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

by

Finn O. Kapel

Greenland Fisheries and Environment Research Institute
Tagensvej 135, DK-2200 Copenhagen N., Denmark

ABSTRACT

The available statistical information on the catch of harp and hooded seals in Greenland in the period 1939-83 is reviewed, and trends in catches are examined. For both species catches were decreasing in the early part of the period, and increasing in the most recent decades. The possible explanations for this development are discussed.

INTRODUCTION

Statistical information on the catch of harp and hooded seals in Greenland was presented in a number of previous papers (Kapel, 1975a; 1975b; Kapel, MS 1978; Kapel and Geisler, MS 1979; and Kapel, 1982). Additional data were submitted as working papers at the Special Meeting of NAFO's Scientific Council in November 1980 and 1981, and at a meeting of ICES' ad hoc Working Group on seal stocks in the Northwest Atlantic in October 1982. Present and previous information on the occurrence and hunting of hooded seal in Greenland was reviewed in a document prepared for the Hooded Seal Workshop in Bergen, November 1983 (Kapel, MS 1983).

In this paper revised, final catch data for the period 1954-1983 are presented, compared with previously published information, and recent trends in the catch of both species are examined and discussed.

STATISTICAL DATA BASE

The most important source of information on the catch of seals in Greenland is the so-called "Fangstlister" (Hunters' Lists of Game). An excellent review of the history, arrangement, and content of this system of collecting statistical data on catches of marine mammals (and a few terrestrial species) in Greenland was given by Rosendahl (1961), and a short description of the hunting statistics was included in several previous papers by me (e.g. Kapel, 1975a; MS 1983). A summary of the hunting statistics from their origin in the 1860s

until World War II was published during the war (Anon., 1944), and Rosendahl (1961) analysed trends in the catch of harp (and ringed) seal during the period 1939/40 to 1957/58. For the years 1954 to 1982 annual summaries have been published by the Ministry for Greenland (Anon., 1956, 1984). The figures for 1983 included in this paper are obtained from a similar publication in preparation (Anon., 1985 (in press)). The responsibility for collecting hunting statistics has been transferred from the Ministry for Greenland to the Greenland Home Rule Authorities as of January 1985, and the arrangements for the future presentation of the statistical data remain to be decided. Prior to 1939 the hunting statistics only made a distinction between "small" and "large" seals; from 1939/40 onwards catches are given by species. For most localities reporting was rather complete until the early 1960s (Rosendahl, 1961), and estimates of non-reported catches were not attempted. For a few districts (e.g. Thule and Scoresbysund), the data were, however, incomplete, and the data published for the period 1954/55 - 1960/61 may thus be underestimates of the real catches. For harp and hooded seals the difference is, however, only a small fraction of the total catch in Greenland. Since 1961/62 the published summaries contain estimates of catches at localities with incomplete or lacking reporting. The estimates are based on other information, e.g. trade statistics, and are in my opinion conservative. The published, final figures may, therefore, underestimate true landings somewhat.

The hunting statistics refer to catches as landings, and make no attempt to estimate total kills, i.e. include losses. Loss rates vary by species, hunting method, skill of hunters, and time of year, and data allowing an analysis of this problem in Greenland are few and circumstantial. For harp and hooded seals the loss rate is considered "high" early in the season, "low" late in the season, but any attempt to apply certain rates or percentages will be guessing rather than estimating.

RESULTS: CATCH LEVELS AND TRENDS

1. Harp seal

Around 1940 the most important region for hunting harp seal in Greenland was the Disko Bay area (CW in Table 1 and Fig. 1), where an annual catch of appr. 10,000 harp seals was taken (max. 14,500 in 1941). During the 1950s and 1960s catches declined to a level of appr. 3,000 per year (min. 2,000 in 1971). Between 1972 and 1978 catches in this region were stable or showed a slightly increasing trend, but in the most recent years (1979-1983) the annual catch has been at the level 5,000-8,000, i.e. the same level as in the late 1950s (Fig. 1).

The second most important region is Northwest Greenland (Umanak and Upernavik districts, NW in Fig. 1). From a level of 5,000-6,000 in the 1940s (max. 7,000 in 1942) catches declined to 1,000-2,000 around 1970. Since then the catch has increased again, reaching a level of 4,000-5,000 around 1980 (max. 6,500 in 1983).

For Southwest and South Greenland (SW and S in Fig. 1) catch statistics are not available for the early 1940s, but in the late 1940s catches were of the order 3,000 annually in both regions. A declining trend occurred during the 1950s, and around 1965 the catch level was 750 and 500 in Southwest and South Greenland, respectively. In region SW catches increased to 1,000-2,000 in the 1970s, and reached the previous level of 2,500-3,500 in 1981-83. In region S catches showed little or no increase during the 1970s, and only in 1983 a significantly higher catch was obtained (1,700).

For the northernmost part of West Greenland (Thule district, N in Fig. 1) catch statistics are incomplete for most years. Vibe (1950, p. 65) states that the catch of harp seal in the district is "not overwhelmingly large, some 50 animals every summer". The available evidence for more recent years indicates that the catch has increased from around one hundred in the 1960s to a few hundreds in the late 1970s and early 1980s.

In East Greenland the catch of harp seal is of minor importance. For Northeast Greenland (Scoresbysund district) the catch statistics are incomplete, but previous estimates indicated an annual take of less than 50 harp seals (Pedersen, 1931; Sjøberg MS 1975). For the most recent years the official estimates indicate a catch level of about 50 (Table 1), whereas Born (1983) based on local information and interviews estimates a catch of 100-200 harp seals per year.

In Southeast Greenland (Anmassalik district) the catch of harp seal was at the level of 700-800 in the early 1950s, but dropped to 200-300 in the late 1950s, the 1960s and early 1970s. In the late 1970s and early 1980s a slight increase in catches (to 400-500) is indicated (Table 1 and Fig. 1).

In summary, the trends in catches of harp seal since the 1940s have been similar in all regions. For West Greenland as a whole (Fig. 2) the catches dropped from a level of 20,000-25,000 in the 1940s (max. 24,500 in 1947) to 6,000-7,000 in the late 1960s (min. 4,200 in 1967). In the early 1970s catches began to increase again. By 1980 the catch level had doubled (appr. 13,000), and catches in 1982 and 1983 were even higher (17,000-19,000).

2. Hooded seal

Trends in catches of hooded seals in Greenland were discussed in some details in a previous paper (Kapel, MS 1983). The main points are the

following: Rink (1852-55; 1857; 1877) estimated that about 2,000-3,000 hooded seals were caught annually in West Greenland in the period 1853-72. Available information indicates that the catch was higher in the last decades of the 19th century (probably at the level 10,000 -15,000 annually), as well as in the period 1916-20 (6,000--8,000) (Anon., 1944; Kapel, MS 1978; MS 1983). For the southern part of West Greenland (regions SW and S) a similar level (5,000-6,000) was estimated for the catch of hooded seal in the 1920s (Pedersen, 1966).

During the following decades catches declined drastically in South Greenland, reaching a level of 500-1,000 annually around 1950. The available information does not allow a detailed analysis of trends in other regions prior to 1950, but the catch of "large seals" was fairly stable in the northern part of West Greenland during the period 1912-34 (Anon., 1944). The major part of "large seals" taken in Northwest Greenland were old harp seals, the catch of which was probably increasing during that period (Anon., 1944; Kapel MS 1978). It is thus likely that the catch of hooded seals in Northwest Greenland followed the same trend as in Southwest Greenland, i.e. decreased during the 1930s and 1940s.

The development during the period 1954-83 is illustrated by Table 2 and Fig. 3. During the 1950s and early 1960s catches remained at a very low level in all regions: 500-1,000 for total West Greenland, and less than 500 in East Greenland (not including the special fishery in the Denmark Strait by the Royal Greenland Trade Department, KGH). Starting in the mid-1960s increasing trends can be seen in all regions. In West Greenland as a whole the average annual catch was about 1,700 in the period 1964-71, and about 3,600 in the period 1972-83 (max. 4,400 in 1982). In East Greenland (excl. KGH) the increasing trend was less pronounced at first (average about 500 for 1964-71, about 900 for 1972-76), but in 1977 catches rose to a much higher level (average 2,400 for 1977-82; max. 2,769 in 1978. In 1983 the catch dropped to about 1,300 which, however, still is significantly higher than the catch in the early 1970s.

In summary, during the last two decades catches of hooded seals in Greenland have shown a significantly increasing trend, and have reached a level similar to that estimated for the early part of the 20th century, but are probably still below the catch level in the last decades of the 19th century. The distribution of catches in different regions may have changed during the time. The catch of hooded seal in South Greenland is still a large fraction of the total catch in Greenland, but probably less so than at Rink's time in the second half of the 19th century.

DISCUSSION

Reliability of the catch statistics

As mentioned in the section on the statistical data base (p. 2-3), the hunting statistics were fairly complete during the first part of the period in question (1939-83), at least in respect to the reporting of harp and hooded seal catches, whereas an estimation of non-reported catches was introduced later on. A few examples will illustrate this:

In 1955 hunting lists were received from 127 localities in Greenland, of which reporting was considered incomplete in three settlements. Reports were lacking for six other localities representing a population of 732 people or approximately 103 hunters/fishermen. On the basis of previous years' catches the catch of harp and hooded seals at these six localities was estimated at 514 and 27, respectively - compared to a total catch of 15,668 and 1,212. This year no estimate was made for the Thule district (approximately 400 people or 60 hunters at 10 localities).

In 1965 hunting lists were received from 107 localities, at which the catch amounted to 9,218 harp and 2,127 hooded seals. For 25 localities reports were lacking or considered incomplete; 16 of these were sheep farming settlements with very little hunting activity (358 people), and the remaining 9 were hunting settlements in Thule and Scoresbysund districts (519 and 405 inhabitants), for which only the number of skins traded were added (111 harp and 5 hooded seals).

For both these years the published figures are thus based on a rather satisfactory reporting system, and the underestimation of true catches is considered negligible (few hundreds).

In 1975 reports were completely lacking for 20 localities: 10 sheep farming settlements (80 inhabitants), one large district centre or "town" (3074 inhabitants), and 9 hunting settlements (1169 inhabitants); of the 98 localities for which reports were received, the reporting was considered incomplete for several. The catch reported in the Lists of Game was 4,489 harp seals and 3,756 hooded seals. To this was added an estimated, non-reported catch of 1,657 harp seals and 1,008 hooded seals (37% and 27%, respectively). This addition was partly based on factual information, e. g. the number of skins traded at the localities with incomplete reporting (average 12% and 6%, respectively), partly on estimation of the number of skins not traded at these localities (average 25% and 21%, respectively); the last-mentioned estimation was done by comparison with localities with satisfactory reporting.

Clearly, the efficiency of the reporting system has become less in

recent years, and publishing the raw Lists of Game data could be highly misleading. For this reason, the reports are being evaluated on a site by site basis, considering other sources of information and adding estimates of non-reported catches. The corrected, published figures are thus not exact to the last detail, but they give, in my opinion, a reasonably good impression of the correct catch level, and are thus suited for analyses of major trends in catches.

Changes in habitation and occupation patterns

Until the beginning of the 20th century hunting was the main occupation of the population of Greenland, although some modification of habitation and hunting patterns had occurred during the preceding two centuries. The population of Greenland 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 were living in small settlements, few in slightly larger administration centres (23% by 1921). A multispecies hunting pattern showed minor regional variation, but the dominating role of hunting was the same in all parts of Greenland (Kapel and Petersen, 1982).

A change in this pattern appeared at the turn of the century and increasingly in the 1920s and 1930s. The seal hunt decreased, especially in Southwest Greenland, at the same time as cod was found in significant numbers in the Davis Strait. A transition to fishing was planned, and to a great extent carried out during the 1930s and 1940s, evolving rapidly after 1950. A similar development did not take place in Northwest and East Greenland, and as a result Greenland was divided into several regions, which are rather different in respect to occupational possibilities (Kapel and Petersen, 1982).

During the same decades the population size 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 administration centres, or "towns", in which also the major part of the fishing industry was developed. 29% of the population lived in the "towns" in 1936, 40% in 1946, 45% in 1955, 57% in 1959, and 74% in 1972. Although the percentage of the population living in the small settlements thus declined dramatically, it is, however, important to note that the number of people in these did not change much during the period: The total number of people in the small settlements was around 10,000 in 1972, as it was in 1921 (Anon., 1942; 1984).

The regional diversity in present day's Greenland calls for a closer analysis of this matter. In the "true" hunting districts the number

of small settlements are fewer than fifty years ago, but their average size is larger, and the total number of people living at hunting settlements in these districts is almost unchanged. The "towns" in the hunting districts have grown considerably in the same period, but most people in these places are not full-time hunters today. In the small settlements in the fishing districts, hunting often plays an important role as a supplement to fishing, and also in the larger fishing centres part-time hunting is carried out by a number of people. In summary, the total number of active seal hunters have probably not changed much during the period 1921-72.

Another indication in the same direction is the fact that the number of hunters reporting through the Lists of Game was at the same level in the late 1950s and the early 1970s (3,300-3,400). Around 1980 the number was much lower (2,000-2,100), but this does not necessarily mean that the actual number of hunters was reduced that much, only that the reporting system does not function satisfactorily any more, as discussed above (Anon., 1956; 1984).

In order to examine the relation between the number of hunters and the trends in catches, a comparison of the observed trends for different species of seals is a first approach. Fig. 4 demonstrates that trends are different for the three most important species in Greenland: During the period between the late 1940s and the early 1960s when the catch of harp (and hooded) seals was decreasing, the catch of ringed seals increased significantly. The catch of hooded seal began to increase in the early 1960s, whereas a similar trend in the catch of harp seal did not become evident until the early 1970s. The catch of ringed seal showed large year-to-year fluctuations in the 1960s, but the general trend was a continued increase, at least until the mid 1970s.

As mentioned above, the number of hunters was almost constant during the period, so the observed trends for the three species cannot be explained simply by changes in the number of hunters. Analyses on a regional basis lead to the same conclusion.

Modification of hunting methods

The traditional method of hunting harp and hooded seal in Greenland was open-water hunt from the kayak, securing the seal with harpoon and bladder, and killing it with a lance. Most often the seal was killed in the water, occasionally when lying on an ice floe (Fabricius, 1790; 1791). The first important modification was the introduction of fire-arms for hunting in Greenland in the 18th century. In the kayak hunting they were of less importance until breech loader rifles came in common use in Greenland from 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 of greatest

importance in the first half of the 19th century; in the early decades of the 20th century this hunting method gave insignificant output, and was soon stopped (Anon., 1944).

The next important change was the gradual replacement of the kayak 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) For open-water hunting of seals a small, un-powered boat is clearly a step backwards from a kayak. The same is probably true for the rather slow fishing boats with an in-board motor, which was the next development in the fishery. It is quite possible that the declining catches of seals, which led to the development of fishing, were reinforced by the introduction of fishing boats and other gear which became the condition for this development. It should, however, be stressed that the use of the kayak retained its importance in the hunting districts for many years after it had become rare in the fishing districts. It is still in use, often in combination with small motor-boats (Kapel and Petersen, 1982)

A recent development is the introduction, in the late 1960s and early 1970s, of out-board motors which is now generally used for hunting, also in the "true" hunting districts. What this innovation really meant for hunting success, is unclear. It definitely meant that the individual hunter could cover a much larger area in short time - and make a lot more noise ! Whether this also meant that he would be able to get close enough to more seals, and catch them, is quite another matter. Data allowing an evaluation of this problem are not available.

Market considerations

Originally, all products from the seal were used in the household, and the hunter had no impulse for catching more than was needed for that purpose, apart from maintaining his status as a keen hunter. Since the colonization of Greenland in the early part of the 18th century, the hunters purchased part of the products, blubber and skin, in return for various imported goods. Generally, this trade does not appear to have led to a great degree of surplus-hunting, as the demand for meat and other edible products was rarely exceeded, so that the governing factors were the subsistence needs and the availability of seals. (Kapel and Petersen, 1982).

Early in the 1960s the purchase of seal blubber was discontinued due to failing market conditions outside Greenland, and the hunters were left with the trade of skins as their only means of cash income. Examination of the average auction price of seal skins, the number of skins traded, and the catch statistics for the period 1963-75 does not leave the impression of a close relation between the price and the hunting results (Anon., 1983). The main impulse for seal hunting

in Greenland is apparently still the desire to meet subsistence needs. Another point is, that the present unfavourable prices of seal skin have had a serious impact on the economy of the hunters. Today the trade of skins is a loosing concern for the Greenland hunter, and there are indications in the most recent years of failing interest in trading the skins of the animals caught: it does not pay any more to do the work of preparing the skins.

Environmental factors

The decline in seal catches in Southwest Greenland and the occurrence of cod in the Davis Strait in the beginning of the 20th century have been related to an increase in sea water temperature at that time (e.g. Jensen, 1939; Hansen, 1949). In case of the cod it is generally accepted that even small changes in the environmental conditions will have large effects on the distribution and reproduction of the species in these waters. It seems also reasonable to suppose that a rise in sea water temperature could have great effect for the distribution of the fast-ice breeding ringed seal. It is less obvious, that such small changes in water temperature would effect the summer migration of harp and hooded seals significantly. If, on the other hand, the small changes in temperature is only an indication of large-scale changes in the environmental conditions, e.g. fluctuation in the occurrence and amount of drift ice as hypothesized by some authors (e.g. Vibe, 1967), such fluctuations could have large effects on the breeding success, abundance and occurrence of both harp and hooded seals. Vibe (1967) relates the abundance of hooded seal in South Greenland at the turn of the century to mass occurrence of the East Greenland drift ice, followed in the next decades by a withdrawal of the ice, and a decrease in abundance of hooded seal. His arguments concerning the relation between ice and the variation in abundance of harp seals seem less convincing.

Exploitation and regulation

It is well documented that the harp and hooded seals hunted in Greenland are closely connected with the breeding stocks around Newfoundland, and possibly also with the Jan Mayen stocks (Rasmussen and Øritsland, 1964; Sergeant, 1965; Popov, 1970; Larsen and Kapel, MS 1979; Larsen, MS 1981; Kapel 1982). For hooded seals, the relation to the moulting patches in the Denmark Strait have also been demonstrated (Kapel, 1982). In addition, recaptures in Greenland of bluebacks tagged in the Davis Strait in March 1984 show, not unexpectedly, that this breeding patch also contributes to catches in Greenland.

A comparison of the catch history at the breeding and moulting fields with the catch in Greenland is, therefore, tempting. In this paper, this comparison is limited to the period for which detailed statis-

tics are available for Greenland (1939-83). Just before World War II the catch of harp seals at Newfoundland was at the level 100,000-200,000 annually, or somewhat less than in the first decades of the 20th century (Sergeant). During the war catches almost ceased at Newfoundland. At the same time the catch of harp seal in Greenland reached a high level. Just after the war the catch of harp seal at Newfoundland increased to a very high level in the 1950s and 1960s (about 250,000- 350,000). During that period catches in Greenland were reduced to about one third of their previous level. Since 1972 catches of harp seals at Newfoundland have been reduced by quota regulation to a level of 125,000-175,000 per year, and since the early 1970s catches in Greenland have increased markedly.

Catches of hooded seals at Newfoundland have been at a much lower level than catches of harp seals (5,000-10,000 between 1946 and 1965, slightly higher from 1966 to 1982: 10,000-15,000). In the Jan Mayen area, catches were higher (average about 40,000 until the mid-1960s, declining to an average of about 15,000 around 1980). In addition, catches at the level of 15,000 hooded seals were taken annually in the Denmark Strait until 1960. Although the degree of interrelationship between the different areas remains to be explored, tagging has shown migrations between Newfoundland, Greenland, and the Denmark Strait patch. In the last-mentioned area, catches were greatly reduced in 1961. Few years after the catch in Greenland began to increase and has continued to do so until recently.

In conclusion, the indications of long-term relations between the catches at the breeding and moulting patches and the catch levels for harp and hooded seals in Greenland appear evident. This does not exclude that climatic or other factors also have an influence and may counteract or reinforce the effects of the large-scale exploitation at the drift-ice patches.

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TABLE 1. Harp seal catches in Greenland by region, 1954-83. (a)

Year	West Greenland						East Greenland			Greenland Total
	N ^(b)	NW	CW	SW	S	Total	SE	NE ^(c)	Total	
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	15,974	350	15	365	16,344
1961	173	3,314	6,940	1,105	354	11,886	219	13	232	12,118
1962	63	2,464	4,068	934	865	8,394	211	10	221	8,615
1963	120	2,509	5,794	848	732	10,003	215	20	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	138	9,300
1974	327	1,525	3,824	1,042	355	7,073	144	27	171	7,244
1975	208	1,675	2,238	1,335	497	5,953	125	68	193	6,146
1976	332	2,649	2,241	2,132	433	7,787	260	27	287	8,074
1977	644	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	5,381	5,152	1,044	654	12,774	171	18	189	12,963
1980	352	4,118	5,988	1,375	437	12,270	308	45	353	12,623
1981	184	2,783	7,707	2,421	510	13,605	427	49	476	14,081
1982	335	4,542	8,214	3,401	752	17,244	267	50	317	17,561
1983	407	6,573	6,322	3,746	1,691	18,739	357	57	414	19,153

(a) Source: Sammendrag af Grønlands fangstlister m.v.

(b) N (Thule district) inclusive estimated, non-reported catches only for 1961-63, 1974-77 and 1979-83.

(c) NE (Scoresbysund district) inclusive estimated, non-reported catches only for 1961-63, 1973, 1975 and 1980-83.

TABLE 2. Hooded seal catches in Greenland by region, 1954-83. (a)

Year	West Greenland							East Greenland				Greenland Total
	N ^(b)	NW	CW	SW	S	Total	SE	KGH (c)	NE (d)	Total		
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	362	380	552	1,446	2,801	1,205	-	13	1,218	4,019	
1975	143	290	947	463	1,836	3,679	1,027	-	58	1,085	4,764	
1976	108	266	455	1,195	2,206	4,230	811	-	22	833	5,063	
1977	102	586	481	561	2,021	3,751	2,226	-	32	2,258	6,009	
1978	73	774	410	751	1,627	3,635	2,752	-	17	2,769	6,404	
1979	152	908	672	587	1,293	3,612	2,289	-	15	2,304	5,916	
1980	113	643	862	763	1,398	3,779	2,616	-	21	2,637	6,416	
1981	101	509	824	890	1,421	3,745	2,424	-	28	2,452	6,197	
1982	128	969	791	817	1,693	4,398	2,035	-	16	2,051	6,449	
1983	79	1,085	382	972	1,637	4,155	1,321	-	9	1,330	5,485	

(a) Source: Sammendrag af Grønlands fangstlister m.v.

(b) N (Thule district) inclusive estimated, non-reported catches only for 1974-76 and 1979-83.

(c) KGH = Royal Greenland Trade Department special fishery in Denmark Strait.

(d) NE (Scoresbysund district) inclusive estimated, non-reported catches only for 1975-77 and 1981-83.

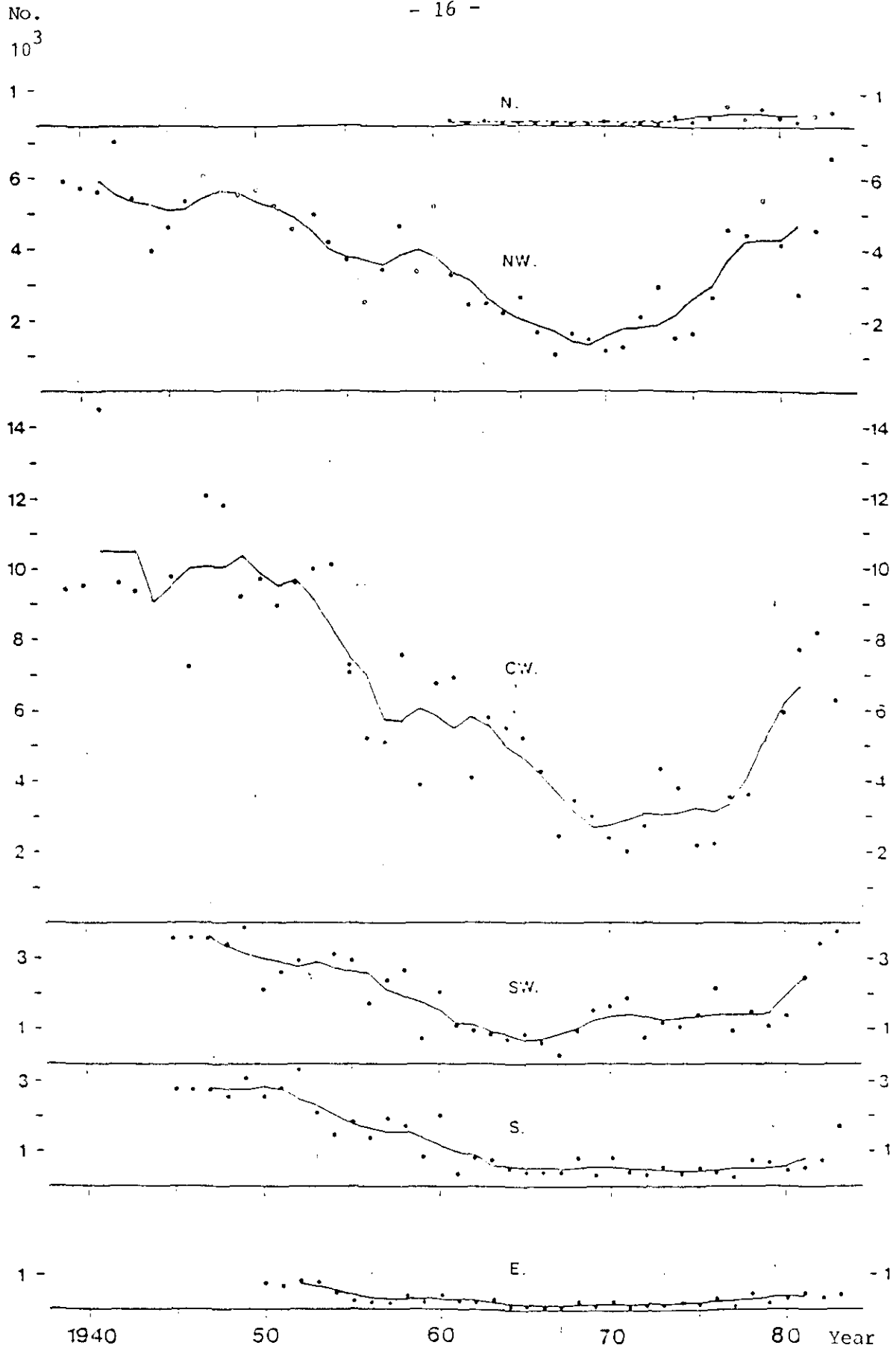


Fig. 1. Harp seal catches in Greenland 1939-83, by region. Actual figures are indicated by dots, 5-years sliding averages by curves.

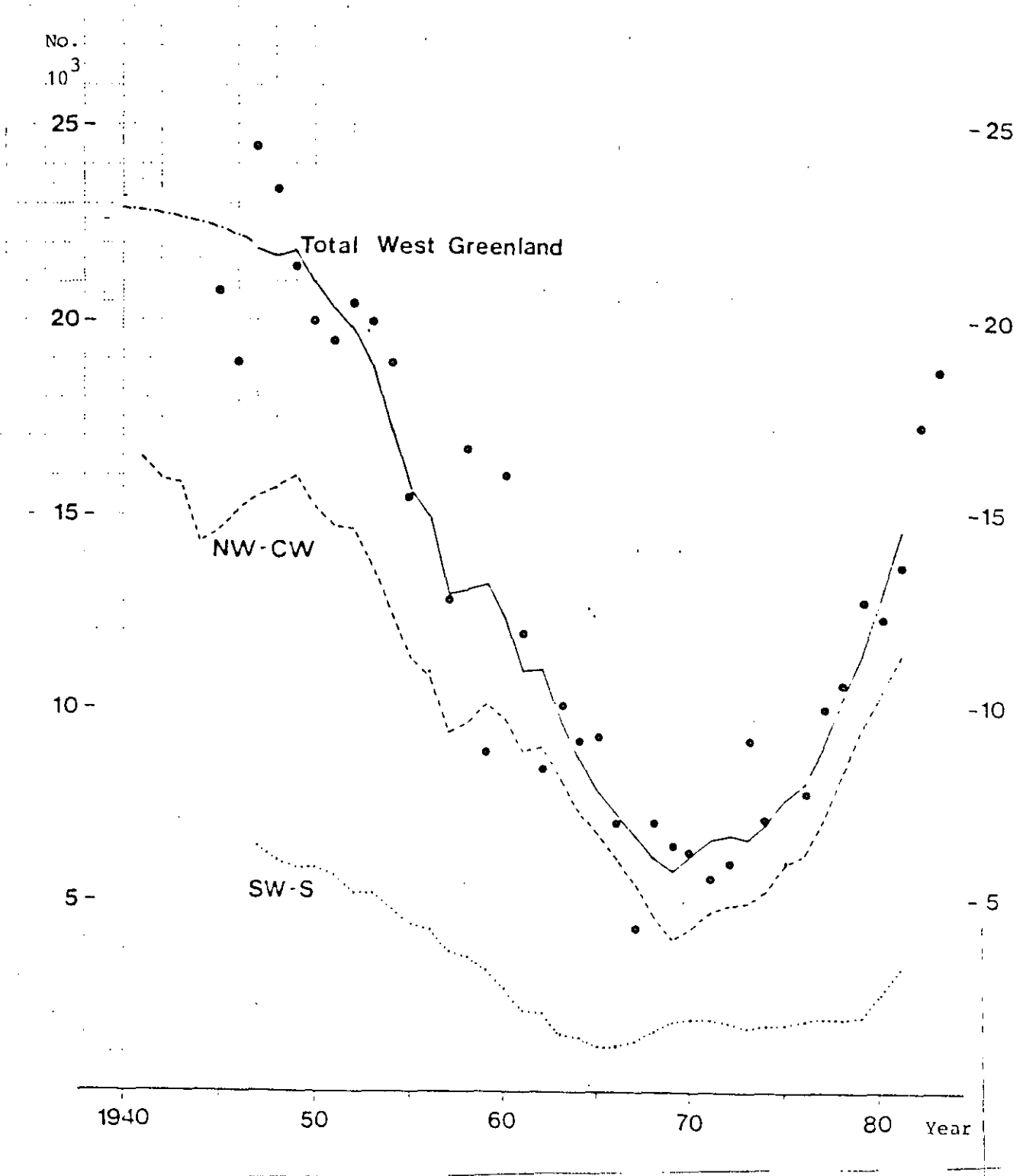


Fig. 2. Harp seal catches in West Greenland, 1941-83. Actual figures are indicated by dots, 5-years sliding averages by the curves. The curve for Total West Greenland is extrapolated backwards 1948-1940 on the basis of actual figures for the northern regions (NW + CW), and the trend indicated for the southern regions (SW + S).

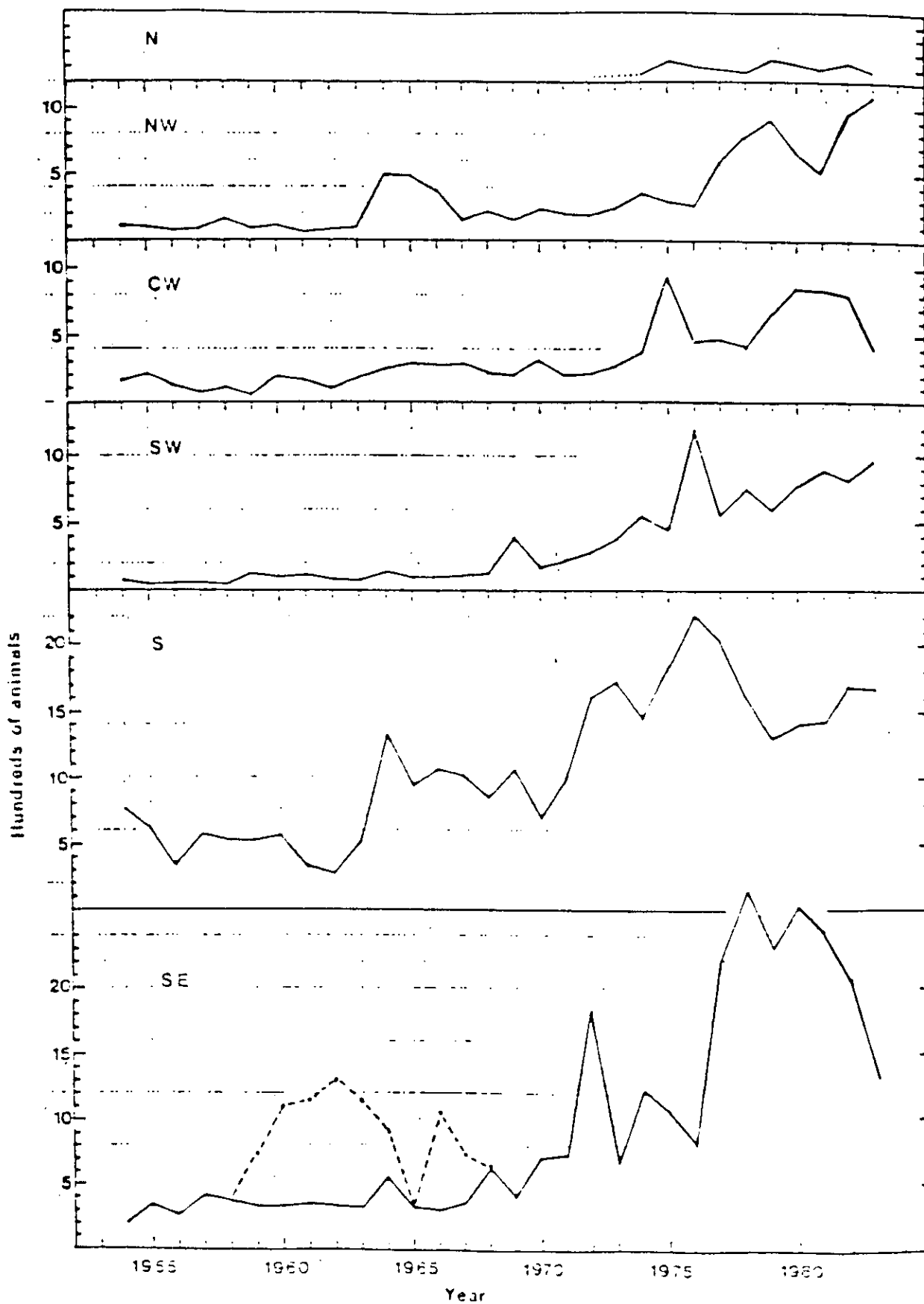


Fig. 3. Hooded seal catches in Greenland 1954-53, by region. Dashed line shows East Greenland catches including a special fishery in the Denmark Strait during 1959-68.

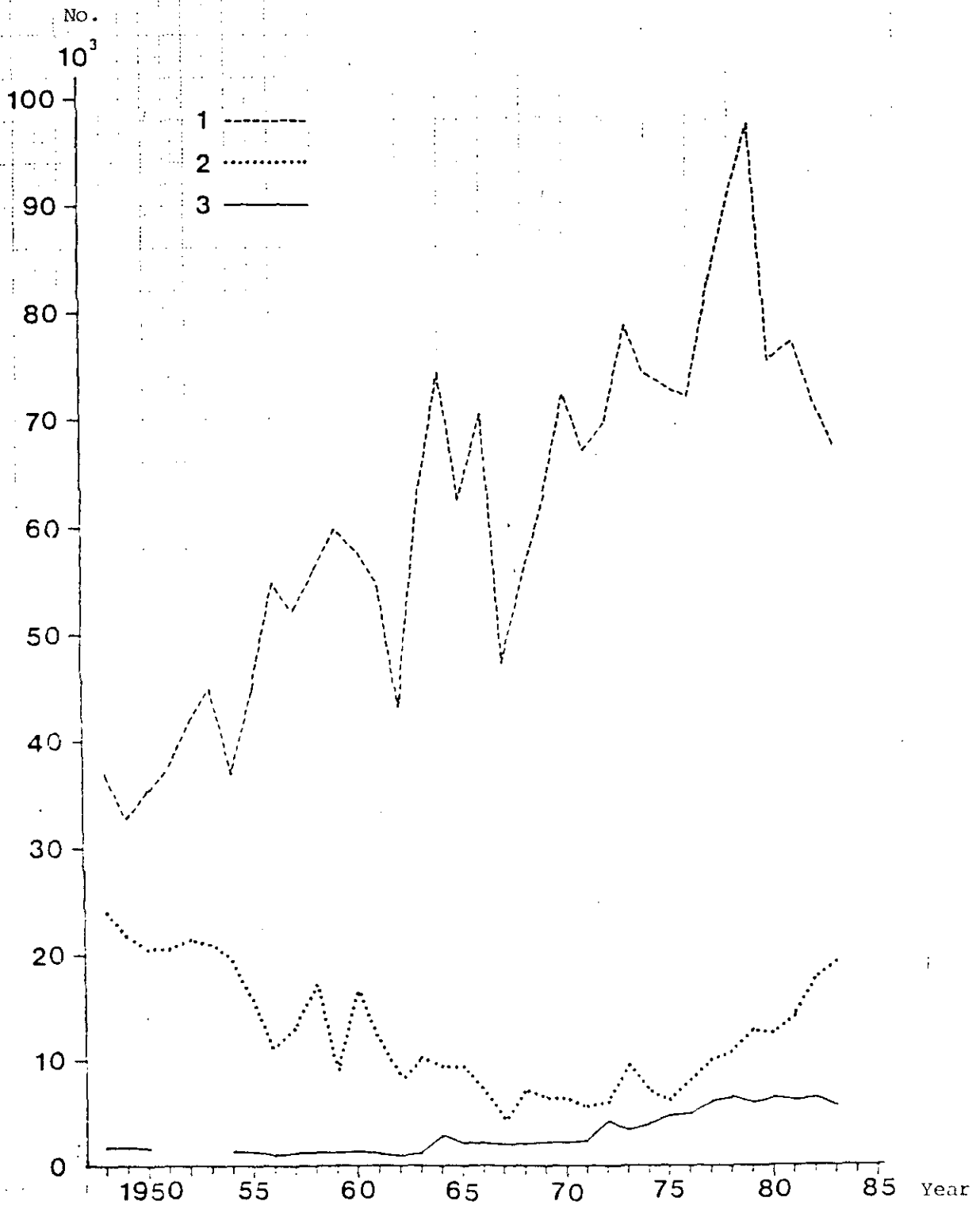


Fig. 4. Catch of the three most important seal species in Greenland, 1948-83: 1. Ringed seal, 2. Harp seal, and 3. Hooded seal.

