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Preliminary results of juvenile fish survey on
Georges Bank and Nantucket Shoals by *Albatross IV*, 13-22 May 1975

by

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Introduction

A survey was conducted from 13-22 May 1975 by the R/V *Albatross IV* to investigate the distribution, abundance and biological characteristics of juvenile fishes, especially Atlantic sea herring and their relationship to hydrological conditions in the area of Georges Bank and Nantucket Shoals. Of particular concern was the need for information on young herring just prior to metamorphosis for evaluation of the possibility of estimating their recruitment potential.

Methods

Three types of gear were used to sample 67 standard ICNAF stations in the survey area (Figure 1) during both day and night. A 10-foot Isaacs-Kidd midwater trawl (IKMT) with a 2 mm mesh liner in the cod-end was towed at all stations; paired 61 cm (.505 mm mesh) and 20 cm (.165 and .333 mm mesh) Bongo nets at 16 stations; and a 1 x 2 m Neuston net (.505 mm mesh) at 51 stations. All IKMT tows were of approximately 30-minute duration in an oblique manner from a maximum of 100m. Either Bongo or Neuston tows were towed simultaneously with the IKMT and lasted about 10 minutes.

Herring were removed from all samples, counted and measured before preservation in 4% formalin. The remainder of each sample was preserved without sorting or measurements. BT's were taken at all stations and STD's at 22 selected locations, but no analyses are available at present.

Results

Herring catches are summarized in Table 1 and shown in Figures 2 and 3. All except the single specimen taken in the 61 cm Bongo at Station 84 were caught at night (2100-0500 hrs, GMT plus 4 hours). Catches were most frequent with the Neuston net leading to the conclusions that herring of this size are mostly on the surface at night and/or avoided the obliquely-towed IKMT and Bongo nets in many instances. Larval occurrence appeared to be restricted to the northwest quarter of Georges Bank over depths of 35 to 186 meters. None were found in the southern or eastern parts of Georges Bank but few night hauls were made in these areas. On the other hand, a reasonable

pattern of night hauls was attained over Great South Channel and the periphery of Nantucket Shoals and none were found there. The possible occurrence of larvae up in the shoals off Nantucket could not be investigated with *Albatross IV*.

Sizes of herring ranged from 37 to 52 mm (Figure 4). The IKMT captured more specimens in the 37-41 mm range than did the Neuston net, suggesting a more pronounced diurnal migration of the larger individuals.

Table 1. Catches of Atlantic sea herring larvae, *Albatross IV* Cruise 75-5, 13-22 May 1975.

Station	Date	Time GMT	Number of Herring			Total Length (mm)	Bottom Depth (m)
			Neuston	Bongo	IKMT		
25	16-05	0425	3	0	0	-	84
28	16-05	0108	11	0	0	40-50	143
50	20-05	0856	339	0	5	37-58	174
51.1	20-05	0535	73	0	23	38-50	51
52.1	20-05	0320	0	0	9	41-49	52
61	17-05	0229	14	0	0	42-52	29
62	17-05	0445	218	0	0	42-50	37
63	17-05	0558	29	0	0	40-50	35
64	17-05	0730	1	0	0	-	186
72	19-05	0234	1	0	63	35-55	48
73	19-05	0409	1	0	1	49	44
74	19-05	0604	8	0	0	45-50	46
84	17-05	1517	0	1	0	50	61

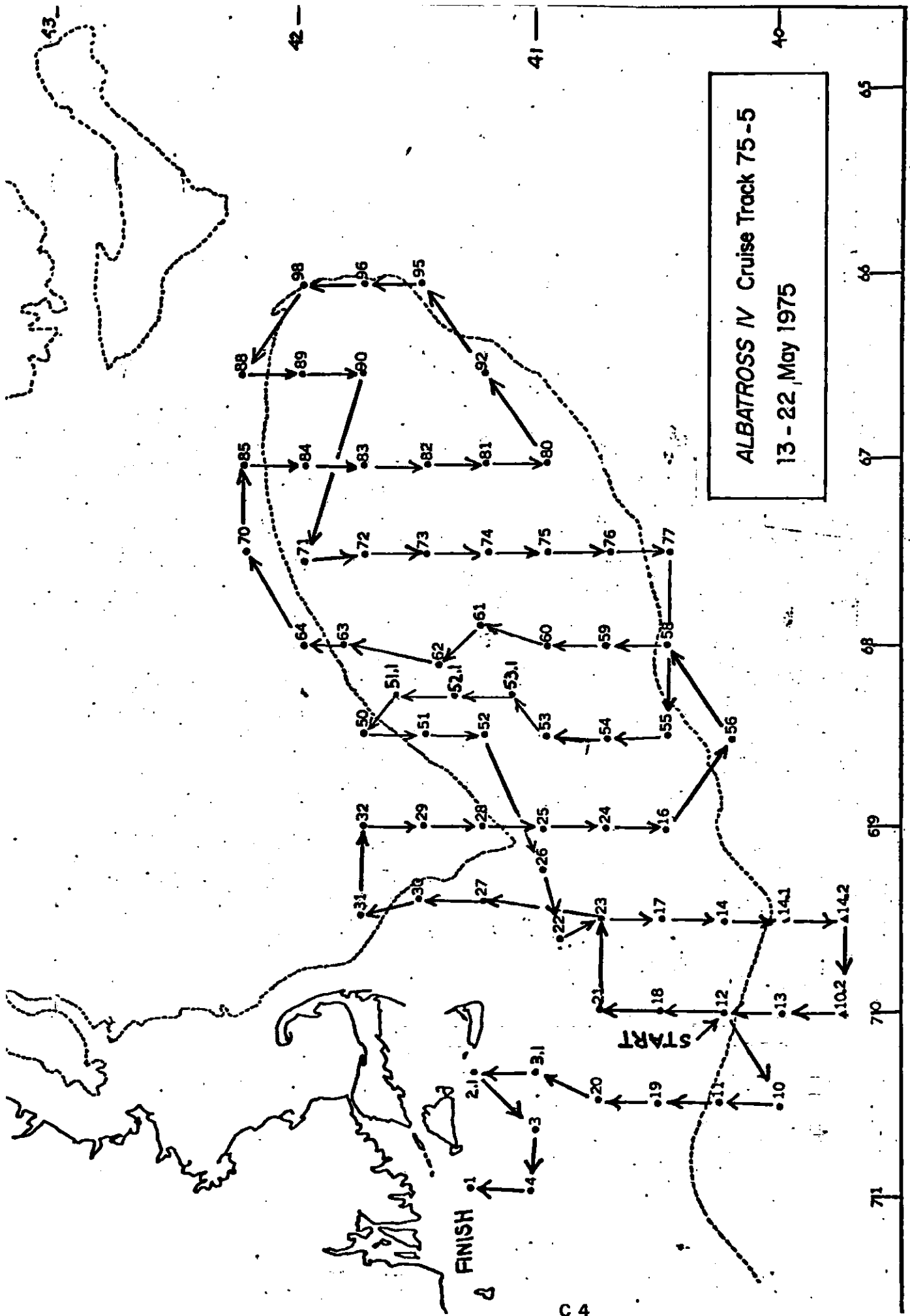


Figure 1. Cruise track and standard ICNAF stations of juvenile fish survey, Nantucket Shoals to Georges Bank.

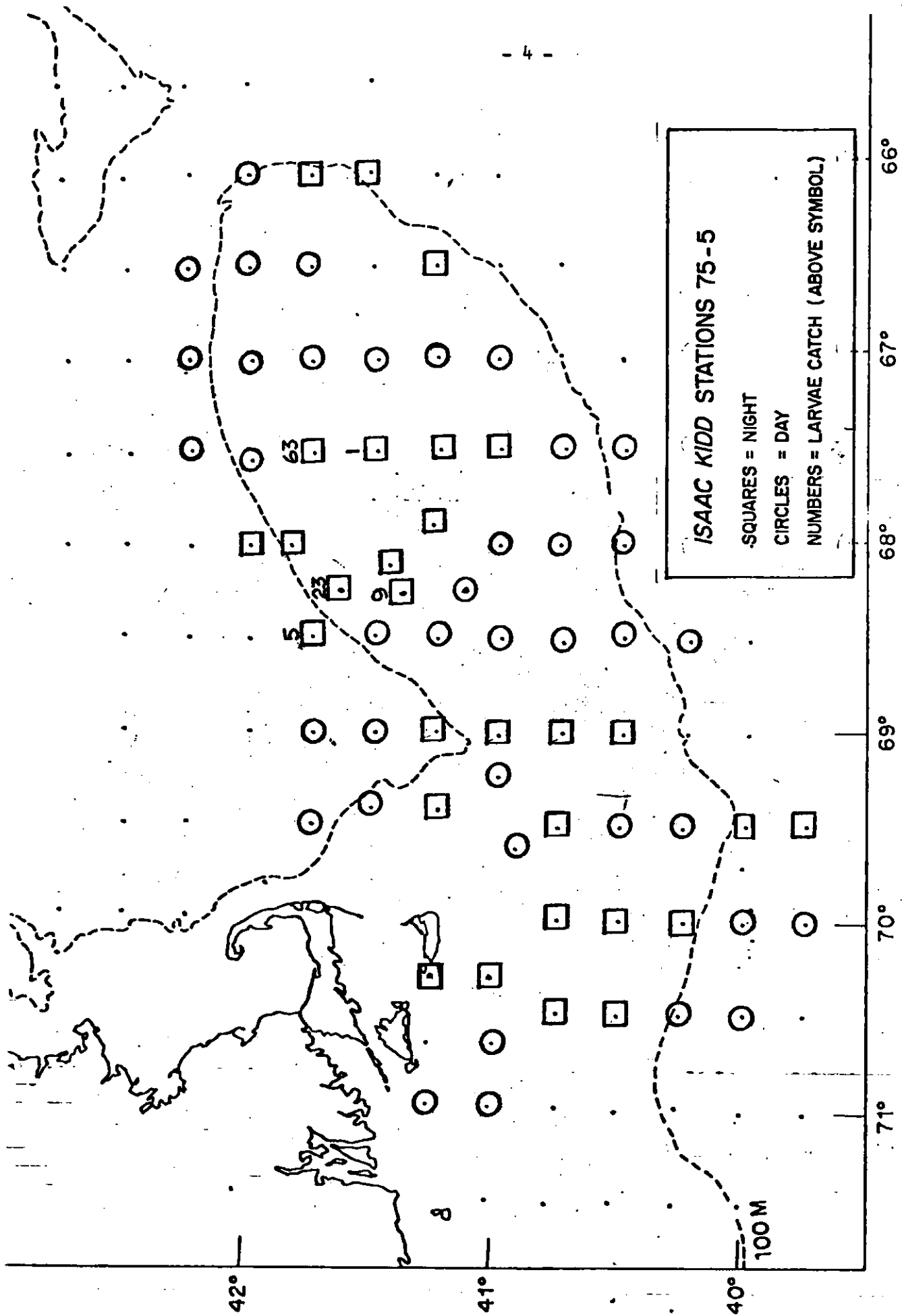


Figure 2. Isacs-Kidd sampling stations and catches of larval herring, *Albatross IV* Cruises 75-5, 13-22 May 1975.

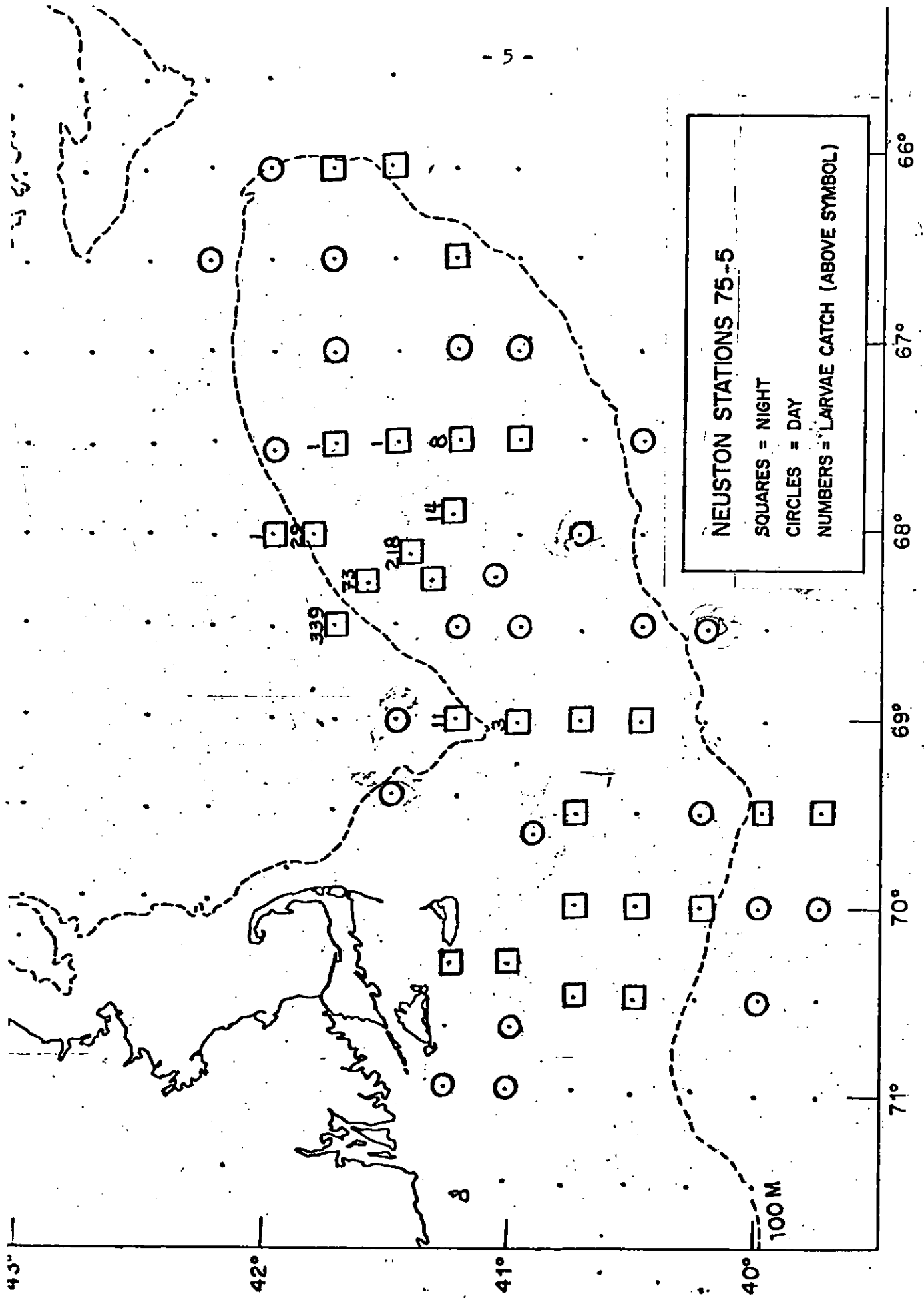


Figure 3. Neuston sampling stations and catches of larval herring, *Albatross IV* Cruise 75-5, 13-22 May 1975.

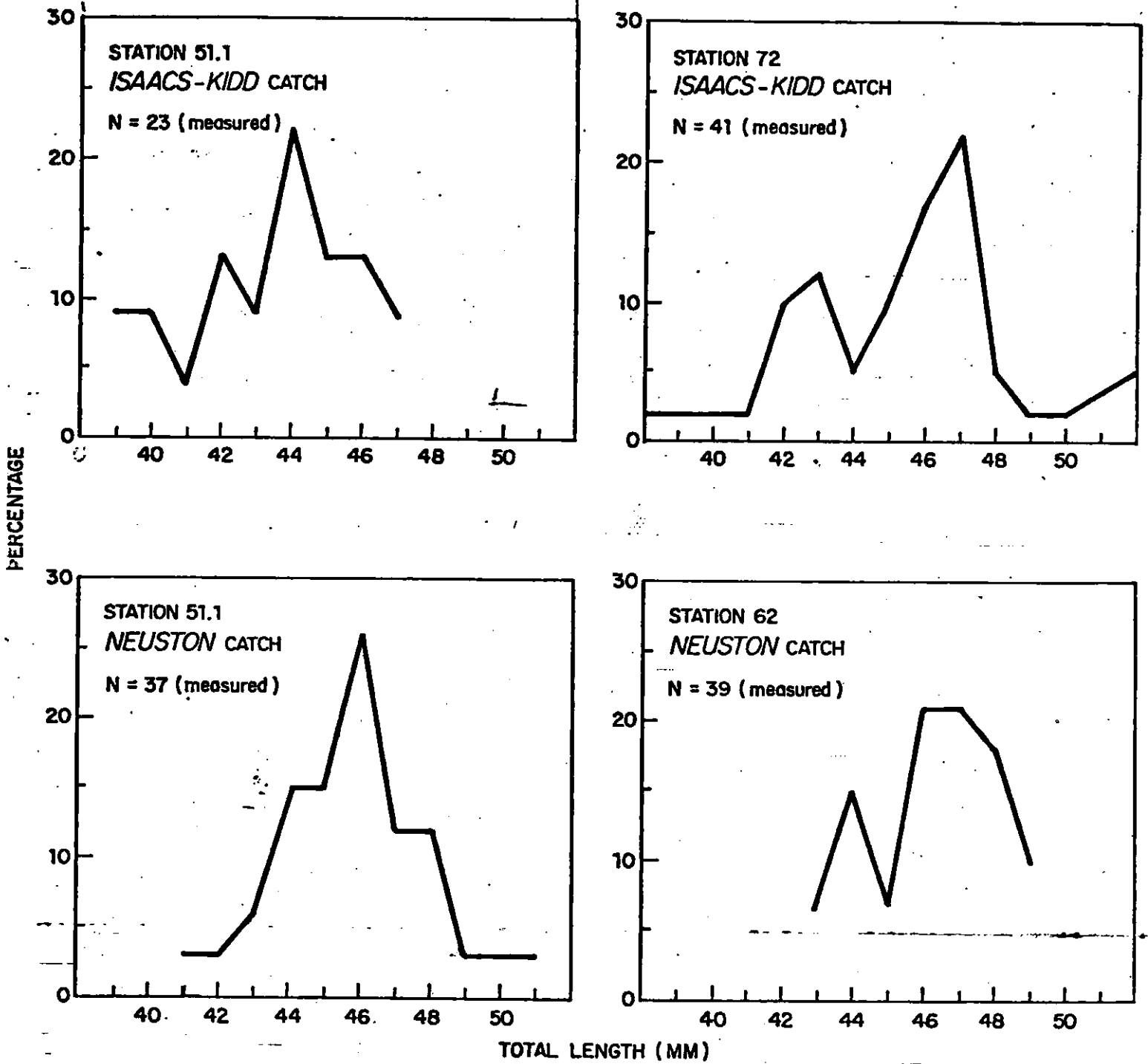


Figure 4. Length-frequencies (T.L.) of selected herring catches, *Albatross IV* Cruise 75-5, 13-22 May 1975.