

## **Cetacean and Pinniped Transport Best Practices**

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# 1. Introduction

## 1.1 Background

In 1992, the Marine Mammal Health and Stranding Response Program (MMHSRP), under the National Marine Fisheries Service (NMFS), was established by Congress under Title IV of the Marine Mammal Protection Act (MMPA). The MMHSRP serves to coordinate marine mammal stranding response efforts in the United States by working to standardize regional network operations and define national stranding response policy. NMFS published the guidance document “Standards for Release” in 2009 as part of the broader Policies and Best Practices: Marine Mammal Stranding Response, Rehabilitation, and Release. The Standards for Release give detailed protocols for rehabilitation and release, but there are no detailed guidelines for transport of animals to or from rehabilitation. The MMHSRP also holds a MMPA/Endangered Species Act (ESA) research and enhancement permit that allows the program to authorize qualified individuals to transport ESA-listed cetaceans and pinnipeds.

## 1.2 Legislation Pertinent to Marine Mammals

There are two key pieces of legislation that govern interactions with marine mammals in the United States.

Marine Mammal Protection Act (MMPA): The MMPA, signed into law in 1972, prohibits the “take” of marine mammals in U.S. waters and by U.S. citizens on the high seas, which includes harassing or disturbing these animals, as well as harming or killing, unless such take is specifically exempted in the statute or authorized. The MMPA divides responsibility for marine mammal species between the Secretary of Commerce, who oversees NMFS, and the Secretary of the Interior, who oversees the United States Fish and Wildlife Service (USFWS). NMFS has jurisdiction over cetacean and pinniped species (with the exception of walrus), and USFWS has jurisdiction over walrus, polar bear, sea otters, and manatees. The 1992 amendments to the MMPA included Title IV of the MMPA, which established the MMHSRP under NMFS to collect and disseminate information about the health of marine mammals and health trends of marine mammal populations through the collection of stranding data.

Endangered Species Act (ESA): The ESA, enacted in 1973, provides for the conservation of species that are listed as endangered (in danger of extinction) or threatened (at risk of becoming endangered in the foreseeable future). The ESA also contains a prohibition on “take” including harassment and disturbance as well as injuring and killing. Specifically for live animal transportation, there are regulations that apply to marine mammals in permanent captivity or research (9 CFR § 3.116). However, these are not required for animals in rehabilitation.

The International Air Transport Association's (IATA) Live Animals Regulations (LAR) is the worldwide standard for transporting live animals by commercial airlines to ensure safety and animal welfare are addressed (<https://www.iata.org/en/programs/cargo/live-animals/>). These regulations apply to all parties involved in the transportation of the live animals to ensure the animal's welfare is the top concern.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) guidelines address the international transport of certain marine animals and prevent illegal trafficking of endangered species. For more detailed information on the CITES guidelines refer to <https://www.cites.org/eng/resources/transport/index.php>.

### **1.3 Intended Uses of Best Practices**

NMFS and the Marine Mammal Stranding Network (Stranding Network) have developed protocols and procedures for transportation of live marine mammals to rehabilitation facilities or other locations while ensuring the health, welfare, and safety of both the human responders and animals. These protocols balance the need for standardized procedures while allowing flexibility to address specific needs of different situations for diverse species and habitats, as well as unforeseen circumstances. For more information on general stranded marine mammal rescue and rehabilitation, the reader should consult references such as *Marine Mammals Ashore* (Geraci *et al.* 2005) and the *CRC Handbook of Marine Mammal Medicine* (Gulland *et al.* 2018). Human and animal safety is the top priority for NMFS and the Stranding Network, and it is pertinent to prepare, if possible, a detailed transportation plan. Each event is unique and requires the consideration of multiple aspects, which are addressed below.

These Cetacean and Pinniped Transportation Best Practices highlight general procedures specific to cetacean and pinniped transportation requirements and handling of various scenarios. These Best Practices do not specifically address mass strandings, although some aspects in these Best Practices may be applicable in a mass stranding event. For more specific details on mass strandings, refer to the Mass Stranding Best Practices. Additionally, these Best Practices are designed to be paired with more specific regional guidelines to address significant issues that may exist including species-specific issues that are more appropriate to address at regional or state levels.

### **1.4 Funding**

The John H. Prescott Marine Mammal Rescue Assistance Grant Program provides funding for eligible members of the Network through an annual competitive grant process. These grants support the rescue and rehabilitation of stranded marine mammals (including small cetacean interventions), data collection from living or dead stranded marine mammals for health research, and facility operation costs. However, as these grants are competitive and many members do not receive these funds, individual Network

members often also support many of the costs for normal operations. Determining whether funding is available for an intervention is an important first consideration, as lack of funds or available in-kind donations (*e.g.*, boat use) may limit available options for response.

## **2. Planning for Transportation**

Transportation refers to the movement of a marine mammal from one location to another utilizing a carrier or conveyance system. Transporting marine mammals poses many challenges. Typically, during transportation, an animal will not have access to its normal aquatic environment that provides physical support, temperature control, and freedom of movement. Transportation planning can vary per region, depending on length of transport, species characteristics, and temperature. It is recommended that anyone planning to transport marine mammals should consult experts prior to shipping for up-to-date expertise and methodologies to ensure the health of the animals (CCAC, 2014).

### **2.1 Crew/Escorts**

Each transport should have a designated transport coordinator responsible for all aspects of the transport in addition to experienced escorts/crew. An escort or crew member is defined as a qualified NOAA or Stranding Network facility staff person/volunteer or designee that has been trained in monitoring pinnipeds and/or cetaceans and is able to identify emerging health concerns and administer treatment, medications, and/or fluids if needed under the instruction of a veterinarian. It is also preferred to have veterinary staff attend the transport; if not available, one will be available at all times during transport for a phone consultation. However, there may be specific situations where a veterinarian is required to be present.

Recommendations for all attendants who accompany marine mammals during transportation include:

- Ability to recognize signs of stress in the animal, their causes, and how to reduce these causes;
- Ability to recognize an animal which is ill or becomes unfit for transport; and
- Skill in the treatment of injuries, when and how to administer veterinary drugs (when and where permitted), and when and how to immobilize an animal, if necessary.

Additionally, attendants accompanying marine mammals for air transport recommend the following (CCAC, 2014):

- knowledge of the appropriate handling and care of animals during loading, takeoff, flight, landing, and unloading, and any restrictions on animal care staff; and
- working knowledge of aircraft and airport operations and procedures

Because inherent risks can be encountered during transportation, methods used to transport and restrain

an animal should minimize risk, stress, and pain to the animal while also ensuring the safety of both the animal and transport crew. Additional recommendations for transport include:

- Create a written safety protocol with emergency numbers to be kept with first aid kits.
- Transport staff will only conduct procedures for which they meet minimum qualifications and training.
- Personnel will wear appropriate personal protective equipment (PPE) such as strong, non-slip footwear, gloves, and coveralls as necessary, and all persons handling delivery devices or drugs will be wearing proper PPE (*e.g.*, long sleeves, pants, latex gloves, safety glasses, and masks when loading syringes).
- If drugs are to be used, they should be recorded on an emergency response sheet in case of accidental human exposure, so emergency medical services can quickly evaluate human exposure.
- A veterinarian will be present if sedation is used.
- Transport staff are trained in basic first aid and first aid kits are readily available.

A sufficient number of crew/escorts are assigned as necessary to provide for physical and medical needs of the animals. There may be different minimums depending upon transportation method (*e.g.*, per vehicle, per animal, with a minimum of two attendants per transport). On transports of five or more cetaceans, additional attendants may be added at the discretion of the veterinarian and/or transport coordinator. For pinnipeds, the number of accompanying staff is dependent on the number of animals and, ideally, a minimum of two staff per transport will be used, when feasible, for driver safety.

Transport drivers should take safety breaks every four to six hours to avoid driving fatigue and to physically assess the animal. It is also suggested that when driving more than 48 hours, the driver increases the frequency of breaks for their own safety.

## **2.2 Logistics**

A well-defined plan, as well as good record keeping and reporting, is essential for the continued well-being of the animal during transportation.

The transport plan should ensure that best practices are followed. Dependent on the transportation needs and location, a transport plan can include any or all of the following: details of pre-trip treatment and care (if any), transport, and contingency plans in case of possible emergencies (refer to Appendix C for example transport plans). Different transport scenarios can have more simplified or complex plans, such as, describing the itinerary, contact list and numbers, pre-transport needs, during transportation monitoring, post-transport and follow-up monitoring of the animal, and contingency plan.

Consideration of weather forecasts and location are essential for the transport plan, and should be consulted prior to transport. Escorts/Crew (especially vessel crews) should consider: wind, precipitation,

fog, sea state, and incoming storm systems or any other changes in weather. For vessel crews, environmental conditions that should be assessed include: tides, currents, substrate (*e.g.*, rocky, slippery kelp, coral, cultural resources at risk), and incoming surf. The temperature should also be considered for all crews.

Communication is important when managing transport logistics. It is essential for the crew to be informed of the presence of the marine mammal on board the vehicle/vessel/aircraft, the specific temperature and ventilation requirements, and the necessity of informing the individual accompanying the animal of any unexpected delays as soon as they are known. Transport crews should have cell or satellite phones or radios to communicate.

### **2.3 Transport Carriers**

Transport carriers are necessary for the transport of marine mammals. Recommendations for the construction of transport carriers are that carriers should:

- be constructed from materials sufficiently strong to contain the animal(s) and withstand the normal rigors of transportation;
- be constructed from non-toxic, durable materials that cannot be chewed or swallowed;
- be constructed of materials designed to minimize potential abrasions to the animal(s)' skin;
- have interiors which are free from any openings or protrusions that could injure the animal(s);
- be easy to sanitize;
- be constructed so that no parts of the contained animal(s) are exposed to the outside of the containers;
- have openings with locking devices that make the animal(s) easily accessible at all times for emergency removal or treatment;
- have air inlets on each side of the containers at heights suitable for cross ventilation; and
- have adequate handholds or other devices on the exterior to facilitate lifting without unnecessary tilting, and to ensure that the persons handling the containers do not come into contact with the animal(s).

### **2.4 Decision Making and Contingency**

In the process of decision making, the safest and most expedient method of transportation should be used. It must be safe and should minimize stress, with the greatest emphasis on the well-being of the animals. Time in transit for transporting marine mammals should be kept to a minimum and best transport practices must be used with consultation with appropriate experts, if needed. Decision making should also take in the following considerations:

- Human safety
- Logistics

- Environmental conditions
- Social needs
- Injuries
- Stress and shock
- Available resources
- Rehabilitation space

When the decision is made to transport the animal, options for contingency should always be noted in the plan. Pre-transport protocols allow for outlining possible emergencies or unusual situations that may occur and possible contingency plans for dealing with situations. These situations include, but are not limited to, the following:

1. Repositioning of animal; keeping the animal cooled or warmed sufficiently; ensuring pectoral flippers are allowed freedom of motion at all times for cetaceans;
2. Calming the animal – contingency plans for calming animals include positioning according to compatibility and repositioning if necessary, and administering appropriate sedative if needed;
3. Medical assistance – veterinary administration of medications or first aid as required;
4. Loss of power (*i.e.*, availability of flashlights and batteries);
5. Animal health emergencies – continual availability of veterinarian for consultation;
6. Inability of any transport crew member(s) to perform their assigned duties;
7. Equipment failure/malfunctions (*e.g.*, truck or forklift breakdowns, etc.);
8. Airport diversions, road construction and delays in transport (contingency plans for delays must include ability to maintain animal temperature);
9. Hazardous weather for boat travel; and
10. Escape of pinnipeds from primary containers.

### **3. Pinnipeds**

#### **3.1 Overview**

Pinniped transport is less complex than that of cetaceans because pinnipeds are able to tolerate long periods out of water if kept cool and/or moist (Gulland *et al.* 2018). All transport crates should have



ventilation on the sides and front and be made of heavy-duty material (*e.g.*, plastic, metal, etc.). Cage dimensions must be large enough to allow the animal to turn around and exhibit normal posturing during transport (Gulland *et al.* 2018). Containers must be properly secured at all times. Specifically for fur seals, it is recommended the cages have a double base to allow separation between the animal and fluid and excrement that may soil the fur.

In general, animals shall be transported in carriers based on their weight (see examples below).

<b>Weight</b>	<b>Transport Carriers</b>
10-15 kg	#300 carriers
15-30 kg	#400 carriers
30- 40 kg	#500 carriers
40-75 kg	#700 carriers
75-150 kg	small metal carrier
>150 kg	large metal carrier

### **3.2 Observations/Monitoring**

Pinnipeds must be evaluated before transporting. An example general physical examination form is provided in Appendix B. Initially, the animals will be closely observed for signs of acute stress (*e.g.*, continued high respiration and heart rate, agitated behavior, shaking) prior to loading on a transport vehicle.

Monitoring should be conducted throughout transportation and animals evaluated for changes in health and behavior. When transporting, escorts/crew will look for a variety of threats, indications of stress or disease, and ways to mitigate these while observing the animal, such as:

- a) Entrapment/entanglement in cage;
- b) Abnormal discharge from body orifices;
- c) Abnormal respiration;
- d) Abnormal behavior;
- e) Change in body temperature

Pinnipeds tend to overheat in warm temperatures (*e.g.*, summer months); provide access to ice or cool water, or keep on an elevated rack with ice or ice packs underneath to ensure that the animal does not overheat when transporting during warmer months. It is suggested to wet the animal every 2-3 hours if transporting in an open vehicle in warm temperatures. Notify a veterinarian and animal care manager

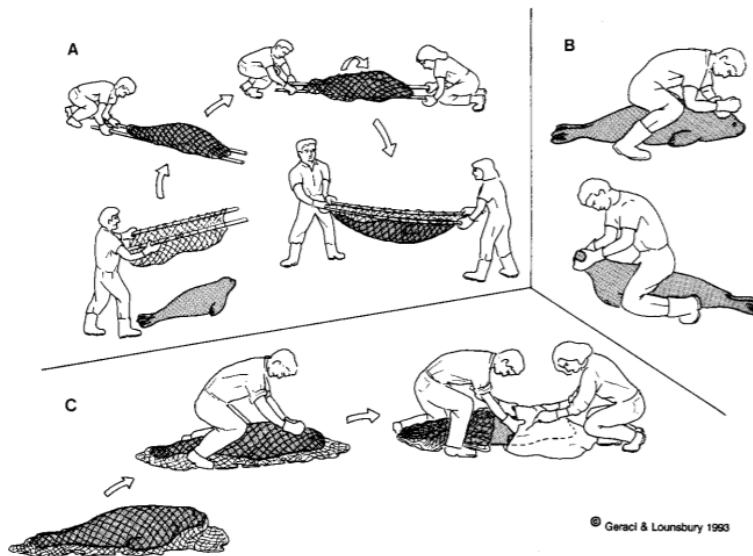
immediately if any abnormal changes in the animal's health occur during transport. If transporting a pinniped by vehicle, the driver should take breaks every two to four hours to monitor the pinniped, especially if the animal is not transported in a climate-controlled vehicle. Additionally, transport duration by vehicle should not exceed 12 hours of transit on the road. If transport duration will be longer than 12 hours, please consult with your Regional Stranding Coordinator (RSC).

### 3.3 Handling

All loading and unloading of animals should ensure the safety of the animal(s) and the handlers. Handling of pinnipeds should be conducted with care to avoid trauma, overheating, excessive cooling, distress, physical harm, and unnecessary discomfort. Those handling animals should have demonstrated expertise in currently accepted professional standards and techniques for handling the species involved. They should be able to recognize abnormal behavior and signs of distress for the species (CCAC, 2014).

When handling pinnipeds, it is important to move slowly and avoid startling gestures while limiting noise. Pinnipeds are capable of being aggressive and can bite, so gloves and closed-toed shoes must always be worn when handling these animals. Be sure to thoroughly clean hands and equipment with soap and water after handling.

Pinnipeds can be handled with manual restraint, squeeze cages, or an array of equipment such as nets, baffles, etc. Herding boards should be used, not only for protection, but to help direct the pinniped into the cage/carrier. Young pinnipeds are best restrained on land by holding their neck just behind the skull and covering their eyes with a towel; for larger or stronger pinnipeds, a second handler is needed to firmly hold the animal's front flippers against its sides (Gage, 2003). For very large or potentially aggressive species (*e.g.*, gray seals, Steller sea lions, etc.), a net, squeeze cage, wooden boards for herding, restraining beds, and pole nets may help a handler to better control the animal (CCAC, 2014).



**Figure 1:** a) Use of net stretcher in capture, b) Physical restraint suitable for small phocids, c) Capture and restraint involving through net, physical restraint, and covering head (Geraci *et al.* 2005).

### 3.4 Methods of Transportation

A variety of transportation options may be used, including large vessels (*e.g.*, NOAA ships, other chartered vessels), small vessels, airplanes, helicopters, trucks or automobiles, and other modes of transportation as appropriate depending on location and available resources. Another factor to consider when transporting pinnipeds is the number and size of animals. Below are three common transport methods and protocols.

**Vessel:** The vessel's specific capacity will determine the number of pinnipeds that may be transported at any one time. Generally, pinnipeds will be held separately, unless shared housing is determined to be beneficial for transport, and no physical contact will be made, unless a problem arises in which an examination or treatment needs to be performed. Each cage should be strapped to the deck to prevent sliding if rough seas occur. Each cage should have an opening to allow access to the animal if medical care or treatment is needed in transit. If the vessel transfer is a short transfer to shore, it is possible to net the pinniped in the water and haul it to shore before placing in a carrier. Be sure to protect animals from exhaust fumes, direct sun, heat, and wind.

**Aircraft:** All pinnipeds must be transported in cages. Animal coordinators are responsible for ensuring all airline requirements are satisfied (*e.g.*, IATA regulations, health certificates, etc.). IATA provides information and minimum requirements on how to ship live animals safely. The IATA Live Animal Regulations manual (<https://www.iata.org/en/programs/cargo/live-animals/>) includes a list of the precautions all crew should take on the ground and during transport (CCAC, 2014).

The cabin should be climate-controlled, with the temperature set within that species' thermal range, depending upon the season during transport (Gulland *et al.* 2018). The animal may be cooled with water before and after loading onto the aircraft, if the animal does not already have access to water in its cage and overheating is a concern. If a layover is necessary, the pinniped should be unloaded from the plane (if the layover is more than one hour) and an experienced team member must stay with the pinniped.

**Vehicle:** When transporting by vehicle, protect animals from exhaust fumes, direct sun, heat, wind, and freezing temperatures. Animals should be transported in temperatures that are within the species' thermal range, to reduce the risk of hyper- or hypothermia (Gulland *et al.* 2018). If pinnipeds are transported in the back of an open bed truck, animals should be cooled with water prior to transporting in warm months.

Generally, pinnipeds must be transported in cages secured in the vehicle. Additionally, the following should be considered:

- Timing of transport should be evaluated so animals won't be transported during peak traffic times
- Animals must be escorted by an experienced team member(s) to monitor the animals' health and welfare during transport
- Ice and water sprays must be available to cool pinnipeds during transport during warmer temperature/months

## **4. Cetaceans**

### **4.1 Overview**

Stranded cetaceans are generally transported using dry transport, which places the dolphin on open or closed cell foam pads or similar padding. If the weather is warm to hot, transport may include continuous application of water via bucket, sprayer, etc. to keep the skin moist. In some non-emergencies, including transport for releases, "wet transport" (*e.g.*, water-filled boxes) may be used for cetacean transport. Transportation of small cetaceans held in fabric stretchers and suspended in large freshwater-filled boxes provide a good approximation of the near weightlessness these animals experience in water. Animals should be kept calm to avoid struggling, thrashing, or other unnecessary activity which may cause overheating, stress, or physical trauma. All necessary equipment and supplies for maintaining the animal's appropriate body temperature should be available.

### **4.2 Observations/Monitoring**

Observations should be documented before, during, and after transport. Initially, the animals should be closely observed for signs of acute stress (*e.g.*, continued high respiration and heart rate, agitated behavior, shaking, arching) prior to being loaded on a transport vehicle. If, after the initial health assessment, the cetacean shows physical signs of stress/shock, the veterinarian or biologist, after consultation with a veterinarian, may provide immediate treatments for shock, sedate the animal for transportation, or postpone the transport to attempt to stabilize the cetacean, if logistics permit.

Descriptive and medical observations will be collected for each individual cetacean.

Cetaceans should always be monitored during transport and never left unattended. The tail flukes, dorsal fin, and flippers can be palpated for signs of hyper- or hypothermia, and the animal should be treated accordingly (*e.g.*, placing wrapped cold packs on extremities; wetting with sponges, scoops, sprayers,

and clean, cool water if hot; or covering warm, dry blankets if cold) with the goal of maintaining normothermia during transport (Sharp *et al.* 2016).

Monitoring the skin condition is more of a concern on longer, dry transports, or when an animal was exposed to extreme temperatures or sunburned during the stranding event. Escort/crew should monitor respiration rates (breaths per minute) because it can help evaluate stress level. The typical respiration rate for a stranded bottlenose dolphin is 4-8 breaths per minute but this can vary with age, medical condition, and/or other cetacean species. Healthy pre-release dolphins should breathe 1-4 times per minute. Other indicators of stress are thrashing or arching, shivering/shaking, and vomiting/retching/gagging. Heart rate should also be monitored, if possible. A typical heart rate is approximately 60-120 beats per minute (bpm) depending upon age, species, and medical condition. The animal should be continually monitored for signs of progression into a state of shock, including foamy feces, flatulence, belching, pale mucous membranes, lack of palpebral reflex, sustained elevated heart/respiration rate, and loss of responsiveness; and treated accordingly.

### **4.3 Handling**

Animals should be handled with care to avoid trauma, overheating, excessive cooling, distress, physical harm, and unnecessary discomfort. Personnel handling animals should have demonstrated expertise in currently accepted professional standards and techniques for the species involved. They should be able to recognize abnormal behavior and signs of distress for the species (CCAC, 2014). Reducing noise and visual stimuli near the animal while minimizing touch when handling will help lessen the animal's stress.

The well-being of the animals during restraint is paramount. Improper restraint may lead to major and potentially fatal physiologic disturbances, stress, or injury. Physical restraint techniques should be tailored to the species and size of the animal. Always approach the animal so they can see you.

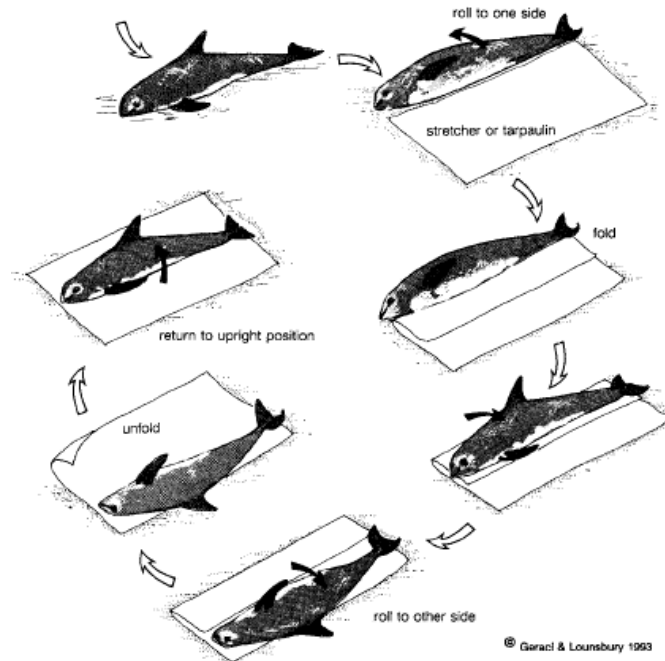
If physical restraint is required, the following should be assessed (CCAC, 2014):

- the need for any chemical restraint or analgesia;
- the safety of the animal(s) and the staff;
- the availability of skilled and appropriately trained people to perform the restraint procedure; and
- unexpected events that might occur, and contingency plans.

When cetaceans are removed from the water, care should be taken to prevent skin abrasions and hyperthermia; a smooth work surface and frequent spraying with water help to prevent these problems. When dolphins are held on foam for dry transport, make sure to tuck the pectoral flippers to avoid dislocating the shoulders.

The methods used to place a cetacean in a stretcher vary depending upon the size of the animal. For small or very young animals, you may be able to place them in the stretcher by picking them up with one or two people. For larger animals, it is recommended to remove the poles from the stretcher (if present) and roll the animal to place the stretcher under the animal (Figure 2). Place the stretcher under the animal's body, bunching it up slightly against its belly (*i.e.*, accordion style). Next, roll the animal to the other side while keeping the downside flipper tucked close to its body and pointed to the rear of the animal, and bring the bunched-up stretcher out from under the animal. Be careful not to scrape the animal or strain any rescue personnel. It is extremely important to make sure that the animal is centered in the stretcher. Cetaceans can quickly lose circulation to the flippers, resulting in serious injury. Therefore, it is imperative that if the stretcher has holes for pectoral flippers, the flippers are centered in the holes to minimize rubbing and allow for proper circulation. Foam placed under the flippers (or whole animal) can help to prevent chafing and loss of circulation. Also be aware of where the animal's tail fluke is at all times. Rostrum, flippers, and flukes can easily be scraped on rocks or even in the transport vehicle if you are not careful. Make sure that there are enough people to safely lift the animal. Custom designed dolphin carts with foam padding and beach wheels can markedly improve rapid beach response and facilitate transport of animals across rugged beach terrain to a vehicle access point (Sharp *et al.* 2016).

Wet transport containers for cetaceans should allow for adequate freedom of movement of the flippers at all times, and permit the animal to change position without leading to injury. Stretchers should have extra openings at the level of the animals' genital opening and at the level of the eyes, and have appropriate cushioning at sites of possible friction. The stretcher used should be based on the measurements (*e.g.*, length and girth) of each individual animal. Adjustments in the position of the cetaceans during transport should be made when necessary to prevent necrosis of the skin at pressure points. The water in which the animal is held during transport should be maintained at a temperature near that of the environment from which the animal came, cooled with ice if necessary (Antrim and McBain, 2001).



**Figure 2:** Technique for positioning a cetacean onto a tarpaulin or stretcher without lifting (Geraci *et al.* 2005).

#### 4.4 Methods of Transportation

A variety of transportation options may be used, including large vessels (*e.g.*, NOAA ships, other chartered vessels), airplanes, helicopters, vehicles, and other modes of transportation as appropriate, depending on location and available resources. Another factor to consider when transporting cetaceans is the number and size of animals. Below are three common transport methods and protocols.

**Vessel:** A vessel may be used to transport a cetacean to shore or for release offshore, outside a harbor, or around a point of land. The animal may be in a stretcher alongside the vessel, if short distance, or in a stretcher on the vessel, depending on the size of the boat. For smaller cetaceans, a net compass can be pulled into nearby shallow water, or the dolphins can be handled from the side of response vessels and moved onto specially designed floating mats that are either towed to shallow water or hauled directly onto a vessel (Barratclough *et al.* 2019).

**Aircraft:** Cetaceans can be transported in water-filled transport containers. When transporting via aircraft, the cetacean needs to be properly secured. Before takeoff and landing, raise and close the poles at the head and flukes of the dolphin to avoid splashing water in the blowhole, and to restrict movement.

After takeoff and landing, recheck the dolphin as soon as possible, and return the poles to their in-flight position. Make sure the dolphin's flukes, flippers, etc. are not rubbing against the transport container or stretcher bed due to weight shifting during takeoff/landing.

The transport coordinator or attending veterinarian should monitor cabin pressure throughout the flight. The initial aircraft request should include cabin pressure, altitude, and temperature requirements, and will be communicated to the flight operations personnel well in advance of the transport to avoid any confusion. A shallow angled ascent and descent is necessary to prevent water from spilling over the head of the cetacean and out of the transporter. If the cabin loses pressure, attend to your own safety first, and then be ready to assist the veterinarian with the cetacean. At the veterinarian's discretion, emergency oxygen will be utilized; the oxygen can be vented above the blowhole as the dolphin breathes. Oxygen masks can be used and a constant flow can be bled over the animal's blowhole (personal communications with the United States Navy).

**Vehicle:** Before placing the animal in the stretcher and moving the animal to the vehicle, make sure to plan out the route and carefully organize how to get around or over any obstacles on the way. Verify that all personnel are aware of where they are going. Bring the vehicle as close to the animal as possible.

When transporting by vehicle, protect animals from exhaust fumes, direct sun, heat, wind, and freezing temperatures.

There are several ways to transport animals in the truck, or ideally, in an enclosed truck or van. These range from several layers of foam pads for smaller animals to stretcher support frames for larger animals. Some foam pads can even hold water to help support the animal's weight. For truck transport, however, only a couple of inches of water, and wet foam, should be placed in the bottom of the support frame. Too much water can slosh back and forth, cause the animal to become disoriented, and even get in the animal's blowhole. Prior to transport, verify the following:

- a. The animal's behavior is appropriate for a safe transport;
- b. The animal is centered in the stretcher;
- c. The pectoral flippers are not bearing any weight and are at a natural angle;
- d. The stretcher is not digging into the axilla or any other part of the flipper;
- e. The blowhole is not obstructed;
- f. The rostrum, flipper, and flukes will not rub on anything during transport; and



g. The animal's skin has been kept moist.

During transport, drive carefully and check the animal repeatedly. Keep the animal's skin moist, monitor respirations, and remain in contact with the Stranding Coordinator and Veterinary Staff.

## **5. Different Transportation Scenarios**

### **5.1 Immediate Release**

Immediate release is when an animal is rescued and can be released back into the wild during the same event. Candidates for immediate release include healthy animals (including mass stranded) that may have strayed too far inland or have come ashore entangled in debris but are minimally injured (Geraci *et al.* 2005). Before releasing, make sure a health assessment is performed, the stranding is documented, and determine if post-release monitoring and/or marking is needed.

Transport could be used if the team decides to release the animal offshore. For example, an organization could prefer to release cetaceans offshore or from a beach location with better access to deep water to reduce the likelihood that the animal will re-strand. Pinniped releases are not as involved; typically, the cage door is simply opened at a suitable shoreline site (Geraci *et al.* 2005).

### **5.2 Translocation**

Translocation is the capture, transport, and release, or introduction, of a species to a similar habitat. Currently, this practice is primarily used for ESA-listed pinnipeds. The transportation of pinnipeds between subpopulations could be accomplished using any reasonable mode of transportation. During the transport to a destination site, the animal will be escorted by veterinary staff and an experienced escort that is able to respond if there is an emergency.

Once an animal is identified for translocation, it must not show signs of disease, injury, or any other factors that may compromise survival. For pinnipeds that are deemed appropriate for translocation, the steps involved in translocation may include some, but not necessarily all, of the following:

- 1) Selection and capture of seals for health screening and attachment of tracking instruments;
- 2) Quarantine;
- 3) Transport;
- 4) Release of seals at a new location; and
- 5) Post-release monitoring.

### **5.3 Rehabilitation**

Rehabilitation is when an animal is rescued and transported to a facility to receive care and/or can be transported between facilities. Transporting an animal from a stranding site to a rehabilitation facility is typically accomplished via vehicle, as this method is the easiest when time is limited and the health status of the individual is unknown.

### **5.4 Release after Short-term Holding or Rehabilitation**

Transport is generally necessary for release of animals post short-term holding or long-term rehabilitation. Animals may be transported using any transport type discussed above (*e.g.*, vehicle, vessel, or aircraft).

Previous descriptions of monitoring should be followed depending upon transport type used. Some animals may be tagged or marked in some way to facilitate post-release monitoring; care should be taken to ensure that the transport cage or method does not impact the tag during transport.

## **6. Conclusion**

Prior to transporting a marine mammal for any reason, a plan should be made to identify the most appropriate transport method and container, to maximize the safety and health of both the marine mammal and human escorts. Although each transport will be different, following the considerations (*e.g.*, size, species, and condition, etc.) outlined in this best practice document will promote the successful transport of marine mammals.

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## Appendix A: Example Transport Checklist

### Logistics

#### Airlines / Airport

- Airline
  - Have measurements and weights (with water, equipment, and animal) for all equipment
  - Ensure all transport equipment will fit through doors of airplane and be able to maneuver into position
  - Establish route and determine if fuel stops will be needed
  - Get load plans and load order from airline
  - Coordinate truck layouts and loading plan
  - Determine proper cabin temperature and flight altitude
  - Determine number of seats available for attendants
  - Establish contingency landing sites
  - Communicate with cockpit crew regarding flight angles on take off and landing.
- Ground Crew
  - Set up logistics at the Airport through ground personnel
  - Make visit to the Airport
  - Ensure proper loading/unloading equipment is available
    - Loaders
    - Large forklift(s)
    - Back up equipment
  - Discuss contingency plans

- Are there security restrictions or concerns?
- What is the access to the tarmac?
- Is there suitable shelter to protect animals from inclement weather or direct sun?
- Have all needed hazardous materials paperwork been done (*e.g.*, batteries, oxygen, etc.)?
- Order needed straps and pallets and have them delivered ASAP
- Find out if there is a way to track the flight while it is en route

### **Cranes / Forklifts or other equipment**

- Set up a facility crane if needed. Ensure it will handle the load and distance, and has any needed rigging (35 ton for whales)
- Set up a crane for the Airport. Ensure it will handle the load and distance, and has any needed rigging (140 ton for whales)
- Is an additional, or larger, forklift needed in the facility?
- Have contingency if crane is needed en route (*i.e.*, truck breakdown)

### **Trucks**

- Set up trucks through a company or rental agency. Ensure they understand all needs and requirements.
  - Number and type of trucks
  - Extra tractor
  - Rollers or not
  - Height of truck bed
  - Length
  - Weight

- Side rails
- Arrival schedule
- Loading schedule
- Inspect all trucks/trailers for any potential problems
- Determine overall height of trucks with equipment on them (include any windbreaks)
- Discuss placement of trucks in the facility with Security and others as needed.
- Check and measure pathways in the park to determine route. Do a dry run if needed to ensure the truck can maneuver where it needs to.
- Make detailed truck layouts
  - Date
  - Animals and equipment on trucks
  - Staff on trucks

### **Other**

- Are rental vans needed to transport staff to and from the airport?
  - List of staff going in vehicles other than transport truck
- Ensure that sources of freshwater are available to fill boxes if needed
- Have several logistical plans to heat or cool water as needed
- Do we need portable light trees during any part of the move?
- All needed maps are available for all that need them.
- Set up logistical contacts for the day of the transport. Ensure all parties have relevant phone numbers.
- Ensure proper personnel have access to cellular phones during phases of transport.

- Set up communication plan with vehicle drivers

## **Travel**

- Check on travel arrangements
  - Hotels
  - Plane reservations
  - Expense money
  - Rental Car
  - Do staff coming to the facility need any of these or are they handling it on their own?
- Do people need rides to or from the airport?

## **Equipment**

- Have detailed equipment lists for all phases and parts of the transport
  - Truck
  - Plane
  - Animal loading or unloading
- Have a plan for what equipment will be where and when if it needs to move from truck to plane etc.
- Have plan for getting water in units at needed temperature
  - Preset hoses
  - Have a hot water source or way to heat it
- Ensure there is a place to store incoming equipment

## **Lifting equipment**

- If using choker cables on a whale cradle: 30 foot long, load tested to pick up 20,000 pounds in a basket configuration. (10,000 pounds per choker) Minimum three to one breaking strength, five to one is better
- Check sling pick-ups so they work with the stretchers and poles being used
- Check all slings for rust, working clips, etc. If older then get load tested.
- Check turnbuckles on slings for easy movement and then if they are secured at needed length

## **Cetacean Transport Units**

- Check animal measurements versus all equipment being used: stretchers, poles, boxes, etc. to insure proper size and fit
- Ensure all units are in good condition –
  - Water test boxes without liners
  - Check all bolts and nuts for crossbars
  - Check all lifting hoists so they work properly
  - Check condition of bolts on stretcher poles or welds of lift points
  - Check the condition of stretchers for tears or potential weak points
  - Check and remedy all potential problems
  - Check overall appearance – does it need painted, etc.
- Check liners for boxes
  - Do a detailed check for small holes or tears before and after it is installed in the box. Repair any that are found



- Check the rails (or other attachment system) to be sure there are no loose rails or screws
- When installed the liner should be as smooth as possible. There should be no large folds near the animal's mouth, or around the pecs and flukes
- Ensure all boxes, pole ends, cross bars, etc. are foamed properly
  - Cetacean boxes should have foam at the pecs and flukes
  - Pole ends should be capped with drain holes drilled. The caps should then be foamed
  - Cross bars should have foam where they are directly over the animal. Usually this is between the hanging points
- Assemble all equipment to be sure all fits and works properly
- Establish water temperature and height parameters.
- Place thin foam on contact points of cross bars on boxes to reduce movement
- Be sure all cage doors can be properly secured. (Have back up hardware in equipment packs)
- Have weights of all transport units for airlines
- Will units need additions – seats, covers, sides, etc. – to make it safe and easier to move around on the plane?

### **Pinniped Transport Units**

- Check animal measurements versus cage size to ensure animal has room to turn around and have normal posture
- Ensure cage is structurally sound and has no weak or rotten areas
- Check for any sharp edges, splinters, etc. on inner surface
- Ensure all wire mesh is secured and cannot be pulled loose by the animal
- Ensure doors open and close easily

- Ensure doors can be secured with bolts or nails
- Support equipment should contain some wood to do quick cage repair if needed

### **Support Equipment (equipment box and packs)**

- Have sprayers or ladles for water
- Extra jugs of water
- Ensure all equipment from appropriate lists is in packs or the equipment box. These lists will vary with the nature of the transport
- Put a laminated equipment list in the equipment box.
- Ensure all staff are familiar with contents of the packs and box (especially those going with the animals on trucks or planes)
- Make sure all equipment is in good and working condition
- Store equipment appropriately in weather. Put things that will freeze inside.

### **Shipping Equipment**

- Check all airline pallets for bends, gouges, popped rivets, tears in the lining
- Ensure all pallets are on three –6 by 8 inch timbers (8 inch height)
- Place planking between transport units and airline pallets. Configurations will vary with the situation and the units involved (80 inches across width, approximately 120 inches across length)
- Do we need forklift rollers to assist in loading the plane?

### **Other Equipment Related**

- Have all needed equipment at unloading or loading points (*e.g.*, nets, SCUBA, etc.)

- Check watertight gates (if needed)
- Ensure all gates in areas are in good working order
  - Latches all functioning
  - Net gates have no loose areas
- Check water quality and pool cleanliness

### **Purchasing Department**

- Order ice if needed
- Set up rental van to transport staff
- Pick up van
- Order any support equipment needed
  - Foam
  - Timbers (6 by 6 inches)
  - Planking (2 by 6 inches, 2 by 10 inches)
  - Equipment box and pack equipment
- File all necessary purchase requests for cranes and trucks with Purchasing Department

### **Other Departments**

#### **Food Service**

- Have food available for meeting if needed
- Have coffee and drinks available throughout if needed

### **Health Services**

- Have Health Services personnel on duty and along with transport
- Provide first aid kit for transport equipment box
- Provide hot packs/warming blankets in cold weather

### **Horticulture**

- Have pathways clear of ice and snow

### **Lab**

- Copy all needed medical records
- Establish if Lab staff needs to be in the facility for the transport
- Ensure that all oxygen bottles are filled
- Check water test results on exhibit
- Check on proper inventory of vitamins and medication for incoming animals

### **Maintenance**

- Provide additional lighting as needed.
- Ensure any light timers for facility are set to be on during transport times
- Have an electrician and mechanic on duty during transport
- Maintenance crew to help with unload/load at facility and airport. Also, to help unload equipment after move
- Have equipment van loaded and ready
- Remove any obstacles in the area, such as fencing

- Check on proper crane placement
- Have forklifts operational and available

### **Merchandise**

- Reserve use of box van for support equipment

### **Operations**

- Clean work areas around transport areas
- Ensure pathways are clear for truck movement
- Set up barricades as needed around transport area
- Supply drivers as needed for vans

### **Public Relations**

- Provide staff to accompany transport
- Be prepared with statement and Q&A sheets for staff
- Coordinate any media coverage
- Take pictures or video as requested

### **Security**

- Arrange Police escort for the convoy
- Check on number of radios that are needed
- Check on route with attention to bridges, construction, road conditions
- Ensure all entrance gates to park function properly

- Coordinate with airport security as needed

### **Water Quality**

- Have pools at proper height for release of animal or to place in stretcher

### **Schedules**

- Establish night watch schedules (if needed)
- Change normal work schedule to accommodate transport
- Ensure all areas are covered outside of transport. Shift feeding times for the facility as needed
- Develop timeline for general facility staff
  - Date and Times
  - Animals
  - Route
  - Times of major occurrences (*e.g.*, loading, unloading, departing for airport, plane arrivals, etc.)
  - Where trucks are entering and staging in the facility
  - Staff going to and from various destinations, and how they are getting there (*e.g.*, van, truck, plane, etc.)
  - Include truck layouts
- Develop detailed timeline for staff
  - Truck staff (loaders)
  - Animal observers on trucks
  - Specific equipment assignments (*e.g.*, guide ropes, nets, stretcher, doors on cage, etc.)

- Release or restraint teams with specific assignments
- Designate if in wetsuits or not
- Staff to load/unload equipment at airport and in facility,

### **Animals**

- Compliance with applicable laws and regulations (15-day notice, etc.)
- Pre-transport physicals
- Have all needed medical and behavioral records ready to transport with the animal
- Have plan on when and where animals will be staged for transport – move ahead of time if needed (*i.e.*, exhibit to back area)
- Schedule set for diet on pre-transport days
- Establish diet for incoming animals
- Ensure proper amount of food is ordered and on hand for incoming animals
- Determine time that will be needed for animal/keeper-trainer introduction and acclimation

### **Permits and Forms**

- Federal
  - 15-day notice with NMFS
  - Hazardous Materials for any applicable support equipment
  - Customs forms
  - State
  - Permit for attendants on back of truck

- Local/Park
  - Health Certificates signed
  - Acquisition/Distribution forms

### **Week of the Transport**

- Go through entire checklist again
- Confirm all times and schedules with Truckers and Crane operators
- Confirm and drive route (Security)
- Go to the airport and check with the ground crew. Cover all equipment and scenarios. Discuss contingency plans.
- Go over all equipment in detail. Be sure all is in working order
- Ensure staff knows how to work all of the equipment properly
- Set up meeting with all departments involved several days before the transport
- Ensure animal staff understands schedule and job assignments
- Ensure all diving of pools is complete

### **Meetings**

- Initial Meeting**
  - Hold as soon as possible after decision is made to transport animals
  - Representatives from Maintenance, Operations, Public Relations, and appropriate animal management
  - Discuss basic timeline
  - Discuss logistics



- Air or land
- What outside contractors may be involved
- Discuss equipment
  - Will things need to be built (by when)
  - What will need to be purchased
  - Can things be borrowed from another facility
  - When should equipment be in place
- Are there any major concerns that need to be addressed
- Approximately two weeks before transport**
  - Representatives from all departments that are involved and individuals who have a major role in planning and/or performing the transport
  - Go over detailed timeline
  - Discuss outside contractors duties and needs (*e.g.*, airlines, truckers, cranes, etc.)
  - Go over each departments duties and when they need to be completed
  - Assign duties as they arise from discussions
  - Answer questions
- Week of the transport (park meeting)**
  - Representatives from all departments that are involved and individuals who have a major role in planning and/or performing the transport
  - Go over detailed timeline – highlighting any changes
  - Confirm outside contractors duties and needs (*e.g.*, airlines, truckers, cranes, etc.)
  - Ensure that each department has completed or is ready to perform needed tasks. Establish who will be the contact person for each department during the transport

- Discuss any last-minute details
- Week of the transport (Staff meeting)**
  - Staff involved in the transport be present at the meeting
  - Discuss detailed timeline
  - Discuss detailed task assignments
  - Ensure all are familiar with equipment
- Other Meetings (as needed)**
  - Additional planning meetings as deemed necessary
  - Educational seminar about the transport for any staff that have not been involved in one (*i.e.*, show video, pictures, etc.)

## **Appendix B: Example of Physical Examination Forms**

EXAMPLE Physical Examination Form  
*Circle as appropriate*

**Body outline:** Swelling, Wound, Change from previous day

If yes, describe: \_\_\_\_\_

**Flippers:** Normal use of all 4 flippers with full-range of motion, Favoring one flipper (describe \_\_\_\_\_), Lacerations, Swelling, Ulcers/sores, Signs of pain or discomfort

**Discharges:** Ears, Nares, Eyes, Umbilicus, Rectum, Vagina, Other

If yes, describe amount: \_\_\_\_\_ mL, Color: \_\_\_\_\_,

Consistency: \_\_\_\_\_

**Feces:** Describe amount: \_\_\_\_\_ mL, Color: \_\_\_\_\_,

Consistency: \_\_\_\_\_

**Urine:** Color: \_\_\_\_\_

**Eyes:**

**Right:** Discharge: Clear tears, Crustiness around eyes, Purulent discharge  
Redness or congestion of conjunctiva, Swelling of conjunctiva, Prominence of third eyelid, Corneal opacity/ cloudiness, Corneal ulcer, Lacerations,  
Swelling of eyelids, Squinting or photosensitivity, Any obvious loss of vision

**Left:** Discharge: Clear tears, Crustiness around eyes, Purulent discharge  
Redness or congestion of conjunctiva, Swelling of conjunctiva, Prominence of third eyelid, Corneal opacity/ cloudiness, Corneal ulcer, Lacerations,  
Swelling of eyelids, Squinting or photosensitivity, Any obvious loss of vision

**Mouth:** Color of mucous membranes: Pink, Red, Pale pink/White

Teeth: Broken, Erupting, List site: \_\_\_\_\_

**Behavior:** Alert, Bright, Lethargic, Depressed, Active, Inactive, Stereotypic behavior, Disorientation, Vocalizations, Other abnormal behavior for each individual seal, Any marked change from previous days

Describe: \_\_\_\_\_

**Other comments (environmental conditions, respiration rate, heart rate, etc.):**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Animal ID:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Name of Observer:** \_\_\_\_\_

**Time:** \_\_\_\_\_



<b>Date:</b> _____	<b>Stranding Location:</b> _____	<b>Lat/Long:</b> _____	GPS	GE	Cell
<b>Time Init Rpt:</b> _____	<b>Init Rpt'd:</b> <input type="checkbox"/> swimming <input type="checkbox"/> stranded ( <input type="checkbox"/> dry <input type="checkbox"/> in some wtr)	<b>Est. Time Stranded:</b> _____			
<b>On-scene @:</b> _____	<b>Admit @:</b> _____	<b>Loc in Veh:</b> _____	<b># Animals:</b> _____	<input type="checkbox"/> Susp Mom/calf	
<b>Str. Length:</b> _____ cm	<b>Max Width:</b> _____ cm	<b>Photos:</b> <input type="checkbox"/> pre-tagging <input type="checkbox"/> post-tagging <input type="checkbox"/> lesions			
<b>Sex:</b> M F CBD NE	<b>Weight:</b> _____ kg	<b>Species:</b> _____	<b>HI:</b> N Y CBD	<input type="checkbox"/> HI form	

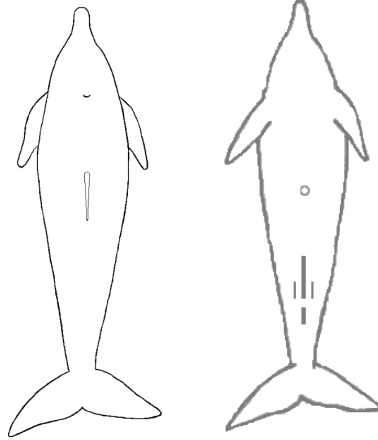
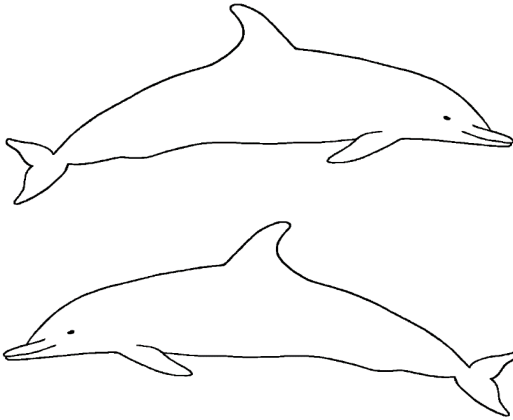
## I. SUBJECTIVE:

Abnormal/Normal

<b>Attitude</b>	BAR QAR lethargic non-responsive	A / N
<b>Disposition</b>	calm but responsive arching thrashing hyperesthetic tail fluttering vocalizing	A / N
<b>Body condition</b>	emaciated (1) thin (2) slightly thin (3) mesomorphic (4) robust (5)	A / N
<b>MM Color</b>	pink pale pink white gray cyanotic (purple) injected (bright red) N/E	A / N

II. OBJECTIVE: **Rectal Temp:** \_\_\_\_\_ °F **HR (bpm):** \_\_\_\_\_ / \_\_\_\_\_ @ \_\_\_\_\_: \_\_\_\_\_ **RR (bpm):** \_\_\_\_\_ @ \_\_\_\_\_: \_\_\_\_\_

<b>Post-Nuchal Fat Pad</b>	Concave (1) Spongy (2) Firm (3) Convex (4)	A / N
<b>Neurologic</b>	Alert Dull Stuporous <b>Nystagmus</b> (repetitive eye motion): N Y (vert OR horiz / bilat OR unilat) <b>Strabismus</b> (abnormal eye position): N Y (dorsally ventrally cranially caudally) <b>Other Abnorm:</b>	A / N
<b>Ophthalmic OD (right eye)</b>	<b>Palpebral:</b> NE, 0, 1, 2 <b>PLR:</b> NE, 0, 1, 2 <b>Blepharospasm</b> (squinting): + / - <b>Visual Tracking:</b> + / - <b>Globe Intact:</b> N Y <b>Discharge:</b> N Y (describe): If corneal lesion, stain uptake: NE NA N Y (describe/draw):	 A / N
<b>Ophthalmic OS (left eye)</b>	<b>Palpebral:</b> NE, 0, 1, 2 <b>PLR:</b> NE, 0, 1, 2 <b>Blepharospasm</b> (squinting): + / - <b>Visual Tracking:</b> + / - <b>Globe Intact:</b> N Y <b>Discharge:</b> N Y (describe): If corneal lesion, stain uptake: NE NA N Y (describe/draw):	 A / N
<b>Oral (mouth, tongue, teeth)</b>	<b>Dentition</b> (broken, worn, missing, partially erupted teeth): <b>Lesions/Masses/Other:</b>	A / N
<b>Cardiovascular</b>	<b>Heart Rate</b> (bpm): _____ (Brad) _____ (Tach) @ _____: _____ <b>ECG Tracing:</b> N Y <b>Rhythm:</b> Sinus arrhythmia ("split") OR Normal sinus rhythm (steady = "no split") Tachycardia (fast, sustained) Bradycardia (slow, sustained) Other Abnorm: _____ <b>Murmur:</b> NMA Murmur (note systole vs diastole, Grade 1-6):	A / N
<b>Respiratory</b>	<b>Respiratory Rate</b> (bpm): _____ @ _____: _____ <b>Malodorous Blow:</b> N Y <b>Blowhole Seal Intact:</b> N Y <b>Blowhole Discharge:</b> N Y (describe): <b>Character:</b> WNL Full Shallow Apneustic Uniform Rapid Double breathing (freq occ) Exhale only (freq occ) Chuffing (freq occ) Blowhole Leaking (freq occ) <b>Lung sounds</b> (note affected lung field and % lung for abnormalities): R: Clear (NBVS) Harsh (crackles, wheezes, increased BVS) Absent L: Clear (NBVS) Harsh (crackles, wheezes, increased BVS) Absent	A / N
<b>Gastrointestinal</b>	<b>Feces:</b> N Y (describe color, amt, blood present, consistency (FOAMY?), parasites): <b>Flatulence:</b> N Y <b>GI Sounds Auscultated:</b> N Y NE <b>Vomiting:</b> N Y	A / N
<b>Urogenital</b>	<b>Sex:</b> M F NE <b>Urine:</b> N Y (Describe color, amt, USG): <b>Lactating:</b> NE NA N Y (describe): <b>Lesions/Discharge:</b>	A / N
<b>Musculoskeletal:</b>	<b>Scoliosis:</b> N Y ("C" shape open to: L R / mild moderate marked) <b>Other Abnorm:</b> N Y	A / N
<b>Integument (skin)</b>	<b>Rake Marks:</b> N Y (fresh healed) <b>Skin sloughing:</b> N Y (mild, mod, marked) <b>Lesions:</b> N Y (describe and draw on reverse):	A / N

**Example Conditions (not all-inclusive):**

- Shock (foamy feces, unresponsive, pale mm, rapid HR)
- ↑ HR/no split
- ↑ RR, harsh lung sounds
- Anemia
- Elevated liver values (ALT, GGT, TBil)
- Elevated muscle enzymes (CK, AST)
- Dehydration (mild ↑BUN, creatinine, hemoconcentrated)
- Scoliosis
- Ruptured globe (eye)
- Significant wounds/scav dam
- Single strander/release
- Pregnant

**III. ASSESSMENT:****MASTER PROBLEM LIST:**

- |          |          |
|----------|----------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. _____ |
| 3. _____ | 6. _____ |

**CONDITION DURING TRANSPORT:**     Stable     Improving     Declining

**RELEASE CRITERIA:** good=0, fair=1, poor=2, grave=3    *\*\*Dependent calves should be scored '6' on the social component\*\**

PE\_\_\_\_ + Behavior\_\_\_\_ + Blood\_\_\_\_ + Social\_\_\_\_ = \_\_\_\_\_    (0-2 = good release candidate, 3-5 = borderline, 6-12 DNR)

**IV. PLAN:****DIAGNOSTICS:**

**Bloodwork:** Draw Time: \_\_\_\_\_    Site: DFL VCP DFN IC    Method: Syr / Vac / Pico  
In-House:  CG4+     HM5     Vetscan /     CHEM 8+    IDEXX:  Dolphin Profile     CBC/Chem

**Ultrasound:**  L side     R side     Brief     Full     Thoracic     Abdominal     Blubber Thickness

Results:  WNL     Renal Gas     Pulmonary Lesions     Pregnant (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> trimester, CBD) Initials: \_\_\_\_\_

**Other DX:**  ECG     capnography     AEP     blowhole swab     rectal swab     skin     other: \_\_\_\_\_

**TREATMENTS:** (E/Se (2.5mg/mL Se): 0.06mg/kg Se IM)

**E/Se:** \_\_\_\_\_ mL    Time: \_\_\_\_\_    Inj Site: \_\_\_\_\_ / Other: \_\_\_\_\_    Time: \_\_\_\_\_    Inj Site: \_\_\_\_\_

**Fluids:** \_\_\_\_\_ mL    Type:  LRS     0.9% NaCl    Site(s): VCP / DFL / DFN (22.5 mL/kg IV bolus in 30 min, can repeat once)

1<sup>st</sup> bag:    Start Time: \_\_\_\_\_    End Time: \_\_\_\_\_

2<sup>nd</sup> bag (only if indicated):    Start Time: \_\_\_\_\_    End Time: \_\_\_\_\_

**DISPOSITION: Tag:** Roto / Caisley Tag #: \_\_\_\_\_    Sat. Tag #: \_\_\_\_\_    Pin length: \_\_\_\_\_ mm     Not tagged

**Reloc/ Rel** Site: \_\_\_\_\_     **Released at site**     **LAS** Time: \_\_\_\_\_    Total # dolphins: \_\_\_\_\_

**Release Conditions** (great=0, 3=bad): \_\_\_\_\_

**Animal Release Score** (How well did the animal swim off? well=0, 3=badly) \_\_\_\_\_

**Euthanized** Staff Init: \_\_\_\_\_    Vet Init: \_\_\_\_\_    Bottle #: \_\_\_\_\_    Volume: \_\_\_\_\_ mL    Inj time: \_\_\_\_\_    TOD: \_\_\_\_\_

**Died** TOD: \_\_\_\_\_    Notes: \_\_\_\_\_

**Tagging & Disposition Justification:** \_\_\_\_\_

**OVERALL PROGNOSIS:** → Tally scores from above: Release Criteria + Release Conditions + Animal Release Score = \_\_\_\_\_

→ (0-3 = good, 4-8 = borderline/fair, 9+ = poor)

**Primary examiner:** \_\_\_\_\_ **Signature:** \_\_\_\_\_     **vet consult** \_\_\_\_\_

## Appendix C: Example Transport Plan

Example of a blank transport plan:

*Proposed Release, Research, Monitoring and Contingency Plan for (Species, Animal ID, “Name”)*

Contact:

Proposed Release Date:

### **I. Release Logistics**

Upon medical and permit clearance of Animal X:

- Transport logistics to release site
- Personnel for transport
- Immediate post-release and short-term monitoring

### **II. Release Site selection rationale:**

- Suitability of release site
- Animal X’s home range (if known)

### **III. Research and Monitoring Plan**

- Tagging, etc.
- Long-term monitoring (if possible)

### **IV. Contingency Plan**

- Re-capture/relocation? (if possible)
- Placement?



Example of a Seal Transport Plan:

**Alaska SeaLife Center**

**SEAL TRANSPORT PLAN**

**Species:** Harbor Seal (*Phoca vitulina*)  
**Animal:** PV1904 – Tag #  
**Transport:** Harbor Seal from Seward to Whittier  
**Date:** Release on Monday, August 12, 2019

**Transport Coordinator:** Jane Belovarac, LVT

**ASLC Attendees:** Savannah Costner (Lead), Jessica McCord (intern), Lisa Hartman (Husbandry Director)

**Other:** Nat Geo film crew: Zack Vincent, Chris Sondreal, and Patrick Greene; Captain and Crew of Lazy Otter charters

**Care Responsibility:**

Responsibility for animals care will be under the ASLC from the time of departure in Seward until the animal is released. Although it is unlikely that there will be a need to return to Seward, it is always prudent to have the ability to return should an emergency present itself. Per USDA Animal Welfare Specifications Marine Mammal Transport Standards (CFR part 3 subpart E section 3.116), a licensed veterinarian or an employee of the shipper or receiver, knowledgeable and experienced in the area of marine mammal care and transport, must accompany all marine mammals during periods of transportation to provide for their good health and well-being, observe the animals to determine whether they need veterinary care, and to obtain veterinary care, if required, as soon as possible.

**Trip Itinerary:**

On August 12, the seal will be loaded into a transport crate at 12:15pm at the Alaska SeaLife Center with a departure from the Alaska SeaLife Center at 12:30pm. Anticipating to catch the Whittier tunnel at the 2:30 opening. Arrival at Whittier Harbor will be approximately 2:40pm. Animal will be moved to a Lazy Otter charter vessel, the Kyak Chief, for estimated departure time at 3pm. The seal will be released in the waters outside of Whittier, likely near Blackstone Glacier.

**Mode of Transportation:**

*Transport Crate* – The seal will have a transport kennel with ventilation on the sides and front, measures 36” X 27” X 25”, and weighs approximately 100 pounds with the animal. The kennel is constructed of heavy duty plastic. Attendants will have easy access to the seal through the front door. The floor of the cage will be fitted with mesh grating that will allow feces and urine to pool below the floor and prevent the seal from lying in waste. If ambient temperatures require, ice and/or frozen towels will be placed into the kennel prior to the transport to keep the animal cool. Towels will be used to soak up any feces or urine.

*Transport* - The animal will be placed into the transport kennel 15 min prior to departure from the Alaska Sea Life Center. The seal will be transported along with the care giver and assistants in a truck to Whittier. In Whittier, the seal will be transferred to the vessel, the Kayak Chief, run by the Lazy Otter. The seal will be checked periodically for the duration of the transport (approximately hourly).

*Release* – The animal will be released in the waters outside of Whittier off a boat. First choice is in the waters near Blackstone Glacier, but if more seal friendly waters are determined, release will be at the best location.

*Contingency option* – If weather is hazardous for boat travel, seal may be released on beach in Whittier likely near the Whittier campground or airstrip.

**Pre-Transport Items:**

*Health Inspection* - Regular routine blood samples have been drawn from the seal by the veterinary staff at the Alaska Sea Life Center. Final samples were collected on August 11, 2019. The attending veterinarians at Alaska Sea Life Center have determined the seal is healthy and deemed releasable for transport and release.

*Transport Supplies* - Please see the attached list of supplies necessary for transport. (Attachment 1)

*Emergency and Veterinary Care* - Please see the attached list of veterinary kit supplies necessary for transport. (Attachment 2)

*Emergency Contacts* - In addition to the veterinarian and ASLC staff, government agencies will be on standby to assist or make special arrangements if needed. Please see the attached list of emergency contact names and numbers. (Attachment 3)

**Return Information:**

ASLC staff and attendants will return to Seward that evening. They will report to Jane Belovarac to close out their travel plan.

**Paperwork to accompany Animal on the transport:**

- Transport Plan
- Transport Logs
- Letter of Authorization for release
- Permit

## ATTACHMENT 1

### ANIMAL CARE SEAL TRANSPORT LIST

1 Kennel –36 X 27 X 24

1 Cooler filled with ice (get ice from ASLC, fill morning of transport)

1 Deep bin for storing supplies

5 towels

Package of Hefty garbage bags (for carrying towels and garbage)

Tool kit

- Phillips screwdriver
- normal screwdriver
- 2 rolls duct tape
- 3 flash lights and batteries
- pliers
- rope/string
- bungees
- knife
- other random items

Thermometers (rectal)

1 tarp

1 bottle hand sanitizer

Restraint Gloves

Clip board with behavioral logs and pen.

Diluted Nolvasan spray bottle

Vet Emergency Care Kit (see **Attachment 2**)

Copy of Permit

## ATTACHMENT 2

### VETERINARY EMERGENCY CARE KIT

Flashlight

Sharpies

#### Medical kit

Thermometer and lubricating jelly

Syringes and needles – assorted 3 ml, 5 ml, 12 ml + 18 and 20 g 1½” and 2½ “

LRS and Venoset

Eye wash / eye ointment

Exam gloves

Dry gauze

Alcohol and betadine swabs

Endotracheal tube

Laryngoscope and mouth ties

Ambu bag

Hand soap/ sanitizer

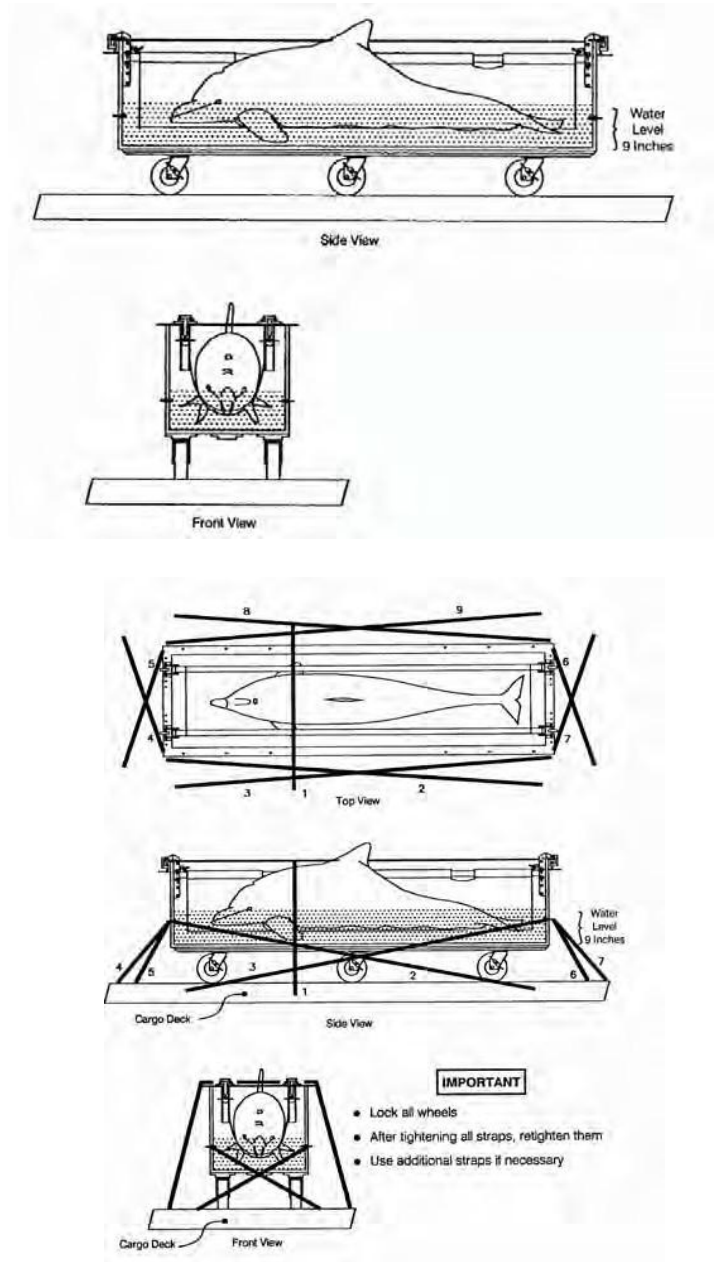
Chlorhexidine concentrate

Blood tubes – LTT, SST

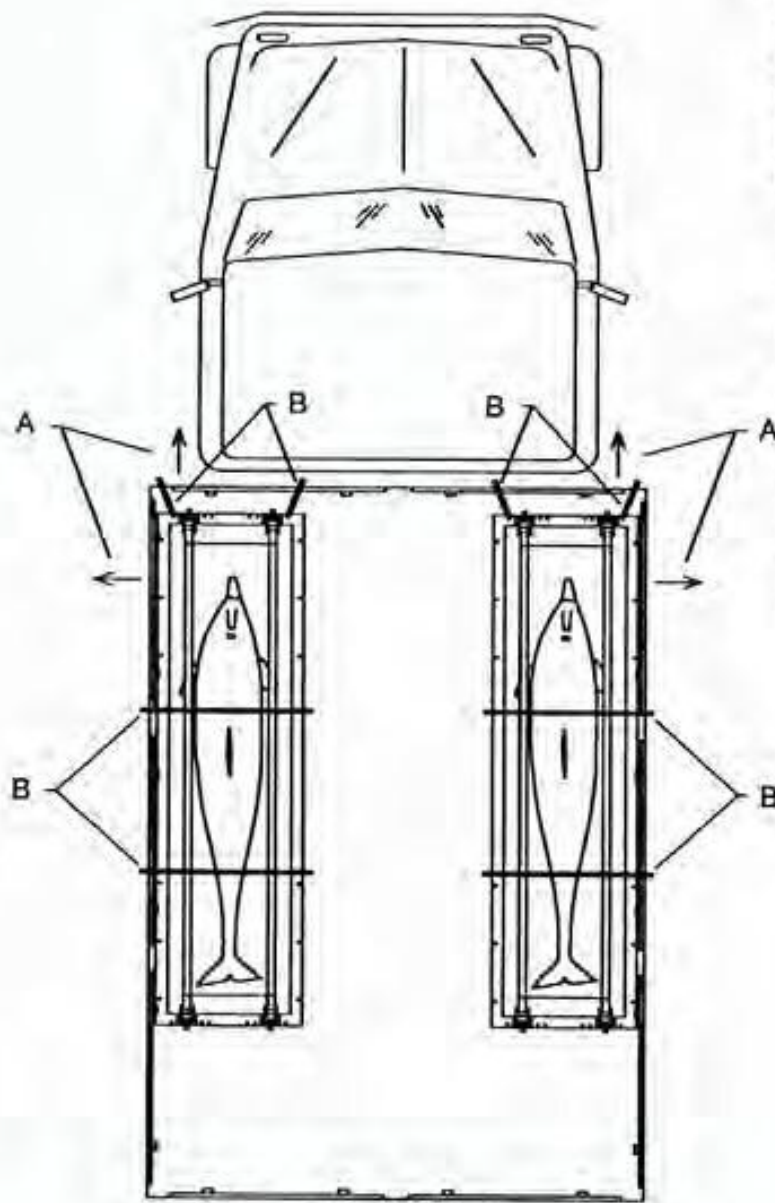
Contact phone list

## Appendix D: Photos

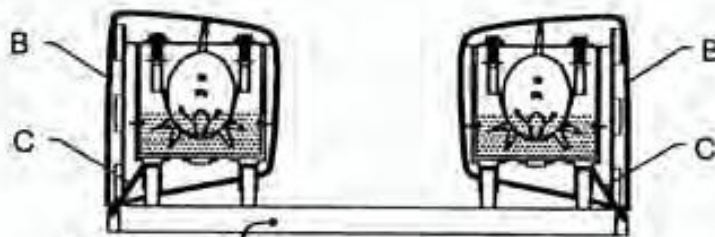
Cetacean transportation carriers (Navy SOP #21-10):



Note: Animal Transporters are no longer equipped with wheel locks due to high maintenance and unreliable performance. Use wood blocks or similar material to secure the wheels and prevent the possibility of any rolling to occur during transport.



Top View

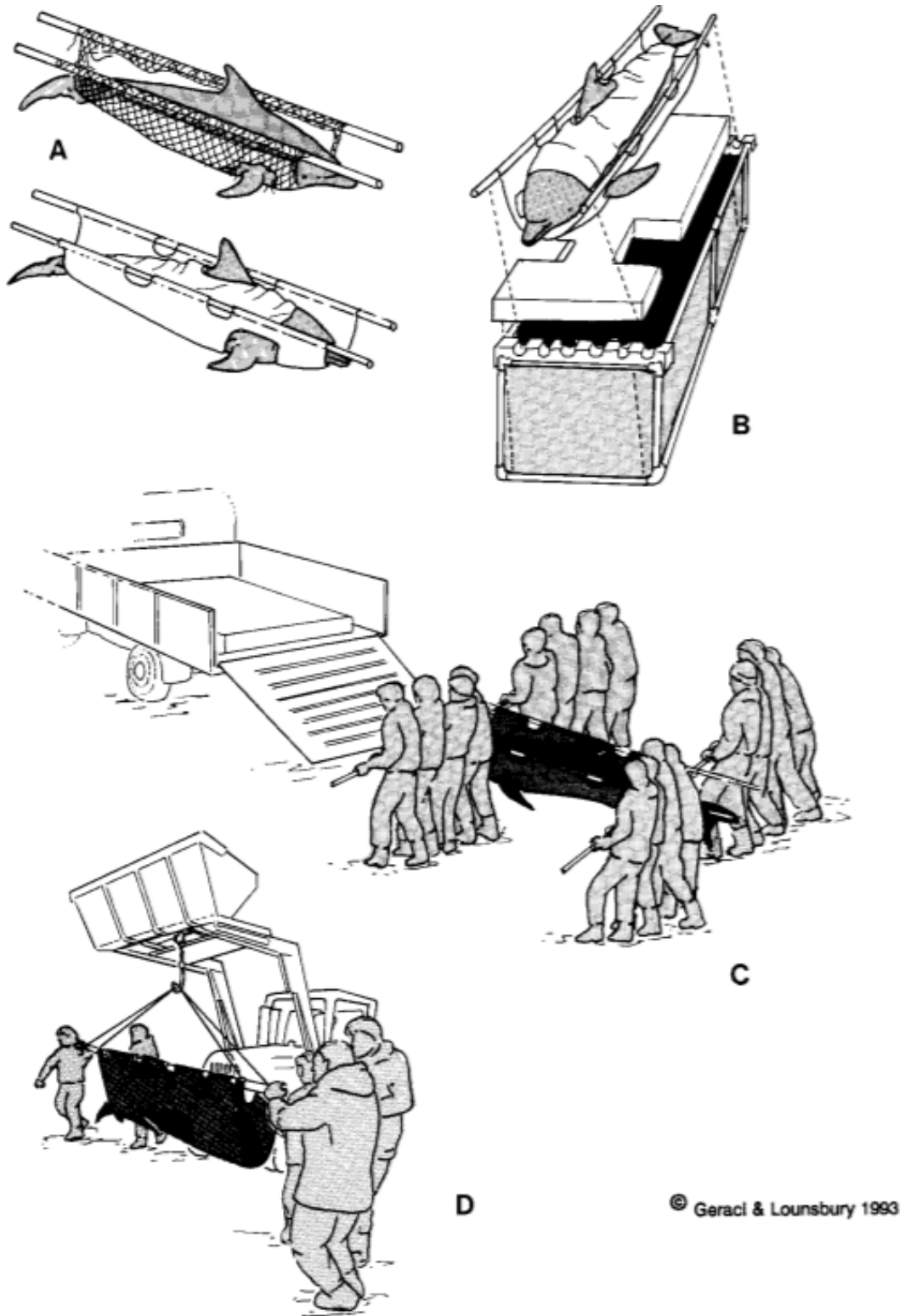


Truck Bed

Front View

Note: Due to the variability of trucks used to transport dolphins, it is impossible to standardize a single strap-down diagram. If the following guidelines are used with every truck bed design, a secure strap-down is possible.

- Make sure the transporters are as far forward and to one side as possible (see A).
- Secure each front and side to the truck bed (see B).
- Strap the outside casters to the truck bed (see C).
- Use additional straps wherever possible.
- The transport coordinator will check and approve the strap-down before transit.



Cetacean transport methods (Geraci *et al.* 2005). A) Stretchers with holes for flippers. B) Specially constructed transport box with foam pad and waterproof liner. C) Manual method of moving a small cetacean onto a foam-padded transport vehicle, using poles positioned cross-wise through stretcher handles to allow necessary support. D) Use of heavy equipment to move larger cetaceans.



Photo Credit: IFAW



Photo Credit: IFAW





Photo Credit: IFAW



Photo Credit: IFAW



Photo Credit: IFAW



**Cages:** Cages are used to contain and transport animals. Doors lift completely out and can be used as crowding boards. The cage can be lifted by a team or by forklift and has bridle attachment points to be lifted by crane or helicopter. Placing a cage in shallow (less than two feet) water may aid a compromised animal with entry/exit in conjunction with other tools such as crowding boards. Three different cage sizes pictured below.



## **Appendix E: Cetacean and Pinniped Transport Questions and Answers**

### **Q: Who is responsible for responding to live marine mammals?**

A: The NOAA Fisheries' Office of Protected Resources coordinates marine mammal stranding and entanglement response efforts around the country through the National Marine Mammal Health and Stranding Response Program, which coordinates the National Marine Mammal Stranding and Entanglement Networks.

Only trained responders who have been authorized by NOAA Fisheries and who have the training, experience, equipment, and support needed should attempt to respond to or rehabilitate stranded and entangled marine animals. Response efforts also rely on many state and federal agencies (including law enforcement agencies and the United States Coast Guard), non-governmental organizations, and others working together to support response to stranded and entangled marine mammals.

Regardless of the species, responding and transporting live marine mammals is dangerous, and should only be performed by trained professionals.

### **Q: What role does NOAA Fisheries play in marine mammal transport?**

A: NOAA Fisheries' Marine Mammal Health and Stranding Response Program was created by the 1992 Amendments to the Marine Mammal Protection Act, and NOAA Fisheries was designated as the lead agency to coordinate related activities to responding to stranded and entangled marine mammals. Stranded and entangled marine mammals may be transported for medical assessment, translocation, rehabilitation, and release. Each Region (Alaska, Pacific Islands, West Coast, Southeast, and Greater Atlantic) has a Regional Stranding Coordinator and/or Entanglement Coordinator that oversees the Stranding and Entanglement Network responders. For contact information for your Regional Stranding Coordinator please visit: <http://www.nmfs.noaa.gov/pr/health/coordinators.html>

### **Q: What is transportation and how do you plan transport?**

A: Transportation refers to the transport of a marine mammal from one location to another utilizing a carrier or conveyance system. Transporting marine mammals poses many challenges. During transportation, an animal will not have access to its normal aquatic environment that provides physical support, temperature control, and freedom of movement. Transportation planning can vary per region depending on length of transport, species characteristics, and local weather/temperature.

**Q: What are the methods of transportation used for cetaceans and pinnipeds?**

A: A variety of transportation options may be used, including large vessels (*e.g.*, NOAA ships, other chartered vessels), airplanes, helicopters, vehicles, and other modes of transportation as appropriate, depending on location and available resources. Another factor to consider when transporting cetaceans or pinnipeds is the number and size of animals. Vessels, aircraft, and vehicles are the three most common transport methods.

**Q: How do you decide which transportation method to use?**

A: In the process of decision making, safety and expediency are the foremost concerns. It must be safe for humans, the animal, and should minimize stress, often requiring the chosen method to be a balance of these considerations. Time in transit for transporting marine mammals should be kept to a minimum and best transport practices must be used in consultation with appropriate experts, if needed. When the decision is made to transport the animal, options for contingency should always be noted in the transport plan.

**Q: What are the different transportation scenarios?**

A: There are a variety of reasons cetaceans and pinnipeds need to be transported. Transport can be used in the following scenarios: immediate release, translocation, rehabilitation, or release after short-term holding or rehabilitation.

**Q: What is immediate release?**

A: Immediate release is when an animal is rescued, assessed, and approved to be released back into the wild during the same event. Immediate release is an option if the following factors are met:

- The animal is healthy or medically stable, and able to function normally as determined by the NOAA Fisheries, response lead, and/or the attending veterinarian (on-site or via phone consultation) or authorized responder. Certain situations (*e.g.*, thunderstorms, hurricanes, a stressed animal due to capture event) may have time constraints and the only option may be transport/immediate release.
- Social requirements can be met (*e.g.*, maternal care for young).
- Beach and environmental conditions are favorable.
- The animal is unlikely to strand/re-strand.
- The location of capture is near the animal's natural habitat.

### **Q: What is translocation?**

A: Translocation is when an animal is relocated to a different site for immediate release. The requirements for translocation include:

- A different site is a more suitable for release including minimizing animal stress or other factors;
- The animal size is manageable and adequate logistical support is available and safe, including transport vehicles; and
- The new site is believed to improve the chances of a successful release for the animal and reduce the likelihood of a re-stranding.
- The animal is healthy or medically stable, and able to function normally as determined by the NOAA Fisheries, response lead, and/or the attending veterinarian (on-site or via consultation).
- Social requirements can be met (*e.g.*, maternal care for young).

### **Q: What is rehabilitation?**

A: Rehabilitation is when a marine mammal is rescued and transported to a facility to receive care and/or be transported between facilities for care. Transporting an animal from a stranding site to a rehabilitation facility is typically accomplished via vehicle, although vessels and planes may be used. The facility should have a Stranding Agreement that specifies that it has met minimum standards for short-term holding or long-term rehabilitation and has specific

accommodations available. An authorized animal care facility is to provide treatment with a goal of releasing the animal back to the wild.

**Q: What is short-term holding?**

A: Short-term holding is defined as holding an animal in an authorized facility for less than 96 hours. The facility should have a Stranding Agreement that specifies that it has met minimum standards for short-term holding and has specific accommodations available.

**Q: What is release after short-term holding or long-term rehabilitation?**

A: The marine mammal may be released to the wild after short-term holding (less than 96 hours) or long-term rehabilitation (greater than 96 hours). Releasability is determined through successful medical testing and/or rehabilitative therapy as well as other requirements. Transport is generally necessary for release of animals post short-term holding or long-term rehabilitation. Animals may be transported using any transport type such as a vehicle, vessel, or aircraft.

**Q: How do you transport pinnipeds?**

A: Pinniped transport is less complex than that of cetaceans because pinnipeds are able to tolerate long periods out of water if kept cool and/or moist (Gulland *et al.* 2018). All transport crates (sized based on animal's weight) should have adequate ventilation and be made of heavy-duty material (*e.g.*, plastic, metal, etc.). Cage dimensions must be large enough to allow the animal to turn around and exhibit normal posturing during transport (Gulland *et al.* 2018). Containers must be properly secured at all times. Specifically for fur seals, it is recommended the cages have a double base to allow separation between the animal and fluid and excrement that may soil the fur. When transporting by vehicle, protect animals from exhaust fumes, direct sun, and heat.

**Q: Do pinnipeds need to be monitored during transport?**

A: Intermittent monitoring can be conducted throughout transportation. Pinnipeds should be evaluated for changes in health and behavior, this can include observing the animal (in-person or remotely) every several hours during long transports when feasible. When transporting, escorts/crew will look for a variety of threats, indications of stress or disease, and identify ways to mitigate these while observing the animal.

**Q: Are pinnipeds affected by weather temperature during transport?**

A: When transporting pinnipeds, the animals need to be protected from exhaust fumes, direct sun, heat, wind, and freezing temperatures. Animals should be transported in temperatures that are within the species thermal range, to reduce the risk of hyper- or hypothermia (Gulland *et al.* 2018). If climate-controlled vehicles are not available to transport pinnipeds, the animals are at risk of overheating, especially in warm temperatures. It is important to keep animals cool through adequate ventilation, strategically planning transports during cooler hours when possible, and providing water through sprayers, or for some species, using ice or ice packs. For freezing temperatures, blankets can be provided in the cages to help keep the animals warm. Pinniped flippers are specialized in regulating their body temperatures so these areas are especially important to monitor.

**Q: How do you transport cetaceans?**

A: Stranded cetaceans are generally transported by an enclosed truck or trailer using dry transport methods which places the cetacean on open or closed cell foam pads or similar padding. If the weather is mild to warm, transport may include continuous application of water via bucket, sprayer, etc. to keep the skin moist. In some non-emergencies, including transport for releases, “wet transport” (*e.g.*, water-filled boxes) may be used. Transportation of small cetaceans held in fabric stretchers and suspended in large freshwater-filled boxes provides a good approximation of the near weightlessness these animals experience in water. Animals should be kept calm to avoid struggling, thrashing, or other unnecessary activity which may cause overheating, stress, or physical trauma. All necessary equipment and supplies for maintaining the animal’s appropriate body temperature should be available.

**Q: Do cetaceans need to be monitored during transport?**

A: Cetaceans should always be monitored during transport and never left unattended. The tail flukes, dorsal fin, and flippers can be palpated for signs of hyper- or hypothermia, and the animal should be treated accordingly with the goal of maintaining normothermia during transport (Sharp *et al.* 2016). Monitoring the skin condition is more of a concern on longer, dry transports, or when an animal was exposed to extreme temperatures during the stranding event. The animal should be continually monitored for signs of progression into a state of shock (including foamy feces, flatulence, belching, pale mucous membranes, lack of palpebral reflex, sustained elevated heart/respiration rate, or loss of responsiveness) and treated accordingly.

**Q: Are cetaceans affected by weather temperature during transport?**

A: Cetaceans may be prone to hyper- and hypothermia. When cetaceans are removed from the water, care should be taken not only to prevent skin abrasions but to prevent hyper- and hypothermia; a smooth resting surface and frequent spraying with water help to prevent these problems. When transporting by vehicle, protect animals from exhaust fumes, direct sun, wind, and extreme temperatures.