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Continuous Plankton Records:

The distribution of young redfish in 1961

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The following account is based on a report submitted to ICES for the Annales Biologiques for 1961. Most of the material was collected outside the ICNAF area but it seemed undesirable to separate the results for this area from the wider context of North Atlantic sampling.

Plankton Recorder sampling in the oceanic areas of the north Atlantic was continued in 1961 on the standard routes previously operated, and was extended in June by the addition of a route between Liverpool and St. John's, Newfoundland ('D' route) and in July by routes from St. John's to Halifax, Nova Scotia ('Ea') and from Halifax to Boston, Mass., ('Eb').\* Extra sampling was carried out on the 'Z' route (between Iceland and Newfoundland) and on weather ship routes to Ocean Weather Station 'ALFA' (in 62°N. Lat. 33°W. Long) in April and May to complement the joint Icelandic-German redfish survey cruises in May. In June and July sampling on the 'Z' route was temporarily suspended, as a strike of dock labour in Reykjavik prevented the delivery of Plankton Recorders to the vessels normally towing on this route.

As in previous years, the young stages of the redfish were found in the areas south and southwest of Iceland, across the Irminger Sea, and from southeast to south of Cape Farewell, Greenland. The specimens taken in these areas from April to July, and exceptionally, one large individual in August, all appeared to be of the Sebastes marinus type, none being noted as exhibiting any of the pigment or opercular spine development characteristics attributed to the mentella type or to S. viviparus.

The occurrences of these young stages were apparently a little later than in some of the preceding years, as none were taken before mid-April, and only 5 in the second half of this month. They were, however, very abundant throughout May; fair numbers were also taken across the Reykjanes Ridge area in about Lat. 61° - 62°N. in June. Very few were taken in July, but the area in which catches have been most regular in this month in earlier years, the vicinity of Cape Farewell, was unfortunately not sampled. The numbers caught in the Irminger Sea area in May were generally higher than had been noted previously, reaching levels of 35 to 38 per 10m<sup>3</sup> in three rectangles west of the centre line of the Reykjanes Ridge, and exceeding 10 per 10m<sup>3</sup> in several other adjacent rectangles. The overall abundance, south and southwest of Iceland, in April and May was 15% higher than the previous best year, 1959, and was over twice the mean level for the period 1955 to 1960; they were even more abundant in June than is usual in this month, but sampling was not adequate for a precise estimate. From a comparison between the Recorder material and preliminary results from other sources, it appears that there is a general

\* The 'Ea' and 'Eb' routes are sampled as part of a contract (62558-2834, NR 104-601) from the United States Office of Naval Research.

agreement as to the broad pattern of larval redfish distribution in 1961. The distribution at 10 metres is shown in Figs. 1 and 2, where the samples for April and May and for June and July are combined into two charts.

The percentage size composition is shown, in Fig. 3, with blacked-in histograms for the 1961 material superimposed on the open histograms representing the combined size frequencies for the 1955-60 period. There is some increase in the representation of the 6.0mm size group in May, suggesting, perhaps, that release of the young was later than usual; a suggestion borne out by the size-frequency distribution in June and by the late appearance of Sebastes in the Recorder samples (see above).

The first Records on the 'D' route in June and July did not take any young redfish between the British Isles and the Newfoundland Banks but, on Records taken in July and August, between St. John's and Boston ('Ea' and 'Eb') a small number of young redfish were found. These specimens all had the sub-caudal melanophores stated to be characteristic of the mentella type, and were of a very much smaller size range than those taken in these months in the open Atlantic where specimens with sub-caudal melanophores have never been found during 7 years of sampling with Plankton Recorders. Their distribution in July and August is shown separately in the chart in Figure 4, on which is also shown the size composition by numbers caught. These occurrences, from the later part of the season, cannot offer more than a fragment of the distribution pattern in this area, but it is hoped that sampling in 1962 will provide information throughout the season.

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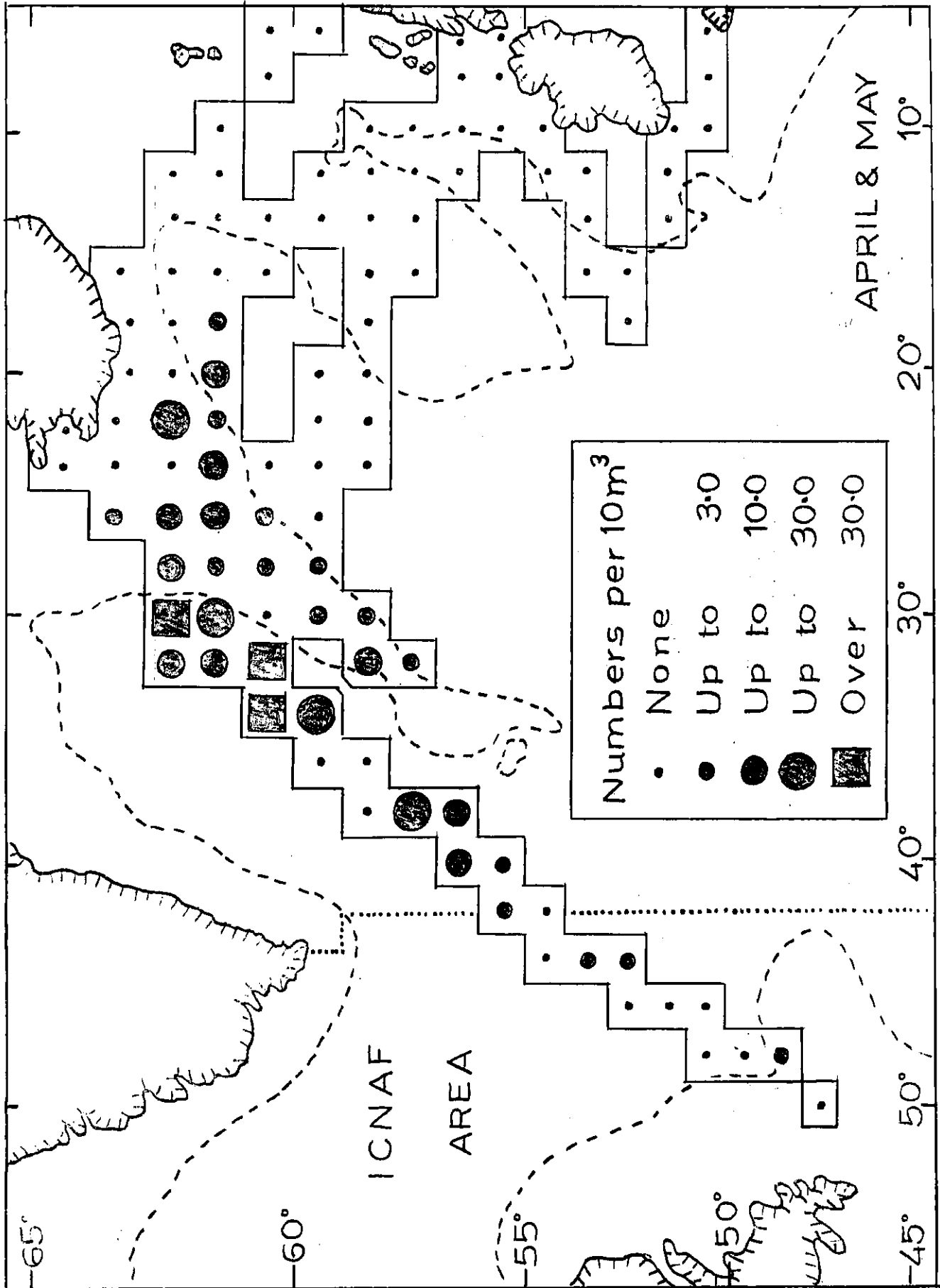


Fig. 1. Chart showing the distribution, at 10 metres depth, of the young stages of the redfish, *Sebastes marinus*, in April and May 1961. The boundary of the ICNAF area is shown with a dotted line.

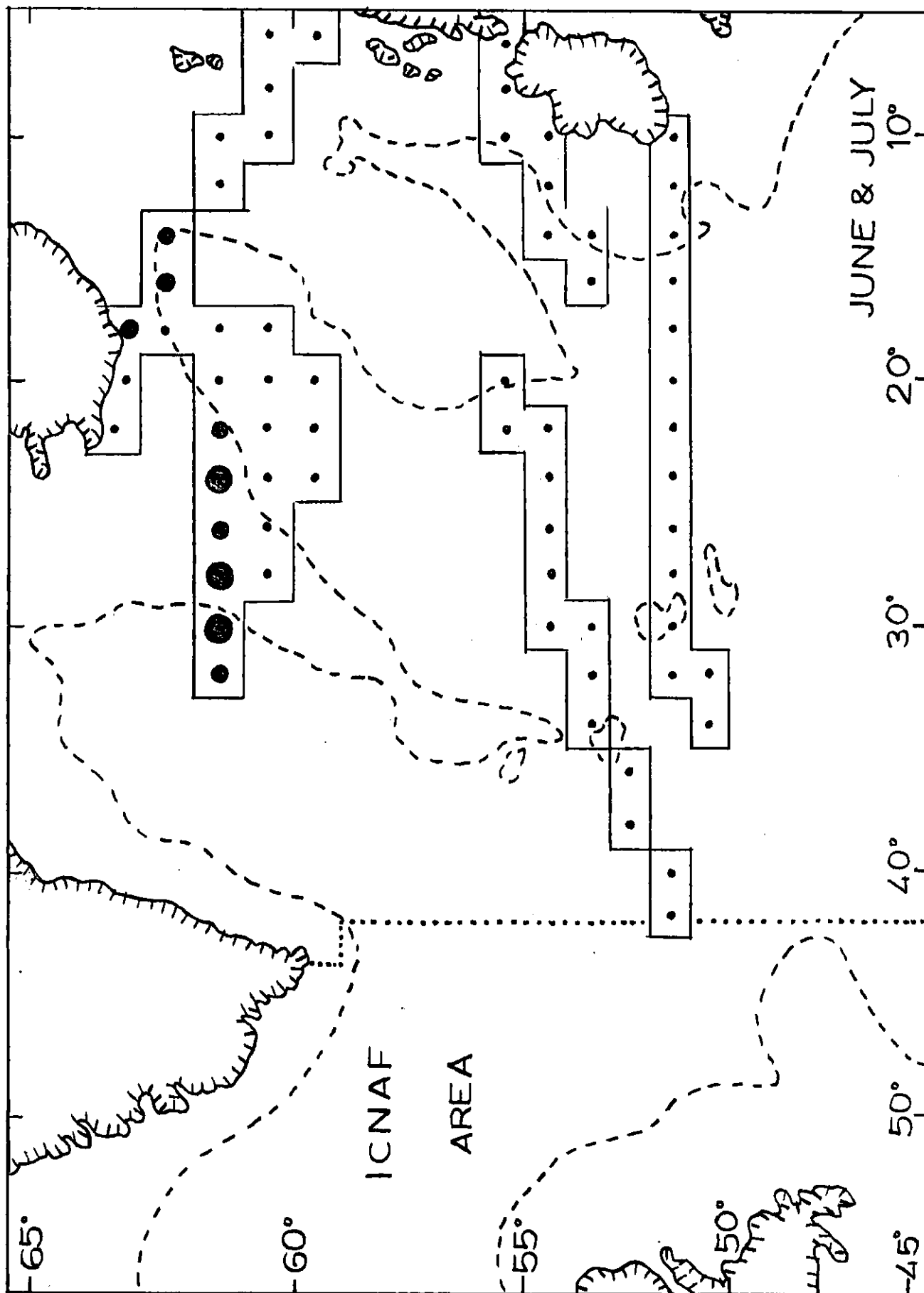


Fig. 2. Chart showing the distribution, at 10 metres depth, of the young stages of the redfish, *Sebastes marinus*, in June and July, 1961. Symbols as in Fig. 1. The boundary of the ICNAF area is shown with a dotted line.

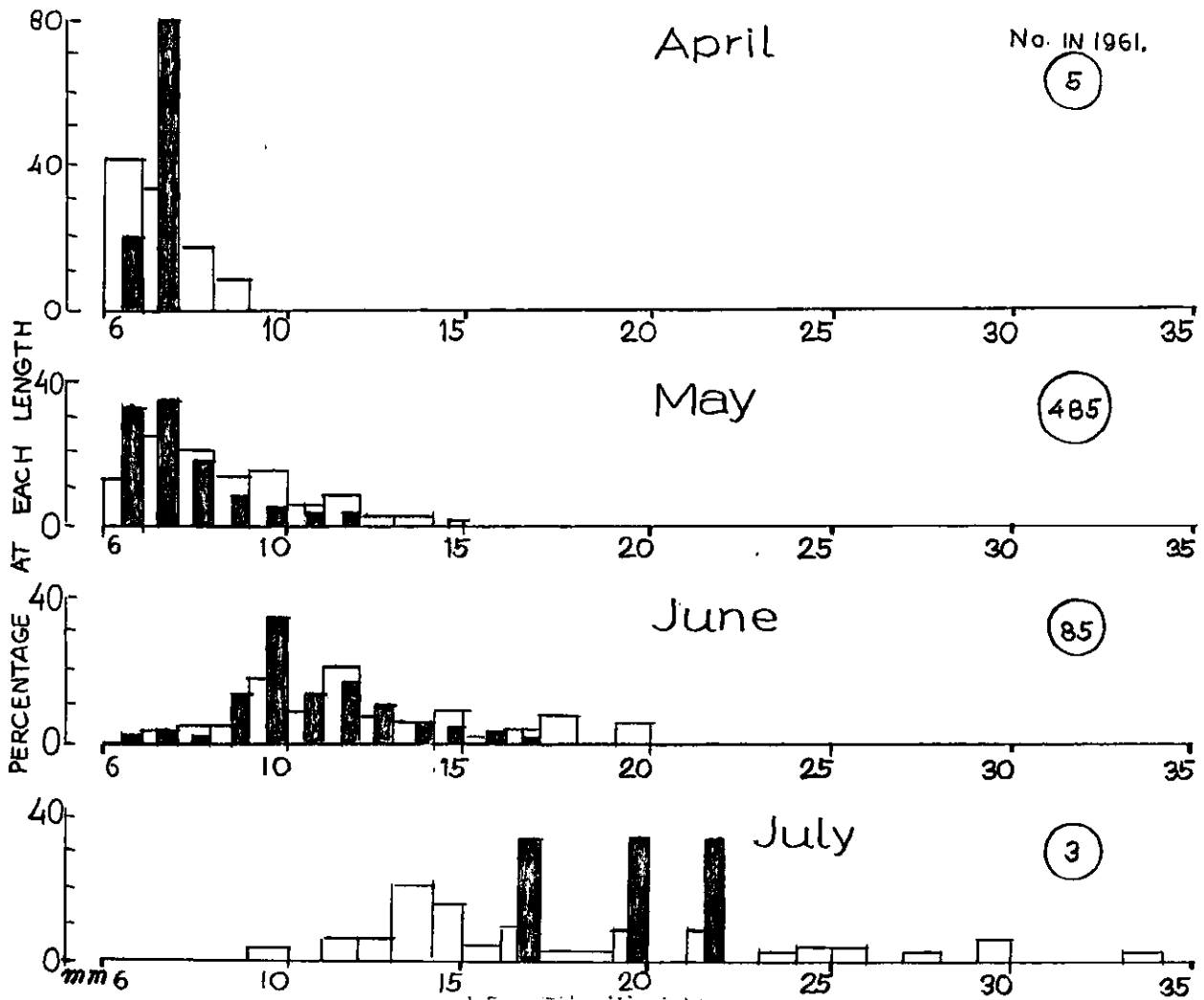


Fig. 3. Histograms showing the percentage size composition, month by month, of the young stages of the redfish, Sebastes marinus, taken at 10 metres depth by the Plankton Recorder. Open histograms show the combined results from the years 1955-60 and the superimposed blacked-in histograms represent the 1961 results.

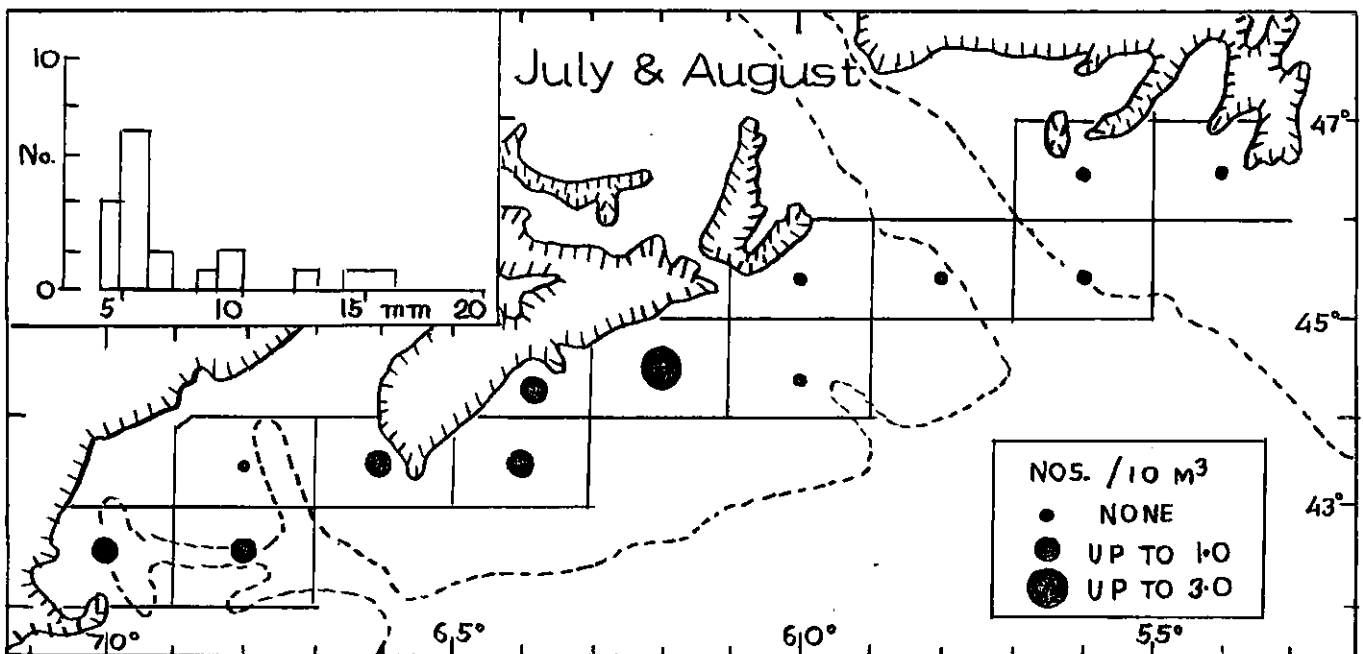


Fig. 4. Chart showing the distribution at 10 metres depth, of the young stages of the redfish, Sebastes, taken on July and August Recorder tows between Cape Race, Newfoundland, and Boston. The numerical size composition of the catches is shown inset.