

Notes on Stranded Cetaceans

by
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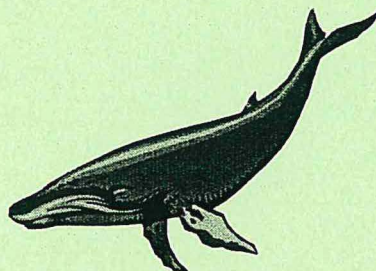
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1. **First Aid for Stranded Cetaceans**
2. **Clinical Examination of Live Stranded Cetaceans**
3. **Moving Stranded Cetaceans on Land and At Sea**

Acknowledgement

These notes are part of the Draft Contingency Plan for stranded cetaceans that the Department of Conservation and Land Management is currently developing and has not been formally released.

Any enquiries should be directed to CALM Marine Wildlife Branch, Hayman Road, Como WA 6152 phone (9334 0292).



FIRST AID FOR STRANDED CETACEANS

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First Aid should aim to prevent further injury and keep the animal comfortable until appropriate action is taken.

- **The purpose of this section is to describe the standard supportive care (first aid) that can be given to live, stranded cetaceans to maximise their chances of surviving the stranding incident.**
- Where possible **trained volunteers** (eg. WestWhale) should be utilised to administer first aid. These volunteers can assist in training inexperienced volunteers in standard first aid techniques. When trained volunteers are unavailable or insufficient numbers are available, trained CALM staff should train other volunteers for this role.
- **STRESS AND SHOCK** are significant physiological threats to stranded cetaceans and the effects, which are almost impossible to determine without laboratory tests, severely reduce the chance of the animal surviving the event. Appropriate **supportive care is designed to minimise these effects.**
- **The sooner that first aid can be applied to an animal the better its chances of survival.**
- At a **mass stranding** the **priority animals** for immediate first aid are “**Code Green**” (See Clinical Examination of Live, Stranded Cetaceans).
- When **working around a stranded cetacean** do so **quietly**, minimise the handling, but if it is necessary to handle the animal be **firm and gentle**. Be particularly careful not to startle the animal with sudden actions such as pouring a bucket of water over it without warning.

First Aid Procedures

1. STABILISATION.

Where possible the cetacean should be placed into a position where it can be treated safely for the animal and personnel. If the animal is in the shallow water and there is no significant surf it can be held gently in the water with its head facing out to sea. Such a circumstance minimises the physical trauma associated with a stranding. Where the animal is in a surf zone, on rocks or is already beached, it should, if possible, be laid belly-down on reasonably level sand. Dig holes for its pectoral flippers.

2. MINIMISE THREATS.

Once a cetacean has been stabilised, the principal physical threats are from wind and sun. The blowhole and eyes should be kept moist and protected from blowing sand. The blowhole region should be flushed with water immediately after a breath has been taken (observe the breathing sequence to be sure of the timing). The dorsal fin, pectoral fins, tail fluke and head region are all important areas for heat shedding for cetaceans and cool water should be applied preferentially to these parts. They should be left uncovered to encourage evaporative cooling. The remainder of the body should be covered with light coloured, wet towelling material or something similar (note that even newspaper, seaweed, mud or other materials can be used if nothing else is available). Where possible any exposed cetacean skin should be shaded. If shading is impractical, zinc creams can be applied to exposed skin, do not use oil-based creams like lanolin as they prevent heat loss. The fins should be felt regularly during first aid procedures to determine how much heat they are dumping.

3. KEEP COOL.

The provision of regular cool water is the key to sustained first aid. The amount and the quality of the water will depend upon the situation and logistics at the beach. Fresh or salt water is appropriate for short-term care. Ideally, water should be supplied from a hose, but regular delivery of bucket water is sufficient. The material covering the animal should be kept moist, as should all areas of exposed skin.

4. CO-OPERATE.

The first aid team assigned to a whale will need to work with several other teams at the stranding event. These will include teams collecting data on the animals, teams marking the animals with brands, collecting blood or other samples, and teams responsible for moving the animal to another site (if appropriate).

CLINICAL EXAMINATION OF LIVE STRANDED CETACEANS

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A stranded cetacean may or may not be diseased, but it is always injured to some extent by the stranding event itself.

- **The purpose of this section** is to provide a step by step procedure to **determine the condition** of a stranded cetacean. This assessment will be used to **decide upon the action** to be taken. At a **mass stranding** this assessment will be used to **rank the animals** to prioritise the order in which they are attended to.
- A beached cetacean will inevitably develop **respiratory fatigue and distress** and will suffer superficial and **musculo-skeletal** damage. The magnitude and rate at which this damage occurs is greater in larger animals. These changes are difficult to measure and we know little about their effects upon the survival of the animal. The combination of records of careful, systematic clinical evaluations and records of the eventual fate of the animal are a logical approach to improving our ability to predict the fate of a stranded cetacean.

Note: During a prolonged rescue operation, particularly at a mass stranding, it is advisable to conduct more than one clinical assessment, if time and logistics permit. In such circumstances the additional data sheets need not repeat all records (such as body measurements), but should focus on the clinical assessment records. These sheets must be appended to the original data sheets.

Rapid Assessment of Animals (Mass strandings only)

A thorough clinical examination is conducted to estimate the animal's chance of survival and the best course of action to follow for that animal. For single stranded cetaceans simply follow the procedure outline below. At a **mass stranding** a **rapid assessment** is conducted **prior to the more complete clinical examination**.

Cetaceans at a mass stranding should be ascribed into one of three categories:

- most likely to survive (CODE GREEN)
-
- less likely to survive (injured or weakly responsive) (CODE RED)
-
- dead (CODE WHITE)

This assessment should be done prior to any other work directed towards the animals themselves as the colour codes will be used to apportion resources for first aid and the rescue effort. The rapid assessment procedure is also the mechanism for ascribing individual identification to each animal that will be used to track them through the rescue procedure. The assessment is primarily visual (see behaviour criteria, below) and is restricted to beached individuals. Dolphins or whales that are still in the water will remain unclassified until they are able to be handled safely. As each animal is classified, the appropriate coloured strip of towelling (green, red or white) should be tied to its pectoral fin or tail stock. Each strip of towelling has a blank plastic disc attached to it, an individual identification number should be written on this with the indelible marker pen (numbered sequence from 1). This temporary mark will identify the animal during the rescue component of the operation, during which any released animals will be freeze branded.

Maximum resources will be directed towards "code green" animals, followed by "code red" animals. If, during the process of the rescue operation, a subsequent clinical investigation of an animal determines a different category to the one ascribed during the rapid assessment, the colour band on the animal may be changed, but the identification number must remain the same.

Clinical Examination Procedure

1. BEHAVIOUR CRITERIA

Each live stranded cetacean should be classified as:

- **alert** (aware, responsive to environmental stimuli)
- **weakly responsive** (responsive only after much stimulation)
- **non-responsive** (not responsive to noise or touch)

2. GENERAL CONDITION

Prior to a hands-on clinical examination of the animal, a brief, general description of body condition (eg. external injuries, abnormalities) should be made. Note that the general nutritional status (ie starving v's fat) is difficult to determine visually except in extreme cases. As cetacean skin is designed to function entirely in water, it is rapidly damaged when dry and particularly when exposed to wind and direct sunlight. It is also highly vulnerable to laceration from rocks, shells etc. The skin will wrinkle, blister and peel and lead to critical fluid loss and injury. Assessment of skin condition should include a description of the nature and extent (% of body) of the damage. Animals with significant (>30%) amounts of skin loss are likely to be poor candidates for release and survival.

3. BEHAVIOUR IN WATER

If the animal is in the water at the time of the clinical examination, or has been moved to the water during the process of the rescue operation, a great deal of information can be derived from an assessment of the behaviour of the animal.

After being stranded or rolled in the surf zone cetaceans are typically disorientated and often unable to swim and remain upright. The animals ability and eagerness to remain in an upright position and swim, as well as its respiratory pattern are key indicators to its readiness for release. A cetacean should never be released until it is clearly able to swim strongly.

4. RESPIRATION

Respiratory rate and quality can be assessed visually by watching the blowhole and timing the cycle. Respiratory fatigue and distress will eventually develop in all stranded cetaceans. A rapid and irregular respiratory rate, gurgling sounds as the animal breaths or bleeding, frothy or foul-smelling fluid from the blowhole are signs of significant respiratory distress or disease; animals exhibiting these signs are poor candidates for release. Respiratory rates vary with species, as well as the condition and circumstances of the animal. Small cetaceans such as bottlenose dolphins may breath up to 6-8 breaths per minute, larger whales may breath less than once per minute. The actual expiration and inspiration (when the blowhole is open) should be rapid (<1-2sec) and forceful. Weak, prolonged breaths are a poor sign.

5. HEART RATE

Heart rate is a measure of cardiovascular function but the data is of questionable use, as it is difficult to interpret in all but extreme cases. Heart rate can be palpated by holding the hand firmly under the pectoral flipper of a small to medium sized cetacean or measured directly with a stethoscope. The rate will vary greatly between the breath hold and the actual breath, speeding up dramatically during the latter. As such the rate should be averaged over a few minutes to acquire a reasonable measurement.

6. BODY TEMPERATURE

Body temperature is a measure of cardiovascular function (the animals ability to shed heat from peripheral circulation) as well as general physiological state. A stranded cetacean is enormously compromised in its ability to regulate its core body temperature, and this becomes a fundamental aspect of the first aid provided for the animal. Core body temperature can only be measured adequately with a flexible rectal probe of >20cm. Do not use glass thermometers. Normal temperatures are 36.5-37°C. Temperatures below 35.6°C are indicative of hypothermia or cardiovascular shock. Temperatures above 40°C are critical and life threatening. Peripheral body temperature can be measured directly with a thermometer on the flukes and flippers. Alternatively, and more simply, a relative impression of peripheral body temperature can be acquired by holding the palm of your hand on the fins or head region of the animal. If they feel hot the cetacean is probably attempting to dump heat through its peripheral circulation and more cool water should be poured over the these areas (and more shade if possible). If the skin feels neutral or cool it is not possible to draw clear conclusions of how that might relate to core body temperature.

7. REFLEXES

The loss of any of the normal body reflexes is a very poor sign. The blowhole should always remain tightly closed except during the breath and should always close if touched in the vicinity. The palpebral reflex can be tested for by tapping gently near the eye, the reflex closure of the eye is the normal, healthy response. Stranded cetaceans typically have pin point pupils and will not respond to light sources therefore pupillary reflex is not helpful. A fully dilated pupil is a sign of death. Jaw/muscle tone can be tested for by attempting to open the jaw or by gently pulling the pectoral flipper forward, in both cases a healthy animal will resist the efforts. Failure to do so is a poor sign.

Interpretation

- The results of the clinical assessment should be used to determine the prognosis (prediction of chances of survival) for the animal.
- A cetacean **READY FOR RELEASE** will be: alert, have minimal, superficial skin damage, be able to breath and swim without assistance, have a respiratory rate and body temperature within normal ranges, have all the measured body reflexes and have no other evidence of major injury or disease. These animals should be classified as Code Green during a rapid clinical assessment.
- A cetacean that **SHOULD NOT BE RELEASED** will have one or more of the following: unresponsive to stimuli, have extensive (>30%) skin damage, be unable to swim without assistance, have significantly abnormal respiratory function, have a significantly high or low core body temperature, have lost one or more of the measured body reflexes, and/or have evidence of major injury or disease. These animals should be classified as Code Red during the rapid clinical assessment.
- Some cetaceans will fall between these categories. Where further action such as treatment or temporary holding is not possible for these animals, they should be released and monitored. They should **not be released with the Code Green animals.**

MOVING STRANDED CETACEANS ON LAND AND AT SEA

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*The orderly and humane handling and movement of
cetaceans at a stranding is the key to a successful
rescue.*

- **The purpose of this section is to describe procedures for preventing free-swimming cetaceans from becoming stranded, for handling and moving cetaceans on the beach, for holding them in shallow water and for moving them out to sea.**
- Most procedures are potentially injurious to the animal and personnel. In normal circumstances, trained staff should only make these attempts.
- At a mass stranding a “cetacean transport team” will be responsible for supervising this work.
- Purpose built lifting slings and other equipment are available through Wildlife Protection Branch.
- Standard first aid practices should continue during moving operations (see First Aid for Stranded Cetaceans).
- Usually only small to medium sized (<6-8m) cetaceans can be moved. In some circumstances it may be possible to move larger cetaceans, but this will depend on tide and weather conditions and available resources. This document is intended to describe only the standard procedures for the smaller animals; decisions relating to larger animals can be made at the time by supervising staff.
- The sooner a stranded cetacean is returned to the water, the better its chance of survival. Consequently, efforts to move animals should be through a judicious blend of care and speed.

Preventing Free-Swimming Cetaceans from Stranding

- During the early stages of a mass stranding some component of the group will be free-swimming in the region of where the first animals have come ashore. These free-swimming animals are a higher priority for action than those already stranded. In some circumstances driving a group of dolphins or whales away from shallow areas can avert a mass stranding.
- The most straightforward method of preventing cetaceans stranding is to create a physical and acoustic barrier. Care must be taken when using these

techniques to introduce the barrier and the sound gradually so as not to panic the animals; rather the movement is to be achieved in a controlled manner. This can be achieved in shallow, relatively calm water with a chain of people making noise by slapping their hands on the water surface or striking solid objects together underwater. In deeper water small boats can be used as a barrier making noise with their motors.

- Once the animals have been driven further offshore herding techniques can be used.

Handling, Lifting and Moving Cetaceans on Land

- Decisions on how to move a cetacean will always depend upon the equipment and resources available. In circumstances where resources are limited it is tempting to try anything to move the animal. Whilst improvisation is always necessary the welfare and safety of the animal and personnel always takes precedent.
- Cetaceans of up to about 6m can be moved on a stretcher or sheet. Any strong and adequately sized sheeting material can be used to affect a brief (<15-20 minutes) handling procedure. For lengthier procedures a lifting sling must be fitted with openings for the pectoral fins (to prevent crushing and overheating) and genitals (to prevent urine burns).
- The fabric should be smooth, easy to handle and clean, slide easily over sand, present no sharp seams or joins against the animal, and ideally be lined around the openings. Materials such as canvas and strong plastics are ideal. Stretches should be fitted with multiple lifting points, or a pole, for personnel along each side, as well as lifting points for strops if machinery is used.
- A cetacean can be manipulated onto a sling by rolling it gently onto its side, placing a folded portion of the stretcher under the animal, rolling it gently back onto its other side over the sling and pulling the folded portion through.
- A cetacean should **never be completely rolled over**. If it is small enough to roll, it is small enough to manoeuvre onto a stretcher.
- **Dragging** a cetacean is **only** acceptable when it is done to **remove the animal from immediate danger**, e.g. from the surf zone. In all other cases a stretcher should be used.
- If cetaceans are to be **loaded onto a trailer or a truck** for transport to another site they should be **laid onto a soft base such as a mattress**. If these are not available, **a bed of sand is sufficient** for short transports.

- For transports in excess of about 1 hour specially constructed transport containers with foam and waterproof liners are preferable.

Acclimatising Animals in the Water

- If a cetacean has been stranded ashore it requires some time to acclimatise in the water prior to being released. The site for this may or may not be in the immediate vicinity of the stranding event, depending upon the local coastal geography. All CALM regions should note the location of suitable sites for such activities.
- A thrashing cetacean in the water, particularly in the surf, can be extremely dangerous. Attempts to handle such animals may need to be aborted.
- Prior to being placed in the water a cetacean should be wet thoroughly to ease the shock of being suddenly immersed in water.
- The ease with which a cetacean can be handled in the water will depend upon its size, state of health and species. False killer whales, pilot whales and bottlenose dolphins are reasonably amenable to being handled, species such as striped dolphins are more prone to panic and, although small, are often difficult and dangerous to handle.
- A small cetacean may be able to be held by one person holding one arm under the head of the animal (in front of the pectoral fins) and the other over the animal's back. Larger animals require more support and may require two or more people. Straps or a sling can also be used to provide support.
- A cetacean should not be released until it has demonstrated the ability to breathe at the surface and swim freely. The handler(s) should check for these abilities regularly by easing the hold on the animal and allowing it to sink a little below the surface; a whale ready for release will respond by raising its blowhole clear of the surface to take a breath. Similarly, moving the animal slowly forward and easing the hold should result in an attempt to swim. Animals that are not ready for release will fail to respond in this way and may also roll sideways with no apparent ability to right themselves.
- It may take many hours to adequately acclimatise a cetacean for release.
- Cetaceans not sufficiently acclimatised will be apt to restrand.
- Mother and calf pairs should be acclimatised in close proximity to each other.

Herding and Moving Animals at Sea

- Once a cetacean can breathe and swim without assistance it is ready for release. This can be done by encouraging the animal to swim away from the

site at which it stranded or was acclimatised, or by taking it out to sea on a boat. The procedures for moving cetaceans on and off boats are the same as those outlined above for moving them on land.

- Herding a cetacean(s) away from the beach is often necessary for a successful release. This can be accomplished in the near-shore waters (<300m) with a combination of swimmers, surfboards or kayaks. Powerboats are necessary for waters further offshore. The swimmers or smallcraft should position themselves in an arc around the flank and rear of the animal(s). The cetacean(s) should determine the speed at which they will travel and the herding should be gentle, with no sudden changes in direction. A sound barrier of people or boats can be established along areas where the cetacean(s) should not go (e.g. along the surf line of a beach).
- If a group of whales are being released, the composition of that pod is likely to be influential on how easily they can be herded.
- A cetacean can also be towed to sea. This procedure can be done to release a single animal, or to use one animal as a lure for further animals that can be herded behind the towed cetacean.
- Towing requires experience, a suitable vessel and the correct equipment. It is possible to “tow” an animal alongside a vessel in a stretcher, or to use a specially designed harness to tow the animal from behind the vessel.
- Cetaceans must be towed head first, and at a speed which allows them to breathe.
- Towing should not be used to move cetaceans that cannot swim freely as such animals are clearly not ready for release. Rather, it is a tool for encouraging an animal(s) offshore during a release.
- It is not possible to place very large cetaceans in slings for towing. Towing these animals backward by their tailflukes is not recommended as it can dislocate their vertebrae, damage the flukes and result in suffocation. However, this technique has been used with care and apparent success on semi-beached sperm whales and may be attempted as a last resort.