

Whale killing methods and associated welfare issues in Greenland¹

(Submitted by the hunter's organisation and the Ministry of Fisheries, Hunting and Agriculture, Greenland Home Rule Government)

Introduction: The hunt of marine mammals has always been an important part of the culture of Greenland. In earlier days, whaling was essential for survival. In modern Greenland, hunting still has considerable socioeconomic importance, and whale products are necessary food items.

At the moment, all the large whales of Greenland are protected, except for fin and minke whales. Management advice for the hunt of large whales is given by the International Whaling Commission. The Ministry of Fisheries, Hunting and Agriculture decides how many animals may be caught in each municipality. The municipal authorities divide the quotas among the full-time hunters that fulfil the requirements demanded by the law and have applied for licences to catch whales.

Hunting methods: There are three types of whaling of large whales in Greenland: hunting of fin whales with harpoon, hunting of minke whales with harpoon and collective hunt for minke whales. Regardless of the type of whaling, at the first high tide after a hunt, whale carcasses are dragged into shallow waters, where they are flensed during low tide.

Fin whale: Fin whales are caught in West Greenland, south from Uummannaq. They are caught either by two boats of a minimum length of 30 ft working together, or by one boat of a minimum length of 36 ft. Each boat should be equipped with one certified harpoon cannon.

The primary weapon is a harpoon with the Norwegian penthrite grenade "Whale Grenade 99". This grenade was originally produced for hunting minke whales, and it has been modified for the hunt of fin whales by extending the triggering cord to a length of 60 cm.

The secondary weapon is the same as the primary weapon.

Gunners shoot in the heart and lungs region by aiming at an area in front of the pectoral fins.

Minke whale with harpoon: Minke whales are caught with harpoon in West Greenland, south from Uummannaq. The minimum boat length is 30 ft. As with the fin whale hunt, the harpoon cannons used to hunt minke whales should be certified and checked every other year. The majority of the minke whales are taken by this method.

The primary weapon is a harpoon with a "Whale Grenade 99". The length of the triggering cord is 50 cm. As with fin whales, gunners aim at the region in front of the pectoral flippers, in order to damage the heart and surrounding areas.

The secondary weapon is either a harpoon with the "Whale grenade 99", or riffles of a minimum calibre of 7.62 mm (30.06) and full mantled bullets. Some hunters use round-nosed bullets together with riffles with higher calibre (.375), due to their better penetration. Shots are aimed at the head, in front of the animal's neck.

Collective minke whale hunt: The collective minke whale hunt takes place in settlements where boats with harpoon cannons cannot satisfy the demand for fresh whale meat. The collective minke whale hunt is the only hunt of large whales in areas where there are no boats with harpoon cannons, such as East Greenland and West Greenland north of Disko Bay. In 2005, only 27 % of the minke whales taken in Greenland were taken by the collective hunt.

A minimum of 5 skiffs have to participate in the hunt. Boats of larger size without harpoon cannon can also take part. These are usually small fishing boats. Each boat has to be equipped with at least one hand harpoon with line and buoys. This harpoon is attached to the whale at the first opportunity, to prevent the animal from sinking.

The only weapons of the collective minke whale hunt are riffles of calibre of 7.62 mm (30.06) or larger and full mantled bullets. As a rule, the whales are first wounded and then secured with the hand harpoons. When possible, the hand harpoon is used before wounding the animal. Once a whale has been secured, it is killed by shoots aimed at the head. Round-nosed bullets together with riffles with higher calibre (.375) are often used to kill the whale.

¹ Related documents: Document IWC/58/INF 5 describes the allocation and control of quotas. Documents IWC/58/WKM&AWI 3, IWC/58/WKM&AWI 4 and IWC/58/WKM&AWI 5 deal with welfare related issues. Catch statistics for 2005 are described in documents IWC/57/WKM&AWI 6, as well as in the report to the Infractions Sub-committee and in the Denmark Progress Report.

Education for whalers: A special course is obligatory in order to buy, handle and use harpoon grenades. Harpoon grenades can only be purchased after showing the certificate of this course, together with the licence for whaling. Licences for taking whales with harpoon are given only to boat owners who have taken the course, or have at least one member of their crew who has taken the course.

The harpoon grenade courses are organised by the hunters organisation in cooperation with the Department of Fisheries, Hunting and Agriculture and take place one or more times per year, depending on demand. The programme of the course includes the mechanics of the “Whale grenade 99”, security aspects, mounting of harpoon, storage and handling of the grenade, as well as operation of the harpoon cannon.

The harpoon cannons are checked every other year by persons who have taken a course on mounting and renovation of harpoon cannons. Courses on mounting and renovation of harpoon cannon are organised by the hunter’s organisation in cooperation with the Department of Fisheries, Hunting and Agriculture. Their frequency depends on the demand. The course can be taken by persons who have completed a technical education on welding and working with metal, and are employed in a mechanical workshop approved for the mounting and checking of harpoon cannons. In order to be approved, the workshop needs to have specific machines and tools, as well as reserve parts needed for mounting and renovation of harpoon cannons.

Other courses organised by the hunter’s organisation include the use of marine radio, maritime skills, security at sea and arctic survival. A course on the working environment on boats is under preparation.

Without doubt, the most important school is hunting throughout a lifetime with experienced teachers and companions.

Reporting system: After a whale has been caught, the hunter has the obligation to deliver a catch report to the municipal authorities. This catch report contains information about the place where the animal was caught, the approximate size of the animal, sex, reproductive state of females, weapon used to kill the animal, estimated time to death, etc. Although it is obligatory to present a catch report, this is a self-reporting system, since there is no external control over the accuracy of the data provided by the hunters.

Most hunters take this reporting system seriously and provide accurate data.

Death or unconsciousness and Time to death (TTD): A whale is considered dead when it stops swimming, does not move and the flippers are still. It can be difficult to estimate the exact moment of death or unconsciousness because the minke whales tend to sink as soon as they are dead.

The catch reports show that the times to death vary according to the hunting method (table 1).

Table 1. Time to death (TTD) for each method used to hunt large whales in Greenland, from data reported by hunters in 2005 (N = 197 reports).

	Harpoon cannon fin whale	Harpoon cannon minke whale	Collective minke whale hunt
Number of TTD reported	10	122	44
Whales killed within 1 minute	0	34 (28 %)	1 (2 %)
Whales killed within 5 minutes	5 (50%)	80 (66%)	5 (11%)
Average TTD	26 min	6 min	21 min
Median TTD	10 min	4 min	20 min
Maximum TTD	120 min	30 min	90 min

In 2005, TTD data was provided for 10 fin whales. Half of those whales died within 5 minutes of the first shot. The minimum TTD was 3 minutes, the median was 10 minutes, the average was 26 minutes and the maximum was 120

minutes (table 1). This maximum value was unusual, and it was due to a penthrite grenade failing to explode after being shot into the whale. The fin whale, which was large and strong, broke the harpoon line and it took a long time before the boat could approach close enough to shoot a second harpoon grenade. The second grenade did explode, but failed to kill the whale. Eventually, the whale was killed after shooting it a third time, this time with a home made cold harpoon.

In 2005, 122 reports included TTD for minke whales killed with harpoon. 28% were killed within one minute, 66 % died within 5 minutes, the median TTD was 4 minutes, the average was 6 minutes and the maximum was 30 minutes (table 1).

In the same year, hunters reported TTD for 44 minke whales taken by the collective hunt. According to those reports, 2% of the minke whales died within one minute, 11% died within 5 minutes, the median TTD was 20 minutes, the average was 21 minutes and the maximum was 90 minutes (table 1).

The development of TTD for the three hunting methods in the years 2001 to 2005 is shown in figure 1.

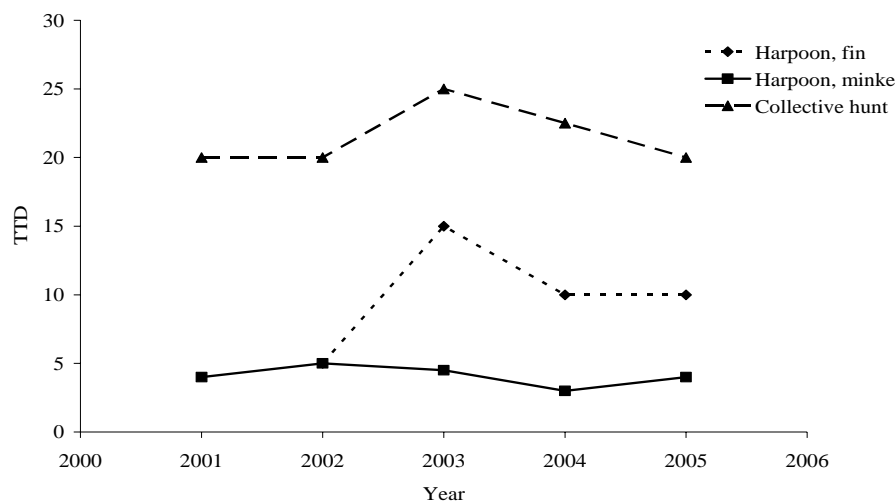


Figure 1. Time to death (TTD), in minutes, for fin whales caught with harpoon cannon (diamonds, dotted line), minke whales caught with harpoon cannon (squares, solid line) and minke whales caught in the collective hunt (triangles, striped line), for the years 2001-2005. The figure is based on 779 catch reports.

Whales struck and lost: Reporting of struck and lost animals is obligatory in West Greenland, where all animals that have been hit count as part of the quota. In East Greenland, where no more than a few minke whales are caught every year, only the landed animals are taken from the quota, and reporting of struck and lost is also mandatory.

In 2005, 13 fin whales were caught in West Greenland, and there were no reports from the hunters of animals struck and lost. Nevertheless, one fin whale was struck, lost and found dead later. This unreported case of struck and lost is being investigated by the police.

In 2005, 132 minke whales were taken with harpoon in West Greenland. There were no reports of struck and lost animals for this method.

There were 48 reports of minke whales taken by the collective hunt in 2005, including 4 whales taken in East Greenland. Three animals, all in west Greenland, were reported as struck and lost. The reason for loosing the animal was given in two of these cases. In both cases the weather turned for the worse during the course of the chase. One of the reports mentioned that the animal was only slightly wounded and was likely to survive.

Improvement of killing methods: There are no clear trends on the median TTDs for fin whales from 2001 to 2005 (fig. 1). However, the lower TTDs reported in 2002 suggest that the TTDs can potentially be shorter than in the other three years.

The majority of minke whales shot with harpoon died within five minutes, and several animals died within 1 minute. Furthermore, during the five years analysed in this report, the median TTD for minke whales killed with harpoon

cannon has been five minutes or less. These results are encouraging, and suggest that improving hunter's skill through training with harpoon cannon may be a way to further reduce TTD for minke whales taken with harpoon cannon. Training with riffle as secondary weapon, and experiments with different type of ammunition may help to reduce the killing time of whales that do not die instantly.

Of the three methods used to catch large whales in Greenland, the collective hunt has the longest TTD and the higher rates of struck and lost animals. TTD could be improved by changing the type of ammunition or increasing the calibre of the riffles. However, more effective weapons may lead to animals dying and sinking before they can be secured with hand-harpoons attached to lines and floats; a reduced TTD may lead to an increased struck and lost rate!

The collective hunt is vital for the survival of several hunters and their families, and is especially important in the more remote settlements of Greenland, where there are no boats that can hunt large whales with harpoon cannon. Therefore, any measures to improve the killing methods used in the collective hunt should take the hunters into consideration and should be economically viable.

When it comes to struck and lost rates, the performance of harpoon grenade as hunting method for catching minke whales is highly satisfactory. Struck and lost fin whales do occur occasionally. However, present and past experiences suggest that struck and lost is not a large problem with this species.

NAMMCO's committee on hunting methods is organising a workshop on struck and lost, to be held in Copenhagen in November 2006. Participation in this conference is likely to help towards improving the rates of struck and lost experienced in Greenland.

During the winter 2006 – 2007, Greenland would like to organise a seminar for Greenlandic hunters to discuss and learn about TTD. It is our hope that the effects of this seminar, as well as the NAMMCO workshop and the IWC workshop on killing methods and associated welfare issues can be measured on the catch statistics from Greenland in the years to come.