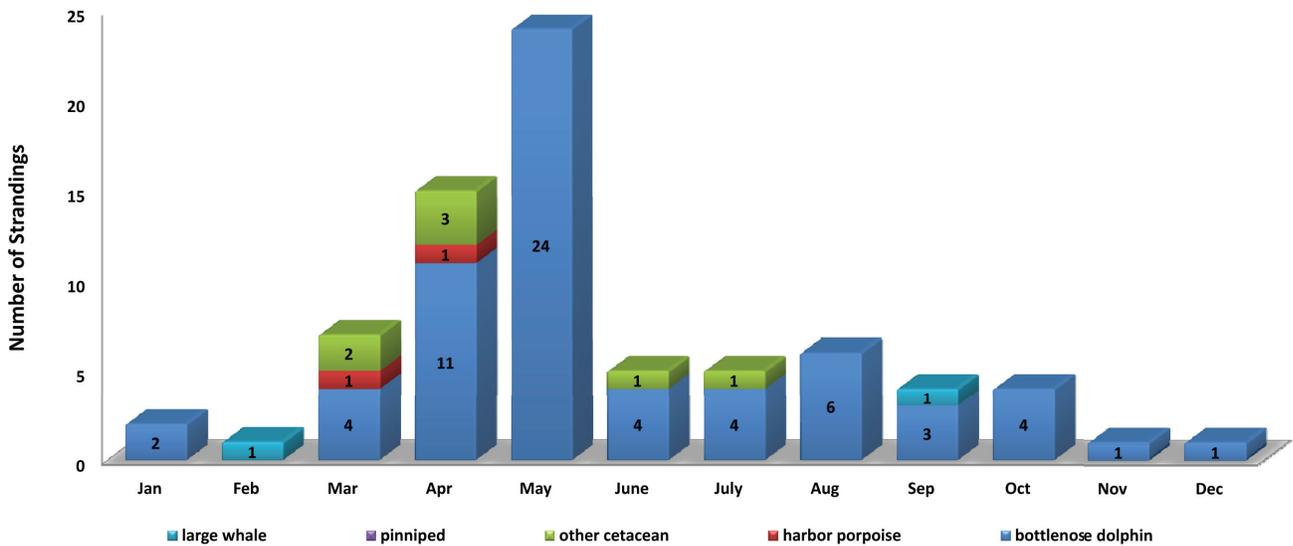


Figure 2: Monthly frequency of marine mammal strandings in Virginia from 2012.

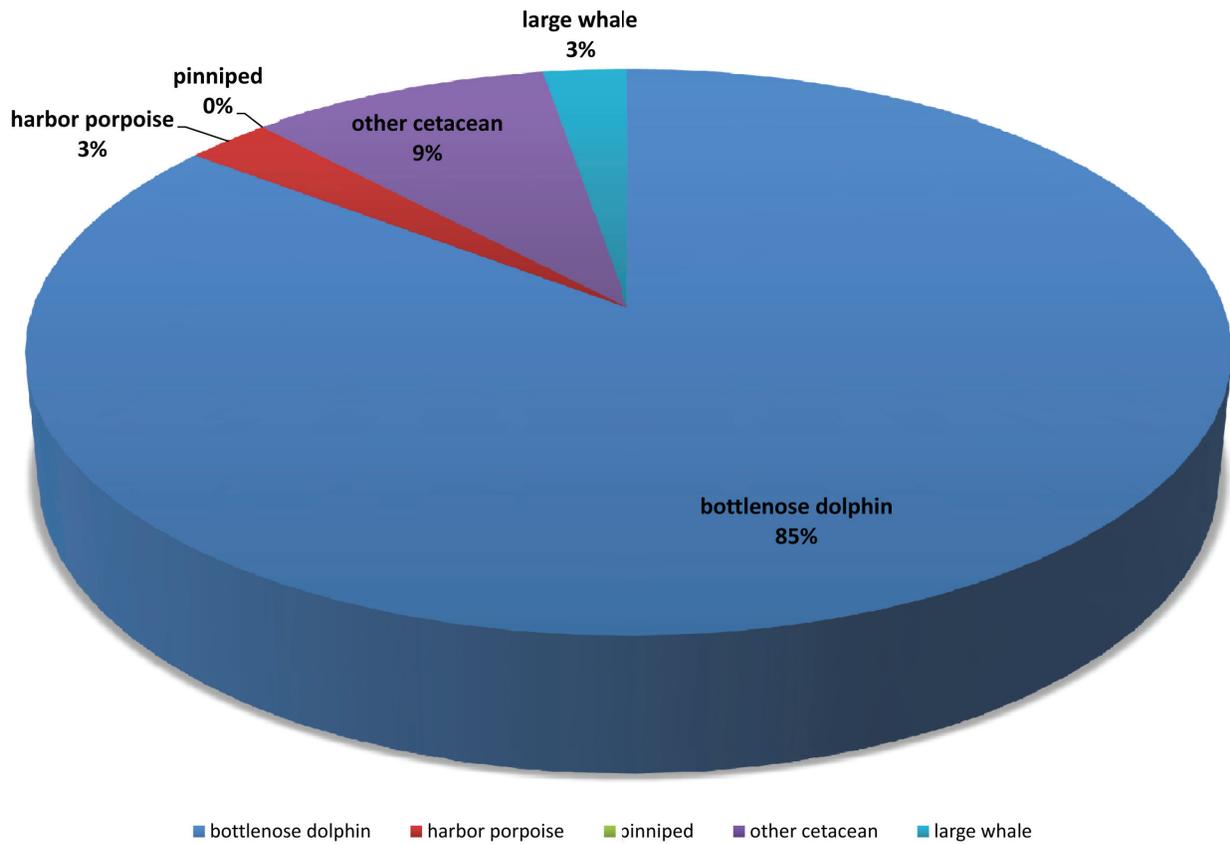


Figure 3: Marine mammal strandings in Virginia from 2012 (bottlenose dolphin n=64, harbor porpoise n=2, other cetaceans n=7, pinnipeds n=0, large whales n=2).

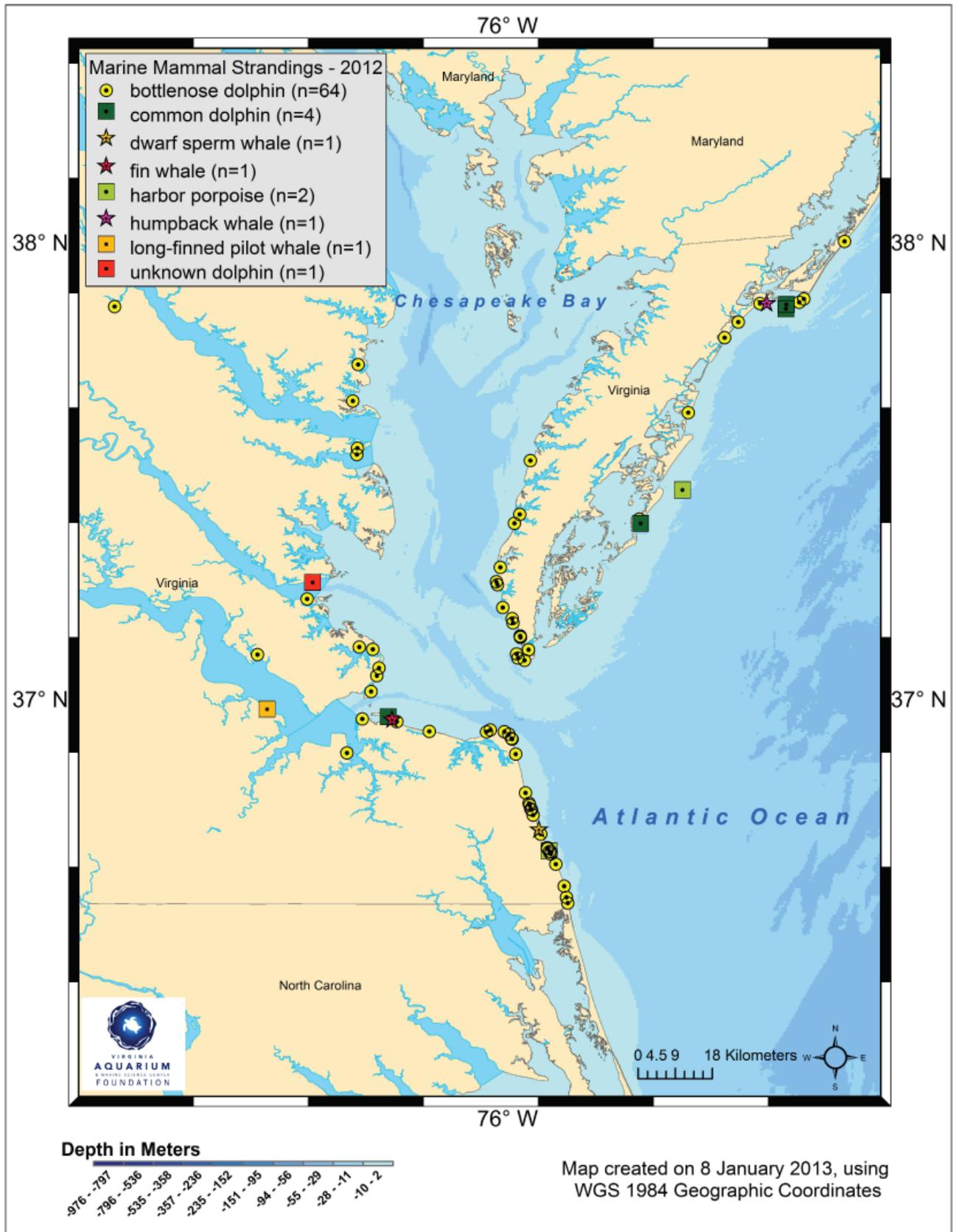
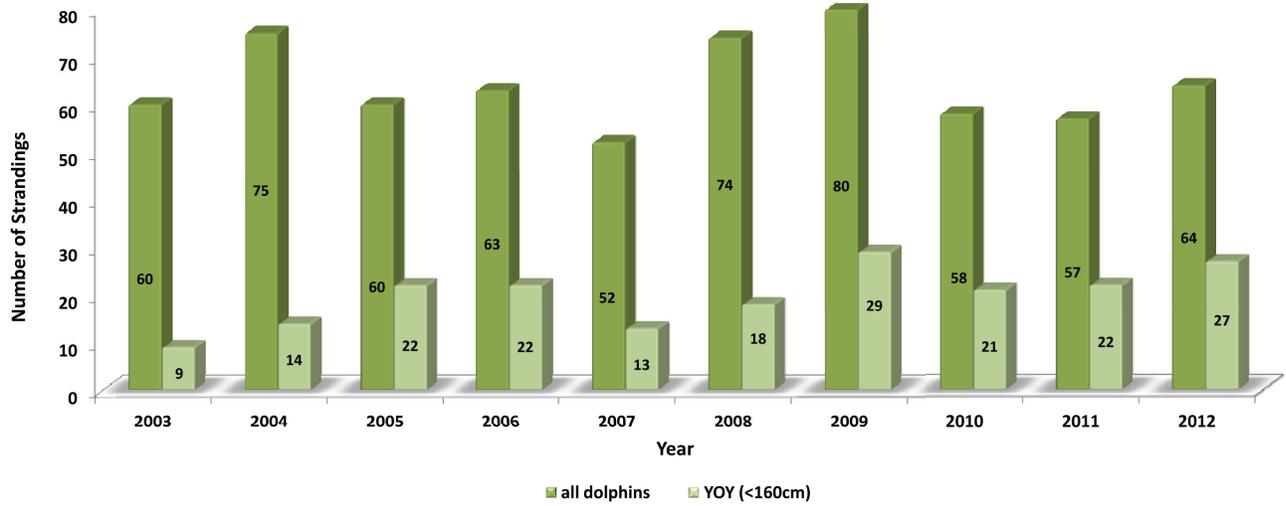


Figure 4: Location of Virginia marine mammal strandings from 2012.

A: Bottlenose dolphin



B: Harbor porpoise

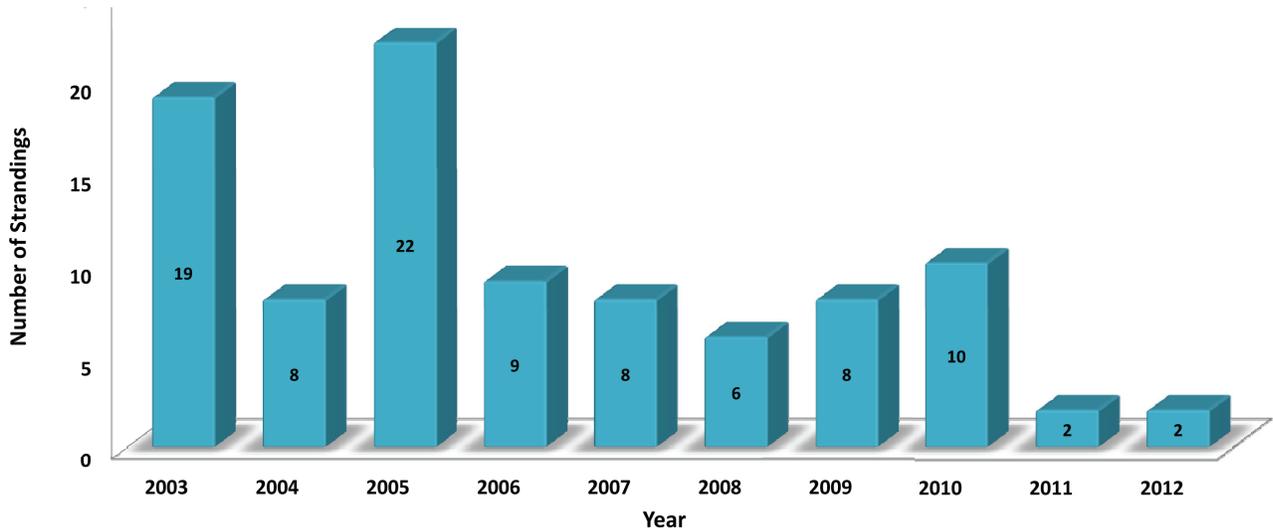
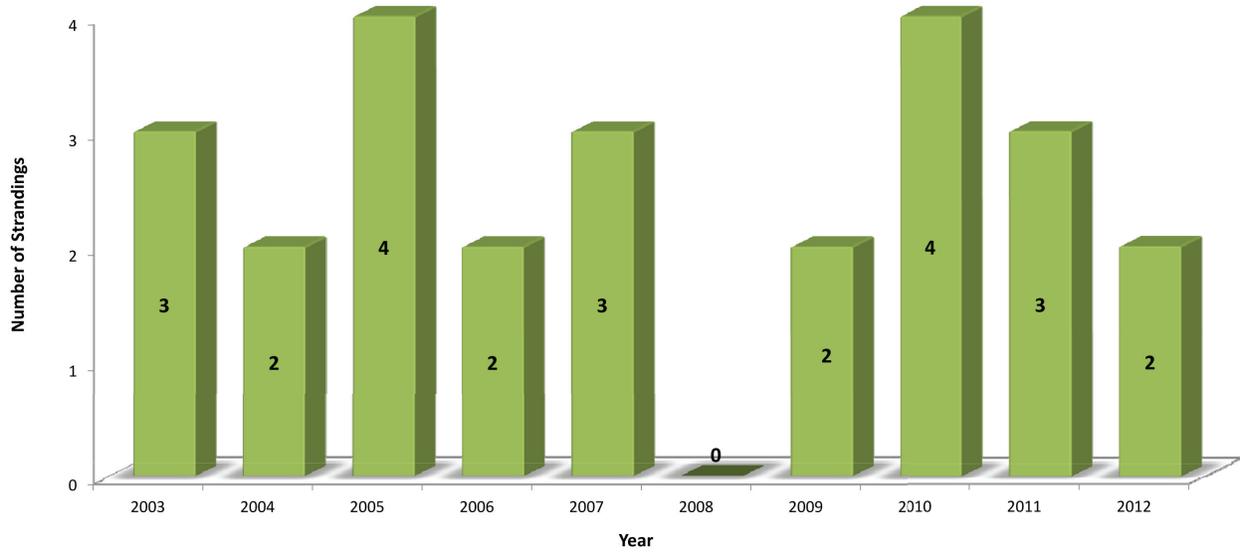


Figure 5 A-B: Yearly stranding frequency for bottlenose dolphin and harbor porpoise in Virginia, 2003-2012 (YOY = young of the year).

C: Large whales



D: Pinnipeds

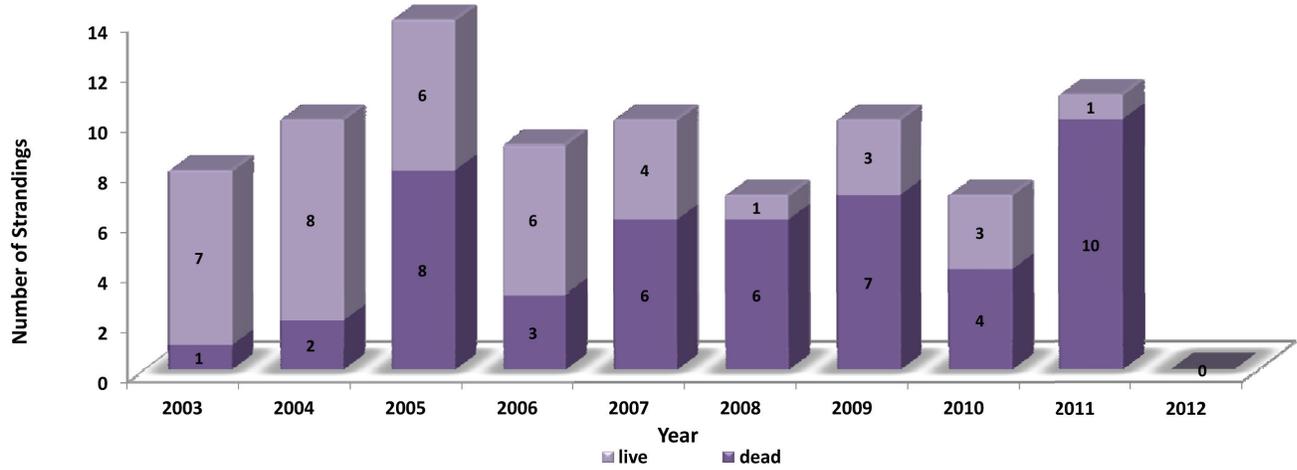


Figure 5 C-D: Yearly stranding frequency for large whales and pinnipeds in Virginia, 2003-2012.

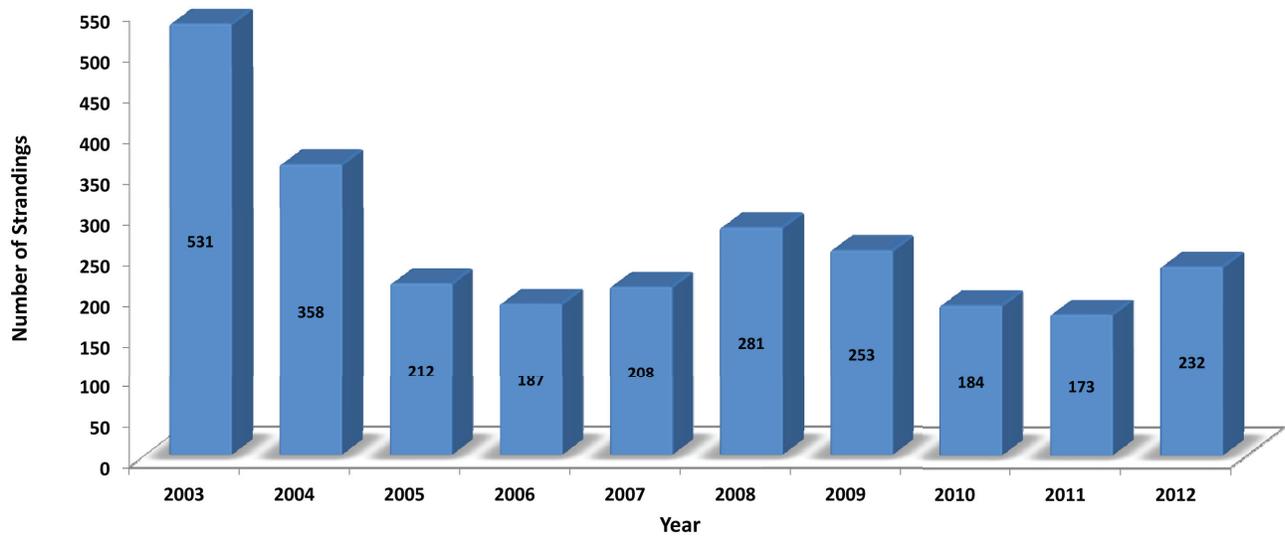


Figure 6: Yearly frequency of sea turtle strandings in Virginia, 2003-2012.

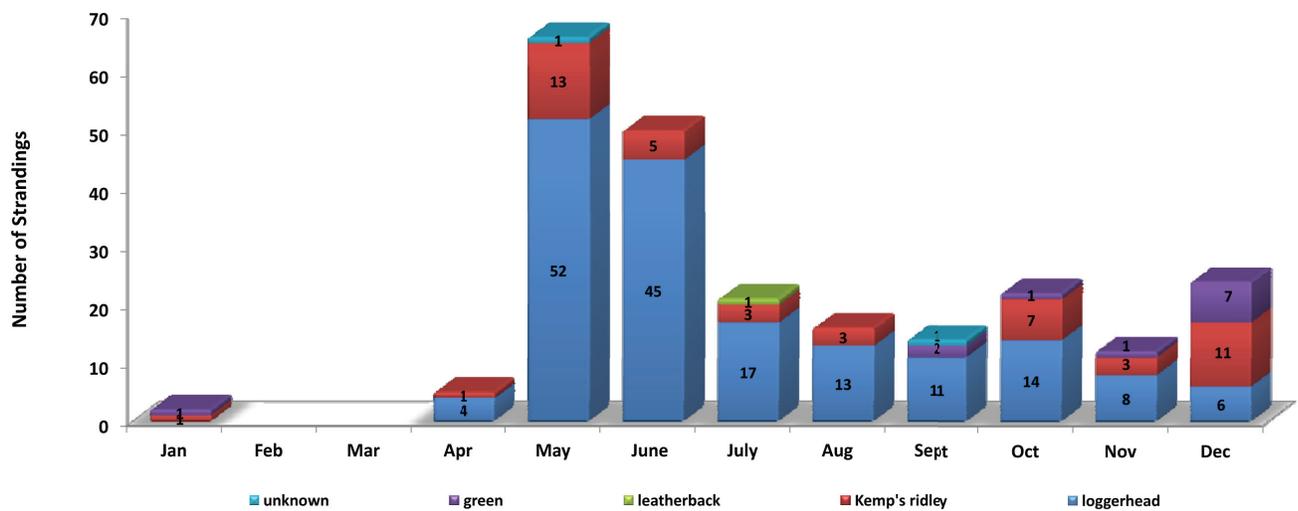


Figure 7: Monthly frequency of sea turtle strandings in Virginia from 2012.

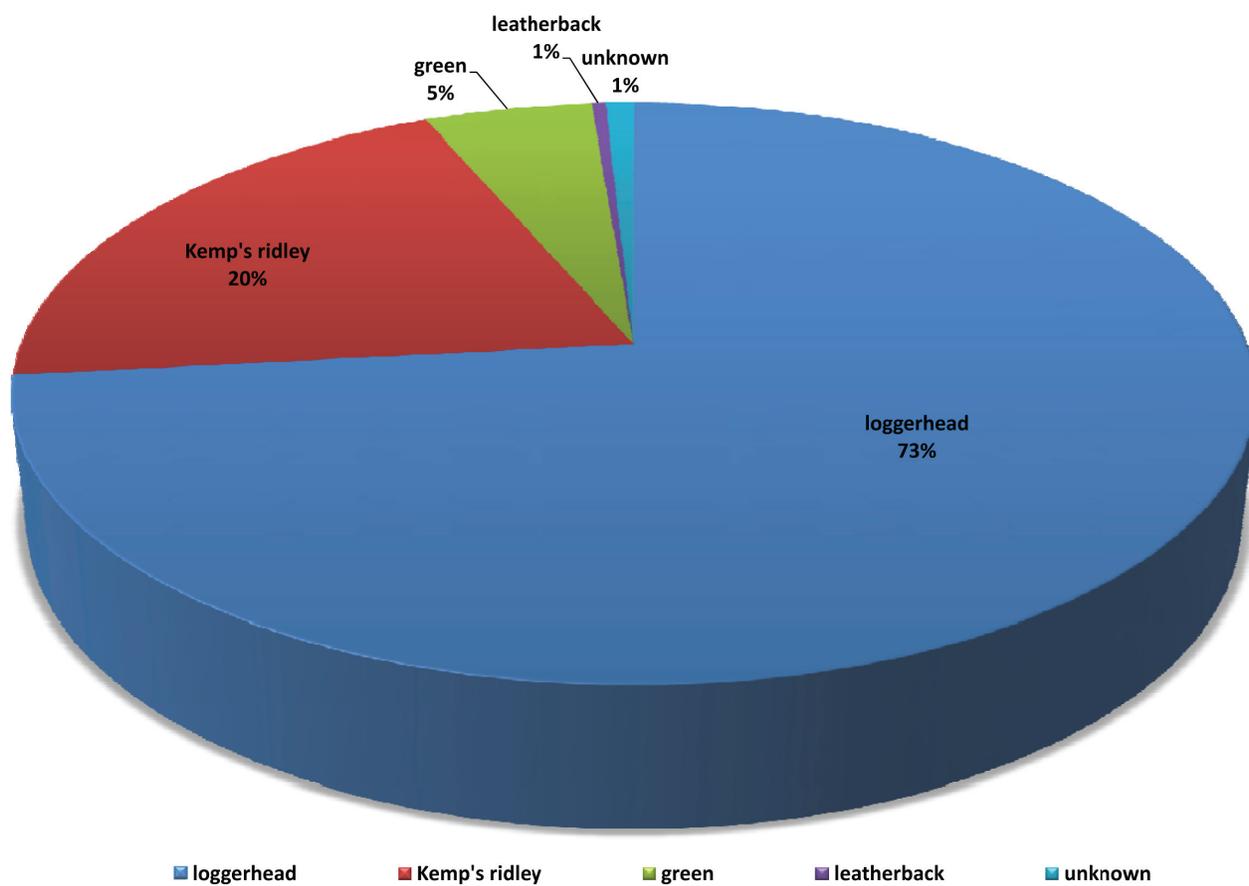


Figure 8: Sea turtle strandings in Virginia from 2012.
(loggerhead n=170, Kemp's ridley n=47, green n=12, leatherback n=1, unknown n=2)

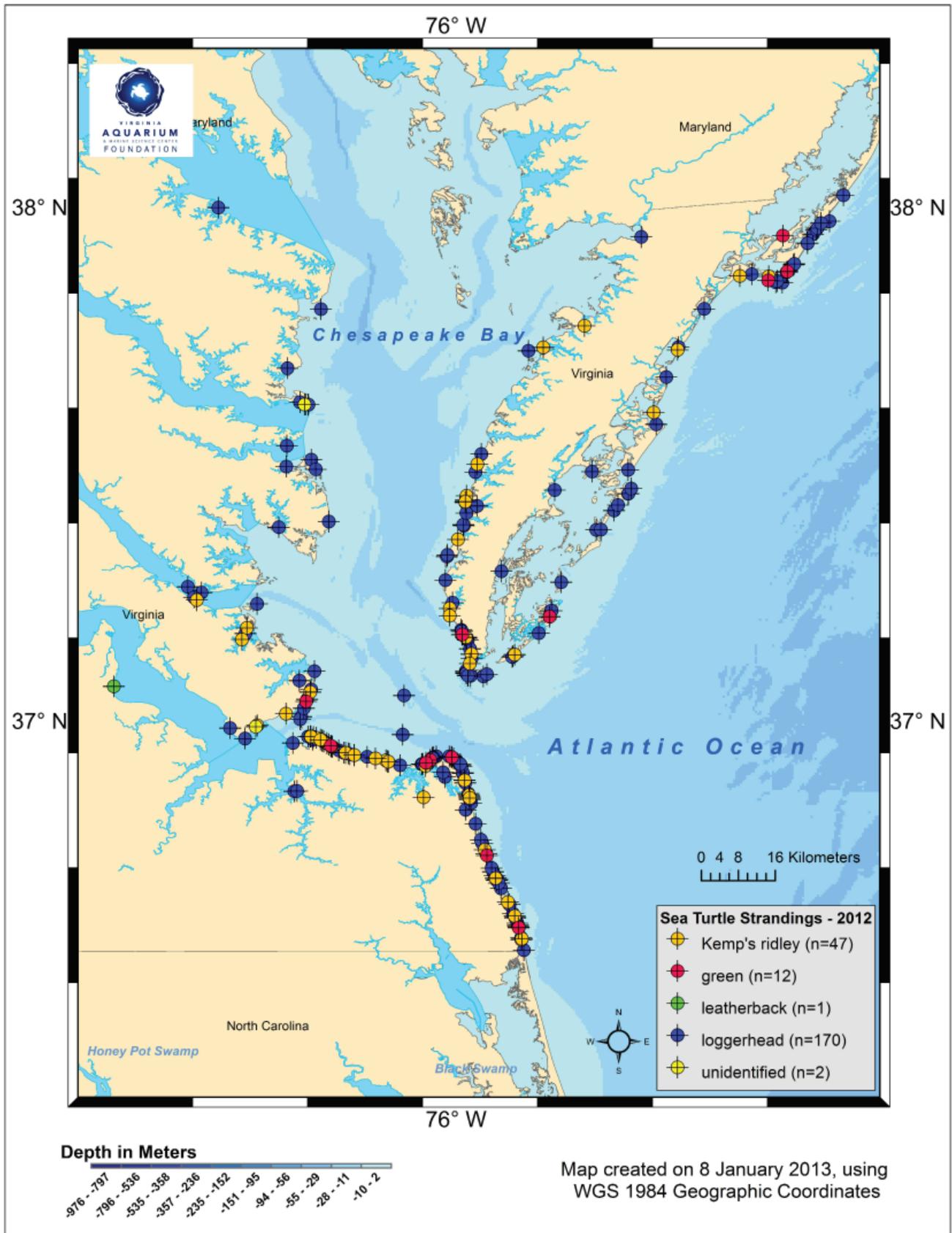


Figure 9: Location of Virginia sea turtle strandings from 2012.

Appendix I: Professional and Education Activities

Educational Activities

<u>Description</u>	<u>Date</u>	<u>Attendance</u>
<u>Outreach Opportunities</u>		
Winter Wildlife Festival	1/28/12	500
The Virginia Living Museum Reptile Weekend	2/18-19/12	thousands
Chef Shalom Temple Mitzvah Day	4/29/12	300
AmeriGroup Eco Fair	5/31/12	1000
NOAA Days on the Hague	6/9-6/10/12	thousands
Onancock Harbor Festival Watershed Walk	9/8/12	500
Canon Environmental Fair	9/18/12	hundreds
Hampton Roads Sustainable Living Expo	9/29/12	3000
Eastern Shore Birding Festival	10/6/12	hundreds
<u>Public Presentations</u>		
Winter Wildlife Festival - Virginia's Winter Visitors	1/28/12	20
Ocean Lakes High School - Founder's Week Celebration	2/6/12	100
All Saints' Episcopal Church	2/12/12	15
Sea Turtle Natural History and Husbandry, Aquarium Science Class	3/2/12	20
ODU Marine Biology Club	3/10/12	35
Seatack Elementary PTA Science Night	3/20/12	100
Thalia Methodist Church Vacation Bible School	7/9/12	100
Virginia Beach Hotel Motel Association Cigarette Butt Litter Talk	7/19/12	50
HRAEE Trash Talking Turtles Presentation	9/13/12	8
Sandbridge Civic League Trash Talk	9/17/12	60
Peninsula Saltwater Sportfishing Association	12/18/12	40
<u>Stranding Center Tours & Group Presentations</u>		
VAQ Teacher Tour	7/10/12	12
Back Bay NWR Youth Conservation Corps	7/26/12	12
Eastern Shore of Virginia NWR Interns	8/6/12	3
Chincoteague NWR Staff and Interns	8/10/12	12
<u>Virginia Aquarium Talks and Events</u>		
Photo ID talk for Winter Wildlife boat crew	1/19/12	20
Talk for VAQ School Programs Staff	1/23/12	12
Volunteer Open House at VAQ	1/26/12	50-60
Women's Voices for the Marine Environment	2/7/12	25
Photo ID talk- Lunch and Learn	2/8/12	14
Volunteer Open House at VAQ	2/16/12	5
Aquarium Connection Meeting	3/30/12	30
SWAT-July 3	7/3/12	10
SWAT- July 17	7/17/12	10
SWAT- July 31	7/31/12	10
Teacher Sea Turtle Talk	8/7/12	6
Volunteer Open House at VAQ	9/20/12	20
Section 6 Sea Turtle Workshop for Educators	10/1/12	20
Aquarium Connection Meeting- Bottlenose Dolphin Life History Presentation	11/15/12	40
Linkhorn Park Elementary Math and Science Academy	12/5/12	40

Appendix I: Professional and Education Activities *cont.***Virginia Aquarium Talks and Events (Continued)**

Photo ID Talk for Winter Wildlife Volunteers/Stranding Volunteers	12/13/12	20
<u>Other</u>		
Fisherman Island Cleanup	2/5/12	40
Stranding Response Team Annual Business Meeting and Volunteer Recognition Event	3/31/12	60
Sea Turtle Boat Release	6/13/12	14
Sea Turtle Release	6/14/12	75
Sea Turtle Release	7/27/12	1000
VAQS Annual Dolphin Count	7/28/12	50
Sea Turtle Boat Release	9/6/12	14
Sea Turtle Release	9/7/12	50
International Coastal Cleanup Fisherman Island	9/23/12	20
Sea Turtle Boat Release	10/5/12	14
Bottlenose Dolphin Life History Thesis Defense Presentation	10/24/12	20

Training Opportunities**Staff Training**

Marine Mammal GI Analysis Workshop	1/17-1/20	15-20
IFAW-Mass Stranding Cross-Training	1/23-1/28 & 2/13-2/19	8
Data Analysis II - Introduction to Modelling Data	2/27-3/2/12	20
NMFS Dip Netting Cruise	5/30 - 6/14/12	15
Internships Best Practices	6/15/12	30
Neonate Workshop	6/26-6/28/12	15
Data Analysis III- Spatial Distribution	7/23-7/27/12	15
Advanced Applications of GIS in the Geosciences	Web-based	25
ICS James River Exercise	9/19/12	100
Cetacean Mass Stranding Response NC Cooperators Training (by IFAW)	9/29/12	20-25
Spatial Ecology for Conservation Biology	10/29/12	NA
NEAQ-Cold Stun Sea Turtle Cross-Training	12/16-12/21/12	NA

Stranding Response Team and Cooperator Trainings

Volunteer Seal Response and Media Training	1/7 & 1/18/12	50
Volunteer Beach Driving Training	3/22 & 3/24/12	20
Volunteer Business Meeting	3/31/12	50
Volunteer Annual Party	3/31/12	76
Sea Turtle Natural History Training	4/26 & 5/12/12	70
CNWR Stranding Response Training	5/24/12	15
ESVNR Stranding Response Training	5/30/12	15
BBNWR Stranding Response Training	6/7/12	4
VAQS Annual Dolphin Count Training	7/26/12	50
Volunteer Marine Mammal Natural History	11/5 & 11/10/12	70
Volunteer Seal Response Training	12/15/12	10

Appendix I: Professional and Education Activities *cont.***Scientific Conferences, Professional Meetings and Workshops**

- Atlantic Large Whale Take Reduction Team, January 9-13, Providence, RI
- Atlantic States Marine Fisheries Commission – Atlantic Coastal Cooperative Statistics Program, Bycatch Prioritization Committee Meeting, January 25-26, Washington, DC
- Workshop on Clinical Definitions of Human Interaction on Marine Mammals, January 31 – February 2, Woods Hole, MA
- Virginia Sea Grant Participants' Symposium, February 1, Richmond, VA
- Southeast Region Sea Turtle Conference, February 1-3, Jeckyl Island, GA
- Southeast Region Marine Mammal Stranding Network Conference, February 15-17, Charleston, SC
- Northeast Region Stranding Network Conference, March 3-9, Baltimore, MD
- International Symposium on Sea Turtle Biology and Conservation, March 12-16, Huatulco, Oaxaca, MX
- 41st Benthic Ecology Meeting, March 21-24, Norfolk, VA
- Alliance of Marine Mammal Parks and Aquariums Annual Meeting, April 14-17, Alexandria, VA
- Monterey Bay Aquarium Sea Turtle Workshop, April 25-26, Monterey, CA
- 2012 Virginia Wind Energy Symposium, June 20-21, Harrisonburg, VA
- *Tursiops* Neonate Workshop, June 26-27, UNCW Wilmington, NC
- Virginia Marine Resources Commission Recreational Fishing Advisory Board, July 9, Newport News, VA
- Mid-Atlantic Regional Council on the Ocean: Virginia's Atlantic Coast Recreational Use Mapping Project, July 12, Melfa, VA
- DOE Mid-Atlantic Surveys Workshop, July 24-25, Silver Spring, MD
- NC Stranding Partners Meeting, September 28-29, Nags Head, NC
- Oceans '12 Marine Technology Society Conference, October 14-19, Virginia Beach, VA
- VA/MD Area Committee Meeting, November 7, Norfolk, VA
- North Atlantic Right Whale Consortium Annual Meeting, November 12-13, New Bedford, MA
- VA CZM Program Coastal Partners Workshop, December 5-6, Richmond, VA
- Prescott Stranding Grant Program Peer Review Panel, December 10-12, Baltimore, MD

Scientific Publications and Presentations

- Barco, S.G. 2012. After the decision: Making cetacean euthanasia a better process for the marine mammal stranding network. Presented to the Northeast and Southeast Stranding Meetings March 3-9, 2012 Baltimore, MD and Feb. 15-17, Charleston, SC respectively.
- Barco, S.G., L.R. D'Eri, C.M. Trapani, S.J. Davis, W. M. Swingle. 2012. Using stranded loggerhead sea turtles to compare lethal and non-lethal vessel trauma in Virginia, USA. Poster Presentation at the International Symposium on Sea Turtle Biology and Conservation, March 12-16, Huatulco, Oaxaca, MX.
- Barco, S.G., G.G. Lockhart, W.M. Swingle. 2012. Using RADAR & AIS to Investigate Ship Behavior in the Chesapeake Bay Ocean Approach off of Virginia, USA. Oral Presentation at the Oceans '12 Marine Technology Society Conference, October 14-19,

Appendix I: Professional and Education Activities *cont.*

- Barco, S.G., W.J. Walton, C.A. Harms, R.H. George, L.R. D'Eri and W.M. Swingle. 2012. Collaborative Development of Recommendations for Euthanasia of Stranded Cetaceans. Final Report to NOAA/NMFS for John H. Prescott Award #NA09NMF4390212. VAQF Scientific Report 2012-06. Virginia Beach, VA. 183pp.
- Davis, S.J., G.G. Lockhart, C.M. Trapani, S.G. Barco. 2012. Human interaction stranding data; a preliminary spatial and temporal analysis of loggerhead sea turtle strandings in the Chesapeake Bay region. Poster presentation at the International Symposium on Sea Turtle Biology and Conservation, March 12-16, Huatulco, MX.
- D'Eri, L., C. Trapani, B. Sharp, S. Landry, K. Dodge, S. Barco. 2012. Implications for Disentanglement and Immediate Release of Sea Turtles. Poster presentation at the International Symposium on Sea Turtle Biology and Conservation, March 12-16, Huatulco, Oaxaca, MX.
- Lockhart, G.G., W.M. Swingle, J. E. Bort, M.C. Lynott, S.G. Barco. 2012. A Crowded Ocean: Including Biological Monitoring Results in Marine Spatial Planning Efforts. Oral Presentation at the Oceans '12 Marine Technology Society Conference, October 14-19, Virginia Beach, VA.
- Lockhart, G.G., H.L. Haas, S.G. Barco, R. Smolowitz, J.E. Bort, R.A. DiGiovanni, W.M. Swingle. 2012. Sharing a Limited Space: The Importance of Including Biological Monitoring Results in Marine Spatial Planning. Oral Presentation at the 2012 Statewide Wind Energy Symposium, June 20-21, Harrisonburg, VA.
- Lynott, M., M. Stolen, W. McFee, W. Durden, J. Powell, T. Mazza and S. Barco. 2012. Report of 2009 bottlenose dolphin (*Tursiops truncatus*) life history workshop: expanding network capabilities. NOAA Tech Memo NOS NCCOS 151; 22 pp.
- Lynott, M.C., K.M. Phillips, S.G. Barco, W.M. Swingle. 2012. Supporting Expert Response to Stranded Marine Mammals in Virginia, 2011. Final Report to the John H. Prescott Marine Mammal Rescue Assistance Grant Program, Prescott Award Number NA10NMF4390259. VAQF Scientific Report 2012-04. 339 pp.
- Lynott, M.C., S.G. Barco, W.M. Swingle. 2012. Processing Archived Life History Samples from Stranded *Tursiops* in Virginia. Final Report to the John H. Prescott Marine Mammal Rescue Assistance Grant Program, Prescott Award Number NA08NMF4390589. VAQS Scientific Report 2012-05. 81 pp.
- Moore, M., J. van der Hoop, S. Barco, A. Costidis, F. Gulland, P. Jepson, K. Moore and W. McLellan. In press. Criteria and case definitions for serious injury and death of pinnipeds and cetaceans caused by anthropogenic trauma: Underwater entrapment, chronic entanglement, sharp and blunt vessel and gunshot. Diseases of Aquatic Organisms.
- Phillips, K.M., M.C. Lynott, G.G. Lockhart, S.G. Barco. 2012. Spatial stranding patterns of the bottlenose dolphin (*Tursiops truncatus*) in Virginia, 2001-2011. Oral Presentation at the Northeast Region Stranding Network Conference, March 3-9, Baltimore, MD.
- Swingle, W.M., C.M. Trapani, L.R. D'Eri, M.C. Lynott. 2012. Marine Mammal and Sea Turtle Stranding Response 2011 Grant Report. Final Report to the Virginia Coastal Zone Management Program, NOAA CZM Grant #NA10NOS4190205, Task 49.

Appendix II: Highlights of the year - Marine Mammals

The winter of 2012 brought many large whales to Virginia's waters, but also brought instances of negative human interaction. On Jan. 26, a humpback whale (who had previously been seen in the area gear-free) was reported with a fishing lure known as a "mojo," typically used to catch striped bass, lodged into the right side of its back with a piece of monofilament draped across to the left side. Attempts to locate the animal after the first report were unsuccessful. The whale was seen twice in the area soon after being entangled but was not seen beyond that. Another humpback whale was observed on Feb. 17 with wounds that may have originated from an interaction with a pair trawl fishery. These wounds were still in the process of healing when the whale was spotted again a month later (March 17). On Feb. 19, a small fin whale (total length = 1271.2cm) washed ashore dead on Oceanview Beach in Norfolk, VA (top photo).



The injuries were consistent with blunt force trauma/ship strike. The Navy also reported that a surfacing submarine had struck a whale at a low speed, and the whale rolled off the port side of the sub. The whale was not sighted again. A small humpback whale washed ashore dead in North Carolina a few days later, badly shark bitten, but did not show obvious signs of blunt force



trauma. A second dead humpback was found floating offshore in March. On September 26th, a live humpback whale was reported on Wallop's Island in Accomack County (bottom photo). We quickly responded and decided that humane euthanasia was the best course of action for this animal. A necropsy was performed the next day revealing healed propeller wounds and several pathologies involving the lungs, GI tract and heart.

Appendix III: Highlights of the year - Sea Turtles



On the afternoon of July 5th, we received a call from a boater off Onancock Creek (Northampton County) that a loggerhead sea turtle was entangled in crab pot line but able to come to the surface to breathe. Due to the time of the day and location of the animal, it had to be left for the night. The boater relocated the animal the next morning and VAQS Staff were dispatched to rescue the animal. With the help of the Eastern Shore Keeper and his boat, we were able to catch the animal using specialized gear and bring it aboard

for assessment (top left photo). With a tight wrap around the left rear flipper, the animal had a serious constriction wound and was admitted into rehab at the Aquarium's Marine Animal Care Center.

At the same time that this loggerhead was being rescued, another call came in about a leatherback entangled in pot gear off Hampton, Virginia (middle photo). Another team was dispatched and with the help of the Virginia Marine Resources Commission and their boat, the leatherback was successfully disentangled and released. Due to the size of the leatherback sea turtle, rehabilitation is not an option unless a life threatening injury is obvious.

The loggerhead was treated for its injury and released with a satellite transmitter on September 7th from Cape Charles, Virginia.

Pot gear entanglements occur in Virginia several times per year.



Unfortunately, most of these animals are not found and reported until it is too late.



One of the most notable events this year was a cold-stunning event that challenged the east coast sea turtle hospitals from Massachusetts to North Carolina. We admitted 11 live cold stun sea turtles from Virginia's beaches in addition to taking in four Kemp's ridleys that had stranded in Massachusetts (bottom

right photo). We also responded to 21 dead cold-stun sea turtle strandings in December and the beginning of January. Many of Virginia's strandings occurred in Northampton County on Virginia's eastern shore. After the event, which abruptly ended on January 6th, there were two greens, seven Kemp's ridleys and nine loggerheads in rehabilitation at the Marine Animal Care Center.



Appendix IV: Stranding Network Datasheets

A: Marine Mammal Level A Datasheet

MARINE MAMMAL STRANDING REPORT - LEVEL A DATA

FIELD #: VAQS2012 NMFS REGIONAL #: _____ NATIONAL DATABASE#: _____
(NMFS USE) (NMFS USE)

COMMON NAME: _____ GENUS: _____ SPECIES: _____

EXAMINER Name: _____ Affiliation: Virginia Aquarium Stranding

Address: 717 General Booth Blvd, Virginia Beach, VA 23451 Phone: 757-385-7575

Stranding Agreement or Authority: Virginia Aquarium Stranding

LOCATION OF INITIAL OBSERVATION State: _____ County: _____ City: _____ Body of Water: _____ Locality Details: _____ _____ Lat (DD): _____ N Long (DD): _____ W <input type="checkbox"/> Actual <input type="checkbox"/> Estimated How Determined: (check ONE) <input type="checkbox"/> GPS <input type="checkbox"/> Map <input type="checkbox"/> Internet/Software	OCURENCE DETAILS <input type="checkbox"/> Restrand GE# _____ Group Event: <input type="checkbox"/> YES <input type="checkbox"/> NO (NMFS Use) If Yes, Type: <input type="checkbox"/> Cow/Calf Pair <input type="checkbox"/> Mass Stranding # Animals: _____ <input type="checkbox"/> Actual <input type="checkbox"/> Estimated Findings of Human Interaction: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Could Not Be Determined (CBD) If Yes, Choose one or more: <input type="checkbox"/> 1. Boat Collision <input type="checkbox"/> 2. Shot <input type="checkbox"/> 3. Fishery Interaction <input type="checkbox"/> 4. Other Human Interaction: _____ How Determined (Check one or more): <input type="checkbox"/> External Exam <input type="checkbox"/> Internal Exam <input type="checkbox"/> Necropsy <input type="checkbox"/> Other: _____ Gear Collected? <input type="checkbox"/> YES <input type="checkbox"/> NO Gear Disposition: _____ Other Findings Upon Level A: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Could Not Be Determined (CBD) If Yes, Choose one or more: <input type="checkbox"/> 1. Illness <input type="checkbox"/> 2. Injury <input type="checkbox"/> 3. Pregnant <input type="checkbox"/> 4. Other: _____ How Determined (Check one or more): <input type="checkbox"/> External Exam <input type="checkbox"/> Internal Exam <input type="checkbox"/> Necropsy <input type="checkbox"/> Other: _____																								
INITIAL OBSERVATION Date: Year: <u>2012</u> Month: _____ Day: _____ First Observed: <input type="checkbox"/> Beach or Land <input type="checkbox"/> Floating <input type="checkbox"/> Swimming CONDITION AT INITIAL OBSERVATION (Check ONE) <input type="checkbox"/> 1. Alive <input type="checkbox"/> 4. Advanced Decomposition <input type="checkbox"/> 2. Fresh dead <input type="checkbox"/> 5. Mummified/Skeletal <input type="checkbox"/> 3. Moderate decomposition <input type="checkbox"/> 6. Condition Unknown	LEVEL A EXAMINATION <input type="checkbox"/> Not Able to Examine Date: Year: <u>2012</u> Month: _____ Day: _____ CONDITION AT EXAMINATION (Check ONE) <input type="checkbox"/> 1. Alive <input type="checkbox"/> 4. Advanced Decomposition <input type="checkbox"/> 2. Fresh dead <input type="checkbox"/> 5. Mummified/Skeletal <input type="checkbox"/> 3. Moderate decomposition <input type="checkbox"/> 6. Unknown																								
INITIAL LIVE ANIMAL DISPOSITION (Check one or more) <input type="checkbox"/> 1. Left at Site <input type="checkbox"/> 6. Euthanized at Site <input type="checkbox"/> 2. Immediate Release at Site <input type="checkbox"/> 7. Transferred to Rehabilitation: <input type="checkbox"/> 3. Relocated Date: Year: _____ Month: _____ Day: _____ Facility: _____ <input type="checkbox"/> 4. Disentangled <input type="checkbox"/> 8. Died during Transport <input type="checkbox"/> 5. Died at Site <input type="checkbox"/> 9. Euthanized during Transport <input type="checkbox"/> 10. Other: _____ CONDITION/DETERMINATION (Check one or more) <input type="checkbox"/> 1. Sick <input type="checkbox"/> 7. Location Hazardous <input type="checkbox"/> 2. Injured <input type="checkbox"/> a. To animal <input type="checkbox"/> 3. Out of Habitat <input type="checkbox"/> b. To public <input type="checkbox"/> 4. Deemed Releasable <input type="checkbox"/> 8. Unknown/CBD <input type="checkbox"/> 5. Abandoned/Orphaned <input type="checkbox"/> 9. Other: _____ <input type="checkbox"/> 6. Inaccessible	MORPHOLOGICAL DATA SEX (Check ONE) AGE CLASS (Check ONE) <input type="checkbox"/> 1. Male <input type="checkbox"/> 1. Adult <input type="checkbox"/> 4. Pup/Calf <input type="checkbox"/> 2. Female <input type="checkbox"/> 2. Subadult <input type="checkbox"/> 5. Unknown <input type="checkbox"/> 3. Unknown <input type="checkbox"/> 3. Yearling <input type="checkbox"/> Whole Carcass <input type="checkbox"/> Partial Carcass Straight length: _____ <input type="checkbox"/> cm <input type="checkbox"/> in <input type="checkbox"/> actual <input type="checkbox"/> estimated Weight: _____ <input type="checkbox"/> kg <input type="checkbox"/> lb <input type="checkbox"/> actual <input type="checkbox"/> estimated PHOTOS/VIDEOS TAKEN: <input type="checkbox"/> YES <input type="checkbox"/> NO Photo/Video Disposition: _____																								
TAG DATA Tags Were: Present at Time of Stranding (Pre-existing): <input type="checkbox"/> YES <input type="checkbox"/> NO Applied during Stranding Response: <input type="checkbox"/> YES <input type="checkbox"/> NO <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">ID#</th> <th style="text-align: left;">Color</th> <th style="text-align: left;">Type</th> <th style="text-align: left;">Placement* (Circle ONE)</th> <th style="text-align: left;">Applied</th> <th style="text-align: left;">Present</th> </tr> </thead> <tbody> <tr> <td>_____</td> <td></td> <td></td> <td>D DF L LF LR RF RR</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>_____</td> <td></td> <td></td> <td>D DF L LF LR RF RR</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>_____</td> <td></td> <td></td> <td>D DF L LF LR RF RR</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table> <p><small>* D= Dorsal; DF= Dorsal Fin; L= Lateral Body LF= Left Front; LR= Left Rear; RF= Right Front; RR= Right Rear</small></p>	ID#	Color	Type	Placement* (Circle ONE)	Applied	Present	_____			D DF L LF LR RF RR	<input type="checkbox"/>	<input type="checkbox"/>	_____			D DF L LF LR RF RR	<input type="checkbox"/>	<input type="checkbox"/>	_____			D DF L LF LR RF RR	<input type="checkbox"/>	<input type="checkbox"/>	CARCASS STATUS (Check one or more) <input type="checkbox"/> 1. Left at Site <input type="checkbox"/> 4. Towed: Lat _____ Long _____ <input type="checkbox"/> 7. Landfill <input type="checkbox"/> 2. Buried <input type="checkbox"/> 5. Sunk: Lat _____ Long _____ <input type="checkbox"/> 8. Unknown <input type="checkbox"/> 3. Rendered <input type="checkbox"/> 6. Frozen for Later Examination <input type="checkbox"/> 9. Other: _____ SPECIMEN DISPOSITION (Check one or more) <input type="checkbox"/> 1. Scientific collection <input type="checkbox"/> 2. Educational collection <input type="checkbox"/> 3. Other: _____ Comments: _____ NECROPSIED <input type="checkbox"/> NO <input type="checkbox"/> YES <input type="checkbox"/> Limited <input type="checkbox"/> Complete <input type="checkbox"/> Carcass Fresh <input type="checkbox"/> Carcass Frozen/Thawed NECROPSIED BY: _____ Date: Year: _____ Month: _____ Day: _____
ID#	Color	Type	Placement* (Circle ONE)	Applied	Present																				
_____			D DF L LF LR RF RR	<input type="checkbox"/>	<input type="checkbox"/>																				
_____			D DF L LF LR RF RR	<input type="checkbox"/>	<input type="checkbox"/>																				
_____			D DF L LF LR RF RR	<input type="checkbox"/>	<input type="checkbox"/>																				

B: Sea Turtle Level A Datasheet

SEA TURTLE STRANDING AND SALVAGE NETWORK – STRANDING REPORT

OBSERVER'S NAME / ADDRESS / PHONE:

First _____ M.I. _____ Last _____
 Affiliation: Virginia Aquarium Stranding Response Program
 Address: 717 General Booth Blvd. Virginia Beach, VA 23451
 vaqstranding@verizon.net
 Area code/Phone number: 757-385-7575

STRANDING DATE:

Year 20__ Month __ Day __
 Turtle number by day __

VAQS20

-State coordinator must be notified within 24 hrs;
 this was done by phone (757)385-7575
 email fax (757)437-4933

SPECIES: (check one)

- CC = Loggerhead
- CM = Green
- DC = Leatherback
- EI = Hawksbill
- LK = Kemp's Ridley
- LO = Olive Ridley
- UN = Unidentified

Check Unidentified if not positive. Do Not Guess.

Carcass necropsied? Yes No
 Necropsied By _____
 Necropsy Date _____
 Photos taken? Yes No
 Species verified by state coordinator?
 Yes No Initial _____

SEX:

- Undetermined
 - Female Male
- Does tail extend beyond carapace?
 Yes; how far? _____ cm / in
 No
- How was sex determined?
 Necropsy
 Tail length (adult only)

STRANDING LOCATION:

Offshore (Atlantic or Gulf beach) Inshore (bay, river, sound, inlet, etc)
 State _____ County _____
 Descriptive location (be specific) _____

 Latitude _____ Longitude _____

CONDITION: (check one)

- 0 = Alive
- 1 = Fresh dead
- 2 = Moderately decomposed
- 3 = Severely decomposed
- 4 = Dried carcass
- 5 = Skeleton, bones only

TAGS: Contact state coordinator before disposing of any tagged animal!!

Checked for flipper tags? Yes No
Check all 4 flippers. If found, record tag number(s) / tag location / return address

PIT tag scan? Yes No
 If found, record number / tag location

Coded wire tag scan? Yes No
 If positive response, record location (flipper)

Checked for living tag? Yes No
 If found, record location (scute number & side)

FINAL DISPOSITION: (check)

- 1 = Left on beach where found; painted? Yes* No(5)
- 2 = Buried: on beach / off beach;
 carcass painted before buried? Yes* No
- 3 = Salvaged: all / part(s), what/why? _____
- 4 = Pulled up on beach/dune; painted? Yes* No
- 6 = Alive, released
- 7 = Alive, taken to rehab. facility, where? _____
- 8 = Left floating, not recovered; painted? Yes* No
- 9 = Disposition unknown, explain _____

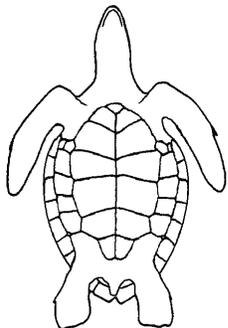
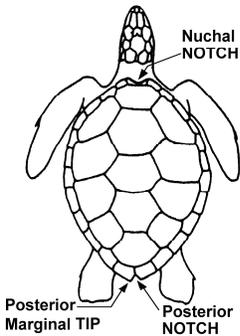
**If painted, what color?* _____

CARAPACE MEASUREMENTS: (see drawing)

Using calipers Circle unit
 Straight length (NOTCH-TIP) _____ cm / in
 Minimum length (NOTCH-NOTCH) _____ cm / in
 Straight width (Widest Point) _____ cm / in

Using non-metal measuring tape Circle unit
 Curved length (NOTCH-TIP) _____ cm / in
 Minimum length (NOTCH-NOTCH) _____ cm / in
 Curved width (Widest Point) _____ cm / in

Weight actual / est. Circle unit
 _____ kg / lb



Mark wounds / abnormalities on diagrams at left and describe below (note tar or oil, gear or debris entanglement, propeller damage, epibiota, papillomas, emaciation, etc.). **Please note if no wounds / abnormalities are found.**

Genetics sent _____ Flipper(s) sent _____ Release Date _____