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Harp seal, *Pagophilus groenlandicus*, production
in the western Atlantic during March, 1975

by

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Subsequent to the analysis of aerial census data and the preparation of a report (Lavigne *et al.*, 1975a) the preliminary sealing statistics from the 1975 hunt were obtained (Fisheries and Marine Service, Environment Canada, 1975 Sealing Statistics (Preliminary); Sergeant, pers. comm.). In total, some 140,629 harp seals born in the Western Atlantic in March, 1975, were taken by Canadian and Norwegian sealers, operating primarily on the Front. In addition, 33,435 harp seals aged one and older were also landed. The total kill for 1975, 174,064, is thus higher than the much publicized limit of 150,000 seals, because of the very successful hunt by landsmen (53,240).

The catch of pups thus provides a minimum estimate for production in the western Atlantic in 1975 (140,629). All Norwegian catches occurred on the Front (51,618). Although Canadian Sealing Statistics are given in relation to the place of origin of the sealers, and do not provide detailed information on where the seals were killed, it would appear that some 7,550 pups were killed in the Gulf and the remainder (81,461) on the Front. This implies that 133,079 pups were taken on the Front. Although it is usually assumed that pups killed on the Front were born there, the possibility of catching Gulf animals as beaters on the Front or at least off the coast of Newfoundland cannot be ignored. Since this only involves some 38,750 animals, and lacking data to support or refute this hypothesis, we will also assume that all animals taken on the Front were, in fact, produced there.

Our best estimate of pup production on the Front (79,685) (Lavigne *et al.*, 1975b) is obviously an underestimate of the actual production. However, if the upper confidence limits on the estimates of production for the north and south patches on the Front are taken as maximum estimates, production on the Front may have been as high as 145,775. This figure not only accounts for the number of pups killed, but allows for the escapement of 12,696 seals.

If only Bergflødt's (1975) data are used to estimate the area of the north patch on 11 March 1975, the mean estimate of production on the Front becomes 111,600, again lower than the kill. However, maximum production

may have been as high as 206,144 based on the upper confidence limits for each patch, and this allows for an escapement of as many as 73,065 seals from the Front.

The survey results are thus reasonable, despite the admitted shortcomings, and still represent the best available direct estimate of production ever obtained from an aerial survey.

Taking the upper confidence intervals as maximum estimates of production for each of the three patches - the north and south patches on the Front, and the one patch in the Gulf - total production in the western Atlantic in March 1975 may have been as high as 197,233 - 257,602 animals. These figures, however, represent maximum estimates. In reality production probably did not exceed 200,000 and may have been considerably lower.

The results from the Gulf of St. Lawrence (46,300 + 5,158) suggest that problems of sampling harp seal whelping patches can be overcome in the future, assuming continued support, and suitable weather and ice conditions.

REFERENCES

- Bergflødt, B. 1975. Report on the sealing season and Norwegian seal investigations off Newfoundland-Labrador in 1975. Int. Comm. Northwest Atl. Fish. Res. Doc. 75/121.
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- Lavigne, D.M., S. Innes, K. Kalpakis, and K. Ronald. 1975b. An aerial census of western Atlantic harp seals (Pagophilus groenlandicus) using ultraviolet photography. Int. Comm. Northwest Atl. Fish. Res. Doc. 75/X11/144.

TABLE 1*

Estimate of production of harp seals, Pagophilus groenlandicus, in the western Atlantic in March, 1975.

<u>Location</u>	<u>Date</u>	<u>Herd Area Km²</u>	<u>Pup production t ± 95% CI</u>	<u>Maximum estimate of production</u>
Gulf	10 March	519 ^a	46,300 ± 5,158	51,458
Front (N)	11 March	208 ^b	53,583 ± 47,648	101,231
Front (S)	15 March	52 ^c	<u>26,075 ± 18,469</u>	<u>44,544</u>
			125,958	197,233

^a Herd area estimated from aerial imagery obtained at 1220 m.

^b Mean estimate of herd area based on estimates of T. Curran (pers. comm.) and Bergflødt (1975).

^c Estimated herd area (T. Curran, pers. comm.)

NOTE: If Bergflødt's (1975) estimate for herd area for the north patch on the Front on 11 March (332 km²) is used in calculation, the mean estimate of total production becomes 157,900; the maximum estimate of production becomes 257,602.

* Revised from ICNAF Res. Doc. 75/XII/144, Table 1.

