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Notes on the distribution of Greenland halibut in the Northwest Atlantic.

by

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There are good reasons for regarding all - or nearly all - the Northwest Atlantic stocks of Greenland halibut as belonging to one population, recruited from a vast deep spawning area ranging from the southern part of the Davis Strait to off Labrador and Newfoundland.

Spawning is assumed to take place in early spring in the deep warm water south of the submarine ridge which extends from Greenland to Canada almost along the Polar Circle, as in May the tiny larvae (10-18 mm) are only taken south of that ridge mainly in depths of about 600-1000 m (Jensen, 1935). Later (in June-July) the larvae rise to the surface water layer, where they are scattered by the currents and transported partly along West Greenland to the northern part of Davis Strait, partly in western direction to waters off Baffin Island and Labrador. The distribution of the pelagic larvae is shown in Fig. 1 (after NORWESTLANT Report, Smidt 1968), where all data from 1908 to 1964 are summarized. It should be noted, that the contour of the hatched area is the limit of investigations and not of larval distribution.

In Canadian waters a number of larvae (59-77 mm) were found in stomachs of cod taken on Hamilton Bank, Div. 2J (Lear, 1970 p.97, Templeman 1973, p.96), and numerous 1-group Greenland halibut (12-16 cm) were taken on the northern slope of Hamilton Bank in 228 m depth (Templeman, 1973 p.96). These young stages may originate from the spawning area mentioned above.

In inshore West Greenland waters, where fishery is carried out, eggs and larvae have never been observed, and vast spawning migrations must be assumed (Jensen 1935, Smidt 1969). However, no Greenland halibut tagged in inshore West Greenland waters have been recaptured in Davis Strait, which must be due to a relatively small offshore fishery at West Greenland.

Greenland halibut tagged in White Bay and Trinity Bay, Newfoundland, have been recaptured far eastward on the continental slope in winter and early spring, which suggests a winter migration for spawning (Pitt 1971 and 1974, Templeman 1971 and 1973).

A comprehensive material of vertebrae and fin-ray countings on Greenland halibut collected between 1950 and 1968 from Baffin Bay to the southern Grand Bank indicated a uniform population, from which only the stock in northern Gulf of St. Lawrence seemed to differ (Templeman 1970).

This uniformity in meristic characteristics is in good agreement with the uniform temperature conditions in deep water (about 800 m) in the vast area, where eggs and early larvae develop, see Fig. 2 (Dunbar 1951).

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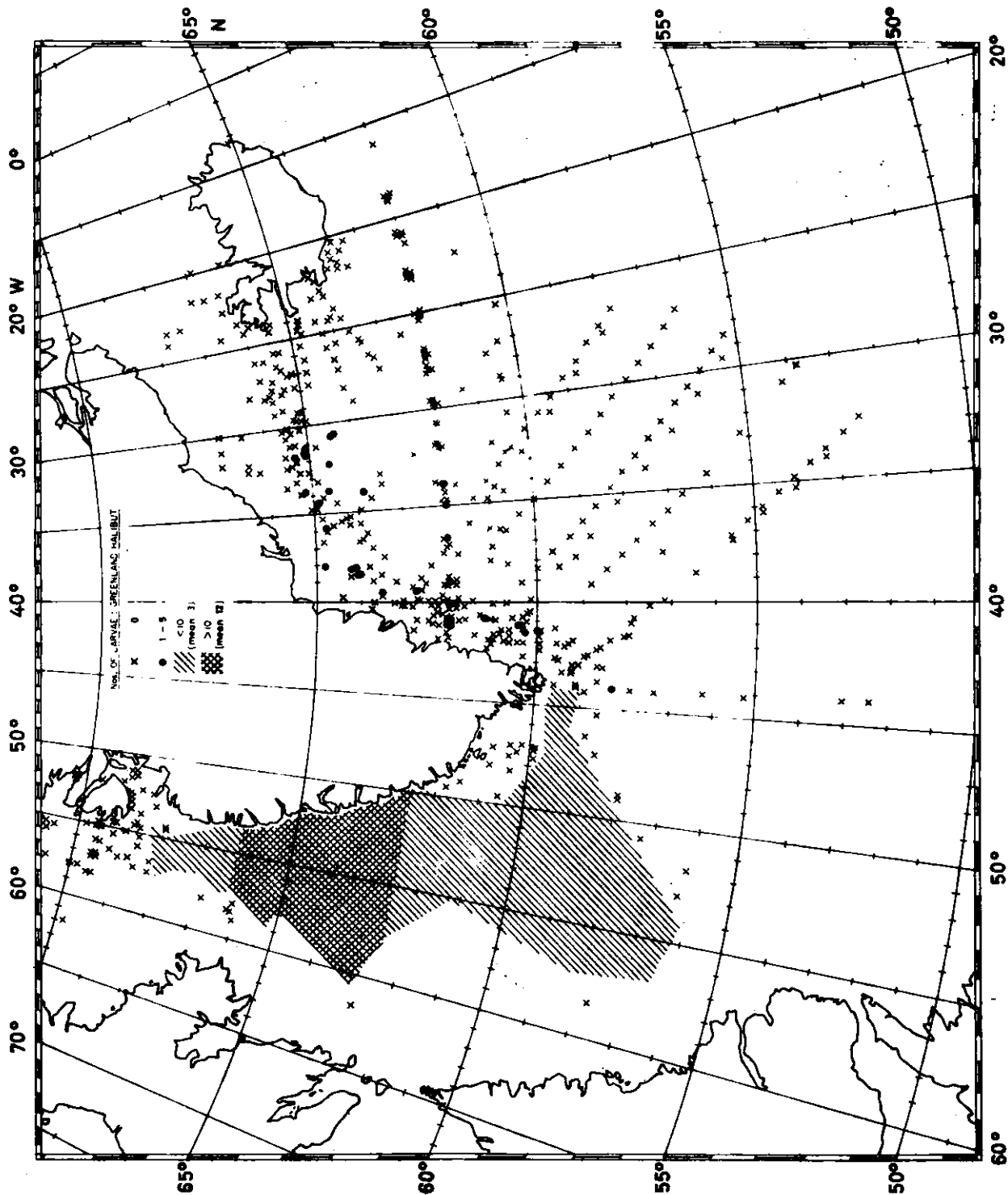


Fig. 1. Distribution of Greenland halibut larvae based on data from the following expeditions — West Greenland: Tjalve (1908, 1909); Dana (1925, 1950, 1952-59, 1961, 1963-64); NORMESTLANT (1963). East Greenland-Iceland: Dana (1925, 1931, 1932, 1950, 1952-58, 1961, 1963-64); NORMESTLANT (1963).

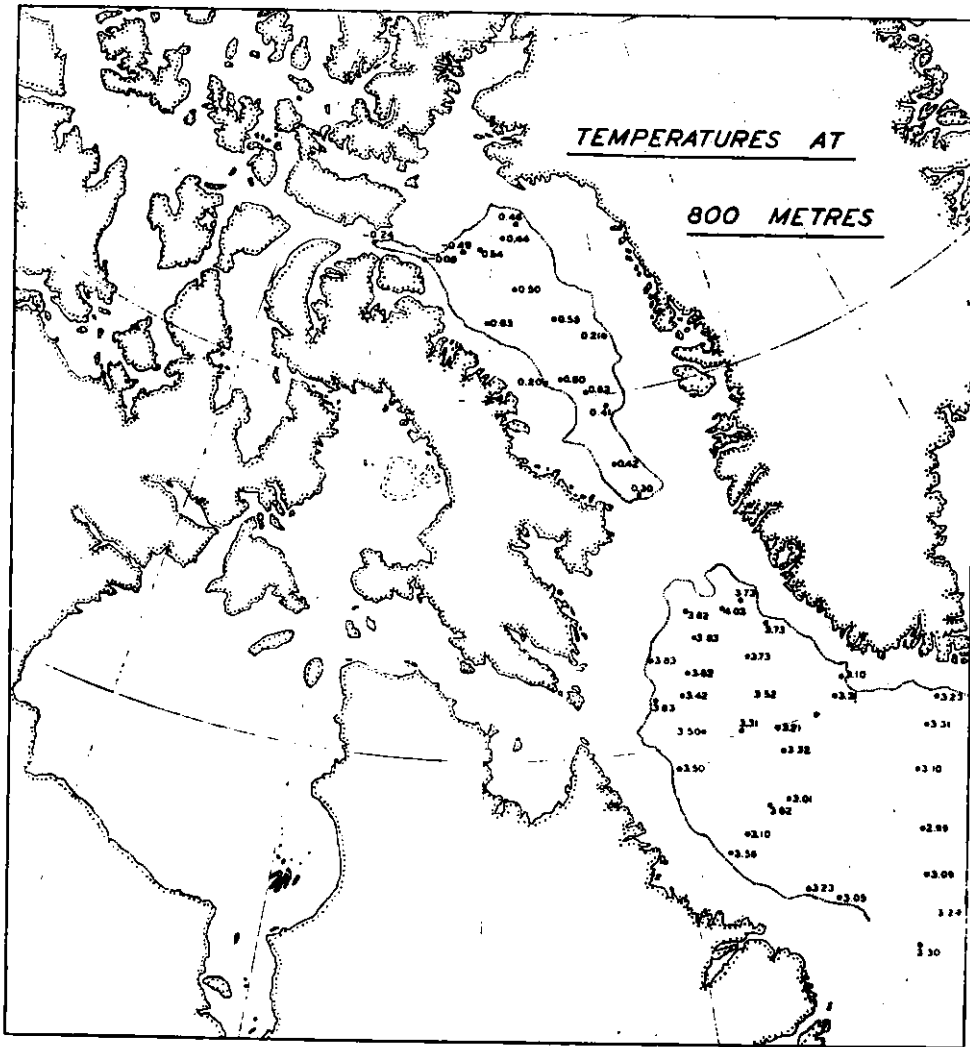


Fig. 2. Temperatures at 800 m depth, in centigrades, August-September. Composite figure from various Sources. (After Dunbar 1951, p. 44).