

FLORIDA GULF OF MEXICO RESTORATION PROJECT SUBMITTAL



CLEARWATER MARINE
AQUARIUM™

1.0 Project Name

Restoration of Cetaceans and Sea Turtles in the Gulf of Mexico via Stranding Responses and Research

2.0 Contact Information

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3.0 Project Location

Clearwater Marine Aquarium (CMA) responds to cetacean (i.e. dolphin and whale) and sea turtle stranding events in the Gulf of Mexico and greater Florida region. CMA's designated response areas include Pinellas, Hillsborough, Pasco, Hernando, Citrus, and Levy County. Thus, CMA's response area ranges from approximately 27.57737 N, 82.700615 W to 29.29192 N, 83.16295 W (Figure 1). The aquarium and Critical Care facility are located in Clearwater, Florida in Pinellas County.

4.0 Project Description

4.1 Summary

Clearwater Marine Aquarium submits this proposal to maximize responses and research conducted on stranded cetaceans and sea turtles in the Gulf of Mexico. Currently, CMA primarily responds to stranded marine life in six counties, four (i.e. Pasco, Hernando, Citrus, and Levy) of which are considered high priority counties by the National Marine Fisheries Service. These counties are regionally a high priority due to the limited data collected on stranding events. Although CMA has responded to multiple live and deceased animals in these counties, efforts can be significantly enhanced by the acquisition of transport equipment, hiring personnel, public outreach, and furnishing of CMA's Critical Care Facility. This will promote CMA's capacity to rescue, rehabilitate, and release stranded cetaceans and sea turtles. Moreover, information obtained via stranding efforts can be utilized to further our understanding of these animals, including the effects of human interactions such as oil spills.

4.2 Background

4.2.1 Introduction to Clearwater Marine Aquarium's Stranding Efforts

Clearwater Marine Aquarium is a non-profit 501(c)(3) organization whose mission is to preserve marine life and environment while inspiring the human spirit through leadership in education, research, rescue, rehabilitation, and release of marine life. In pursuit of this mission, CMA became an integral member of the Southeast Region Stranding Network in 1979. Since this inception, CMA's Stranding Team has responded to a total of 574 stranded cetaceans and over 1,500 sea turtles (Figure 2). These responses include single stranding events, mass stranding events, and Unusual Mortality Events (UME's). UME's are of particular interest as they involve unexpected strandings, which can involve a significant amount of animal die-offs. By responding to the stranding events listed above, CMA is able to contribute to cetacean and sea turtle research including habitat distribution, anatomy and physiology, behavior, acoustics, medicine, effects of human interactions, and more. Ultimately, this data can be utilized to help conserve marine life and their environments. It is critical to promote the conservation of marine mammals and sea turtles, as they are excellent indicators of the ocean's health, as well as play a critical role in the ecosystem and economy (e.g. ecotourism).

4.2.2 Statement of Problem

Unlike most stranding facilities, Clearwater Marine Aquarium also provides for the permanent residence and care of stranded animals that are unable to return to the wild. Currently, eleven sea turtles and four Atlantic bottlenose dolphins (*Tursiops truncatus*) reside at CMA. This includes “Winter”, an orphaned dolphin who unfortunately lost her tail as a result of being entangled in a crab trap line (Figure 3). These animals serve as ambassadors for their wildlife counterparts, and thus aid in promoting ocean and marine life education locally and even worldwide via the blockbuster film “Dolphin Tale”.

Until now, CMA has had only one facility dedicated to both stranded and resident animals. This limits CMA’s stranding capacities, largely because stranded animals must be entirely quarantined to mitigate the risk of disease transmission (e.g. morbillivirus; fibropapilloma virus) to CMA’s resident stock. As a result, CMA can only rehabilitate a certain number/type of marine animals and moreover, is unable to conduct in-house necropsies. To address these issues, CMA has recently completed the construction of a separate facility known as Critical Care, which is solely dedicated to stranding efforts. The Critical Care facility includes sea turtle and marine mammal pool systems. Highlights of the marine mammal pool system is that it includes a fiberglass false bottom to safely conduct medical procedures, as well as an overhead rail system for transporting animals from the ground level to the appropriate pool (Figure 4). Below the pool system is the designated quarantine support facility. This area includes storage space, a laundry facility, a diet preparation room, restrooms with showers, a break room, an office, multiple underwater viewing areas, and a necropsy laboratory with a walk-in cooler and freezer. By establishing Critical Care, CMA is ensuring for the health and safety of CMA’s animals via minimizing the transmission of pathogens, whilst promoting stranding efforts via research and rehabilitation.

Although construction has been completed, the Critical Care Facility has yet to be outfitted with the appropriate stranding equipment and supplies and is therefore, not operational. Unfortunately, these items are costly and minimal funding opportunity exists for stranding efforts, particularly in regards to cetaceans. The single federal funding dedicated to cetacean stranding efforts, is currently being reviewed by congress and may not be granted for fiscal year 2013 (i.e. Prescott Grant Program). Minimal financial resources have not only limited CMA’s capacity to outfit Critical Care, but also CMA’s staffing and transport equipment required for stranding events. Cumulatively, this hinders stranding responses and therefore, critical research contributions. This is of particular concerns for strandings that occur in the high priority counties of Pasco, Hernando, Citrus, and Levy, where data collection is severely limited.

4.3 Objectives

The primary purpose of this project is to establish a functioning Critical Care facility dedicated to the research, rescue, rehabilitation, and release of stranded cetaceans and sea turtles. To achieve this aim, the following objectives must be met:

- Enhance cetacean and sea turtle research, rescue, and rehabilitation efforts by fully outfitting personnel and animal care areas in Critical Care

- Facilitate transport of live and deceased animals via acquisition of applicable equipment
- Promote data collection of deceased animals via hiring stranding staff, public outreach, and outfitting the necropsy laboratory in Critical Care

4.4 Methodology

4.4.1 Outfit Personnel and Animal Care Areas in Critical Care

Clearwater Marine Aquarium's Stranding Team is composed of over 80 members including staff, interns, and volunteers. These members assist with all aspects of strandings but play a critical role particularly during the long-term rehabilitation of a cetacean (Figure 5). During the onset of rehabilitation, cetaceans are usually monitored on a 24-hour basis, which means that members are needed around the clock. In addition to monitoring animals (i.e. cetaceans or sea turtles), members also aid with research, diet preparation, as well as sanitizing and maintaining equipment, supplies, and facility grounds. In order to provide for the health, safety, and needs of all personnel, the following areas in Critical Care have been constructed and require outfitting: male and female restrooms, a break room/kitchen, and an office. It is important to note that the office will not only serve as a space for Stranding Team staff and researchers, but will also be utilized for conducting research, storing records, and performing in-house laboratory exams.

The Critical Care facility also contains multiple areas that are dedicated to animal care and which also require outfitting. For rescues, there are two areas allotted, one for storing capture/transport equipment (e.g. stretchers) and another for storing first response items (e.g. medical kits and rescue bags). These areas are located near the main entrance/exit of Critical Care for easy access by first responders. For rehabilitation, there are two rooms allotted, one for diet preparation and another for storing rehabilitation items (e.g. dive gear, medical supplies, and environmental enrichment devices). The diet preparation room will be used to create and safely store liquid, food, and medicine necessary for the care of sick/injured animals. Additional areas utilized for all aspects of animal care include a storage space as well as laundry facilities. These areas will be used for maintaining surplus equipment and supplies on property, as well as for the proper decontamination of all stranding items to mitigate disease transmission.

4.4.2 Acquire Transportation Equipment

The following equipment will be utilized to facilitate the transport of both live and deceased cetaceans and sea turtles:

1. Sea-Doo GTI 130 Model

Jet skis will be utilized for monitoring live animals in distress, as well as for safely towing small carcasses. This vessel can be easily launched from any water access and thus can significantly expedite response time. Additional features of this particular model include ability to reverse, storage area, easy to maneuver, and user friendly.

2. Pickup Truck and Trailer

At present, there are no trucks available solely for stranding responses at Clearwater Marine Aquarium. By acquiring a pickup truck and trailer, CMA's Stranding Team will be able to efficiently tow stranding jet skis to the stranding site at all times. This is particularly critical when dealing with a live stranded animal.

3. EZ Lift System

This piece of equipment will be installed to a pickup truck, to facilitate the effective and rapid transport of cetacean carcasses to a necropsy laboratory. A highlight of the EZ Lift System is that it requires minimum personnel, which reduces the number of individuals required to transport deceased animals. This is important, as CMA heavily relies on its limited staff and volunteers to successfully operate the aquarium in addition to stranding.

4. Heavy Duty, Aluminum Truck Lift

Currently, CMA's Stranding Van is outfitted with a ramp for transporting live stranded animals from the beach into the van. The issue with this method is that it necessitates a significant amount of personnel. Furthermore, it can lead to unnecessary risk due to how the personnel are positioned on the ramp. By purchasing the lift, CMA will be able to alleviate these issues and thus enable the safe and rapid transport of live stranded animals for release and rehabilitation.

4.4.3 Hire Stranding Staff, Conduct Public Outreach, and Outfit Necropsy Laboratory in Critical Care

To date, most of Clearwater Marine Aquarium's stranding responses have entailed deceased animals. This documented history of responding to deceased cetaceans has catalyzed CMA's need to create a permanent necropsy laboratory onsite. A critical element to the establishment of this necropsy laboratory is the hiring of a full-time, permanent Stranding Biologist at CMA. The Stranding Biologist's responsibilities will include managing and coordinating CMA's stranding efforts and Critical Care by responding to live and deceased stranded animals, completing required documentation, developing and conducting research projects on both stranded and wild marine life populations, maintaining stranding vehicles and equipment, training/coordinating volunteers for response, directing research and education outreach efforts, acting as a liaison between CMA and other regional facilities, and conducting necropsies. By filling this vital position, CMA will be better prepared to respond to marine animals in distress. Moreover, the Stranding Biologist will enhance the functionality of CMA's organization, as it relates to strandings and necropsies, particularly in the light of the current stranding facility expansion. This individual would also address the current lack of designated, full-time Stranding Team staff, volunteer/intern turnover, and insufficient volunteer training, which are all self-limiting.

Historically, most of Clearwater Marine Aquarium's stranding responses have been in Pinellas County. This is likely due to the aquarium being located in this county, which leads to increased community awareness about cetacean and sea turtle strandings. CMA needs to enhance response capacity and community awareness in all of the designated response areas, particularly in the high priority counties of Pasco, Hernando, Citrus, and Levy. Therefore, CMA aims to

develop and implement a long-term educational outreach plan. This educational outreach plan will involve the development and strategic placement of stranding media and signage at beach accesses and marinas, conducting monthly coastal clean-up events, and teaching a basic stranding workshop to local law enforcement. The ultimate goal is to increase CMA's stranding response in high priority counties through enhancing community awareness.

The final aim of this project is to complete the outfitting of the Critical Care Facility via purchasing all equipment necessary for the necropsy laboratory (Figure 6). This equipment will be utilized for storage, documentation, gross examination, sample collection and analysis (e.g. histology), and carcass disposal. CMA will acquire sanitation and personal protection equipment, in order to provide optimal health and safety to CMA staff and volunteers. This will also further prevent the transmission of pathogens to personnel and resident animals.

4.5 Dissemination

By achieving the objectives listed in this project, Clearwater Marine Aquarium will be able to drastically enhance stranding efforts made on cetaceans and sea turtles in the Gulf of Mexico. These efforts will further data collection, including data on animals that strand in high priority counties. All data obtained will be shared via various outlets. For instance, detailed information regarding all live and deceased stranded cetaceans is disseminated through an online, publicly accessible, database known as the Marine Mammal National Database. Through this outlet, CMA is able to contribute to a wide range of research including habitat distribution, human interactions, and more. In addition to the database, CMA will continue to disseminate both cetacean and sea turtle stranding data to fellow stranding organizations and researchers. Moreover, CMA is interested in strengthening their relationship with University of South Florida (i.e. Dr. Steven Murawski) and will do so, via sharing data and inviting students to the Critical Care facility to participate in necropsies.

5.0 Estimated Project Costs

The 6-year budget for this project is \$348,637 (review attached budgets). In the first year, Clearwater Marine Aquarium will completely outfit all areas of the Critical Care facility, including areas for human use, animal care, and necropsy. Furthermore, equipment utilized to transport both live and deceased cetaceans and sea turtles will be purchased. From 2013-2018, remaining funds will be allocated to promoting public outreach as well as hiring a full-time Stranding Biologist.

6.0 Other Funding

Other funding for this project is being considered by John H. Prescott Marine Mammal Rescue Assistance Grant and The William H. Donner Foundation, Inc.

7.0 Technical Feasibility

The major technological items of this project include those that will be used for collecting, storing, and processing samples from deceased stranded animals, as well as from live

animals in rehabilitation. All items were selected because they are technologies that are utilized by other stranding organizations, and thus highly recommended. For instance, the VetScan i-STAT 1 Analyzer, which is a portable device that rapidly analyzes blood and therefore aids in assessing the health of rescued/rehabilitating animals. Clearwater Marine Aquarium's Stranding Team is composed of trained personnel, including veterinarians and veterinary technicians, who have experience handling this type of equipment.

8.0 Environmental Benefits

As a formal stranding organization, Clearwater Marine Aquarium is committed to providing for the welfare of stranded animals and the public, whilst maximizing data collection. Data collected on cetaceans and sea turtles in the wild can be challenging due to limited resources, expenses, and difficulty of detecting and monitoring animals. Thus strandings, albeit from necropsies, rehabilitation, or releases, are an excellent opportunity to easily further cetacean and sea turtle research regarding habitat distribution, anatomy and physiology, behavior, acoustics, medicine, effects of human interactions, and more. Such research is particularly important for furthering our knowledge on animals that are endangered and/or understudied (e.g. beaked whales and Kemp's Ridley sea turtles). CMA's dedication is additionally extended to promote conservation awareness to the public (e.g. films, aquarium narrations and interactions, ecotours, etc.) while supporting appropriate management and policies (e.g. Dolphin SMART). By promoting the conservation of charismatic dolphins, whales, and sea turtles, CMA is able to simultaneously promote conservation regarding other marine life (e.g. sharks and waterfowl) and their environments. Furthermore, it is vital to conserve cetaceans and sea turtles because of their role in the ecosystem (e.g. keystone species), and because they can serve as indicators of the ocean's health, in regards to emerging diseases, presence of harmful algal blooms, and effects of oil spills.

9.0 Economic and Social Benefits

Enhancing Clearwater Marine Aquarium's stranding capacity will lead to multiple economic and social benefits. The primary economic benefits include generating both local and international revenue via supporting tourism (e.g. ecotours) and media industries (e.g. documentaries). Additionally, this project will create a position for the Stranding Team, which will ideally promote the need to hire additional staff for that department. The primary social benefit of this project is that it will contribute to the conservation of animals that are sentinel species. That is, cetaceans and sea turtles can indicate issues (e.g. contaminants) that are present in areas that are heavily utilized by human populations such as central west coast of Florida. Therefore, it is important to monitor local marine life stocks, as it can lead to the prevention/mitigation of issues that can negatively impact people.

10.0 Community Resilience

Many of Clearwater Marine Aquarium responses entail threatened or endangered species (e.g. Kemp's Ridley sea turtle), as well as understudied species (e.g. Dwarf and Pygmy sperm whales). In order to contribute to current research, policy, and management of these animals and others, it is important to obtain quality data pertaining to life history, habitat distribution, and

human interactions. This information is of significant relevance to Unusual Mortality Events and understanding its etiology. Further knowledge on the causes of stranding events will ultimately contribute to our understanding on how to prevent and/or mitigate them in the future.

11.0 Conflicts or Complements to Existing Efforts

Clearwater Marine Aquarium is not aware of any conflicts between the proposed project and any other activities in the area. This project will compliment efforts from other stranding organizations by contributing to the Marine Mammal National Database.

12.0 Complies with Federal, State, Local, and Tribal Laws/Regulations

Clearwater Marine Aquarium does not identify any concerns or potential conflicts with Federal, State, Local, or Tribal Laws/Regulations.

13.0 Readiness for Implementation

Clearwater Marine Aquarium is permitted to rescue, rehabilitate, and release cetaceans and sea turtles under National Marine Fisheries Service and Florida Fish and Wildlife Conservation Commission. Furthermore, the construction of the Critical Care facility is already completed. Thus, CMA will be able to initiate the project immediately upon funding approval.

14.0 Public Acceptance

Cetaceans and sea turtles are charismatic animals that promote interest amongst the general public. It is for this reason, that many individuals support Clearwater Marine Aquarium's mission to rescue, rehabilitate, and release marine life in distress. In 29 years of responding to strandings and promoting education, CMA has been able to develop a strong relationship with the Gulf of Mexico community (Figure 7). Moreover, through the blockbuster film "Dolphin Tale", CMA has been able to raise public acceptance worldwide. This project aims to expand upon CMA's current stranding capacities and therefore, it is likely that the public's acceptance of our mission will persist, if not increase. Fisheries and tourist stake holders may also support this project, as it will contribute to the conservation of animals (i.e. key stone species) that are critical for maintaining the health of the very ecosystem these industries rely on.

15.0 Additional Information

Please review attached appendices.