

IWC 58 : WORKSHOP ON WHALE KILLING METHODS AND ASSOCIATED WELFARE ISSUES

EUTHANASIA OF STRANDED CETACEANS IN NEW ZEALAND

Submitted by the Government of New Zealand

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INTRODUCTION

Strandings of whales and dolphins are a relatively common occurrence in New Zealand. Whale strandings are generally very public events, often with dozens and sometimes hundreds of people involved. The management of such events is the responsibility of the Department of Conservation, (DOC), usually in association with local Maori.

Because of the high public profile generated by whale stranding events, the Department has developed a Standard Operating Procedure (SOP), to ensure consistency in the management of such events wherever they occur along New Zealand's 18,000 km of coastline.

The section dealing with euthanasia is one of the most important parts of the SOP in terms of the Department's public profile. It is attached as Annex 1.

DEVELOPMENTS IN DEALING WITH STRANDED WHALES

New Zealand has previously reported to the Commission on the development of the Sperm Whale Euthanasia Device (SWED), which has been designed to provide a swift and humane euthanasia for sperm whales that are stranded with no hope of rescue. The SWED has not been used in New Zealand since the last Whale Killing Methods workshop, held in Berlin (2003). During this time, there have been very few sperm whale strandings in New Zealand, and there has been no requirement to deploy the SWED.

Firearms are used to provide a humane euthanasia for other whale species that are beyond hope of rescue. As outlined in the SOP (Annex 1), all DOC staff who are involved in euthanasia of stranded whales or dolphins must be registered firearm users and must have received instruction in the approved procedures for euthanasia. This includes the identification of landmarks to allow the accurate placement of a shot to the brain and the use of appropriate calibre weapons.

There have been no further development of euthanasia procedures in New Zealand since they were last reported to the Commission and fortunately the mass euthanasia of stranded whales is a rare occurrence.

On the last day of 2005, however, 41 long-finned pilot whales were stranded in a remote part of Farewell Spit, a renowned whale trap on the north-west corner of the South Island. Staff who responded to the call-out concluded that the situation of the stranded animals was hopeless, with no chance of rescue. They therefore decided to euthanase all the animals. A personal account from one of the two staff members involved is attached (Annex 2).

Discussion

The extract from the SOP and the personal account from Greg Napp highlight some key themes on the management of whale strandings in New Zealand, namely:

Use of firearms of adequate power

As detailed in both Annexes 1 and 2, a humane euthanasia can only be achieved if the firearm used is of adequate power. Trials have been undertaken on whale carcasses by ballistics experts to ensure that the firearms recommended for use in euthanasia of stranded whales are sufficiently powerful to deliver the projectile to the brain.

Use of experienced and trained staff

The other requirement for achieving a humane euthanasia is to ensure that the shot is accurately placed. As detailed in the SOP, only experienced and trained staff are authorised to euthanase stranded cetaceans. Because the area around Farewell Spit is a notorious whale trap, local DOC staff are well-equipped to deal with strandings and regularly undertake training exercises. Both of the officers who attended to the call-out on 31 December 2005 were very experienced in managing strandings, and had received specific instructions on euthanasia.

Crowd management

As noted in both Annexes, the management of members of the public who attend a stranding event can be particularly time-consuming for Department of Conservation staff. Meeting the requirements of domestic legislation, especially health and safety issues, are an essential component of any management response to a whale stranding. Members of the public often become emotionally involved and put themselves at risk during stranding events.

As Annex 2 makes clear, the remote location for the stranding on 31 December facilitated the euthanasia operation, because there were no members of the public on hand and the two DOC staff were therefore able to complete their unpleasant task in timely fashion.

Decision to euthanase

It is clear from the account provided in Annex 2 that the euthanasia of stranded whales is not a task lightly undertaken by DOC staff. In this case, the decision to euthanase was based on a thorough assessment of the stranded pod. It was decided to euthanase the animals because:

- The animals had been beached for more than one tide cycle and were in poor shape;
- Even if a refloating had been possible, there was little prospect of the stranded animals finding their way back to deep water;
- The remote location and strong tidal flows prevented the provision of specialist rescue equipment;
- There would have been a significant risk to public safety if volunteers had been called in to try to effect a rescue

All 41 of the euthanased pilot whales appear to have died instantly.

Conclusion

Euthanasia of stranded whales in New Zealand is carried out only by trained and experienced staff of the Department of Conservation, using firearms of adequate power. A Standard Operating Procedure has been developed to guide DOC staff in managing stranding events, and in particular provides details on when and how to euthanase stranded whales. New Zealand is very willing to share its experiences with other IWC members.

Annex 1

Extract from Department of Conservation's Standard Operating Procedure for Management of Marine Mammal Strandings

2.4 Euthanasia

Euthanasia is a difficult decision but must be made purely for the welfare of the animal involved. The Operations Manager has sole responsibility for this decision. Information provided in this manual has been vetted by experts, so the decision maker can trust that s/he will be fully supported by the department in the decision made, if based on this procedure.

Marine Mammal Officers (according to the MMPA 1978)

Any warranted officer under the Conservation Act, any fisheries officer under the Fisheries Act and every constable, is also a Marine Mammal Officer according to the MMPA 1978.

A Marine Mammal Officer has the power to destroy or direct the destruction of any aged, sick, distressed or troublesome marine mammal without specific authorisation from the Minister.

A Marine Mammal Officer also has the power to advise on the disposal of a dead marine mammal without specific authorisation from the Minister. This includes being able to retain by-caught marine mammals on fishing boats to take back to land for autopsy.

Considerations prior to the euthanasia of any marine mammal:

The considerations outlined below provide some guidelines that may assist with the decision as to whether euthanasia is appropriate or not given different scenarios. Please note the considerations below are intended only as guidelines, and each stranding incident (and indeed each individual involved in a mass stranding incident) presents a different scenario and the **decision to euthanase can only effectively be made on a case by case basis at the discretion of attending staff.**

Veterinary Considerations – factors that may lead you to consider euthanasia:

- dependent calf with or without its mother (see Table 1, Section 2.2.4 for details).
- coastal species (unlikely to strand, therefore stranding often has a health related cause). If species unidentified – treat as oceanic.
- obviously thin or emaciated (unlikely to survive even if successfully refloated).
- deep penetrating injuries into muscle layer, thoracic or abdominal cavities (note that superficial injuries to skin and blubber can look quite serious due to extensive haemorrhage, but do not preclude rescue attempt).
- excessive skin sloughing and/or heavy burden of ectoparasites.
- protracted rapid breathing (normal breathing rate for dolphins 2-5 breaths per minute, over 10 breaths per minute indicates severe stress or physiological abnormality – respiratory rate in whales varies vastly, the normal respiratory rate for pilot whales is 8 – 18 breaths per 5 minutes).
- absence of reflex from the anus, genital opening, blow hole or tongue.
- sustained muscle tremors/lateral or ventral flexion.
- blood from blowhole/mouth/anus not associated with superficial trauma.
- significant mucus discharge from blowhole.

Logistical considerations – factors that may lead you to consider leaving the animal to die of natural causes:

- danger to personnel; many factors may mean that euthanasia is impractical for safety reasons, these could include unfavourable weather or sea conditions, mobile animal in dangerous location etc.
- inappropriate fire arm and/or ammunition (see methods below for details)
- euthanasia likely to cause significant antagonism between DOC and public/bystanders.

Procedures for the humane euthanasia of marine mammals

Euthanasia of whales should always be carried out by, or under the supervision of, experienced personnel. The table below details local staff experienced in marine mammal euthanasia procedures:

Name	Work phone number	Mobile number	Home phone number	Fire Arm License #

[Fill this table in with details of local staff that have been trained and/or are experienced in marine mammal euthanasia. Add rows if necessary]

Before Euthanasia is attempted, a number of aspects MUST be satisfied.

Importantly, you must counsel any bystanders and take care of public relations issues. Good humane practice and good communication must go hand in hand. You also have responsibilities to ensure public safety and this may involve crowd control. If this is an issue that DOC staff cannot handle then the Police should be involved.

Counselling Bystanders: This is an aspect that requires attention. Many people present will have strong emotional ties to the animals, and/or may have spent much time in caring for the stranded marine mammals. Investing time in explaining why the decision to euthanase has been taken is very important. The reason for euthanasia is always for the animal's welfare. You should use information in this manual to support your actions wherever possible.

A note on the involvement of vets: Generally this work is routine and doesn't require veterinarian assistance. It requires a pragmatic assessment of the situation by experienced staff and the follow through of simple euthanasia techniques if deemed necessary. Past experience has shown that the participation of veterinarians in this work can sometimes unnecessarily complicate matters.

METHODS

1. Shooting

Shooting is the preferred method of euthanasing stranded seals, whales and dolphins. The Police should always be informed before discharging a firearm in, or close to a built-up area. The appropriate rifle calibre and ammunition are as follows:

- (a) **Seals** – .22 standard rifle for small seals; or .222 or .223 rifle for larger seals. Refer to Figure 3 for target area.

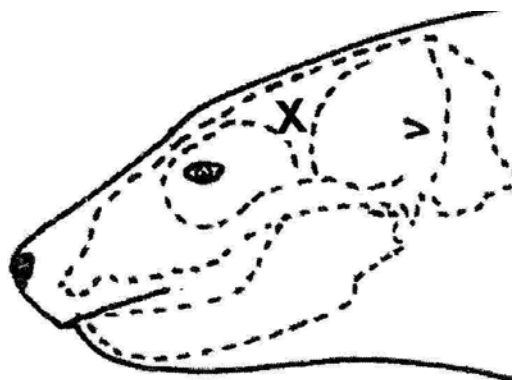


Fig. 3. Target area for seal euthanasia.

Target area may be accessed by a shot fired dorso-ventrally (from above) or laterally (from the side). Target area indicated by X

- (b) **Small whales or dolphins up to 2 m** - any high powered rifle and standard sporting rounds;
- (c) **Dolphins or whales 2.0 – 8.0 m** - .303, .30-06, .308 using 180 grain soft or solid round nosed projectiles;
- (d) **Baleen whales 8 m and above** - .303 using Mk.6 projectiles; .30-06 or .458 and solid round nosed projectiles; Sperm Whale Euthanasia Device (SWED).
- (e) **Sperm whales** – The specialised Sperm Whale Euthanasia Device (SWED) only. Refer to end of this section for more information.

Due to the thickness of the blubber and other tissues overlying the target area in larger whales only solid round nose projectiles and down-loaded cartridges should be used. This will ensure maximum penetration with minimum deviation of the projectile from its intended course.

Mk.6 projectiles are a 215 grain full nickel jacket round nose .303 projectile. They should be loaded with 40 grains of Du Pont 4895 powder. Firing trials performed by Hans Rook (Ahuriri Field Centre) have demonstrated penetration of these rounds through more than 3.35 m of blubber and soft tissue.

Extreme care must therefore be exercised when using Mk.6 projectiles because they may pass completely through small animals.

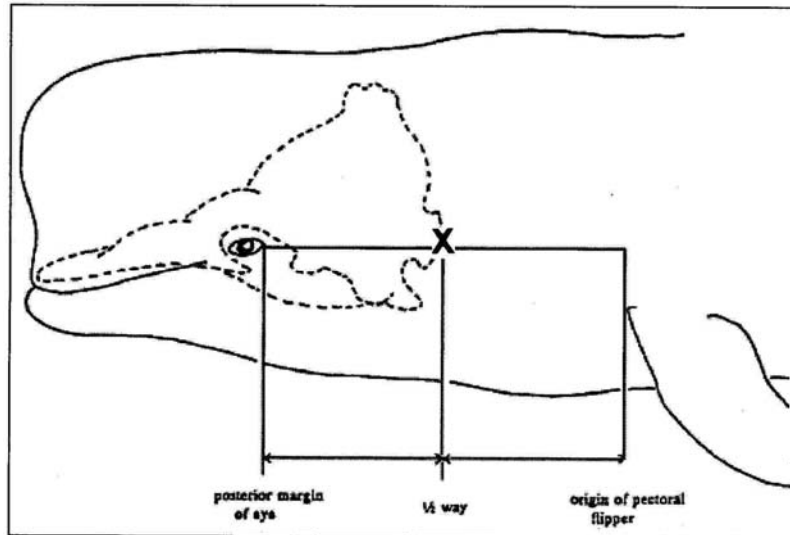


Fig. 4. Target area for shooting stranded whales: Target area may be accessed by a shot fired dorso-ventrally (from above or below), or laterally (from the side). Target area (occipital condyles) indicated by **X**

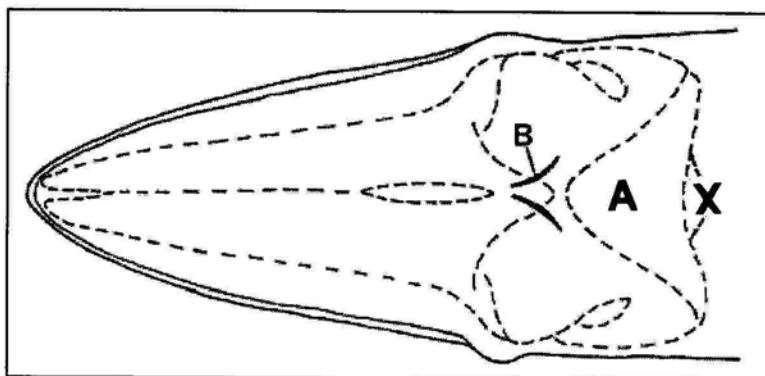


Fig. 5. Alternative target area for shooting baleen whales (when shot cannot be fired laterally): diagram of the dorsal view of the head of a generalised roqual (i.e. Bryde's, sei, minke, fin, blue or humpback whales) showing position of the brain case (A) relative to the blowholes (B). Target area (occipital condyles) indicated by **X**.

Target area:

The preferred target area is the base of the skull at its articulation with the vertebral column (the occipital condyles). Location of the target area is done by finding the point half way between the eye and the origin of the pectoral flipper as shown in Fig. 4. As noted this may be accessed by a shot fired dorso-ventrally (from above or below), or laterally (from the side).

NOTE: If you have any uncertainty about hitting the target with one shot, then you should consider firing three carefully placed shots in a line through the target area.

If you are doing this with onlookers present then it is vital that you explain **BEFOREHAND** this is standard practice to ensure a humane death – this way bystanders will not think an error has been made.

Explosives should **NOT** be used to euthanase stranded Cetaceans.

Signs of death

The following when taken together provide a good indication that a euthanased animal is dead:

- (a) complete dilation of the pupils;
- (b) onset of unprovoked agonal convulsions (violent uncoordinated thrashing);
- (c) absence of palpebral (closure of eyelid when corner of eyelid touched) and corneal (closure of eyelid if eye touched) reflexes;
- (d) slack lower jaw.

2. Natural Death

What is wrong with a natural death?.....Nothing!

Whales have been stranding for thousands of years and where euthanasia is not possible for practical reasons then it is entirely okay to let nature take its course.

3. Lancing (not to be used)

In the past lancing (cutting the carotid arteries in the throat) has been advocated as a humane method of euthanasia for whales and dolphins. However, as the carotid artery does not supply blood to the brain of these species, insensibility and death may take up to 10 minutes in a large whale. Due to the trauma inflicted by the cuts, and the length of time to insensibility, lancing is considered to be inhumane. **IT IS NOT TO BE USED to euthanase cetaceans.** If the animal cannot be euthanased by any approved method it should be allowed to die of natural causes.

4. Barbituate overdose

This method of euthanasia is only feasible for seals, where the most humane method is cardiac, rather than intraperitoneal injection. Attending veterinarians unfamiliar with seals should be advised of this before prior to taking any action.

Sperm whale euthanasia

Their size, unusual skull anatomy, and the thickness and toughness of their blubber make sperm whales extremely difficult to euthanase. The Sperm Whale Euthanasia Device (SWED) is a specialised firearm developed by Craig Bamber (Belmont Ammunition) and Norm Marsh (Previously Wanganui Conservancy, now Environment Canterbury) specifically to euthanase sperm whales. In addition to its calibre the SWED uses ammunition specifically designed for this purpose. Craig Bamber is the only person licenced to possess the SWED (See Contacts-Section 4). All costs (such as travel and accommodation) associated with Craig attending sperm whale strandings are met from the Whale Stranding Contingency Fund.

For full details and rules on claiming marine mammal related expenses from the stranding contingency fund, refer to the SOP3 in the framework - Marine Mammal Stranding Contingency Fund Rules – QD Code: NH1256 (WGNRO-10003).

- (a) Think carefully before committing to requesting the SWED. This is an expensive exercise. Please discuss with the Stranding Fund Manager if possible (Helen McConnell, MCU).
- (b) Contact Craig Bamber (contact details in Contacts Section 4).
- (c) Plan and discuss his travel arrangements – (it may not be possible to get him on site quickly)
- (d) Remember that we do pay full cost recovery for him and costs may be significant. .

FIREARM PROCEDURES

Each Area Office will need to establish their own Firearm procedures and include them here. Aspects that need to be addressed are

1. *safe storage of firearms and ammunition*
2. *access to firearms/ammunition*
3. *provision of safety gear (ear muffs and protective glasses)*
4. *designated person responsible for the maintenance of the rifle and safety gear*
5. *training in the safe use of firearms (users must be licensed).*

The principal regulatory control for firearms comes from the Arms Act 1983 and the Arms Regulations 1992, which restrict the ownership, storage, transportation and use of firearms, and introduce licensing provisions. These provisions are summarised in the Arms Code (1996 edition), available from the NZ Police.

All personnel that hold or use firearms must be licensed by the NZ Police.

For further detail on the department's protocol for Firearm possession, storage and use see the following two documents which are part of the Hazardous Substances: Standards for Storage and Disposal of. (HAMRO-734 & HAMRO-739)

QUICK GUIDE FOR MASS STRANDING RESPONSE

[Delete this sentence then - Print this guide onto coloured paper for easy access]

Before you leave the office:

- a. Alert 'initial contact' staff (see Section 2.1.2)
- b. Designate Incident controller (see Section 2.1.3)
- c. Incident Controller designates staff to other CIMS roles
- d. Incident Controller then informs all other key personnel (see Section 2.1.3)
- e. Off site personnel to begin an operations log
- f. Initiate intelligence gathering exercise

At the scene:

- g. Two officers dispatched to site with Stranding Kit A (see Section 5) to assess scene
- h. Response decision made (proceed with rescue **or** no rescue attempt)
- i. Mark each whale with coded coloured tape and number

If the decision is to proceed with a rescue:

- a. Send response Kit B to scene (see Section 5)
- b. Establish a Staging Area at the scene
- c. Establish a restricted fly zone if necessary
- d. Initiate a reconnaissance exercise to check for additional whales still offshore
- e. Confirm sampling schedule with Anton van Helden and sample accordingly
- f. Assess each individual based on the chart below
- g. Initiate rescue operation – holding, moving, reorientation, release, monitoring
- h. Initiate a media response

If the decision is not to attempt a rescue:

- i. Secure the scene (particularly important with sperm whales)
- j. Confirm sampling schedule with Anton van Helden
- k. Collect required data and samples
- l. Proceed as for Dead whale or dolphin (Section 2.2.3)
- m. Fill in Whale and Dolphin Stranding/Accident/Death report form
- n. Euthanase animals if appropriate (refer to table above and Section 2.4)
- o. Dispose of animals according to Section 2.6

Following the incident:

- Send completed Whale and Dolphin Stranding/Accident/Death Report forms to Anton van Helden (Stranding Database Manager)
- Conduct a debrief if necessary
- Submit Stranding Fund Reimbursement Form (DME: WGNRO-10003)

Annex 2

Report on euthanasia of 41 pilot whales at Farewell Spit, South Island, New Zealand : 31 December 2005

Greg Napp
**(Programme Manager, Community Relations
Golden Bay Area, Department of Conservation)**

Please use this email as a response to your request for information on the euthanasia of 41 Pilot whales on Farewell Spit on the 31st December 2005.

Clayton Ross and myself carried out the euthanasia of the whales. We are both Department of Conservation Rangers, each with over 10 years experience in dealing with whales in Golden Bay; live and dead, single and mass strandings of several whale species.

Clayton and I have both been trained in the euthanasia of pilot whales. The Cetacean Unit at Massey University have researched options for the euthanasia of whales and we have their information as part of our Marine Mammal Stranding Contingency Plan. Each year we organize a training day for our staff to refresh ourselves with procedures for dealing with marine mammals. Typically Golden Bay staff will have to deal with 5 - 10 whale and dolphin strandings each year. Some years we will also have a mass stranding of pilot whales to manage.

On the 31st December, a group of pilot whales stranded in a remote location in Golden Bay. The decision to euthanase the animals was based on the following considerations:

- Too difficult and dangerous to carry out a refloat at the whales' location;
- Very strong westerly wind. By the time the tide came back in for a refloat around 10.00pm, there would be a significant chop in the water. This would make it difficult for rescuers to remain in the same place and would pose a danger to safety, and it would also be difficult to bring the pod together and hold the pod together;
- Pod was spread over a large area - 6ha. It is imperative for a successful refloat to be able to bring the pod together. Any stragglers left out of the group would seriously jeopardise the chances of a successful refloat. Even in the best location bringing a pod together over such large distances would be difficult;
- Pod very far out. The pod was up to 1km offshore. This is a long way out for rescuers to be at a refloat. The whales would probably need to be taken even further from shore to reach deep enough water possibly even 2km. Rescuers would be in chest deep water and then would have to walk or swim the 1 - 2km back to shore;
- Dark at high tide. To attempt a refloat at high tide would have meant that the whales had to be released after dark. The rescuers would then have had to get back to shore in strong westerly winds, with a significant chop, 1 - 2km in the dark;
- Enough people on site. For a successful refloat we would have needed a minimum of 2 people per whale preferable 4 for the larger whales. This means approx. 150 volunteers plus 10 - 15 DoC staff. This would require the use of all the concessionaires' vehicles from both companies plus several DoC vehicles. Only well-equipped volunteers would be suitable i.e. wetsuited, spare clothing, food and gear for an overnight stay, tents etc. All this would have had to be organised between 1.30pm and 4pm. It took this time to get consensus on our approach and agreement from iwi for 2 people to go and carry out euthanasia.
- If a refloat did occur there was a very high likelihood of a restranding.

At the point where the stranding occurred the intertidal flat is approx 6km wide. In the direction of Puponga the flat gets even wider (up to 8km). It is a long way for the whales to go to reach deep water (unlike Puponga or Pakawau). As the whales are released at the high tide the tide will be falling as they attempt to reach deep water. There simply is not enough time - even if they were determined and knew where to go - to reach the safety of deep water.

- Refloat the next day. We could have left the whales on the 31/12/05 and organised a refloat on the 11am high tide on the 1/1/06. The whales would have had to endure 8 - 10hrs out on the flats on the 31/12, followed by the morning on the flats the following day. The same problems of refloating would still exist except that at 11.00am it is not dark. It would still be windy, sea choppy, the whales could be even more spread out and if further inshore, then required to be taken even further out.

* Do nothing approach. If we did nothing any remaining live whales would have begun floating again at high tide, they were well spread out and disorganised. They would thrash about in an uncoordinated way until the tide went out again. In the meantime the wind and current would push them a little more inshore and a little further down the Spit. The next high tide (4.30am) would have found them high and dry and facing another day in the sun and wind till 5pm (1/1/06). Any survivors at this point would go through it all again. For some whales this process would be a long and painful death. Others would be lucky enough to die more quickly.

Therefore, taking into account the above rationale, we considered euthanasia to be the most humane approach.

The whales were spread over a 6ha area of tidal flats roughly 700m to 1km out from the shoreline. There were no other people present. This was fortunate as we did not have to manage the safety of any bystanders. We had a 2hr window to carry out the operation before the incoming tide would prevent us from leaving Farewell Spit that evening.

Each whale was shot using a high calibre (30-06) centre fire rifle using soft point ammunition. The rifle was held approximately 200mm from the whales' skin. The shot was aimed along a vertical axis from the dorsal surface of the whale at a point approx. 150mm behind the blowhole. One shot was used for each whale.

The whales were lying on sand, most often on their sides and usually moving (flexing up and down as much as lying on a beach allows). This makes it difficult to carry out an effective shot. We found that the best method was to wait for a whale to stop flexing, then line up the shot (position the rifle along the vertical axis through the dorsal surface) and fire as soon as possible before the whale flexed again.

Typically once the shot was fired the whale would spasm, accompanied by a "gurgley" type sound with the release of air through the blowhole. The whale would then go slack and the mouth would open. A spurt of blood would shoot out through the bullet entrance hole.

In many cases several whales would be lying together on the beach often touching each other. This also made it difficult to get in the firing position as we were mindful of being hit by the thrashing of neighbouring whales on hearing and feeling the effect of the shot on the target whale.

The wind was constant and reasonably strong on the day. We shot the whales starting downwind and working our way upwind. This had the advantage of the sound of the shot being lessened for upwind whales and also upwind whales were less aware of our approach and presence.

Remaining live whales were, however, aware of our actions and became more agitated as we got closer to them. This was particularly obvious where whales were closely grouped together.

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