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Research on hooded seals in the western North Atlantic in 1977

by

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Abstract

A whelping concentration of hooded seals in Davis Strait has now been located in three years of successful search and can probably be regarded as a constant feature. Latitude of formation is about 63 to 64°N while longitude varies with ice conditions in the particular year, the seals necessarily being close to the eastern border of the pack ice. Complete aerial photography is still needed to estimate numbers of seals which are probably in the range of 10,000 to 20,000 whelping adults. The number of hooded seals whelping at the Front must be added to these groups to give a total for the western North Atlantic west of Kap Farvel, and the only estimates of the Front groups are minimal ones derived from catch figures. Immature hooded seals in winter are found off N.E. Newfoundland. Immature hooded seals tagged or branded at Newfoundland (Gulf and Front) move as far as S.E. Greenland in summer, probably joining the herds which moult in Denmark Strait.

1. Whelping in Davis Strait

Flights were made in an Argus aircraft of the Canadian Armed Forces on March 19 and March 22, 1977 by W. Hoek accompanied by Dr. C. K. Capstick of Guelph University. On March 19 a patch of hooded seals was located at 63°N and 61°15'W. This latitude is normal but the longitude was far west of that found in previous surveys. Indeed

it was close enough to the Baffin Island coast that at least a dozen polar bears were seen feeding in it, doubtless attracted out from their normal coastal habitat, feeding on ringed seals, by the proximity of the hooded seals.

The ice as shown in all photographs consisted of extremely fragmented floes, indicating that easterly winds had persisted for a long time before whelping began. Conditions were thus closely similar to those in the Front at 53°N where sealing ships met extremely broken ice on March 12. Visual estimates of this herd were 3 to 4,000 pups (Hoek), 12,000 total (Capstick). It was photographed at 500 feet due to the low cloud ceiling. The lines were not complete and did not cross. An area estimate was obtained from the aircraft distance and speed. The resulting estimate of adult seals was 7.5 to 10 thousand. The low altitude photographs detected adults and pups, giving a ratio of 45/144 or 31% pups. There were 21 adults together with a pup, and 24 females with a pup. At this rate, pupping must have been well advanced but not completed.

On March 19 a second group was found to the northward at 63°50'N 59°50'W but not photographed due to aircraft malfunction. A large group was again located at 63°40'N, 61°W on March 22, believed to be the second group of March 19. No more hooded seals were found further to the northward to 65°35'N in a 10 mile wide strip along the ice border. The new group was photographed at 5000 feet. Two strips running at right angles allowed approximate delineation of area and density of adults. The estimate obtained was at least 1,346 animals as shown in Table 1.

Since all seals were not clearly identifiable on these high altitude prints, and since the negatives had become lost in the post, this estimate is a minimal one. W. Hoek in field notes stated that this second group appeared larger than the first one. The evidence is therefore for at least 10,000 adult seals, and perhaps twice as many, whelping in Davis Strait in 1977.

Table 2 and Figure 1 show results of the three successful aerial surveys in Davis Strait made in 1974, 1976 and 1977. The main conclusion is that there is a group or groups of hooded seals whelping

at the relatively constant latitude of 63 to 64°N in Davis Strait. Longitude varies with the season's weather conditions which determine the longitude of the ice edge, but whelping is always fairly close to the ice edge. These groups drift southward with the ice drift. There appear to be no further groups southward until the Front breeding groups of hooded seals are met with at about 52°N latitude.

As to the numbers of the Davis Strait hooded seals, no complete photographic coverage has yet been achieved, the only such coverage in 1977 having been unsatisfactory. Comparison of visual estimates of numbers is as follows:

1974 - Possibly 50,000 adults in three herds

1975 - 5 to 10,000 seals in one of two probable herds

1977 - 12,000 adults and 3,000 to 4,000 pups in one of two herds.

By comparison, the single reasonable photographic estimate is as follows:

1977 - 7,500 to 10,000 adults in the same herd as described above.

2. Tagging and Branding, and Recoveries thereof.

In March, 1977, 66 young hooded seals were tagged in the Gulf of St. Lawrence with green Rototags.

Two recoveries are reported from 1976 tagging of 80 young hooded seals in the Gulf of St. Lawrence. A (one year old) male length 166 cm was recovered from Sydproven, S. Greenland (60°17'N, 45°28'W) on 11 May, 1977. A second animal was recovered at Ikateq, nr Angmagssalik, S.E. Greenland (65°38'N, 37°58'W) on 10 June, 1977. Sergeant (1974 and MS 1976) summarised 7 earlier recoveries of Norwegian and Canadian tagged hooded seal pups of this kind. All 9 recoveries (Table 3) show a movement of immature hooded seals in spring from Newfoundland to S.W. through southern to S.E. Greenland where they enter into a coastal fishery.

In winter, hooded seals are taken in small numbers along the northeast coast of Newfoundland and off southern Labrador. Age samples of harp seals from S. Labrador and N.E. Newfoundland in winter always include several (about 1%) of these animals. An age frequency of such casually obtained animals (Table 4) shows that most are immatures. Probably the adults winter in water too deep to allow them to be netted. At any rate, the immatures winter along the N.E. Newfoundland and southern Labrador coasts, as has long been known to

the local people (Mosdell, 1923) and probably farther north; and move to the Denmark Strait ice to moult.

3. Age Sampling.

A voyage to the Front icefields was made in March 1977 on M/V Arctic Explorer by R. Greendale and B. McCullogh. The ship caught 688 young hooded seals, 256 adult males and 99 (14.3%) adult females. An age sample of 61 adult females was collected and analysed. The age frequency (Table 5) shows 9/61 or 14.7% 5 year olds, following a 1972 catch of 6.9 thousand young. This may be compared with 14.9% (in a total sample of 208) 5 year olds in 1976 from a 1971 catch of 8.0 thousand young. The new point in the analysis does not significantly change the estimate obtained in 1976 (Sergeant, MS 1976, Fig. 2, p. 8) that production of young hooded seals of this population - however it may ultimately be defined - is close to 25,000.

Acknowledgments

We are especially grateful to members of 415 Squadron, Canadian Armed Forces, for the Argus survey and photographs of hooded seals in Davis Strait.

Some of the tags listed in Table 3 were attached by Norwegian investigators; I am again obliged to Mr. T. Øritsland for permission to cite them. For continuing reports of recoveries from Greenland, I am indebted to my Danish colleague Mr. F. O. Kapel. I am grateful to Dr. C. K. Capstick for discussion and comments.

References

- Mosdell, E. M., Ed. (1923). Chafe's Sealing Book. St. John's, Nfld.: The Trade Printers and Publishers Ltd., 3rd Ed., 105 pp.
- Sergeant, D. E. 1974. A Rediscovered Whelping Population of Hooded Seals Cystophora cristata Erxleben and its Possible Relationship to Other Populations. Polarforschung 44: 1-7.
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- MS 1976. Research on Hooded Seals Cystophora cristata Erxleben in 1976. ICNAF Res. Doc. 76/x/126 (Revised). 8 pp. Mimeo.

Table 1. Hooded seal estimates, Davis Strait, 1977.

Gp. 1, March 19.

Area estimate = 10 x 3 to 4 miles.
= 30-40 sq. miles.
Area of each frame = .006 sq. miles.
Total adults = 144 on 96 frames.
∴ Density adults = 1.5/frame
= 250/sq. miles.
Total No. adults. = 7,500 to 10,000 adults

Gp. 2, March 22.

Area estimate (oval) = 286.5 sq. miles
Print area = 0.6 sq. miles.
Density > 4.7/sq. miles.
Total seals > 286.5 x 4.7
> 1,346

Total hoods, 1977 (estimate).

Gp. 1	7,500 - 10,000
Gp. 2	> 1,346
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Total	> 8,846 - 11,346

Table 2. Aerial surveys for hooded seals on Labrador coast and Davis Strait.

Year	Dates of survey	General region of flights	Hooded seals found			No hooded seals		Notes
			Lat. N	Long. W	Estimated number	Lat. N	Long. W	
1972	March 20	Front and Labrador coast	51 25 51 40	53 50 52 40	- scattered - some - large herd	52 50 to 61 36	52 45 to 64 46	Ice edge
1974	March 25	Davis Strait	(1) 63 32 (2) 63 56 (3) 64 20	56 32 56 00 56 15	possibly 50,000 adults	60 00 to 63 30	55 00 to 59 00	
1975	March 25	Davis Strait				62 26 to 64 14	58 35 to 58 07	Weather conditions marginal
1976	March 22	Davis Strait	62 54	56 17	5000 to 10,000 seals	62 00 to 62 56	62 18 to 56 17	
	March 24	Davis Strait	62 00 to 63 30	54 30 to 56 30	seals very scattered	62 54	56 17	
1977	March 18	Davis Strait	(1) 63 00 (2) 63 50	61 15 50 50	3000 to 4000 pups 12,000 adults large group	62 00		
	March 22	Davis Strait	63 40	61 00	large group	64 00 to 65 35		

Table 3. Hooded seals tagged in Gulf of St. Lawrence (G) or Front (F). Recoveries in Greenland.

Year tagged	Year recovered	= Age	Lat.	Long.	= Area	Month	Reference
1951 F	1956	5	60°07'	44°15'	S	III	Sergeant, 1974 Table 1
1964 F	1965	1	Holstensborg		SW	IV	
1964 F	1967	3	nr Julianehaab		S	V	
1970 F	1972	2	Angmagssalik		SE	VII	
1971 F	1972	1	Nanortalik		S	IV	
1972 G	1973	1	60°10'	46°10'	S	VI	
1975 G	1976	1	60°37'	45°55'	S	III	Sergeant 76/x/126
1976 G	1977	1	65°38'	37°58'	SE	VI	This paper
1976 G	1977	1	60°17'	45°28'	S	V	

Table 4. Age frequency of hooded seals taken from N.E. Newfoundland in net fisheries in winter (December to April), 1967-1977.

Age (yrs)	Number of animals	Age (yrs)	Number of animals
1	12	8	4
2	10	9	1
3	8	10	1
4	6	11	
5	3	12	
6	4	13	1
7	1	14	1
		N	= 52

Table 5. Age frequency of adult female hooded seals, Arctic Explorer, 1977.

Age in years	Number of animals	Age in years	Number of animals
1		11	1
2		12	4
3		13	2
4	3	14	1
5	9	15	
6	9	16	1
7	12	17	1
8	9	18	
9	6	19	
10		20	2
		21	1
		N	61

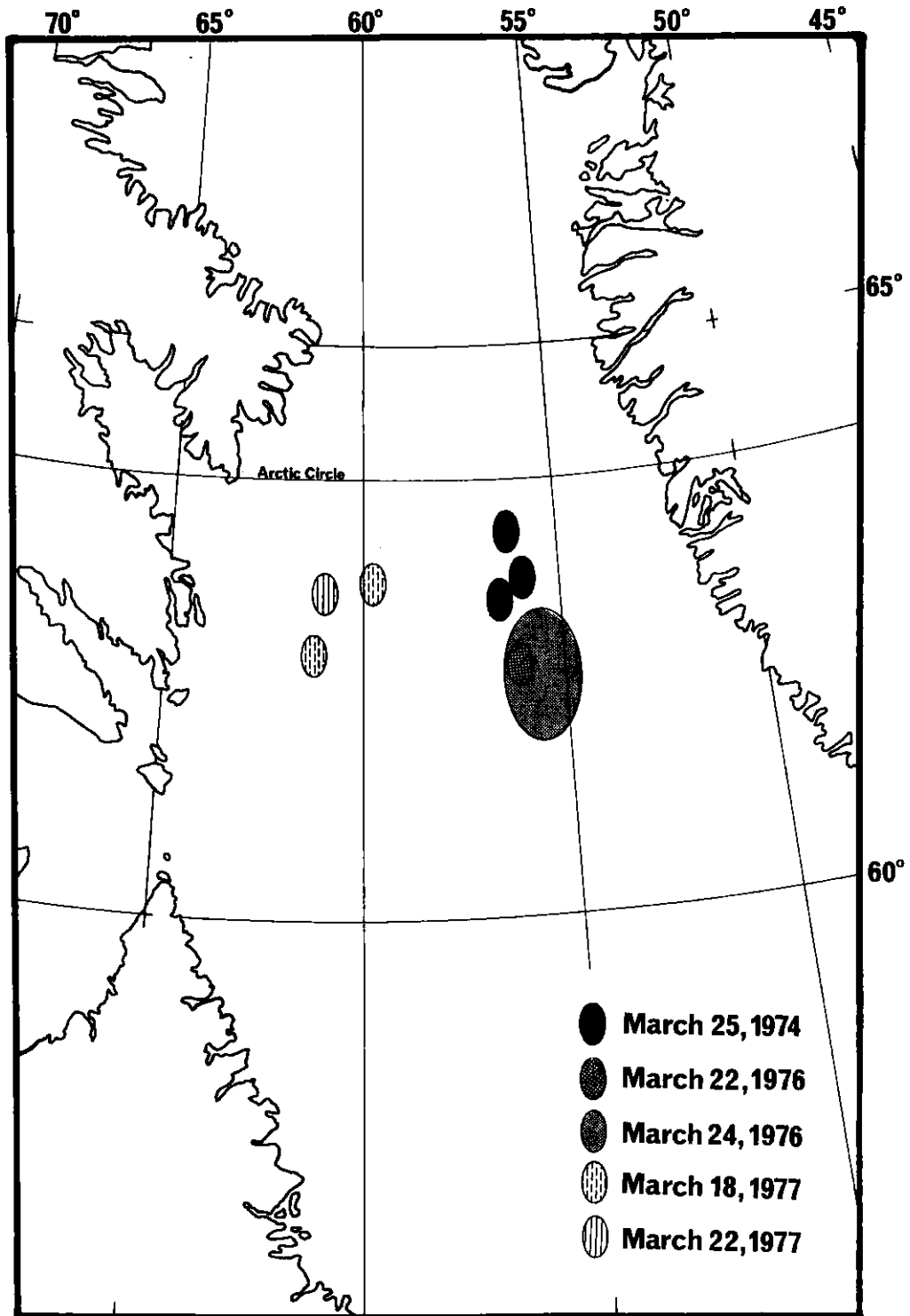


Figure 1. Locations of hooded seal groups in Davis Strait, 1974, 1976 and 1977.