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Progress Report on Research on Harp and Hooded Seals in Greenland, 1978-79

by

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Research on harp and hooded seals in Greenland has been limited to a study of the catch statistics and age determination of the samples of harp seals collected in 1976 and 1977. Preliminary results are, together with some observations during field work 1978 and 1979, presented in this paper, and compared with previous work. A review of recaptures in Greenland of harp seals tagged at Newfoundland and Jan Mayen is given in a separate working paper.

HARP SEALS

1. Catch statistics

Catch statistics for harp seals in Greenland for the years 1975-78, as reported in the Greenlanders' Lists of Game, are shown in Table 1. The result in 1978 was evidently better than in the three preceding years, especially when the preliminary nature of the catch figures is taken into account.

The Lists of Game are dependent on the interest and precision of the person, who keeps note on the results of the hunters at each settlement. It happens every year, that lists for some hunters at a given settlement, for entire settlements, or districts are lacking. Having approached the local authorities in Greenland again, the statistical office of the Ministry for Greenland estimates the non-reported catch. This procedure takes some time, and in Table 1 adjusted figures are only presented for 1975.

There is, however, another possibility of checking the data from the Lists of Game, namely the number of skins purchased by the KGH (Royal Greenland Trade Department). An example is shown in Table 2 for the settlements of Upernavik district, where the Lists of Game are considered rather reliable. Although skins may be traded in another settlement than the one in which the catch is reported, it is obvious that even in Upernavik district the figures given in the Lists of Game are too low. An adjustment in order to cover this fact is normally not done by the statistical office, but is attempted in Table 2 (Estimated totals) using the information from Upernavik district and applying similar correction factors for other districts.

The estimated totals given here for 1975 and 1976 are higher than those given in a previous paper (Kapel, 1977), but based on more detailed information. The figures for 1977 and 1978 are similar to, or even higher than, the previous

estimates for 1974 and 1973, respectively. Altogether, an increasing trend in the catches of harp seals in Greenland during the 1970s is clearly demonstrated by the catch statistics. This is particularly true for Umanak district, where catches have more than doubled during this period.

It must, however, be kept in mind, that hunting in Greenland is greatly influenced by other factors than the presence of seals. As an example it was recorded during field work in Umanak district in 1979, that the catch of harp seals was rather poor in the first three weeks of August, evidently due to rather rough weather. In the last week of August, however, weather improved and within a few days several hundreds of seals were caught, and the final figures for that month will probably show extremely good catches.

2. Samples for age determination

The results of the requests to collect seal jaws for age determination are also shown in Table 2. The reaction was rather good in the northern and middle parts of Upernavik district, but poor in the southern part, except in 1978. In Umanak district a request was only directed to a few settlements in 1975 and 1976, with an excellent response from one of those. In 1977 and 1978 fairly large samples were obtained from several settlements in that district. For the more southern districts sampling success is still very poor. There is, however, some small but interesting samples from the outer part of the Disko Bay area (Localities 48 and 91), from where material has previously been very scattered.

Part of the 1976 samples and all samples from 1977 have only been aged by one of us (AG), who did not start working with this technique until the spring of 1979. A double-checking of the age determination is, therefore, desirable and will be carried out later. We feel, however, quite certain that the ageing of the young animals, especially the young of year, is reliable, and that the data are worth presenting in their preliminary form. The 1978 samples have not yet been analysed.

Age frequencies for the 1976 and 1977 samples are presented in Table 3 and Figure 1, and compared with previous samples in Table 4 and Figure 2. The samples from Upernavik district and the samples from Umanak district in 1976 are in rather good agreement with samples from previous years, with the exception of the small sample from Locality 24, where young of the year are much more dominating than usually. In the 1977 samples, however, young of the year are represented with higher percentages in all samples from North West Greenland, with the exception of the two small samples from the northern part of Upernavik district (Localities 11-20). As in previous samples, older animals are rather well represented in the samples from Upernavik district, but almost lacking in Umanak district, where young of the year constitutes more than 80% of the sample. The sample from the inner part of Disko Bay (CWe, Loc.40) is small, but shows a very high frequency of one year old animals in 1977 (August). The sample from the outer part of Disko Bay (CWw, Loc.91), collected between November and February, shows a high percentage of young of the year, but also a fairly good representation of immature (male) and adult (female) animals. This sample thus confirms, that harp seals, and especially young animals, to some extent spend the winter in Central West Greenland, as also indicated by recent recoveries of tagged animals (NAFO/SCR Doc. 79/XI/13).

Pooling all the samples from 1977 (Fig.2) gives the impression, that the catch of harp seals in Greenland was much more dominated by young of the year than usually. The above analysis indicate, that this in fact is only the case in some areas, and that one reason for the impression given by Figure 2 is that the pooled sample for 1977 is dominated by the Umanak samples, which nearly all have very high percentages of young of the year. The segregation of age groups by area (and time) which is clearly demonstrated by the difference in age composition between samples from different localities stress the importance of collecting material from several areas, and analysing individual samples before the pooled sample is compared with previous ones, or conclusions drawn on the composition of the catch of harp seals in Greenland as a whole.

With this in mind, it is probably a reasonable statement that the catch of harp seals in Greenland has been increasing over the last few years, and that this increase is especially evident in the catch of young of the year. This does not necessarily imply that the abundance of older animals in Greenland waters is decreasing, relatively. According to the hunters, older animals are definitively more difficult to approach than young animals, and the sinking loss probably higher. A further point is, that older animals are often caught rather late in the season, which is generally less well covered in the present samples.

3. Other studies

Together with the jaws, information on the catch was collected, including date of catch (Fig.3), catching locality, hunting method, sex and length of the animal, and stomach content. These data are not yet fully analysed.

During field work in 1979 some additional information on feeding behaviour, including a few samples of stomach contents, was collected in Umanak district. It appears that polar cod (*Boreogadus*) was ^{an} extremely important feeding item in that area in 1978 and 1979, whereas information collected together with the jaw samples in the early 1970s gave "small crustaceans" for the contents of most stomachs from seals caught in Umanak district (Kapel, 1973).

In 1979 it was also attempted to weigh some harp seals caught in Umanak district. For 13 animals total body weight was measured, for some of them additional weighing of skin, blubber, meat and entrails was carried out. One purpose of this exercise is to collect better information on the amount of meat available from seals caught in Greenland, in relation to the requirements for consumption by sledge-dogs and humans.

HOODED SEALS

1. Catch statistics

The figures for the catch of hooded seals 1975-1978 are presented in Table 1. They seem to indicate a decreasing trend for West Greenland during these four years. An examination of the data in the same manner as described above for harp seals reveals, however, that this is probably not the case in North West and Central West Greenland, whereas it may be true for South Greenland, which used to be and still is the most important region for the catch of this species (Table 5).

In South East Greenland the catch of hooded seal was evidently extremely successful in 1977 and 1978 compared with previous years. The total catch of hooded seals in Greenland was apparently between 5000 and 6000 animals in both years.

2. Samples for age determination

Table 5 also presents the amount of material collected for age determination. It appears that sampling success was rather good in North West Greenland, but less so, and decreasing, in South Greenland.

Age determination and analyses of the material collected since 1974 has not yet been possible.

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Table 1. Catches of harp and hooded seals in Greenland, 1975-78. (Data from the Greenlanders' Lists of Game)

Year	Region	Beaters and bedlamers	Old harps	Total harps	Total hooded
1975	Thule ²⁾	157	51	208	143
	NW	1596	110	1706	305
	CWe	896	281	1177	320
	CWw	812	249	1061	627
	SW	1227	98	1325	463
	S	431	61	492	1834
	W Greenland	5119	850	5969	3692
E Greenland	128	64	192	1071	
1976 ¹⁾	Thule	21 ⁺	11 ⁺	32 ⁺	8 ⁺
	NW	2025	94	2119	226
	CWe	73 ⁺	105 ⁺	178 ⁺	56 ⁺
	CWw	629	223	852	258
	SW	1342	100	1442	1104
	S	266	15	281	1664
	W Greenland	4356 ⁺	548 ⁺	4904 ⁺	3316 ⁺
E Greenland ³⁾	60 ⁺	59 ⁺	119 ⁺	546 ⁺	
1977 ¹⁾	Thule	20 ⁺	22 ⁺	42 ⁺	2 ⁺
	NW	2802	237	3039	571
	CWe	256 ⁺	218 ⁺	474 ⁺	55 ⁺
	CWw	1189	362	1551	297
	SW	920	41	961	566
	S	149	41	190	1679
	W Greenland	5336 ⁺	921 ⁺	6257 ⁺	3170 ⁺
E Greenland ³⁾	56 ⁺	28 ⁺	84 ⁺	2169 ⁺	
1978 ¹⁾	Thule	.	.	.	.
	NW	3616	505	4121	721
	CWe	250 ⁺	398 ⁺	648 ⁺	49 ⁺
	CWw	716	276	992	167
	SW	1261	40	1301	671
	S	589	11	600	1163
	W Greenland	6432 ⁺	1230 ⁺	7662 ⁺	2771 ⁺
E Greenland	188	37	225	2315	

1) Preliminary figures for 1976-78, as data are lacking for Jakobshavn district, (in CWe) and for some settlements in other districts. Figures for districts in 1975 include estimated, non-reported catches.

2) Lists of Game are incomplete for Thule district. For 1975 is given number of skins purchased by KGH (Royal Greenland Trade Department).

3) Lists of Game are incomplete for Angmagssalik and Scoresbysund in 1976 and 1977.

Table 2. Sample size (S) compared with catch figures (C) and purchase of skins (P) of harp seal in West Greenland, 1975-1978. (Notes: see Table 1.)

District,	Loc.No.	1975			1976 ¹⁾			1977 ¹⁾			1978 ¹⁾		
		C	P	S	C	P	S	C	P	S	C	P	S
Thule ²⁾		176 ⁺	208	-	32 ⁺	.	-	42 ⁺	.	-	.	.	-
	11	5	32	12	40	45	19	43	28	5	10	10	-
	14	82	75	6	90	101	9	30	110	7	93	50	15
	17-20	77	87	47	142	179	107	153	226	28	147	156	43
	21-23	208	218	105	248	171	118	146 ⁺	216	160	70 ⁺	131	74
	24	43	59	48	50	65	19	61	62	20	63	103	25
	25	20	31	-	147	147	-	109	124	-	22	60	-
	27	238	105	-	.	174	-	249	325	-	418	333	80
	29	50	20	-	142	113	-	199	133	-	232	156	-
Upernavik		823 ¹⁾	627	218	859 ⁺	993	272	990 ⁺	1224	220	1055 ⁺	999	237
	30	143	.	-	116	.	-	195	.	-	318	.	46
	31	169	.	-	187	.	-	345	.	65	977	.	-
	32	75	.	-	73	.	-	290	.	-	329	.	159
	34	274	.	-	246	.	-	323	.	69	458	.	45
	35	.	.	-	33	.	-	30	.	-	25	.	1
	37	78	.	-	182	.	-	221	.	7	413	.	-
	38	75	.	72	207	.	132	343	.	211	265	.	119
	39	37	.	-	225	.	-	302	.	95	281	.	142
Umanak		883 ¹⁾	.	72	1269	.	132	2049	.	446	3066	.	512
	40	143	.	-	.	.	-	.	.	31	.	.	125
	45	196	.	17	.	.	-	.	.	-	.	.	-
	Other	.	.	-	.	.	-	.	.	-	.	.	-
Jakobshavn		1039 ¹⁾	.	17	.	.	-	.	.	31	.	.	125
Christianshåb		138	.	1	178	.	-	474 ⁺	.	-	648 ⁺	.	.
Subtotal NW+CWe		2883 ¹⁾	.	308	2306 ⁺	.	404	3513 ⁺	.	697	4769 ⁺	.	874
	48	.	.	-	.	.	-	525	.	8	345	.	39
	91	28	.	-	85 ⁺	.	-	225	.	67	.	.	46
	Other	.	.	-	.	.	-	801	.	-	647 ⁺	.	-
CWw		1061	.	-	852 ⁺	.	-	1551	.	75	992 ⁺	.	85
SW		1325	.	-	1442 ⁺	.	-	961 ⁺	.	-	1301 ⁺	.	-
S		492	.	1	281 ⁺	.	1	190	.	-	600 ⁺	.	-
Subtotal CWw+SW+S		2878	.	1	2575 ⁺	.	1	2702 ⁺	.	75	2893 ⁺	.	85
Total West Greenland (excl. Thule)		5761	.	309	4881 ⁺	.	405	6215 ⁺	.	772	7662 ⁺	.	959
Estimated total		6000			6300			7700			9900		

Table 3. Age frequencies in samples of harp seal from North West and Central West Greenland, 1976 and 1977.¹⁾

Age group		0	1	2	3	4	5	6	7	8	9	10	11-15	16-20	21-25	26+	Sum
Loc.No.	Year																
11-14,	1976	14	8	1	1	1	-	-	-	-	-	-	1	1	1	-	28
	1977	5	-	3	-	1	-	-	1	-	-	-	1	-	1	-	12
17-20,	1976	43	34	19	7	2	-	-	-	-	-	2	-	-	-	-	107
	1977	7	8	1	2	4	1	-	1	-	-	-	2	1	-	1	28
21-23,	1976	68	27	10	6	4	1	-	-	-	-	1	-	1	-	-	118
	1977	129	8	9	2	4	2	1	2	1	1	-	1	-	-	-	160
24,	1976	14	3	2	-	-	-	-	-	-	-	-	-	-	-	-	19
	1977	15	2	2	-	1	-	-	-	-	-	-	-	-	-	-	20
UPV	1976	139	72	42	14	7	1	-	-	-	-	3	1	2	1	-	272
	1977	156	18	15	4	10	3	1	4	1	1	-	4	1	1	1	220
31,	1977	44	10	5	3	1	-	-	-	1	-	-	-	-	-	-	64
34,	1977	57	6	3	2	-	-	-	-	-	-	-	-	1	-	-	69
37,	1977	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	(7)
38,	1976	111	15	2	1	-	-	-	-	1	-	-	-	2	-	-	132
	1977	188	15	5	2	1	-	-	-	-	-	-	-	-	-	-	211
39,	1977	81	9	4	1	-	-	-	-	-	-	-	-	-	-	-	95
UMK	1976	111	15	2	1	-	-	-	-	1	-	-	-	2	-	-	132
	1977	370	40	17	8	2	-	-	-	1	-	-	-	1	-	-	439
40,	1977	18	13	-	-	-	-	-	-	-	-	-	-	-	-	-	31
48,	1977	5	-	-	1	-	-	-	-	-	-	-	1	1	-	-	8
91,	1977	48	9	2	3	-	1	-	-	-	-	-	1	1	1	1	67
CW	1977	71	22	2	4	-	1	-	-	-	-	-	2	2	1	1	106
NW	1976	250	87	34	15	7	1	-	-	1	-	3	1	4	1	-	404
	1977	526	58	32	12	12	3	1	4	2	1	-	4	2	1	1	659
NW+CW	1977	597	80	34	16	12	4	1	4	2	1	-	6	4	2	2	765

1) Preliminary results; further checking of older age groups necessary.

Table 4. Age distribution (%) in samples of harp seal from NW and CW Greenland, 1976 and 1977, compared with previous samples.

Age group		0	1	2	3	4	5	6	7	8	9	10	11-15	16-20	21-25	26 ⁺	Sample size
Loc.No.	Year																
11-14,	1972-75	55	31	9	1	1	-	-	.4	.4	-	-	1	.4	.4	-	236
	'76	52	30	4	4	4	-	-	-	-	-	-	4	4	4	-	28
	'77	48	-	25	-	8	-	-	8	-	-	-	8	-	8	-	12
17-20,	1972-75	59	21	9	2	2	2	.3	.3	.3	.3	-	2	.6	.9	.6	324
	'76	40	32	18	7	2	-	-	-	-	-	2	-	-	-	-	107
	'77	25	29	4	7	14	4	-	4	-	-	-	7	4	-	4	28
21-23,	1972-75	54	22	10	4	3	2	.7	1	1	-	.7	.4	1	.2	.7	464
	'76	58	23	9	5	3	.8	-	-	-	-	.8	-	.8	-	-	118
	'77	81	5	6	1	3	1	.6	1	.6	.6	-	.6	-	-	-	160
24,	1972-75	51	19	7	7	6	.6	1	.6	1	.6	-	2	4	.6	.6	182
	'76	74	16	11	-	-	-	-	-	-	-	-	-	-	-	-	19
	'77	75	10	10	-	5	-	-	-	-	-	-	-	-	-	-	20
27-29,	1972-74	14	24	13	4	7	3	4	2	.5	-	2	9	7	4	1	205
UPV,	1972-75	49	23	9	4	3	2	1	.9	.6	.1	.4	2	2	1	.6	1411
	'76	51	27	12	5	3	.4	-	-	-	-	1	.4	.8	.4	-	272
	'77	71	8	7	2	5	1	.5	2	.5	.5	-	2	.5	.5	.5	220
31,	1972-73	38	5	3	-	1	-	2	-	-	-	-	-	1	-	-	101
	'77	69	16	8	5	2	-	-	-	2	-	-	-	-	-	-	64
34,	'77	83	9	4	3	-	-	-	-	-	-	-	-	1	-	-	69
38,	1972-75	82	8	3	1	.3	.8	-	.5	.3	.5	-	.5	2	.5	.5	392
	'76	84	11	2	.8	-	-	-	-	.8	-	-	-	2	-	-	132
	'77	89	7	3	1	.5	-	-	-	-	-	-	-	-	-	-	211
39,	'77	85	10	4	1	-	-	-	-	-	-	-	-	-	-	-	95
UMK	1972-75	83	8	3	.8	.4	.6	.4	.4	.2	.4	-	.4	2	.4	.4	493
	'76	84	11	2	.8	-	-	-	-	.8	-	-	-	2	-	-	132
	'77	84	9	4	2	.5	-	-	-	.2	-	-	-	.2	-	-	439
40-45,	1972-75	67	14	7	2	2	1	1	2	-	-	.2	2	.7	2	.5	437
	'77	58	42	-	-	-	-	-	-	-	-	-	-	-	-	-	31
91,	'74	17	31	14	3	-	9	3	3	6	-	-	9	3	3	-	35
48+91,	'77	71	13	3	6	-	1	-	-	-	-	-	3	3	1	1	75
CW	1972-75	63	15	7	2	2	2	2	2	.4	-	.2	3	1	2	.4	472
	'77	67	21	2	4	-	1	-	-	-	-	-	2	2	.9	.9	106
Total	1972-75	59	18	8	3	2	2	1	.9	.5	.2	.3	2	2	1	.5	2376
	'76	62	22	8	4	2	.2	-	-	.2	-	.7	.2	.9	.2	-	404
	'77	78	11	4	2	2	.5	.1	.5	.3	.1	-	.8	.5	.3	.3	765

Table 5. Sample size (S) compared with catch figures (C) and purchase of skins (P) of hooded seal in West Greenland, 1975-1978. Notes: See

Table 1.

District Locality No.	1975			1976 ¹⁾			1977 ¹⁾			1978 ¹⁾		
	C	P	S	C	P	S	C	P	S	C	P	S
Thule ²⁾	143	.	-	8 ⁺	.	-	2 ⁺	.	-	.	.	-
11	10	21	2	30	21	20	64	29	12	24	21	-
14	35	24	-	26	13	12	20	45	2	66	44	10
17-20	37	30	19	29	24	21	105	96	15	186	156	32
21-23	30	55	11	21	25	10	85 ⁺	73	53	105	58	80
24	8	4	3	7	10	1	24	15	10	53	31	10
25	7	11	-	10	10	-	38	33	-	14	24	-
27	3	6	-	.	14	-	7	22	-	12	19	1
29	-	0	-	4	8	-	2	7	-	7	13	-
Upernavik	200 ¹⁾	151	35	127 ⁺	125	64	347	320	92	467	366	133
30	4	.	-	4	.	-	2	.	-	9	.	2
31	5	.	-	9	.	-	21	.	-	64	.	-
32	2	.	-	7	.	-	13	.	-	25	.	23
34	43	.	-	19	.	1	28	.	1	43	.	9
35	.	.	-	4	.	-	9	.	-	8	.	2
37	11	.	-	15	.	-	50	.	-	40	.	1
38	25	.	21	36	.	10	63	.	37	49	.	9
39	11	.	-	8	.	-	38	.	-	16	.	8
Umanak	105 ¹⁾	.	21	102	.	11	224	.	38	254	.	54
40	20	.	-	.	.	-	.	.	2	.	.	3
45	79	.	12	.	.	-	.	.	-	.	.	-
Other	20	.	-	.	.	-	.	.	-	.	.	-
Jakobshavn Christianshåb	119	.	12	.	.	-	55 ⁺	.	2	49 ⁺	.	3
	201	.	-	56	.	-						
Subtotal NW+CWe	625 ¹⁾	.	68	285 ⁺	.	75	626 ⁺	.	132	770 ⁺	.	190
48	.	.	4	.	.	-	117	.	2	85	.	4
91	30	.	-	.	.	-	.	.	-	.	.	-
Other	.	.	-	.	.	-	180	.	-	82 ⁺	.	-
CWw	627	.	4	258	.	-	297	.	2	167 ⁺	.	4
SW	463	.	-	1104 ⁺	.	-	566 ⁺	.	-	671 ⁺	.	-
Narssaq	124	.	-	6 ⁺	.	-	32	.	-	171	.	-
79	.	.	31	.	.	46	139	.	-	178	.	-
78	.	.	2	.	.	1	353	.	2	262	.	-
76	.	.	-	.	.	6	52	.	-	12	.	-
Other	.	.	-	.	.	-	43	.	-	55	.	-
Julianehåb	520	.	33	359 ⁺	.	47	587	.	2	507	.	-
75	.	.	15	.	.	-	181	.	-	.	.	-
73	.	.	58	.	.	102	624	.	141	289	.	56
72	.	.	37	.	.	34	64	.	33	65	.	6
71	.	.	20	.	.	23	17	.	-	.	.	-
Other	.	.	5	.	.	-	174	.	-	131	.	1
Nanortalik	1190	.	135	1299	.	159	1060	.	174	485 ⁺	.	63
S	1834	.	168	1664 ⁺	.	206	1679	.	176	1163 ⁺	.	63
Subtotal CWw +Sw+S	2924	.	172	3026 ⁺	.	206	2542	.	178	2001 ⁺	.	67
Total W. Grl. (excl Thule)	3549	.	240	3311 ⁺	.	281	3168	.	310	2771 ⁺	.	257
Estimated total	3700			3900			3600			3300		

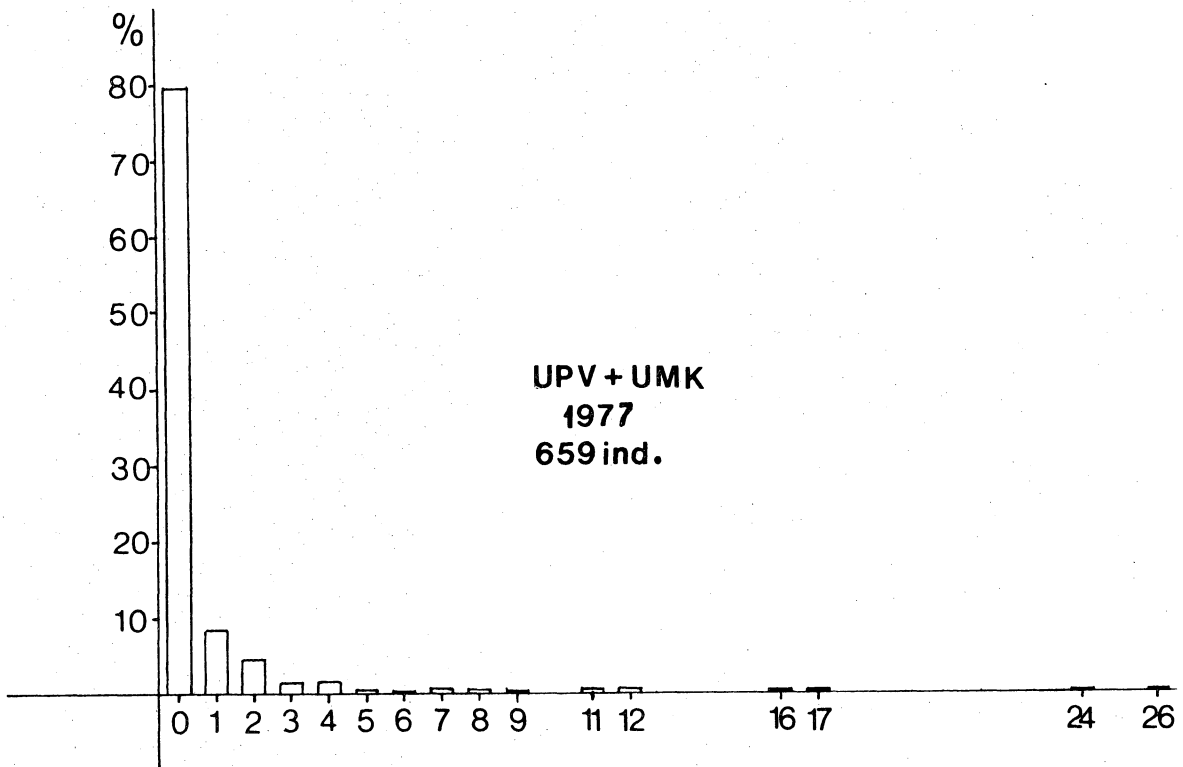
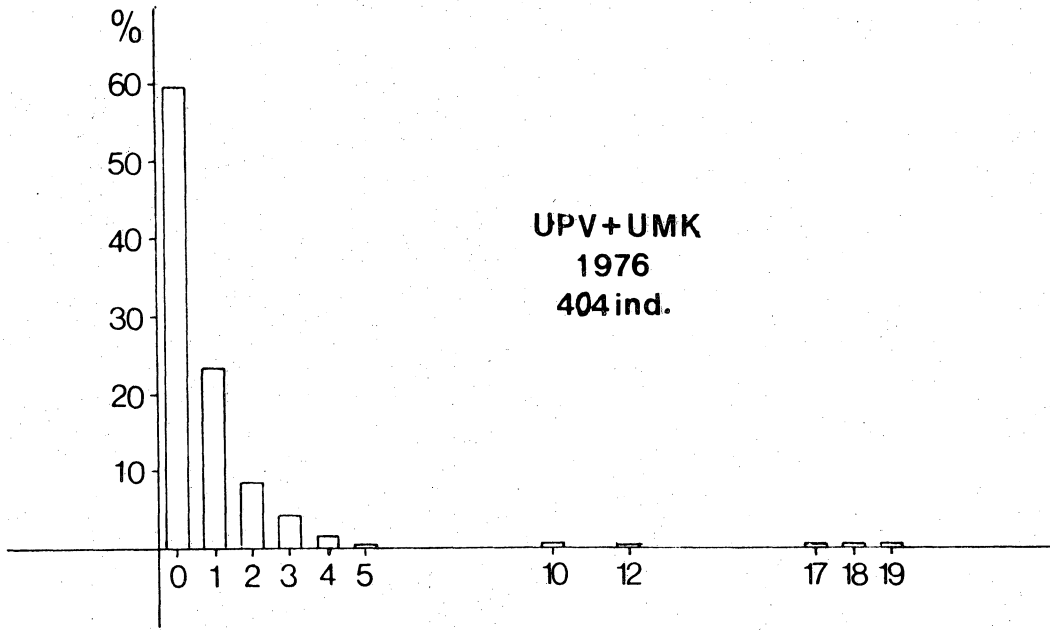


Figure 1. Age distribution of harp seals caught in North West Greenland, 1976 and 1977.

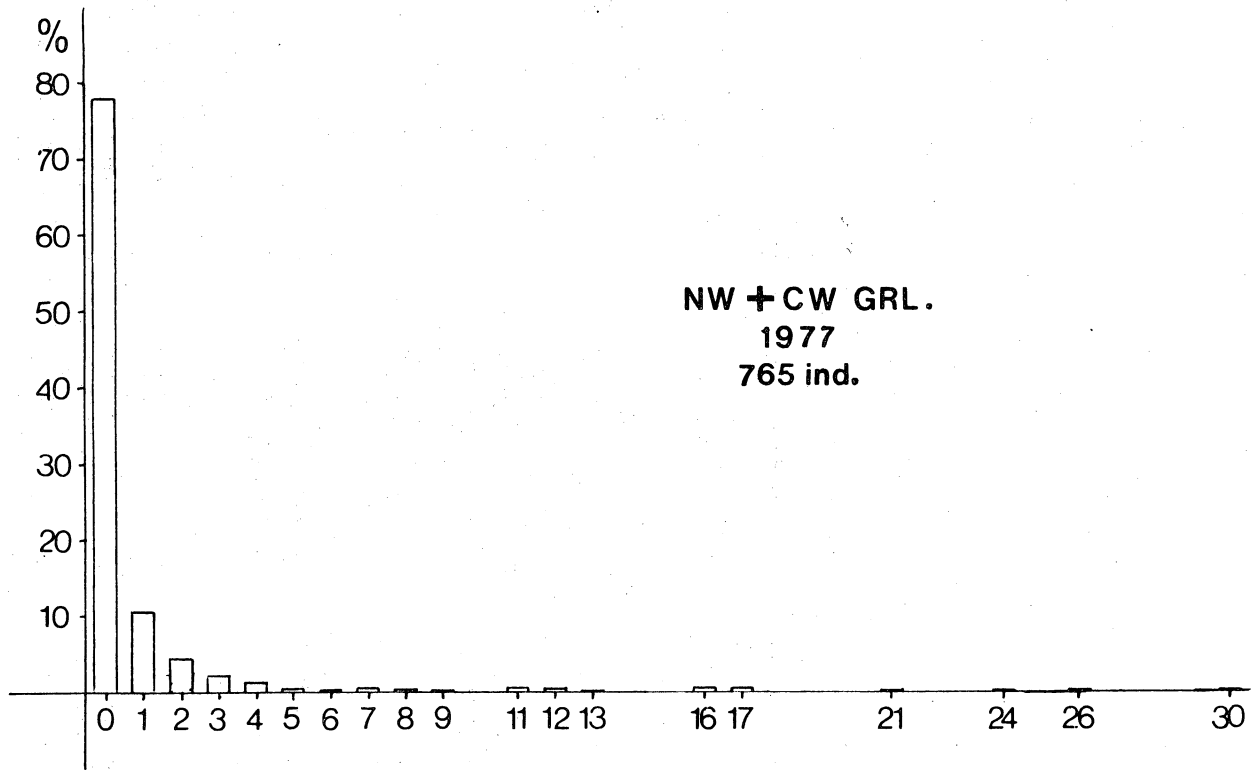
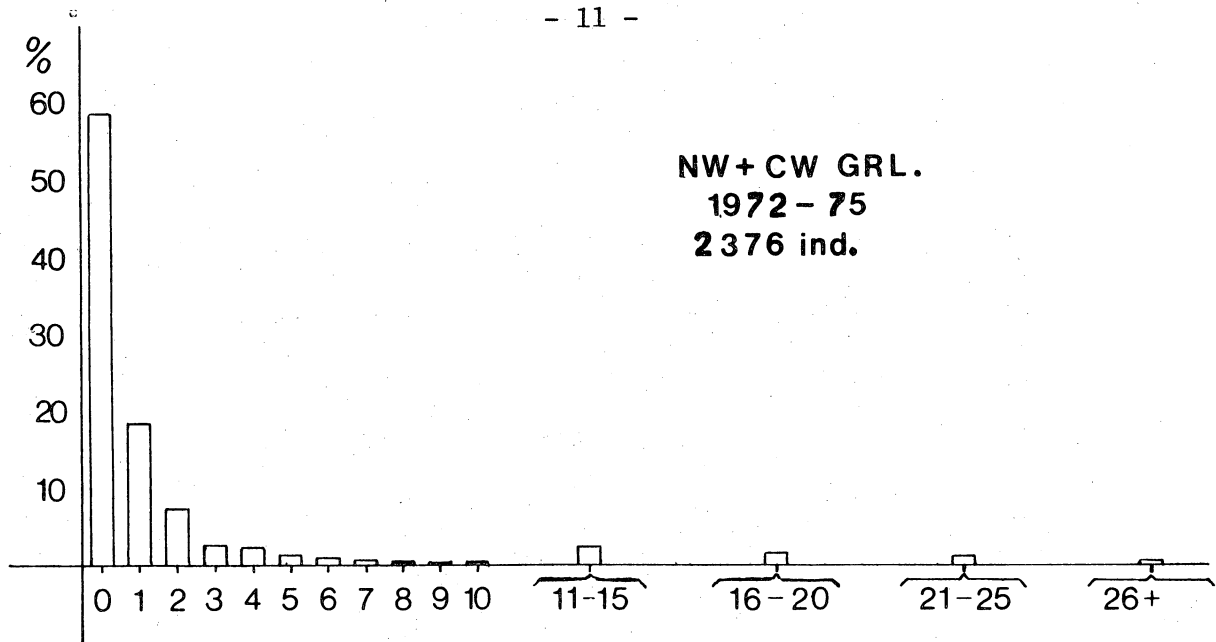


Figure 2. Age distribution of harp seals caught in North West and Central West Greenland, 1972-75 and 1977.

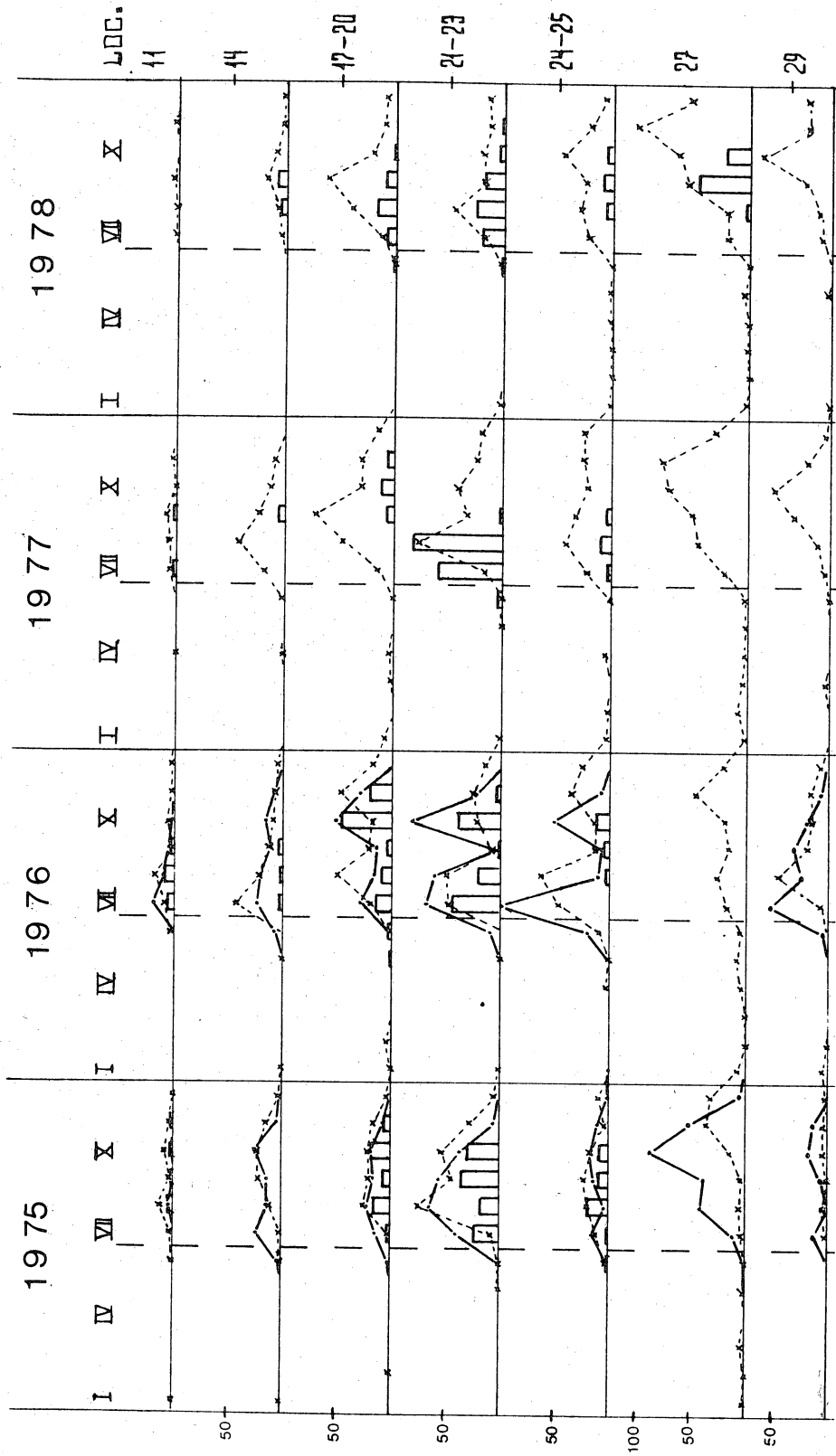


Fig. 3. Seasonal distribution of catches, purchase of skins, and samples of harp seals in Upernavik district, North West Greenland, 1975 - 1978.

—•—•— Reported catch x---x Purchase of skins □ Samples of jaws