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The Distribution of Greenland Halibut in Statistical Area "0"

by

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Introduction

Little fishing has been done in Statistical Area "0" until recent years with the development of the deepwater fishery for grenadiers. Until 1973, Greenland halibut caught in Area "0" would be included in Subarea 1 or not reported at all, therefore making it virtually impossible to determine how much fish are caught in Area "0" alone. The only Greenland halibut taken from the area since 1973 has been by the USSR and Denmark with one small landing by Norway in 1974 of 24 tons. The annual landings have varied from approximately 1,000-5,000 metric tons since 1973 (Table 1).

Little work has been done in this area except with small amounts of data being accumulated as a result of larger, more diversified research projects.

Materials and Methods

All data were collected by the French research ship Cryos while performing a stratified-random groundfish survey of Statistical Area "0" with some sets being done in ICNAF Division 2G. The data were based on a total of 42 half-hour sets made in Statistical Area "0" using lined otter trawl (Minet, 1977). Sexed length measurements were carried out on the total catch of Greenland halibut in all 42 sets. A total of 4795 fish were caught and measured and a total of 1294 pairs of otoliths were collected and aged.

Length frequencies of fish at 100-metre depths intervals were plotted (Fig. 1 & 2) for male and female Greenland halibut as well as length composition (Fig. 3) and age composition (Fig. 4) for males and females separately.

Results and Discussion

Very few large fish were caught for the whole survey (Fig. 1 and 2); however, when they were present in catches, they were more plentiful in deeper water (>400 m). Even more pronounced was the scarcity of small fish (<25 cm) in deep water. These small fish were fairly plentiful up to 500 metres but beyond this they were only incidental, some of which may have been picked up in the water column while hauling back the net.

The length composition was practically the same for males and females up to 74 cm (51% for males and 49% for females), after which no males were taken (Fig. 3). In fact, very few fish were caught longer than 30 cm. The very pronounced peak of the catches was in the 16-30 cm range for both sexes.

The age composition consisted almost entirely of 3-5 year-old fish for both sexes, all below commercial gear selection levels indicating that this area is probably not a particularly good commercial fishing area.

The spawning of Greenland halibut has been observed by Chumakov (1975) on the continental slope of the Greenland-Canadian cascade in the January-April period with the relative numbers of spawning females increasing from south to north. These fish have also been found in mature condition throughout the year in this area probably because hydrographic conditions are conducive to good spawning conditions. It is probable that these mature fish collect in deep water off the northern Labrador and Baffin Island area and because of the cyclic condition of the currents between Greenland and Canada, larvae and young fish are accumulated on the continental shelf off the coast of Baffin Island and Labrador. This probably would explain the high incidence of small fish in this area. Although actual counts were not recorded, there was also a very high incidence of one year-old Greenland halibut found in the stomachs of larger Greenland halibut and cod. In view of the results of this survey, it is possible that this area is the nursery ground for the whole region from Greenland to the northern Grand Bank as suggested in previous documents (Bowering, MS 1977; Chumakov, 1975). If such is the case, serious consideration should be given to further research in the Subarea 1 region possibly resulting in a single stock assessment for the whole Northwest Atlantic stock complex.

Acknowledgements

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Table 1. Nominal catches of Greenland halibut in Statistical Area "0" for 1973-76.

YEAR	USSR	DENMARK (G)	DENMARK (F)	NORWAY	TOTAL
1973	1,218	912	--	--	2,130
1974	861	4	--	24	889
1975	455	288	825	--	1,568
1976	3,990	--	916	--	4,906

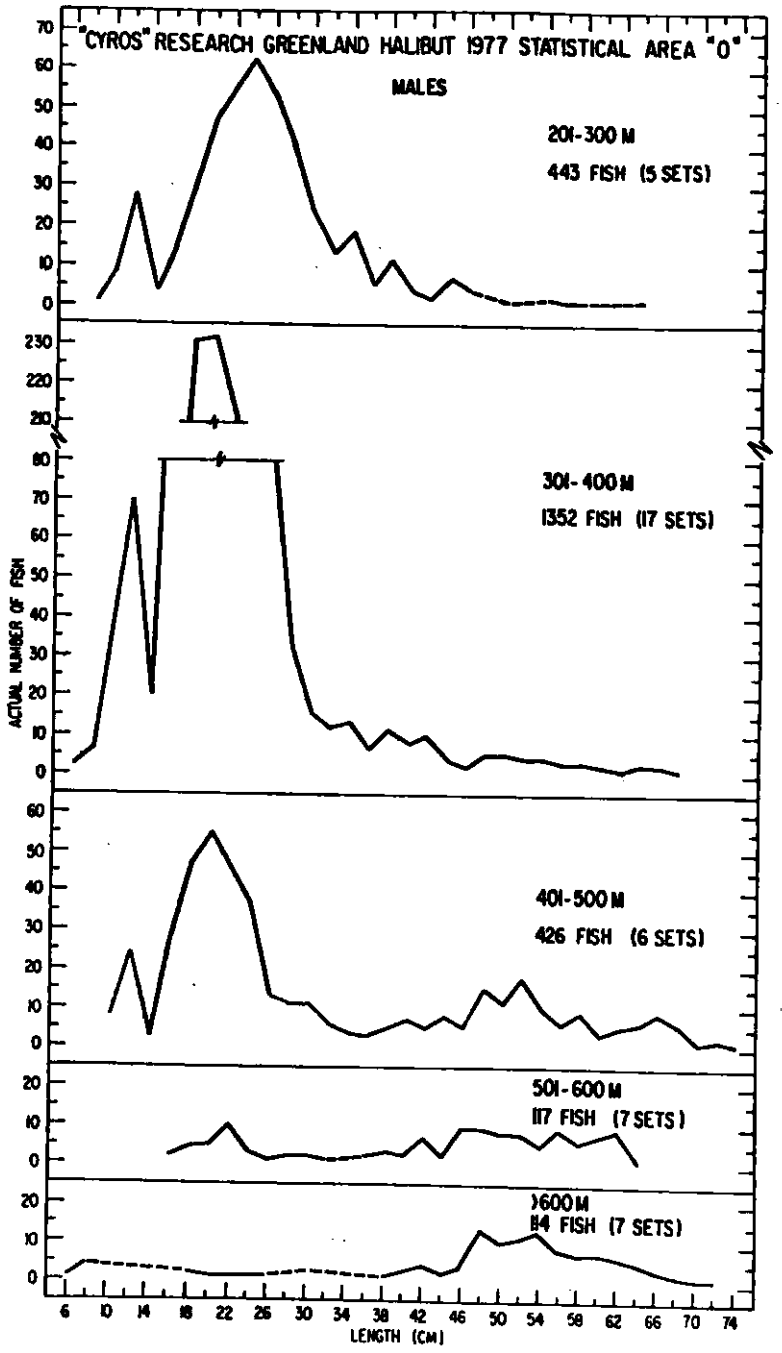

Fig. 1. Size distribution of male Greenland halibut in Statistical Area "0" by 100 metre depth ranges.

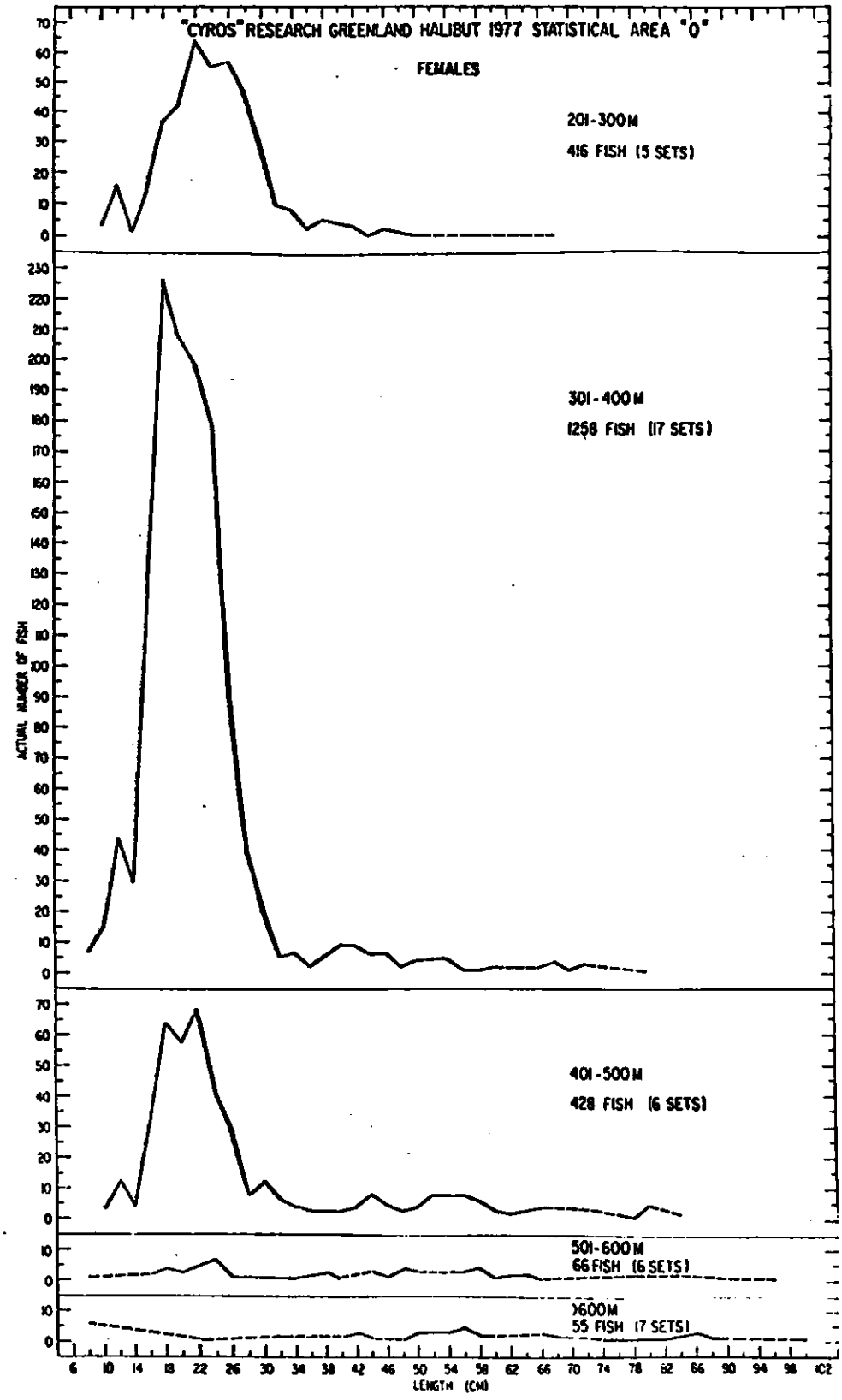

Fig. 2. Size distribution of female Greenland halibut in Statistical Area "0" by 100 metre depth ranges.

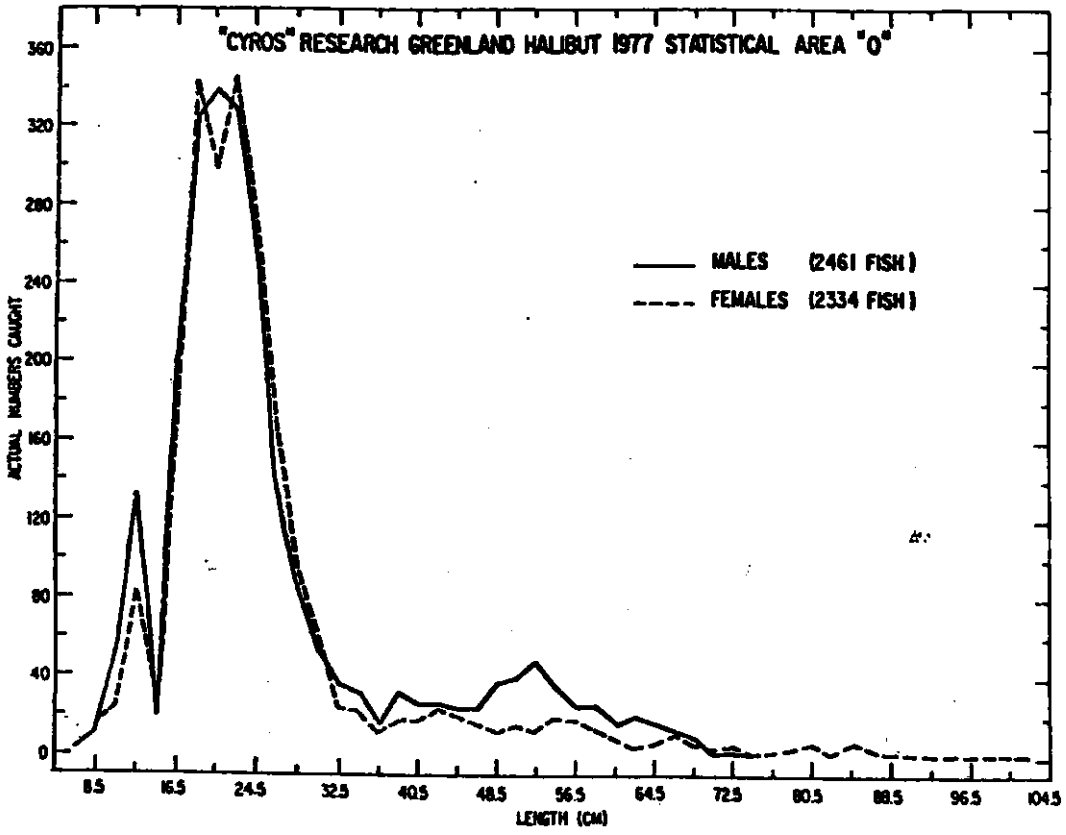

Fig. 3. Length distribution of male and female Greenland halibut in Statistical Area "O" from research catches in 1977.

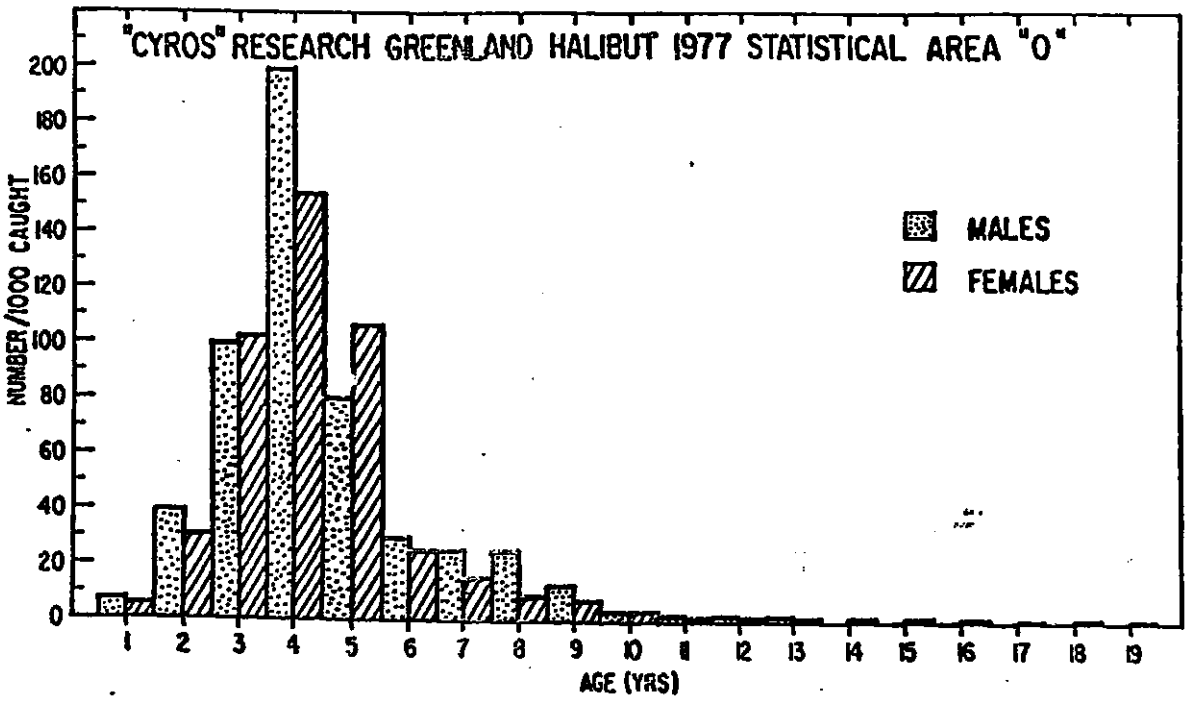

Fig. 4. Age composition of male and female Greenland halibut in Statistical Area "O" from research catches in 1977.