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Status of the harbour seal *Phoca vitulina* in Finnmark, North Norway

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Results from surveys, designed to assess the numbers of harbour seals *Phoca vitulina* at their breeding and moulting sites in Finnmark county, North Norway, in 1989-91, are presented. The maximum total number of moulting harbour seals counted in the county (in 1991) was 332, distributed at eight localities. Breeding was observed at seven sites that mainly coincided with the moulting sites. Maximum total counts of 221 (including 47 pups) and 232 (including 33 pups) seals were made during breeding in 1990 and 1991, respectively. Two of the surveyed haul-out sites were estuarine sandbanks. The other ones were localized either on open rocky coasts or in fjords. The estimated number of harbour seals taken by local hunters in Finnmark was 260 animals in 1980-85 and 150 animals in 1986-1990.

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Introduction

Most probably, harbour seals *Phoca vitulina* in Finnmark county, North Norway, suffered a severe decline during the first part of this century, and the population was estimated to comprise approximately 180 animals in the early 1960s (Øynes 1964). This estimate was based on information obtained by interviewing or receiving questionnaires from fishermen, seal hunters, lighthouse keepers and others supposed to possess knowledge about local seal populations.

From 1973, harbour seals in Finnmark (and elsewhere in North Norway) were legally protected from hunting during the period from May 1 to November 30 (Anon. 1990). To obtain a better basis for management, more extensive studies of coastal seals and their interactions with inshore fisheries along the Norwegian coast (from approximately 62°N to the Lofoten islands) were initiated in 1974. These studies were continued throughout the 1980s when the geographic range of the surveys was extended north- and northeastwards. Thus, the status of harbour seals from Lofoten to Finnmark was thoroughly assessed in the late 1980s (Wiig 1988, 1989).

Ship board (1981 and 1983) and aerial (1984) surveys in Finnmark revealed a minimum estimate of 195 animals for the county (Bjørge et al. 1982, Bjørge 1991). The coverage in these surveys was incomplete. In order to assess present status in Finnmark harbour seal stocks, surveys particularly designed to study harbour seals at their breeding and moulting sites were, therefore, performed in 1989-1991. Based on these surveys, this paper aims to review present distribution and abundance of harbour seals in Finnmark.

Furthermore, the number of harbour seals taken by regular hunters in the county during the past decade is also estimated.

Material and methods

Ship-board surveys were conducted during the supposed breeding (June-July) and moulting (September-October) seasons (Bigg 1981, Bjørge 1991, 1992). The surveys were carried out using inflatable Zodiac boats fitted with outboard motors to survey the seal colonies. Usually, a mother ship was used for transportation and accomodation. The 1989 surveys should be regarded as pilot studies that covered only parts of the harbour seal haul-out sites in the county. The degree of coverage increased during 1990 and 1991. The surveys covered the coastline of the whole county such that both previously known and new haul-out sites could be detected.

The highest numbers of harbour seals are generally hauled out at low tide (Venables & Venables 1960). All countings in the present surveys were, therefore, performed at low tide whenever possible. To diminish the risk of double recordings, all neighbouring haul out sites were, as far as possible, surveyed during the same period of low tide. Seals seen in the water outside the haul-out site were also counted and added to the nearest group of hauled-out seals, but it is likely that some seals were missed during the registrations.

Due to difficulties in ageing harbour seals in the field, all counts at breeding sites were recorded as the number of one year old and older seals plus the number of pups observed. At the moulting sites, only the total numbers of seals were recorded. Seals were counted using binoculars and telescopes. The minimum estimate of seals at each locality is given as the maximum number of animals observed (see Wiig 1988, 1989).

In a proposal for a new management regime for seals in Norwegian coastal waters, harbour seals were divided into several regional management stocks (Anon. 1990). Although questions of identity and possible migrations between these hypothetical stocks have yet to be resolved, this study follows the provisional stock definitions given in the proposal.

Approximate numbers of harbour seals killed in Finnmark are estimated for the periods 1980-85 and 1986-90. These numbers were estimated on the basis of interviews with local hunters (identified on the basis of information from local sources and on own local knowledge).

Results

A total of 332 moulting harbour seals were counted in Finnmark county in September-October in 1991, when the most comprehensive and complete coverage was obtained (**Table 1**). Typical moulting haul-out sites were observed at eight localities, distributed with one site in each of the municipalities Hammerfest, Porsanger, Tana, Berlevåg, Vadsø and Sør-Varanger, and two sites in Lebesby (**Figure 1**).

Breeding was observed at seven sites, most of them coinciding with the moulting sites (**Figure 1**). No breeding was observed in the Vadsø moulting site. During the presumed breeding season some adult seals were observed in the Måsøy/Nordkapp municipalities, however, without accompanying pups or other signs of breeding activity. A total of 221 (including 47 pups) and 232 (including 33 pups) seals were counted in the two most comprehensive survey years, 1990 and 1991, respectively.

Two of the surveyed haul-out sites (a breeding site in Tana and a moulting site in Sør-

Table 1. *Results from counts of harbour seals (pup counts in brackets) in Finnmark, North Norway, based on ground surveys in the breeding (June-July) and moulting (September-October) seasons in 1989-1991. "Regional" stocks are given as defined in Anon. (1990).*

Municipality	"Regional" stock	1989		1990		1991	
		Jun/Jul	Sep/Oct	Jun/Jul	Sep/Oct	Jun/Jul	Sep/Oct
Sør-Varanger	Kobboholmfj./Skogerøy	10(1)	48	2	2	1	40
Vadsø/Vardø	Nord-Varanger	*	13	7	6	1	14
Berlevåg	Kongsfjord	32	17	86(24)	16	39(11)	64
Berlevåg/Gamvik/Tana	Tanafjord	13	7	15(3)	38	1	31
Lebesby	Laksefjord	24(4)	*	64(12)	39	30(9)	19
Porsanger	Porsangerfjord**	82(16)	*	10(2)	64	90(10)	139
Nordkapp/Måsøy	Måsøy	*	*	5	*	37	*
Hammerfest/Hasvik	Sørøy	*	*	32(6)	*	33(3)	25
Total		161(21)	85	221(47)	165	232(33)	332

* Not surveyed
** Not previously registered

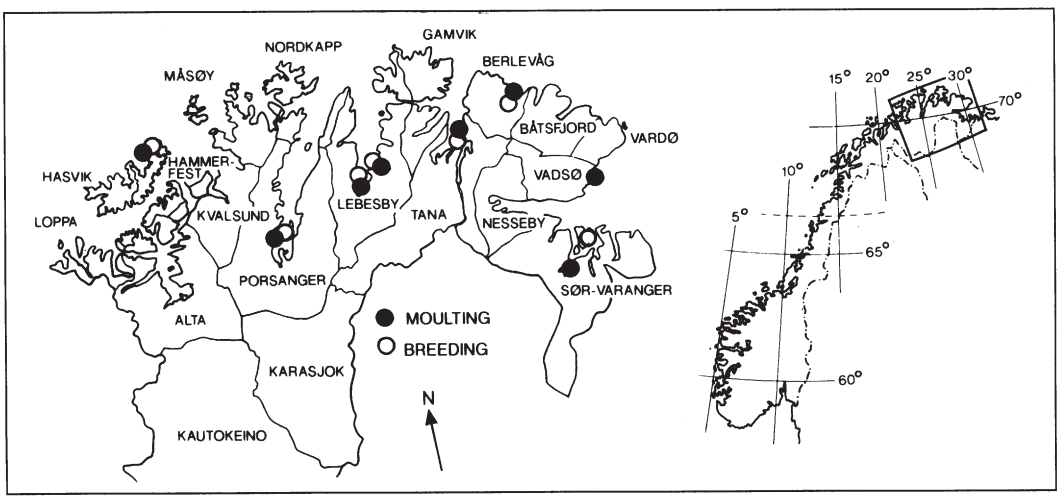

Fig. 1
Breeding and moulting sites for harbour seals in Finnmark county, North Norway. Municipalities are shown to facilitate comparison with Table 1.

Table 2. Approximate numbers of harbour seals killed in the 1980s in Finnmark, North Norway (sources: interviews of local hunters).

Locality (Municipalities)	1980-85	1986-90
Sør-Varanger/Vadsø/Vardø	40	30
Berlevåg	40	20
Tana	70	20
Lebesby	40	10
Porsanger	10	10
Nordkapp	25	25
West of Nordkapp	35	35
TOTAL	260	150

Varanger) were situated at estuarine sandbanks. Other haul-out sites were on open rocky coasts (Hammerfest and Vadsø) or in fjords (all other sites).

The estimated number of harbour seals killed by local hunters in Finnmark through the 1980s was approximately 260 animals in 1980-85 and 150 animals in 1986-90 (**Table 2**).

Discussion

The results of these censuses indicate that the minimum estimate of the present harbour seal population in Finnmark county is approximately 330 animals. It is difficult to ascertain whether this number represents a real increase from surveys in the early 1980s (195 animals observed, Bjørge 1991) when the coverage was incomplete. Also, possible trends since the early 1960s are difficult to ascertain since the estimate of 180 animals given by Øynes (1964) is based mainly on interviews and questionnaires, and on only very limited survey activity.

The present distribution of haul-out sites of harbour seals in Finnmark is consistent with previous observations (Øynes 1964, Anon. 1990). One exception from this is the municipality Alta, where Øynes (1964) suggested a "regional" stock containing 30 animals, but where no animals were found in the present surveys. Another exception is in the municipality of Porsanger, where the present surveys revealed a rather large number of animals in areas where previous surveys seems to have failed to localise harbour seals (Øynes 1964, Anon. 1990).

The number of animals observed at the haul-out sites varies considerably from year to year (this study) and between present and previous observations (Øynes 1964, Anon. 1990). Some of this variation may be attributed to shortcomings in the precision of the applied assessment methods (see Bjørge 1991). Also, the stability and identity of the defined "regional" stocks is still unresolved (Anon. 1990). Thus, the intermingling of harbour seals between sites within Finnmark county, and between Finnmark sites and known neighbouring sites in North Norway (Wiig 1988, 1989) and on the Murman coast in Russia (Mishin et al. 1992) cannot be excluded.

According to Bjørge (1991), there are three distinct types of habitats utilized by harbour seals in Norway: open rocky coast, deep fjords and estuarine sandbanks. All these habitats are found in Finnmark. In fact, the Tana colony is the only Norwegian harbour seal colony breeding in a sandbank area (Bjørge 1991).

The information given about the level of exploitation during the 1980s reveals that a significant number of harbour seals are still being killed in Finnmark county. The Finnmark harbour seal stock was hunted, probably to such an extent that a decline in stock size occurred, also during the first part of this century (Øynes 1964). As in the 1980s, harbour seals were particularly heavily exploited in the Tana locality in previous years. This is partly because the presence of harbour seals in this estuarine area represents a conflict with salmon *Salmo salar* fisheries in the Tana river (Øynes 1964). In addition to legal protection from May 1 to November 30 (Anon. 1990), some Finnmark harbour seal stocks breed in nature reserves with special regulations (Anon. 1993, Henriksen et al. 1993). Thus, the stocks in Sør-Varanger and Tana have been totally protected from hunting since 1992. Furthermore, the period of protection has been extended during spring, starting on April 1 in Porsanger, March 16 in Båtsfjord, and March 1 in Berlevåg, Nordkapp, Måsøy and Hammerfest.

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Sammendrag

Steinkobbebestandens status i Finnmark

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I perioden 1989-91 ble det gjennomført feltundersøkelser for å kartlegge steinkobbebestandens status i Finnmark. Ved undersøkelser gjennomført i dyrenes hårfellingsperiode (september/oktober) ble det registrert et minimum av 332 steinkobber, fordelt på 8 lokaliteter i fylket. Kasting ble observert om sommeren (juni/juli) på 7 av de 8 lokalitetene. Antall dyr observert i kastetida var 221 (herav 47 unger) i 1990 og 232 (herav 33 unger) i 1991. To av de undersøkte lokalitetene var godt beskyttede sandbanker i områder med ferskvannstilsig, de øvrige enten større fjorder eller mer eksponerte områder ut mot åpent hav. Det jaktes endel på steinkobbe i Finnmark, og totalt antall dyr tatt i de to periodene 1980-1985 og 1986-1990 er estimert til henholdsvis 260 og 150.

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