

# Trends in Catches of Harp and Hooded Seals in Greenland, 1939-83

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## Abstract

Collection of hunting statistics for Greenland began in the 1860's, but initially the published summaries only distinguished between "small" and "large" seals. Seal catches have been reported by species since 1939, making it possible to examine trends in catches of harp and hooded seals. In the case of harp seals (*Phoca groenlandica*), the trends in catch were similar in all regions of Greenland. The total catch declined from a level of 20,000-25,000 harp seals annually in the 1940's to 6,000-7,000 in the late 1960's and increased subsequently to 17,000-19,000 in the early 1980's. In the case of hooded seals (*Cystophora cristata*), available information indicates that catches declined from a level of 10,000-15,000 annually in the last decades of the 19th century to 1,000-2,000 in the 1950's, but have subsequently increased in all regions to a level of 5,000-6,000 annually in the late 1970's and early 1980's. Although collection of hunting statistics have become increasingly difficult in Greenland, the published adjusted summaries are considered to be sufficiently accurate to give an indication of major trends in seal catches. The observed trends indicate that there may be a close relationship between the level of exploitation and regulation of catches in the breeding and molting areas and the catches of harp and hooded seals in Greenland, although demographic changes, technological modifications and environmental fluctuations may have counteracted or reinforced the relationship.

## Introduction

Statistical information on the catches of harp and hooded seals in Greenland have been presented in several previous papers (Kapel, 1975a, 1975b, MS 1978, 1982; Kapel and Geisler, MS 1979). Additional data were presented as working papers at meetings of the Scientific Council of NAFO in November 1980 and 1981 and at a meeting of the ICES *ad hoc* Working Group on Seal Stocks in October 1982. Present and previous information on the occurrence and hunting of hooded seals in Greenland was reviewed in a paper that was prepared for the Hooded Seal Workshop at Bergen, Norway, in November 1983 (Kapel, MS 1983).

In this paper, the revised catch statistics for harp and hooded seals in Greenland in the 1954-84 period are presented, and trends in the catches of both species during 1939-84 are examined and discussed.

## Materials and Methods

The most important source of information on catches of seals in Greenland is the "Fangstlister" (Hunters' Lists of Game). An excellent review of the history, arrangement and content of the system of collecting statistical data on catches of marine mammals (and a few terrestrial species) in Greenland was given by Rosendahl (1961), and short descriptions of hunting statistics were included in several previous papers by the author (e.g. Kapel, 1975a, MS 1983). Anon. (1944) contains a summary of hunting statistics from the origin of statistical collection in the 1860's to 1939. Rosendahl (1961) analyzed trends in the catches of

harp and ringed seals for the 1939-58 period. Annual summaries for 1954 to 1983 have been published by the Ministry for Greenland (Anon., 1956-1984). The responsibility for collecting hunting statistics was transferred from the Ministry for Greenland to the Greenland Home Rule Authorities in January 1985, and the arrangements for future presentation of the statistical data remain to be decided.

Prior to 1939, catches were distinguished only as "small" and "large" seals. From 1939 onwards, the catches were reported by species. According to Rosendahl (1961), reporting was rather complete for most localities, and no attempt was made to estimate the non-reported catches. However, the data were incomplete for a few districts (e.g. Thule and Scoresbysund), and the published statistics for 1954-61 may thus be underestimates of the actual catches. The deficiencies for harp and hooded seals are, however, quite small and represent a relatively small proportion of the total catch of the seals in Greenland. The published summaries since 1961 contain estimates of catches at localities where data were incomplete or lacking. These estimates, based on such information as trade statistics, are considered to be conservative, and, therefore, the final published figures are believed to be somewhat lower than the actual catches. The revised catch statistics of harp and hooded seals in Greenland by region (Fig. 1) for 1954-83 are listed in the Appendix Table.

The hunting statistics refer to catches as landings, and no attempt was made to estimate total kills (including losses). Loss rates vary by species, hunting method, skill of hunters and time of year, and data

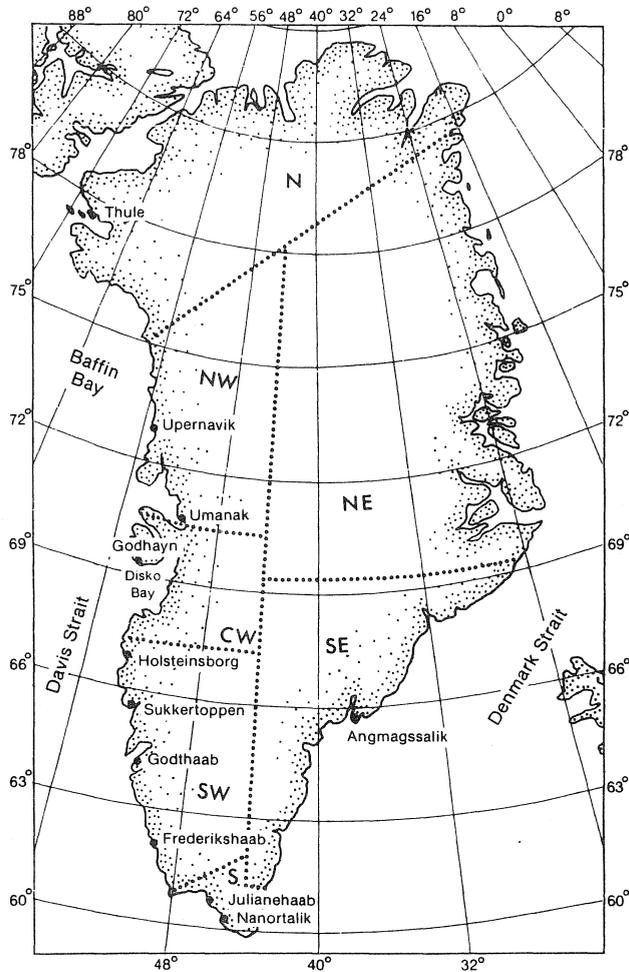


Fig. 1. The major regions of Greenland (from Kapel, 1982).

which would allow an analysis of this problem in Greenland are few and circumstantial. For harp and hooded seals, the loss rate is considered to be "high" early in the season and "low" late in the season, but it is not possible at present to quantify such terms as rates or percentages.

## Results

### Harp seals (*Phoca groenlandica*)

In the 1940's, the most important region for hunting harp seals was the Disko Bay area of Central West Greenland (Fig. 2), where the average annual catch was about 10,000 seals (maximum 14,500 in 1941). Catches declined during the 1950's and 1960's to a level of approximately 3,000 seals (minimum 2,000 in 1971), and this level persisted until 1978. During 1979-83, the level of annual catches (5,000-8,000 seals) was similar to that of the late 1950's.

The next most important region for hunting harp seals consists of the Umanak and Upernavik Districts

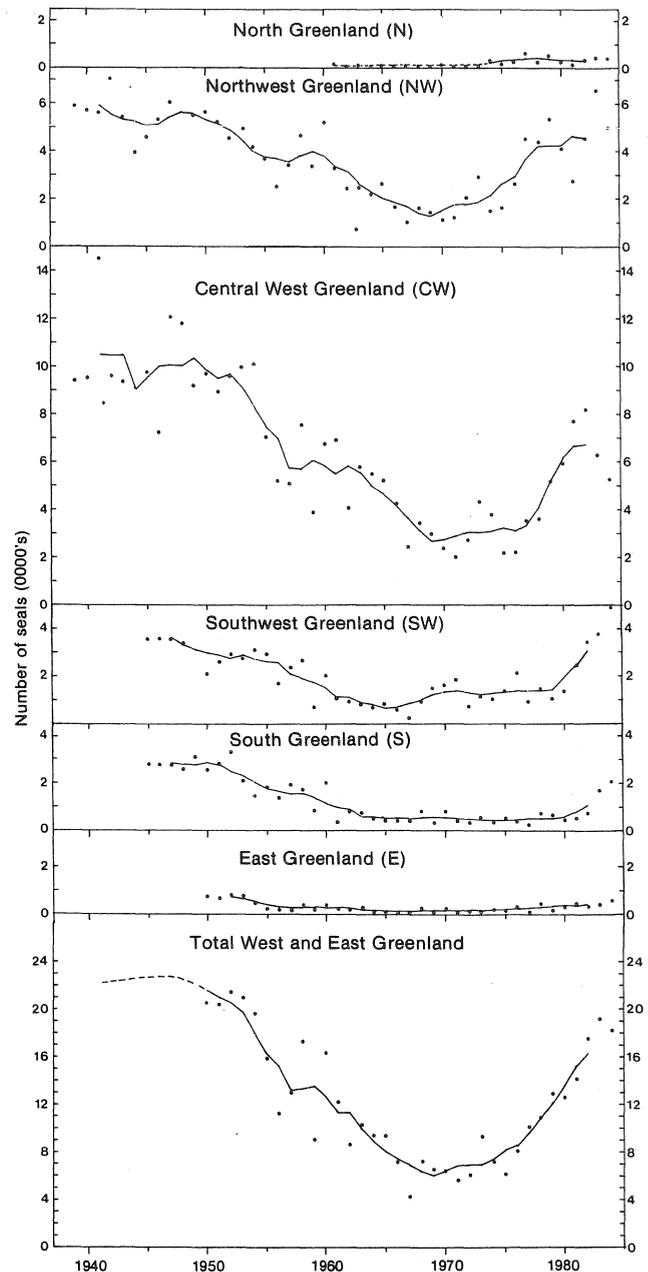


Fig. 2. Trends in harp seal catches by region and total catches for Greenland, 1939-84. (Lines are based on 5-year moving averages. Extrapolation of line for total Greenland catch from 1950 to 1940 on the basis of actual figures for the northern regions and the trend indicated for the southern regions.)

of Northwest Greenland, where catches declined from 5,000-6,000 seals in the 1940's (maximum 7,000 in 1942) to 1,000-2,000 around 1970 (Fig. 2). Since then, the catches have increased to a level of 4,000-5,000 seals in 1977-84 (maximum 6,500 in 1983).

Hunting statistics for Southwest and South Greenland (Fig. 2) were not available for the early 1940's, but annual catches in each region were around 3,000 seals in the late 1940's. There was a declining trend in both

regions to about 750 and 500 seals in Southwest and South Greenland respectively around 1965. In Southwest Greenland, catches increased to 1,000–2,000 seals in the 1970's and reached the previous level of 2,500–3,500 in 1981–84. In South Greenland, on the other hand, there was little or no increase during the 1970's, and only in 1983 and 1984 were significantly higher catches (1,700 and 2,100) obtained.

For North Greenland (Thule District), catch statistics were incomplete in most years (Fig. 2). Vibe (1950) stated that the catch of harp seals in the district was "not overwhelmingly large, some 50 animals every summer". The available evidence for more recent years indicates that the catch has increased from about 100 seals in the 1960's to a few hundred in the 1970's and early 1980's.

In East Greenland, the official statistics indicate that annual catches varied from about 60 to 500 seals during 1954–83. Catch statistics are incomplete for Northeast Greenland (Scoresbysund District), but previous estimates have indicated an annual kill of less than 50 harp seals (Pedersen, 1931; S. Sølberg, MS 1975, unpubl. report). Official statistics for recent years indicate a catch level of about 50 seals, but Born (1983), from local information and interviews, estimated that 100–200 were taken annually. In Southeast Greenland (Ammassalik District), harp seal catches declined from about 700–800 in the early 1950's to 200–300 in the late 1950's to early 1970's and increased to 400–500 in the early 1980's.

In summary, the trends in catches of harp seals since the 1940's were similar in all regions. For Greenland as a whole (Fig. 2), the catches declined from a level of 20,000–25,000 seals in the 1940's (maximum 24,500 in 1947) to 6,000–7,000 in the late 1960's (minimum 4,200 in 1967). There was a rapid increase after 1970 to about 13,000 seals in 1979–81, and the trend continued to 1982–84 (17,000–19,000).

### **Hooded seals (*Cystophora cristata*)**

Trends in catches of hooded seals in Greenland were discussed in some detail by Kapel (MS 1983), on the basis of reports which extend back to the 1850's. Rink (1852–55, 1857, 1877) estimated that about 2,000–3,000 hooded seals were caught annually in West Greenland during 1853–72. Available information indicates that the annual catch was higher during the last decades of the 19th century (probably 10,000–15,000 seals) and during the 1916–20 period (6,000–8,000) (Anon., 1944). According to Pedersen (1966), catches in the southern part of West Greenland (Southwest and South regions) were 5,000–6,000 seals during the 1920's.

During subsequent decades, catches declined drastically in South Greenland to a level of 500–1,000

seals annually around 1950. The available information does not allow detailed analysis of trends in other regions before 1950, but the catch of "large seals" was fairly stable in the northern part of West Greenland during 1912–34 (Anon., 1944). However, most of the "large seals" from this region were old harp seals, the catches of which probably increased during that period (Kapel, MS 1978). It is likely, therefore, that the catches of hooded seals in Northwest Greenland followed the same trend as in Southwest Greenland, i.e. decreased during the 1930's and 1940's.

Trends in catches by region during 1954–84 (Fig. 3) indicate that catches were low in all regions during the 1950's and early 1960's, the totals for West Greenland being 500–1,000 seals and the East Greenland catches being less than 500 (not including the special fishery in Denmark Strait by the Royal Greenland Trade Department (KGH)). Catches began to increase in most regions during the 1960's. In West Greenland as a whole, the average annual catch was about 1,700 seals during 1964–71 and about 3,600 during 1972–83 (maximum 4,400 in 1982). In East Greenland (excluding the KGH catches), the increasing trend was less pronounced at first, the averages being about 500 seals during 1964–71 and about 900 during 1972–76, but increased rapidly to a level of 2,400 during 1977–82 (maximum 2,769 in 1978). The catch declined to about 1,300 seals in 1983 and 1984, but this was still significantly higher than those of the early 1970's.

In summary, the catches of hooded seals in Greenland during the last two decades have increased significantly and have reached a level which is similar to that for the early part of the 20th century but still below the estimated catch level during the last decades of the 19th century. The distribution of catches may have changed during the past 100 or more years. The catch of hooded seals in South Greenland is still a large proportion of the total catch in Greenland (Fig. 3), but the proportion was probably larger during the second half of the 19th century (Rink, 1852–55, 1857, 1877).

## **Discussion**

### **Reliability of catch statistics**

The hunting statistics for Greenland were fairly complete during the early years of the 1939–83 period, at least in respect to the reporting of harp and hooded seal catches, whereas the estimation of non-reported catches was introduced later. Three examples are used to illustrate the problems.

In 1955, hunting lists were received from 127 localities in Greenland, of which reporting was considered to be incomplete for three settlements. Reports were lacking for six other localities which had a population of 732 inhabitants, of which approximately 103 were

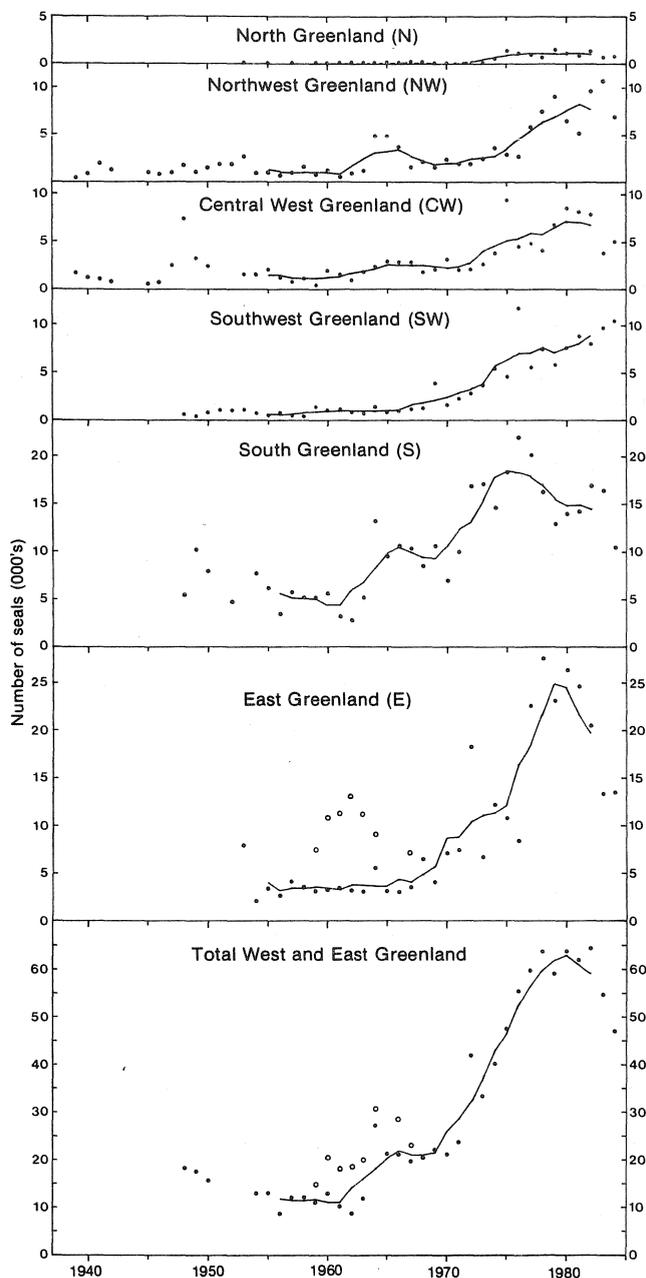


Fig. 3. Trends in hooded seal catches by region in Greenland, and total catches for 1939-84. (Lines are based on 5-year moving averages. Open circles indicate additional catches from a special fishery in Denmark Strait during 1959-68.)

hunters (fishermen). On the basis of reports from these localities in earlier years, the catches of harp and hooded seals were estimated to be 514 and 27 respectively, which represent very small proportions of the reported catches (15,154 harp and 1,289 hooded seals) in that year. No estimate was made for Thule District with 10 localities containing approximately 400 inhabitants, of which about 60 were hunters.

In 1965, hunting statistics were received from 107 localities, where 9,218 harp and 2,127 hooded seals were caught. Reports were lacking or incomplete for 25

localities, 16 of which were sheep-farming settlements (358 inhabitants) with very little hunting activity. The remaining 9 were hunting settlements in the Thule and Scoresbysund Districts (519 and 405 inhabitants respectively), for which only the numbers of skins in the trade records were added (111 harp and 5 hooded seals).

In 1975, reports were lacking for 20 localities: 10 sheep-farming settlements (80 inhabitants), one large town (3,074 inhabitants), and 9 hunting settlements (1,169 inhabitants). Reports were received from 98 localities, but several of these were considered to be incomplete. The reported catches of harp and hooded seals in the Lists of Game were 4,489 and 3,756 respectively, to which were added 1,657 harp and 1,008 hooded seals (37% and 27% respectively). These additions were based partly on factual information, e.g. numbers of skins traded at the localities where reporting was incomplete (average 12% and 6% respectively), and partly on estimation of numbers of skins not traded at these localities (average 25% and 21% respectively). The latter estimation was based on a comparison with localities where reporting was considered to be satisfactory.

For 1955 and 1966, the published statistics were based on a reasonably satisfactory reporting system, and the underestimation (by a few hundred seals) of true catches is considered to be negligible. Clearly, the efficiency of the reporting system became less in recent years, and publication of the uncorrected numbers in the List of Game could be highly misleading. For this reason, the reports have been evaluated on a site-by-site basis, taking account of other sources of information and adding estimates of non-reported catches. The revised figures in the Appendix Table are not exact to the last detail, but they are considered to provide a reasonably good indication of the catch levels and are thus suited for analyses of major trends in catches.

#### Changes in habitation and occupation patterns

Hunting was the main occupation of the Greenland population until the beginning of the 20th century, although some changes in habitation and hunting patterns occurred during the preceding two centuries. The Greenland population increased slowly from 6,000-7,000 at the beginning of the 19th century to 12,000-13,000 in the first decade of the 20th century (Anon., 1942). Most people lived in small settlements, with a few in slightly larger administration centers (23% in 1921). A multispecies hunting pattern showed minor regional variation, but the dominant role of hunting was the same in all parts of Greenland (Kapel and Petersen, 1982).

A change in this pattern occurred at the beginning of the 20th century and became pronounced in the 1920's and 1930's. The seal hunt declined, especially in

Southwest Greenland, at the time when Atlantic cod (*Gadus morhua*) appeared in significant numbers along the west coast. A transition to fishing was planned and, to a great extent, carried out during the 1930's and 1940's, evolving rapidly after 1950. This development did not take place in Northwest and East Greenland, and, as a result, Greenland was divided into several regions, which were rather different in respect to occupational possibilities (Kapel and Petersen, 1982). During the same decades, the population increased rapidly: 16,000 in 1930, 22,000 in 1950, 39,000 in 1970, and 41,000 in 1980 (Anon., 1942, 1984). The population increase was absorbed by the administrative centers (or towns), in which the major part of the fishing industry was developed. The proportions of the population living in "towns" were 29% in 1936, 40% in 1946, 45% in 1955, 57% in 1959, and 74% in 1972. Although the percentage of the population in small settlements decreased greatly, the actual numbers of people in these settlements did not change much during the period. The total number of people in the small settlements was about 10,000 in 1921 and also in 1972 (Anon., 1942, 1984).

The regional diversity in Greenland at the present time is quite different from that of earlier times. In the "true" hunting districts, the number of small settlements are fewer now than 50 years ago, but their average size is larger. However, the number of hunters in these districts has remained almost unchanged. The "towns" in these hunting districts have grown considerably during the same period, but most people in these places are not full-time hunters today. In the small settlements of the fishing districts, hunting often plays an important role as a supplement to fishing. Also, part-time hunting is carried out by some people in the larger fishing centers. In summary, the total number of active hunters probably has not changed much during the 1921-72 period. Another indication in the same direction is that the number of hunters which reported to the Lists of Game was at the same level in the late 1950's and early 1970's (3,300-3,400). The number of reports was much lower (2,000-2,100 around 1980, but this cannot be inferred as a reduction in the number of hunters because the reporting system has not been functioning properly in recent years, as discussed above (Anon., 1956-1984).

To examine the relation between the numbers of hunters and the trends in catches, a comparison of the observed trends for different seal species is a first approach (Fig. 4). During the period from the late 1940's to the early 1960's when the catches of harp seals decreased, the catches of ringed seals (*Phoca hispida*) increased significantly. The catch of hooded seals began to increase in the early 1960's, but a similar trend in the harp seal catches did not occur until the early 1970's. The catches of ringed seals showed large year-to-year fluctuations in the 1960's, but the general

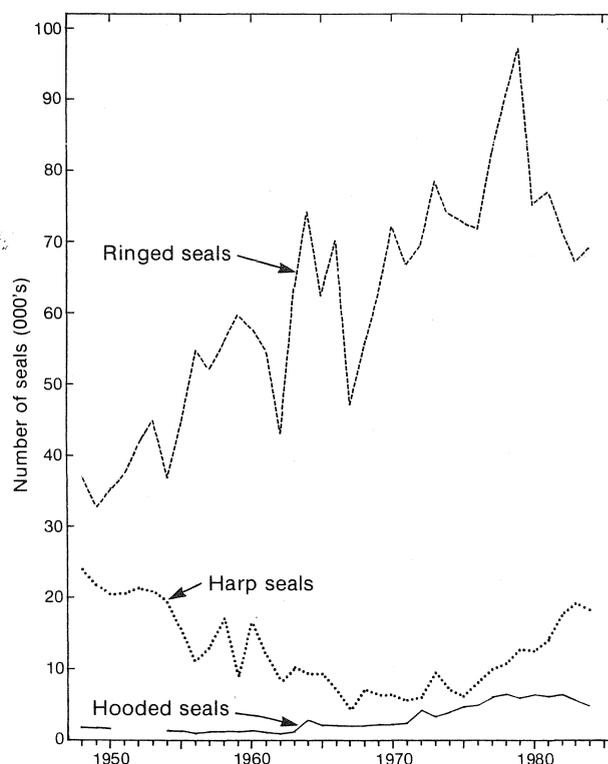


Fig. 4. Comparison of trends in catches of ringed seals, harp seals and hooded seals in Greenland, 1948-84.

trend was a continued increase at least until the mid-1970's. Because the numbers of hunters did not change much during this period, the observed trends for the three species cannot be explained simply by changes in the number of hunters. Analysis of the data on a regional basis leads to the same conclusion.

#### Modification of hunting methods

The original method of hunting harp and hooded seals in Greenland involved harpooning the seals in open-water from kayaks and killing them with lances. The seals were usually killed in the water but occasionally when lying on an ice floe (Fabricius, 1790, 1791). The first important modification was the introduction of firearms in the 19th century. However, they were not important in kayak hunting until breech-loading rifles came into common use in Greenland around the beginning of the 20th century (Anon., 1944). Use of nets for catching harp seals was introduced in Southwest Greenland in the 18th century and became very important during the first half of the 19th century, but this method of hunting became less important during the early part of the 20th century and soon ceased (Anon., 1944).

The next important change in hunting methods was the gradual replacement of kayaks by small dinghies. This development began in Southwest Greenland with the onset of the transition from hunting to fishing in the early decades of the 20th century (Anon., 1944).

The small unpowered boat was clearly a step backward from the kayak for open-water hunting. The same was probably true for the slow fishing boat with inboard motor, which was the next development in the fishery. It is quite possible that the decline in seal catches, which led to the development of fishing, was reinforced by the introduction of boats and gears for participation in the fishing industry. However, the use of kayaks continued to be important in the hunting districts for many years after they became rare in the fishing districts. Kayaks are still being used, often in conjunction with small motor-boats, to hunt seals (Kapel and Petersen, 1982).

A recent development was the introduction, in the late 1960's and early 1970's, of outboard motors, which are now generally used on small boats to hunt seals, even in the "true" hunting districts. What this innovation really meant to hunting success is unclear. The hunter could cover a much larger area in a shorter time than with the kayak, but the engine produced much noise. Whether the hunter could get close enough to more seals and kill them is quite another matter. Data that would allow an evaluation of this problem are not available.

#### **Market considerations**

Originally, all products from the seals were used in the household, and the hunter had no impulse to catch more seals than were needed for that purpose, apart from maintaining his status as a keen hunter. After the colonization of Greenland in the 18th century, the native hunters exchanged (traded) seal blubber and skins for various imported products. Generally, this trade did not lead to much surplus-hunting, because the governing factors were the subsistence needs (food and other edible products) and the availability of seals (Kapel and Petersen, 1982).

The sale of seal blubber was discontinued in the 1960's due to poor market conditions outside Greenland, and the hunters were left with the trade of skins as their only means of cash income. Examination of the auction prices for seal skins, the number of skins traded, and the catch statistics for the 1963-75 period does not leave the impression of a close relationship between the price of skins and the hunting results (Anon., 1983). The main impulse to hunt seals in Greenland is apparently still the desire to meet subsistence needs. Another point is that the present unfavorable price of seal skins has had a serious impact on the economy of the hunters, whose interest in preparing for trade the skins of seals that are caught has declined in recent years.

#### **Environmental factors**

The decline in seal catches in Southwest Greenland and the occurrence of cod off the west coast after the beginning of the 20th century have been related to

an increasing trend in water temperatures (Jensen, 1939; Hansen, 1949). In the case of cod, relatively small changes in environmental conditions have large effects on distribution and reproduction in Greenland waters. Although an increase in water temperature could possibly have a large effect on the distribution of the "fast-ice" breeding ringed seal, it is less obvious that small changes in water temperature would affect significantly the summer migrations of harp and hooded seals. If, on the other hand, the small change in water temperature reflect much larger changes in overall environmental conditions, such as fluctuation in the occurrence and amount of drift ice, as hypothesized by some authors (e.g. Vibe, 1967), such conditions could have a large effect on the breeding success, abundance and occurrence of harp and hooded seals. Vibe (1967) related the abundance of hooded seals in South Greenland around the beginning of the 20th century to the mass occurrence of drift ice from East Greenland, followed in subsequent decades by withdrawal of the ice and decreased abundance of hooded seals. However, his statements about the relationship between ice occurrence and variation in abundance of harp seals are less convincing.

#### **Exploitation and regulation**

The harp and hooded seal populations which are hunted in Greenland are closely connected with the breeding stocks off the Labrador-Newfoundland region, and possibly with the Jan Mayen stocks (Rasmussen and Øritsland, 1964; Sergeant, 1965, Popov, 1970; Larsen and Kapel, MS 1979; Larsen, MS 1981; Kapel, 1982, Larsen, MS 1985). Also, the relationship of hooded seals off West Greenland to the molting patches in Denmark Strait has been demonstrated (Kapel, 1982). In addition, the recapture in Greenland of young hooded seals that were tagged in Davis Strait in March 1984 indicates, not unexpectedly, that this breeding patch contributes to catches in Greenland.

Comparison of the catches of harp seals during the breeding and molting periods with the catches in Greenland during 1939-83 is worth noting. Just before World War II, catches of harp seals at Newfoundland (100,000-200,000 annually) were somewhat less than they were during the first decades of the 20th century (Sergeant, 1976). During the War, seal-hunting almost ceased at Newfoundland but catches reached a high level in Greenland. After the War, the catches at Newfoundland increased to a high level (250,000-350,000) and the catches in Greenland declined to about one-third of the previous level. The catches at Newfoundland were controlled by quotas to a level of 125,000-175,000 seals per year after 1972, and the catches in Greenland have increased markedly since the early 1970's.

Catches of hooded seals at Newfoundland were 5,000-10,000 during 1946-65 and 10,000-15,000 during 1966-82. In the Jan Mayen area, catches averaged

about 40,000 seals during 1950–65 and decreased to about 15,000 around 1980. In addition, catches at the level of about 15,000 hooded seals were taken annually in Denmark Strait until 1960. Although the degree of interrelationship among hooded seal populations in the different areas remains to be explored, tagging studies have demonstrated movements between the Greenland, Newfoundland and Denmark Strait patches. A few years after the large reduction in the Denmark Strait catch of hooded seals in 1961, there was a continued increase in Greenland catches to the early 1980's.

The apparent indications of long-term relationships between the catches of harp and hooded seals in the breeding and molting areas and those in Greenland do not preclude the possibility that climatic or other factors had an influence in counteracting or reinforcing the effects of large-scale exploitation of seals on drift ice during the breeding and molting season.

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## Appendix

Catches (numbers) of harp and hooded seals in Greenland by region (see Fig. 1) are final for 1954–83 (Anon., 1956–84) and provisional for 1984. Catches for the Thule District in North Greenland and the Scoresbysund District in Northeast Greenland include estimates to account for non-reported catches in some years.

Year	West Greenland						East Greenland				Greenland total
	N	NW	CW	SW	S	Total	SE	KGH <sup>a</sup>	NE	Total	
<b>Harp seals (<i>Phoca groenlandica</i>)</b>											
1954	...	4,204	10,126	3,117	1,465	18,912	475	—	32	507	19,419
1955	...	3,755	7,013	2,915	1,762	15,445	178	—	45	223	15,668
1956	...	2,555	5,233	1,726	1,369	10,883	180	—	5	185	11,068
1957	...	3,404	5,119	2,356	1,938	12,817	133	—	40	173	12,990
1958	...	4,688	7,614	2,672	1,731	16,705	360	—	30	390	17,095
1959	...	3,383	3,882	713	866	8,844	168	—	7	175	9,019
1960	...	5,230	6,749	2,008	1,992	15,979	350	—	15	365	16,344
1961	173 <sup>b</sup>	3,314	6,940	1,105	354	11,886	219	—	13 <sup>b</sup>	232	12,118
1962	63 <sup>b</sup>	2,464	4,068	934	865	8,394	211	—	10 <sup>b</sup>	221	8,615
1963	120 <sup>b</sup>	2,509	5,794	848	732	10,003	215	—	20 <sup>b</sup>	235	10,238
1964	67	2,249	5,537	737	550	9,140	125	—	7	132	9,272
1965	109	2,693	5,241	823	385	9,251	76	—	2	78	9,329
1966	65	1,684	4,241	627	412	7,029	55	—	6	61	7,090
1967	90	1,071	2,421	212	421	4,215	54	—	10	64	4,279
1968	117	1,649	3,469	979	812	7,026	180	—	4	184	7,210
1969	63	1,485	2,983	1,522	330	6,383	110	—	9	119	6,502
1970	150	1,166	2,419	1,638	805	6,178	182	—	15	197	6,375
1971	53	1,227	2,024	1,827	409	5,540	63	—	5	68	5,608
1972	49	2,089	2,770	734	310	5,952	84	—	6	90	6,042
1973	84	2,960	4,358	1,214	546	9,162	100	—	38 <sup>b</sup>	138	9,300
1974	327 <sup>b</sup>	1,525	3,824	1,042	355	7,073	144	—	27	171	7,244
1975	208 <sup>b</sup>	1,675	2,238	1,335	497	5,953	125	—	68 <sup>b</sup>	193	6,146
1976	332 <sup>b</sup>	2,649	2,241	2,132	433	7,787	260	—	27	287	8,074
1977	644 <sup>b</sup>	4,554	3,548	952	240	9,938	72	—	21	93	10,031
1978	282	4,401	3,637	1,469	751	10,540	408	—	30	438	10,978
1979	543 <sup>b</sup>	5,381	5,152	1,044	654	12,774	171	—	18	189	12,963
1980	352 <sup>b</sup>	4,118	5,988	1,375	437	12,270	308	—	45 <sup>b</sup>	353	12,623
1981	184 <sup>b</sup>	2,783	7,707	2,421	510	13,605	427	—	49 <sup>b</sup>	476	14,081
1982	335 <sup>b</sup>	4,542	8,214	3,401	752	17,244	267	—	50 <sup>b</sup>	317	17,561
1983	407 <sup>b</sup>	6,573	6,322	3,746	1,691	18,739	357	—	57 <sup>b</sup>	414	19,153
1984	409 <sup>b</sup>	4,972	5,270	4,934	2,082	17,667	525	—	61 <sup>b</sup>	586	18,253
<b>Hooded seals (<i>Cystophora cristata</i>)</b>											
1954	—	101	158	72	766	1,097	201	—	—	201	1,298
1955	1	93	218	46	614	972	343	—	1	344	1,316
1956	—	71	127	59	336	593	261	—	3	264	857
1957	5	90	77	58	567	797	410	—	2	412	1,209
1958	—	168	118	42	518	846	361	—	4	365	1,211
1959	2	84	49	128	517	780	312	414	8	734	1,514
1960	3	110	195	97	560	965	327	773	4	1,104	2,069
1961	14	64	159	114	322	673	346	803	2	1,151	1,824
1962	3	83	97	88	274	545	324	988	2	1,314	1,859
1963	7	107	185	77	516	892	314	813	2	1,129	2,021
1964	3	500	229	138	1,315	2,185	550	366	2	918	3,103
1965	3	487	297	90	945	1,822	308	—	2	310	2,132
1966	8	368	279	100	1,066	1,821	304	748	—	1,052	2,873
1967	18	155	294	116	1,025	1,608	357	371	1	729	2,337
1968	12	220	181	128	851	1,392	640	20	1	661	2,053
1969	5	153	210	394	1,060	1,822	410	—	1	411	2,233
1970	3	234	319	165	691	1,412	704	—	9	713	2,125
1971	2	200	206	229	997	1,634	744	—	—	744	2,378
1972	1	191	213	284	1,694	2,383	1,825	—	2	1,827	4,210
1973	16	250	279	390	1,719	2,654	673	—	4	677	3,331
1974	61 <sup>b</sup>	362	380	552	1,446	2,801	1,205	—	13	1,218	4,019
1975	143 <sup>b</sup>	290	947	463	1,836	3,679	1,027	—	58 <sup>b</sup>	1,085	4,764
1976	108 <sup>b</sup>	266	455	1,195	2,206	4,230	811	—	22 <sup>b</sup>	833	5,063

## Appendix (continued)

Year	West Greenland						East Greenland				Greenland total
	N	NW	CW	SW	S	Total	SE	KGH <sup>a</sup>	NE	Total	
1977	102	586	481	561	2,021	3,751	2,226	—	32 <sup>b</sup>	2,258	6,009
1978	73	774	410	751	1,627	3,635	2,752	—	17	2,769	6,404
1979	152 <sup>b</sup>	908	672	587	1,293	3,612	2,289	—	15	2,304	5,916
1980	113 <sup>b</sup>	643	862	763	1,398	3,779	2,616	—	21	2,637	6,416
1981	101 <sup>b</sup>	509	824	890	1,421	3,745	2,424	—	28 <sup>b</sup>	2,452	6,197
1982	128 <sup>b</sup>	969	791	817	1,693	4,398	2,035	—	16 <sup>b</sup>	2,051	6,449
1983	79 <sup>b</sup>	1,085	382	972	1,637	4,155	1,321	—	9 <sup>b</sup>	1,330	5,485
1984	79	685	507	1,054	1,039	3,364	1,328	—	17	1,345	4,709

<sup>a</sup> Royal Greenland Trade Department special fishery in Denmark Strait, 1959–68.

<sup>b</sup> Figures for this region include estimates to account for non-reported catches only in these years.

