

# Distribution of Hooded seals in Svalbard waters

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Hooded seals are distributed from eastern Canada to West Greenland, up along East Greenland and throughout the Greenland and Norwegian Seas. In the literature Hooded seals are stated as not belonging to the Svalbard fauna, but that they in some years can be numerous along the ice from the west coast of Spitsbergen southwards toward Bjørnøya. An attempt is made to map the distribution of Hooded seals in the Svalbard area based on information from sealing vessel logbooks, travel journals, scientific literature, trappers' diaries and opportunistic interviews with former sealers and trappers.

**KEY WORDS:** Hooded seal, distribution, Svalbard

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## INTRODUCTION

Hooded seals (*Cystophora cristata*) are pelagic deep diving seals of the northern North Atlantic. For long periods of the year they associate closely with heavy pack-ice, on which they haul out to breed and moult. Their main distribution stretches from eastern Canada to West Greenland up along East Greenland, and throughout the Greenland and Norwegian Seas (Reeves & Ling, 1981).

Hooded seals congregate during the breeding period. Four pupping areas are known (Sergeant 1974). Three of these are found west/southwest of Greenland: in the Davis Strait at approximately 64°N, in the Gulf of St. Lawrence, and off Labrador. The fourth pupping area is near Jan Mayen, east of Greenland. Pupping takes place in the second half of March (Reeves & Ling 1981), but it may vary and at Jan Mayen it is recorded between 10 March and 10 April (Øritsland 1964).

Hooded seals from all areas were believed to gather in Denmark Strait (66°–68° N) for moult (Rasmussen 1960), but this has not been completely documented (Wiig & Lie 1984). An other moulting area is found north of Jan Mayen at 72°–76° N (Sergeant 1974). The peak of the moult occurs between 15 June and 15 July (Rasmussen 1960).

Thereafter the seals spread out through their distribution area to feed. Some of the animals migrate northwards to the area between Greenland and Svalbard, where they can be found in late summer (Rasmussen 1960).

In the literature Hooded seals are stated as not belonging to the Spitsbergen fauna, but that they in some years are numerous along the ice from the west coast of Spitsbergen southwards toward Bjørnøya (Wollebæk 1907, Iversen 1927). While collecting information from former sealers on walrus observations in Svalbard, I was told of the existence of a Hooded seal pupping area south of the southern tip of Spitsbergen, Svalbard. The present paper presents and discusses data on the distribution of Hooded seals in Svalbard waters.

## METHODS

Sealing vessel logbooks, travel journals, scientific literature and trappers' diaries, all dealing with the Svalbard area were searched for comments on Hooded seals, and especially pups. In addition opportunistic interviews with former sealers and trappers were conducted. They were questioned on whether they had observed Hooded seals in the Svalbard area. Information from the Norwegian Polar Research Institute's fauna-data-base for Svalbard was also used.

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This study deals with Hooded seals in the Svalbard area between 5°W and 35°E longitude. All records of Hooded seals were, when possible, classified according to month and location within quadrangles on a polar-stereographic map of Svalbard with adjacent seas, with true scale along the 78° parallel, each quadrangle being 5° longitude and 1° latitude. These records were compared to monthly sea-ice distributions presented in the literature.

In the older logbooks ship positions were often given by distance from a known landmark. Different units of measure were used. These are: *kvarmil* = nautical miles (nm), *sjømil* = 4 nm, *mil* = 6.1 nm. In some cases it is difficult to decide the unit which was used. In such cases I have used nautical miles. Since the positions are registered within quadrangles possible errors will not necessarily influence the overall results.

## RESULTS

Sources of observations of Hooded seals within the defined area are given in Table 1. The observations vary from single seals to many animals. Some observations only mention the number of seals killed, while others mention those seen. Numbers of Hooded seals mentioned in the sources are therefore not comparable. The total number of Hooded seal observation registered within each quadrangle are given in Figure 1. The total number of observations according to month are listed in Table 2. The number of Hooded seal observations within each quadrangle for the months May—August are indicated in Figure 2. Limits of pack-ice distribution for each month, according to distributions for the years 1971—80 (Vinje 1985), are also indicated in Figure 2. Only two observations of Hooded seals in Table 2 are not indicated in

Table 1. Chronological list of sources of Hooded seal observations at Svalbard.

Quennerstedt 1868	Isachsen 1916—19
Kulstad 1871	Anonymous 1928
Anonymous 1884—1910	Nøis 1928
Nordenskiöld 1892	Moberg 1960
Hamberg 1894	Lønø & Øynes 1961
Kræmer 1895—1916	Ugland & Ree 1983
Orleans 1905	Norwegian Polar Research Institute Fauna-Data-Base
Wollebæk 1907	

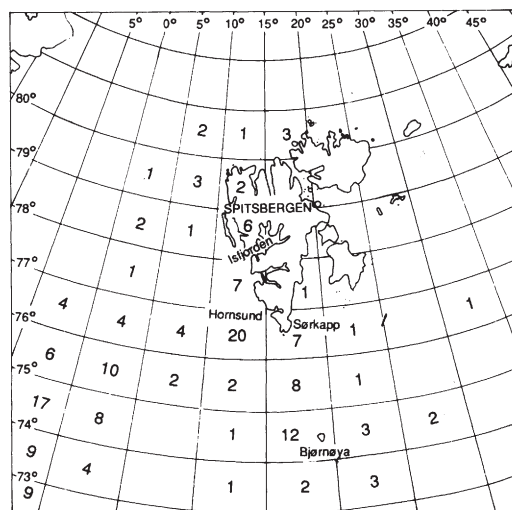


Fig. 1. Total number of Hooded seal observations within each quadrangle. Based on sources in Table 1.

Figure 2: one from 23 March at 75°N 3°30'E, the other from 5 November at the mouth of the Sassen River in the innermost part of Isfjorden.

Within the defined area no record of newborn Hooded seal pups was found. Pups and yearlings were frequently observed, but however not in March—April, i.e. the Hooded seal breeding season. The sealer's slang names for pups and yearlings are, after the breeding season, similar and do not differentiate between the two. It is therefore necessary to include both in the following. Pups/yearlings seemed to be more common west of 5°E and south of 77°N where more than 50% of the Hooded seal observations in six of the nine

Table 2. Hooded seal observations according to month and proximity to Svalbard.

Month	Total number observations	Observations East of 10°E
March	1	-
May	47	37
June	88	26
July	26	13
August	10	9
November	1	1
Total	173	86



tions. We do know that, around the turn of the last century, vessels annually patrolled most of the outer limits of the pack-ice in search of seals. It would be in the sealers' interest to concentrate their effort to areas where the probability of catching seals would be the greatest. It is therefore probable that any annual large concentrations of seals within the accessible parts of the pack-ice would be discovered.

When grouping observations within quadrangles, single observations are given the same value as observations of many seals. The occurrences of Hooded seals presented here therefore only indicate the areas where these seals occur, and do not give any information on the abundance of Hooded seals in Svalbard waters.

Observations in this study are, to a large degree, based on sealing vessel log-books. The objects of their hunt, Hooded seals and Harp seals (*Phoca groenlandica*), associate closely with the drifting pack-ice. The seals are hunted while hauled-out on the ice. The sealers therefore usually follow the outer margins of the pack-ice in search of seals. This and the fact that seals are easier to observe while hauled out, suggests that few observations of Hooded seals are from open water. The limited number of observations between 5°—10°E in the southern area of Svalbard may be due to this, and need not imply that Hooded seals are not present here. The increasing number of observations west of 5° E must be considered to indicate the northern limit of the Jan Mayen breeding and moulting area (Vesterisen).

The relatively high number of Hooded seal observations near Sørkapp and towards Bjørnøya may have several explanations. There is a strong current running from the east of Svalbard, around Sørkapp and northwards along the western coast of Spitsbergen. This current often brings pack-ice from the ice filled areas in the east to the southwestern coasts of Spitsbergen. Secondly, the areas around Bjørnøya and along the western coasts of Spitsbergen are well known fishing grounds, i.e. potentially offering Hooded seals a rich food supply. Finally the main shipping route to Svalbard passes through this area. This increases the possibility of observing seals here compared to other areas. This is especially true for late summer (Fig. 2; August). There is little ship traffic in the Greenland Sea at this time of the year, while a

maximum of vessels visit Svalbard in summer.

Wollebæk (1907) found that in some years Hooded seals were common along the edge of the pack-ice from Sørkapp to Bjørnøya. He especially mentioned this area as important for hunting Hooded seals in June and August of 1902. The present review, based on sporadic observations, shows that May is the month when Hooded seals are most frequently observed in Svalbard waters. This difference may be due to fluctuations in the extent of the pack-ice, since Wollebæk only mentions one specific year whereas this review stretches over several decades. However, 1902 was a very cold year in the Barents Sea, with large invasions of seals along the Norwegian coast (Wiig 1988). That year is therefore probably not representative for the general distribution of Hooded seals. The retired sealing captains Halfdan Jakobsen and Guttorm Jakobsen, both active from the late 1920s until the 1980s, have informed me that given plenty of pack-ice it was possible to hunt both mature Hooded seals males and pups off Hornsund in June. This seems, in part, to support Wollebæk.

Observations of Hooded seals in northern Svalbard waters have primarily been recorded in July, when coastal waters are free from ice, and corresponds with the limit of the pack-ice distribution in this area (Fig. 2).

In March and April the ice conditions south of Spitsbergen and at Jan Mayen are comparable, but whereas the former is first-year ice, the latter may also include heavy multi-year ice (T. Vinje personal communication). It is not likely that the presence of a pupping area south of Spitsbergen would go unnoticed. In this study the only mention of pupping in this area was by the well known sealer Waldemar Kræmer (1924—26). Kræmer wrote (in Norwegian) in his diary from 1924—26: «There are two populations of Hooded seals. The large one which pups in Vesterisen, and a small one which pups in the ice near Hornsund when there is heavy ice. When there is no ice along the west coast of Svalbard the small population of Hooded seals pup in Vesterisen at 76°—77°N. In the autumn this small population goes northwards as far as 80°N.» Vesterisen is the pack-ice off the East Greenland coast in the vicinity of Jan Mayen. In Kræmer's earlier diary 1895—1916 no mention is made of Hooded seal pupping near Svalbard. He must there-

fore have observed this between 1916 and 1926, or it is based on hear-say information.

After weaning Hooded seal pups move out towards the edge of the pack-ice in late April and spread out through the areas between Jan Mayen and the Denmark Strait (Rasmussen 1960). The more frequent occurrence of pups in the ice west of 5°E than further east in the area south of Spitsbergen, indicates that pups are more common here because of the proximity to the important pupping area near Jan Mayen. If a pupping area existed south of Spitsbergen, one might expect a concentration of pups at the pack-ice edge in this area, but this has not been found. This may indicate that pupping does not occur, or possibly that pupping occurs only occasionally in this area. Hooded seals are known to pup in areas outside their normal breeding habitat (Collett 1912, Richardson 1975, Øritsland & Bondø 1980). Such occasional pupping may well be the cause of the rumor that these seals supposedly pup south of Spitsbergen. The only way to verify pupping in this area would be to document it by aerial survey.

The observations in this study span over more than a century and the last observation from Spitsbergen was recorded in May 1989. However the bulk of the observations are from the turn of the century. It is possible that the ice distribution, and therefore also the Hooded seal distribution, has changed during this period. According to Rasmussen (1960) the distribution of Hooded seals along the Greenland coast and off Newfoundland has changed after the turn of the century, due to climatic changes. It is not known if this has affected Svalbard similarly, but at least for the period 1966—86 there was no significant change in the ice distribution between Svalbard and Greenland (T. Vinje personal communication). It is also possible that a separate population of Hooded seals at one time did exist south of Spitsbergen, but that it was exterminated by hunting. No information was found to support this.

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