Final Report

Interagency Large Whale Stranding MOU

Year 1: Identifying Needs

Virginia Marine Resources Commission

With: Virginia Coastal Zone Management Program, Department of Wildlife Resources, Virginia Aquarium & Marine Science Center Foundation

2025

INTERAGENCY LARGE WHALE STRANDING MOU

YEAR 1: IDENTIFYING NEEDS

VIRGINIA MARINE RESOURCES COMMISSION

This document serves as a final report to the Virginia Coastal Zone Management Program of the Department of Environmental Quality in fulfillment of Award Number NA 23NOS4190255 Task # 92.01 from the National Ocean Service of the National Oceanic and Atmospheric Administration.

Cover image: Dead humpback whale stranded on the Virginia Beach oceanfront (credit: Virginia Aquarium & Marine Science Center).

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Acknowledgements

We would like to thank The Virginia Coastal Zone Management (CZM) Program for both funding and invaluable participation in this project. In addition to Ryan Green and Nick Meade from CZM, co-investigators in the project included Zach Widgeon at Virginia Marine Resources Commission (MRC) and Dr. Allyson McNaughton, Virginia Aquarium Stranding Response Program. Additional participation from the following state, federal, and other entities made this project possible: Virginia's Department of Wildlife Resources, Department of Recreation and Conservation, Natural Heritage Program, and Department of Transportation; NOAA Fisheries Greater Atlantic Region and Headquarters Protected Species Branch; Mid-Atlantic Naval Facilities Engineering Command, US Navy Fleet Forces Command, Natural Resources Management; City of Virginia Beach's Beach Operations Division of Public Works; and the Middle Peninsula Planning District Commission.

Introduction

This CZM-funded project seeks to improve the coordination and response to marine mammal strandings in Virginia by documenting the existing structure of responsibilities and creating formalized plans for collaboration among agencies. With a focus on large whale strandings, the project aims to streamline communication, identify suitable landing and disposal sites for floating carcasses, and address resource needs for efficient, scientifically-based response efforts. By fostering agreements among stakeholders, the project aims to enhance timely and effective reactions to stranding events while minimizing conflicts with private and public interests.

Justification

A marine mammal stranding occurs when a marine mammal washes ashore either sick, injured or dead. It is also considered a stranding event when a floating carcass is observed or when an animal is entangled or entrapped and unable to function normally in its natural habitat. Finally, animals are also considered as stranded if they appear outside of their normal distribution either temporally or spatially (e.g., manatees in the region in late fall/early winter; a dolphin in a freshwater portion of a river; a seal hauled out near a drainage ditch). Large whales, primarily baleen whale species, strand with regular frequency in Virginia. The number of large whale strandings has increased in recent years along Virginia's coast for a variety of reasons including three simultaneous Unusual Mortality Events (UMEs) for North Atlantic Right Whales (NARW; *Eubalaena glacialis*), humpback (*Megaptera novaeangliae*), and minke whales (*Baleanoptera acutorostrata*). There are multiple causes for these strandings including increases in ship traffic causing more whale strikes, increases in the humpback whale population resulting in increased mortality numbers, whale entanglements in fishing gear, and disease. The Virginia Aquarium & Marine Science Center's Stranding Response Program which manages the Virginia Stranding Network and is the sole stranding agreement holder from NOAA Fisheries for the Commonwealth of Virginia. However, dealing with beached and floating stranded large whales requires cooperation and coordination from many state, federal and other stakeholders that are impacted by these events.

Understanding the cause, mechanism, and manner of death and collecting information on life history (*e.g.* age, sex, reproductive status, diet, genetics) and health status (*e.g.* body condition, parasite load, evidence of disease and prior injury) of stranded individuals is critical to managing these protected species populations. Baleen whales present a challenge to stranding response organizations due to both their size and the endangered status of most US

populations. The goal of this project was to improve scientifically-based large whale stranding response and cooperation among entities in the Commonwealth with special focus on floating whale carcasses. The tools used to accomplish this goal included: 1) meetings among multiple entities likely to be affected by large whale stranding events; 2) assessment of resource needs for large whale stranding response in Virginia; 3) criteria development and assessment of appropriate lands in the Commonwealth for landing floating carcasses and examining stranded whales; 4) identifying the need for agreements among entities to improve communication and stranding response efficiency.

Large whale stranding events

When a large whale strands, the resources required to respond to the event and conduct a scientific examination with the goal of determining cause of death are considerably greater than for other stranded marine mammals and sea turtles. Thorough necropsies (animal autopsy) of large whales requires considerable exam space on a beach or shoreline, heavy equipment, numerous personnel, disposal options, and often considerably more crowd control than other stranded animals.

The MMPA allows for access to carcasses for examination and necropsy by authorized stranding response organizations. No one can control the natural beaching of a stranded whale. In their 2022 Programmatic Environmental Impact Statement for the Marine Mammal Health and Stranding Response Program, NOAA Fisheries provides best practices documents and Marine Mammal Carcass Disposal Best Practices is included. This document states that carcass disposal is not the responsibility of the stranding network. This means that landowners and municipalities are responsible for carcass disposal of naturally beached items including carcasses. When possible, the stranding response organization usually provides resources (e.g. expertise, people and heavy equipment, if available) to assist with disposal of a naturally beached whale as part of the examination process.

Disposing of large whale carcasses by sinking or towing carcasses offshore and setting them adrift are not viable disposal options in the busy maritime areas of Virginia. There are numerous documented cases of whales that were towed away from an area, then 're-stranding' in worse condition and in places with greater logistical challenges than the original stranding location. Likewise, sinking a whale carcass can require thousands of pounds of ballast to keep the carcass on the bottom and in place, especially in the relatively shallow waters off the Virginia coast. If authorization is given to tow a dead whale by an entity (*e.g.* stranding network organization, municipality, state government), that organization then has responsibility for its ultimate disposal, and any damage done by the carcass after being towed. If a whale that was towed and released to decompose naturally damages a pier, is struck by a vessel, lands on a private shellfish bed, etc., the group that authorized that the animal be moved could be liable

for any damage done by the carcass. With this in mind, neither NOAA Fisheries, nor the VAQS will authorize an offshore disposal via towing and will only authorize towing once a disposal plan is in place. NOAA Fisheries recommends on-site and off-site burial, including removal to a landfill that can accept animal carcasses, as approved methods of disposal. Of the recommended disposal options, on-site burial is by far the least complicated and least expensive option.

Large whale stranding events may occur before a carcass washes ashore which, if resources and permissions are in place, may allow for a carcass to be 'landed' in an area suitable for examination and disposal. In these cases, quick decision making is critical since. Because stranding networks are reluctant to initiate towing a floating carcass until a landing site and disposal plan have been developed. Pre-planning is critical for these events since many occur after normal business hours and decisions must be made quickly before a carcass beaches in an inappropriate place or becomes inaccessible.

When a large whale strands, the timeline and thoroughness of the examination depend on several variables, including species, carcass condition, site accessibility, and available resources. The latter includes funding for towing and heavy equipment, travel for outside personnel to assist, diagnostic testing, hindcasting of carcass drift, gear analysis and fishery expertise, etc. Considerably more effort and resources are expected and available for NARW because of their endangered status and critically low population number. Resources may also be more available for species affected by a UME, fresh carcasses or euthanized animals, and when the circumstances of stranding are known to involve human activities. If vessel strike or entanglement history are known or suspected, information gathered at necropsy can be critically important for future management.

When performing a large whale necropsy to determine the cause of death, timing is crucial to gaining critical information about the life and death of the whale. Floating carcasses can travel significant distances in a short time, making a prompt response essential for a successful outcome. Due to their thick insulating blubber layer, whale carcasses typically retain heat for some time after death, unless the animal is emaciated or the carcass is compromised, such as by a large propeller strike. Thus, valuable information can be lost if the examination is not conducted quickly. Whenever possible, animals are manipulated into position and examined externally on the first day of a response which is ideally the day after the initial report, and both the necropsy and disposal are conducted on the second day. If a lengthy tow is involved, towing and landing the carcass may require an extra day. If the carcass site is logistically challenging to access, there may be more time between the report and examination, which will compromise the amount of information obtained.

Explanation of needs

When a large whale strands on a beach, the sheer size of the animal creates challenges. Access to the animal by a response team and heavy equipment to manipulate the carcass require space and time. Responding to a stranded whale on private property presents challenges for beach access, disposal, and response management (e.g., vehicle parking for multiple team members, shoreline access for trucks and heavy equipment, restroom access for team members, media coordination). Depending on the time of year stranded whales can interrupt public events on publicly managed shorelines and training exercises on military facilities.

When the stranding team is notified of a floating whale carcass, an opportunity arises to direct the carcass to a specific area that meets stranding team needs while simultaneously reducing conflict with private landowners and public events.

When the stranding response organization directs a floating carcass to be towed, however, they become responsible for arranging for its disposal. For this reason, stranding response organizations are reluctant to direct a carcass to be towed until they have a landing site and disposal plan in place. Without prior authorization, outreach and planning, this process can take considerable time. While floating, a whale carcass can become a hazard to navigation, move to an inaccessible area becoming unretrievable, or, if it beaches in a sensitive area (e.g., on shellfish harvesting grounds, blocking a pier, inlet channel) present concerns for public safety or cause property damage.

This project was designed to collaborate with landowners and managers of coastal property along the ocean and Chesapeake Bay shorelines to identify suitable properties and establish agreements for the placement of floating whale carcasses. The goal is to minimize conflicts with private landowners while facilitating the examination and disposal of stranded whales in Virginia. Ultimately, the project aims to foster agreements and understanding among state agencies, public landholders, and the Virginia Stranding Network, with guidance from NOAA Fisheries' Protected Species Division, to streamline the response to and disposal of stranded large whales in Virginia. The development of codified written agreements will help develop an efficient, sustainable system for working with this resource and preventing potential conflict in the future. During the project, a second goal of identifying resource needs for the Stranding Network and its state partners was developed and addressed.

Project team

This project was led by Virginia Marine Resources Commission (MRC) who partnered with the Department of Wildlife Resources (DWR) and the Virginia Aquarium Stranding Response Program (VAQS) with funding and staff assistance from Virginia's Coastal Zone Management Program (CZM). In addition, representatives from the Virginia's Department of Conservation

and Recreation (DCR) State Park and Natural Heritage Divisions, Virginia Department of Transportation, Virginia Institute of Marine Science, US Navy Naval Facilities Engineering Command Mid-Atlantic, NOAA Fisheries Protected Species Branch, City of Virginia Beach Public Works were invited to meet with the team and provide input. The team also had assistance from the Coastal GIS Coordinator at the Virginia Department of Environmental Quality.

Methods & Results

Landing site assessment

A CZM GIS specialist created a private view of the Virginia Coastal Zone Management's Coastal Gems map which highlights open lands for conservation and lists site size, owner, etc. to identify sites. The GIS specialist was also able to overlay bathymetry, roads, and sensitive habitat for us to review.

The state was divided into several zones excluding the barrier islands on the lower eastern shore:

- Southern Oceanfront (Cape Henry to NC line)
- NE oceanfront (Wallops & Assateague Islands)
- Lower western Chesapeake Bay (Cape Henry to Hampton)
- Upper western Bay (Poquoson to Potomac)
- Eastern Bay shoreline (Fisherman Island to MD border)

The primary site criteria were:

- beaches wide enough for using heavy equipment and allowing on-site burial
- decent water depth close to shore (>3' at low mean tide)
- road access (preferring not to access the site through high density neighborhoods)
- few environmental concerns re: human intrusion, beach driving, & burial

Secondary criteria included:

- nearness to medical facilities
- access to nearby parking lots, fresh water and restrooms for the response crew
- closest appropriate landfill if no onsite burial options
- site security (e.g. ability to safely control public access around carcass & heavy equipment)

Each site was categorized by suitability for use as a landing site for a dead whale:

1) full carcass examination with onsite burial
2) full carcass examination with offsite burial
3) partial carcass examination (*e.g.* no or limited heavy equipment access)
4) limited access (*e.g.* external exam only)

The goal of the assessment was to identify at least two sites per region categorized as 1 or 2 from which to choose when an event allowing for landing a floating dead whale occurs.

Assessment results

There were no category 1 or 2 sites in the upper western Bay, although there may be a municipal site in Gloucester Point that can be used. Discussions and coordination with the local municipality and the Virginia Institute of Marine Science (VIMS), a state entity, are planned.

There was one site, Kiptopeke State Park, that met category 1 criteria on the eastern Bay shore. There were concerns brought up by DWR regarding burial of remains not naturally washed ashore on park land obtained with federal Land and Water Conservation funds (LWCF). The Department of Conservation and Recreation which oversees state parks did not feel that it could authorize use of this and a southside Virginia State Park (First Landing), without consultation with the National Park Service, which may take considerable time to resolve. Final resolution of this concern is pending.

The most ideal site identified in the lower western Bay was Craney Island owned and operated by the Army Corps of Engineers (ACOE). VAQS has an excellent collaborative relationship with the ACOE Craney Island managers and has used this site multiple times. Towing to that inland site can be prolonged and expensive, and other options are needed in case resources and conditions are not appropriate for a prolonged tow (*e.g.* incoming severe weather requiring landing site closer to whale location, cost and availability of tow vessel, carcass condition prohibiting long tow distance such as damage to flukes). Joint Expeditionary Base Little Creek was identified as a possible alternative to Craney Island and it could allow full access with on-site burial. Grandview Nature Preserve in Hampton may allow for partial carcass examination, but the water is shallow, beaches are narrow, and there were endangered tiger beetles in some portions of the preserve during recent surveys making vehicular beach access and burial problematic.

Near Cape Henry, First Landing State Park and Joint Expeditionary Base Fort Story both met category 1 criteria. Concerns regarding the use of state parks is addressed above. There were three Navy installations identified in the assessment, Little Creek Amphibious Base, Fort Story, and Dam Neck Naval Training facility but discussions with the Navy's natural resource managers revealed numerous concerns including unexploded ordinance, dangerous training exercises, erosion concerns, and hard scape erosion mitigation that prohibit use of any of these three sites for landing floating whales on the properties.

In the past, the City of Virginia Beach has allowed whales to be landed on public beaches at Cape Story beach, the north end of the oceanfront, and at Little Island Park along the southern oceanfront. All of those areas meet category 1 criteria. Efforts to create a formal agreement for large whale stranding response with the City of Virginia Beach were initiated prior to the end of the project.

Identification of resource limitations

As the project team discussed options for responding to stranded floating dead whales and identifying landing sites, they also discussed other resource limitations and needs, primarily but not exclusively associated with large whale response. The group identified the following needs:

- Discussion and agreement between MRC and DWR as to each entity's authority and role management of and in stranding response for marine mammals and sea turtles
- Agreements between owners/mangers of whale landing sites, MRC and VAQS with accompanying afterhours communication plans for efficient site selection when a whale needs to be landed
- Communications plan for large whale response, specifically, and other stranding response activities, in general, between VAQS and MRC
- List of towing resources including:
    - List of state owned and other vessels capable of towing a large whale, with information on draft, location, cost, and availability for each
    - Tow rigs with high breaking strength line cached in strategic locations
- Information about level of involvement in stranding response by other states to compare to Virginia
- Document to brief state entities, administrators, and legislators on strandings in Virginia and the work of the Virginia Stranding Network
- List of heavy equipment operators willing to work with whale strandings in each identified region, with equipment type, capacity, and cost information
- Training for MRC Marine Patrol and DWR Conservation Police in how to assist the Virginia Stranding Network for multiple scenarios

Stranding network poll

As a means of addressing the need for more information from other states and stranding network organizations, the team developed a poll for stranding response organizations and requested data from NOAA Fisheries on annual number of stranding responses and state involvement in the stranding network activities. The poll questions are included as Appendix A.

Poll results & comparison of Virginia's stranding network with others

The National Marine Mammal Stranding Response Network is divided into regions; Virginia is the southernmost state in the Greater Atlantic Region (GAR), which includes New England and Mid-Atlantic states from Maine to Virginia. In the GAR, organizations conduct stranding response under federal stranding agreements, which effectively serve as permits, or as state and municipal governments, which have authority under section 109(h) of the Marine Mammal Protection Act (MMPA) to handle marine mammals to protect citizen health and safety.

The Virginia Aquarium Stranding Response Program (VAQS) has a stranding agreement for the Commonwealth of Virginia and is therefore authorized to document, recover and examine dead marine mammals; evaluate, transport, disentangle, and euthanize live stranded small cetaceans and pinnipeds; and perform short-term holding and treatment of pinnipeds.

Response to live and dead large whales requires coordination with the NOAA GAR regional stranding coordinator and can include assistance from outside organizations with specialized experience and expertise, especially when critically endangered North Atlantic right whales are involved. VAQS staff are authorized to document large whale entanglements, but there are currently no staff with the training required to conduct whale disentanglement. Complex responses to any species that involve on-water capture and disentanglement or live transport and release also require coordination with NOAA.

Under their respective stranding agreements, stranding network member organizations are authorized to handle all aspects of stranding response for marine mammals that are not considered endangered or threatened. In Virginia, this includes all small cetaceans (dolphins, porpoises, pygmy/dwarf sperm whales, beaked whales). When endangered species are involved, individuals are authorized by NOAA to respond to endangered marine mammal species under existing federal ESA permits, and VAQS holds a state DWR permit to handle threatened and endangered species in the Commonwealth. Stranding agreements in the GAR do not cover manatees, and there is no equivalent federal regulatory entity that issues permits specifically authorizing manatee stranding responses .

Stranding response is handled differently between the GAR and the Atlantic states of the Southeast Region (SER - North Carolina to Georgia). In the SER, state natural resource agencies coordinate statewide sea turtle response, and a combination of state agencies and other entities cover all or part of each state's marine mammal response. In the GAR, a variety of organizations handle the work, with some organizations handling only marine mammals, some only sea turtles, and others responding to both. Some GAR organizations specialize in live response and rehabilitation, especially for sea turtles, while others only respond to dead animals. In both regions, there are some non-profit organizations that only conduct rehabilitation.

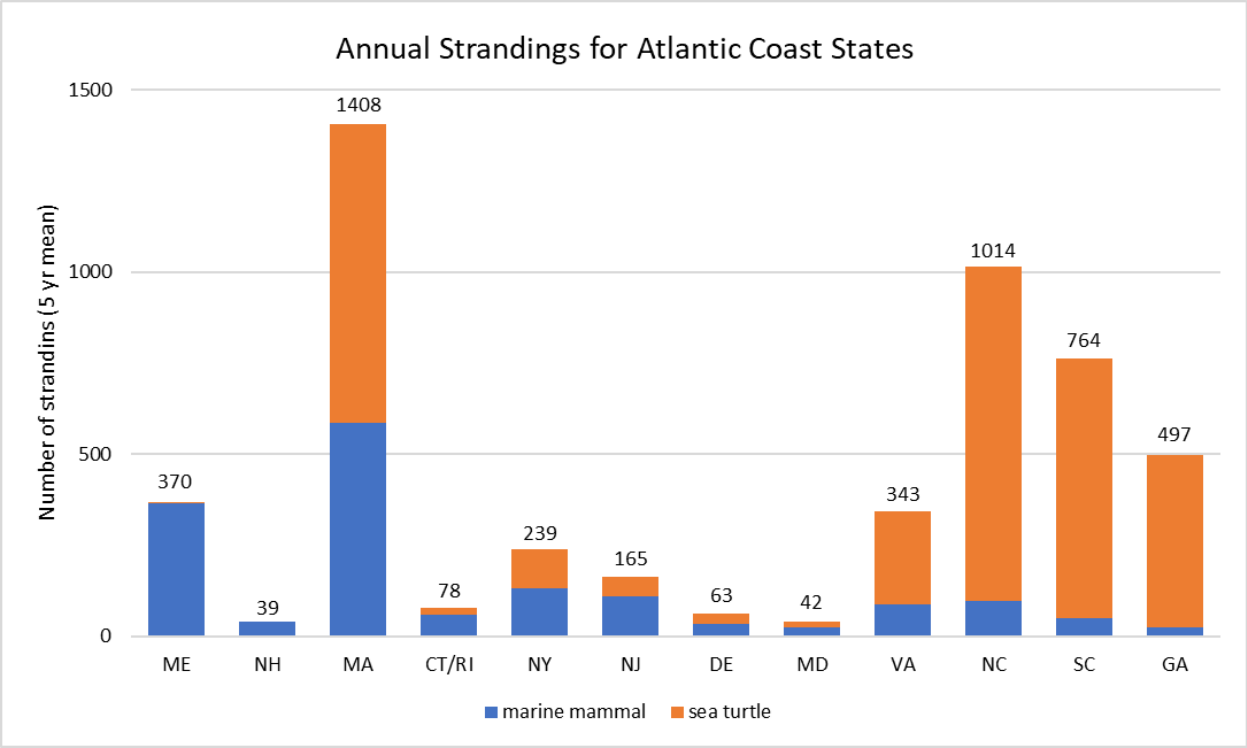


Figure 1: Number of marine mammal and sea turtle strandings by state on the US Atlantic coast from Maine to Georgia. Numbers at the top of each column are 5-year means of combined strandings based on data provided by NOAA Fisheries regional stranding coordinators and from the online STRAND (sea turtle) database for NC-GA.

A comparison of total annual strandings by state calculated for the five-year period from 2019 to 2023 is shown in Figure 1. The state with the highest total number of strandings was Massachusetts (n = 1,408), followed by North Carolina (n = 1,014). Massachusetts has six response organizations and one rehabilitation-only organization, as well as many out-of-state entities that assist with rehabilitation of cold-stunned turtles and seals. Virginia was in the middle with 343 combined annual strandings, but among the top half of states, Virginia is the only state with a single organization responding to both marine mammal and sea turtle strandings.

Large whale strandings by state were slightly different with MA having the highest followed by ME, NY, NJ, and VA (Figure 2). Among individual stranding organizations however, only two organizations in NY and NJ conducted a greater number of large whale responses than VAQS with a five-year mean of eight responses compared to six by VAQS.

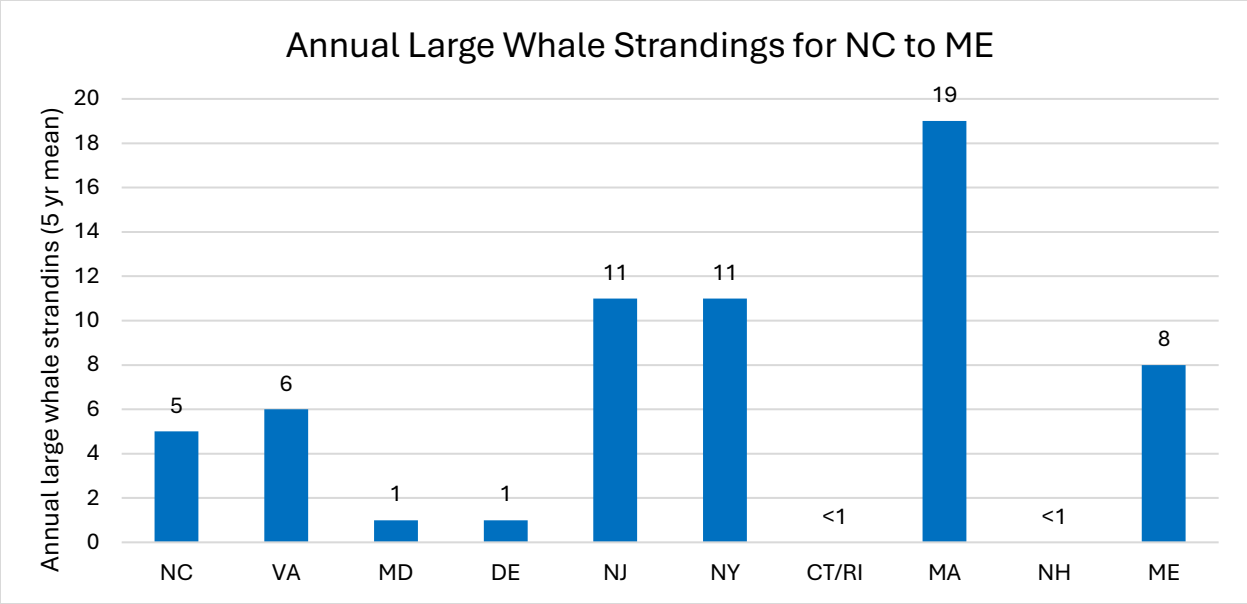


Figure 2: Number of annual large whale strandings by state from NC to ME. Numbers are 5-year means based on data provided by the GAR regional stranding coordinators and UNC Wilmington (NC). Large whale stranding numbers were not available for SC and GA.

Virginia is one of only two states in the GAR where there is a single organization handling all live and dead marine mammal and sea turtle response within a state. The other state is Delaware, which had a five-year average of 63 combined marine mammal and sea turtle strandings and less than one large whale response compared to a mean of 343 total and six large whale events annually in Virginia. A comparison of the number of stranding responses reported by GAR organizations shows that the Virginia Aquarium reported the second highest number of combined strandings in the region (Figure 3). The organization with the highest number of reported strandings was Wellfleet Audubon, which coordinates recovery of cold-stunned sea turtles in Cape Cod. The response to those animals is quite different from what occurs in Virginia, as the focus is on recovering as many animals as quickly as possible during a short seasonal time period. Live turtles are moved to rehabilitation organizations as quickly as possible with Wellfleet Audubon serving as the primary triage center. Much of the initial cold stun sea turtle rehabilitation work is conducted by the New England Aquarium, which does not conduct significant field response, thus has a low number in Figure 3, but handles hundreds of sea turtles each year. Once live cold stunned turtles are assessed, many are moved to other organizations for long-term rehabilitation.

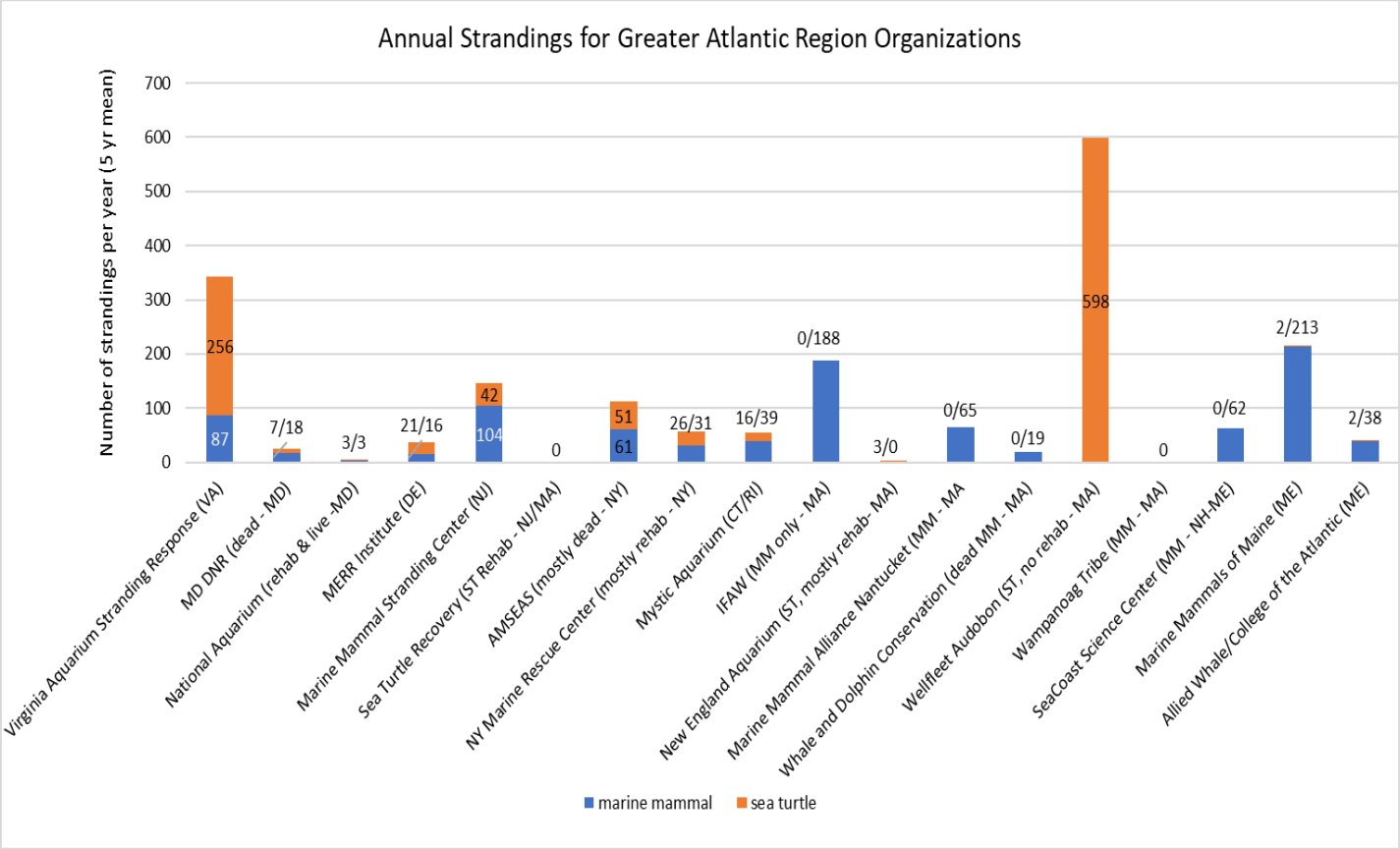


Figure 3: Number of strandings reported by individual organizations in the Greater Atlantic Region NOAA Fisheries (GAR). Numbers are 5-year means based on data provided by NOAA Fisheries GAR region stranding coordinators. Where a forward slash separates two numbers at the top of a column, marine mammal strandings listed first followed by sea turtle strandings.

The two states neighboring Virginia, Maryland and North Carolina, manage stranding responses differently, both from Virginia and from each other, due to their placement in distinct NOAA Fisheries regions. In Maryland, two separate organizations handle stranding response. The state's Department of Natural Resources (DNR) has one permanent dedicated stranding staff member who responds to dead marine mammals and sea turtles and manages the state stranding database. Total MD strandings are usually less than 50 annually and less than one large whale stranding per year from 2019 to 2023. Additional staff, seasonal assistants, and interns assist with response as available. The National Aquarium, a non-profit organization, responds to live strandings and conducts rehabilitation on sea turtles and seals that strand in Maryland, as well as accepting transfers from other states.

In North Carolina, annual marine mammal strandings are slightly higher than, but similar to Virginia, with a five-year annual mean of 98 marine mammals and five large whale strandings. Marine mammal stranding response is divided within the state by region, and there are six

different organizations involved in marine mammal response. The NC Division of Marine Fisheries and University of North Carolina Wilmington (state universities) employ staff supported by grants from the Prescott Marine Mammal Stranding Grant Program. Veterinarians and veterinary residents at NC State's Center for Marine Sciences and Technology (CMAST) assist with live marine mammal and large whale events as well as conduct necropsies on marine mammals and sea turtles. CMAST also provides veterinary assistance for live stranded sea turtles. Virginia's strandings are handled more similarly to North Carolina's approach, where numerous state departments and state supported entities participate in stranding responses, however, in Virginia, there are neither state funded positions dedicated to stranding response nor state entities which apply for grant funds to assist with stranding response as there are in North Carolina.

From a poll of organizations in the GAR, the only non-profit organizations that currently receive non-competitive state support are in New York. There was no response from organizations in Delaware or New Jersey, and only partial response from organizations in Connecticut/Rhode Island, Massachusetts, and Maine. Maryland is the only state in the GAR that employs dedicated stranding response staff, but some other states provide in-kind support to non-profit stranding response groups in the form of space to conduct necropsies, vessel support, and staff assistance for documenting strandings and examining animals. No GAR organizations other than Virginia Aquarium indicated that they received funding from competitive state grant programs. In the SER, all Atlantic coast states use state agency staff and resources to manage sea turtle stranding and nest monitoring activities, and several states use a combination of state and non-profit/academic entities to conduct marine mammal stranding response.

Discussion & Summary

While the team felt that the project went very well during initial meetings and discussions, codifying verbal discussions into permanent agreements has been harder to accomplish. Members of the group that met twice were very supportive of assisting with identifying land that may be appropriate for landing and examining stranded whales by helping to identify potential concerns related to endangered species and protected habitat (*e.g.* tiger beetles), land use restrictions, and both water and vehicular access. Though not specifically a goal of the project, members of the project team sought official buy-in from several entities regarding the landing of floating dead whales on properties without success. When attempts to formalize long term agreements to land whales at specific sites were initiated, however, legal and logistical roadblocks were identified or lack of response and understanding by administrators who were not in initial meetings occurred.

Despite the challenges in finalizing agreements, the project accomplished the original goal and several ancillary tasks. The team developed several draft memorandums of understanding (MOU; Appendix B) for future completion in a follow up project (FY 24 Task 11 – NOAA Award NA24NOS419) that will be headed by DWR. Resource limitations regarding towing rigs and training documents were completely and partially addressed respectively. Draft documents for training on-water assets at MRC and DWR (Appendix C) will be completed and reviewed for completion in the new project. Finally, a white paper explaining stranding response for administrators and legislators who have no knowledge of the Virginia stranding network was drafted to assist with education and outreach while seeking support for stranding network activities (Appendix D). The challenges the team faced when trying to develop written agreements with state entities suggests that a considerable amount of explanation may be required before state assets will be available for stranding response activities, and the information in the draft document will be useful in that endeavor.

The future of large whale response and of all marine mammal and sea turtle stranding response in the state may be changing and future efforts to complete this project may require changes to the original goals. When the project began, the VAQS program lead expressed concerns about the program's capacity to sustain the level of response that has historically been conducted. A number of factors contributed to these concerns. Since the project started, VAQS has decided that a lack of resources requires them to temporarily limit their full response area to the City of Virginia Beach. The team will continue to field calls from the entire Commonwealth and plans to respond to live animal events, large whales, and known cases of human interaction outside of city limits. Although this change has been presented as a temporary emergency measure, the lack of sustainable funding coupled with increasing costs and workload may permanently affect the VAQS program, and thus, management of Virginia's Stranding Response Networks. Although the City of Virginia Beach has the greatest frequency of strandings among coastal cities and counties in Virginia, without coverage throughout most of the Commonwealth, state agencies such as MRC and DWR may need to provide resources to manage the repercussions of having no response organization available for the majority of the state. It is unclear what those repercussions may be, but the new project addressing completion of the Large Whale MOU, may need to shift focus in order to address this new reality.

Appendices

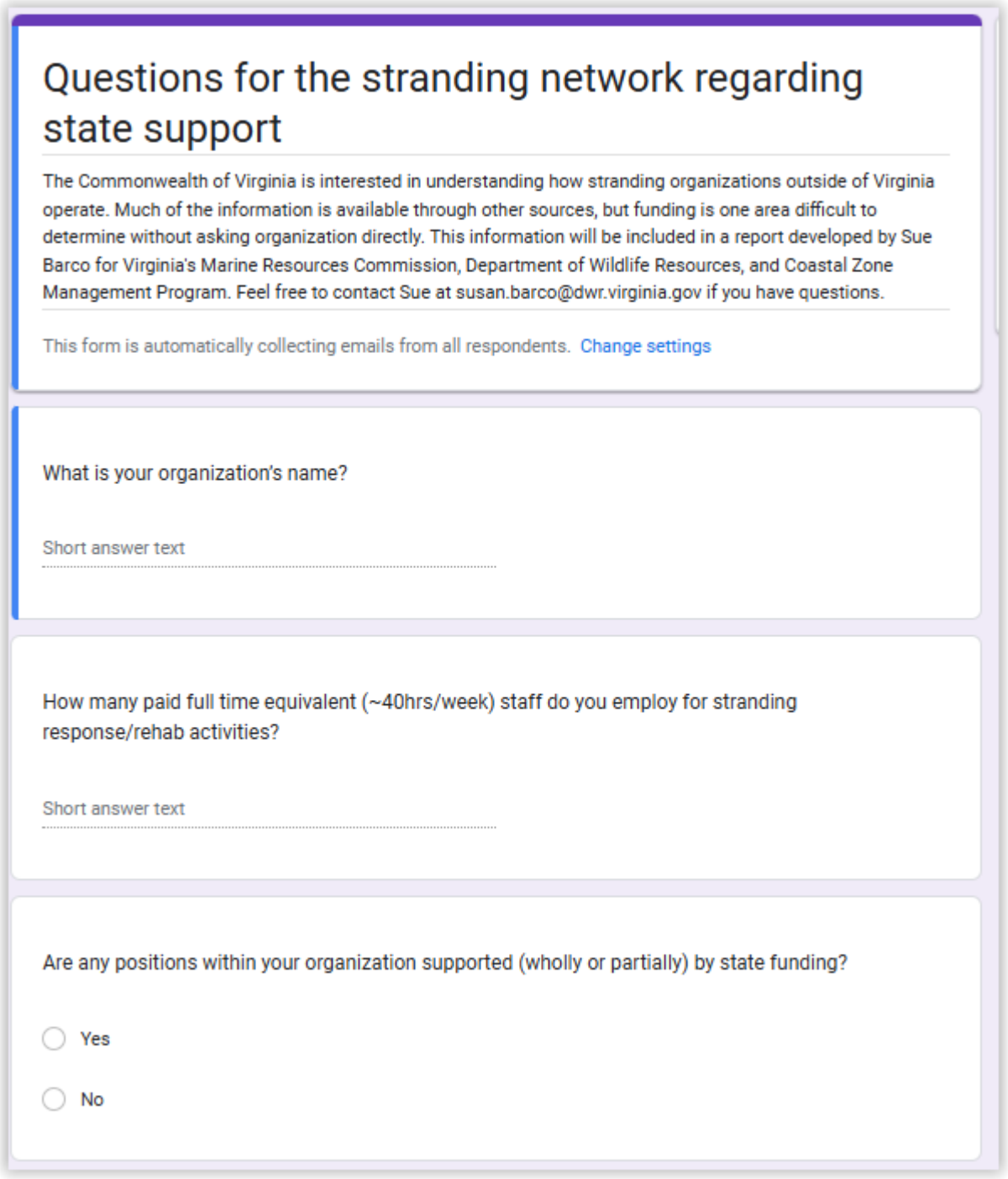
A - Stranding Network Poll questions

B - Draft MOUs

C – Draft training document for state field agents, fishery, and conservation law enforcement

D – Draft White Paper: Understanding Marine Mammal and Sea Turtle Stranding Response in Virginia

Appendix A – Poll developed for stranding network organizations



Questions for the stranding network regarding state support

The Commonwealth of Virginia is interested in understanding how stranding organizations outside of Virginia operate. Much of the information is available through other sources, but funding is one area difficult to determine without asking organization directly. This information will be included in a report developed by Sue Barco for Virginia's Marine Resources Commission, Department of Wildlife Resources, and Coastal Zone Management Program. Feel free to contact Sue at susan.barco@dwr.virginia.gov if you have questions.

This form is automatically collecting emails from all respondents. Change settings

What is your organization's name?

Short answer text

How many paid full time equivalent (~40hrs/week) staff do you employ for stranding response/rehab activities?

Short answer text

Are any positions within your organization supported (wholly or partially) by state funding?

- Yes
- No

Is your organization a:

- ○ Non-profit organization
- ○ State agency/department
- ○ Federal agency
- ○ Native American Tribe
- ○ Other

If you chose the first or last option of the question above, please elaborate, if not skip to the next question.

If you chose NON-PROFIT, is the sole mission of the organization stranding response or is your work part of a broader mission (for example a zoo, aquarium or academic institution).

If you answered OTHER, please elaborate.

Long answer text

Does your organization receive operational non-competitive funding for stranding response from the state in which you primarily respond? If yes, approximately how much per year for the past 3 years did your organization receive?

- ○ Less than $25,000/year
- ○ $25-50,000/year
- ○ $50-100,000/year
- ○ Greater than $100,000/year
- ○ None

If you answered yes to the question above, please indicate how the funding is dedicated between sea turtles and marine mammals and between field response/data management and rescue/rehab. Choose all that apply.

- [ ] There are no constraints, we decide how to spend the funds
- [ ] All of the support is for marine mammals
- [ ] All of the support is for sea turtles
- [ ] The support is split between marine mammals and sea turtles
- [ ] All of the support is for field response and/or data management and reporting
- [ ] All of the support is for rescue/rehab
- [ ] Support for stranding response is tied to other research/educational projects
- [ ] None of these options apply

Does your organization receive competitive operational grant or competitive contractual funding for stranding response from the state in which you primarily respond? If yes, approximately how much per year for the past 3 years did your organization receive?

- ( ) Less than $25,000/year
- ( ) $25-50,000/year
- ( ) $50-100,000/year
- ( ) Greater than $100,000/year
- ( ) None

Do you receive in-kind support or other resources from your state?

If yes, please provide a brief description in the next section.

Appendix B – Draft MOUs developed for the project

Draft Memorandum of Understanding

Between the Virginia Marine Resources Commission (VMRC), the Department of Wildlife Resources (DWR), and the Virginia Aquarium & Marine Science Center Stranding Response Program (VAQS)

Purpose

This Memorandum of Understanding (MOU) establishes an agreement between the Virginia Marine Resources Commission (VMRC), the Department of Wildlife Resources (DWR), and the Virginia Aquarium & Marine Science Center Stranding Response Program (VAQS) to ensure effective coordination and response to marine mammal strandings in Virginia, with particular attention to proper management, public safety, and conservation efforts.

WHEREAS, the Virginia Marine Resources Commission (VMRC) is responsible for managing the Commonwealth's marine and aquatic resources and ensuring their sustainable use, including providing on-water support for stranding responses;

WHEREAS, the Virginia Aquarium Stranding Response Program (VAQS) is Virginia's only National Marine Mammal Stranding Response Network member, and as such, is tasked with the response to stranded marine mammals, including the performance of necropsies;

WHEREAS, the Department of Wildlife Resources (DWR) serves as the lead regulatory agency for protected fish and wildlife species in Virginia, overseeing compliance with regulations related to marine mammal strandings;

WHEREAS, the Commonwealth of Virginia holds a Section 6 Cooperative Agreement with NOAA, supporting collaborative conservation efforts and actions for marine mammals and other protected species in Virginia;

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1. Coordination of Stranding Response Efforts

1.1 Lead Agency Roles:

- **VAQS** will serve as the primary agency responsible for stranding response, including recovery, necropsy, and disposal of marine mammals, and data keeping.

- **VMRC** will provide support by land and water through the law enforcement division and ensure regulatory oversite and compliance for potential impacts to marine resources and habitats.
- **DWR** will provide regulatory oversight and assist in ensuring compliance with all applicable wildlife protection laws.

1.2 Communication Protocols:

- Each agency will designate a primary point of contact (POC) for stranding events.
- All parties agree to maintain clear and consistent communication before, during, and after any stranding response event, utilizing phone, email, and in-person meetings as necessary.
- Pre-event briefings will be conducted as needed to outline operational plans, safety protocols, and responsibilities.
- **VMRC** and **DWR** will report any stranded or sighted marine mammals to **VAQS**.

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2. Responsibilities of the Virginia Marine Resources Commission (VMRC)

2.1 Marine Resource Expertise:

- Provide expertise on marine ecosystems and ensure that stranding response activities align with the sustainable management of marine resources.

2.2 Permit Issuance:

- Issue permits as required for activities involving marine mammal strandings within VMRC's jurisdiction.

2.3 Land and Water Support:

- Provide land and water support through the Law Enforcement Division to assist with stranding response activities.

2.4 Stakeholder Coordination:

- Collaborate with local governments, federal agencies, and other stakeholders to support effective stranding response efforts.

2.5 On-Water Support:

- **VMRC** will provide on-water support, public safety, and enforcement during stranding events.

2.6 Coordination with Signatories:

- **VMRC** will collaborate with **VAQS**, **DCR**, and **DWR** to ensure effective coordination and support for necropsy and response activities.

2.7 Regulatory Oversight:

- **VMRC** acknowledges its role as an enforcement entity of the Marine Mammal Protection Act (MMPA) for NOAA and as a cooperating stranding response partner in Virginia. **VMRC** will support response efforts in this capacity.

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3. Responsibilities of the Department of Wildlife Resources (DWR)

3.1 Regulatory Oversight:

- DWR, as the lead regulatory agency for protected fish and wildlife species in Virginia, provides permits to **VAQS** for stranding response activities in the state.

3.2 Coordination with Other Agencies:

- When needed, DWR may provide assistance to **VAQS** with coordinating with other agencies to procure the needed resources during a large whale event.

3.3 On-Water Support:

- **DWR** will assist with on-water support, public safety, and enforcement during the stranding event.

3.4 Permission to Stage or Use DWR as Temporary Emergency Landing Sites:

- **DWR** grants permission to **VAQS** to use **DWR** beaches as light equipment staging areas and temporary whale landing sites in situations when the use of heavy equipment and significant ground disturbance can be avoided.
- Examples of significant ground disturbance include: whale burials, destruction of vegetation or dunes, or the creation of deep pits or ruts on beaches or in marshes.

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4. Responsibilities of the Virginia Aquarium & Marine Science Center Stranding Response Program (VAQS)

4.1 Operational Leadership:

- Serve as the primary responder for all marine mammal strandings, including recovery, necropsy, and disposal.

4.2 Data Collection and Reporting:

- Collect and maintain detailed records of stranding events, including biological samples and environmental data, and share findings with **VMRC** and **DWR**.

4.3 Public Outreach and Education:

- Lead public education efforts during stranding events to enhance community awareness of marine mammal conservation.

4.4 Site Restoration:

- Ensure that all stranding response sites are fully restored following operations, including the removal of debris and equipment.

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5. Mutual Commitments

5.1 All parties agree to work collaboratively to ensure effective and efficient responses to marine mammal strandings.
5.2 Each agency commits to sharing resources, expertise, and information to improve the overall stranding response network in Virginia.
5.3 The parties will jointly participate in public outreach and education efforts to raise awareness about marine mammal conservation and stranding response.

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6. Coordination with NOAA

The parties acknowledge that **VAQS** and **VMRC** operate under the authority of the Marine Mammal Protection Act (MMPA) as overseen by NOAA and agree to coordinate their activities accordingly. Additionally, the Commonwealth of Virginia holds a Section 6 Cooperative Agreement with NOAA, which facilitates collaborative conservation and management efforts for marine mammals and other protected species in the state.

Draft Memorandum of Understanding

Between the Virginia Aquarium Stranding Response Program (VAQS), the City of Virginia Beach, and the Department of Wildlife Resources (DWR)

Purpose
This Memorandum of Understanding (MOU) establishes an agreement between the Virginia Aquarium Stranding Response Program (VAQS), the City of Virginia Beach, and the Department of Wildlife Resources (DWR) for the use of City-owned beaches for landing and performing necropsies on stranded whales, as well as ensuring proper site management, coordination, and restoration.

WHEREAS, the Virginia Aquarium Stranding Response Program (VAQS) is Virginia's only National Marine Mammal Stranding Response Network member, and as such, is tasked with the response to stranded marine mammals, including the performance of necropsies;
WHEREAS, the Department of Wildlife Resources (DWR) serves as the lead regulatory agency for protected fish and wildlife species in Virginia, overseeing compliance with regulations related to marine mammal strandings;
WHEREAS, the City of Virginia Beach owns public beaches that are essential for responding to stranded marine mammals and ensuring proper site management during such events;

1. Use of Beaches

1.1. **Designated Sites:**
VAQS is granted permission to use the following City-owned beaches for the purpose of landing and attending to stranded marine mammals:

- Cape Story near the Oak Street Ramp
- The North End of Virginia Beach Oceanfront
- Little Island Park

1.2. **Duration of Use:**
VAQS agrees to utilize the designated beach areas for no more than 72 hours from the time of landing to the full restoration of the site, unless an extension is approved by the City of Virginia Beach.

1.3. **Coordination and Communication:**

- VAQS will designate a primary point of contact (POC) responsible for coordinating all activities on-site and liaising with the City of Virginia Beach representatives and DWR.
- The City of Virginia Beach will designate a POC to ensure timely communication and support for logistical needs.
- All parties agree to maintain clear and consistent communication before, during, and after any stranding response event, utilizing phone, email, and in-person meetings as necessary.
- A pre-event briefing will be conducted to outline operational plans, safety protocols, and site restoration procedures.

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2. Site Management and Responsibilities

2.1. **VAQS Responsibilities:**

- Provide trained volunteers and staff for on-site education, crowd management, and coordination during response activities.
- Ensure all necropsy and disposal operations are conducted with minimal disruption to the surrounding environment and community.
- Fully restore the site to its original condition following completion of operations, including removing any debris or equipment.

2.2. **City of Virginia Beach Responsibilities:**

- Facilitate access to the designated beach sites for VAQS personnel and equipment.
- Support VAQS with logistical assistance, such as waste disposal, temporary barriers, and large equipment as needed.

2.3. **DWR Responsibilities:**

- Assist VAQS and the City of Virginia Beach with coordination of any state-level resources or permits required for stranding response activities.
- Support public outreach and education efforts, emphasizing wildlife conservation and marine mammal safety.

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3. Mutual Commitments

3.1. VAQS will respond to any beached or stranded whales within the City of Virginia Beach's jurisdiction, providing necessary expertise in disposal, necropsy, and public education.

3.2. All parties agree to collaborate on public outreach and education efforts to raise awareness about marine mammal stranding events and conservation.

3.3. DWR will provide additional support to enhance these efforts through its statewide network and conservation programs.

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4. Term of Agreement

This MOU shall remain in effect for ten (10) years from the date of signing, with the option to renew upon mutual agreement. Any party may terminate the agreement with 30 days' written notice.

5. Amendment Clause

This MOU may be amended by written agreement signed by all parties.

Signatures

For the Virginia Aquarium Stranding Response Program (VAQS):

[Name]
[Title]
[Date]

For the City of Virginia Beach:

[Name]
[Title]
[Date]

For the Department of Wildlife Resources (DWR):

[Name]
[Title]
[Date]

Draft MEMORANDUM OF Understanding

Between:

- **Department of Conservation and Recreation (DCR)**
- **Marine Resources Commission (MRC)**
- **Virginia Aquarium Stranding Response Program (VAQS)**
- **Department of Wildlife Resources (DWR)**

WHEREAS, the Department of Conservation and Recreation (DCR) owns and manages the beaches at Kiptopeke State Park and First Landing State Park and is responsible for the preservation and maintenance of these sites;

WHEREAS, the Marine Resources Commission (MRC) is responsible for the enforcement and management of marine resources and provides on-water support for stranding responses;

WHEREAS, the Virginia Aquarium Stranding Response Program (VAQS) is Virginia's only National Marine Mammal Stranding Response Network member, and as such, is tasked with the response to stranded marine mammals, including the performance of necropsies;

WHEREAS, the Department of Wildlife Resources (DWR) serves as the lead regulatory agency for protected fish and wildlife species in Virginia, overseeing compliance with regulations related to marine mammal strandings;

WHEREAS, the parties desire to establish a collaborative framework for VAQS to use the beaches at Kiptopeke State Park and First Landing State Park for landing and performing necropsies on stranded whales, while ensuring proper management, coordination, and restoration of the sites;

NOW, THEREFORE, the parties agree as follows:

1. Responsibilities of the Virginia Aquarium Stranding Response Program:

1.1. **Use of Beaches:** VAQS is granted permission to use the beaches at Kiptopeke State Park and First Landing State Park for landing, performing necropsies, and burying stranded whales.

1.2. **Duration of Use:** VAQS agrees to utilize the beach for no more than 72 hours from the time of landing to the full restoration of the site, unless otherwise agreed upon with the DCR.

1.3. **Site Management:** VAQS will provide volunteers and staff for on-site education, site coordination, and crowd management during the event.

1.4. **Coordination with Signatories:** VAQS will coordinate with the signatories on all media communications related to the stranding response event.

1.5. **Compliance with Regulations:** VAQS acknowledges its operation under the authority of NOAA as a National Marine Mammal Stranding Response Network member.

1.6 **Stranding Event Debrief:** VAQS agrees to participate in a stranding event debriefing with DCR administrators and park personnel and other relevant agencies following each large whale stranding response event. Debriefs will be initiated by DCR.

2. Responsibilities of the Department of Conservation and Recreation (DCR):

2.1. **Permission for Beach Use:** DCR grants permission to VAQS to use the beaches at Kiptopeke State Park and First Landing State Park for the purposes outlined in this MOA.

2.2. **On-Site Burial:** DCR authorizes the burial of whales on-site, as necessary.

2.3. **Equipment Access:** DCR will permit access for heavy construction equipment (e.g. excavator, front end loader, backhoe, and trailers for transporting equipment) required for the necropsy, burial, and site restoration, in coordination with on-site staff.

2.4 **Stranding Event Debrief:** VAQS agrees to initiate and coordinate a debriefing with , DCR administrators, and park personnel, following a large whale stranding event to review process, logistics, and coordination.. The debrief will occur ideally within two months of the event, dependent on the availability of all parties.

3. Responsibilities of the Marine Resources Commission (MRC):

3.1. **On-Water Support:** MRC will provide on-water support, public safety, and enforcement during the stranding event.

3.2. **Coordination with Signatories:** MRC will collaborate with VAQS, DCR, and DWR to ensure effective coordination and support for the necropsy and response activities.

3.3. **Regulatory Oversight:** MRC acknowledges its role as an enforcement entity of the MMPA for NOAA and as a cooperating stranding response partner in Virginia and will support the response efforts in this capacity.

4. Responsibilities of the Department of Wildlife Resources (DWR):

4.1. **Regulatory Oversight:** DWR, as the lead regulatory agency for protected fish and wildlife species in Virginia, provides permits to VAQS for stranding response activities in the state.

4.2. **Coordination with Other Agencies:** When needed, DWR may provide assistance to VAQS with coordinating with the other agencies to procure the needed resources during a large whale event.

4.3. **On-Water Support:** DWR will assist with on-water support, public safety, and enforcement during the stranding event.

4.4. **Permission to Stage or Use DWR as Temporary Emergency Landing Sites:** DWR grants permission to VAQS to use DWR beaches as light equipment staging areas and temporary whale landing sites in situations when the use of heavy equipment and significant ground disturbance can be avoided. Examples of significant ground disturbance include: whale burials, destruction of vegetation or dunes, or the creation of deep pits or ruts on beaches or in marshes.

5. General Provisions:

5.1. **Coordination with NOAA:** The parties acknowledge that VAQS and MRC operate under the authority of the MMPA as overseen by NOAA and agree to coordinate their activities accordingly. Additionally, the Commonwealth of Virginia holds a Section 6 Cooperative Agreement with NOAA, which facilitates collaborative conservation and management efforts for marine mammals and other protected species in the state.

5.2. **Amendments:** Any amendments to this MOA must be made in writing and agreed upon by all signatories.

5.3. **Duration:** This MOA shall remain in effect until terminated by mutual agreement of the parties or superseded by a new agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Memorandum of Agreement as of the date set forth below.

Department of Conservation and Recreation (DCR)

Signature: _____
Name: _____
Title: _____
Date: _____

Marine Resources Commission (MRC)

Signature: _____
Name: _____
Title: _____
Date: _____

Virginia Aquarium Stranding Response Program

Signature: _____
Name: _____
Title: _____
Date: _____

Department of Wildlife Resources (DWR)

Signature: _____
Name: _____
Title: _____
Date: _____

Draft

Stranding Response Guidance for state entities

Version 1.1 / August 2024

Note this document has not been approved by the Virginia Aquarium Stranding Response Program and is a draft for use as an example of future final guidance

[insert images of MRC vessels & vehicles with stranded critters]

1. Table of Contents

2. Introduction/Training Materials

[Sections 2-4 are meant to be delivered a one or a series of trainings with this document serving as a reference following training]

Authority & Communication

All marine mammals (which, in Virginia, includes cetaceans - whales, dolphins, porpoises, as well as manatees and seals) are protected by the federal Marine Mammal Protection Act (MMPA). Marine protected species in Virginia, include endangered and threatened (under the federal and state Endangered Species Acts) fishes, all species of sea turtles, and several baleen whales (e.g. North Atlantic right whales, fin and sei whales).

Authority to respond to stranded marine mammals is regulated by NOAA Fisheries and Virginia is the southernmost state in the Greater Atlantic Region (GAR) of NOAA. Authority to respond to sea turtles is split between NOAA fisheries (in water activities) and the US. Fish and Wildlife Service (FWS; activities on land, such as beach stranded animals, rehabilitation, nesting, and managed care).

MRC officers have authority to respond to marine mammal stranding events, except intervention of live entangled large whales, under the 109h provision of the MMPA. Because of human and whale safety concerns, additional training, experience and permitting is required for any intervention beyond documentation of entangled large whales. ***Because there are reporting and documentation requirements for every response, MRC should coordinate any marine mammal stranding response with the designated permit holder for Virginia, currently the Virginia Aquarium Stranding response Program (VAQS - 757.385.7575.***

[ADD Sea Turtle Stranding legal authority – waiting for response from Becky]

Background

i. Definition of a stranding

A stranding occurs when a sea turtle or marine mammal (whale, dolphin, porpoise, seal, or manatee):

- washes ashore dead
- is found injured or diseased and unable to return to its natural habitat
- is deceased and free-floating
- is dead or alive and entangled, impinged or entrapped in gear, debris, or man-made structures
- is out of its natural habitat, spatially or temporally

ii. Questions to answer when a stranding is reported

- Is it a marine mammal or sea turtle?
- Is it actually stranded?
- Is it alive or dead?
- Is it safely accessible and recoverable and are there logistic constraints for access?

While usually well meaning, citizens are often uninformed or misinformed, resulting in reports of stranded marine mammals and sea turtles that do not, in fact, involve those species groups and reports of stranded animals that are behaving normally and are not stranded or in need of intervention. As the state's on-water eyes and ears in the marine environment, the MRC marine patrol is a valuable resource to the Virginia Marine Mammal and Sea Turtle Stranding Networks in verifying and documenting on-water stranding events and for providing law enforcement presence when appropriate

Is it a marine mammal or sea turtle?

Sea turtles have front and rear flippers which only have one or two claws, and they cannot retract into their shells. There are turtles that can be found in Bay and ocean waters that are not sea turtles (for example - snapping turtles, diamondback terrapins) and those species all have 5 claws on each foot. Generally, sea turtles are larger than most other water turtles in the region, but counting the number of claws on the limbs is the easiest way to determine if a turtle is a sea turtle. If there are 5 toes with claws at the end of each, it is not a sea turtle.

[insert images and diagram of flipper versus water turtle forelimb]

Cetaceans (whales, dolphins, porpoises) and manatees are obviously not fishes as all have nostrils (manatee) or 1 or 2 blowholes on the top of the head (instead of gills) and no hind limbs. This does not mean that the general public won't mistake a large fish (especially sturgeon, sharks, ocean sunfish), shark, or ray as a cetacean or manatee. Partially submerged debris, storm water effluent, and floating logs have all been reported as stranded marine mammals.

Other species, however, can be mistaken for seals. Seals do not have ears or tails that extend beyond the rear appendages, and the limbs are short and webbed between the digits. Muskrats, river otters, nutria, and swimming deer have all been reported to the network as stranded seals. Seals in Virginia will be greater than ~3' long and do not 'walk' on land but instead use their front flippers to drag or 'inchworm' their bodies forward. In water, seals will often have a head out posture called 'bottling,' where they bob vertically in the water, with the head out. In this posture it is easy to see that they have no external ear flaps (pinnae). This will not be the case for river otters, muskrats and nutria.

Is it stranded?

On land - If a whale, dolphin, porpoise, or manatee is on land in Virginia, it should be considered stranded.

This is not always the case with other species. Adult female sea turtles come ashore to dig nests and lay eggs, usually at night. They leave a track in the sand that looks like a single large tire track and is called a 'crawl.' One species, the Kemp's ridley, nests during the day, though this species rarely nests in Virginia. Nesting female sea turtles will either be digging/covering up the nest, moving away from or toward the water, or laying eggs, sometimes resting between activities. Nesting turtles should be reported and documented from a distance, but otherwise left alone. Nesting season in Virginia begins in May and nests have been laid into September. Outside of this timeframe, large sea turtles on land are most likely stranded.

[image of nesting turtle with crawl]

Seals naturally 'haul out' of the water to rest. There are several communal haul out locations in Virginia where seals are known to aggregate on land.

These locations may move over time and additional locations may appear. Seals, especially juveniles, often haul-out singly on beaches, docks, boat swim platforms, and other structures with easy access to water. Whenever possible hauled out seals should not be closely approached or disturbed without prior assessment and consultation. Seals are generally in the region from late fall through late spring. Hauled out seals observed in summer and early fall may require monitoring.

Resting seals often lay on their sides with raised heads and rear flippers. This posture is referred to as the 'banana position.' The posture is normal and generally indicates a healthy, resting seal, though well-meaning citizens often interpret the behavior as indicating injury to the flipper(s). When a seal on land and is hunched on its belly in an 'S-shape' or is flat on the ground, it may not be healthy and should be documented and monitored.

[image of banana posture seal compared to abnormal posture(s)]

In water - Most in-water reports of live, stranded animals either involve:
1) suspected entanglement/hooking
2) perceived inability to dive (sea turtles)
3) listlessness or distress
4) out of habitat (temporally or spatially) situations

Though unusual, dolphins, seals and manatees have all been reported in fresh or very low salinity water and all can tolerate short-term freshwater exposure. Manatees can exist indefinitely in fresh water as long as water temperatures remain above 65 °F and food is available. Dolphins and seals will eventually exhibit skin and or eye lesions from prolonged, constant, freshwater exposure. Unless there is obvious injury or distress, or conditions that warrant immediate intervention, out-of-habitat situations start with monitoring and only when days to weeks of documentation have occurred is intervention considered. These situations can be extremely taxing on the stranding network, especially if concerned citizens demand intervention when it is not warranted.

Is it alive or dead?

Dead and decomposing animals that are either expelling gas (from decomposition) or whose intestines are floating near or around the carcass have been reported as breathing or live and entangled respectively. Odor is often the first clue that the report is inaccurate.

In late fall, sea turtles that fail to migrate south before water temperatures drop can suffer from cold-stunning and wash ashore alive but unresponsive. Under these circumstances, responders are usually directed to treat the turtles as alive until they can be warmed and evaluated by experts.

Is it safe to respond?

Human safety is the greatest concern when conducting any stranding response and is especially important when on-water or in a remote access area. Animal safety is also very important when live animals are involved. Improper animal handling can cause undue injury, stress, or death. **Do not intervene without assessment, documentation, and consultation.**

Some general safety concerns:

- Responders do not enter water above the knee with animals without a full assessment, safety gear, back up, and extreme caution
- Responders never enter the water if there is a possibility of entangling gear associated with the animal
- Live animals are unaware that humans are 'trying to help' and are very strong, even when close to death
- There are some diseases and parasites the marine mammals can pass to humans (e.g. zoonotic). Proper PPE is important, and immunocompromised people should be especially cautious

3. Communication & Reporting - VAQS hotline 757.385.7575

Communication

MRC, as a law enforcement entity, has authority to protect human safety and enforce regulations related to the MMPA and commercial fishing. When available, MRC resources, including trained personnel, vessels, and vehicles are invaluable as a cooperating

stranding response entity, especially on the water and during beach-based high-profile events. For a number of reasons including efficiency, safety, public perception and legal concerns, is important that stranding cooperators in Virginia operate with the knowledge and coordination of VAQS, the only fully authorized state stranding response entity.

Live and dead stranding response and reporting in Virginia is managed by the Virginia Aquarium's Stranding Response Program (VAQS). As such, VAQS should be aware of and coordinate MRC responses to eliminate duplicative effort and ensure consistency in reporting and documentation.

There are 3 basic ways MRC may become involved in a stranding response:

1) MRC may be contacted directly by VAQS staff seeking assistance in verifying or responding to an event that has been reported via the stranding hotline.
2) MRC may have an event reported to them through MRC dispatch or other means.
3) Officers may witness an event in the course of on-water operations.
4)

If the 1st scenario occurs, communications with VAQS will be established, and officers can proceed to act as instructed within their safety limits. If the situation changes, VAQS should be notified prior to additional action, or as soon as it is safe to do so.

If the 2nd scenario occurs, MRC officers should consult with VAQS prior to deploying.

If the 3rd scenario occurs, MRC officers should consult with VAQS as soon as it is safe to do so and before intervention.

Neither VAQS nor MRC have the authority to disentangle live animals from commercial fishing gear without prior consultation with NOAA Fisheries. Gear owners with incidental take permits are the only people authorized to interfere without prior authorization and they are strongly encouraged to work with experienced stranding network personnel who have experience maintaining human and animal safety in such situations. Currently (in summer 2024) Virginia does not have staff trained and authorized to disentangle large whales.

Neither VAQS nor MRC have the authority to herd, capture, or harass live marine mammals in the water without prior consultation with NOAA Fisheries. Intervening without prior consultation is a violation of the MMPA and the VAQS Stranding Agreement.

Reporting

VAQS records all reports of suspected stranding events and verifies reports of strandings as soon as feasible. Verification can be conducted remotely when the reporting citizen can

provide good quality images or video, but often this is not possible, especially when on the water. Verification, followed by assessment of the animal(s), location and response needed, is a large part of stranding response and MRC can be hugely helpful in assisting with verification and assessment, especially with vessel-based operations.

4. Definitions

- **Marine mammal** – species groups that spend most or all of their lives in the marine environment. All marine mammals in the United States are protected by the Marine Mammal Protection Act (MMPA) and receive additional protection under the Endangered Species Act (ESA). Species and species groups that are considered marine mammals include:
    - **Cetacean** – whales, dolphins, porpoises. These animals are fully marine and do not normally come ashore. There are two major divisions, toothed cetaceans and baleen whales.
        - **Baleen whales** also called **mysticetes** (e.g. North Atlantic right whale, humpback, fin, minke, and sei whales). These are filter feeding, relatively large animals that tend to occur in Virginia in cooler weather months.
        - **Toothed whales** also called **odontocetes** (e.g. sperm, pilot, and beaked whales as well as dolphins and porpoises). They have teeth to grab and hold prey and/or for use in mating displays. The most common toothed whale in Virginia is the bottlenose dolphin.
    - **Pinnipeds** (e.g. true seals, sea lions, fur seals, walrus). Only true (earless) seals occur in Virginia and the most common is the harbor seal. All pinnipeds are amphibious to some degree coming ashore to rest and breed.
    - **Sirenians** (e.g. manatee) Florida manatees are not common but are sighted annually and have stranded in Virginia. Manatees do need to drink fresh water to survive and are intolerant of prolonged exposure to cold water (below 65 °F).
    - Polar bears and sea otters are also considered marine mammals but do not occur off the US east coast. Reports of sea otters in Virginia are usually river otters and are not marine mammals
- **Whale** – this is a common name that refers to a large cetacean. Cetaceans that are called whales can belong to a number of scientific families. For example, the killer whale and pilot whale are large species in the scientific family *Delphinidae* or 'dolphin' family.
- **Dolphin** – common name of species that belong to the scientific family *Delphinidae* (e.g. bottlenose dolphin, spotted dolphin, common dolphin, Risso's dolphin)

- **Porpoise** – common name of species that belong to the scientific family *Phocoenidae*. The only porpoise that occurs in Virginia is the harbor porpoise.

Terms associated with marine mammals

- **Flukes –** the 'tail' of a cetacean. Two fluke blades made of soft tissue are situated on either side of the terminal end of the vertebral column. Flukes usually have a notch between the blades, but one species group, the beaked whales, do not have a fluke notch. Dead animals can be moved and towed by the flukes which are very strong. Live cetaceans, however, should never be moved by pulling on the flukes.

***NOTE** - Live animals can deliver a very powerful blow from the flukes (laterally as well as dorso-ventrally), and responders should be careful to avoid the 'strike zone' when working near live cetaceans in water and on land.*

- **Dorsal fin** – The fin on the back of some cetaceans. Not all cetaceans have a dorsal fin (most notably North Atlantic right whales and sperm whales) and the lack of a dorsal fin can help confirm species. The shape, size, and position of the dorsal fin can also assist in species identification.

***NOTE** - Like the fluke the dorsal fin is made up of very strong soft tissue, and many cetacean species can be lifted by the dorsal fin if rope is passed through a small hole in the lower part of the leading edge of the fin.*

- **Peduncle** – the tailstock of a cetacean, most of the swimming power of a cetacean comes from up and down movement of the peduncle.
- **Rostrum –** snout, some cetaceans have a prominent rostrum (e.g. bottlenose dolphin) and others do not (e.g. harbor porpoise). The size and shape of the rostrum can assist with species ID. The rostrum, along with dorsal fin, flippers and flukes) is often where marks associated with gear entanglement are most prominent.
- **Blowhole(s) –** the nostril(s) of a cetacean, which are located on the top of the head. Toothed whales have one blowhole and baleen whales have two blowholes. If working with live animals, allowing the blowholes to clear the water and keeping them uncovered is crucial. Seals and manatees have two nostrils at the end of the rostrum like most other mammals. The shape/configuration of a seal's nostrils (e.g. 'V-shaped' versus 'W-shaped') can help confirm species ID.

- **Blow –** the vapor cloud created when a cetacean exhales. The shape of the blow of baleen whales (and some toothed whales) can help confirm species ID.
- **Ventral pleats** – some baleen whales have pleats on the throat and belly that allows them to take in a large mouthful of water with food (e.g. small fish, zooplankton) which is filtered as it is expelled from the mouth. The number, length and spacing of the ventral pleats, or lack of ventral pleats (e.g. North Atlantic right whales) can help confirm species ID.

[include drawings with basic anatomical labels – dolphin, baleen whale, seal, manatee]

- **Sea turtles** – turtles that are dependent on the marine environment and are fully marine except for coming ashore to nest. Immediately following incubation and hatching, sea turtles leave the nest and crawl into the ocean. Sea turtles have flippers instead of five toes with claws at the end of each digit. All sea turtles in Virginia are protected by state and federal Endangered Species Acts.
  - **Hard-shelled sea turtles** – turtles with rigid shells (carapace and plastron – see below) that are made of fused bone covered by scutes (see definition below) made of keratin. Scutes are shed as the turtles grow. Species commonly found in Virginia are loggerheads (most common), Kemp's ridley and green turtles.
  - **Leatherback sea turtle** – this is the largest species of sea turtle and its shell is flexible (not hard-shelled) with longitudinal ridges from head to tail.

Terms associated with sea turtles

- **Carapace** – the part of a turtle's shell on the back (top) of a turtle. In hard-shelled species it is comprised of flattened fused ribs covered with scutes which provide color.
- **Plastron** - the part of a turtle's shell on the belly (bottom) of the animal. In sea turtles, the plastron is a different color than the carapace. It is also covered with scutes.
- **Scute** – A thin cover of keratin on the carapace and plastron of hard-shelled turtles. Scute patterns can help determine the species of sea turtle, and the presence/condition of the scutes of dead turtles assists in determining state of decomposition. Scutes on the carapace are divided into vertebral scutes, lateral scutes and marginal scutes.

Describing wounds based on the location and number of scutes affected is helpful for assessment and documentation.

[include drawing with basic anatomical labels – hard shelled turtle, leatherback, carapace scute pattern]

Terms associated with stranding response activities

When a call is received, VAQS must first **verify** that a marine mammal or sea turtle stranding has occurred, then **assess** the condition of the animal and the response logistics. If a response is appropriate, the first step is **documentation** of the animal and the circumstances of the event, followed by data collection which may include external and internal examination, collecting measurements and samples, and determining sex of the animal(s). Depending on the situation, a carcass may be **transported** and most of the data collection occurs at VAQS. If a live animal is involved, assessment and documentation will help determine whether **intervention** is appropriate in the form of recovery, transport and rehabilitation, examination and release, transport and release, or euthanasia.

When on water or remote access recovery and transport of a live animal in distress or a carcass that warrants laboratory examination is required MRC is one of the first resources the stranding network turns to. Live animal recovery and transport is often time sensitive and organized, professional response is essential. The presence of trained, uniformed officers provides stability for both the public and the response staff.

- **Assessment** – Once a stranding has been verified, assessment of the animal's condition, logistics for response and examination or transport, and resource availability must be conducted.

NOTE -*There is a free cell phone app called Whale Scale for estimating the approximate weight of a cetacean based on species and length. It was developed by NC state using regional data, some from VA.*

- **Documentation** – Documentation often goes hand in hand with assessment since both usually occur on-site. Documentation is basically the equivalent of initial crime scene response. If the animal is dead, initial documentation should occur before the scene is disturbed and images of the carcass should be taken from a variety of positions

with a photo board that includes date, response ID (e.g. field number - see below), and a scale for measurement. After initial documentation, if the carcass will not be transported for examination, a series of consistent images and obvious lesions (e.g. scars, marks, discolorations, etc.) are taken by manipulating the carcass. If there is gear associated with the stranding, the positions of the animal and gear should be thoroughly documented before the gear is removed. If possible, dead animals should be transported with gear intact. If gear must be cut in order to document and transport, label cut ends for later evaluation.

- **Field number** – The field number is a unique number given to each stranded animal. The event paperwork, samples, and images should all have the field number associated with it (e.g. on a photo-board, sample label, or data sheet). In Virginia, VAQS assigns sequential field numbers that are slightly different for marine mammals and sea turtles. All field numbers start with VAQS and the 4-digit year. Marine mammal field numbers then have the number '1' and sea turtles the number '2' followed by a 3-digit sequential number. The first marine mammal and sea turtle field numbers assigned in 2024 were VAQS20241001 and VAQS20242001 respectively.

***NOTE** - If an event occurs and VAQS cannot be reached, a temporary ID number including the date (in YYYYMMDD format) followed by MRC and the first initial and last name of the responding officer and the event number for the day can be used to identify the event. An example would be 20240101MRCZWIDGEON.01 which indicates an event that occurred on January 1, 2024 with Zach Widgeon as the responding MRC officer.*

- **Intervention** – Intervention is action taken to handle, capture, transport, disentangle, herd, or harass a live, marine mammal or sea turtle.

***NOTE -** Unless human safety is imminently at stake, all interventions require VAQS permission and many require VAQS to consult with NOAA Fisheries (or USFWS for manatees).*

- **State of decomposition** (for carcasses)– when a stranded animal is dead, the amount of information that can be collected depends on its condition or state of decomposition. There are categories of condition and some general guidelines for its determination:
  - **Fresh dead** – looks and smells as if it were alive. These can be important animals for data collection, and, when possible, efforts

should be made to preserve (with ice, shade, speed, etc.) and recover the carcass for laboratory examination.
- Skin, shell, scutes appear normal, not dried out, peeling, or discolored
- Eyes are relatively clear, not cloudy, dried, or bulging
- There is little or no odor (especially in warmer seasons)

NOTE – *At certain times of the year, usually late fall and early winter, sea turtles that appear to be fresh dead should be treated as if alive, even if reflexes or breathing is not observed. Animals suffering from severe cold stunning can be alive and 'comatose,' and true condition cannot be determined easily in the field.*

- **Moderately decomposed** – signs of decomposition are present but relatively mild and the carcass is still easily recognizable. Most carcasses will be intact unless there has been a vessel strike or significant predation/scavenging (especially by sharks or large birds). This category is sometimes divided into early, mid- and late moderate decomposition depending on the degree of bloating, skin/scute sloughing, etc. On a hot summer day on the beach, a carcass can go from early moderate to late moderate decomposition quickly.
  - Slight bloating or discoloration evident – for turtles, they may look puffy around the neck and base of the flippers and the skin may have a slight green tint; for odontocetes, the genital area and tongue will bloat first, if male, the tip of the penis may be visible, if female, the genital opening and mammary slits on either side may appear swollen; ventral pleats on mysticetes will start to expand and they will float upside down in the water
  - Slight, but not severe, odor present. They won't smell like the ocean but…
  - Skin, scutes, eyes, fur (for seals) may be dry or crusty if on land, skin/scutes/fur may be sloughing if in water
  - Some predation or scavenging may have occurred, the eyes, lower jaw and genital area are all targets for gulls and other scavenging birds, sharks will bite flippers, head (for turtles), genital area and peduncle
- **Severely decomposed** – the carcass is losing or has lost its normal shape and color and is difficult to recognize by species.
  - In summer, cetaceans will have either lost much of the skin or it will be desiccated and discolored, blubber will be showing and sometimes rendering, flukes and dorsal fins will appear floppy and may appear frayed; ventral pleats in mysticetes will look like a balloon; scutes on turtle shells will be peeling or missing,

showing the bones of the carapace or plastron, skin will be highly discolored, dry, peeling, or waxy if in water
- fluids will be escaping from the body cavity and orifices, flies and maggots (sometimes crabs) will be present in most seasons
- there will be a strong odor of decomposition

[add images of three categories for bottlenose dolphin, humpback and loggerhead]

- **Transport** – Movement of a live or dead stranded animal. Transport logistics vary depending on the size, condition, logistics, weather, and circumstances.

NOTE - *Transport should not be undertaken without consultation with VAQS.*

- **Verification** – Determining whether a report involved a marine mammal or sea turtle stranding event. Species group and type of event must be verified. Reports can involve a marine mammal or sea turtle but not be a stranding or can be a stranding but not involve a sea turtle or marine mammal (e.g. snapping turtle, sturgeon, osprey, or otter). The former may still require assessment and documentation and information regarding the latter is passed on to the appropriate response group, if any.

5. Guidance for MRC responders

Each event will be described on a single sheet and is designed to be printed on waterproof paper so it can be taken into the field and removed for reference. These will be waterproof pages with explanations and terminology that should be understandable if the officers have read and understood the introduction sections.

List of scenarios where MRC may be asked to assist:

5.1 Verifying/confirming that a report is a stranding event

5.2 Assessing and documenting a stranding event for response

5.3 Assessment and monitoring out of habitat/distressed live animal (winter turtle swimming but not yet cold stunned, dolphins in weird places, late fall/winter manatee, etc.)

5.4 Assessment of a live manatee

5.5 Assessment of an in-water entangled live animal (not large whales – permitted & covered separately)

5.6 Assessment of an in-water entangled dead animal

5.7 Assessment of an entangled seal

5.8 Assessment of an entrapped live animal (pound net head, swimming enclosure, HRBT lagoon, etc.)

5.9 Recovery of a live, debilitated/injured sea turtle

5.10 Transport of a live, debilitated/injured turtle

5.11 Recovery/transport of a floating dead animal

ON the next several pages are examples of guidance meant to assist officers with specific events. The guidance is not complete for all scenarios.

5.1 Verifying/confirming that a report is a stranding event

Goal: To determine whether a report is actually a marine mammal or sea turtle stranding event by answering the questions:

- Is it a marine mammal or sea turtle?
- If so, is it stranded?
- If it is a stranded marine mammal or sea turtle, is it alive or dead?

Actions:

- Collect images of the animal(s) and observations of the circumstances [to confirm ID and begin assessment/documentation]
- Collect lat/lon & description of animal location; note date/time
- Assess safety situation re: citizens/human activities in the vicinity
- Report to VAQS 757.385.7575 / vaqstranding@gmail.com
- If possible, standby for further instructions

Marine mammal species groups with notes on ID:

Cetaceans

- Toothed whales (odontocetes) – most common in VA = bottlenose dolphin (3'-8' long)
  - Prominent odontocete features:
    - One blowhole on the top of the head
    - dorsal fin (sickle shaped) – all but one species in VA
    - fluke at end of peduncle; no rear appendages
    - rounded forehead or melon (may have obvious snout or rostrum)
    - teeth (if present) all similarly shaped (dolphin teeth are conical)
    - no fur
- Baleen whales (mysticetes) – most common in VA = humpback whale (25-50' long)
  - Prominent mysticete features:
    - two blowholes on the top of the head
    - flat or slightly arched top of head (no melon)
    - fluke at end of peduncle; no rear appendages
    - may or may not have dorsal fin
    - NO teeth, baleen plates in upper jaw, varies in color (cream-dark) & size
    - May have ventral pleats (humpback, fin, sei, minke whales)
    - no fur, may see sparse facial hair

Seals – most common in VA = harbor seal (3'-5' long) – may be in water or hauled out near water

- Prominent seal features:

- two nostrils at end of snout; obvious whiskers on snout
- fur, most are spotted/speckled tan, brown, gray, black
- no external ear flaps
- short tail less than the length of the rear flippers
- webbed front & rear flippers with claws at end of each digit

Manatee – Florida manatee, usually large juveniles 7-10' long

- Prominent manatee features:
  - two nostrils at end of snout; obvious whiskers on snout
  - gray skin with no fur, white or dark scars often visible
  - no obvious peduncle, rounded tail paddle with very slight notch; no rear appendages
  - no fur
  - no dorsal fin

Sea turtles with notes on ID

- Have four flippers that do not have more than 2 claws on each flipper
- Dorso-ventrally compressed, cannot completely retract head or close shell
- Usually have short tail (except adult males generally >4' in length)
- Non-hatchlings usually >1' carapace length

How to tell if it is stranded:

If it's dead and not by-caught in an observed fishery, it's stranded whether in water or on land. If it's alive and in water:

- Is it breathing? Animal should be able to clear surface with blowhole/nostrils to exhale then inhale with no obvious effort.
- Is it swimming? Can it dive completely underwater (note water depth)? Does it appear to be buoyant? Is anything hampering forward movement (could it be entangled and/or anchored?)
- Are there any obvious injuries? If so, do the injuries appear fresh?

If any of the above are in question, document with images and observations and contact VAQS while still within sight of the animal(s) if possible

If it's alive and on land

- It is stranded if it's a cetacean or manatee
- It is stranded if it's a non-nesting sea turtle
- It may not be stranded if it's a seal (see page x for seal haul-out assessment info)

5.2 Assessing and documenting a stranding event for response

Goal: To determine what resources are needed for response, what can be accomplished, and what logistical considerations (tides, weather, water depth, etc.) must be addressed in order to respond efficiently.

It is likely that MRC will be asked to assist with assessment and documentation in situations that are challenging (e.g. in water, vessel only access, near gear, structures, etc.) and/or further away from Virginia Beach (home base for VAQS). MRC can provide essential information to make the response efficient and successful.

Actions:

- Assess situation by documenting, observing, and reporting the following:
    - Animal Size (approximate length/estimated weight) – see Whale Scale APP for cetaceans
    - Animal condition (live, dead, state of decomposition, whether body envelop is intact, appendages present, etc.) for examination/transport
    - Ability for responders to access animal(s) for on-site examination
    - Ability to transport animal closer to VAQS responders & location(s) for transfer (e.g. boat ramp, marina, shoreline, etc.)
- Document animal(s) and scene with images and video
    - Take a full-length image of the right and left side of the animal when you are perpendicular to it
    - Try to avoid shadows, glare, gear/debris blocking body parts, etc.
    - Include a photo card or take a separate image of identifying information including location, date, field number, your name
    - Include a standard scale, ideally a highly visible measuring device, in the same plane and at the same angle as the animal
    - Document close up and zoomed out images of marks, lesions, scars, discoloration, gear, etc.

[include good examples of field images with photo card & scale]

- Assess safety concerns for responders
    - Will they need to wade/swim to shore?
    - What are the surroundings and substrate like (e.g. sinking mud, oyster bar/aquaculture lease, pound nets, other structure, etc.)
    - Tide/current challenges
- Report to VAQS 757.385.7575 / vaqstranding@gmail.com
- If possible, standby for further instructions

[add photocard to notebook, see if Zach can purchase some crime scene scales]

5.3 Assessment and monitoring out of habitat/distressed live animal

Goal: To monitor marine mammals or sea turtles which are not stranded but may become stranded or require intervention. The goal of monitoring in these situations is to observe and document changes in animal location, behavior, and condition over time to assist in determining if and when intervention is appropriate.

Often these events generate public and media interest, and substantial pressure can be placed on stranding networks to **do something** when response is not feasible, legal, or appropriate. Out of habitat situations can require substantial resources over an extended period of time and assistance is often needed. Free swimming, but distressed animals may need intervention, but skills, resources, and human safety limit the stranding network's ability to respond in the timeframe that the public deems necessary (if they can respond at all). Stranding responders have received threats online and in person during these types of events and MRC could be asked not only to assist with assessment and documentation but also to be a protective law enforcement presence for stranding responders.

Capture, transport, herding, or disentangling free swimming marine animals is stressful and dangerous for both the animal(s) and humans involved. It may not be immediately clear whether an animal can resolve the concern independently and, in those cases, a monitoring plan may be put in place.

Actions:

Out of habitat and distressed animal situations especially when they occur in highly populated or visible places are challenging cases of assessment and documentation. In these cases, the goal is to monitor for changes over time. Each case will be different, and VAQS will debrief MRC on animals and concerns that are being monitored. Knowing when and how to intervene and then doing so successfully is incredibly challenging. Accomplishing the above under the constant scrutiny of the public is even harder.

Some examples include:

- Free swimming animal (most commonly a dolphin or sea turtle) with gear or injury. When first observed, animal is strong enough to evade capture and/or it is unclear whether entanglement/injury will resolve naturally. If the animal stays in an area where it can be monitored, the ideal outcome is that there will be improvement in the injury or entangling gear/debris will be shed without intervention. Often the animal disappears, and the ultimate outcome is never known. Sometimes it disappears and is later found stranded.

- Manatee or sea turtle in the region as water temps drop. Will it migrate south? Will it become debilitated and strand? Will it die? Manatees are special because VAQS does not have authority to respond to live stranded manatees except on a case by case basis in consultation with USFWS. Currently the closest authorized manatee capture experts are in at Sea World Orlando and coordination of manatee capture and transport is coordinated by USFWS staff in Florida.
- Dolphins or seals, apparently healthy (or not obviously unhealthy) farther inland than normally sighted. This includes dolphin(s) appearing in shallow or restricted water bodies (e.g. Broad Bay system in Virginia Beach; Winter Harbor, Matthews County; Pagan and Nansemond Rivers in Suffolk).
- Whale in river – almost always ends in a stranding, but may take days to weeks to resolve
- Sea turtle in a swimming enclosure (York River) or construction lagoon (HRBT expansion). Can it get out on its own? Can we capture it if it can't? Who is responsible for time and resources?

Understanding Marine Mammal And Sea Turtle Stranding Response In Virginia

Introduction

This report, prepared by the Virginia Marine Resources Commission (VMRC) in coordination with the Department of Wildlife Resources (DWR), the Virginia Coastal Zone Management Program (CZM), and the Virginia Aquarium Stranding Response Program (VAQS), provides an overview of the existing structure for responding to and documenting marine mammal and sea turtle strandings in Virginia. Responsibility for the response, regulation, and management of stranded marine animals in Virginia is shared among several entities. The VAQS oversees the Virginia sea turtle and marine mammal stranding networks and houses the Commonwealth's stranding and response data. The VMRC operates a commercial fisheries observer program to observe and document protected species interactions with commercial fishing to inform Virginia's application for a Section 10(a)(1)(B) Incidental Take Permit, and its law enforcement officers provide first response to stranding events and maintain a 24-hour dispatch center. The DWR is charged with the management of all wildlife and inland fish in the Commonwealth (*Code of Virginia* §§ 29.1-103 and 29.1-109) and, pursuant to the Virginia Endangered Species Act (Virginia ESA; *Code of Virginia* §§ 29.1-563 - 570), the DWR has authority to adopt the federal list of endangered and threatened species (§ 29.1-566); to list additional species as endangered or threatened in the Commonwealth, *i.e.* to manage and protect those species throughout the Commonwealth (§§ 29-564, -567, and -570); and to develop, adopt, and enforce state regulations pertaining to state and federally threatened and endangered wildlife species, excluding listed species of the Class Insecta (§ 29.1-566). The DWR's Nongame and Endangered Species Program, Wildlife Division, Fisheries Division, and Law Enforcement Division are primarily responsible for program development and implementation regarding protection and management of the Commonwealth's wildlife and inland fish, including endangered or threatened species that occur throughout the Commonwealth's lands and jurisdictional waters. Lastly, the DWR assists with stranding response in remote locations and when called upon. The DWR is also party to a limited cooperative agreement with the National Oceanic and Atmospheric Administration and a cooperative agreement with the U.S. Fish and Wildlife Service under Section 6 of the federal Endangered Species Act regarding the implementation of conservation programs related to federally listed species.

Background

What is a stranding?

A marine mammal or sea turtle is considered stranded when it is dead and:

on a beach or shore of the United States; or

in waters under the jurisdiction of the United States

Or it is alive and:

- on a beach or shore of the United States and unable to return to the water;
- on a beach or shore of the United States and, although able to return to the water, is in need of apparent medical attention; or
- in the waters under the jurisdiction of the United States, but is unable to return to its natural habitat under its own power or without assistance (which includes temporal and spatial out-of-habitat situations)

Species That Strand in Virginia

The group of animals called marine mammals consists of 1) the *cetaceans*, whales, dolphins and porpoises which are completely aquatic and mostly marine, 2) the *pinnipeds* which, in Virginia, include several seal species and are semi-aquatic, and 3) the *sirenians* which include the manatee. The manatee is completely aquatic but inhabits fresh as well as marine waters. Sea otters and polar bears are also considered marine mammals but do not occur in Virginia.

Marine mammal strandings in Virginia have ranged from 77 to 116 animals annually between 2014 and 2023 (Figure 1). They occur throughout the year but are most common in spring and fall. This pattern is driven by both bottlenose dolphin strandings, which comprise 75-85% of marine mammal strandings in the state.

Figure 1: Number of marine mammal strandings in Virginia from 2014-2023 [source Epple et al. 2024].

There are four species of sea turtles that regularly occur in Virginia, all of which are either considered threatened or endangered under federal and Virginia law. From 2014 to 2023, between 212 and 325 annual sea turtle strandings were documented in Virginia (Figure 2), with most occurring in the warmer water months of May to November.

Figure 2: Number of sea turtle strandings in Virginia from 2014-2023 [source Epple et al. 2024].

A comprehensive list of marine mammal and sea turtle species that have stranded in Virginia is included in Appendix A.

Authority and Funding

Marine Mammals

All marine mammals are protected by the Marine Mammal Protection Act (MMPA). The MMPA designates NOAA Fisheries' Office of Protected Resources as the lead agency to coordinate *cetacea* and *pinnipeds* stranding response through the Marine Mammal Health and Stranding Response Program (MMHSRP). The MMHSRP consists of more than 120 partner organizations nationally that respond to marine mammal strandings and entanglements. National Marine Mammal Stranding Response Network members include animal welfare, conservation and academic organizations, and public aquariums, as well as local, tribal, state, and federal government agencies. The program provides network members with a stranding agreement from NOAA Fisheries to ensure that all activities performed are safe for both responders and animals. Network members provide staff and local response capabilities, independently raising funds to cover the majority of their costs.

In addition to general stranding response, the MMHSRP acts as a biological surveillance program, since stranding responders are often the first to detect threats to marine mammal populations. One of the goals of this program is to detect and investigate unusual mortality

events (UMEs). NOAA supports the Working Group on Marine Mammal Unusual Mortality Events, which assists local stranding networks in investigating the cause and extent of a UME. Events must meet several criteria to be considered a UME and, once a UME is declared, contingency funds can be made available to support elevated levels of response and increased sample collection and diagnostic testing.

Marine mammals that are not considered endangered or threatened are managed solely under the MMPA. Some marine mammals, most notably baleen whales, are protected by the Endangered Species Act (ESA) in addition to the MMPA. The endangered marine mammal species most likely to be encountered in Virginia are the North Atlantic right, fin, and sei whales. Blue and sperm whales are also listed as endangered species but have not commonly stranded in the state.

Disentanglement of small cetaceans and pinnipeds is covered under the MMHSRP, but large whale disentanglement is authorized under a separate NOAA program due to the specialized training and equipment required.

Florida manatees were considered endangered under the ESA until 2017, when they were reclassified as threatened. Unlike other marine mammals in Virginia waters, Florida manatees are managed by the U.S. Fish and Wildlife Service (USFWS). Because they are primarily distributed in Florida waters, manatees are managed by the USFWS Southeast Regional and Program offices, and despite consistent sightings in Virginia and North Carolina in warm water months, manatees are considered extralimital in Virginia. Thus, response to manatee strandings and out-of-habitat situations is managed on a case-by-case basis. When the need for a response occurs, equipment and personnel from Florida are invited by the USFWS to assist.

Stranding Agreement in Virginia

The National Marine Mammal Stranding Response Network is divided into regions; Virginia is the southernmost state in the Greater Atlantic Region (GAR), which includes New England and Mid-Atlantic states from Maine to Virginia. In the GAR, stranding network organizations operate under stranding agreements, which effectively serve as permits, or as state and municipal governments which have authority under section 109(h) of the MMPA to handle marine mammals to protect citizen health and safety.

The Virginia Aquarium Stranding Response Program (VAQS) has a stranding agreement for the Commonwealth of Virginia (Appendix B) and is therefore authorized to document, recover and examine dead marine mammals; evaluate, transport, disentangle, and euthanize live stranded small cetaceans and pinnipeds; and perform short-term holding and treatment of pinnipeds.

Response to live and dead large whales requires NOAA coordination and often includes assistance from outside organizations with specialized experience and expertise, especially when critically endangered North Atlantic right whales are involved. Aquarium staff are authorized to document large whale entanglements, but there are currently no staff with the training required to conduct disentanglement. Complex responses that involve on-water capture and disentanglement or transport of dolphins also require planning and assistance from NOAA and other stranding network members.

Under their respective stranding agreements, stranding network member organizations are authorized to handle all aspects of stranding response for marine mammals that are not considered endangered or threatened. In Virginia, this includes all small cetaceans (dolphins, porpoises, pygmy/dwarf sperm whales, beaked whales). The VAQS holds an endangered species permit on which are listed specific personnel authorized to handle endangered marine mammals and their tissues. When no one from a network organization is listed on the permit, special permission to act is given on a case-by-case basis by NOAA Fisheries.

Stranding agreements in the GAR do not cover manatees, and there is no equivalent federal regulatory entity that issue permits specifically authorizing manatee stranding response.

Sea Turtles

All sea turtles are protected by the ESA. Sea turtles are co-managed by NOAA Fisheries and the USFWS. In-water activities for all species, such as capture/tag/release research and disentanglement, are managed by NOAA Fisheries. Terrestrial activities for the same species, such as nesting, stranding response, and animal rehabilitation, are managed by the USFWS. Sea turtle stranding response is coordinated through the Sea Turtle Stranding and Salvage Network (STSSN).

There is no formal UME program for sea turtles, but extreme cold stunning events in the Gulf of Mexico involving thousands of turtles have created an interest in developing similar programmatic support.

'Agent of the State' in Virginia

Sea turtle strandings are managed differently in the Northeast Region (NER) and the Southeast Region (SER). In the SER, Atlantic coast states conduct stranding response and monitor for sea turtle nests under USFWS ESA Section 6 agreements. Each state has a dedicated stranding coordinator and sea turtle management staff and receives federal funding under the ESA Section 6 program to partially support management of the STSSN in their states.

Although Virginia is in the NER, the Commonwealth (and Maryland) represents the northernmost extent of the loggerhead sea turtle nesting range and is therefore required by the USFWS to monitor for sea turtle nests and manage the STSSN similar to states in the SER. Because Virginia is the only state in the region with a Section 6 USFWS agreement covering sea turtles the state controls authority to respond to strandings, other organizations in NER must apply directly to USFWS for research permits to conduct sea turtle stranding response and rehabilitation. Virginia, lacking dedicated sea turtle staff, has assigned the VAQS 'Agent of the State' (Appendix C) status to act on DWR's behalf in managing the STSSN throughout the state and monitoring nest activities in the City of Virginia Beach on City-owned beaches.

The DWR applied for competitive NOAA Protected Species funding as per its Section 6 Cooperative Agreement with the NMFS to support VAQS in its efforts to (1) administer the Virginia STSSN; (2) oversee, implement and report sea turtle stranding response efforts in the Commonwealth; and (3) manage the state's sea turtle stranding data. The DWR was awarded

several multi-year grants from 2017 to 2024. Because the NOAA Protected Species Program awards its limited funds annually through a competitive process, not all proposals get funded.

Funding for the Virginia Stranding Networks

There has been no consistent, dedicated state funding for stranding response in Virginia since the Virginia Institute of Marine Science (VIMS) managed the program in the 1980s and early 1990s. VIMS gradually ended its stranding response activities, first relinquishing marine mammal stranding response in the 1990s and sea turtle stranding work in the mid-2000s. VAQS has been the sole stranding response entity in Virginia since 2007.

Other than several years in the past decade when DWR provided ~$5,000 annually in set-aside funds for sea turtle stranding response and data management and an annual $25,000 line item that has been distributed through Old Dominion University since 2019, the state does not directly fund stranding response, nor are there any state employees that consistently dedicate time to stranding response. Virginia's CZM program has provided annual stranding response funding through its federally supported competitive federal NOS block grant program since the late 1990s which has been the most consistent funding received by VAQS. The funding, currently $35,000/year, partially supports one position for state stranding response. The supported time is used primarily for volunteer recruitment, training, and management in addition to a minimal portion of stranding data management.

Other federal support that would not have been available to VAQS without state involvement include DWR pass through funding from the NOAA Recovery Grant to states (section 6) program. Several funded multi-year proposals in 2011, 2017, 2021 included sea turtle stranding response funds. The most recent proposal which would have started in fall 2024 was not funded. Both DWR and CZM have supported other small proposals for projects that included some stranding response funds. Efforts to secure funding for mitigation and rehabilitation of sea turtles hooked by recreational anglers though the MRC managed Virginia Saltwater Fishing fund have not been successful because the proposals do not promote recreational fishing as required in the state statute. Recovering, treating, and rehabilitating sea turtles hooked by recreational anglers in Virginia requires considerable VAQS staff time and both direct and in-kind veterinary expenses much of this currently provided by the City of Virginia Beach's Virginia Aquarium and associated non-profit foundation.

There is no dedicated federal support for stranding response in Virginia despite federal mandates to NOAA Fisheries and the US Fish and Wildlife Service. Because it maintains a NOAA stranding agreement, VAQS is eligible to apply for up to $100,000 annually from the Prescott marine mammal rescue program, but these funds are highly competitive, are declining, and require a high level of grant support and additional reporting that increase staff costs.

We estimate that supporting basic stranding response in Virginia including documenting and conducting external examinations (but not recovering and conducting necropsies on carcasses), recruiting and training volunteers and cooperators, managing data, and maintaining required permits and federal reporting would require a minimum of four full time staff, along with funds for acquisition and maintenance of equipment (at least one 4WD vehicle), fuel, tolls, insurance, supplies, office space, computer equipment, etc., more expertise would be needed if there is an

expectation of raising funds to support additional activities. Adding more than basic stranding response that includes necropsy, sampling and sample management, and sea turtle rehabilitation would more than double the needs of the program. Currently the City of Virginia Beach and the Virginia Aquarium & Marine Science Center Foundation shoulder those costs.

Responsibilities of the Stranding Network

Initial Reporting

Stranding response relies on reports from the general public and cooperating entities. Reporting is a key factor in stranding response since proactive surveys for stranded animals are rarely funded.

While it is encouraged that VAQS is contacted in any entanglement event for safety and proper documentation, a special case involves commercial fishers who are allowed to protect their property by removing entangled animals from their gear as provided by the MMPA. In these cases, the fisher is required by the MMPA to report the incident to the appropriate authorities, such as NOAA's National Marine Fisheries Service, as soon as possible

The VMRC maintains a Protected Species Observer program that acts to observe and quantify interactions between commercial fishing operations and protected species. Specifically, the observer program collects data on interactions between protected species and gill nets, haul seines, pound nets, electrofishing vessels, and trawl vessels (excluding shrimping vessels). The primary species encountered in this program are Atlantic sturgeon, loggerhead sea turtles, green sea turtles, and Atlantic bottlenose dolphins. The program includes two full-time agency staff that join commercial vessels to record dates, location, gear type and technical details, YSIs measurements, and the final disposition of encountered protected species (i.e. released alive or killed). Historically, these data collection efforts also included taking length and weight measurements, where appropriate, and tagging living specimens with PITT tags. This practice is scheduled to resume pending the acceptance of the appropriate Incidental Take Permit (ITP).

Field Response

The first responsibility during any stranding event is to ensure the safety of the responders and the public. During live stranding, the second priority is to ensure safe and humane treatment of the stranded animal(s).

VAQS staff and volunteers are trained to respond to, recover, identify, and examine live and dead marine mammals and sea turtles that strand in Virginia. Each field response includes documentation in the form of images, data collection, and examination. With more than 300 combined marine mammal and sea turtle strandings annually, VAQS staff and volunteers cannot physically respond to every stranding event in the Commonwealth.

The VAQS identifies cooperating entities and individuals who are likely to interact with stranded marine mammals and sea turtles and refers to these groups as stranding cooperators who can act in the place of stranding response staff and volunteers. These entities and individuals include:

municipal agencies (e.g., law enforcement, beach operations staff and lifeguards); state and federal fish and wildlife agency staff (e.g., law enforcement, biologists); military base natural resources staff; and environmental organizations with coastal property (e.g., The Nature Conservancy). These groups receive specialized training, stranding data collection forms, and supplies, as needed and when funding is available. State or municipal Cooperators who assist with marine mammal stranding efforts are covered under the 109(h) authority of the MMPA and those who engage in sea turtle response operate under Virginia's Section 6 Cooperative Agreement with the USFWS. Federal refuge, park, and law enforcement staff have legal authority under both the MMPA and ESA to respond to a stranding report.

When the Virginia Marine Police Dispatch Center receives a call reporting a stranded marine mammal or sea turtle, it dispatches an officer to the scene as soon as possible. Upon dispatch, the Virginia Marine Police Dispatch Center or the officer in the field contacts the VAQS to inform staff of the situation. This initial contact allows the VAQS to provide the officer with preliminary guidance on the essential information to gather at the scene, such as the location, condition of the animal, and any immediate threats or concerns. This information also allows the VAQS to determine the appropriate response and resources required.

Once the officer arrives at the scene, they relay the gathered information to the VAQS and await further instructions. Based on the condition of the stranded animal and the specific circumstances, the VAQS will decide whether staff needs to respond in person or if the situation can be managed remotely. The Virginia Marine Police officer remains on site to provide any necessary assistance and transportation as requested by the VAQS, ensuring the stranded animal receives appropriate care and the situation is handled efficiently.

Depending on the situation, the VAQS may ask the public to independently assist with documentation, rescue, or carcass recovery on a case-by-case basis, essentially temporarily deputizing them as stranding volunteers. An example of this would be a recreational boater who encounters a small entangled sea turtle off of the seaside Eastern Shore. If it is deemed safe for the reporter and the animal, the VAQS may ask the reporter to rescue the turtle and transfer it to the VAQS at a nearby landing site. The reporter would be given turtle handling and transport instructions to ensure safety for all and would be asked to share contact information, images, and data on circumstances leading to the stranding, but the VAQS acts as the responding entity.

The VAQS' field response priority is given to live and fresh dead animals, endangered species, and cases where initial reporting suggests that human activity may have caused the event. Fresh dead and unusual species, circumstances, and life stages are prioritized for necropsy; these animals are often transferred transported to the Darden Marine Animal Conservation Center where detailed examinations and biological sample collections can be conducted.

The Virginia Marine Police conduct dockside and at-sea patrols as necessary to ensure the security of areas, particularly during marine strandings. During a stranding event, marine patrol officers will secure the area from public access, when requested, until the designated stranding networks arrive on the scene. Additionally, the Virginia Marine Police will assist in facilitating the stranding network's access to the area when required, ensuring a coordinated and effective

response, both by land and on water. The Virginia Marine Police may also provide transportation by fixed-wing aircraft when requested by the stranding network.

Disposal

The VAQS works with landowners/managers to facilitate efficient disposal when carcasses cannot be removed but natural decomposition is not ideal. Some municipalities work with the VAQS to ensure carcasses are not left on beaches. For example, because of the high number of strandings in the area, the City of Virginia Beach provides funding for a carcass dumpster at the Virginia Aquarium, and City Beach Operations staff assist in carcass reporting and removal to ensure resort beaches are kept clean.

While stranding agreement holders are not responsible financially for carcass disposal, the VAQS provides expertise and staff/volunteer resources to assist whenever possible. In exchange for carcass disposal assistance, the VAQS requests access to document and examine the stranded animals. When a carcass is floating, the VAQS does not take it under tow or use resources to land it without a disposal plan in place. For small carcasses, this usually means the carcass is taken to the Darden Marine Animal Care Center on the Virginia Aquarium campus for disposal. For large whales, the carcass cannot be easily transported, and landowner permission and disposal logistics must be made in advance of conducting towing operations.

Data Management and Reporting

As the stranding networks have evolved, the resources required to manage data, including not only paper and electronic records, but also imaging and sample collection, storage and dissemination, have increased dramatically. Stranding response organizations in Virginia are expected to:

- Provide basic details of marine mammal stranding events to regional headquarters within 24 hours of receiving a report via a shared Google Document;
- Regularly provide marine mammal and sea turtle data, which has undergone QAQC, for national databases (frequency depends on case load and resources);
- Provide, in addition to basic stranding event information, detailed observations of human interactions and necropsy examinations;
- Track, store and disseminate samples and incorporate sample results into final necropsy reports;
- Notify interested parties of stranding events that meet certain criteria, such as bottlenose dolphin fishery interactions, large whale strandings, entanglement events, manatee sightings and strandings;
- Track stranding trends for unusual events and work with unusual mortality event teams to declare and investigate these events; and
- Complete permit and grant reports on a quarterly, semi-annual or annual basis.

In addition, numerous details regarding animals undergoing rehabilitation (e.g., medication, food, and water quality records and details regarding final disposition and tagging) must be recorded and maintained. Some permits and grants require reporting of staff and volunteer training records and hours worked, and lists of samples collected including dissemination

records. Stranding information submitted by volunteers and cooperators is sometimes incomplete, and staff time is also required to review and complete records of each event.

The VMRC annually submits all data from the Protected Species Observer Program to grant partners at NOAA Fisheries.

Nationally, stranding data can be requested from NOAA Fisheries regional marine mammal and sea turtle stranding coordinators. In Virginia, stranding data are reported annually in grant reports to CZM each February. Stranding data can be requested from the VAQ using its Data ad Sample Request Form (see Appendix D).

[NOTE - VAQ is working with VMRC to develop access for some VMRC staff to spreadsheets with 10 years of basic marine mammal and sea turtle data for management purposes without submitting data requests.]

Legal Investigations of Strandings

In some cases, the person encountering the stranding has taken action prior to reporting the event. If there is concern regarding illegal activity, the VAQS may contact NOAA Fisheries' Office of Law Enforcement to follow up with the original reporter. An example of this is when a citizen recovered a live stranded sea turtle and kept it in a bathtub for an undisclosed number of days before calling to report the turtle out of concern for its condition. While not likely an egregious disrespect of the ESA, such an event suggests a need for outreach to ensure the caller understands the legal ramifications of keeping an endangered or threatened species in captivity.

When a report of an animal entangled in gear that appears to be active (e.g., not "ghost gear") comes from a source other than the gear owner, the VAQS is obligated to try to contact the gear owner since it has no legal authority to handle privately owned fishing gear. When that is not possible, the VAQS works with law enforcement from NOAA Fisheries, VMRC, and/or the US Coast Guard to respond.

The DWR conservation police officers and VMRC marine police officers share some of the same enforcement powers. Each officer is vested with the authority to enforce the criminal laws of the Commonwealth (*Code of Virginia* §§ 28.2-106 (B), providing that "Officers of the Virginia Marine Police shall have the same powers as (i) sheriffs and other law-enforcement officers to enforce all of the criminal laws of the Commonwealth, and (ii) regular conservation police officers appointed pursuant to Chapter 2 (§29.1-200 et seq.) of Title 29.1.") and *Code of Virginia* §29.1-205, providing that "Regular conservation police officers are vested with the same authority as sheriffs and other law-enforcement officers to enforce all of the criminal laws of the Commonwealth."). As it is a criminal offense to violate the provisions of the Virginia ESA (*Code of Virginia* §29.1-567(1)), Virginia Conservation Police Officers and Virginia Marine Police have equal authority to enforce the Commonwealth's endangered species laws. Moreover, the VMRC has standing law enforcement agreements with NOAA Fisheries and the USFWS, enabling marine patrol officers to collaborate with federal counterparts on protected species investigations, patrols, inspections, warrants, and arrests. The DWR has a standing law enforcement agreement with the USFWS that allows Virginia Conservation Police Officers to serve as Deputy U.S. Fish and Wildlife Special Agents and conduct investigations both in-state

and across state lines when violations of federal wildlife laws have been committed. Finally, the VMRC receives annual funding from NOAA Fisheries to assist with sea turtle and marine mammal stranding response in the Commonwealth through a Joint Enforcement Agreement with NOAA Fisheries.

Comparison with Other States

Stranding response is handled differently between the GAR and Atlantic coast portion of the SER region. In the SER, state agencies coordinate statewide sea turtle response, and a combination of state agencies and other entities cover all or part of each state's marine mammal response. In the GAR, a variety of organizations handle the work, with some organizations handling only marine mammals, some only sea turtles and others handle both. Some GAR organizations specialize in live response and rehabilitation, especially for sea turtles, while others only respond to dead animals. In both regions, there are some non-profit organizations that only conduct rehabilitation.

A comparison of total annual strandings by state calculated for the five year period from 2019 to 2023 is shown in Figure 3. The state with the highest total number of strandings was Massachusetts (n = 1,408), followed by North Carolina (n = 1,014). Massachusetts has six response organizations and one rehabilitation-only organization, as well as many out-of-state entities that assist with rehabilitation of cold-stunned turtles and seals. In addition, Cape Cod has a history of cetacean mass stranding events. During these events, responders are able to evaluate and release many of the animals that strand and have had some success at preventing mass strandings on occasion. All of the animals encountered are counted as strandings under the MMPA. North Carolina has several significant sea turtle cold stun events in recent years, making its stranding numbers very high as well.

Virginia is one of only two states where there is a single organization handling all live and dead marine mammal and sea turtle response within a state. The other state is Delaware, which had a five-year average of 63 combined marine mammal and sea turtle strandings compared to 343 in Virginia (Figure 3). A comparison of the number of stranding responses reported by GAR organizations shows that the Virginia Aquarium reported the second highest number of combined strandings in the region (Figure 4). The organization with the highest number of reported strandings was Wellfleet Audubon, which coordinates pick up of cold-stunned sea turtles in Cape Cod. The response to those animals is quite different from what occurs in Virginia, as the focus is on recovering as many animals as quickly as possible during a short seasonal time period. Live turtles are moved to rehabilitation organizations as quickly as possible. Most of the initial cold stun sea turtle rehabilitation work is conducted by the New England Aquarium, which does not conduct much field response but handles hundreds of sea turtles each year. Once live cold stunned turtles are assessed, many are moved to other organizations for longer-term rehabilitation.

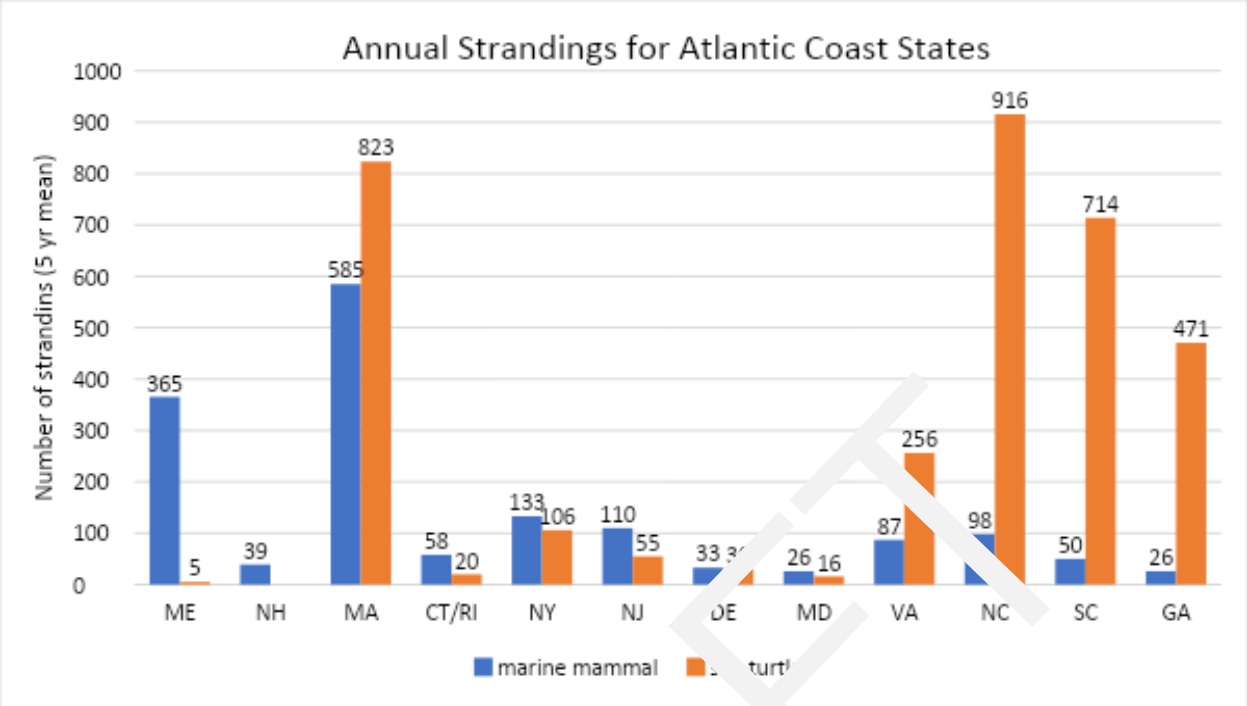

Figure 3: Number of marine mammal and sea turtle strandings by state on the US Atlantic coast. Numbers are 5 year means based on data provided by NOAA Fisheries regional stranding coordinators and from the online STRAND (sea turtle) database for NC-GA.

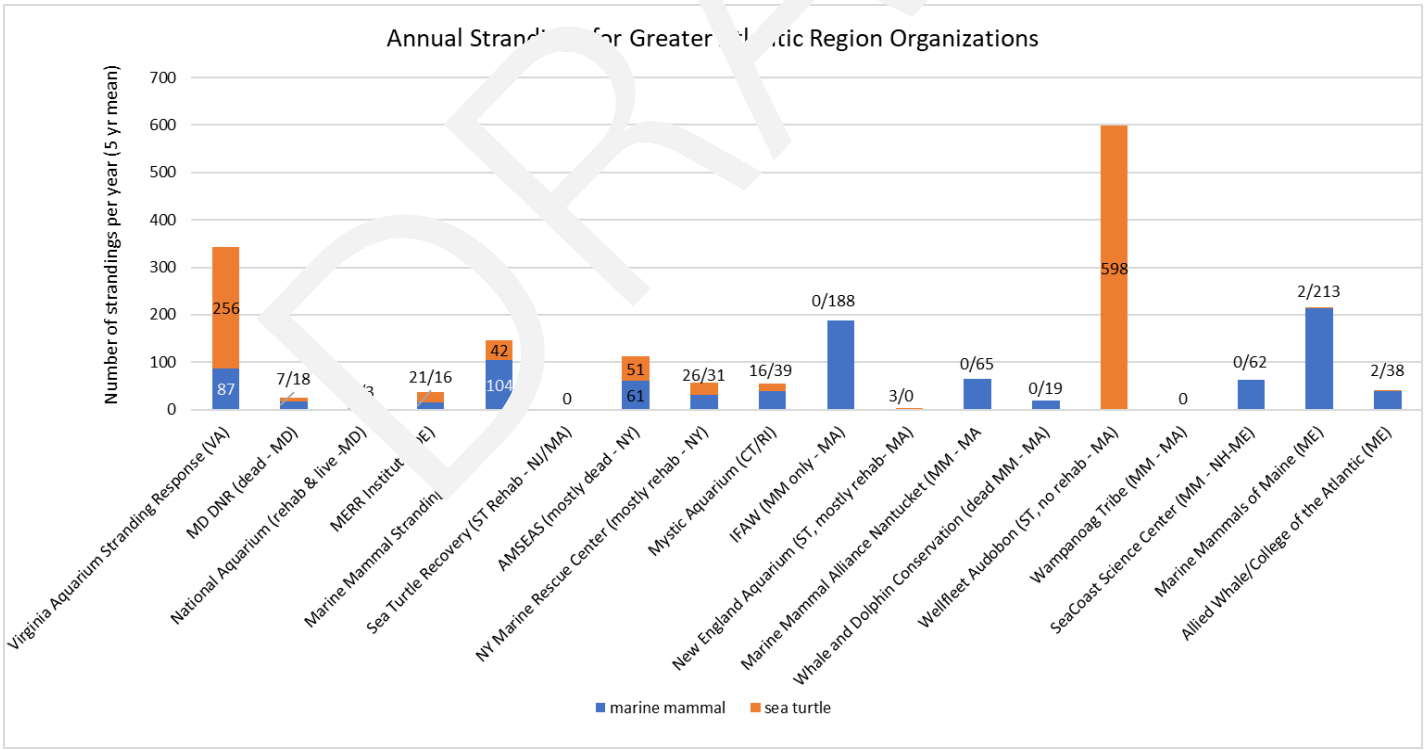

Figure 4: Number of marine mammal and sea turtle strandings reported by individual organizations from ME to VA. Numbers are 5 year means based on data provided by NOAA Fisheries GAR region stranding coordinators (note that data labels above the bars show sea turtle/marine mammal numbers). These numbers do not represent rehab animals transferred from the response organization, only responses originating with the listed organization.

The two states closest to Virginia—Maryland and North Carolina—manage stranding response quite differently. In Maryland, there are two stranding response organizations. The state's Department of Natural Resources (DNR) has one permanent dedicated stranding staff member who responds to dead marine mammals and sea turtles and manages state stranding data, which is usually less than 50 strandings combined (with less than one large whale stranding per year from 2019 to 2023). Additional staff, seasonal assistants, and interns assist with response as available. The National Aquarium, a non-profit organization, responds to live strandings and conducts rehabilitation on sea turtles and seals that strand in Maryland, as well as accepting transfers from other states.

In North Carolina, annual marine mammal strandings are slightly higher than—but similar to—Virginia, with a five-year mean of 98 marine mammals, including an average of five large whale strandings per year. Of the mean 916 annual sea turtle strandings in North Carolina, slightly more than 40% were cold-stunned turtles. The high number of cold stuns is the primary difference between Virginia and North Carolina sea turtle strandings. The North Carolina sea turtle stranding network is managed by the North Carolina Wildlife Resources Commission (NCWRC), whose staff receive data from numerous volunteer organizations that report strandings and manage sea turtle nesting. Two full time NCWRC staff members—assisted by interns and occasional seasonal staff—manage the sea turtle stranding response and nest monitoring networks. State-owned and -supported NC Aquariums provide veterinary and animal care support for live seal strandings and conduct sea turtle rehabilitation. Marine mammal stranding response is divided within the state by region, and there are six different organizations involved in marine mammal response. The NC Division of Marine Fisheries and University of North Carolina-Wilmington employ staff supported by grants from the Prescott Marine Mammal Stranding Grant Program. Veterinarians and veterinary residents at NC State's Center for Marine Sciences and Technology (CMAST) assist with live and large whale events and conduct necropsies on marine mammals and sea turtles. CMAST also provides veterinary assistance for live stranded sea turtles. Virginia's strandings are handled more similarly to North Carolina's approach where numerous state departments and state-supported entities participate in stranding responses.

From a poll of organizations in the GAR, the only non-profit organizations that currently receive non-competitive state support are in New York. There was no response from organizations in Delaware or New Jersey, and only partial response from organizations in Connecticut/Rhode Island, Massachusetts, and Maine. Maryland is the only state in the GAR that has dedicated stranding response staff, but some other states provide in-kind support to non-profit stranding response groups in the form of space to conduct necropsies, vessel support, and staff assistance for documenting strandings and examining animals. No GAR organizations other than Virginia Aquarium indicated that they received funding from competitive grant programs. In the SER, all Atlantic coast states use state agency staff and resources to manage STSSN and nest monitoring activities, and several states use a combination of state and non-profit/academic entities to conduct marine mammal stranding response.

References

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

Appendices

Appendix A - Species that have stranded in Virginia

Marine Mammals

Order: Cetacea

Suborder: Mysticeti

Family: Balaenidae

North Atlantic Right whale *Eubalaena glacialis* – *(critically)* Endangered

Family: Balaenopteridae

Fin whale *Balaenoptera physalus* – Endangered

Sei whale *Balaenoptera borealis* - Endangered

Bryde's whale *Balaenoptera brydei* - Endangered

Humpback whale *Megaptera novaeangliae* - Not Listed

Minke whale *Balaenoptera acutorostrata* - Not Listed

Suborder: Odontoceti

Family: Physeterida

Sperm whale *Physeter macrocephalus* - Endangered

Pygmy sperm whale *Kogia breviceps* – Data deficient

Dwarf sperm whale *Kogia sima* - Data deficient

Family: Ziphiidae

Cuvier's beaked whale *Ziphius cavirostris* - Data deficient

Gervais' beaked whale *Mesoplodon europaeus* - Data deficient

Trues beaked whale *Mesoplodon mirus* - Data deficient

Sowerby's beaked whale *Mesoplodon bidens* - Data deficient

Blainville's beaked whale *Mesoplodon densirostris* - Data deficient

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* - Data deficient

Common dolphin *Delphinus delphis* - Not Listed

Striped dolphin *Stenella coerubeoalba* - Not Listed

Pantropical spotted dolphin *Stenella attenuata* - Not Listed

Atlantic spotted dolphin *Stenella frontalis* - Not Listed

Family: Phocoenidae

Harbor porpoise *Phocoena phocoena* - Not Listed

Order: Carnivora

Suborder: Pinnipedia

Family: Phocidae

Harbor seal *Phoca vitulina* - Not Listed

Gray seal *Halichoerus grypus* - Not Listed

Hooded seal *Crystophora cristata* - Not Liste

Harp seal *Pagophilus groenlandica* - Not L ted

Order: Sirenia

Family: Trichechidea

West Indian manatee *Trichechus anatus tirostris* - Threatened

Sea Turtles

Class: Reptilia

Order: Testudines

Family: Derm helyidea

Leathe ck sea t *moc lys coriacea* - Endangered

Family: Chelonii e*

Gree sea tu *Chelonia mydas* - Threatened

Logge ad sea tle *Caretta caretta* - Threatened

Hawksbi ea turtl *Eretmochelys imbricata* - Endangered

Kemp's rid y sea turtle *Lepidochelys kempii – (critically)* Endangered

* Severa helonid spe es hybrids have also been documented in Virginia including at least one each log rhead Kemp's ridley hybrid and green/hawksbill hybrid, both were juveniles

Appendix B - VAQS stranding agreement

Appendix C - Agent of the State agreement

Appendix D - VAQS Data Request Form

NOTE - Appendices B, C, and D are PDF files and will be inserted into the final document