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Results of Canadian research on harp seals, 1974¹

by

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1. Aerial Photographic Survey, Gulf of St. Lawrence

On February 27 pupping was observed and photographed by the Ice Reconnaissance Unit of the Meteorological Service of Environment Canada, west of the Magdalen Islands at 47°27' N, 62°28' W. About 100 seals had pupped. An estimate of the size of the then single patch of harp seals was made in the Gulf of St. Lawrence on March 6 by the University of Guelph, part of an experimental study using new techniques (Lavigne and Øritsland, 1974). The Arctic Biological Station assisted with ice level control of adult-pup ratios. These were generally high, near 88% but low at the periphery where some pupping was still taking place. A medium estimate of numbers was 31,000 pups, just under 29,000 adults. The patch was north-west of Grindstone Island. On March 13, a survey was made by the Arctic Biological Station using conventional techniques to count adults. The patch had by now broken up, some parts remaining *in situ* west of the Magdalen Islands while some had moved as far as N.W. Cape Breton Island. As estimate was obtained at 42,000.

Both estimates are probably under-estimates, the first because of incomplete (but near complete) whelping, the second because the patch had split up. In 1971, decimation of the seals in the southern Gulf had led to an accurate estimate of production, from catch statistics, of 71,000. The state of recent mature year classes has been poor, with the exception of that of 1968, so that production in the Gulf in 1974 is unlikely to have exceeded that in 1971. A figure of about 50,000 seems reasonable.

Front

On the Front survey was incomplete, only the southern groups being surveyed on March 14 east of St. Anthony. The estimate was 85,000. The northern patch was found on March 19 by Mr. Tom Curran, Conservation and Protection Service, Supervisor for "D" district, Newfoundland on a flight on March 19th. It had drifted south from its site of formation near the coast in Hamilton Inlet. Mr. Curran's estimate of pups by eye were: southern herd - 50-55,000; northern herd - 90 to 95,000, smaller herds - 15 to 20,000 or 155 to 170,000 in all. Adding this estimate to the Gulf estimate gives a possible total production of some 220,000 young harp seals at the present time, an estimate which has a wide range of error. The catch in 1974 was about 104,000 young, and 27,000 adults and immatures (Table 1).

Table 1. Catch of Harp Seals ($\times 10^{-3}$),
Gulf and Front, by all agencies

<u>Year</u>	<u>Young</u>	<u>Older</u>	<u>Total</u>
1972	117	19	136
1973	98	26	124
1974	104	27	131
<hr/>			
Mean	106	24	130

2. Branding and Tagging

In March 1974, 391 young harp seals were branded in the Gulf of St. Lawrence with the letter "H", for a total of 1,071 young harp seals branded in the Gulf since 1971. This program is intended to give results on homing, and on mortality rates of immature year classes.

One seal tagged in the Gulf in March 1969 was recaptured in the Gulf, near the Magdalen Islands, on March 8, 1974, as an adult. It was the first to give such evidence of homing.

3. Age Sampling

Localities of age samples collected and analysed in 1974 are shown in Figure 1 and results in Figures 2 to 6. There is a very variable selectivity in different samples, younger immatures being almost absent from La Tabatiere samples, (Figure 2), scarce at St. Anthony, (Figure 3) and very abundant in samples from western Notre Dame Bay (Figures 4 and 5). Crudely added, these samples show abundance of year classes 1 and 2 after catches of 98,000 and 117,000 young in those years, scarcity of year classes 3 to 5 after catches of 210 to 233,000 young, and moderate abundance at age 6 after a catch of 155,000 in 1968. These figures suggest that recent catches (less than the quota) of approximately 100,000 are of the right order of magnitude for good recruitment. Passage of time will make this conclusion steadily more sure.

4. Discussion

Neither aerial photographic survey nor age frequency analysis have yet given sufficiently precise results to enable one to comment on the effect of the present catches on survival of recent year classes. The age samples however show in a general way that survival of age classes has been excellent since the quota of 150,000 harp seals began, that is, since 1972. Note however from Table 1 that there is still a leeway of 20,000 harp seals before the quota, on average, is obtained.

Reference

- Lavigne, D.N. and N.A. Øritsland. 1974. Ultraviolet photography: a new application for remote sensing of mammals. Can. J. Zool. 52, 939-941

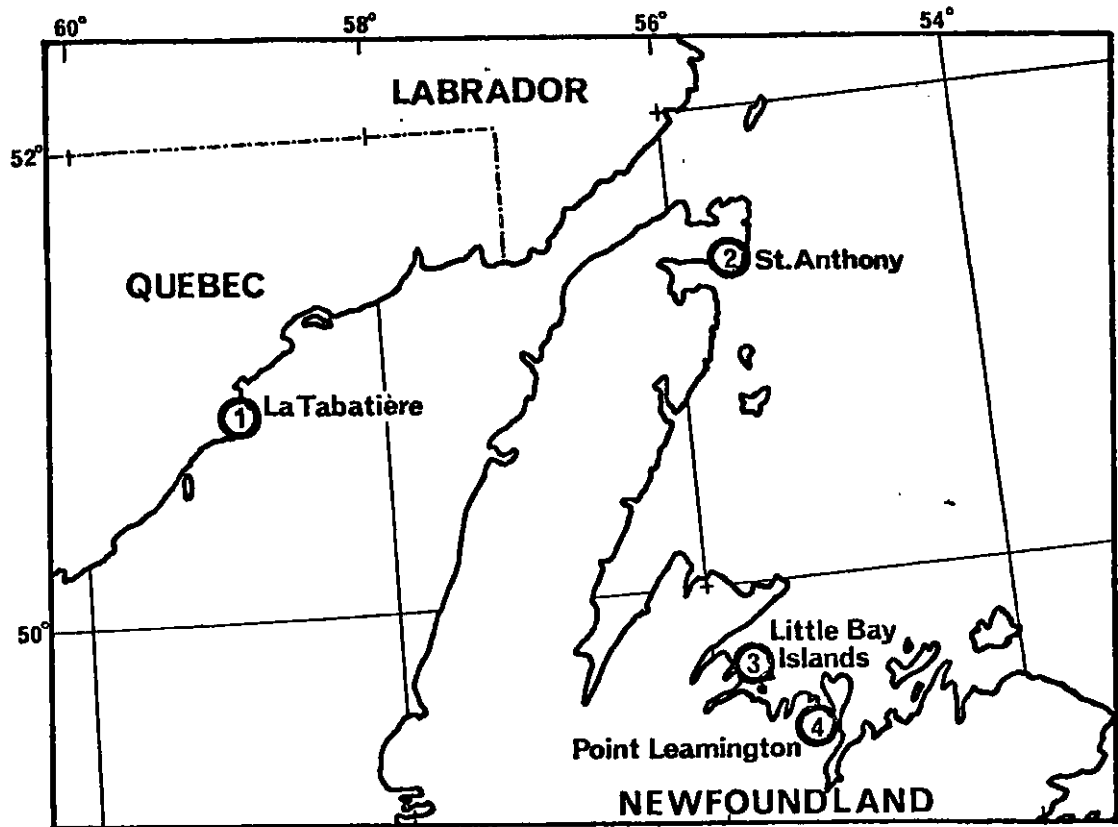


Fig.1

Fig. 1. Locations of age sampling of harp seals in Canada in 1974.

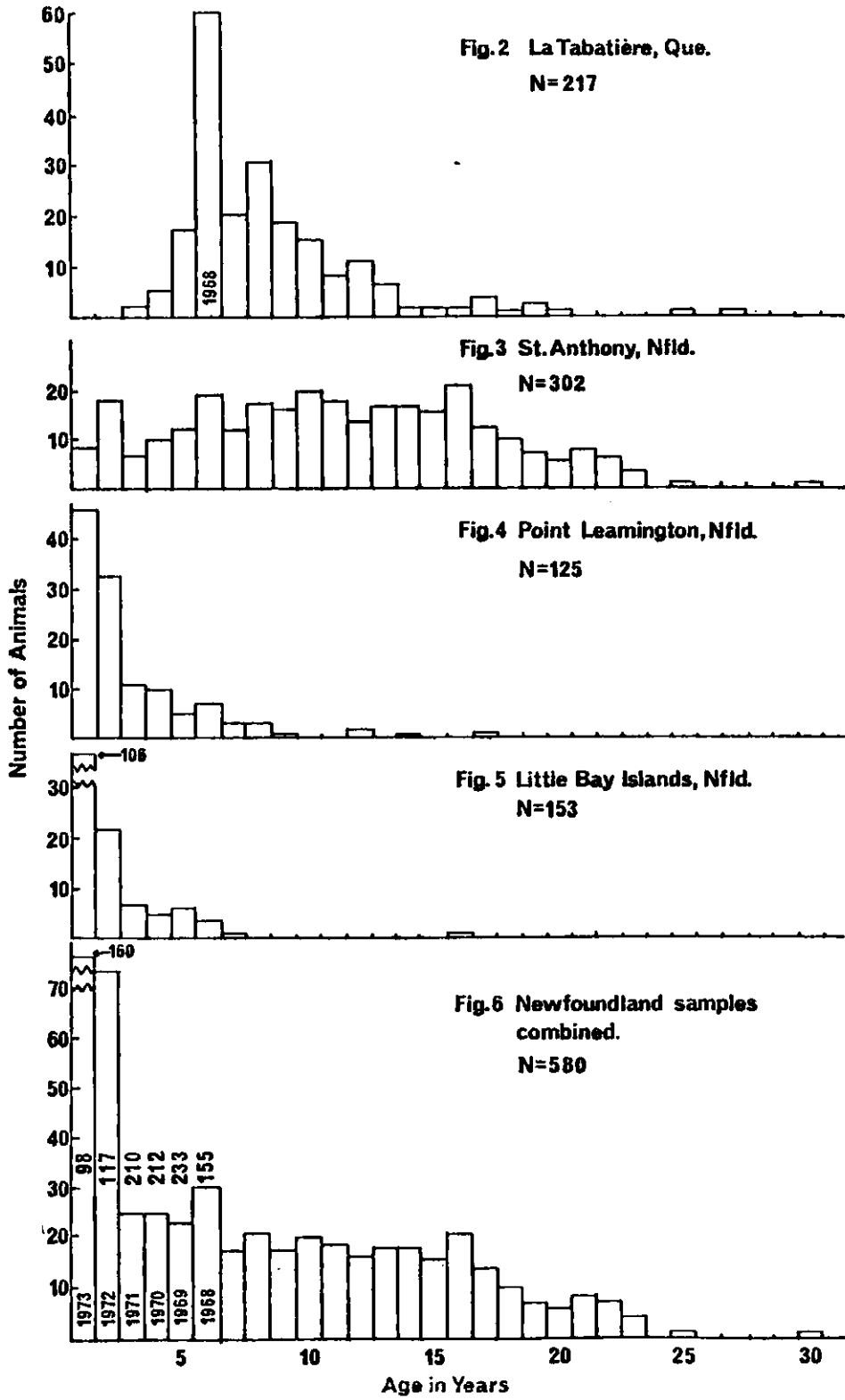


Fig. 2 to 6. Age samples of harp seals collected in Canada in 1974.