



**NAMMCO ANNUAL MEETING 28**

*22-25 March 2021*

*Online*

**MEETING OF THE COUNCIL**

<b>DOCUMENT 11</b>	<b>SUMMARY OF THE WORKING GROUP ON BY-CATCH, ENTANGLEMENT AND LIVE-STRANDINGS MEETING REPORTS (BYCELS)</b>
<b>Submitted by</b>	BYCELS/Secretariat
<b>Action requested</b>	<p>To take note of the reports.</p> <p>To consider and decide on the forwarded recommendations on:</p> <ul style="list-style-type: none"> <li>• Guidelines on how to euthanise stranded cetaceans including general principles</li> <li>• On sampling of stranded animals</li> <li>• Guidelines on how to establish a national stranding response network</li> <li>• For safety reasons no guidelines on disentanglement of cetaceans will be developed</li> </ul> <p>To consider the future work of BYCELS</p>
<b>Content</b>	<p>Part 1 and 2: Summary of BYCELS activities March 2019 – March 2021</p> <p>Appendix 1: Guidelines on how to euthanise stranded cetaceans</p> <p>Appendix 2: Guidelines on how to set up a national stranding response network</p>

## 1. MEETINGS AND MEMBERS

BYCELS: meetings and reports (click on link):

- 2019: [4 October](#)
- 2020: [22 June and 23 July](#)
- 2021: [25 February 2021](#)

Committee members:

- FO: Signar Pettersen and Ulla Svarrer Wang
- GL: Sofie Abelsen, Jesper Ødegaard Jakobsen and Nette Levermann (to July 2020)
- IS: Guðni Magnús Eiríksson
- NO: Guro Gjelsvik (from 2021), Kathrine A. Ryeng and Hild Ynnesdal

Chair: Guðni Magnús Eiríksson

## 2. OVERVIEW OF MAIN DISCUSSIONS AND DECISIONS

The discussions and considerations informing the recommendations reflected below are found in the reports from the meetings – linked under item 1 above.

Established in 2018 the WG agreed to:

- Make an overview of the extent of bycatch, entanglement and disentanglement and live strandings, including dead strandings in the member countries.
- Review existing guidelines (IWC, ASCOBANS and others) on by-catch, including entanglement and disentanglement and live strandings with the aim of identifying procedures and actions for recommendation to NAMMCO.
- Cooperate with and inform relevant networks of the existence of BYCELS.

Assessing progress, the WG finds that it has accomplished what it initially set out to do as summarised in the bullet points above.

### 2.1 DATABASE AND DATA REQUIREMENTS

Having spent a considerable amount of time on identifying and standardising relevant data to inform its work, annual reporting from member countries now encompasses data on by-catch, entanglement and strandings. Member countries have submitted their 2019 and 2020 data accordingly.

At the last meeting it was noted that the WG has only reviewed the data without attempting to make any analysis or draw any conclusions from the material. It was furthermore noted that the inherent randomness of stranding- and entanglement data limits what can be deducted from the material. However, it might be that collection of time-series may show some sort of pattern. Generally, the WG noted that the suitability of the different data categories would always be up for discussion to ensure applicability and usefulness.

### 2.2 GUIDELINES

#### 2.2.1 How to euthanise stranded cetaceans

BYCELS has developed guidelines (appendix 1) on how to euthanise stranded cetaceans and **recommends** that these be forwarded to the Council. The guidelines build on the 2017 Norwegian guidelines “Dyrevelferdsmessig forsvarlig håndtering av levende strandet hval, hval i oppdrettsmerder og hval viklet inn i fiskeredskaper i sjøen”.

BYCELS furthermore agreed **to recommend the following general principles:**

- stranded large cetaceans are in terminal condition under most circumstances. For animal welfare as well as human safety reasons, any attempt to refloat and release such animals should not be conducted. If the whale does not refloat on its own after one tidal cycle, euthanasia should be considered if trained personnel and suitable equipment for euthanasia are available
- Methods for chemical euthanasia of large cetaceans are being tested in other countries but are currently not sufficiently developed and should not be used.

### 2.2.2 How to set up a stranding response network and sampling of stranded animals

Based on a review of existing stranding response networks, BYCELS has developed guidelines (appendix 2) on how to set up a national response network that is **forwarded for the use of** member countries should they decide to establish national networks.

BYCELS has reviewed existing protocols and guidelines on sampling of stranded animals and **recommends** that member countries use the most recent recognised protocol. Attention was drawn to the 2019 ASCOBANS report “Best practice on cetacean post-mortem investigations and tissue sampling”.

### 2.2.3 How to disentangle animals

The IWC has worked extensively with entanglement response and has developed “Principles and guidelines for large whale entanglement response efforts” that is available online. These guidelines cover the essential and important information on behaviour, equipment and safety without giving too detailed instructions on what to specifically do.

BYCELS discussed developing NAMMCO guidelines on how to disentangle animals with a special focus on the Arctic, and the possibility of developing a shortlisting of what to do. With the existence of the IWC guidelines and concerned that the existence of such guidelines might prompt untrained personnel to initiate a disentangle action, BYCELS **agreed to not develop NAMMCO guidelines**. Disentanglement of large cetaceans represents a very high risk to human lives, and if carried out by untrained personnel human lives may be lost, and it may also worsen the situation for the entangled animal.

Greenland and Norway have organised courses in disentanglement which included practical exercises. These were led by David Mattila, coordinator of the IWC initiative on entanglement, and BYCELS noted the importance of carrying out annual repetition sessions to keep the knowledge alive.

## 2.3 PANEL REVIEW RECOMMENDATIONS

BYCELS had been asked by the Working Group (PRWG) for reviewing and following up on the recommendations from the Performance Review Panel, to address 4 recommendations. BYCELS reviewed and discussed the forwarded recommendations in their meeting on 4 October 2019 and the responses can be found under agenda item 4 of that report.

Responding to one of the recommendations BYCELS has reviewed the information related to its work on the website and the Secretariat is currently updating the website accordingly. In future BYCELS will include website review as an agenda item for its meetings to ensure the quality and accuracy of the information.

## 3. FUTURE WORK

BYCELS discussed the possibility of developing interactive maps depicting the reported data on by-catch, entanglement and strandings. No other new tasks were identified and BYCELS propose to meet annually to review the submitted data.

## APPENDIX 1: GUIDELINES FOR THE EUTHANASIA OF STRANDED CETACEANS

### 1. GENERAL PRECAUTIONS

Definition of euthanasia: *the use of humane techniques to induce the most rapid and painless and distress-free death possible (AVMA 2013).*

From an animal welfare point of view the pain and suffering of live stranded cetaceans could be terminated by euthanasia and should therefore be considered. These guidelines pertain to such events.

**ALWAYS call the responsible authority. Specify telephone number!!**

**Member countries: Identify relevant responsible authority for animal welfare issues related to marine mammals.**

- *Do not act before responsible authorities have been notified, and necessary permissions have been granted*
- *Only authorised personnel should perform euthanasia*
- *Human safety is the 1<sup>st</sup> priority. A whale may move the tail or pectoral fins with great force*
- *Action (euthanasia, disentanglement or moving of animals) should not be initiated in a hasty manner to please expectations from the public*

A stranded whale is defined as a whale that is on land or in shallow water. The general rule is that such animals should be euthanized, and no rescue operation should be conducted.

When a large whale, such as members of the rorqual family (fin whale, minke whale and humpback whale), sperm whale, killer whale or a beaked whale is stranded on the beach or in shallow water, it is assumed that it is already sick or weakened for some reason. Due to its weight, attempts to pull the animal out to sea will inflict wounds and injuries. For animal welfare reasons, **the animal should not be pulled out to sea**. It should either be allowed to die on its own or euthanized if it can be done in a responsible manner from an animal welfare perspective.

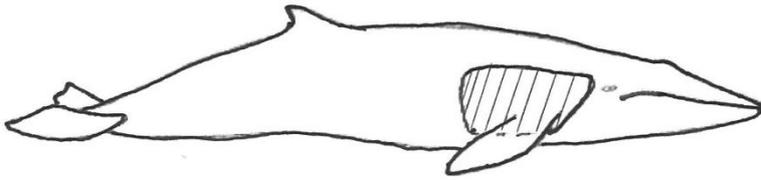
Responsible euthanasia requires knowledge of the anatomy of the species and which weapons that are the most effective. Euthanasia is only responsible when conducted by competent personnel and with suitable weapons.

### 4. KILLING METHODS

Stranded whales or whales that are entangled beyond rescue can be killed by explosive grenades, explosives, heavy calibre rifles and drugs. However, methods for the euthanasia of large whales by drugs are not sufficiently developed and should therefore not be used.

#### 4.1 EXPLOSIVES

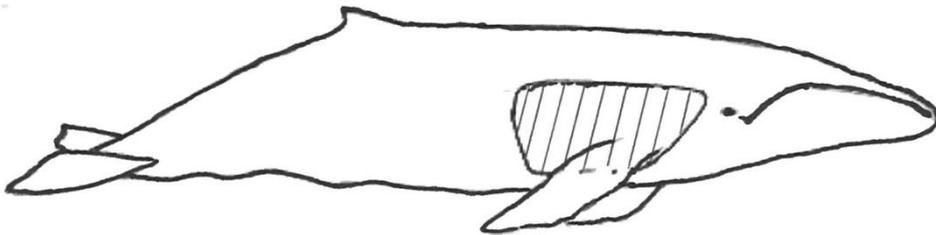
Explosive harpoon grenade/penthrite grenade can be used only on large whales out at sea or in shallow waters where it is possible to approach the animal with a vessel with harpoon gun (shooting distance within 10 – 30 meters). In this context, large whales mean all baleen whales plus sperm whale, beaked whale, and killer whale. **The shot shall be aimed towards the thorax from the side** as shown in figures 1-6. When used correctly, the animal will die immediately in most cases.



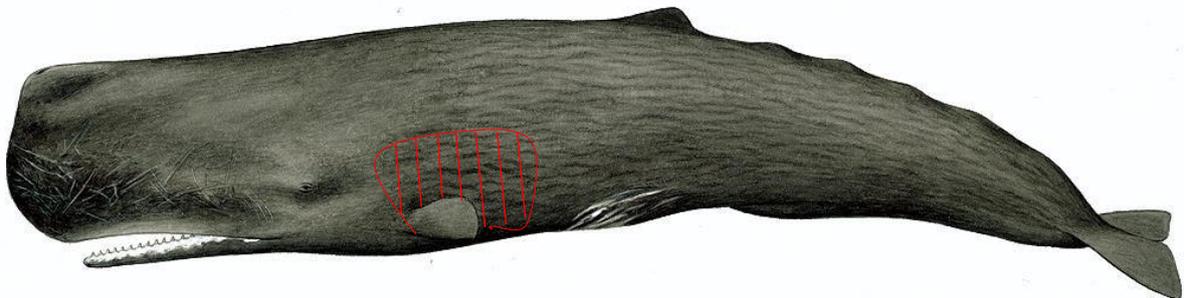
*Fig. 1 Minke whale target area (vital organ area – hatched area) for detonation of harpoon grenade*



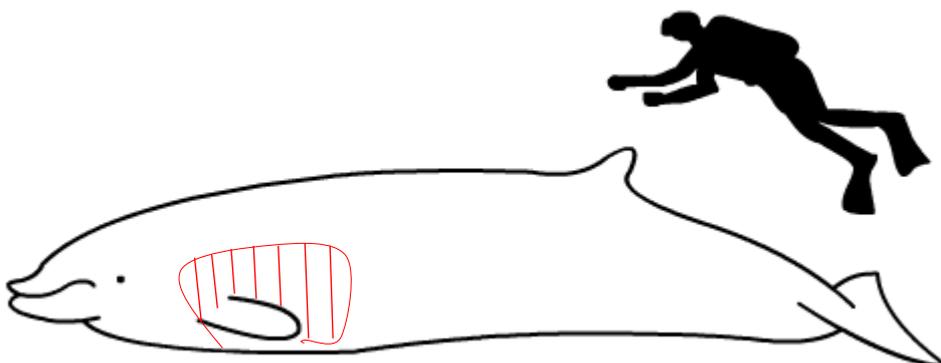
*Fig. 2 Fin whale target area (hatched area) for detonation of harpoon grenade*



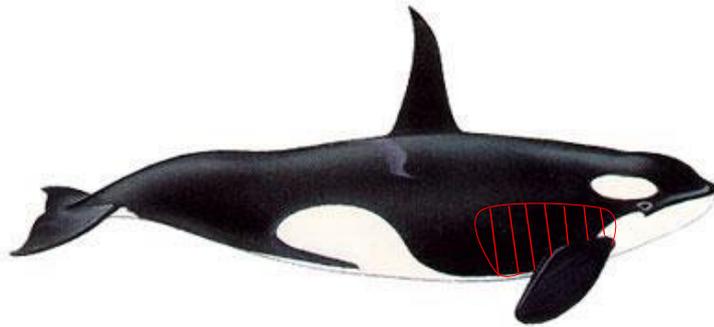
*Fig. 3 Humpback whale target area (hatched area) for detonation of harpoon grenade*



*Fig. 4. Sperm whale target area (hatched area) for detonation of harpoon grenade.*



*Fig. 5 Cuvier's beaked whale target area (hatched area) for detonation of harpoon grenade. Basic illustration from Wikipedia.*



*Fig. 6 Killer whale target area (hatched area) for detonation of harpoon grenade*

## 4.2 RIFLE

Rifles may be used to kill several whale species. For smaller toothed whales, such as pilot whales and dolphins, ordinary expanding large game ammunition can be used. For large whales, however, the expanding projectile will most often not be able to penetrate the thick skull and reach the brain. Therefore, expanding ammunition should not be used on large whales.

The recommended ammunition in Norway for large whales is full metal jacket, round-nose bullets in calibre 9.3 mm (.366) and upwards. Norwegian research has shown that such ammunition is able to penetrate the skull and reach the brain, causing instantaneous loss of consciousness and death in minke whales. Calibre .458 has shown to be efficient for both humpback- and sperm whales.

### Aiming/targeting and safety:

- Main rule: aim at the brain or first cervical vertebra
- For animals laying on the side: aim towards the brain from the back side (dorsal side) of the animal
- For animals laying on the belly/with stomach down: position yourself to aim from above towards the brain
- The barrel of the rifle must never be in contact with the animal when the shot is fired. If in contact, the rifle may explode, which may be life threatening for the shooter
- Be aware of the background – the bullet may penetrate the skull and ricocheting represents danger for shooter and personnel

### 4.2.1 Baleen whales (minke whale, fin whale and humpback whale)

#### Ammunition:

- Minke whale: full metal jacket, round-nosed bullets calibre 9.3 mm (.366) and larger
- Fin whale and humpback whale: full metal jacket, round nose bullets calibre .458 and larger  
For the largest whales, it may be necessary to use several shots to ensure that the animal is dead

To hit the brain of these species, the shot should be placed in the middle plane (sagittal plane) along a projected line that starts at the eye and advances upwards and backwards at the same angle as a projected line from front through blowhole and eye (Figure 7.1).

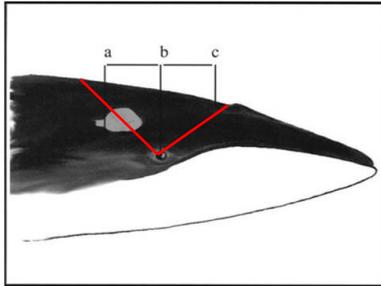


Figure 1  
Minke whale head with the brain as seen from the side

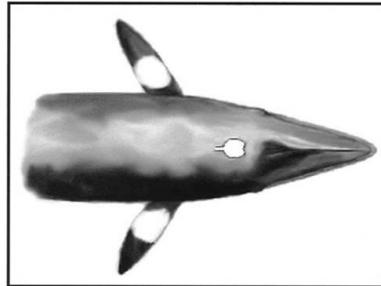


Figure 2  
Minke whale head with the brain as seen from above

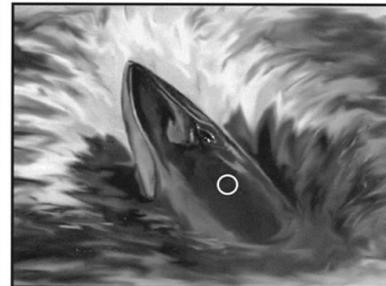


Figure 3  
Minke whale head with the characteristic target point for the rifle seen obliquely from the back

*Fig. 7. The brain's location in the minke whale and target sites for gunshot from different positions. (SK Knudsen, H Rud and EO Øen, 1997). Seen from the side, the brain is positioned in a plane mid-way between the eye and dorsal surface of the head. Fig. 1 shows the back edge of the brain laying along a projection on a horizontal line (a) as far behind the eye (b) as the blowhole (c) extends to the front of the eye. The brain of the minke whale is about 20 cm wide, 20 cm long and 15 cm high. The centre of the brain lays about 55 cm behind the blowhole opening in a small (5.5 m) minke whale and about 75 cm behind the blowhole opening in a large (8.5 m) minke whale.*

#### 4.2.1.1 Shot from the back side (dorsal side)

Aim from above directly towards the brain. If the shot is directed from behind, it must be directed obliquely forwards approximately 60 – 80 cm behind the blow hole.

#### 4.2.1.2 Shot from the side

Aim at a point on the imaginary line that goes backwards from the eye and about 20 - 25 cm below the contour of the head.

#### 4.2.1.3 Shot from the belly side (ventral side)

Aim midway between the jaw bones (mandibles) to a point 30 - 50 cm (depending on the size of the whale) behind the eyes. It may be difficult to accurately place the shot.

#### 4.2.1.4 Shot to the heart

In emergency situations, the shot may be aimed at the heart.

Fin whales: The heart is located underneath the centre of the pectoral fin when the fin is laying into the body.

Humpback whale: The heart is located underneath the front half of the pectoral fin. See figures 1 - 4

#### 4.2.1.5 Animal reaction to shot in brain and heart

Hits in the brain or cervical vertebrae: Often the whale will strike one or more times with the tail fluke before the body is completely relaxed. If the effect is uncertain, the animal should be reshot. When reshooting, the shot may be placed 10 – 15 cm in front of or behind the first shot.

Hits to the heart: Usually, the animal will show little reaction to the shot. Unconsciousness and death are caused by the bleedings that occur and are therefore not immediate but will take some time.

### 4.2.2 Sperm whale

Use harpoon grenade or rifle of minimum calibre .458 and round-nosed full metal jacket bullet.

The brain is located along a projected vertical line midway between the eye and anterior contour of the pectoral fin. From the back side (dorsal side) and the ventral side, the shot is directed in the middle plane (sagittal plane) along this imaginary line.

Because of the spermaceti organ in the head, the sperm whale should preferably be shot from the side. The shot is directed at the point of the skull where the vertical line crosses an imaginary horizontal line from the eye. Fig. 8.

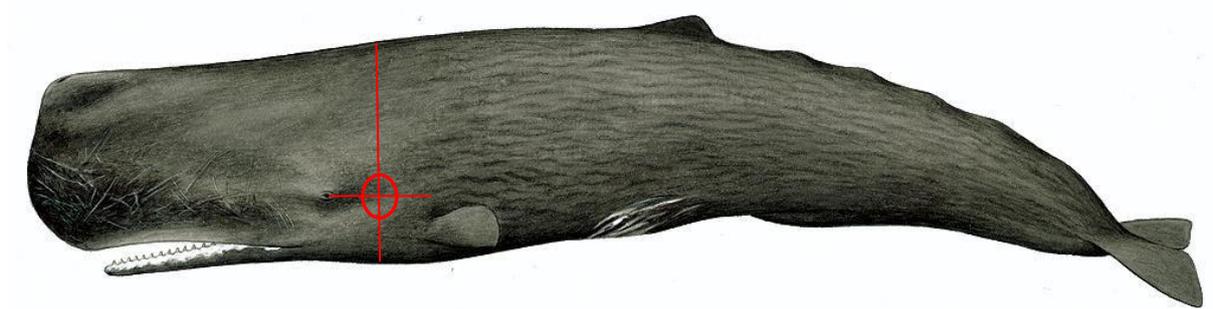


Fig. 8. Sperm whale: location of the brain and rifle shooting instructions from different positions. Illustration: Marcos Oliveira, Nat Drawings, [http://natdrawings.blogspot.no/2013\\_04\\_01\\_archive.html](http://natdrawings.blogspot.no/2013_04_01_archive.html)  
Shooting instructions: EO Øen

#### 4.2.3 Killer whale

The brain is located approximately underneath the white spot above the eye. Shots from the side should be directed towards the centre of the white spot. Shots from above should be directed towards the midline so that it passes through this area – see fig 9.

Use rifles with a minimum calibre of 9.3 mm (.366) and a full metal jacket round-nosed bullet (equivalent to ammunition for minke whales).

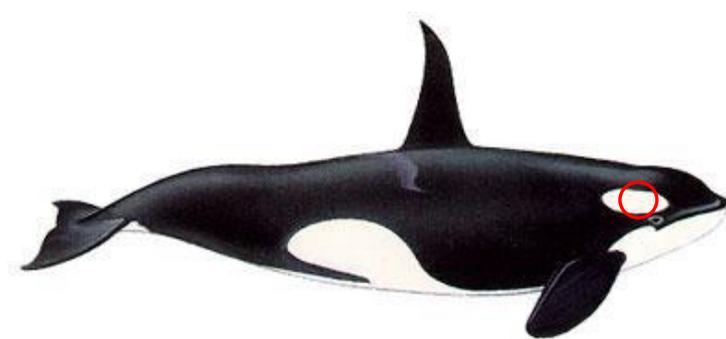


Fig. 9. Killer whale: location of the brain and rifle shooting instructions from different positions. Illustration: [www.regjeringen.no/no/dokument/dep/nfd/veiledninger\\_brosjyrer/2000/fakta-om-hval-inorske-farvann/4/id275084](http://www.regjeringen.no/no/dokument/dep/nfd/veiledninger_brosjyrer/2000/fakta-om-hval-inorske-farvann/4/id275084) Shooting instructions: EO Øen

#### 4.2.4 Other toothed whales

##### Ammunition:

- Pilot whales and dolphins: Expanding bullets (hunting ammunition) may be used in calibres such as .270, .308, .30.06 or equivalent  
In dolphins and harbour porpoise, shotguns with slugs, i.e. lead bullets, may also be used.

For dolphin species, the shot should be directed from the blowhole towards a projected line through the anterior contour of the pectoral fins (approximately 45 °) – see fig 10.

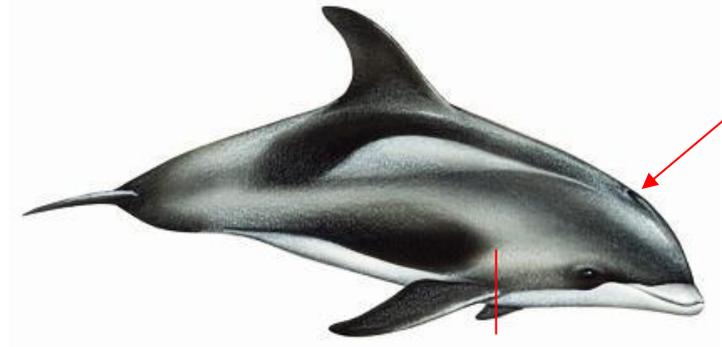


Fig. 10. Dolphins: rifle shooting instructions. Shooting instructions: EO Øen  
Illustration: Lagenorhynchus albirostris © Würtz-Artescienza, CMS nettsider;  
[http://www.cms.int/reports/small\\_cetaceans/data/l\\_albirostris/l\\_albirostris.htm](http://www.cms.int/reports/small_cetaceans/data/l_albirostris/l_albirostris.htm)

In pilot whales, the shot should be directed in the same angle, approximately 15 – 20 cm behind the blowhole - see figure 11.

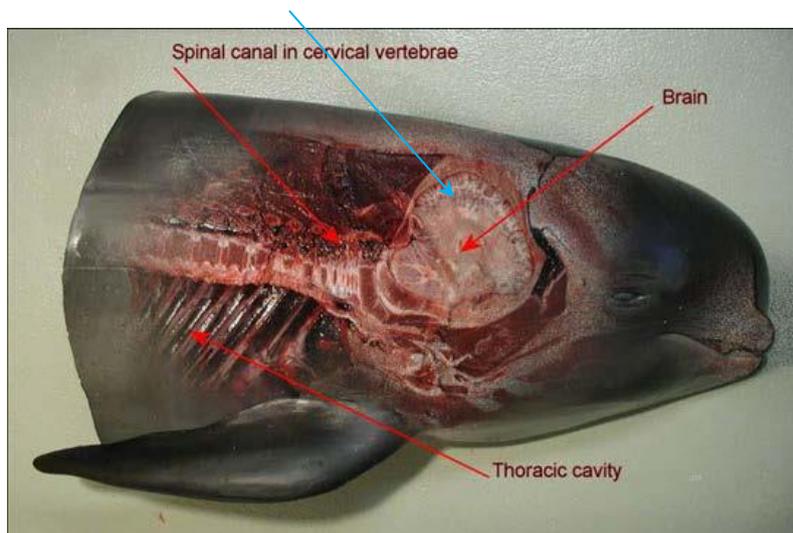


Fig. 11 Location of the brain and correct aiming of the rifle shoot (blue arrow). Shooting instructions: EO Øen  
Illustration: B.Hanusson, J. Olsen

## Appendix 5: STRANDING RESPONSE NETWORK

### HOW TO REPORT, WHAT TO REPORT AND WHERE TO STORE THE STRANDING DATA

#### ORGANISATION

- Define relevant coordinating/leading authority (unit and contact person (Ministry/Directorate/Research Institute)) – and number to call

It is recommended that the leader/coordinator is a veterinarian or experienced biologist who will be able to assess the situation in order to initiate relevant action (euthanise, possible sampling, who should respond and to what)

- Identify coastal areas (management areas) and volunteer units within each area

Suggestions for volunteers: local zoological/ornithological/nature/animal welfare organisations.

Member countries to identify possible NGOs or interested persons to volunteer in the network. Training courses should be arranged for the network of volunteers.

If sampling is required, suitable equipment should be stored at sites identified by the member countries.

#### HOW TO REPORT A STRANDING ALIVE OR DEAD FROM THE POINT OF VIEW OF THE PERSON FINDING THE ANIMAL(S)

Information on what to do should be widely distributed, e.g. at local police stations, NGO's local newspapers, radio stations etc.

Important to remember when approaching a live stranded animal

- Approach the animal calmly and carefully. Keep away from the tail!
- People, dogs and wild animals should be kept at a distance.
- Do not move the animal by pulling on its fins or tail.
- Call the stranding coordinator who will ask for further information such as:

##### **Stranding both alive and dead**

- Location and date found
- Species and sex
- Overall length
- Condition of the animal
- Your contact details should further information be needed

Based on this information the coordinator will decide on further action.

Live strandings: information will be forwarded to relevant task force (as a rule large whales will be euthanised if possible).

Dead strandings / after euthanasiation: Sampling according to protocol relevant to the size of the animal or coordinator gives instructions about sampling and further processing of the samples (pathological investigations).

Necropsy and sampling procedures should be performed according to standardized international protocols as far as possible, e.g. ASCOBANS best practice on cetacean post-mortem investigations and tissue sampling.

## **WHO KEEPS THE DATA – DATABASE**

Consider and identify unit to collate all data from stranded animals - repository for a stranding database.

Consider joining an existing database (e.g. ASCOBANS, IWC)

Should existing national databases be displayed on [www.nammco.org](http://www.nammco.org)?

## **DEVELOP TRAINING AND INFORMATION MATERIAL FOR STRANDING NETWORK VOLUNTEERS**

Use existing materials available online (IWC, ASCOBANS, The Scottish Marine Animal Stranding Scheme)

Greenland already has developed a 1-page information sheet.