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Marine Mammal Rescue, Rehabilitation and Release Centers

“Every part of the earth is sacred to my people. Every shining pine needle...every humming insect is holy in the memory and the experience of my people....All things share the same breath- the beasts, the trees the man....I have seen a thousand rotting buffalos on the prairies, left by the white man who shot them from a passing train. I am a savage and I do not understand....What is man without the beasts? If all beasts were gone, man would die from great loneliness of spirit, for whatever happens to the beasts also happens to man. All things are connected” (Barrett 693). Chief Sealth, Duwamish Tribe, Washington State, 1855.

Chief Sealth spoke these words over a century ago out of a passionate concern for the future of wild creatures of the land. It has only been in the last few decades that man has truly begun to recognize that we are part of nature rather than masters of nature. Unfortunately, we can see the results of our devastation on natural habitats and ecosystems. In the end, it will not be power or politics that curtails our destruction but individuals wanting to live peacefully and in harmony with nature that will foster global inspiration. (Barrett 693)

For those of us captivated by the power of the sea, marine mammals emerge as a natural focus of attention in curtailing the daily impact of mankind. This negative impact that humans have on the marine ecosystem is substantial. We are depleting this natural resource and important ecosystem by means of consumption and pollution. We humans, as a global race, must find ways to curb the negative impact on this ecosystem and begin to revive an important cycle of life that will ultimately affect the human race. One aspect of giving back to that which we have damaged is through education and research grounded in a program of a marine mammal rescue, rehabilitation and release.

Humans meet marine mammals at the shoreline or aboard boats and at first glance, there seems to be little in common, but as Chief Sealth stated, “All things are connected” (Barrett 693). In an unfortunate event in the early 1970's where more than 600,000 dolphins were killed by tuna fishing operations, the United States Congress passed the Marine Mammal Protection Act (MMPA). This was to protect all species of whales, dolphins, sea lions, seals, polar bears, walruses, manatees, and sea otters from the negative effects of human activities. According to the MMPA Finding and Declaration of Policy:

“certain species and population stocks of marine mammals are, or may be, in danger of extinction or depletion by a result of human activity...such species and

population stocks should not be permitted to diminish beyond the point at which they cease to be significant functioning element in the ecosystem...they should not be permitted to diminish below their optimal sustainable population....Measures should immediately be taken to replenish any species or population stock which has already diminished below that population... efforts should be made to protect essential habitats, including the rookeries, mating grounds, and areas of significances for each species of marine mammals from adverse effects of man's actions....Marine mammals have proven themselves to be resources of great international significance, esthetic and recreational as well as economic, and it is the sense of the Congress that they should be protected and encouraged to develop to the greatest extent feasible commensurate with sound policies of resource management and that the primary objective be...to maintain the health and stability of the marine ecosystem" (NOAA 1)

This has led to a global emergence of marine rescue, rehabilitation and release programs focused on the care of stranded marine mammals. Prior to rescuing stranded marine mammals, they were either left on the beaches to die or were destroyed as threats to public health. Today we have learned that the more we rescue, study and examine marine mammals; we are looking through a window of a world of limited understanding but we are beginning to find many connections. Most importantly the human race and marine mammals share common disease processes caused by the effects of pollution on the ocean and earth. Since our intrusion into the watery world, we have changed the natural balance and diversity of life in the marine ecosystem. With this growing concern, efforts to heal stranded marine mammals along our coast will generate knowledge that can be applied to conserving whole species, even our own. (Barrett 693)

"A stranded marine mammal is any fully aquatic animal (whale, porpoise, dolphin, manatee) discovered live or dead outside its marine environment, either floating near shore or washed up onshore...Seals, sea lions, fur seals, walruses, sea otters and polar bears...periodically undertake terrestrial activities...if found dead on beaches, floating or washed up on shore, or if they haul-out on land in urban settings....Need not be ill or injured to be considered stranded" (Dierauf 667).

Because of the negative impact on both the stranded animal as well as the person trying to help, stranded marine mammals should only be assisted by professionals. There are some simple tips to follow when coming in contact with a stranded marine mammal:

"Do not touch the animal because they can bite, inflict serious injury and transmit disease. Do not push the animal back to sea- scientist need to assess the animal as quickly as possible and this delays the process and can create undue harm to the animal. View the animal from a distance and keep crowds at least 50 yards away from the animal; maintain a safe distance perimeter as stranded animals can hurt pedestrians. Wild animals can become very stressed by human presence so keep the area as quiet as possible to reduce trauma. Do not throw water on the animal's head; this could inadvertently cause drowning if water got into the

blowhole. Do not cover the animal's blowhole, this could cause suffocation" (Marine 1).

Every animal undergoes some forms of stress and "subjection to stress at frequent intervals stimulates organic mechanisms to react in ways essential to survival" (Dierauf 299).

"Marine mammals, having evolved in the rigorous aquatic environment, may well be adapted to cope with stressors starting with capture, transport to the holding area, acclimation to captivity, and changes in social environments....The movement of a marine mammal from its established environment to one where it has to reestablish itself in a different social order will stimulate a biologic response. The change or the new setting may be perceived as a threat from which the animal cannot escape" (Dierauf 296).

In this respect, veterinarians should pay close attention not to react prematurely to animal's adaptability to stressors because it could interfere with the natural "adaptive homeostasis Mechanisms" (Dierauf 299).

Transporting marine mammals is a demanding process and has developed over the years to cope with the unique physiology of the marine mammal. To achieve safe and successful transport, there has to be crucial attention to detail and technique. The most difficult and complex marine mammal to transport are the cetaceans (whales, dolphins and porpoises) because it has to have "constant monitoring to detect respiratory, thermoregulatory, postural and behavioral abnormalities" (Joseph 543). "Cetaceans spent their entire life in water, which provides uniform support by equal distribution...the result is functional weightlessness allowing nearly effortless respiration" (Joseph 544). There are two primary criteria for transporting Cetaceans successfully; (1) "adequate body support for comfort and well being, (2) temperature control to assist with thermoregulation" (Joseph 544). Today, Cetaceans are transported in fabric stretchers, suspended in water filled boxes. This closely resembles their natural buoyancy in the water. Since the Cetaceans are enclosed with a thick layer of insulating blubber, the thermoregulation allows for proper vascular circulation because they can not dissipate excess heat when removed from water (Joseph 544). This can be done in several ways by suspending in water filled containers with temperature controls or by filling the container with ice. Upon arrival to destination, these marine mammals are released in deep pools and monitored for respiratory problems for about 24 hours. Other marine mammals are less complex to transport but all have to have their thermoregulatory needs monitored to prevent overheating for safe and successful transport.

When housing a marine mammal it is crucial that the water quality closely reflects the natural habitat of the housed marine mammal. This helps relieve the stress associated with capture and transport. The water can be obtained from the sea or be made artificially. Artificial seawater is preferable because it will not be polluted and can be made from filtered city tap water. If the sea water or artificial seawater is not available then freshwater can be used to sustain life; but salty water needs to be introduced

periodically. There are a couple of different systems available for housing marine mammals. There is the open system where the animal is housed in pens located in conditions closely related to the natural habitat but with no true means of water quality control and there are semi-open and closed systems where the water is replaced with the use of filters to remove toxins. Understanding the chemistry of seawater and the environment of the marine mammal is critical for maintaining a healthy animal. (Faulk 537)

When marine mammals have been rescued and rehabilitated, it is time to release them back to their natural habitat. The release process is very simple. Transplant the animal back to where it was found or to similar habitat and let it go. The monitoring of these animals is crucial to scientific study. All marine mammals rehabilitated are tagged with special transmitters that broadcast radio waves for about 10 miles in diameter. In this manner, movement can be monitored. Out of 600 pinnipeds (seals, sea lions and walruses) that were released back to the wild, marked with orange tags, 350 have subsequently been sighted. (Hyman 270)

This leads to the designing a facility for aquatic animals. The preferable design would be no design in that these animals should be able to live stress free from man's negative impact in their own natural environment. There is no marine mammal in captivity living in what we call natural conditions. Natural and captive are contradictory because natural refers to being wild and responding to various stimuli which lead them to learn how to cope with those stimuli for their own well being. Captive refers to controlled stimuli and a false impression of natural settings by design. The animal's behavior is altered because the evolutionary track is no longer apparent. In captive environments, we typically provide little or no opportunity for these basic learned traits. What is meant by this is that the species depending on learned behavior such as safety from predators, mating and obtaining shelter are no longer learned in a controlled environment. There is a need to develop naturalistic contingencies in captive habitats. All animals if captive should be housed in which the behavioral traits can be learned rather than hindered. (Markowitz 483)

Designing environments like the wild, "in which the animal have proportionately more control of the timing of their activities is preferable" (Markowitz 484). This allows for the animals to develop survival and hunting techniques which in turns allows for healthy growth. In captivity, where everything is scripted, these animals are "given no motivation or opportunity for the chase" which makes us all wild (Markowitz 484). "Active work in environmental engineering should allow us to satisfy desires to provide animals with a better measure of dignity and control of their environments in naturalistic fashion. Proper use of contemporary materials and building techniques by designers can provide responsive environments in which the animal will display substantial parts of their natural behavioral repertoires" (Markowitz 484).

What needs to be encouraged is the wellness of the marine mammal in captivity that provides an enriching environment. "We must research literature about the captive husbandry...about problems and success in previous effects to keep the species in

captivity.... Study behavior in the natural habitat...so that elements are integrated into the design so the design provides naturalistic opportunities that will engage the marine mammal in healthful, species appropriate opportunities” (Markowitz 485). In a case study of a cetacean species, when they are ill they will seek out narrow passages in the wild for protection. In aquatic tanks the design of passages with one way mirrors for observation would provide optimal conditions for examining. In the case for pinnipeds where areas for hauling out are preferable, these areas should be “attractive and representative of natural haul-out areas” (Markowitz 486). Typically the tanks are drained and the seal, sea lion or walrus are persuaded into apparatuses and restrained. These conditions are uncomfortable. “Environmental haul-out areas can be designed to be more interesting and naturalistic...such as smooth rocky areas for their use and distribute prey items in a naturalistic fashion that will encourage the animal to enter areas and simultaneously incorporate safer and more functional areas for restraint, examination and treatment” (Markowitz 486).

The goal of these facilities are to rescue, treat, and study sick, injured, or orphaned marine mammals and return them, healthy and wild to their natural habitat. Caring for stranded marine mammals provides an opportunity for a secondary goal of encouraging a healthy relationship between people and the natural environment. When designing habitats which promote wellness, they should be done to minimize the probability of injury while still providing opportunity for significant appropriate activity. In displaying captive animals for the higher intelligent species and to educate the young with useful knowledge and promote conservation ethics, we can not treat the animals as clowns or gods but we need to provide a source of dignity and richness that provide the optimal opportunity in order to learn the most from captive animals.