

**NORTH ATLANTIC MARINE MAMMAL COMMISSION****Twenty Third Meeting of the Council**

3-5 February 2015, Reykjavik, Iceland

**NAMMCO/23/14****MANUAL ON HUNTING OF WHALES IN NAMMCOS MEMBER COUNTRIES**

The following document contains the documents:

- **NAMMCO/23/14A:** Manual on hunting of small cetaceans in Greenland
- **NAMMCO/23/14B:** Kalaallit Nunaanni arfeerarniarnermi najoqqutassiaq

**Background:**

The NAMMCO Expert Group on killing of large whales (February 2010) recommended the development of a user manual for hunting to ensure efficiency of the hunt, safety for the hunters and minimizing animal suffering. This recommendation was endorsed by the Committee on Hunting Methods and enlarged to also include small cetaceans. Council at NAMMCO 19 (2010) tasked the Committee on Hunting methods to seek external funding and further develop the idea. In the fall 2012 external funding was secured from The Norwegian Ministry of Foreign Affairs and NORA and the work could fully commence.

The target group is whalers, inspectors, wildlife officers, observers and others engaged in whaling. The manufactures of weapons and whalers have been consulted during the process and have had an opportunity to comment on the work.

The project has involved developing three different manuals, of which the first two were presented last year at NAMMCO 22. The last manual on hunting of small cetaceans in Greenland, was produced during spring/fall 2014 and was finalised in December 2014. The manual is in both English and Greenlandic.

All manuals are online and may be downloaded from the NAMMCO web site. The total product consists of:

**Manual on canons and grenade:**

- Instruction manual for the use and maintenance of weaponry and equipment deployed in whaling in NAMMCO member countries. (English)
- Håndbok for vedlikehold og bruk av våpen og utstyr for fangst av bardehvaler i NAMMCOs medlemsland. (Norwegian)
- Icelandic version of canons and grenades – *to be announced*
- Greenlandic version of canons and grenades – *to be announced*

**Manual on pilot whaling:**

- Instruction manual on Pilot whaling (English)
- Leiðbeining fyri avlving av grindahvali (Faroese)

**Manual on hunting of small cetaceans in Greenland:**

- Manual on hunting of small cetaceans in Greenland (English)
- Kalaallit Nunaanni arfeerarniarnermi najoqqutassiaq (Greenlandic)

NAMMCO



## NORTH ATLANTIC MARINE MAMMAL COMMISSION



## Manual on hunting of small cetaceans in Greenland

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# MANUAL ON HUNTING OF SMALL CETACEANS

## ACKNOWLEDGEMENT

The North Atlantic Marine Mammal Commission – NAMMCO – is pleased to present this manual on hunting of small cetaceans (*Odontocetes*) in Greenland. The recommendations and description of hunting methods and equipment are based on information from a meeting of experts, hunters, managers and the Committee on Hunting Methods of NAMMCO (NAMMCO Expert Group Meeting to Assess the Hunting Methods for Small Cetaceans 15-17 November 2011).

NAMMCO would like to especially acknowledge the dedicated work of Nette Levermann in the development of this manual.

NAMMCO would also like to acknowledge the KNAPK (Fishermen and Hunters Organisation) in Greenland for its input during the process.

NAMMCO would like to thank the Norwegian Ministry of Foreign Affairs and the Nordic Atlantic Cooperation for financial support.

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## PREFACE

Coastal people's right to hunt and utilise marine mammals has always been a firmly established principle in the North Atlantic Marine Mammal Commission – NAMMCO. Embedded in this right is also the obligation for hunters and the competent authorities, to conduct the hunt in a sustainable way and in such a manner that it minimises animal suffering associated with the hunting and killing methods, and take into account hunters' safety.

The Committee on Hunting Methods, formally established in 1994, facilitates NAMMCO's work in this field and gives advice on hunting methods to the Council and the member countries. Advice given should be based on the best available scientific findings, technological developments and users' knowledge, and give due consideration to safety requirements / hunters safety and the efficient use of the resources.

The Committee has organised much of its work through the convening of international workshops and expert group meetings on specific topics. A reoccurring recommendation has been to enhance hunters' training.

NAMMCO's Committee on Hunting Methods has produced this manual on hunting of small cetaceans in Greenland. The target group is primarily the whalers, but also includes inspectors, observers, wildlife officers and others engaged in whaling. The whalers have been consulted in connection with this task, but the instruction manual is the direct responsibility of the Committee on Hunting Methods.

Tromsø, November 2014

NAMMCO's Committee on Hunting Methods:

Eyþór Björnsson, Guðni Magnús Eiríksson, Nette Levermann, Kristján Loftsson, Justines Olsen, Kathrine A. Ryeng, Hild Ynnesdal, Egil Ole Øen

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## IMPORTANT SAFETY INFORMATION

**WHALES MAY SHOW STRONG INVOLUNTARY REFLEX MOVEMENTS, IN PARTICULAR UP-AND-DOWN THRASHING OF THE FLIPPERS AND/OR TAIL THAT CAN LAST SEVERAL MINUTES. BE AWARE OF THE DANGER OF SUDDEN TAIL MOVEMENTS WHEN APPROACHING THE WHALE.**

**THE MOST SUITABLE BULLET TYPES FOR BRAIN SHOT OF SMALL CETACEANS ARE: FULL METAL JACKET ROUND NOSE, SOLID ROUND NOSE AND SOLID EXPANDING.**

**DIFFERENT AMMUNITION HAS DISSIMILAR TRAJECTORIES. THE RIFLE MUST THEREFORE ALWAYS BE TESTED WITH THE AMMUNITION THAT IS EMPLOYED PRIOR TO THE HUNT.**

**RIFLE BULLETS ARE SLOWED QUICKLY IN WATER, REGARDLESS OF THE CALIBRE AND THE WEIGHT OF THE BULLET. TO ENSURE THAT THE BULLET PENETRATES THE BRAIN, THE SHOT MUST BE FIRED WHEN THE SKULL IS ABOVE WATER.**

**NEVER PUT A RIFLE AWAY WITH AMMUNITION IN THE CHAMBER.**

**EMPTY OUT OR REMOVE THE MAGAZINE WHEN THE RIFLE IS NOT IN USE.**

**CLEAN AND OIL THE WEAPON FREQUENTLY TO AVOID RUSTING AND MALFUNCTION.**

**THE COLLECTIVE HUNT REQUIRES EXTREME CAUTION FROM THE HUNTERS, IN ORDER TO AVOID SHOOTING ACCIDENTS, EITHER BY DIRECT SHOTS AND/OR INDIRECT BY RICOCHETS, AND ALSO TO AVOID INTERFERING IN EACH OTHER'S HUNTS.**

**THE HUNTER MUST BE AWARE THAT BULLETS MAY DEFLECT ON WATER.**

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## INTRODUCTION

The focus of this manual is the hunting equipment and its proper use related to the hunting of small cetaceans in Greenland.

The whaling of small cetaceans (Odontocetes) in Greenland includes the following species: Narwhal (*Monodon monoceros*), Beluga (*Delphinapterus leucas*), Harbour porpoise (*Phocoena phocoena*), Long-finned pilot whale (*Globicephala melas*), White-beaked dolphin (*Lagenorhynchus albirostris*) White-sided dolphin (*Lagenorhynchus acutus*) and Killer whale (*Orcinus orca*).

The placement of vital organs in relation to external anatomical features like blowhole, eyes and fore-flippers are grossly the same for the above mentioned species. The target areas for rifle shots relative to these anatomical features are therefore the same.

Whales in general are difficult to approach and get close-up to in open water. The stunning and killing device must therefore be applied to the animal from some distance.

Whales may dive and occasionally swim under the ice after being hit by the killing device. Hence it may sometimes be difficult to judge when the whale is dead. In addition most of the species will sink when they are dead.

Hunting equipment often has a multipurpose use. It should serve the purposes to stun/kill and secure the whale in order to retrieve it, in one and the same operation. To successfully achieve this effect it must inflict so much damage to organs vital for conscious life, that the whale dies instantly or very fast.

Legislation on whaling has been continually adapted in line with social and technological changes, and the latest Executive Order on protection and hunting of beluga and narwhal describes in detail how the hunt should be exercised including procedures governing the catch. At present time there is no Executive Order on the other species of small cetaceans. However the hunts are governed by regulations such as i.e. the law on hunting and the law on animal welfare. All types of hunting require that the hunters have hunting licenses.

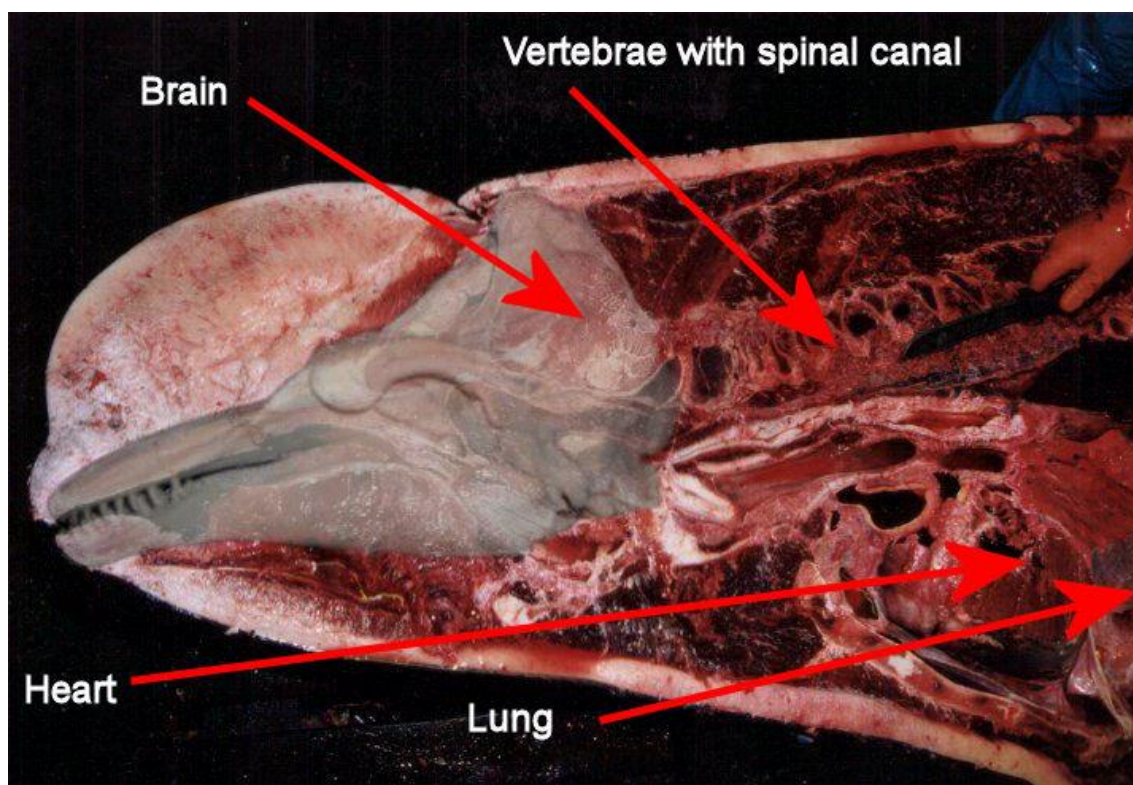
# MANUAL ON HUNTING OF SMALL CETACEANS

## ANATOMY IN RELATION TO THE KILLING AND SECURING

The overriding principle pertaining to any killing is that it is carried out as quickly and painlessly as possible with due respect to the safety of the hunters. However, the killing method should also entail considerations whether the animal is for human consumption or not.

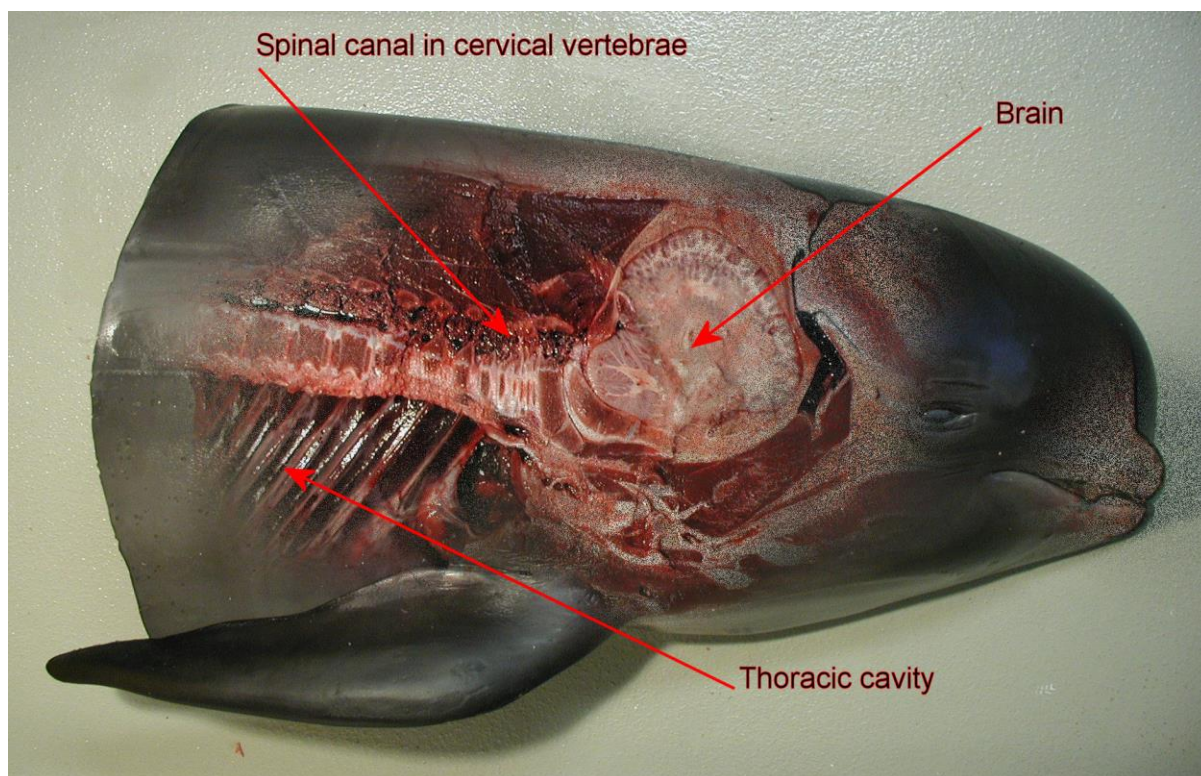
In hunting death is either caused by so called “neural or circulatory disruption” or a combination of both. Neural disruption means damage of the central nervous system like the brain and spinal cord and where the animal is rendered unconscious and dies instantly or very fast. At circulatory disruption the heart and large vessels should be damaged so the animal dies from bleeding out. The onset of unconsciousness and death may take from seconds to minutes depending on the size of the wound and which organs are wounded. To achieve a quick death the hunter must therefore know the position of the most vital organs and how these organs can be fatally wounded when using different hunting weapons (Figs. 1 and 2).

In the beluga and narwhale hunt neural disruption is the optimal method of killing. The animal is shot in the brain or neck when it surfaces. The consciousness is lost immediately. The preferred ammunition is either full metal jacketed or solid bullets, which can penetrate into the skull or through solid bones like the cervical cord. For circulatory disruption (preferred method of killing for other small cetaceans) the best effect is achieved with expanding bullets.



*Fig. 1. Longitudinal section showing anatomical positions of vital organs in head, neck and thorax of pilot whale. Position of the vertebrae (spinal cord), the brain, heart and lung are pointed out. Photo: B. Hanusson, J. Olsen.*

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*Fig. 2. Pilot whale head and torso. Longitudinal section showing location of brain and spinal cord in neck and thorax. Position of the vertebrae (spinal cord), the brain, thoracic cavity are pointed out. Photo: B. Hanusson, J. Olsen.*

### HUNTING METHODS AND EQUIPMENT

The hunting methods and equipment used for the hunting of small cetaceans may vary considerably both geographically and in methods. The whales may be:

- Harpooned and killed with firearms from the ice edge or from small skiffs or *qayaqs*
- Shot with a firearm and harpooned/hooked afterwards from small skiffs or *qayaqs*.
- Captured by nets

Factors that may influence the choice of weapons and hunting methods are:

- Whale species
- Traditions
- Environmental conditions
- Availability of equipment and weapons
- Economy
- Others.

Dolphins and whales that are in the process of dying and even those that have recently died may show strong involuntary reflex movements, in particular up-and-down thrashing of the flippers and/or the tail that can last several minutes. The thrashing can be severe and is dangerous to anyone close enough to be struck by the tail. Precautions must be taken regardless of the killing technique.

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Whales may show strong involuntary reflex movements, in particular up-and-down thrashing of the flippers and/or tail that can last several minutes. Be aware of the danger of sudden tail movements when approaching the whale.

## RIFLES /GUNS

### CALIBRE

The weapon designation "rifle" refers to a gun where the inside of the barrel has four spiral grooves throughout the length of the barrel. The parts between the grooves are called riflings. The calibre is a "jungle" of designations and is not easy to keep track of. The calibre relates to the distance between the riflings in millimetre or 100-parts or 1000-parts of an inch. Regarding the complete calibre designation, the cartridge (shell case) length is also provided. A commonly used calibre for hunting is calibre 7.62 x 63. This is also called calibre .30-06. This states that the barrel diameter (distance between the riflings) is 7.62 mm, or 0.30 inches. 06 stands for 1906 as the year this calibre was introduced in the US army.

### BALLISTICS

Bullets are designed to have specific "terminal ballistic characteristics", with features such as soft (lead) tipped, hollow point, or round nosed bullets having different characteristics. The diameter of the rifle bullets most commonly used for hunting usually vary from .224" (5.56 mm) up to .458" (11.6 mm) and even larger and weights from 3 gram (45 grains) to 45 gram (700 grains) and more. Each bullet can have different sized casings; for example .222 (total casing volume 2 cc), or 22-250 (total casing volume 4 cc). Such variations allow the best match between the many bullet designs and their intended terminal ballistic characteristics.

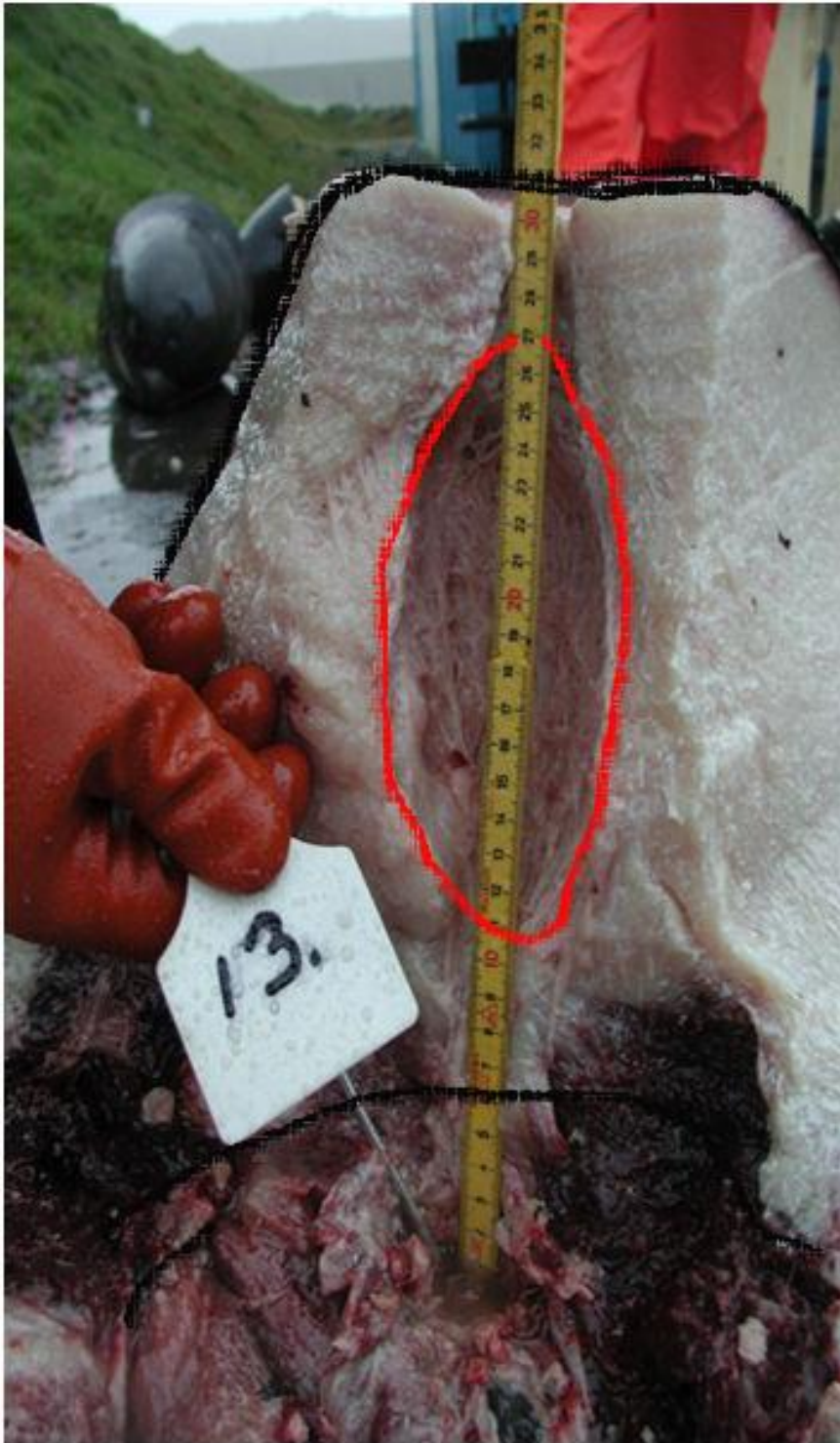
In 2006 in Nunavut six experienced narwhal, beluga and walrus hunters carried out a field test using .338 Winchester magnum and .375 Holland & Holland calibre rifles with solid and full metal jacket round nose bullets (FMJ RN). They reported (unpublished) significant penetration abilities and improved time to death (TTD) when using this equipment. Controlled terminal ballistic tests done by Olsen and Øen in 2004 (Shooting trials on heads of dead pilot whales. Guidelines to test the efficiency of rifle ammunition used for hunting and euthanasia of small whales. NAMMCO 15, 14-16 March 2006) showed similar results.

In hunting marine mammals, neural disruption is desirable for efficient killing as opposed to terrestrial mammals where circulatory disruption is the norm. When the whale is shot in the head (neural disruption) the soft tissue forms a wound cavity where the bullet energy is dissipated in the cavity. The type of jacket and the bullet tip affect the size and nature of the wounding. The bullet path made by a Full Metal Jacket Round Nose (FMJRN) bullet is often channel-like with minor cavity-formation along the path (fig. 4). This is contrary to soft point / expanding bullets which make large cavities in the tissues they pass (fig. 3).

Military surplus ammunitions (FMJ with pointed nose) which often rotate (tumble) in soft tissue after entry, do not penetrate as well as the round nose solid or full metal jacket bullets that do not tumble in soft tissue.

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Examples of cavity and channel wounds from shooting trials are shown in figs. 3 and 4.



*Fig. 3. A cavity wound from a .375 270 gr soft pointed bullet shot in the forehead of a dead and frozen Pilot whale. Cavity wound shown in red circle, thin black outline of the skull and the head. Photo and adaptation: From Olsen and Øen, 2004.*

The most efficient wound type for neural disruption is a channel wound which gives the greatest depth of penetration, fig. 4. The most suitable bullet types for small cetaceans are:

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Full Metal Jacket Round Nose, Solid Round Nose, and Solid Expanding. It appears from the shooting trials on dead pilot whale heads (Guidelines to test the efficiency of rifle ammunition used for hunting and euthanasia of small whales. NAMMCO 15, 14-16 March 2006) that among calibres tested (.270, .308, .338, .375) the bullet type was more important than the calibre size for small cetaceans.

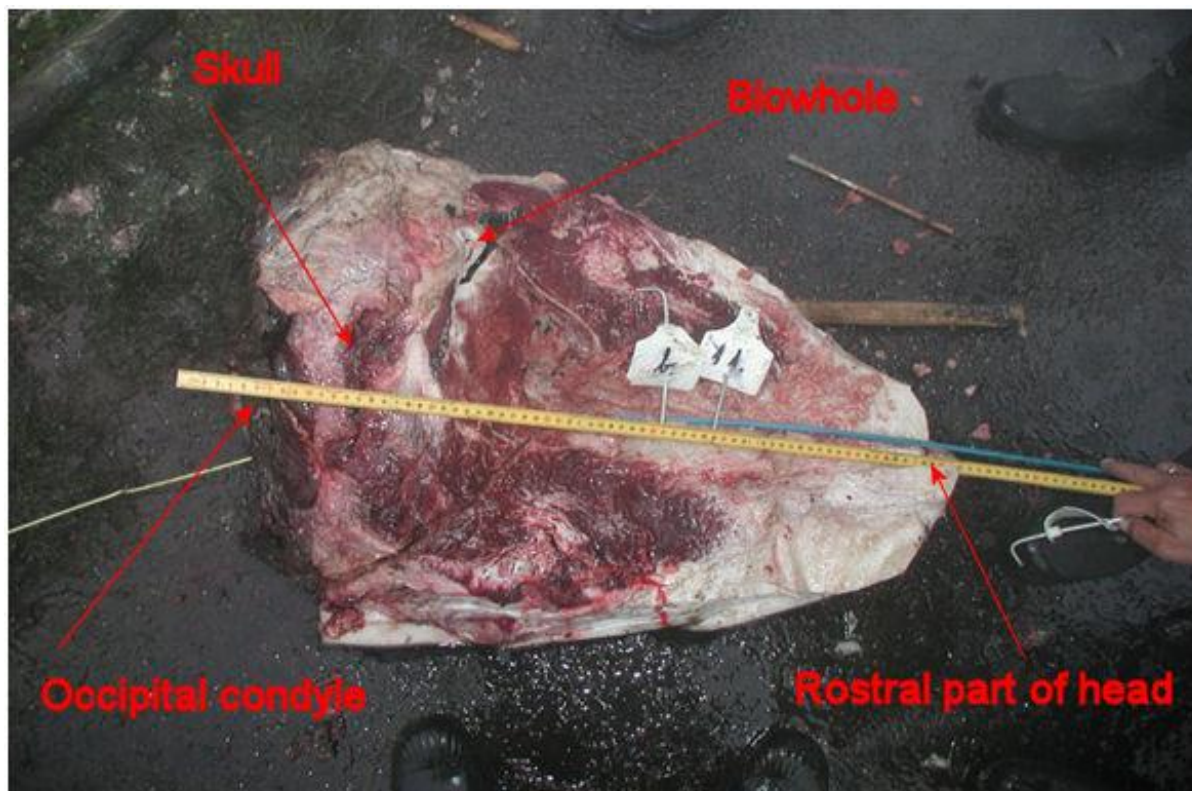


Fig. 4. The labels 11(b) and the blue probe show the channel cavity made by a .338 Win, 250 gr Round nosed solid bullet shot in the forehead of a dead and frozen Pilot whale. The bullet has passed completely through the skull. From Olsen and Øen, 2004.

With respect to ammunition and weaponry, the skill of the hunter is important when deciding on suitable calibre. Choice depends on the target site and the type of damage that is desired to kill the animal. High calibres gives rise to greater impact and energy transformation that result in greater shock effect. However, the recoil caused by high calibre weapons might influence the accuracy of the shooting.

The most suitable bullet types for brain shot of small cetaceans are:  
Full Metal Jacket round nose, Solid round nose and Solid expanding.

### AMMUNITION

*Full metal jacket*, fig 5. has a relatively soft centre surrounded by a cap of hard metal (jacket) that is open at the back end. The front part (ogive) can have different shapes, from pointed to hemispherical. Full metal jacketed projectiles are reckoned to penetrate deep inside the

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target. Pointed bullets however, can easily skid (ricochet) off bone, while round-nosed bullets or butt-nosed types more easily penetrate into and go through bones without skidding or becoming deformed. With respect to shots at hard bones such as the skull or neck vertebrae, a full metal jacketed, round-nosed bullet is recommended. However, the type of ammunition for the hunt of small cetaceans is not defined in the Greenlandic legislation in the current executive order.

*Soft- or hollow-pointed* bullets fig. 5 have a soft tip centre covered by a jacket that is open at the front and closed at the back. They are reckoned to crack up and expand to a form of a mushroom at impact creating a wide wound channel when passing through soft tissue. However, they might disintegrate and often stop or skid at the impact of bones. Soft and hollow pointed bullets are therefore not recommended for shots to the brain of small cetaceans.

*Full metal bullet, fig 5.* These projectiles are made of metal alloy that expands (enlarges) in the same manner as lead- and hollow-pointed bullets and are not suitable for whales larger than dolphins.



*Fig. 5. The figure shows different types of bullets. From the left: pointed, full metal jacket calibre .308, soft nosed calibre .30-06, round nose, full metal jacket calibre 9.3, and round nose, full metal jacket calibre .375. Photo: EO Øen.*

### SIGHTS

The rifle must have good sights. Rifles are generally equipped with open sights with shed and grain. These are simple sights that require the eye to focus on three points at the same time. It is cumbersome and many prefer the more modern, optical sights (mono scopes, redpoint sights) where such difficulties are eliminated. The magnification is adjustable as a rule and provided by the mono scope. However, there is no advantage for great magnification for the hunt of small cetaceans as this gives problems with finding the target area quickly.

Electronic sights (point sights) show the sight point as a red dot on the target. Such sights have become usual in the rifle hunt of whales in other countries.

Different ammunition has dissimilar trajectory. The rifle must therefore always be tested with the ammunition that is employed prior to the hunt.

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Rifle bullets are slowed quickly in water, regardless of the calibre and weight of the bullet. To ensure that the bullet penetrates the brain, the shot must be fired when the skull is above water.

## CARE AND MAINTENANCE OF THE RIFLE

When used at sea, the weapon will be exposed to damp and salt water. It is very important that the weapon is cleaned and oiled to prevent rusting. It may be necessary to brush the weapon (barrel, mechanism, outside) daily. Powder residue on the bolt (end piece), cartridge chamber and barrel should be removed with a cleaning cloth or a brush (cleaning) stick before being oiled with gun oil. If there is much debris on the weapon, it should be cleaned with soap and boiling water.

Before the weapon is used, it is important to wipe the barrel and firing pin free of oil or grease to avoid misfire. This is in particular important in cold weather or surroundings. 2-3 times annually the weapon should be cleaned thoroughly and oiled. After some seasons, it is recommended for safety reasons that the weapon is checked thoroughly by experienced personnel.

Never put a rifle away with ammunition in the chamber.

Empty out or remove the magazine when the rifle is not in use.

Clean and oil the weapon frequently to avoid rusting and malfunction.

## MISFIRE AND MALFUNCTION

Misfire - meaning that the shot does not go off, occurs. The most common reasons are poor maintenance or weapon error/failure:

- A broken or damaged firing pin
- A failure in the spring to the firing pin
- Fat (grease) or dirt (powder residue) that slows down the firing pin
- Powder residue or fat in the cartridge chamber.

### ***The bolt is hard to open***

Should the bolt become stuck fast or be difficult to open, it is always a **DANGER SIGNAL** that can indicate too high pressure with the firing of the shot. All use (of the rifle) should be stopped until it can be clarified what the reason is and the condition has been corrected.

### ***Unusual noise and /or recoil***

A weak or missing recoil or a hissing sound at the firing of the shot can indicate a shot with an erroneous/failed loading and a danger that the bullet is sitting in the barrel. This can happen especially with self-loading of ammunition. In such circumstances the barrel must be checked as empty before a new shot is fired.

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Hissing noises or sounds like a can of sparkling water being opened in connection with the shot, is a sure sign ALWAYS that THE BULLET IS jammed INSIDE THE BARREL. The barrel MUST be checked before a new shot is fired.

"A double sound" or significant delay between the triggering and firing of the shot is a sign of bad ignition and should be investigated.

## **Poor accuracy**

- Poor ammunition
- Improper mounting or bad fixing of the mechanism to the gun stock
- The gun stock is sticking to the barrel because of damp
- Badly affixed sights
- Poor cleaning, with lead, jacket and powder residue in the barrel
- Too much oil in the barrel
- Strong wind and/or cold
- Insufficient training of gunner

## **Accidental shots**

Accidental shots are ones that go off unintentionally. It can happen, for example, that a shot goes off when the bolt is driven in without pulling the trigger. This is most often in conjunction with a semi-automatic rifle of a military type, but can happen in all weapons where the firing pin sticks out of the bolt or the primer/firing cap sticks out from the primer pocket of the cartridge (self-loading).

## **SAFETY RULES**

- The rifle must always be handled as if loaded.
- Never put the rifle away with ammunition in the chamber.
- Empty out the magazine when the rifle is not to be used immediately.
- Clean the weapon frequently to avoid rusting and malfunctioning.
- Concerning loading and use, the rifle barrel must always point out to sea and not inwards to the deck.
- The cartridge should go easily into the cartridge chamber. If it is to be pushed in hard with the bolt, check for mechanical problems or dirty chamber/ barrel or wrong type of ammunition, which can lead to the barrel blowing up when the shot is fired.
- A weak recoil or a hissing sound following a shot can mean that the bullet has not left the barrel. THE RIFLE BARREL MUST BE CHECKED AS EMPTY BEFORE THE NEXT SHOT IS FIRED.
- If the shot does not go off, the most usual reason is lack of maintenance or fat/powder residue on the firing pin.
- If the shot goes off on loading (accidentally) it can be blamed on the firing pin projecting forward from the end piece because fat/powder residue is stopping it from going back into the safety position.

## **AFTER THE HUNT**

Following a whale hunt, all hunting equipment must be made ready for use in future hunts. The lines and the buoys must be cleaned and tied up again. The harpoon and rifle must be

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disassembled, checked, cleaned, dried and if necessary the harpoon point must be sharpened. Then it should be reassembled so it is ready for the next whale hunt.

### BACK-UP

It is common to have a backup method should the whale not die immediately as a result of the first killing attempt, or there is uncertainty about the result of the killing. In the small cetacean hunt, a rifle or a harpoon is used interchangeable depending on whether the purpose is killing or securing the animal followed by killing.

If a wounded whale is escaping, the hunter must take every step to get the whale killed.

### IMPROVEMENTS OF SMALL CETACEAN HUNTING GEARS

Technological improvements in Greenland have entailed the use of hand-held harpoons made of iron, the harpoon shafts as well as the spearing point. This makes the harpoon heavier which results in better penetration into the animal. In addition, this harpoon can be used to pull up whales that have sunk, fig. 6 and 7.



*Fig. 6. Hand-held harpoon of iron. The harpoon shaft as well as the spearing point is made of iron. This makes the harpoon heavier which results in better penetration into the animal. Photo: P. N. Hansen.*

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*Fig. 7. Hand-held harpoon of iron. In addition this harpoon can be used to pull up whales that have sunk. Photo: P. N. Hansen.*

Other improvements have consisted of a better supply of ammunition, new rifles, and use of stronger ropes, better boats and GPS. The GPS is used for directing hunters to the area of the last successful hunting place and is also used for timing the diving behaviour of the whales in order to predict when or where to expect the next surfacing.

### SPECIES SPECIFIC TARGET SITES

The hunts of harbour porpoise, dolphins, pilot whales and killer whales are very similar, and are normally carried out as a collective hunt. When the whales are spotted, the hunters will approach parallel to the animals. If the weather is sunny, they will position themselves so that they have the sun in their back. This makes it easier to spot the whales when they are diving.

The aim is to deliver a broadside shot into the thorax region (Fig. 8), to kill the whale rapidly by hitting heart, lungs (“circulatory disruption”) or vertebrae. Typical shooting ranges vary from 5 – 30 m. After a successful hit, the hunter must rush to the animal and secure it with a long shafted (4-7 m) gaff hook, called *nissik* in Greenlandic, before it sinks. A hit to the trunk behind the dorsal fin is not necessarily instantly lethal, but the animal may be immobilized and can be retrieved.

Head shots (“neural disruption”) are normally instantly lethal, but the hunters avoid it due to the high risk of losing the whale. The whale will usually sink fast and will easily be lost before it can be retrieved with the *nissik*. Hunters have also experienced that head-shots may induce violent reflex movements, and this can be dangerous to the hunters and damage the boat - and result in a higher risk of struck and loss. There may be different explanations for this observed reaction, although all are hypothetical.

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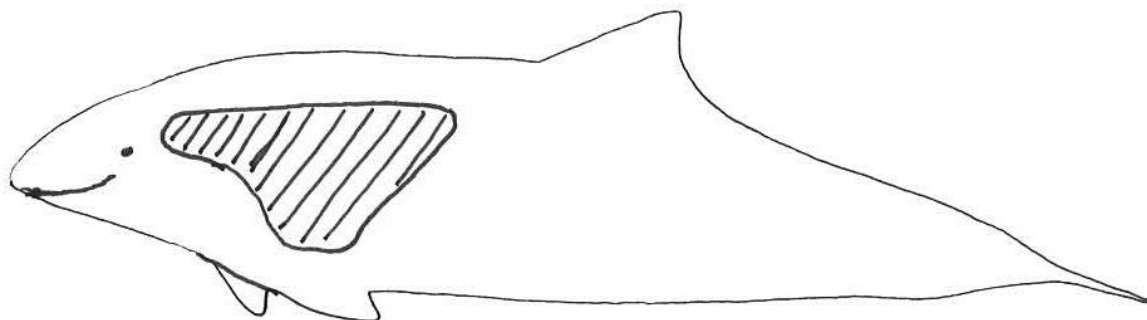
The collective hunt requires extreme caution from the hunters, in order to avoid shooting accidents, either by direct shots and/or indirect by ricochets, and also to avoid interfering in each other's hunts.

The hunter must be aware that bullets may deflect on water.

### **HARBOUR PORPOISE, FIG. 8**

The hunt takes place in ice-free, off-shore areas using rifles as primary weapon from small, open boats with powerful engines. There are often several boats participating in each hunt, but there will not be any appointed leader. This collective hunt requires extreme caution from the hunters, both in order to avoid ricochet and also in order to not disturb each other's hunts.

The calibre commonly used is .222 with a full metal jacket bullet. Due to the fast swimming speed, and the relatively short shooting ranges, open sights are preferred. 12 or 16 gauge shotguns were used earlier, but are no longer preferred due to longer survival time.

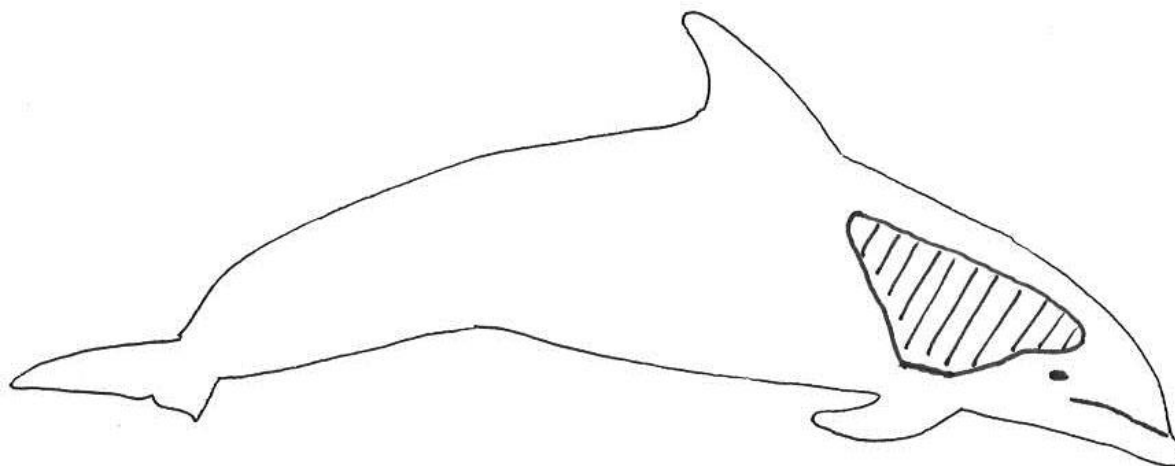


*Fig. 8. The marked area indicates the optimal target area in harbour porpoise. From NAMMCO Expert Group Meeting to Assess the Hunting Methods for Small Cetaceans 15-17 November 2011.*

### **WHITE-SIDED AND WHITE-BEAKED DOLPHINS, FIG. 9.**

Due to the larger body-size, calibre .30-06 with full metal jacket bullets are commonly used.

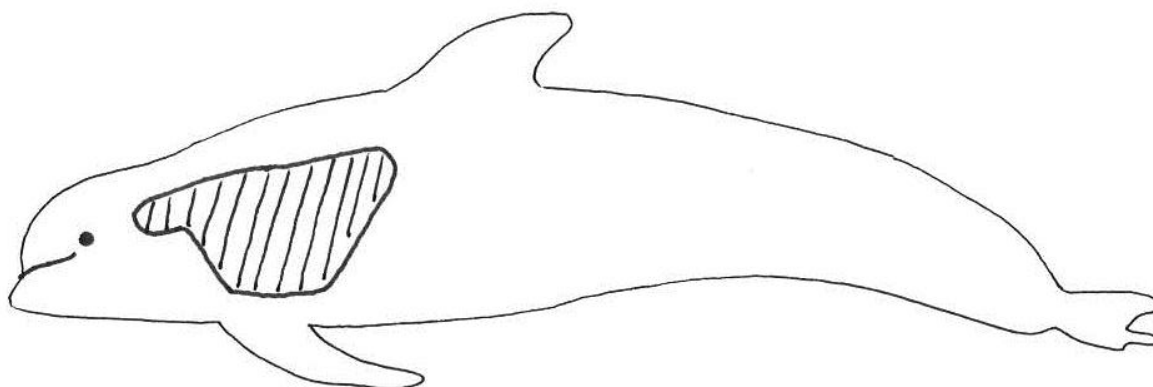
## MANUAL ON HUNTING OF SMALL CETACEANS



*Fig. 9. The marked area indicates the optimal target area of white beaked and white sided dolphins. From NAMMCO Expert Group Meeting to Assess the Hunting Methods for Small Cetaceans 15-17 November 2011.*

### **LONG-FINNED PILOT WHALE, FIG. 10**

The strong schooling behaviour of pilot whales makes the hunt relatively easy, compared to the harbour porpoise and dolphins. The commonly used calibre is .30-06 with full metal jacket bullets.

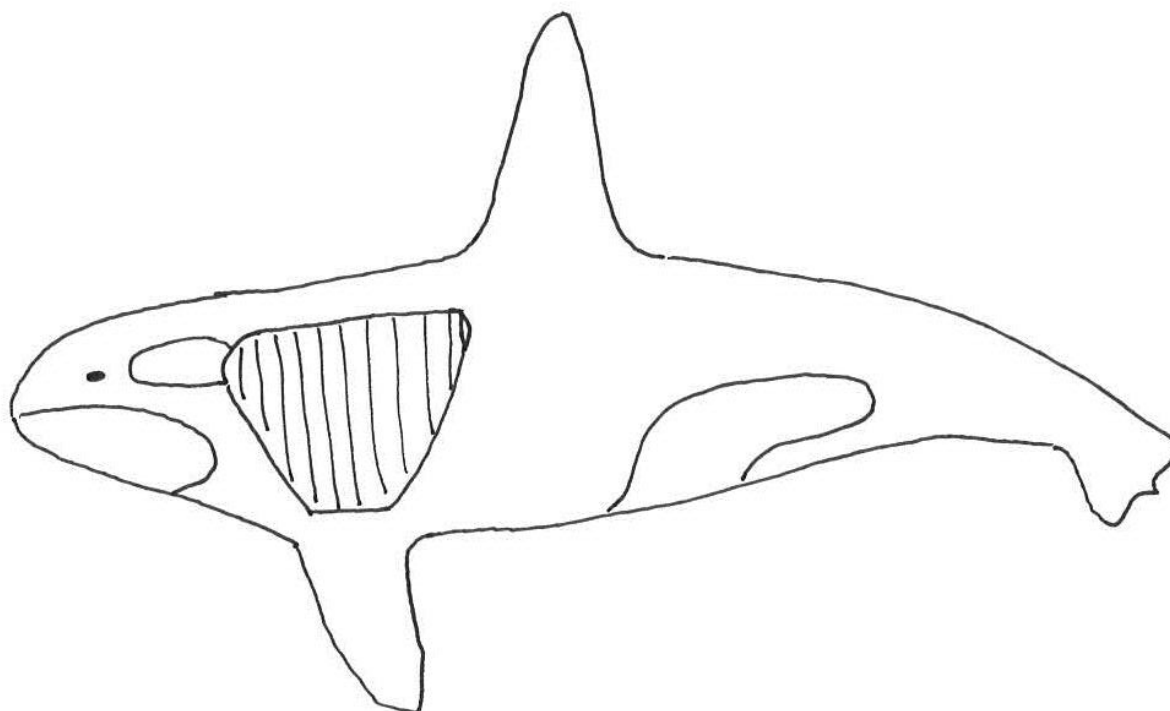


*Fig. 10. The marked area indicates the optimal target area of a pilot whale. From NAMMCO Expert Group Meeting to Assess the Hunting Methods for Small Cetaceans 15-17 November 2011.*

### **KILLER WHALE, FIG.11**

The killer whale hunt is usually performed as a collective hunt with small boats. Rifles, with a minimum calibre of .30-06 and full metal jacket bullets, are commonly used as the primary weapon.

## MANUAL ON HUNTING OF SMALL CETACEANS



*Fig. 11. The marked area indicates the optimal target area of a killer whale. From NAMMCO Expert Group Meeting to Assess the Hunting Methods for Small Cetaceans 15-17 November 2011.*

### **NARWHAL, FIG. 12 AND BELUGA, FIG. 13**

Narwhal and beluga are hunted by harpoon from *qayaqs* and with rifles from small boats (skiffs). In a few places in northern and eastern Greenland the whales are also captured with nets regulated through a municipal order.

Often Greenlandic hunters combine traditional hunting methods with the restrictions of contemporary regulations. For instance, the former municipalities of Qaanaaq, Upernavik and Uummannaq have developed regulations stipulating that the hunters may only use *qayaqs* and harpoons, thereby limiting the number of animals taken. It is prohibited to hunt whales by surrounding, trapping or blocking them against land or the ice edge.

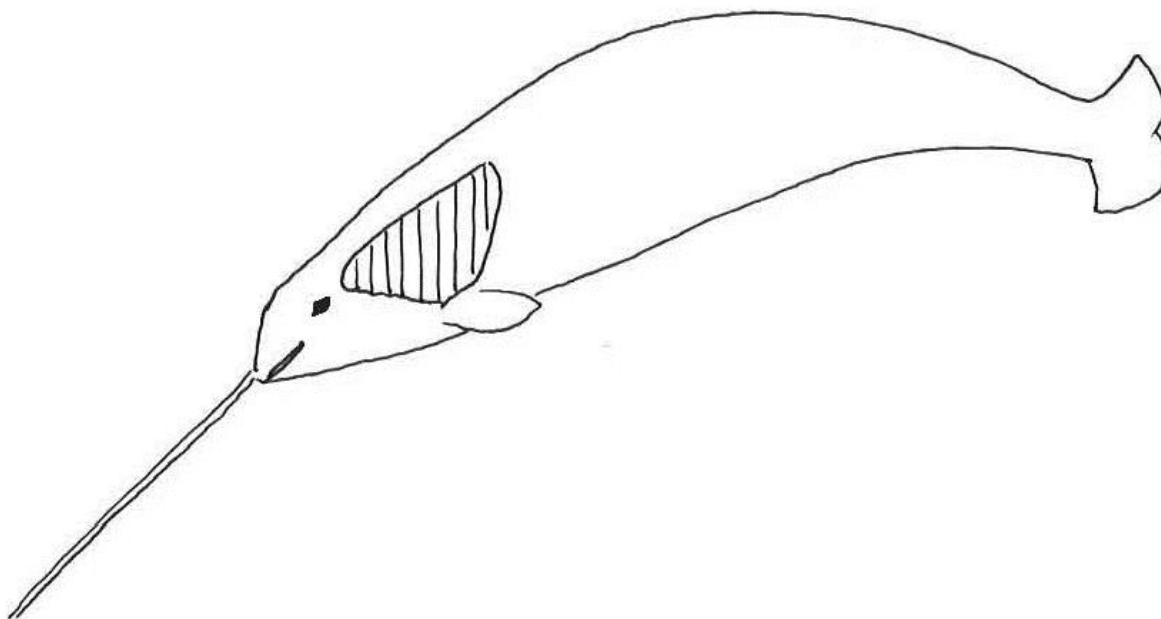
#### **RIFLE HUNT FROM SMALL MOTOR BOATS**

There are differences in surfacing behaviour between belugas and narwhals, the latter surfacing less frequently than belugas. The hunt takes place in open water and ice cracks. The whale is first harpooned with floats attached to the harpoon line and then shot with a rifle of calibre 30.06/.375. full metal jacket bullets.

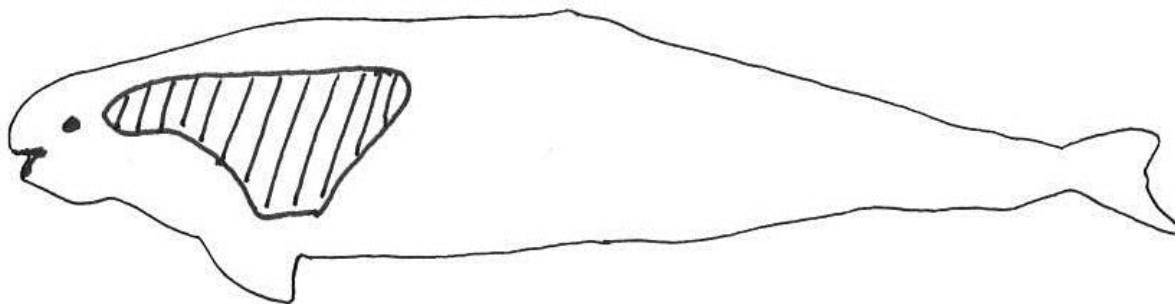
The whale is targeted from the side (Fig. 12 and Fig. 13). The brain is the preferred target, but the neck and heart are also regarded as suitable targets. The criteria of death used by the hunters are air bubbles rising to the surface, slackened flippers and jaw. If the whale is not hit

## MANUAL ON HUNTING OF SMALL CETACEANS

in vital areas it dives and is re-shot on resurfacing. When the animal is dead, it is secured by a rope around the tail.



*Fig. 12. The marked area indicates the optimal target area of a narwhal. From NAMMCO Expert Group Meeting to Assess the Hunting Methods for Small Cetaceans 15-17 November 2011.*



*Fig. 13. The marked area indicates the optimal target area of beluga. From NAMMCO Expert Group Meeting to Assess the Hunting Methods for Small Cetaceans 15-17 November 2011.*

### **HARPOON HUNT FROM QAYAQS**

This type of hunt takes place close to the ice edge in North Greenland from mid-May to mid-September. For safety reasons, two hunters will cooperate as it is potentially dangerous to go out in a *qayaq* alone. Silence and stealth are important in this hunt in order not to spook the animals. The hunters will observe the whale(s) from shore and very quietly embark the *qayaqs*. The hunter uses a hand-held harpoon in a thrower to gain extra throwing distance. The harpoon shaft (Fig. 14) is made of wood and the harpoon point is made of stainless steel

## MANUAL ON HUNTING OF SMALL CETACEANS

and tusk from walrus. Attached to the harpoon is a buoy of skin/cloth tied to a wooden frame on a line of 15-16 m.

The whale will first be secured with the harpoon and buoy, fig. 15 and then shot using rifle calibre 30.06 or .375 with full metal jacket ammunition when it re-surfaces. The target for the shot is the brain, neck or heart. When it is dead the animal is hauled to a beach or ice edge for flensing and further processing.

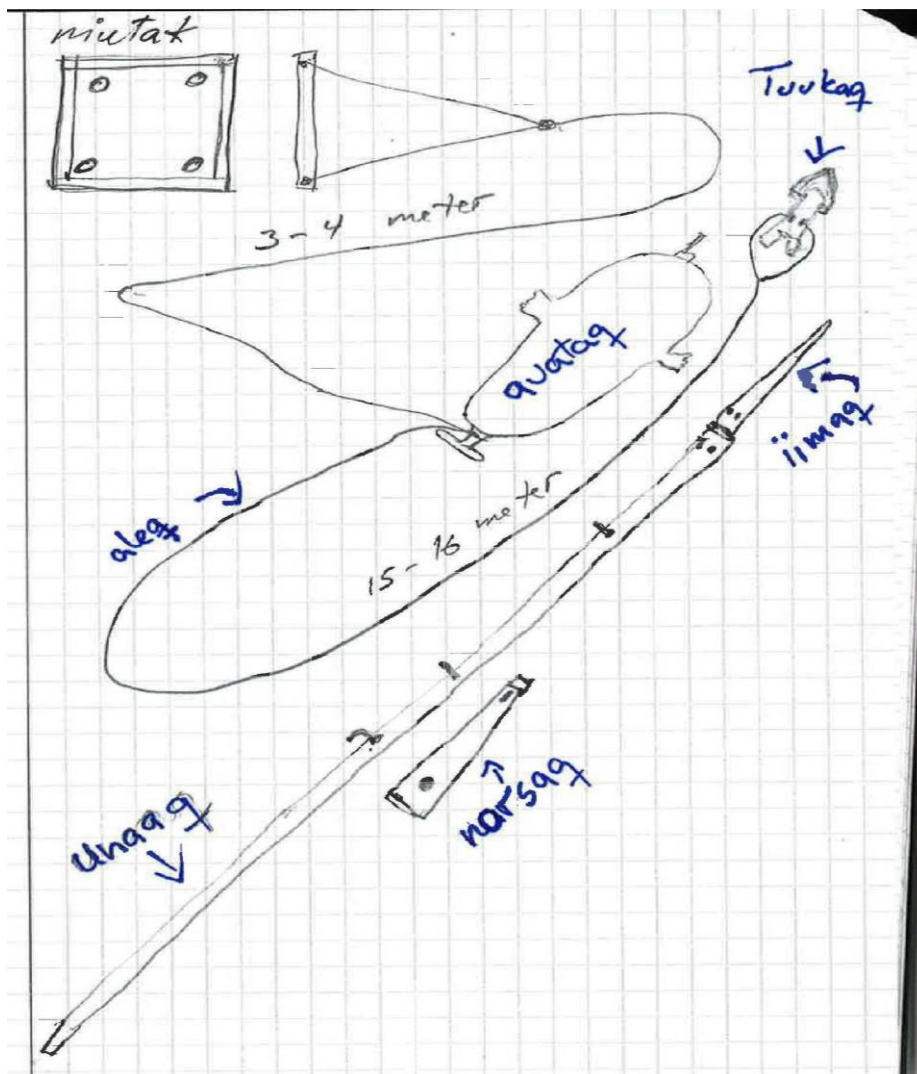


Fig. 14. Harpoon and equipment used for small cetacean hunting from qayaqs in Greenland. From NAMMCO Expert Group Meeting to Assess the Hunting Methods for Small Cetaceans 15-17 November 2011.

## MANUAL ON HUNTING OF SMALL CETACEANS



*Fig. 15. Hunt of narwhal from qayaq in North Greenland. Attached buoys lying in the water to the right of the qayaq. Photo: P. Hegelund.*

### **NET HUNTING**

This traditional method targeting narwhal is used only according to a Municipality Executive Order in East and North Greenland, during dark periods of the year and during very ice-filled conditions.

The net is set in open water or under the sea-ice. The net is 10 meters high and 30 – 40 m long with a 380 mm mesh-size. The net is anchored to land by a wire or chain and held upright by intervals of floats attached by an arm's length of rope to the headline. The base of the net is not secured, but is weighted at intervals by hanging stones. Another netting method is free floating nets anchored underwater at one end. Sink lines are used for weighting the foot line.

All nets are checked daily for captures, and live animals will be shot.

NAMMCO



**ATLANTIKUP AVANNAANI MILUUMASUT IMARMIUT  
PILLUGIT ATAATSIMIITITALIAQ**



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## QUJASSUTIT

Atlantikup Avannaani Miluumasut Imarmiut pillugit Ataatsimiititaliap – NAMMCO – nuannaarutigaa Kalaallit Nunaanni arfeerarniarneq pillugu najoqqutassiaq manna saqqummiussinnaagamiuk. Inasuteqaatit aamma piniariaatsit atortullu pillugit nassuiaatit immikkut ilisimasallit, piniartut, aqutsisut kiisalu NAMMCO-mi Piniariaatsit pillugit Ataatsimiititaliap (Arfeerarniarnermi Piniariaatsit pillugit Naliliinissamik immikkut ilisimasallit ataatsimiinnerat 15-17 november 2011) ataatsimiinnerini paasisstutissanik pissarsiarineqartunik tunngaveqarluni suliaapput.

NAMMCO-p pingaartumik Nette Levermann, najoqqutassiap uumap suliarinerani tunniussimalluni sulinera pillugu qutsaviginiarpaa.

NAMMCO-p aamma KNAPK suliamut tassunga tunniussai pillugit qutsaviginiarpaa.

NAMMCO-p Norgemi Nunanut allanut Ministeriaqarfik kiisalu Atlantikup Avannaani Suleqatigiiffik aningaasalersuinerannut qutsaviginiarpai.

*Saqqaaani assi: P. Hegelund.*



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## SIULEQUT

Sinerissami najugallit miluumasunik imarmiunik piniarlutillu iluaquteqarsinnaatitaanerat Atlantikup Avannaani Miluumasut Imarmiut pillugit Ataatsimiititaliami NAMMCO-mi tunngavittut aalajangi-usimaneqartuarsimavoq. Piniarnerup nungusaataanngitsumik ingerlanneqarnissaanik aamma pini-ariaatsini uumasut naalliutsinneqannginnissaanik piniartullu isumannaatsuunissaannik piniartut oqartussaqaarfiillu pisussaaffiat pisinnaatitaaffimmu tassunga aamma ilaalluinnarpoq.

Piniariaatsit pillugit Ataatsimiititaliaq 1994-imi pisortaatigoortumik pilersinneqartoq su-liassaqaarfimmi tassani NAMMCO-p sulineranik ingerlatsisuuvoq aamma Siunnersuisoqatigiinnut nunanullu ilaasortaasunut piniariaatsit pillugit siunnersuuteqartarluni. Siunnersuutit ilisimatu-ussutsikkut paasisanik pitsaanerpaanik, atortorissaarutinik ineriartortitsinernik aamma isuman-naallisaalluarnermik kiisalu pisuussutinik atorluaaniarnermik tunngaveqartariaqarput.

Ataatsimiititaliap suliame ilarpassui nunat tamalaat akornanni isumasioqatigiisitsisarnikkut aamma quleqqutani aalajangersimasuni immikkut ilisimasalinnik ataatsimiititsisarnikkut suliarisimavai. Inassuteqaat saqqummertuartartoq tassaavoq piniartut sungiusarneqarnerisa pitsanngorsar-neqarnissaat.

NAMMCO-p Piniariaatsit pillugit ataatsimiititaliaata Kalaallit Nunaanni arfeerarniarnermut na-joqqutassiaq matuma suliarisimavaa. Arfanniat, aammali nakkutilliisut, alaatsinaattut, piniarnermik nakkutilliisut aamma kikkut allat arfanniarnermut peqataasartut annermik ilitersorniarneqarnis-saat siunertaavoq. Suliap matuma ingerlanerani arfanniat isumasiorneqarsimapput, ilitersuulli Pin-iarialaatsit pillugit Ataatsimiititaliap toqqaannartumik akisussaafigaa.

Tromsø, November 2014

NAMMCO-p piniariaatsit pillugit ataatsimiititaliaanut ilaasortat:

Eyþór Björnsson, Guðni Magnús Eiríksson, Nette Levermann, Kristján Loftsson, Justines Olsen, Kathrine A. Ryeng, Hild Ynnesdal, Egil Ole Øen



## **ISUMANNAALLISAANEQ PILLUGU PAASSISSUTISSAT PINGAARUTILLIT**

**ARFERIT TOQUSARLUTIK AALARUJUSSARSINNAAPPUT PINGAARTUMIK TALERUI AAMMA / IMALUUNNIIT SARPINI MINUTSINI QASSIINI SAKKORTUUMIK AALATISSINNAVAI. ARFEQ ORNITSILLUGU SARPIISA AALASSAPILOORSINNAANERAT SIANIGIUK.**

**ARFEEQQANNIK QARASARORIAANERMI AQERLUT NALEQQUNNERPAAT TASSAAPPUT: SAVIMINERMIK POORSIMASUT MORUJUTTUT, ILIVITSUKAAT MORUJUTTUT KIISALU ILIVITSUKAAT QAARTARTUT.**

**IMASSAT/PATRUUNIT ASSIGIINNGITSUT ASSIGIINNGITSUTIGUT INGERLASARPUT. TAAMAAMMAT PINIARNEQ SIOQQULLUGU AALLAASIT PATRUUNILLU MISILERARNEQARSIMASARIAQARPUT.**

**QOORORTUUT AQERLUI IMERMI KIGAALLIPALLATTARPUT QANORLUUNNIIT SAKKORTUSSUSEQARALUARUNIK OQIMAASSUSEQARALUARUNILLUUNNIIT APEQQUTAATINAGU. AQERLUP QARATSAMIK EQUINISSAA QULARNAARNIARLUGU NIAQUA IMMAMIIT NUISIMATILLUGU AATSAAT SEQQORTARIAQARPOQ.**

**QOORORTOOQ IMAQARTILLUGU QIMANNGISAANNARRUK.**

**QOORORTOOQ ATORTINNAGU MAGASINAA IMAARNEQARTASSAAQ IMALUUNNIIT PEERNEQARTASSALLUNI.**

**SAKKUT MANNGERTORNEQQUNAGIT ITIGARTALEQQUNAGILLU SALITTARLUGILLU UULIARTAKKIT.**

**ATAATSIMOORLUNI MALERSORNERMI PINIARTUT ASSORSUAQ MIANERSORTARIAQARPUT AJUTOORTOQAQQUNAGU, TASSA TOQQAANNARTUMIK AALLAANNITTOORNIKKUT IMALUUNNIIT AQERLUP TAMMINNERATIGUT, AAMMALI ALLAT PINIARNERINUT AKORNUSERSUINAVEERSAARTOQASSAAQ.**

**AQERLUP IMMAMI SANGUSARNERA PINIARTUP ILISIMASARIAQARPAA.**

## AALLARNIUT

Najoqqutassiaq manna Kalaallit Nunaanni arfeerarniarnermi sakkunut taakkulu eqqortumik atorneqarnissaannut tunngavoq.

Kalaallit Nunaanni arfeerarniarnermi uumasut makku piniarneqartarput: Qilalukkat qernertat (*Monodon monoceros*), Qilalukkat qaqortat (*Delphinapterus leucas*), Niisat (*Phocoena phocoena*), Niisarnat (*Globicephala melas*), Aarluarsuit qaqortunik siunillit (*Lagenorhynchus albirostris*) Aarluarsuit qaqortunik sanerallit (*Lagenorhynchus acutus*) kiisalu Aarluit (*Orcinus orca*).

Uumasuni taaneqareersuni timaasa pisataat uumaniarnermut pingaarutillit inissisimaffii timaasa qaavini takussutissanut soorlu anersaartarfiinut, isaannut taleruinullu sanilliullugit sumiissusii asigiippalupput. Taamaammat timaasa pisataannut sanilliullugit qoorortuumik eqqorigassat asigiissiterput.

Arferit immamiitsillugit orninnissaat tikivinnissaallu ajornakusoortarpoq. Taamaammat arferit ungasitsillugit nukillaarteriartariaqarput toqoriartariaqarlutilluunniit.

Arferit toqutsisummik periarneqartillutik ilaanni sikup ataanukartarput. Taamaammat arfeq toqusimanersoq nalunarsinnaavoq. Taassuma saniatigut arferit amerlanerit toqugaangamik ki-visarput.

Piniutit qassiinik atorfeqakkajuttarput. Ataatsikkut nukillaartitsiniutaasariaqarput / toqutsiniutaasariaqarput qajannaarsiniutaasariaqarlutillu. Taamaalinissaq iluatsinniaaraani ilisimajunnaarfissai sapinngisamik annerpaamik innarlertariaqarput arfeq erngerluni pilertortumilluunniit toqoqqullugu.

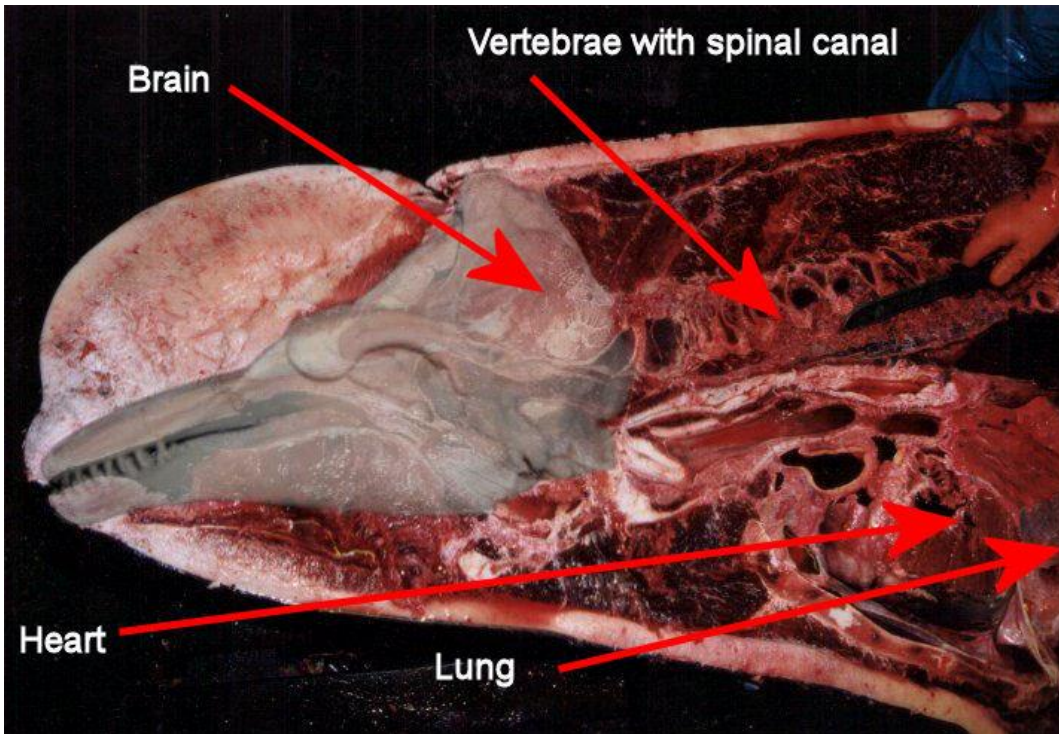
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## **TIMIP PISATAI TOQUTSINERMUT ANNAASUSSAAJUNNAARLUGU ISU-MANNAARINERMUT ATTUUMASSUTILLIT**

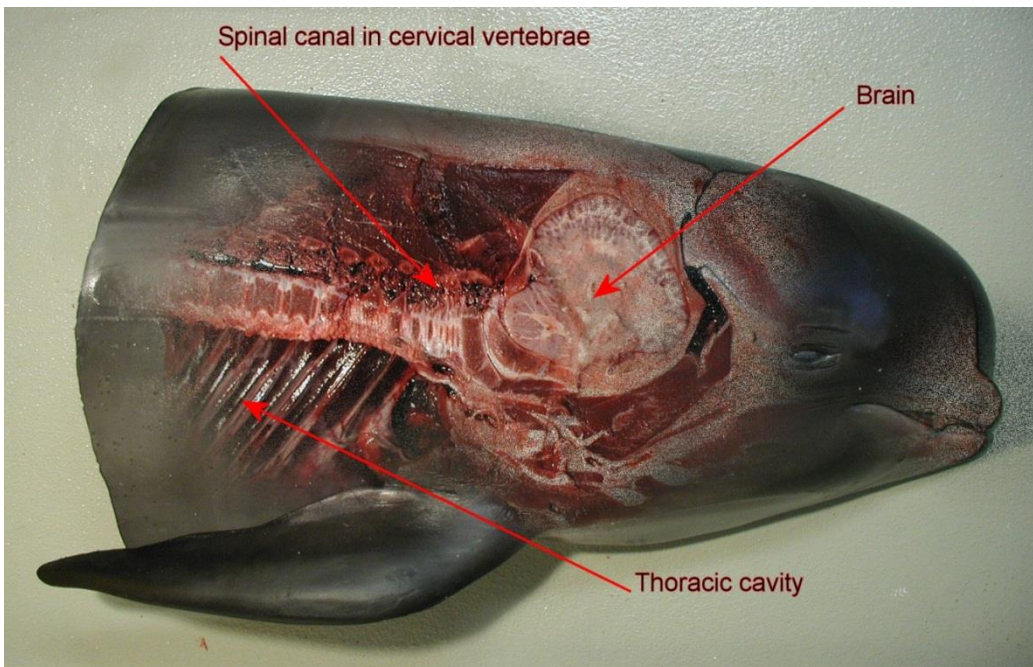
Toqutsinermi pingaaruteqarnerpaaq tassaavoq piaarnerpaamik naalliunnanginnerpaamillu ingerlanneqarnissaa, tamatumani piniartup navialinnginnissaa. Aammali piniakkap inunnit nerisasaanera nerisassaanginneraluunniit toqutseriaatsini aamma apeqqutaavoq.

Piniarnermi toqutsineq "sianiutaannik aavataluunniit aqqutaanik innarliinikkut" imaluunniit taakku akuleriisillugit pisarpoq. Sianiutaanik innarliineq tassaavoq qarasaanik qiteralianilluunniit innarliineq uumasup ilisimajunnaarneranik erngerlunilu imaluunniit pilertorluinnartumik toquneranik nassataqartoq. Aavata ingerlaarfiinik innarliinermi uummataa taqarsuilu ima innarlerneqartigisapput uumasooq aaverluni toqusussanngorluni. Ikip qanoq angitiginera sukkullu ikilerneqarnera apeqqutaallutik uumasooq issariarnerit qassinnguit minutsilluunniit arlallit ingerlaneranni ilisimajunnaartarpoq toqulluniluunniit. Taamaammat toqutsigasuartoqassappat piniartup ilisimasariaqarppaa timip pisatai uumaniarnernut pingaarutillit sumiinersut aammalu sakkut assigiinngitsut atorlugit timip pisatai taakku qanoq toqussutissaanik ikilerneqarsinnaanersut (Assiliartat 1 aamma 2).

Qilalukkanik qaqortanik qernertanillu piniarnermi sianiuteqarfiinik innarliineq toqutsinermi pitsaanerpaajuvoq. Uumasooq puinermini qarasarorneqassaaq pukusororneqassalluniluunniit. Erngerluni ilisimajunnaassaaq. Patruunit saviminermik qallikkanik aqerlullit ilivitsukkaanilluunniit aqerlullit pitsaanerupput, taakkumi qaratserfia putusinnaavaa imaluunniit saarngit soorlu qimerlui pitarinnaallugit. Aavisa ingerlaarfiinik innarliineq (arfeeqqanik allanik piniarnermi atussallugu pitsaane-rusooq) aqerlut qaartartullit atorlugit pitsaanerpaamik anguneqartarpoq.



Assiliartaq 1. Niisarnap niaquani, qungasiani kiataanilu timip pisataasa pingaarutillit takutinneqarnerat. Qiterallup, qaratsap, uummatip aammalu puat sumiissusii nalunaagaapput. Nassuiaatit: Brain = Qarasaa, Heart = Uummataa, Lung = Puaa, Vertebrae with spinal canal = Qimerlua qiteraalu. Assiliisut: B. Hanusson, J. Olsen.



Assiliartaq 2. Niisarnap niaqua kiataalu. Niisarnap niaquani, qungasiani kiataanilu timip pisataasa pingaarutillit takutinneqarnerat. Qiterallup, qaratsap, uummatip aammalu puat sumiissusii nalunaagaapput. Nassuiaatit: Brain = Qarasaa, Spinal canal in cervical vertebrae = Pukutsup qiteraau, Thoracic cavity = Sakissat puuat. Assiliisut: B. Hanusson, J. Olsen.

## PINIARIAATSIT PINIUTILLU

Sumiiffik periaatsillu aallaavigalugit piniariaatsit piniutillu assigiinngissitaarsinnaaqaat. Arferit imatut piniarneqarsinnaapput:

- Sikup sinaaniit, umiatsiaaqqamiit qaannamilluunniit naalinneqarsinnaapput aallaamillu toqunneqarlutik.
- Umiatsiaaqqamiit qaannamilluunniit aallaaneqarsinnaapput kingornalu naalinneqarlutik / qarsorsarneqarlutik.
- Qaattarneqarlutik.

Sakkut piniarnermilu periaatsit suut atorneqarnissaannik toqqaanermut sunniuteqarsinnaasut:

- Arferup suussusia.
- Ieqqutoqqat.
- Avatangiisit qanoq issusii.
- Piniutit sakkullu pissarsiarineqarsinnaassusii.
- Aningaasaqarneq.
- Allat.

Arfeqqat arferillu toqusartut allaallumi toqoqqammersut sakkortuumik eqisarsinaapput, pingaartumik minutsini arlalinni talerui aamma / imaluunniit sarpit aalasinnaasarpud. Talerorsornerat sarpissornerallu sakkortusinnaaqaq sarpimmitsittunullu kimulluunniit ulorianarsinnaalluni. Toqtseriaaseq qanorluunniit ittoq atoraluaraanni mianersornissaq pisariaqarpoq.

Arfeqqat arferillu toqusartut allaallumi toqoqqammersut sakkortuumik eqisarsinaapput, pingaartumik minutsini arlalinni talerui aamma / imaluunniit sarpit aalasinnaasarpud. Arfeq ornitsillugu sarpissoriataarsinnaanera mianersuutigiuk.

## QOORORTUUT / AALLAASIT

### KALIBERI

Sakku qoorortuumik taaneqartartoq tassaavoq savissani tannera tamakkerlugu sisamanik qipisunik qoorulik. Qooruisa akuttussusiinut nuna allamiutut taaguutit kaliberit assigiinngiiaaigamik paatsiveerunnarsinnaapput. Kaliberi qooruisa akuttussusiinut taaguutaavoq millimeterinik, tommip 100-erarterutaanik 1000-erarterutaanilluunniit taaguuserneqartarluni. Kaliberip saniatigut patruunip takissusia ilanngullugu taaneqartarpoq. Piniarnermi atorneqakkajuttoq 7.62 x 63-uvoq. Kaliber .30-06-mik aamma taaneqartarpoq. Tassuuna ersersinneqarpoq paava (qooruisa akornat) 7,62 mm-iusoq, imaluunniit 0,30 tommit. 06 tassaavoq 1906, ukioq kaliberi taanna USA-mi atorneqaqqaarfiusoq.

## **AQERLUT INGERLASARNERI**

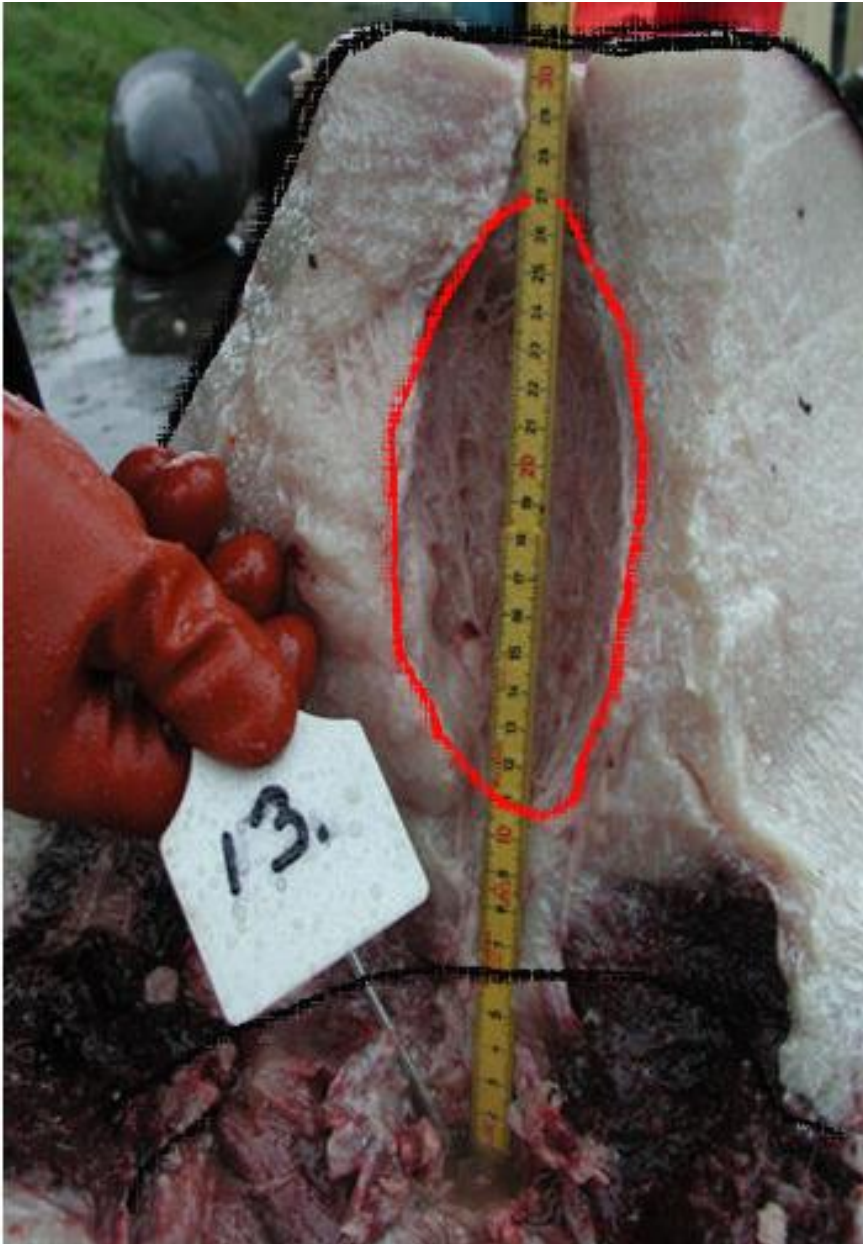
Aqerlut eqquinerminni aalajangersimasumik pissuseqartussanngorlutik ilusilersugaasarpur, soorlu nuui aqitsut (aqerloq), nuui iluliumanillit imaluunniit morujuttunik nuullit tamarmik assigiinngitsunik pissuseqarlutik. Qoorortuut aqerluisa kaajallermikkut assigiinngitsunik nigartussuseqarput .224"-niit (5.56 mm) .458"-nut (11.6 mm) ilaallu suli annerusarlutik 3 gramminiit (45 grains) 45 gramminut (700 grains) sulilu annerusoqarluni. Aqerlut tamarmik assigiinngitsunik annertussuseqarsinnaappur soorlu .222 (annertussusia tamarmiusoq 2 cc), imaluunniit 22-250 (annertussusia tamarmiusoq 4 cc). Assigiinngissitaarnermikkut aqerlut ilusaat tunnerminni pissusissaannut pitsaanerpaamik naleqqussarnerqarsinnaappur.

2006-imi Nunavummiut qilalugarniarnermut aaffanniarnermullu misilittagaqarluartut piniarnerminni .338 Winchester magnum aamma .375 Holland&Holland atorlugit misileraappur, aqerlut iluitsukkaanik aamma saviminernik qaallit morujuttunik nuullit atorlugit. Nalunaarpur (saqqummi- unneqarsimanngitsumik) aqerlut pitarsisinnaassusiat toqutsisinnaassusiallu sakkut taakku atornerqarneranni assut pitsaanerusartoq. Olsen aamma Øen 2004-mi niisarnanut toqungasunut aamma misileraasimappur (Arfeeqqanik piniarnermi toqutsinermilu qoorortuut pitsaassusiinik misileraanermi najoqqutassat. NAMMCO 15, 14-16. marts) assingusunillu paasisaqarfiulluni.

Miluumasunik imarmiunik piniarnermi sianiutaanik innarliineq toqutsissutissatut pitsaaneruvoq nunamiunik toqutsinermi aavisa ingerlaarfiinik innarliiniartarnerup paarlattuanik. Arfeq niaqqumigut aallaaneqaraangat (sianiutai innarlerneqaraangata) qituttui aqerlup nukimmik siammar-titsineratigut qangattaasamik ikilerneqartarput. Aqerlup puuata aamma nuuata qanoq ittuussusii ikip qanoq ittuussusianut sunniuteqartarput. Aqerlut saviminermik iluitsukaamik puullit morujuttut ingerlaarfii amitsukujuujusarpur annikitsuinnarmik qangattaasartaqarlutik (assiliartaq 4). Tassa aqitsunik nuullit / siaartartut paarlattuanik pisarpur taakkumi uinimmi aqquusaakkaminni annertu- umik qangattaasaliortarmata (assiliartaq 3).

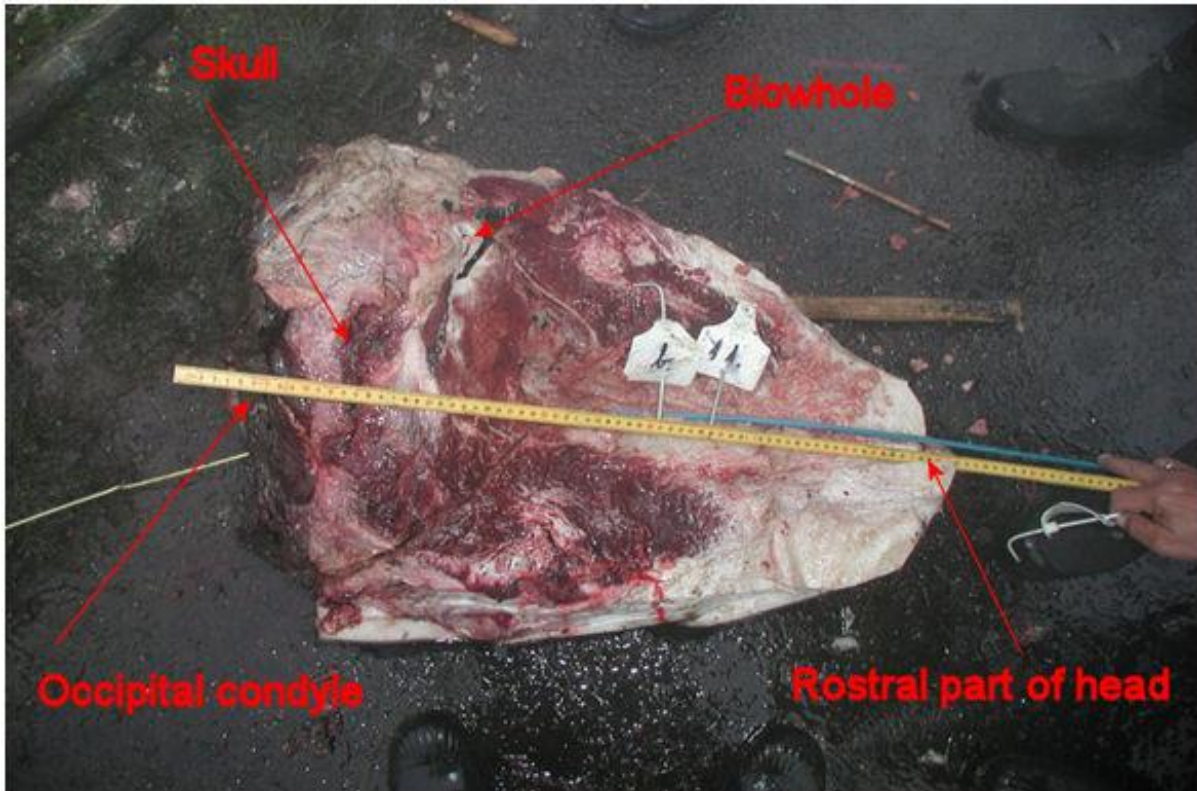
Sakkutuut patruunii (FMJ amitsunik nuullit) timip qitunnerini kaavittaramik manngertutut morujut- tutut imaluunniit saviminermik puullit timip qitunnerini aalaqqajuttanngitsutulli pulatigineq ajorput.

Aallaannittarluni misileraanerini ikimi qangattaasamut sullumullu takussutissat assiliartani 3 aamma 4-mi takuneqarsinnaappur.



*Assiliartaq 3. Niisarnap toqungasup qerisup niaquani ikeq qangattaasanngortoq 375 270 gr-ip aqerlup aqitsumik nuullip pilersitaa. Qangattaasaq aappalaartumik ammalortumik nalunaaqqutsigaa-voq, qernertumillu amitsumik niaquata saarnga niaqualu titartarneqarput. Assiliisut iluarsaassi-sullu: Olsen aamma Øen, 2004.*

Ikeq sianiuteqarfinnik innarliissutaasartoq sakkortunerpaaq tassaavoq ikeq amitsoq aqerlumik ilorparnerpaajutitsisartoq, assiliartaq 4. Aqerlut arfeeqqanut atussallugit naleqqunnerpaat tassaap-put: morujuttut saviminermik iluunngarmi poorsimasut, ilivitsukaat morujuttut, aammalu ilivitsukaat siaartartut. Niisarnanut toqungasunut misileraanermi (arfeeqqanik piniarnermi toqutsinermilu qoorortuut pitsaassusiinik misileraanermi najoqqutassiat) kaliberini mis-ilerarneqartuni (.270, .308, .338, .375) paasinarsivoq arfeerarniarnermi patruunip sakkortussusia pinnani kisiannili aqerlup qanoq ittuussusia apeqqutaanerpaajusoq.



Assiliartaq 4. Nalunaaqqutaani 11(b) aammalu tungujortup amitsukujuup takutippaa aallaasip .338 Win.-ip aqerluata morujuttup ilivitsukaap 250 gr-iusup ikeq pilersitaa, tassa niisarnap toqungasup qerisup siuneraniit aallaanerani pilersoq. Aqerlup niaqoq pitarluinnarsimavaa.  
 Nassuiaatit: Skull = Niaqup saarnga, Blowhole = , Occipital condyle = Pukutsup saarnga, Rostral part of head = Sigguk. Assiliisut Olsen aamma Øen, 2004.

Patruunit sakkullu eqqarsaatigalugit aallaasip sakkortussusianik sorlermik toqqaaniarnermi pini-artup pillaaqqissusia apeqqutaqaaq. Toqqaanermi piffik piniarfiusoq aamma uumasooq qanoq an-nertutigisumik ikilerniarneqarnersoq aamma apeqqutaasarpoq. Kalibereqqortuut sakkortuneru-sumik tuttarput innarliinerusarlutillu. Taamaattorli kalibereqqortuut ajatsisarnerat toraajussus-ermut sunniuteqarsinnaapput.

Arfeeqqanik qarasaroriaanermi aqerlut naleqqunnerpaat tassaapput:  
 Saviminermik poorsimasut morujuttut, ilivitsukaat morujuttut aamma ilivitsukaat siaar-tartut.

## IMASSAT/PATRUUNIT

Saviminermik poorsimasut, assiliartaq 5 aqikannersumik iluleqarpoq saffiugassamillu mannger-tumik qallersimasarluni kingunermigut ammassumik. Nuua assigiinngitsunik iluseqarsinnaavoq, nuugissuusinnaalluni morujuttuusinnaalluniluunniit. Manngertumik poorsimasut eqqukkaminnut pulallaqqinnerusutut isigineqartarput. Nuugissulli saanermik eqqugaqartillutik sangoqqajaasusarput, aqerlulli morujuttumik imaluunniit toqqiusartumik nuullit pulallaqqinnerup-put iluserleratillu saarngit aqusaartorsinnaanerusarlugit. Saarngit manngertut soorlu qaraterfik

imaluunniit qungasiminerit aallariarneqassappata aqerlut manngertumik poorsimasut morujuttumik nuullit atorneqartariaqarput. Taamaattorli Kalaallit Nunaanni piniarnermi patruunip qanoq ittuunissaa nalunaarut maannakkut atuuttoq malillugu Kalaallit Nunaanni inatsisiliornermi aalajangersarneqarsimangilaq.

*Aqerlut aqerlumik nuullit ilanngarniusallilluunniit assiliartaq 5, nuui aqitsuupput saviminermik poor-simallutik nuumigut ammasumik manngumigullu matoqqasumik. Taakku uumasumut tukkaangamik qaartartutut pupiusanngorlutillu siaartartutut isigineqarput. Uumasup timaa aqqusaaraangamikku angisuumik ikiliisarput, kisiannili saarnig itissuut manngertullu aqqusaaraangamikkit nungusarput aamma / imaluunniit tammittarlutik. Taamaammat aqerlunik nuullit arfeeqqanik arfeeqqanik qarasaroriaanermi atugassatut inassutigineqanngillat.*

*Aqerlut iluunngarmik saviminiusut, assiliartaq 5. Ilulissat taakku saffiugassanik sanaajupput aqerlumuillu nuulittut ilanngarniusalittullu siaartartuullutik taamaakkamillu arfeeqqat eqqaasanngikkaani arfernut naleqquttuunatik.*



*Assiliartaq 5. Assimi aqerlut assigiinngitsut takuneqarsinnaapput. Saamerlerniit: nuugissoq tamarmi manngersoq .308, aqerlumik nuulik .30-06, morujuttumik nuulik tamarmi manngertoq kaliber 9.3, kiisalu morujuttumik nuulik manngertoq .375. Assi: EO Øen*

## **QINNGUTIT NALUNAAQQUTALLU**

Aallaasit pitsaasunik nalunaaqutaqartariaqarput. Taakku ammasuukkajuttarput, nalunaaqutaqarlutik sippaqarlutillu. Taakku pisariitsuupput, ataatsikkullu pingasut isiginiartariaqartarlutik. Taakku atorneri ilungersunartuupput amerlaqisullu qinngutit nutaaliaasut atorumanerusarpaat (qinngutit, aappalaartumik toornillit), taakkulu atorlugit isiginiarneq ajornannginnerusarpoq. Qanoq annertutigisumik qanillititsisarnissaat nammineq aalajangerneqarsinnaavoq qinngutillu taamaattarlutik. Arfeerarniarnermili annerusumik qanillisaateqarnissaat iluaqutaanngilaq eqqoriagaq tammaaqajaanarnerummat.

Qinngutit sarfatortut (toornillit) toraarniakkap nalaani aappalaartortaqartarput. Qinngutit taama ittut nunani allani aallaasit atorlugit arfanniarnermi nalinginnaalersimapput.

Aqerlut assigiinngitsut assiginngitsumik ingerlasarput. Taamaammat piniarneq sioqqullugu aallaat patruuni atugassaq atorlugu tamatigut misilerarneqartariaqarpoq.

Qoorortuup aqerlui immami kigaallapallartarput qanorluunniit sakkortussuseqaraluarunik oqimaassuseqaraluarunillu apeqqutaatinnagu. Aqerlup qarasaruinissaa qularnaarumagaanni uumasup niaqua immamit nuisatillugu seqqortariaqarpoq.

### **QOORORTUUT PAARINEQARNERAT ASERFALLATSAALINEQARNERALLU**

Sakkut imaani atorineqartartut masattarput tarajunnittarlutillu. Aallaat manngertorneqqunagu salinneqartarluni uuliarneqartariaqavippoq. Aallaasip (savissaata, aalasuisa silataatalu) ullut tamaasa brstertarnissaat pisariaqarsinnaavoq. Paasat sinnikui kaattaaniittut, patruunip ikisarfianiittut kiisalu savissaaniittut annoraaminermik brstenilluunniit peertariaqarput (salittariaqarput) aallaat uuliarneqartinnagu. Aallaat sorujoqarpallaarpat imermik qalattumik qaqorsaammillu peerneqartariaqarput.

Aallaat atoqqilertinnagu savissaa kaattaalu uuliaarlugu orsuutaarlugulu salinneqartariaqarpoq itigartaqqunagu. Tamanna issittartumi pingaartorujussuuvoq. Aallaat ukiumut marluk-pinga-soriarlugu sukumiisumik salinneqartariaqarpoq uuliarneqartariaqarlunilu. Piffissani piniarfinni qassiini atorsimaguni aallaat sungiussisimasunit misissorneqartarnissaa inassutigineqarpoq.

Aallaat imaqartillugu qimanngisannaruk.

Qoorortoq atorineqanngippat magasina imaaruk peerulluunniit.

Aallaat mangertorneqqunagu akuttunngitsumik salittaruk uuliartarullu.

### **ITIGARTOORNEQ AALLAASILLU AJORTINNERA**

Ilaanni aallaat itigartoortarpoq. Pissutaakkajunnerpaat tassaapput aallaasip pitsaanngitsumik aserfallatsaalineqarnera imaluunniit ajoquteqalersimanera:

- Kaattaa aserorsimasoq ajortissimasorluunniit
- Kaattaata ajorinngujuitsua pitsaajunnaartoq
- Kaattaa orsumit paamilluunniit kigaallassimasoq
- Patruunip manguffia paalik orsulilluunniit.

### ***Kaattaa ammaruminaatsoq***

Kaattaqarfiata nikissinnaajunnaarnera imaluunniit amujuminaallinera **ULORIANARTUMUT ERSIUTAAVOQ** seqqornerup naqitsineqarpallaalersimaneranut takussutissaasinnaasoq. Suna ajoqutaanersoq paasineqartinnagu iluarsineqartinnagulu aallaat atoqqinneqassanngilluinnarpoq.

### ***Eqqumiitsumik nippannera ajattalernaluunniit***

Seqqornermi ajannera sakkukippat ajanngitsoorpalluunniit imaluunniit siggajoorpat patruunip ikkunerlunneranut aqerlullu savissamiiginnarneranut ersiutaasinnaavoq. Pingaartumik aallaasit eqittaannartakkat taamaalisoortarput. Taamaattoqarpasit seqqoqqitsigani aallaaseq imaarlugu savissaa qinnguarneqassaaq.

Seqquutigalugu siggajoorpat imaluunniit sodavandip ammarnerasut nipeqarpasit QULARNANNGILAQ AQERLOQ SAVISSAMUT KIGGUSSIMASOQ. Seqqoqqitsigani savissaa qinnguarneqassaaq.

“Marloriarpallannera” imaluunniit eqinneraniit seqqorneranut kingusippallaarpat ikinnerlussimasaaq.

### ***Uniortarnera***

- Patruunit pitsaanngitsut
- Ikkussornerlutaq imaluunniit aalasuisa aallaammut qajannaarluarsimannginnerat
- Masattarneratigut savissaq qisutnaanut nippussimasoq.
- Nalunaaqqutai inissinnerlutat
- Salinnerlutaq, savissaani aqerlumerngit, aqerlup qalliutai paasallu amiakullit.
- Savissaa uuliaqarpallaartoq
- Anoreqarpallaartoq aamma / imaluunniit nillerpallaartoq
- Aallaariartartoq pikkorluttoq

### ***Aallartoornerit***

Piaarinani seqqorneq tassa aallartoorneq. Silutsinneratigut eqittaata eqinneqanngikkaluartoq aallartoortoqarsinnaasarpoq. Sakkutuut aallaasaat eqittaannartakkat taamaalisoortarput, aammali aallaasit tamarmik kaattaat anillangasimasaraangata imaluunniit patruuni mangulluarsimanngit-taraangat taamaalisoortoqartarpoq.

### **ISUMANNAALLISAANERMI MALITASSAT**

- Aallaat imalittut isigalugu passunneqartuaannassaaq.
- Aallaat imaqartillugu qimanngisaannaruk.
- Aallaat erngerluni atorineqassanngippat imaavillugu imaartaruk.
- Sakkut manngertornileqqunagit itigartaleqqunagillu akulikitsumik salittakkit.
- Aallaat immernerani atorneranilu imaanut sammitinneqartuassaaq angallatip iluata tungaanuunngitsoq.
- Patruuni immersarfianut akimmisaarnani pulasinnaassaaq. Kaattaanik sakkortuumik pulatittariaqarpasit atortui ajornersut imaluunniit immersarfia / savissaa sorujoqarnersut imaluunniit patruunit eqqortut atorineqarnersut misissukkit seqqornermi savissaanut qaartoorutaasinnaammata.

- Seqqorluni ajatsinnera sakkukippat imaluunniit seersutut nipeqarpat imaassinnaavoq aqerloq savissamiit anisimanngitsoq. TULLISSAANNIK SEQQORTIGANI SAVISSAA ITSUARTARIAQARPOQ.
- Patruunip itigarneranut pissutaakkajunnerpaapput aallaasip paarilluarneqannginnera imaluunniit kaattaata orsortanissimanera paggersimaneraluunniit.
- Aallaat immerneqarnermini aallartoorpat kaattaata orsumik / paamik pissuteqarluni tamakkii-sumik utimut pulakarsimasinnaajunnaarnera patsisaasinnaavoq

### **PINIARNERUP KINGORNA**

Arfeerarniarnerup kingorna sakkut tamarmik tullissaanik piniarnissamut piareersarneqassapput. Arlut avatallu salinneqassapput qajannaarsoqqinneqarlutillu. Tuukkaq aallaasillu ingutserneqassapput, misissorneqarlutik, salinneqarlutik, panerserneqarlutik pisariaqarpallu tuukkat ipissarneqartariaqarlutik. Taava saveqqinneqassaaq tullissaannik piniarnissamut piareerlugu.

### **SILLIMMATIT**

Periarnermi siullermi arfeeqqap toqunngitsoornissaanut toqulluarneranilluunniit nalornisoornissamut sillimmasoqartarpoq. Arfeerarniarnermi toqutsinissaq imaluunniit piniakkap toqutsinnagu tuukkarterneqaaqaarnissaa apeqqutaalluni qoorortoq unaarluunniit atorneqartarput.

Arfeeraq ikiligaaq qimaanialerpat toqunnissaa anguniarlugu piniartoq pisariaqartunik tamanik ili-uuseqartariaqarpoq.

### **ARFEERARNIARNERMI SAKKUNIK PITSANNGORSAANEQ**

Kalaallit Nunaanni atortorissaalerialtorneq ilutigalugu tuukkat unaallu saviminiusut atorneqalersimapput. Taamaalliluni unaaq oqimaannerulerpoq taamalu ilorparluarsinnaanerulerluni. Taamaalliluni unaaq arfeeqqanut kiveqqasunut aamma atorneqarsinnaalerpoq, assiliartat 6 aamma 7.



Assiliartaq 6. Unaaq saviminiusoq. Unaartaa tuukkaalu saviminermik sanaajupput. Taamaalilluni unaaq oqimaannerulerpoq taamalu ilorparluarsinnaanerulerluni. Assi: P. N. Hansen.



Assiliartaq 7. Unaaq saviminiusoq. Taamaalilluni unaaq arfeqqanut kiveqqasunut aamma atorreqarsinnaalerpoq. Assi: P. N. Hansen.

Pitsanngorsaaitit allat tassaasimapput patruunit pisiassat pitsaanerusut, qoorortuut nutaat kiisalu alernik ninngunerusunik atuisalernerq, umiatsiat pitsaanerusut aammalu GPS-it. GPS-it kingullermik pisarfiusumut ingerlanermi atorreqartarput aammalu arferup qaqugukkut pueqqinnissaanut ineraaniarnermut atorreqartarluni.

## **UUMASUT SORLIIT SUKKUT EQQORIARNISSAAT**

Niisanik, aarluarsunnik, niisarnanik kiisalu aarlunnik piniarneq assigiissuteqaqaat amerlanertigullu ataatsimoorluni piniarneqartarlutik. Arfeqqat takuneqaraangamik sanilingersorlugit qanillat-torneqartarput. Seqinnertillugu seqineq tunullugu orninneqartarput taamaalilluni aqqarnerat takujuminarnerussammat.

Sakiaroriarnissaat siunertaasarpog (Assiliartaq 8) uummaterlugu, puarorlugu (aavisa ingerlaarfii eqqorlugit) imaluunniit qimerlororlugu toqukkumallugu. Amerlanertigut 5-30 meterinik ungasitsigalugu aallaariarneqartarpoq. Eqqorluaruniuk piniartup pisani kivitinnagu tuaviorluni nissinniassavaa (4-7 meteriusumik). Naparutaata kingornagut eqqorlugu erngerluni toqukkajunngilaq, unittarporli tiguneqarsinnaanngorlunilu.

Niaqororlugit (sianiuteqarfii eqqorlugit) erngerlugit toqukkajuttarput, piniartulli taamaalinaveersaartarpaat annaajumanagit. Arfeq avaarneqaruni erngerluni kivikkajuttarpoq nissitsinnagulu annaaneqarataannaalluni. Niaqorukkat sakkortuumik aalasut piniartunit aamma naammattorneqartarput, taamaalinerallu piniartumut navianarsinnaavoq angallammillu innarliisinnaalluni – taamalu annaanissaa ilimanarnerulersinnaalluni. Taama pisarnerannut nassuiaatissat arlaliusinnaapput, tamarmilli eqqoriaanerinnaallutik.

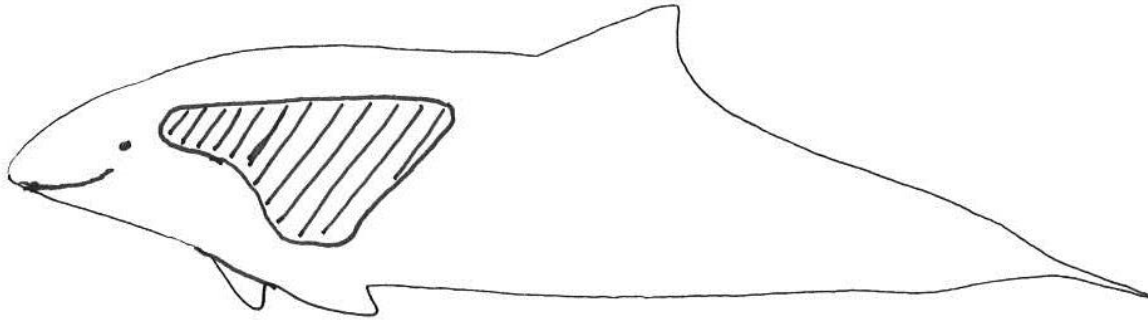
ATAATSIMOORLUNI MALERSORNERMI PINIARTUT ASSORSUAQ MIANERSORTARIAQARPUT  
AJUTOORTOQAQQUNAGU, TASSA TOQQAANNARTUMIK AALLAANNITTOORNIKKUT IMALUUN-  
NIIT AQERLUP TAMMINNERATIGUT, AAMMALI ALLAT PINIARNERINUT AKORNUSERSUINAVEER-  
SAARTOQASSAAQ.

AQERLUT TAMMISSINNAANERAT PINIARTUP ILISIMASARIAQARPAA.

### **NIISAT, ASSILIARTAQ 8**

Imaani qoorortuut atorlugit umiatsianit ammaannartunit sakkortuumik motorilinnit piniarneqartarput. Piniarnermi umiatsiat arlallit peqataakkajupput, piniarnermili aalajangersimasumik naalagaqarneq ajorput. Taama ataatsimoorluni piniarnermi piniartut assorsuaq mianersortariaqarput,

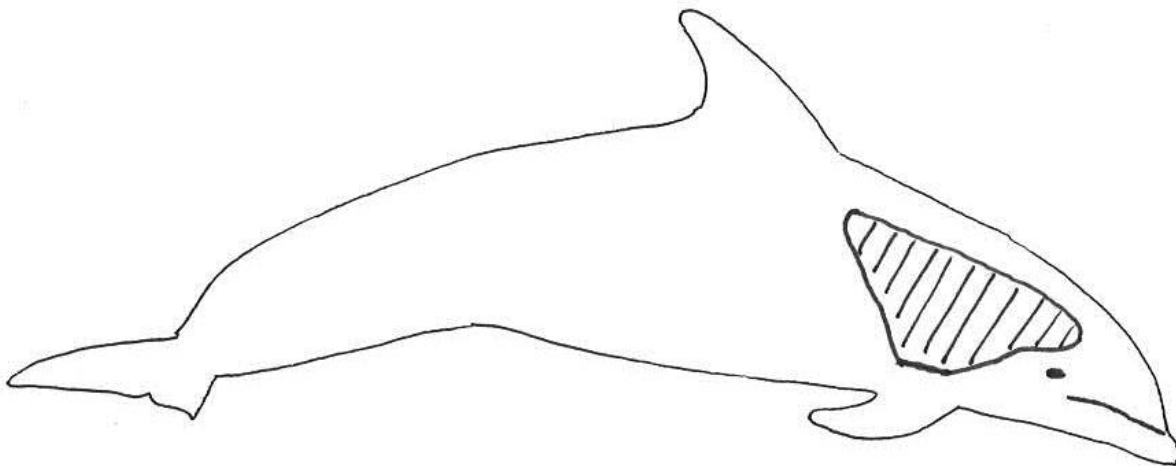
Aqerlut atorpeqartartut .222-iusarput saviminermik tamakkiisumik poorsimasut. Sukkaqimmata qanimoorniarnegartarmatalu nalunaaquttat ammaannartut atorumanegarnerusarput. Qangaanerusoq timmiarsiutit 12-erit 16-illu atorpeqartarsimapput, toqunniarneralli sivisunerusarmat atorumaneerupput.



*Assiliartaq 8. Niisat eqqoriarfissaat nigalimmik nalunaaqutsersimapput. Arfeeqqanik piniarnermi periaatsinik naliliillutik NAMMCO-p immikkut ilisimasalittaasa 15-17 November 2011 ataatsimiinnerannit.*

#### **AARLUARSUIT QAQORTUNIK SANERALLIT QAQORTUNILLU SIUNILLIT, ASSILIARTAQ 9**

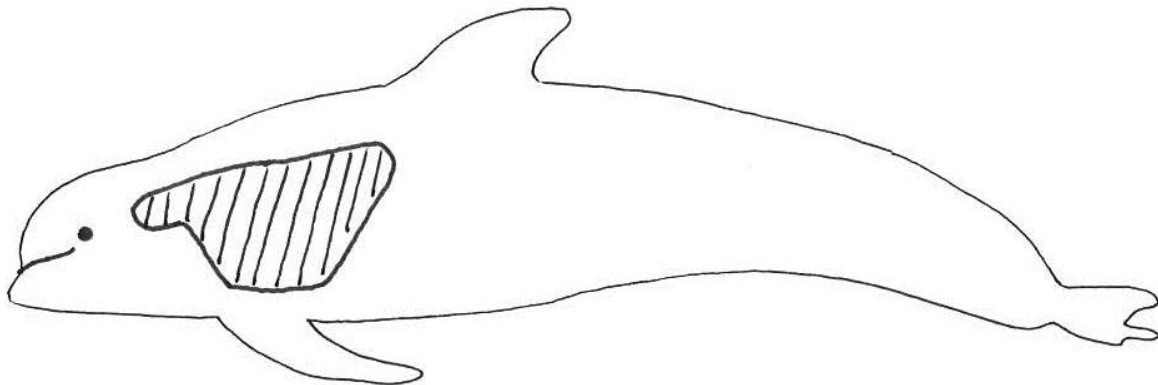
Anginerunerat pillugu kaliber 30-06 saviminermik tamakkiisumik poorsimasut atorpeqakkajupput.



*Assiliartaq 9. Aarluarsuit qaqortunik sanerallit qaqortunillu siunillit eqqoriarfissaat nigalimmik nalunaaqutsersimapput. Arfeeqqanik piniarnermi periaatsinik naliliillutik NAMMCO-p immikkut ilisimasalittaasa 15-17 November 2011 ataatsimiinnerannit.*

#### **NIISARNAT, ASSILIARTAQ 10**

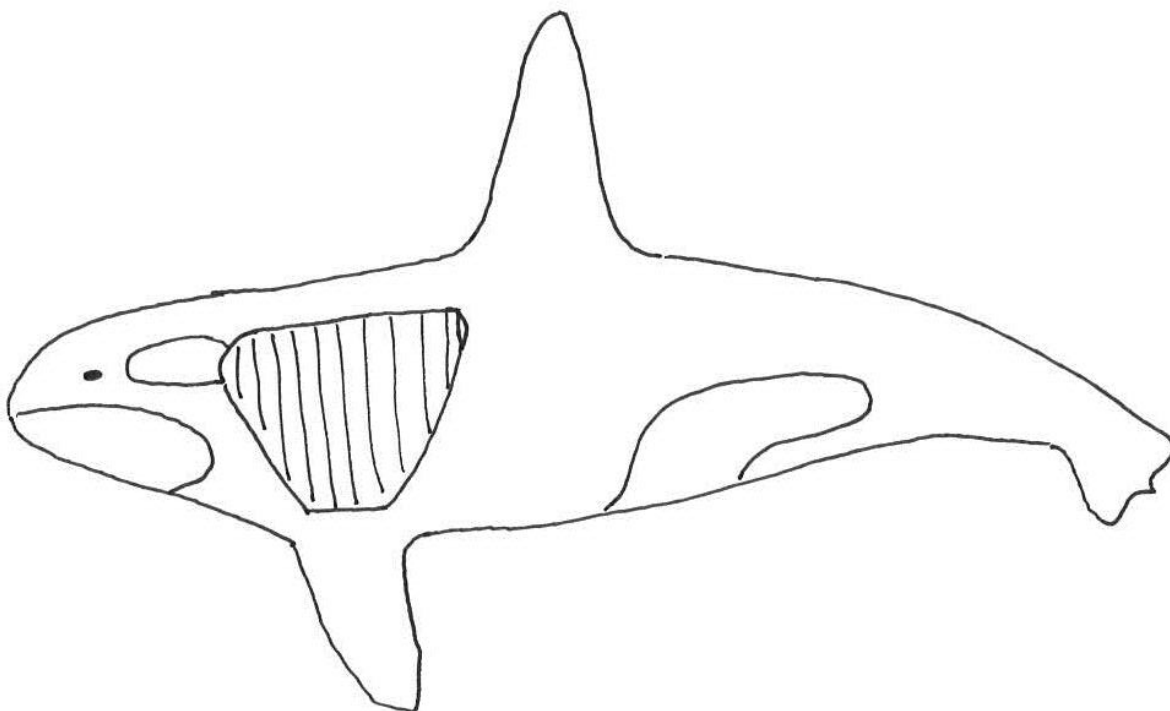
Niisarnat ataatsimooqqissaartarnerat pillugu niisanut aarluarsunnullu sanilliullutik piniaruminartupput. Patruunit atorpeqakkajuttut tassaapput .30-06 saviminermik tamakkiisumik poorsimasut.



*Assiliartaq 10. Niisarnat eqqoriarfissaat nigalimmik nalunaaqqutsersimapput. Arfeeqqanik piniarnermi periaatsinik naliliillutik NAMMCO-p immikkut ilisimasalittaasa 15-17 November 2011 ataatsimiinnerannit.*

#### **AARLUIT, ASSILIARTAQ 11**

Aarluit umiatsianik ataatsimoorullugit piniarniakkajupput. Qoorortuut minnerpaamik kaliber .30-06 saviminermik tamakkiisumik poorsimasut sakkugineqakkajupput.



*Assiliartaq 11. Aarluit eqqoriarfissaat nigalimmik nalunaaqqutsersimapput. Arfeeqqanik piniarnermi periaatsinik naliliillutik NAMMCO-p immikkut ilisimasalittaasa 15-17 November 2011 ataatsimiinnerannit.*

## **QILALUKKAT QERNERTAT ASSILIARTAQ 12 AAMMA QILALUKKAT QAQORTAT ASSILIARTAQ 13**

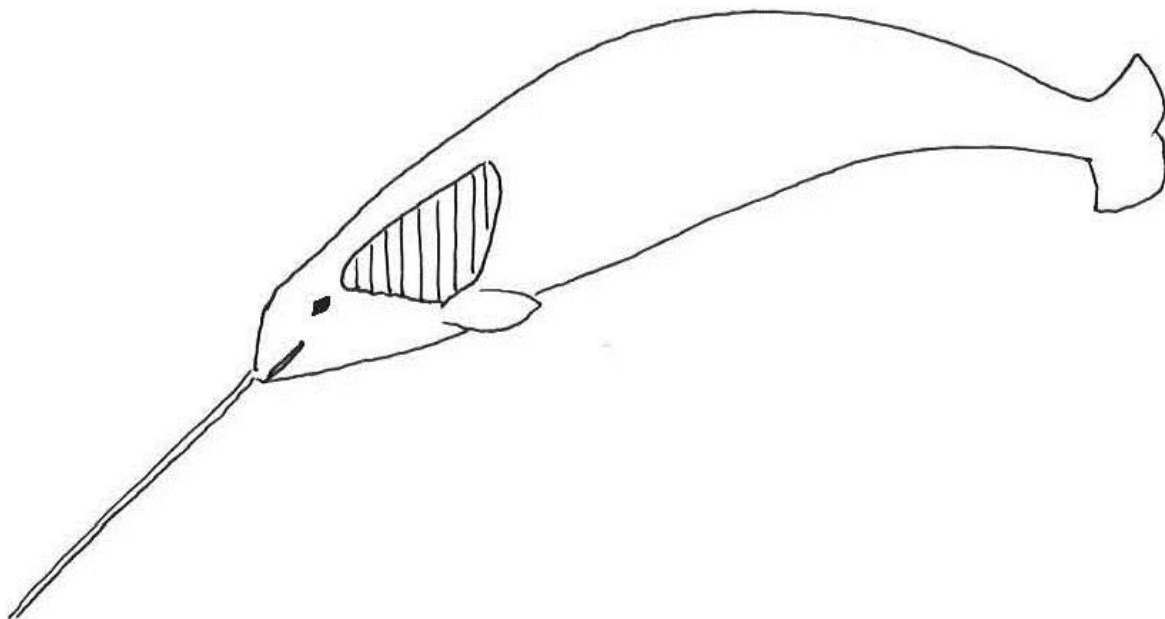
Qilalukkat qernertat qaqortallu qaannaaniit naalillugit umiatsianiillu qoorortuumik piniarneqartarput. Aammattaaq avannaani tunumilu piffinni qassissunnguani kommunimi ileqqoreqqusa-tigut malittarisassaqaartitaasumik qaattarneqartarput.

Kalaallit piniartortaasa qangatut piniariaatsit aammalu killilersuineri malittarisassat ataatsimoor-tillugit atukkajuttarpat. Assersuutigalugu, Qaanaap, Upernaviup Uummannallu kommunerisi-masaani malittarisassiortoqarsimavoq piniarnermi qaannat unaallu kisiisa atorineqartussanngorlu-git, taamalu pisat killilersimaarneqartarput. Qilalukkat unguninikkut, nunamut sikumulluunniit un-goorinikkut piniarneqaqqusaanngillat.

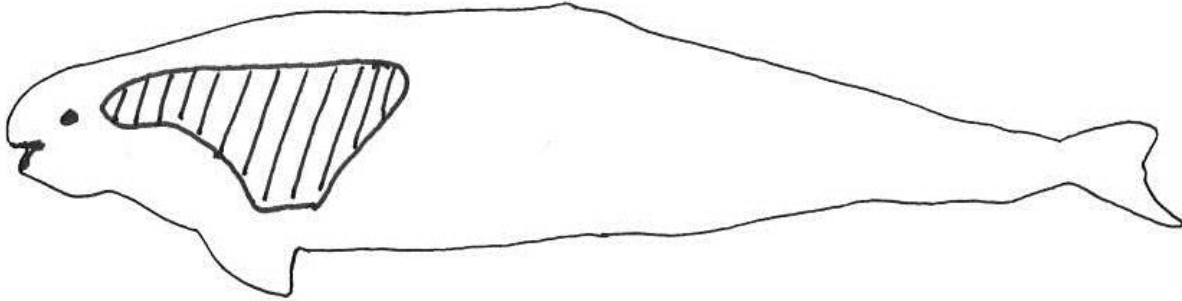
### **UMIATSIANIIT QOORORTOORSORLUNI PINIARNEQ**

Qilalukkat qernertat qaqortallu assigiinngitsunik puisarput, qernertat qaqortaniit puianginneru-sarput. Imaani quppanilu piniarneqartarput. Qilalukkat avatartalinnik naaleqqaarneqartarput taa-valu kaliber 30.06/.375-inik saviminermik qalinnik aallaaneqartarlutik.

Qilalukkat saneraaniit aallaaneqartarput (Assiliartaq 12 aamma Assiliartaq 13). Annermik qarasaror-niarneqartarput, aammali qungasii uummataallu eqqoriagassatut isigineqartarlutik. Toqunerinut ta-kussutissaatinneqartarput puaasaliorneri, taleruisa alleruisalu qasukkarneri. Qilalukkat toqugaangata sarpiisigut nigarlugit kivinaveerneqartarput.



*Assiliartaq 12. Qilalukkat qernertat eqqoriarfissaat. Qarasaasa, qungasiisa uummataasalu nalaat nigalimmik nalunaaqutsersimapput. Arfeeqqanik piniarnermi periaatsinik naliliillutik NAMMCO-p immikkut ilisimasalittaasa 15-17 November 2011 ataatsimiinnerannit.*

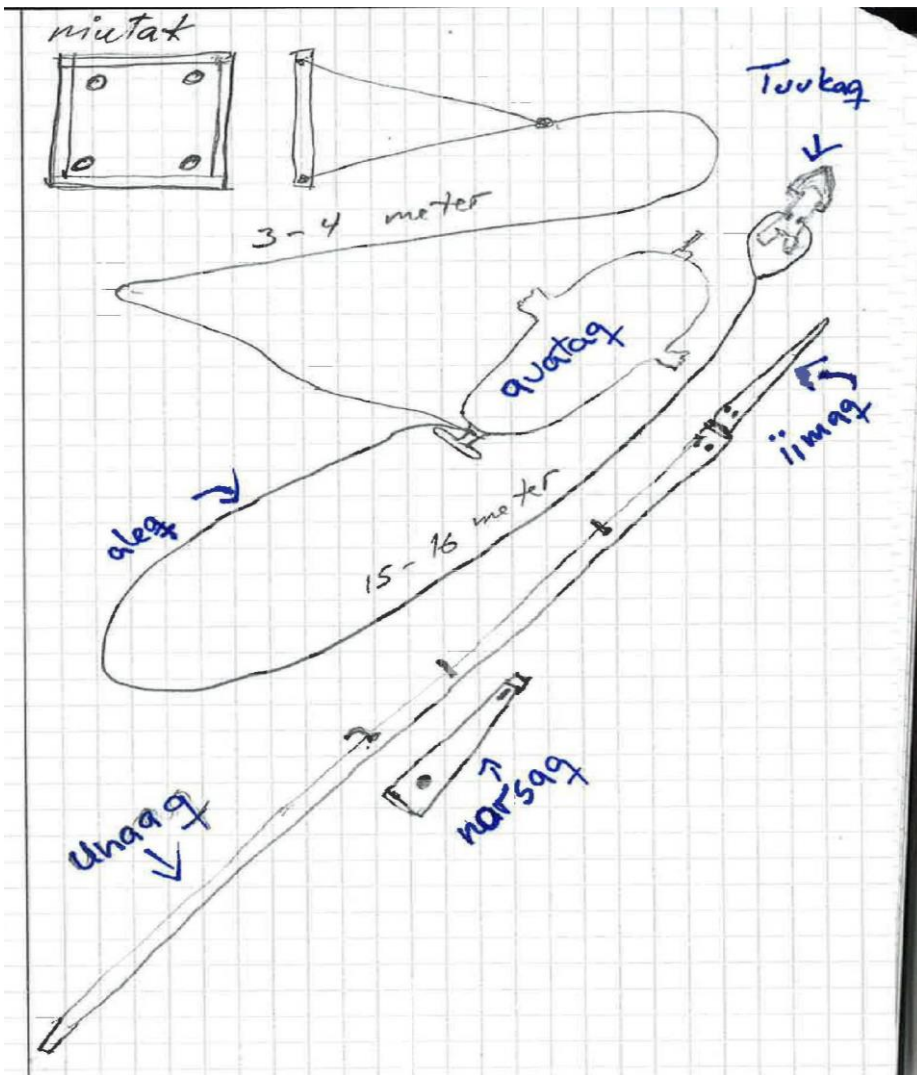


*Assiliartaq 13. Qilalukkat qaqortat eqqoriarfissaat. Qarasaasa, qungasiisa uummataasalu nalaat nigalimmik nalunaaqutsersimapput. Arfeeqqanik piniarnermi periaatsinik naliliillutik NAMMCO-p immikkut ilisimasalittaasa 15-17 November 2011 ataatsimiinnerannit.*

### **QAANNAMIK NAALINNIARNEQ**

Taama piniarnerit Avannaani maajip qeqqaniit septemberip qeqqanut ingerlanneqartarput. Isumannaallisaaneq pillugu piniartut marluk ikioqatigiittarput kisimilluni qajartorneq ulorianarsinnaammat. Qilalukkat kalerrickumanagit piniarnermi uani pineqartumi nipaarsarneq takulliinaveersaarnerlu pingaaruteqarput Piniartut sissamiit qilalukkat takugunikkit qaannamik avalakkasuassapput. Unaat ungasinnerusumut naaligiukkumallugit norsallit atorneqartarput. Unaaq qisuuvoq tuukkarlu saviminermik manngertorniuitsumik aarrullu tuugaavanik sanaajusarluni. Unaap arlanut 15-16 meteriusumut atasarput avataq niutallu qisummik annoraaminermillu sanaaq.

Qilalugaq naalillugu avatartalerneqaaqqaassaaq, assiliartaq 15 taavalu pueqqippat kaliber 30.06 imaluunniit .375 saviminermik tamakkiisumik poorsimasoq atorlugu aallaaneqassalluni. Qarasaatigut, qungasiatigut uummataatigulluunniit aallaariarneqartarpoq. Toqugaangat sissamut sikulluunniit sinaanut amuneqartarpoq pilatassanngorlugu allatullu suliareqqitassanngorlugu.



Assiliartaq 14. Kalaallit Nunaanni qajaq atorlugu arfeerarniarnermi atorneqartartoq unaaq ator-  
tuilu. Arfeeqqanik piniarnermi periaatsinik naliliillutik NAMMCO-p immikkut ilisimasalittaasa 15-17  
November 2011 ataatsimiinnerannit.



*Assiliartaq 15. Avannaani qaannamik qernertanik qilalugarniarneq. Qaannap talerpiata tungaaniipput avattat. Photo: P. Hegelund.*

## **QAATTARNEQ**

Taama qangatut qilalukkanik qernertanik piniartarneq Tunumi avannaanilu taamaallaat ingerlanneqartarpoq kommunip ileqqoreqqusai naapertorlugit kaperlannerinnaanilu assorsuarlu sikoqarnerani atorineqartarluni.

Qassutit imaani sikumiluunniit nivinngarneqartarput. Qassutit 10 meterinik itissuseqartarput 30-40-inillu takissuseqarlutik, 380 mm-inillu nigartussuseqarlutik. Qassutit wiremik kalunnernilluunniit nunamut qajannaarneqartarput aammalu isannikkaanik avatsersorneqartarlutik. Qassutit naqqi qajannaaruserneqaratik ujaqqersuinnarneqartarput. Ilaatigut qassutit illui aamma kisaaserneqartarput. Allunaasat aqerlortallit naqqani aamma atorineqartarput.

Qassutit ullut tamaasa alakkarneqartarput uumasuukkallu aallaaneqartarlutik.