

This paper not to be cited without prior reference to the authors

International Council for the
Exploration of the Sea

C.M. 1977/N:16
Marine Mammals Committee



Tagging and recapture of ringed seal
(Pusa hispida)
in Northwest Greenland

Jens Christiansen
Grønlands Fiskeriundersøgelser
Jægersborg Allé 1 B
2920 Charlottenlund
Denmark

Finn Jessen Jensen
Kraulshavn
3962 Upernavik
Greenland

Abstract

In the autumn of 1976 field work was carried out in the Upernavik district, Northwest Greenland on the behaviour of the ringed seal (*Pusa hispida*) during the time of freeze-up. At the same time 22 young seals were tagged and released, 11 of which have been recaptured.

The procedure of the tagging is described in this paper as well as a suitable net.

It is proposed that the high proportion of seals being recaptured is to be explained in the following way: a substantial part of the winter catch in the Upernavik district originates from the Melville Bay north of it.

Résumé

En automne 1976 une étude sur le terrain a été exécutée dans le district d'Upernavik du Groenland du Nord-ouest sur le comportement du phoque marbré (*Pusa hispida*) pendant la saison des premiers gels. A cette occasion, on a marqué et ensuite relâché 22 jeunes phoques marbrés dont 11 ont été rattrapés plus tard.

La méthode du marquage est décrit dans ce papier ainsi qu'un filet approprié à la capture.

On propose que la grande proportion de phoques qui ont été rattrapés s'explique par ce qu'une partie considérable de la chasse d'hiver dans le district d'Upernavik provient de la baie de Melville au nord.

Introduction

In the years 1974 to 1977 the Danish Natural Science Research Council arranged for investigations of the populations of the Ringed Seal in Greenland (Grant No. 521/9-3).

It was decided to confine the investigations to the northern part of the Upernavik district, Northwest Greenland. This area was chosen mainly because the ringed seal is very common in this area, and still plays a very important part in the local economy.

During field work on the number of seals hauling up, several hunters were interviewed. They claimed that the number of seals to be found in the district changes considerably from one season of the year to another.

To get an impression of the size of the fluctuations, it was decided to follow the course of events during and under the break-up of the ice when the seals were said to disappear (see ICES CM 1977/N:17) and to try to make observations on their return in the autumn. Further it was the intention to capture some of the seals alive, if possible, for tagging.

Material and methods

The tagging of the seals was performed from a 36' cutter, normally used for hunting purposes, and it took place in the period from 26/10 to 9/11 1976.

The nets used were made of monofilous nylon, and had a mesh width of 150 mm. One net measured approximately 100 m., but usually they were gathered in up to 500-meter long entities. Rings of foam plastic were used as floats.

Two different ways in which to place the nets were tried out. Some were fastened to the shore with a rope, and the nets were placed at right angles to land while a stone was used as an anchor

at the uttermost end. Others were placed without any connection to the shore; stones, however, functioned as anchors at both ends. The most common placing of the nets was in a ridge made by the boat in new ice being only a few days old.

The nets were newer so tight that they prevented the seals from getting to the surface to breathe.

The tags used were "Jumbo Rototags", kindly supplied by Havforskningsinstituttet of Bergen, Norway. They were placed in the hind flipper. In some cases the hunters which recaptured the animals returned the whole flipper with the tag to us. An examination showed no signs of the flipper being injured by the tag.

The performance of the nets

It was quite clear that in the daytime the seals were able to avoid the nets. Direct observations during the work with the nets revealed that "curious" seals were swimming frankly about examining the nets and the boat. On account of this the seals were caught during the night. There was, however, two exceptions, one seal being caught in a net close to the shore on a cloudy day, and the other one, already tagged, on its way out into the sea after being released.

The nets with the best performance were those placed in thin ice only a few days old (maximum thickness 2-3 cm.). On warm days with no ice-forming the catch was poor.

It showed up that a seal being entangled in a net did not prevent other seals from getting caught. On the contrary we often found more seals in the same net close to each other.

The tagging

It proved impossible to watch the nets in the dark hours why most of the work had to be performed in the sparse daytime.

The tagging was made while the seals were still entangled in the nets. This enabled us to handle the animals quite easily while tagging and examining the claws for age marks and determination of sex. Though most of them quite lively, only two of the animals were aggressive. The seals were the most quiet when the position of their head permitted them to see the water. A total of 22 seals were tagged.

After the tagging the netmeshes were cut to set the seals free as a disentanglement without damage to the nets is hardly possible.

One of the captured seals was observed to bleed from the nose. This specimen, however, was later recaptured, and thus did not seem to have been seriously hurt.

Loss of seals

As in other tagging experiments there was a substantial loss of animals (at least from the tagging point of view). The dead seals constituted 42% of the total catch, the explanation being the following:

- 1) On windy days icefloes of different thicknes were drifting over the nets. Some of the floes got stuck in the net, and if they were to thick for the seals to break, the animals drowned.
- 2) Currents and wind would force small icebergs and icefloes into the nets. In some cases the pressure tightened the nets so much that it became impossible for the captured animals to get up to the surface to breathe.

Recaptures

Until the end of August 1977 eleven of the twentytwo seals have been recaptured by the local hunters. Out of these, 7 were

caught south of the tagging locality, most probably all in nets below the ice, although not all of the hunters have yet supplied information on this. One was caught in nets below the ice north of the place while the remaining 3 were shot during haul-out, one of them in almost the same area where it was tagged, the two others north of this position.

The localities for tagging and recapture are indicated on fig. 1.

Discussion

The hunters report that the seals in the district go north in the summer time when the ice breaks. This was confirmed during the field work in the summer of 1976. In the autumn, the hunters say that the seals come back to the area from the north and from the "vestis", the ice drifting far out in the Baffin Bay. Only a few old animals are said to stay in some of the fjords throughout the summer.

This information was verified during our work. The seals came as a "wave" along the coast at almost the same time as the ice was forming more densely. It looks as if the seals prefer to keep close to the newly formed ice, although there seems to be no simple reason for this.

Judged from the claws, the animals caught by us were most likely all (except maybe for a single specimen) born in the same spring. This is in agreement with the findings on basis of age determinations of the winter time catch in the area (still unpublished). Most of the catch consists of young animals, the old ones being caught in big numbers during haul-out time only. Whether the old seals are able to escape the nets or do not occur in the hunting area is still to be solved.

The rather small number of animals tagged calls for circumspection in the conclusions. It is, however, suggestive that 6 out of 7 animals were caught during the winter period south of

the place of tagging. This would be in accordance with the assumption that the ringed seals are heading south at this time of the year. The more northerly catches in the haul-out period could be explained by a migration along the ridges formed in the area, although it is perfectly clear that more investigations have to be carried out in this respect.

If the assumption is right that a rather big migration of seals to and from the hunting areas in the Upernavik district takes place, the recapture of as much as 50% of the tagged animals within a period of approximately 9 months will appear less alarming than at first sight.

In the Upernavik district the winter catch then for a great part depends on seals migrating south from the unexploited Melville Bay. Although some of the seals originate from the district itself, it is possible that most of the animals caught have been born in the huge Melville Bay area or elsewhere.

Appendix

Description of a net suitable for catching seals
at the time of freeze-up

During the field work minor alterations of the nets turned out to be convenient.

The floats used by us had a tendency to fall through the meshes and be entangled in the net. It is recommended that the floats should be tied to an extra line of approximately 8-mm nylon rope. The distance between each must depend on the floating capacity, but should not exceed 30 meshes. The floats should be connected to the net by an about 30-cm thin wire or another strong, stiff material.

The extra line in top of the net will make it possible to pull the nets to their proper place by the motor boat without danger of rupture, even if minor pieces of ice should be entangled and make the net heavier. Moreover it will facilitate the salvage of nets which risk to be captured by accumulated ice-pieces freezing to a coherent mass in that it is able to withstand a strong pull.

Pieces of wire connecting the net to the floats prevent these from being cut off by the newly formed ice, which can be sharp as a knives edge.

If the nets are placed without connection to land, it should be anchored by small stones only so that it can follow the ice in case of extraordinarily strong currents. Orange plastic bouys in both ends will facilitate the localisation of the nets after movements.

The construction of the nets with the suggested improvements appears from figure 2.

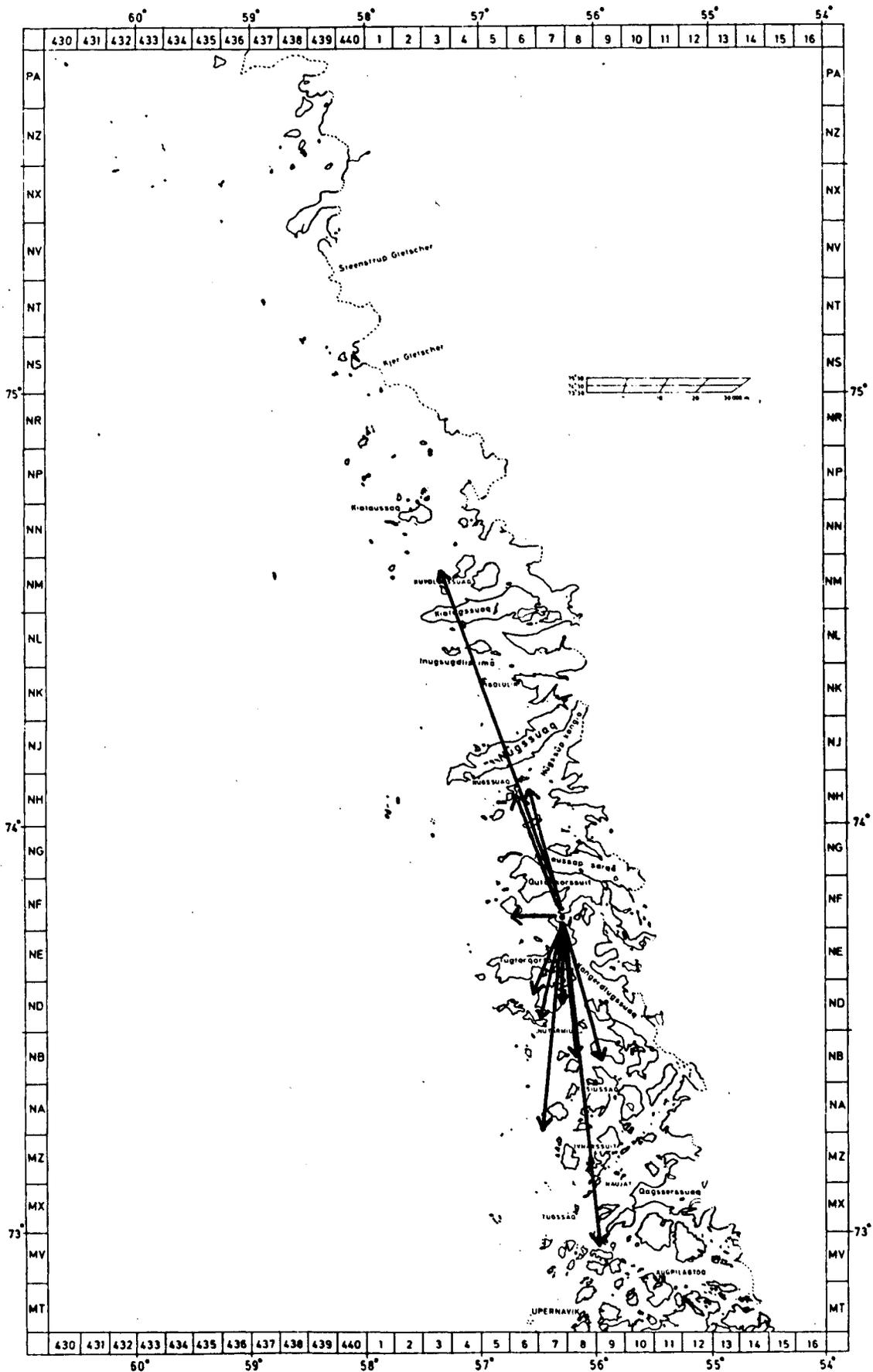


Figure 1. Tagging site and positions of recapture.

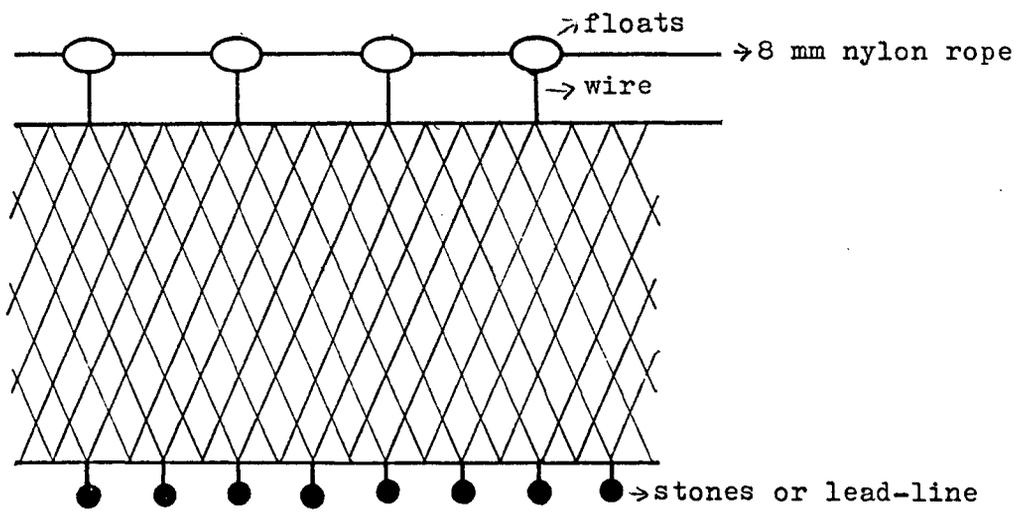


Figure 2. Proposed net for catching seals alive for tagging.