

Charles Darwin University Animal Ethics Committee

Standard Operating Procedure:

Euthanasia of small stranded cetaceans using firearms (WA DBCA)

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Please note: this SOP has been developed for animal use in WA. Consideration should be taken to the specific conditions of the region in which your work is being conducted, and modifications to procedures made accordingly to ensure the best welfare of the animal and safety of the project participants. Any modifications required should be outlined in the project application.

Standard Operating Procedure

EUTHANASIA OF SMALL STRANDED CETACEANS USING FIREARMS

Prepared by: Perth Zoo and Nature Protection Branch, Department of Biodiversity, Conservation and Attractions

Prepared for: Animal Ethics Committee

Version 1.1

October 2017



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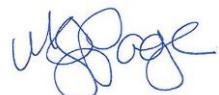
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Version 1.1



Approved by: _____ Date: 17/08/2017

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Version 1.0



Approved by: _____ Date: 4/3/2014.
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This document has been reviewed and endorsed by the Department's Animal Ethics Committee

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1 Purpose

Finding stranded live cetaceans is relatively common along the West Australian coastline and the frequency of stranding events is expected to increase over the coming decades (Groom and Coughran, 2012; Schumann *et al.*, 2013). While some stranded animals can be successfully returned to the ocean, many stranded cetaceans require euthanasia. While operating procedures are in place to use explosive charges to humanely euthanase large (>7m) cetaceans (Coughran *et al.*, 2012), the use of firearms has been demonstrated to be the most humane method to euthanase small (<7m) cetaceans (Blackmore *et al.*, 1995).

This standard operating procedure (SOP) provides instruction on how to humanely euthanase a small (<7m) stranded cetacean with appropriate firearms and ammunition.

2 Scope

This SOP applies to the euthanasia of moribund small cetaceans undertaken across the State by Department of Biodiversity, Conservation and Attractions (hereafter Department) personnel. The Department is the designated lead agency for all cetacean stranding events in Western Australia. In isolated situations in which the Department is unable to respond to stranding events, this SOP may also be used to guide euthanasia of stranded small cetaceans undertaken by other authorised individuals or organisations. All Department personnel involved in attending to cetacean stranding events should be familiar with the content of this document.

This SOP applies to the use of firearms for euthanasia of stranded cetaceans up to approximately 7m in length. Euthanasia methods for larger cetaceans, such as the use of explosive charges (Coughran *et. al.*, 2012) or chemical injection (Barco *et. al.*, 2012; Harms *et. al.*, 2014), are not covered in this SOP.

Other euthanasia methods may be more appropriate depending on the situation and their use is not precluded by this SOP. Euthanasia of cetaceans through chemical injection is an established method but requires specialised equipment (Barco *et. al.*, 2012; Harms *et. al.*, 2014). Personnel should be appropriately licenced, trained or, where necessary, supervised when using any method.

Projects involving wildlife may require a licence under the provisions of the *Wildlife Conservation Act 1950* and/or the *Biodiversity Conservation Act 2016*. Personnel should consult the Department's Wildlife Licensing Section and Animal Ethics Committee Executive Officer for further guidance. In Western Australia any person using animals for scientific purposes must also be covered by a licence issued under the provisions of the *Animal Welfare Act 2002*, which is administered by the Department of Primary Industries and Regional Development. This SOP complements the *Australian code of practice for the care and use of animals for scientific purposes* (The Code). The Code contains an introduction to the ethical use of animals in wildlife studies and should be referred to for broader issues. A copy of the code may be viewed by visiting the National Health and Medical Research Council website (<http://www.nhmrc.gov.au>).

3 Definitions

Cetacean: Marine mammals commonly known as whales, dolphins, and porpoises.

Corneal reflex: An involuntary blinking of the eyelids, stimulated by touching the cornea, commonly used to assess death.

Euthanasia: the humane killing of an animal, in the interests of its own welfare, to alleviate pain and distress.

Grain: A term used to measure the weight of bullets or other projectiles.

Humane killing: the act of inducing death using a method appropriate to the species that results in a rapid loss of consciousness without recovery and minimum pain and/or distress to the animal.

Moribund: An animal that is near death or in the process of dying.

4 Approved Methods

4.1 Deciding when euthanasia is necessary

In most situations the decision to euthanase an animal must be based on the perceived degree of suffering and the chances of recovery. If an animal is severely injured and is suffering, it must be euthanased as soon as possible if it can be undertaken safely and humanely. The goal of euthanasia is to use humane methods to produce a painless, rapid death and to avoid exciting or alarming the animal (Leary *et al.*, 2013). The technique used should be as reliable, simple, safe and effective as possible.

Your safety and the safety of co-workers and volunteers working around stranded cetaceans must take first priority. The procedure should only be performed by competent persons and should not cause undue stress to human observers. It should be conducted away from members of the public wherever possible, but any delays arising from doing so should not add additional distress to the animal. Euthanasia should not be attempted for animals in the surf zone or in deep water. Care should also be exercised to avoid shooting over substrates that carry a high risk of projectile ricochets (stones and rock platforms).

Presentations necessitating euthanasia include the following:

- Orphaned neonates
- Animals in very poor body condition
- Animals with severe wounds or injuries
- Animals displaying an inability to swim

4.2 Euthanasing a cetacean

Euthanasia should be carried out giving due consideration to the following factors in order of priority:

- Human safety
- Animal welfare
- Practicality

- Skill
- Culture
- Aesthetics

Firearm-based euthanasia methods have been demonstrated to be humane, rapid, cost-effective, and safe (Øen and Knudsen, 2007). However, the aesthetics of the technique may be considered poor by some sectors of the community. In addition, perceptions of poor human safety often accompany the use of firearms; even in professional wildlife management settings (see Caudell *et al.*, 2009). Shooting methods should be restricted to only those described below.

5 Procedure Outline

5.1 Equipment

The following equipment is essential when using firearms for the euthanasia of animals

- ‘.308 Winchester®’ or ‘.300 Winchester® Magnum’ calibre bolt action rifle.
- AT LEAST THREE .30 calibre 180 grain hydrostatically stabilised projectiles per animal
- Hearing protection (PPE) rated to Class V.
- Eye protection (safety glasses)
- High visibility clothing.
- Ammunition safe for the storage of projectiles and rifle bolt.
- A locked case, for the transport of firearms.

5.2 Personnel

There are two essential people during the euthanasia process:

- The shooter, responsible for the euthanasia of the animal.
- A site controller, to prohibit personnel from entering the vicinity while firearms are used.

5.3 Assessing the animal

Once it is established that euthanasia is required, minimal further assessment is required. If necessary, the animal should be manipulated into a safe position for shooting. This entails a position away from rocks or reef, and out of the surf zone. Ideally, animals should be shot on a sandy substrate. Extreme caution must be exercised if attempting to euthanase an animal that is moving or thrashing.

5.4 Firearm safety

Standard firearm safety practices. A *Department Shoot Plan Template* (see Appendix I) should be completed prior to any shooting being undertaken.

5.5 Discharging or shooting

The only rifle calibres that should be used are ‘.308 Winchester®’ or ‘.300 Winchester® Magnum’. Either calibre should only be used to fire 180 grain hydrostatically stabilised projectiles. For occupational health and safety reasons, only factory produced ammunition

should be used and reloaded cartridges should not be used, unless there is a compelling reason to do so. Under NO circumstances should sporting type round nose or soft nose projectiles be used, as these types of projectiles have inadequate penetration for this purpose.

Shooting should always be directed to the dorsal surface of the animal, aiming slightly posterior to the blowhole and angled backwards at 45° (see Figures 1, 2 and 3) along the midline of the animal. This aim point corresponds to the vital centres of the animals' hindbrain, which lie midway between the eye and pectoral fin when the animal is viewed laterally (see Figure 2). The shooter should be standing 0.5-1m in front of the animals' head such that the muzzle of the rifle barrel is also 0.5-1m from the animals' blowhole at the time of shooting (see Figure 3).



Figure 1 Dorsal view, indicating the recommended aim points for three successive shots, relative to the blow hole. Photo: J. Hampton/Perth Zoo.

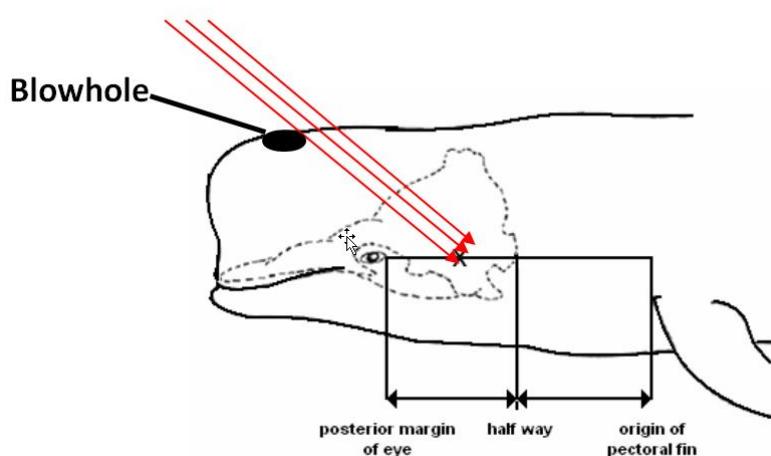


Figure 2 Lateral view, indicating the recommended aim points of three success shots, relative to the blow hole (modified from IWC, 2006).



Figure 3 Lateral view, demonstrating the recommended shot distance. Photo: J.Hampton/Perth Zoo.

5.6 Repeat shooting

If there is any doubt about hitting the target with one shot, then consider firing three carefully placed shots in a line through the target area. Three shots should be fired close together along the animals' long axis (see Figure 1).

If there are onlookers present then it is vital that you explain BEFOREHAND this is standard practice to ensure a humane death. This will ensure that onlookers will not think an error has been made or that the shooter is not competent.

5.7 Confirming death

Combined, the following checks provide a reliable indication that a euthanased animal is dead (Knudsen, 2005):

- complete dilation of the pupils;
- absence of corneal (closure of eyelid if eye touched) reflex;
- onset of a short duration of unprovoked agonal convulsions (violent uncoordinated thrashing); and
- slack lower jaw.

If there is ever any doubt as to whether the animal is dead, follow-up shooting must always be employed.

5.8 Maintenance of equipment

Clean and check the firearm after use, paying particular attention to the cleaning of the rifle barrel, and secure it in a gun cabinet. When using firearms in a coastal environment, particular care must be paid to removing sand and salt from the firearm's barrel and action.

5.9 Records

When euthanasing a cetacean, the operator must carry copies of all relevant licenses with them (e.g. either a Department Regulation 15 or 17 Licence and a Department Corporate Firearms Authority for high calibre firearms).

Record sheets (see Appendix II) detailing the following are also required:

- Name of the shooter.
- Date.
- The species of cetacean and number of animals.
- The presentation of the animal and reason for euthanasia.
- The number of shots fired.
- The time taken from the first shot being fired to the animals' death.

Completed record sheets should be forwarded onto the Department Senior Wildlife Officer, Marine Wildlife Operations as soon as possible after the shooting program is completed.

6 Level of Impact

There is inherent risk associated with the use of high calibre firearms. However, the animals should suffer minimal stress if procedures are followed professionally and rapidly. Potential stressors include:

- Being physically manipulated prior to shooting
- Cohort animals being distressed by audible gunshot noise
- Potential non-lethal wounding if shooting is improperly performed

If the shooter has adequate experience and training in the use of firearms and the knowledge of the effects of ballistic injury, the duration of suffering associated with this technique is very short. If it is necessary to euthanase more than one animal at the same location, every effort should be made to euthanase all moribund animals as quickly as possible to minimize the distress to the cohort animals.

7 Ethical Considerations

To reduce the level of impact of the use of firearms on the welfare of target individuals, there are a number of ethical considerations that should be addressed throughout the planning and implementation process. Ethical obligations dictate that euthanasia must be performed as soon as possible if appropriately trained staff and appropriate equipment is available, and it is safe to do so. All euthanasia methods should aim to provide the most rapid death possible, and must include repeated measures if any doubt remains over an animals' continued suffering.

7.1 People

The public can be a major hazard to the safety of the animal, personnel and themselves. Where possible, euthanasia of an animal should be conducted away from members of the public. Only personnel who need to be directly involved should remain in the immediate vicinity.

7.2 Hygiene

Good hygiene practices must be maintained to reduce the risk of spreading pathogens between animals and between sites. Refer to the Department SOP for *Managing Disease Risk in Wildlife Management* for further information.

8 Competencies and Approvals

Department personnel will need to satisfy departmental competency requirements to be allowed to use corporate firearms. This is to ensure that the personnel involved have the necessary knowledge and experience to minimise the potential impacts on the welfare of the animals. All Department personnel attempting cetacean euthanasia should have some experience in cetacean stranding events. This document could be adapted for other agencies and jurisdictions that respond to cetacean stranding events. Other groups, organisations or individuals using this SOP to guide their fauna management activities are encouraged to also meet these competency requirements as well as their basic firearms and animal welfare legislative obligations.

Table 1 Competency requirements for the euthanasia of cetaceans

Competency category	Competency requirement	Competency assessment
Formal experience, qualifications and course certificates for use of firearms	Suitable training, authorisation and documentation.	Written verification of completion of nationally recognised training, copy of a nominated person's authorisation from WA Police, and listed on Department's Corporate Firearms Licence.

9 Occupational Health and Safety

Always carry a first aid kit in your vehicle and be aware of your own safety and the safety of others as well as the animals when handling. Wear practical clothing and footwear, and beware of zips, buttons and jewellery that are likely to become caught in equipment.

A *Department Shoot Plan Template* (see Appendix I) should be completed at each stranding prior to undertaking any shooting to ensure that all relevant issues and safety requirements are considered and all attendant risks adequately managed.

9.1 Firearms

All personnel using firearms have completed nationally recognised training, have been issued a nominated persons authorisation by WA Police and should be registered on the Department's Corporate Firearms Licence. Contact the Corporate Firearms Officer for additional information and guidance.

You must be aware of your own safety and the safety of others as well as the animals during handling and/or operating firearms.

If handled appropriately, there is minimal risk to the operator, the public, or co-workers from firearms injury. Ensure that basic safety standards are observed at all times. Always check the calibre of the rifle and the projectile before loading ammunition, and only load firearms once all members of the public are removed to a safe distance.

Due to the danger to humans, as well as animals, associated with the wrongful possession and use of firearms, all equipment must be secured within a locked facility to prevent unauthorised access to the equipment when not in use.

9.2 Physical injury

Extreme care should be exercised when in the immediate vicinity of a live cetacean. Due to their mass and power, even moribund individuals can severely injure staff if they strike with their tail or fins.

All inflicted injuries (even superficial ones) should be appropriately treated as soon as possible to ameliorate possible allergic reaction, prevent infection and promote healing.

If Department personnel or volunteers are injured, please refer to the Department's Health and Safety Section's 'Report a Hazard, near-miss or incident' intranet page, which can be found at http://intranet/csd/People_Services/rm/Pages/ReportingHazards,Near-MissesandIncidents.aspx

9.3 Zoonoses

There are few diseases carried by cetaceans that can be transmitted to humans (i.e. zoonoses). All personnel must take precautions to minimise the risk of disease transmission to protect themselves, their families and wildlife populations.

Advice on minimising disease risk is contained in the Department SOP for *Managing Disease Risk in Wildlife Management*

9.4 Carcass disposal

In the absence of potent euthanasia chemicals, euthanased carcasses can be disposed of safely in several different ways, depending on the circumstances of the stranding site. Burial in sand dunes or removal via vehicle to refuse burial sites are both appropriate approaches.

10 Further Reading

The following SOPs have been mentioned in the advice regarding use of firearms and attending to cetacean standings, and it is recommended that they, as well as other documents, are consulted when proposing to perform euthanasia:

- Department SOP *Humane Killing of Animals under Field Conditions*
- Department SOP *Tissue Sample Collection and Storage for Mammals*
- Department SOP *Managing Disease Risk in Wildlife Management*
- WA Legislation *Firearms Act 1973 and Regulations 1974*
- WA Legislation *Occupational Safety and Health Act 1984 and Regulations 1996*

11 References

American Veterinary Medical Association (AVMA) (2013). *AVMA guidelines for the euthanasia of animals*. Illinois, USA: AVMA.

Barco, S., Walton, W., Harms, C., George, R., D'Eri, L. and Swingle, W. (2012). *Collaborative development of recommendations for euthanasia of stranded cetaceans. Final report to NOAA/NMFS for John H. Prescott Award #NA09NMF4390212*. VAQF Scientific Report 2012-06. Virginia, USA.

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Coughran, D., Stiles, I. and Mawson, P. (2012). Euthanasia of beached humpback whales using explosives. *Journal of Cetacean Research and Management* 12: 137-144.

Groom, C. and Coughran, D. (2012). Three decades of cetacean strandings in Western Australia: 1981-2010. *Journal of the Royal Society of Western Australia*. 95: 63-76.

Harms, C., McLellan, W., Moore, M., Barco, S., Clarke, E., Thayer, V. and Rowles, T. (2014). Low-residue euthanasia of stranded mysticetes. *Journal of Wildlife Diseases* 50: 63-73.

International Whaling Commission (IWC) (2006). *Workshop on whale killing methods and associated welfare issues. Euthanasia of stranded cetaceans in New Zealand*. Report of the International Whaling Commission IWC/58/WKManDWI 10.

Knudsen, S. (2005). A review of the criteria used to assess insensibility and death in hunted whales compared to other species. *The Veterinary Journal* 169: 42-59.

NHMRC (2004). *Australian code of practice for the care and use of animals for scientific purposes* (7th ed.). Canberra: National Health and Medical Research Council.

Schumann, N., Gales, N., Harcourt, R. and Arnould, J. (2013). Impacts of climate change on Australian marine mammals. *Australian Journal of Zoology* 61: 146-159.

Wells, R., Fauquier, D., Gulland, F., Townsend, F. and Di Giovanni, R. (2012). Evaluating postintervention survival of free-ranging odontocete cetaceans. *Marine Mammal Science* 29: E463-E483.

12 Appendix I: Department Shoot Plan Template

Date		Calibre		Location	
Time		Species			

Only shoot when: (1) safe to do so; (2) target is within range; (3) gun/cartridge combination is appropriate for the type/size of animal; and (4) confident of ethical kill

Pre Shoot (See Over Page for Explanation)	Yea/No or N/A	Comments
Objective		
Justification		
Category	1 2 3	
Risk Assessment/SWP		
Security		
Map/Danger Zone		
Pre Brief		
Notification and Cultural Awareness		Who/How: <i>See note over page re: marine animal ethics</i>
Public Relations		
Access Closure		
Signage		
Legislation		
Ethics (Animal)		
Zoonoses		
First Aid		
PPE		
Communications		
Emergency Procedure		

Note: Any exclusions must be justifiable

Post Shoot	Yea/No or N/A	Comments
Carcass Disposal		
Firearms Logbook		
Debrief		

File a copy of shoot plan. For Category 2 and 3 Shoot Plans, forward an electronic copy to the Corporate Firearms officer

ALWAYS MAINTAIN SITUATIONAL AND GEOGRAPHICAL AWARENESS All Departmental or private firearm use on behalf of the Department must be pre-planned and requires a shoot plan. It is essential that all appropriate controls are in place before a shoot.	Department Corporate Licence Holder compiling plan	
	Name	
	Signature	

Support Notes	
Term	Definition/Explanation
Objective	What is the desired outcome?
Justification	Is there a safer alternative? Do we need to use firearms
Category	1: Single euthanasia, single shot; approved and signed off by the Corporate Licence Holder
	2: Project or study; approved and signed off by the DM, Section Manager and Project Manager
	3: Major feral program/aerial shoot; long-term; approved and signed off by Regional Manager
Risk Assessment	Of proposed shoot location; paying particular attention to surrounds within the danger zone
Safe Work Practices (SWP)	Job Description and identification of hazards
Security	Firearm and ammunition, including for extended field trips
Map/Danger Zone	GEOGRAPHICAL AWARENESS, particularly for Category 1
	A map of the shoot area outlining 'Danger Zones' should be compiled for Categories 2 and 3 and include 'No Shoot Zones'. Species and caliber details provide information to help establish 'Danger Zone' perimeters
Pre Brief	Relevant parties and includes Shoot Plan
Notification	Relevant authorities (especially Police), adjoining landowners, other land managers/authorities and public land users (e.g. 4WD club, bushwalkers, fishermen). Consider using radio, notices, letter box drop etc. Internal notification to District Works Coordinator. Note: for euthanasia of whale, dugong, dolphin, seal and sea lion, notify Nature Protection Branch prior to shooting.
Cultural Awareness	Consider Native Title, Traditional Landowners and possible ramifications (particularly for remote area shoots)
Public Relations	Consider any potential ramifications
Access Closure	Should be considered if public access is in or adjacent to shoot location. Consider 'Danger Zones'
Signage	At shoot location prior to and on the day of shooting
Legislation	Compliance with relevant section i.e. shooters are Corporate Licence Holders
Ethics (Animal)	Compliance as per the Animal Ethics Guide (i.e. correct caliber, projectile, point of aim, Zeroed etc.)
Zoonoses	Maintain personal hygiene when handling carcass or body parts
First Aid	Provision of First Aid kit and trained First Aid person on site
PPE	To be compliant and worn (Class 5 hearing and medium impact eye)
Communications	Between site and HQ, as well as between shooters etc.
Emergency Procedures	Ensure procedures established in case of mishap (e.g. location of nearest medical help)
Carcass Disposal	Ensure disposal is in accordance with Department policy
Personal Firearms Log	To be completed
Debrief	Particularly for Categories 2 and 3, including success of shoot, whether aim was achieved, possible repeat shoots, how to improve etc. Also applied to Category 1 on a smaller scale.
REMEMBER TO FILE A COPY OF THE PLAN, AND FOR CATEGORY 2 AND 3 PLANS, FORWARD AN ELECTRONIC COPY TO THE CORPORATE FIREARMS OFFICER	

13 Appendix II: Record Sheet for Cetacean Euthanasia Events