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The seal fishery of the northwest Atlantic. [1)]

by

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There are three stocks of harp seals which breed respectively in the White Sea, near Jan Mayen Island, and around Newfoundland. The hood seal is numerous at Jan Mayen but absent in the White Sea and occurs in relatively small numbers at Newfoundland. In February or March the breeding herds of harp seals form dense concentrations and the newborn young seals can be hunted in large numbers. About a month later the adult and immature seals, that is all the herds except the young of the current year, haul out on the ice again in dense groups in order to moult their hair coats. At this time they can again be hunted in large numbers.

The western stock of harp seals is the only one which occurs in the area of interst to ICNAF (Fig. 1). It is known to be relatively if not completely isolated from the other two stocks. Animals of the western stock breed in two regions: in the Gulf of St. Lawrence (Subarea 4) and east of southern Labrador near Belle Isle, drifting south to lie off northern Newfoundland (Subareas 2 and 3). These two herds or substocks retain their identity as breeding and moulting groups from year to year, and again are believed to be relatively distinct. On migration however they mix and travel northward off the coast of Labrador, are found in summer along the coast of west Greenland and around the eastern arctic islands of Canada, and return southward again in late autumn and winter. They support important subsistence fisheries from shore in west Greenland, locally in the eastern Canadian arctic, along the coast of Labrador, in northern Newfoundland, and around the Gulf of St. Lawrence.

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1) This paper reviews the history of the fishery and research on seals in the northwest Atlantic. It points up the urgency of the need for international measures for protecting this valuable resource.

Until the Protocol enters into force official discussion of the seal problem cannot be undertaken in the Commission. This paper is presented for information and informal use only.

Executive Secretary

The spring fishery for harp seals by ships was developed in Newfoundland in the late eighteenth century and until 1937 remained essentially a fishery of that country. Wooden and later steel steamers replaced the early sailing vessels. In modern times, motor vessels have largely replaced the steamers, and hunting has developed from Nova Scotia as well as Newfoundland. In 1937 Norwegian ships began to enter the fishery and since 1946 catches by the ship-based fishery have been about equally divided between Canada and Norway, Newfoundland having joined Canada in 1949. In recent years, France, the United States, Denmark and the U.S.S.R. have at times sent ships to the fishery.

In earlier times the fishery was concentrated on the herd of seals breeding and moulting east of Belle Isle a region known to the sealing industry as the "Front". In recent years, partly as a result of less severe climatic and hence ice conditions, increased catching has taken place in the Gulf of St. Lawrence, conveniently known as the "Gulf". In the last three years, intensive catching has taken place from aircraft and helicopters operating from shore, particularly in the Gulf of St. Lawrence, while sealing ships have increasingly used helicopters to extend their catching range in the icefields.

In older days, oil was of high value and the most desired product was the pelt of the large, fat young seal or whitecoat some days old. Older seals were also taken for their oil and leather. In recent years, great improvements have taken place in the handling and dressing of hair seal pelts for fur, while the value of seal oil has declined. For the harp seal, the most desired fur products have become the pelt of the newborn young in which the white hair-coat is still fast to the skin, and that of the moulted young about one month old, with its spotted hair coat, while the pelts of older seals remain valuable for fur or leather.

The increase of the sealing fleet after 1946 resulted in a doubling of catches as compared with before 1939 (Fig. 2). Also, an increasing proportion of seals older than young have been taken by the ships, especially in years when because of bad ice conditions they have been unable to take many young seals. Longer voyages have been possible in recent years because of the increased use of refrigeration on the ships and in some cases, skinning of the pelts on board. Therefore, concern began to be held for the future of the resource, and research on the stocks was begun by Canada and by Norway in 1949, continued mainly by Canada subsequently. At times also studies have been made by Danish scientists in Greenland, and Soviet scientists have carried out research on their ships. Good co-operation has been achieved by scientists of the different nations in this work.

Aerial photographic survey of the herds was carried out in 1950-51 and again in 1959-60. The later surveys showed considerable decline in stocks as compared with the surveys a decade earlier (Fig. 3) Studies of age composition have been carried out from samples of the catches. In general, it has been found that a particular year-class has survived in inverse ratio to the size of the catch of young in that year. The reproductive and mortality rates of the stocks have been studied, and a basis now exists for determining sustained yields, although these estimates must be refined by better and more intensive sampling and calculation. Recently it has been possible to carry out a large-scale marking or tagging of young seals in the Gulf of St. Lawrence from a helicopter before the start of the commercial fishery, and this method shows great promise in supplementing results from aerial survey and other techniques. Results of this experiment and a further aerial photographic survey carried out in 1964 are at present being analysed and evaluated.

Research has shown that the intensive catching of all age-types of seals carried out in recent years must be curtailed if the stocks are to be maintained and increased. These seals are particularly vulnerable since they remain aggregated on the ice both when breeding and moulting, and could therefore be reduced to very low levels while hunting would still remain profitable. At present, prices for hair seal pelts are extremely high, so that sealing is carried out at a sustained high level.

In 1950 the stock of harp seals on the "Front" (east of Belle Isle) was believed to number about two million in comparison with about one million in the Gulf of St. Lawrence. Decline however appears to have been more rapid on the "Front", the two herds beginning to approach each other in size. Present population estimates are about five to six hundred thousand for the "Gulf" herd and seven to eight hundred thousand for the herd on the "Front". The reason for the more rapid decline of the "Front" herd has undoubtedly been the heavy catches of moulting adult and immature seals, in some years exceeding one hundred thousand animals, in addition to the heavy kills of young. In the Gulf, early disappearance of ice prevents heavy ship-catching of the older seals, which finish their moulting in the water. In very recent years, however, catching by planes and helicopters added to that by ships has increased the proportion of the crop of young taken in the Gulf, so that both areas are now under heavy hunting pressure.

To date, agreements as to control of the fishery have been of an informal kind, agreed to between nations participating in the fishery. A starting date for the

fishery was set a little earlier in the Gulf than on the Front because of a slightly earlier start of breeding by seals in the Gulf. These dates - March 5 and 10 respectively - were set to allow taking of newborn, fast-furred whitecoat young, and do not result in significant control of the catch of young. A closing date of May 5 was agreed to in 1961, and advanced to April 30 in 1963, thus lowering to some degree the catch of adult and immature seals. Breeding adult females are not protected during the season of taking young, though there has been considerable restraint by most ships in taking them, and at present prices it is barely profitable for aircraft-based hunters to take these heavier pelts in place of those of the young.

The stock of hood seals breeding in the western North Atlantic at about the same date as the harp seals is, as stated above, small by comparison with the stock of harp seals. Biological knowledge is that the herd is probably connected with the main herd of hood seals breeding around Jan Mayen Island, and that its numbers have fluctuated with climatic conditions, being larger during cold periods. Owing to the high price of pelts of the hood seal, the herd at Newfoundland is intensively hunted, adults of both sexes being taken where possible together with the very valuable "blueback" young. Measures for the protection of this additional valuable resource need also therefore to be considered.

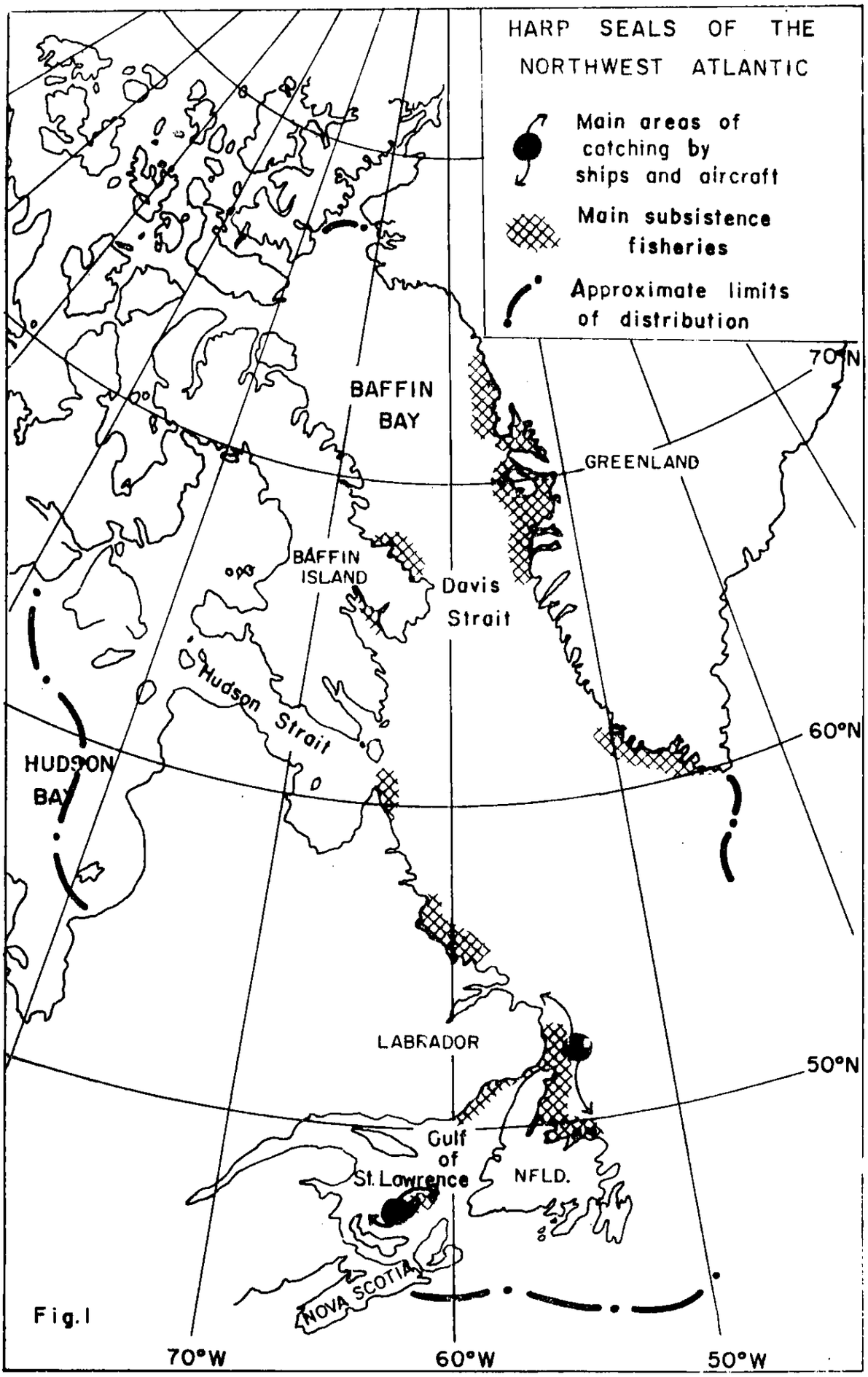
HARP SEALS OF THE NORTHWEST ATLANTIC
Main areas of catching by ships and aircraft
Main subsistence fisheries
Approximate limits of distribution
BAFFIN BAY
GREENLAND
BAFFIN ISLAND
Davis Strait
Hudson Strait
HUDSON BAY
LABRADOR
Gulf of St. Lawrence
NFLD.
NOVA SCOTIA
70°N
60°N
50°N
70°W
60°W
50°W

Fig. 1

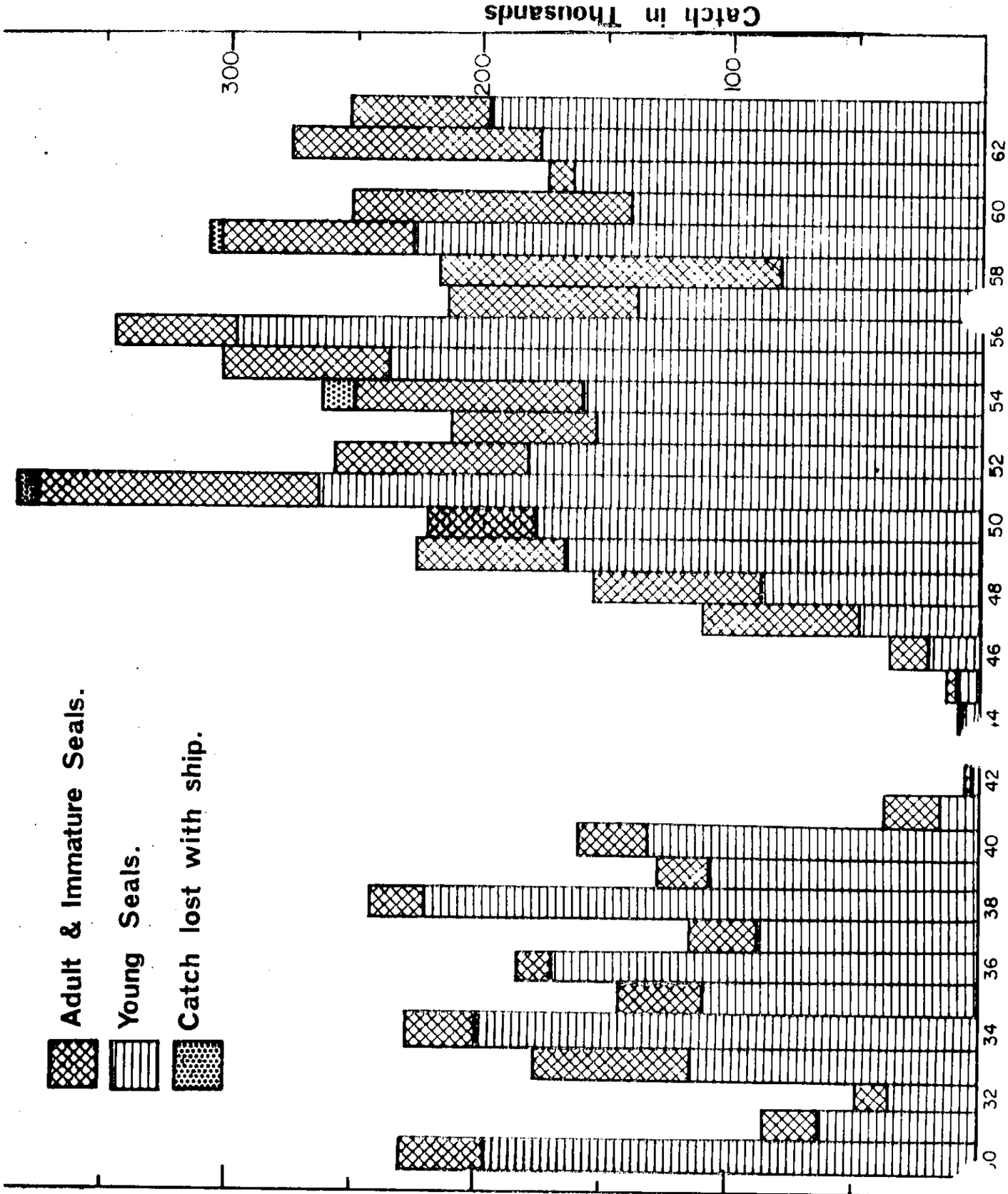

Figure 2. Catches of harp seals by ships in the northwest Atlantic since 1930. Note the increased total catch and the higher proportion of seals other than young taken since 1946.

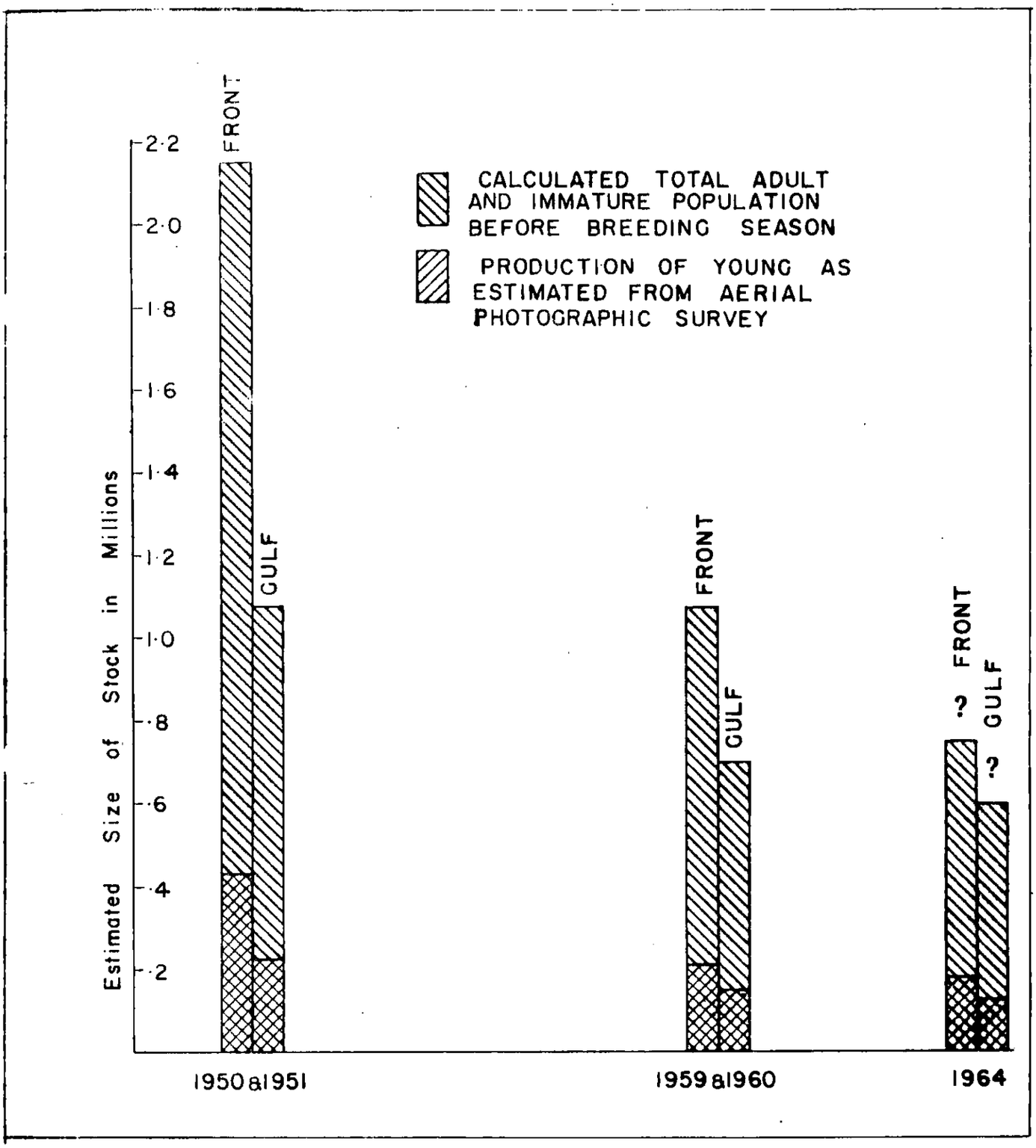

Figure 3. Estimated populations of harp seals of the northwest Atlantic stock at different dates. Estimates for the two component breeding herds are shown separately. The 1964 estimate, based partly on return of marks in a capture-recapture experiment, is a provisional estimate from uncompleted analysis.