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Report of the ICNAF larval herring cruise, R/V Anton Dohrn,
November 1975 in Georges Bank - Nantucket Shoals areas.¹

by

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Within the scope of the ICNAF Joint Larval Herring Survey in 1975, R. V. "Anton Dohrn" sampled in the areas of Georges Bank and Nantucket Shoals, and the standard stations in the inner Gulf of Maine up to 43° North. According to the ICNAF Larval Herring Programm in 1975 (see circular letter 75/51), extra stations in areas of larval aggregations on Georges Bank and on eastern Nantucket Shoals were taken. R. V. "Anton Dohrn" worked up the station grid (Fig. 1) from 1. November through 15. November. The results concerning distribution, abundance, and length of herring larvae at that time are summarized in this report. The hydrographic situation is indicated by preliminary charts of temperature and salinity distribution at the surface, at 30 meters, and near the bottom up to the 100 meter layer.

Methods

Standard sampling methods were used (see circular letter 75/51). By means of a depth recorder with

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deck reading unit, it was possible to sample within 5 meters of the bottom in depth less than 100 meter. Simultaneously with the 61 cm Bongo catches, on 143 stations catches with 20 cm Bongo net were made. (Fig. 1, except stations 111,1 and 99,1). On all standard stations a Neuston net was towed. Temperature and salinity values were obtained by hydrographic series at 119 stations. Additionally BT and XBT casts were made. Oxygen determinations were made on 109 stations. Samples for nutrient (58 stations) and chlorophyll determinations (53 stations) were taken.

Results

In general, samples from the standard ICNAF stations, taken with the .505 mm mesh size Bongo net, have been analysed. Figure 2 shows the sequence in which they have been worked up.

Calculated numbers of herring larvae per 10 m² sea surface are given for three size categories separately and for all sizes in figures 3 - 6. On Georges Bank a center of larval distribution was found on the northern edge. Numbers of larvae were lower than 1973 and 1974, but higher than 1971 and 1972. On Nantucket Shoals the peak number was on station 17, containing mostly 10 - 15 mm larvae. The highest proportion of small larvae was site~~d~~ on stations 30 and 31, northeast of Nantucket. The numbers of small larvae were very much lower than in previous years, but the number of larvae ≥ 10 mm on the Shoals seems to be mostly similar to 1973 and 1974. For comparing the abundance of larvae between the years 1971 - 1975 see table 1.

Length frequency distribution of larvae is given in figure 7 for both main areas. In both areas the proportion of small larvae is much lower than in

the previous two years. On Nantucket Shoals two hatching groups are clearly separated.

In the Gulf of Maine the station grid does not cover the distribution of herring larvae. The peak number of small larvae on station 46 differs from the obtained centers of small larvae in the previous years.

Table 1 : Estimates of abundance of larval herring (n·10⁻⁹) in November 1975 compared to October/November 1971 - 1974.

Area	Sizes (mm)	1971	1972	1973	1974	1975
Nantucket	< 10	49	230	1200	770	107
	≥ 10	450	208	410	400	402
	total	500	440	1600	1200	510
Georges Bank	< 10	160	50	2000	600	310
	≥ 10	360	105	1500	700	500
	total	520	150	3600	1300	810
		10.-12.Nov.	31.Oct-3.Nov.	28.-31.Oct	16.-18.Nov	11.-15.Nov
		31-8.Nov.	5.-9.Nov.	2.-6.Nov.	18.-23.Nov.	2.-10.Nov

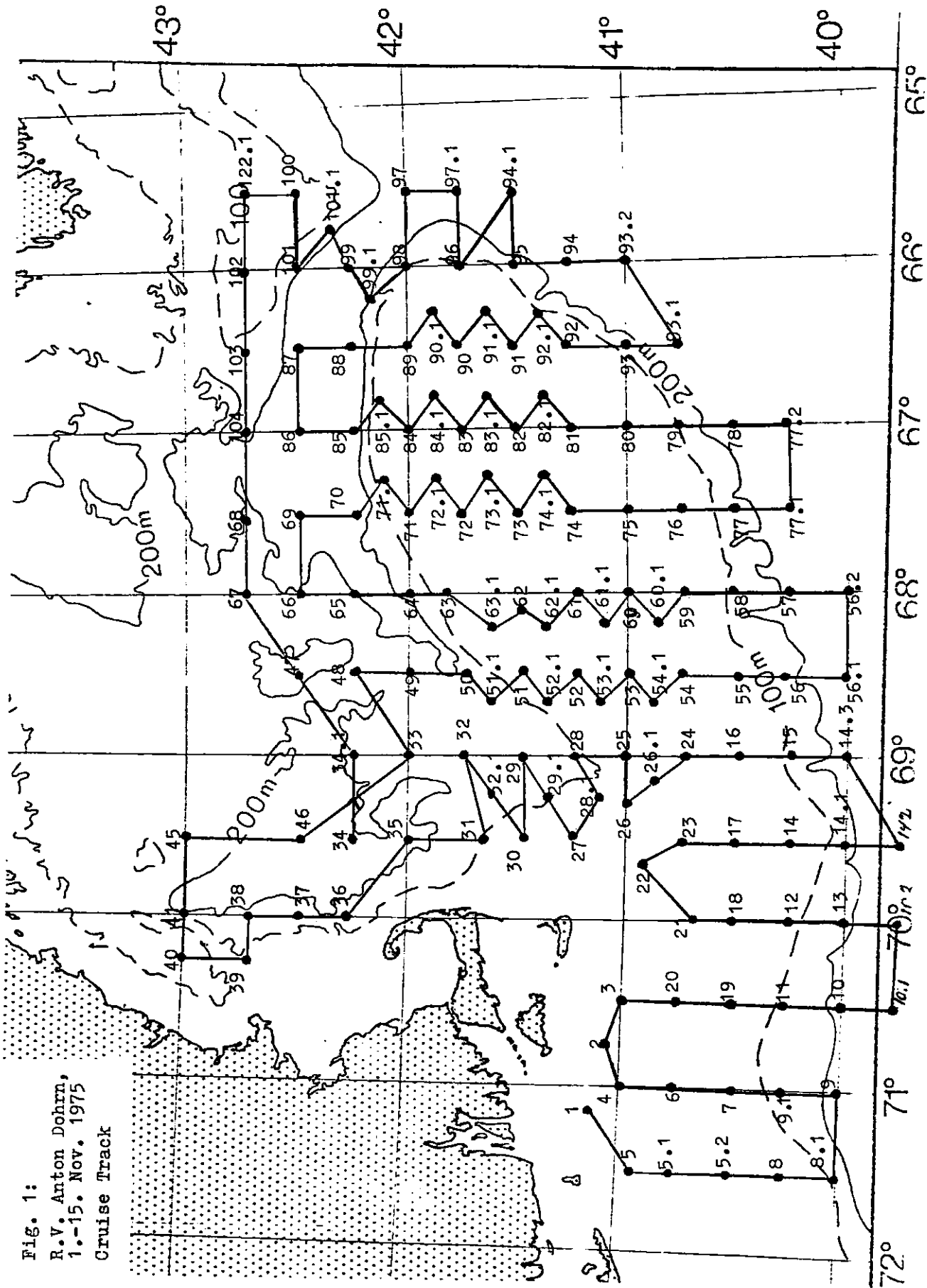


Fig. 1:
R.V. Anton Dohrn,
1.-15. Nov. 1975
Cruise Track

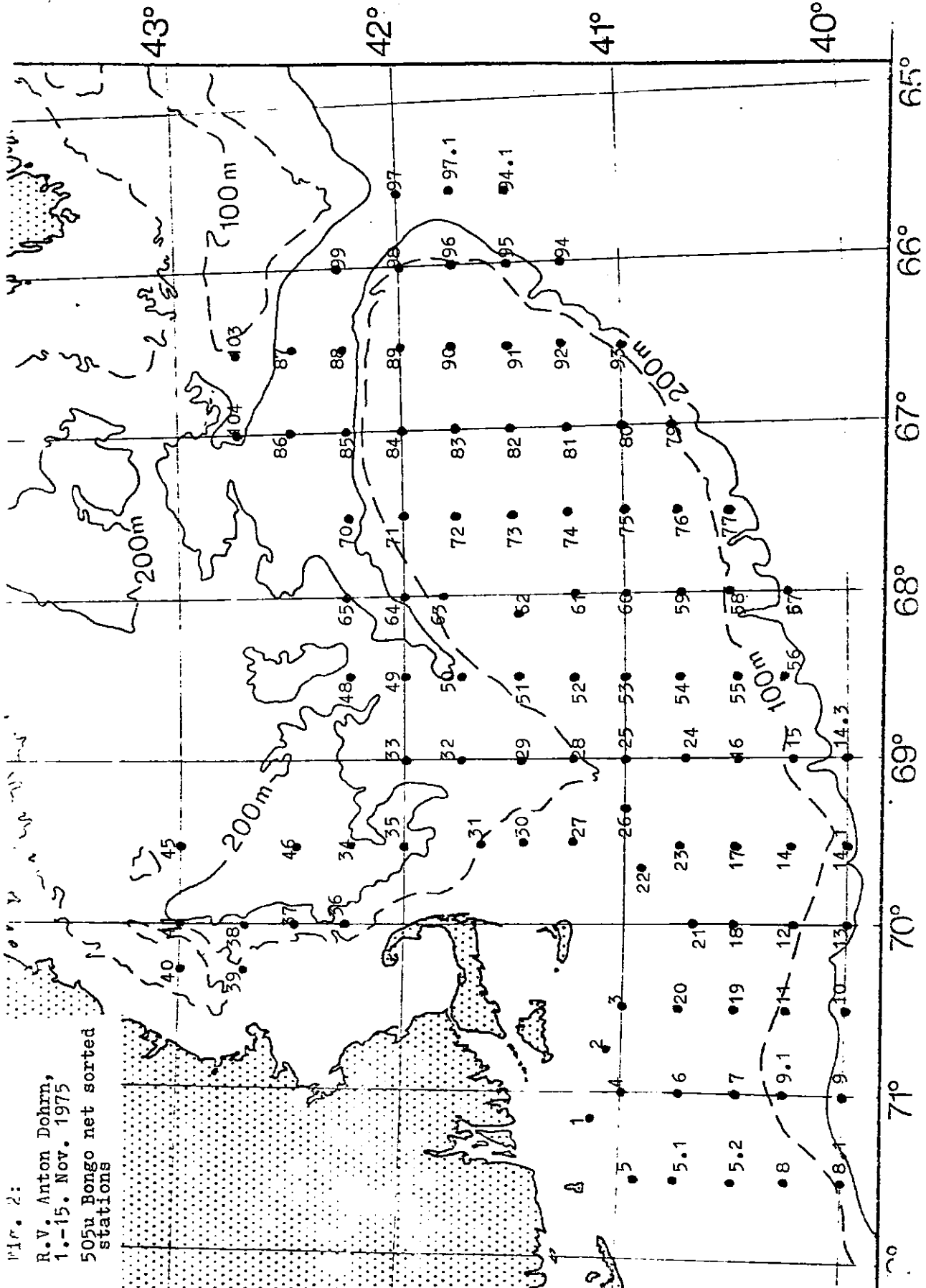


FIG. 2:
R.V. Anton Dohrn,
1.-15. Nov. 1975
505u Bongo net sorted
stations

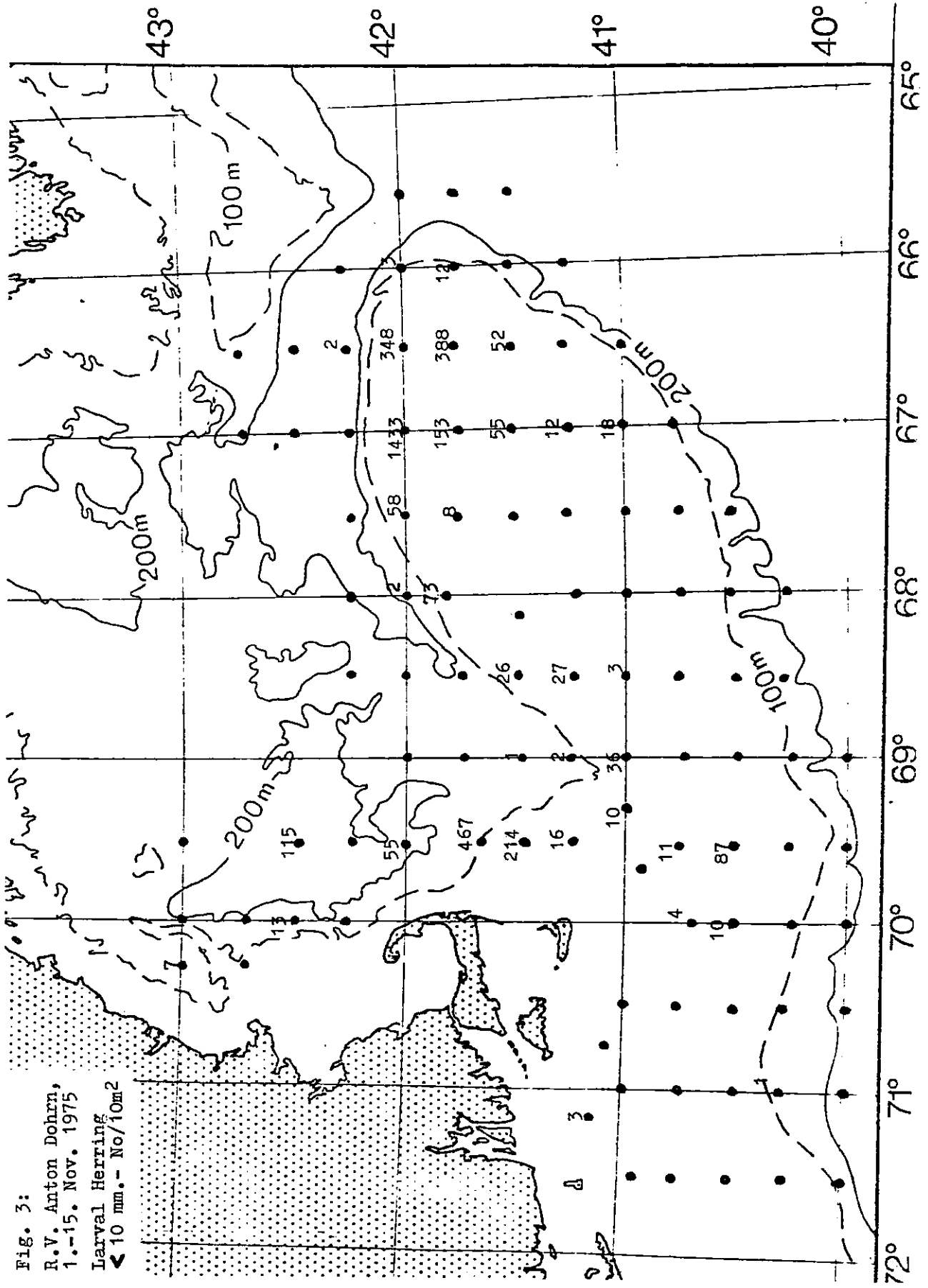
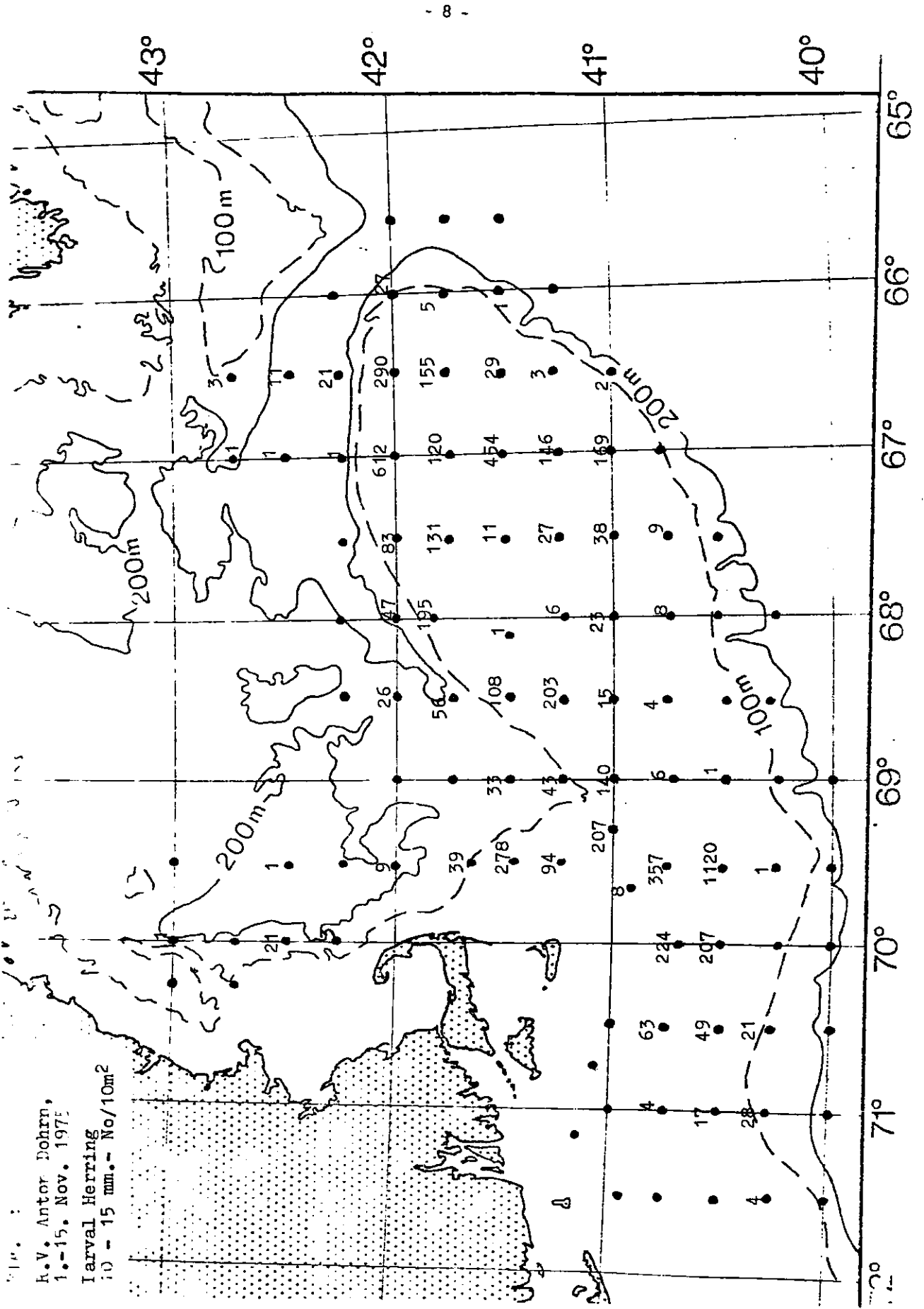
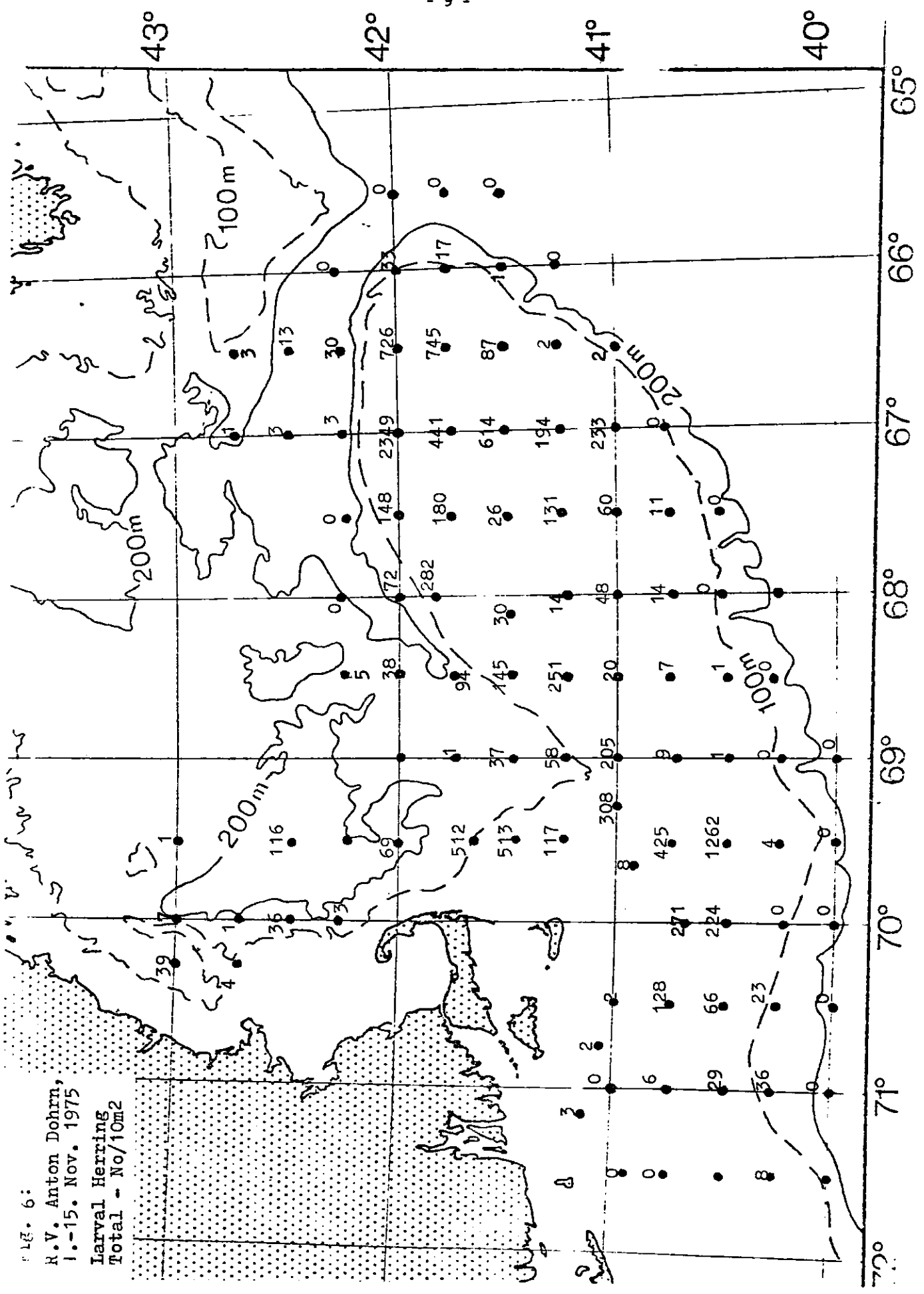


Fig. 3:
R.V. Anton Dohrn,
1.-15. Nov. 1975
Larval Herring
◀ 10 mm. - No/10m²





PLG. 6:
 R.V. Anton Dohrn,
 1.-15. Nov. 1975
 Larval Herring
 Total - No/10m²

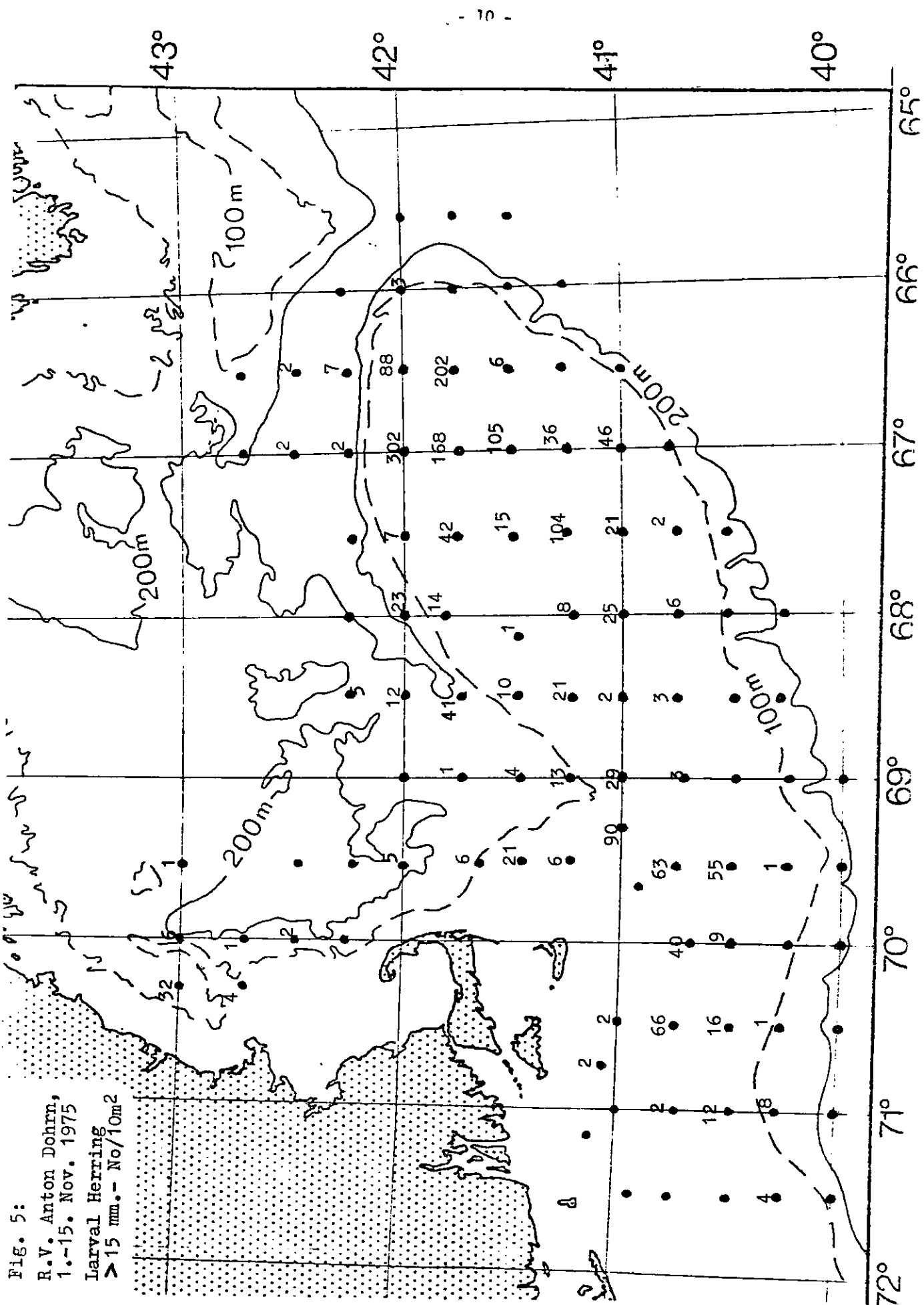
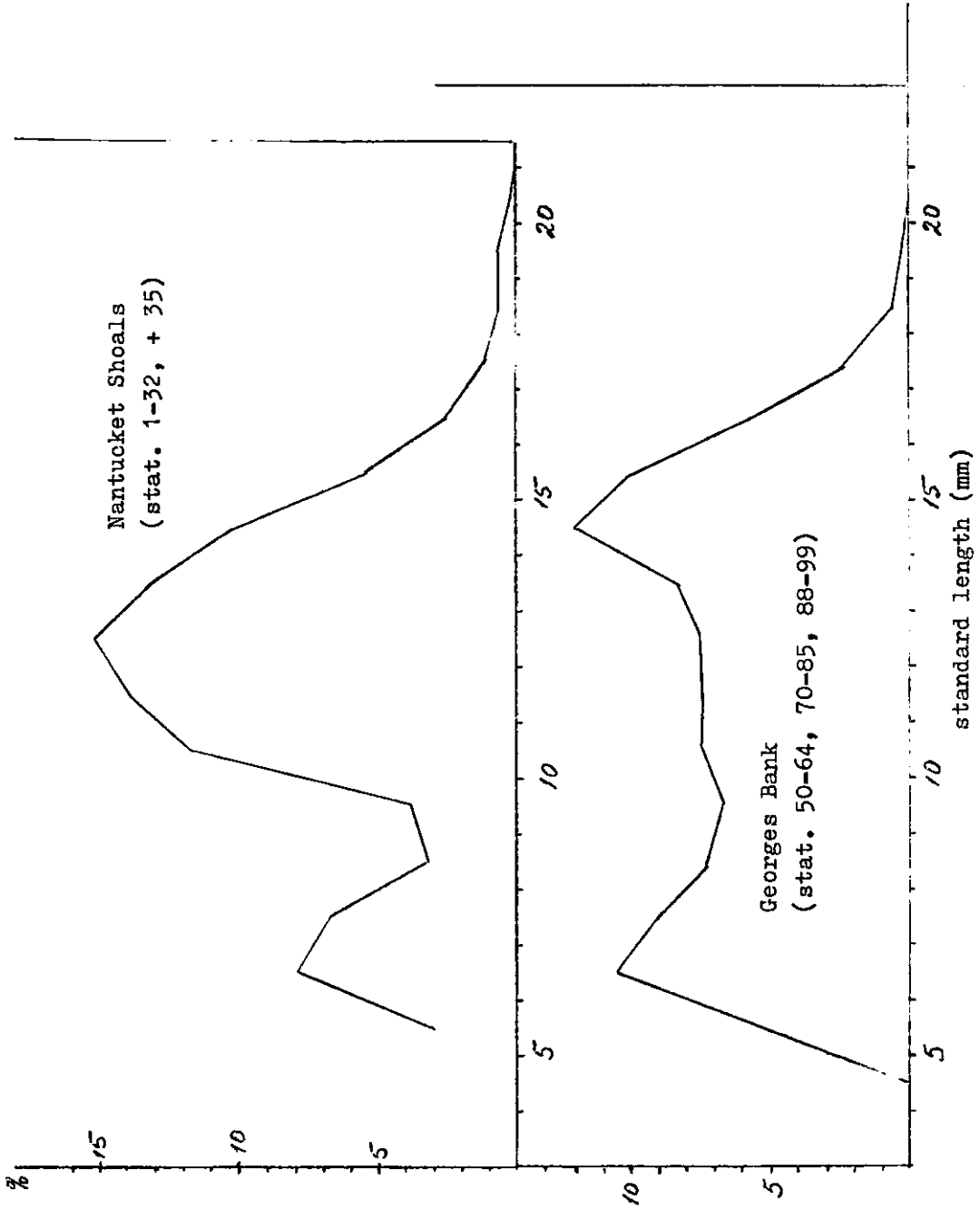


Fig. 7 : Length frequency distribution



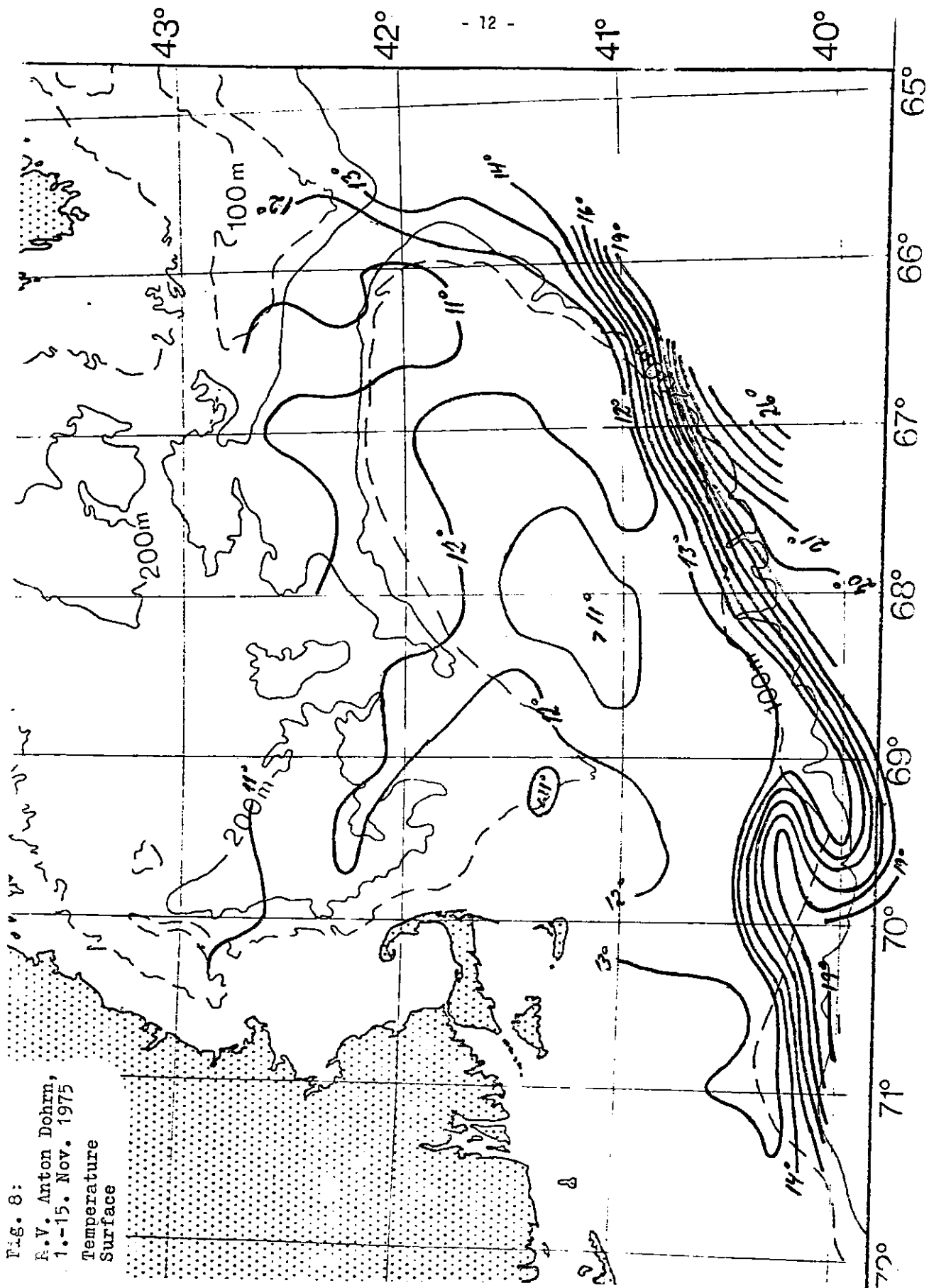


Fig. 8:
R.V. Anton Dohrn,
1.-15. Nov. 1975
Temperature
Surface

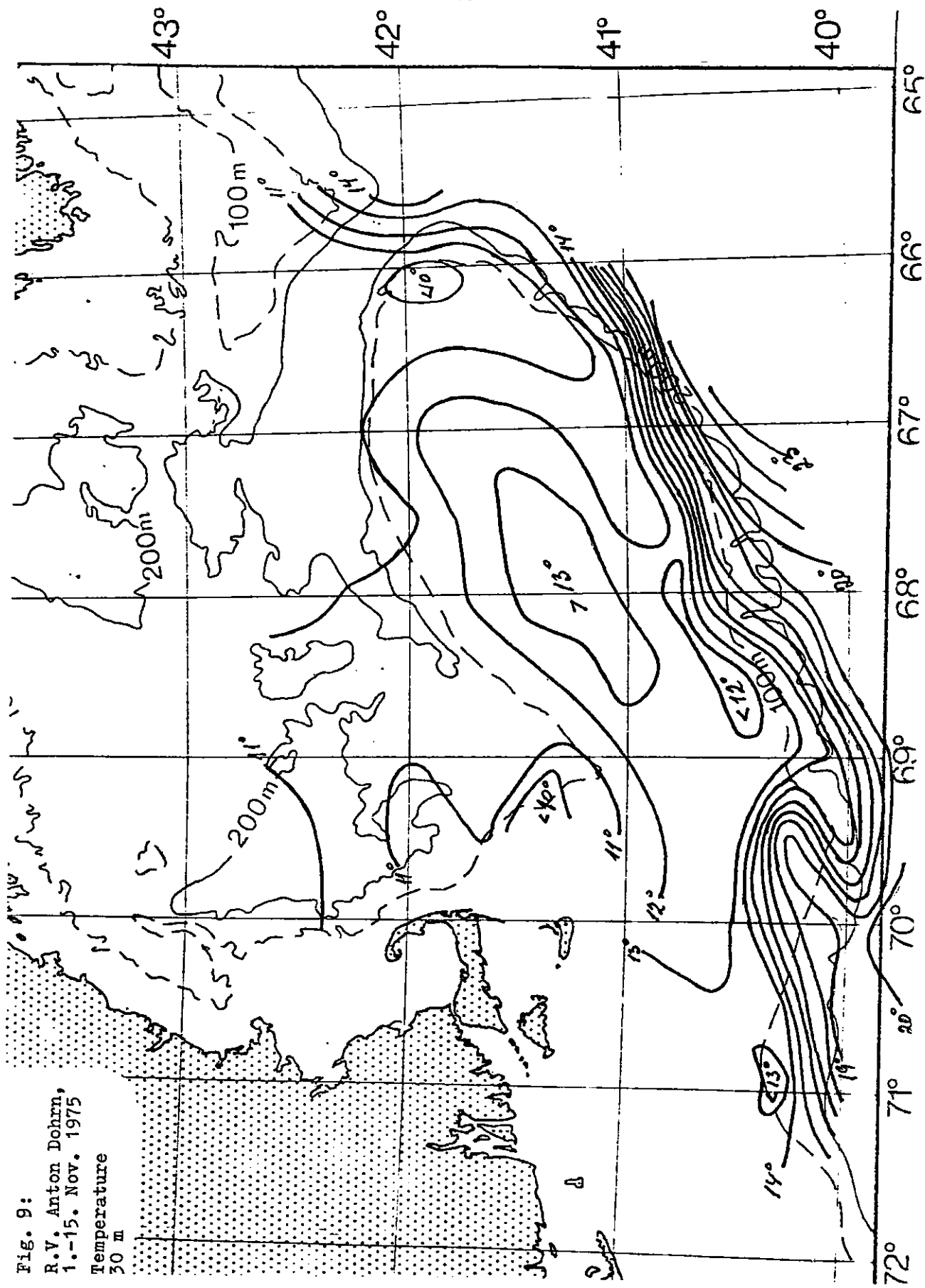


Fig. 9:
R.V. Anton Dohrn,
1.-15. Nov. 1975
Temperature
30 m

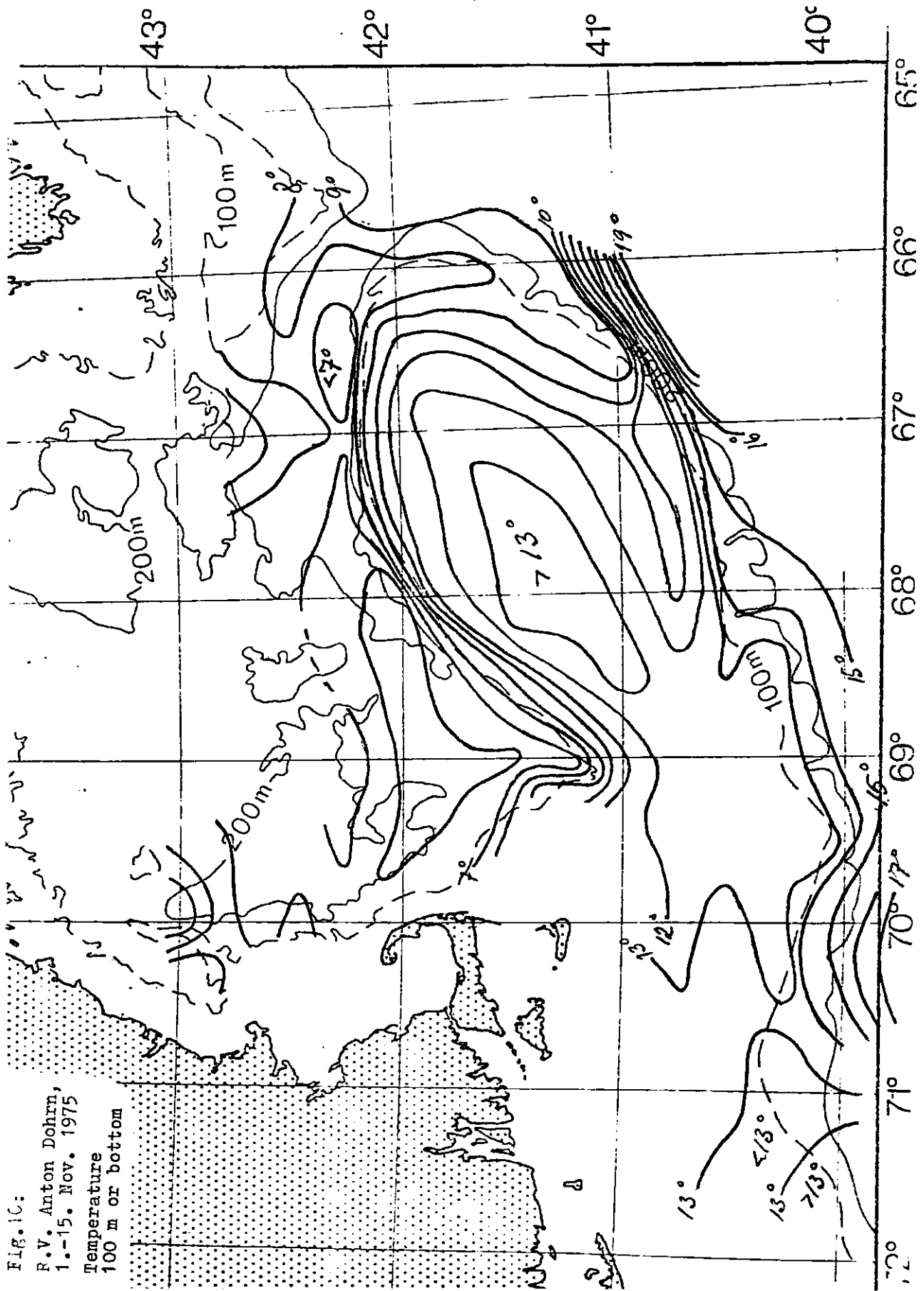


Fig. 1C:
R.V. Anton Dohrn,
1.-15. Nov. 1975
Temperature
100 m or bottom

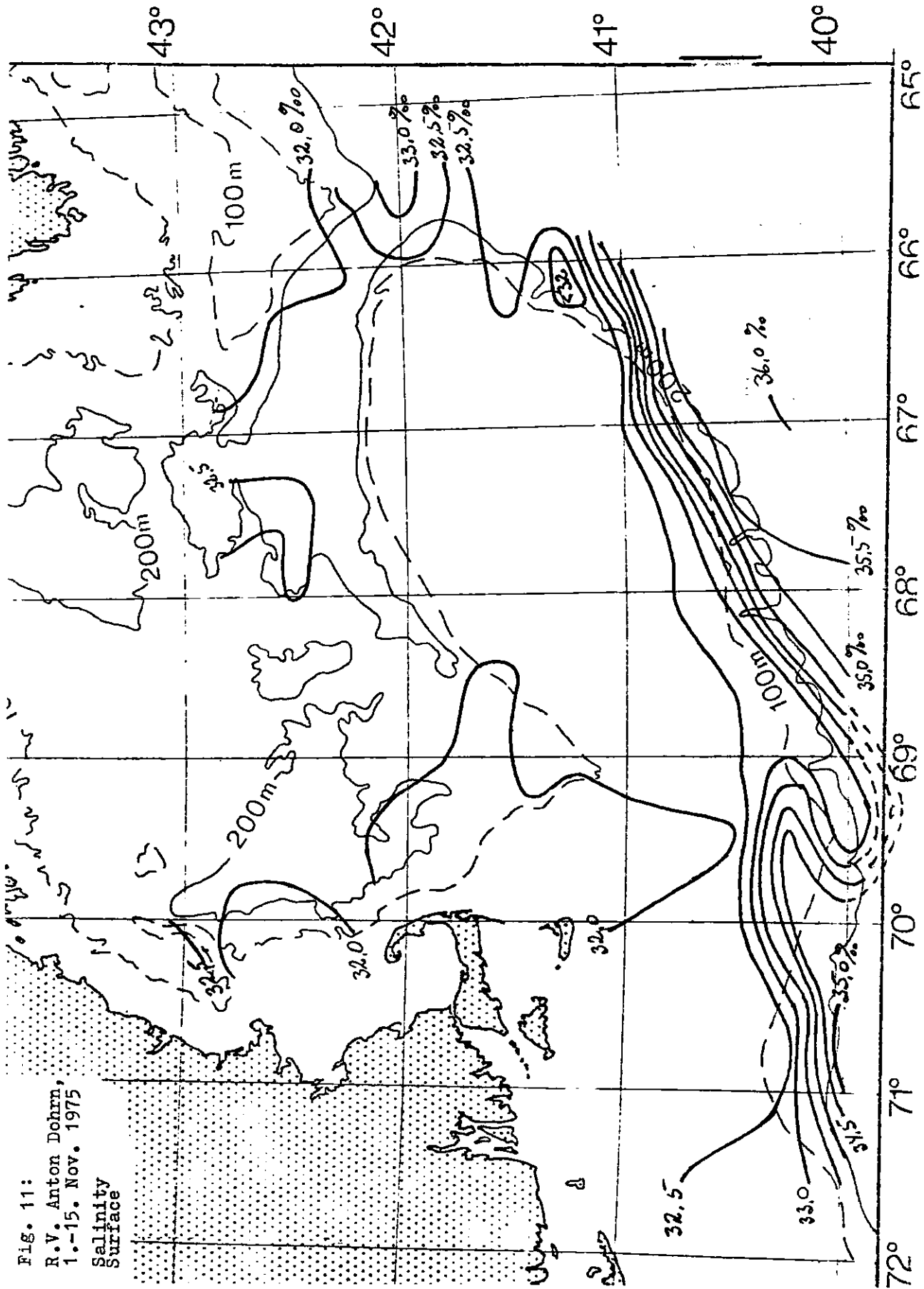


Fig. 11:
R.V. Anton Dohrn,
1.-15. Nov. 1975
Salinity
Surface

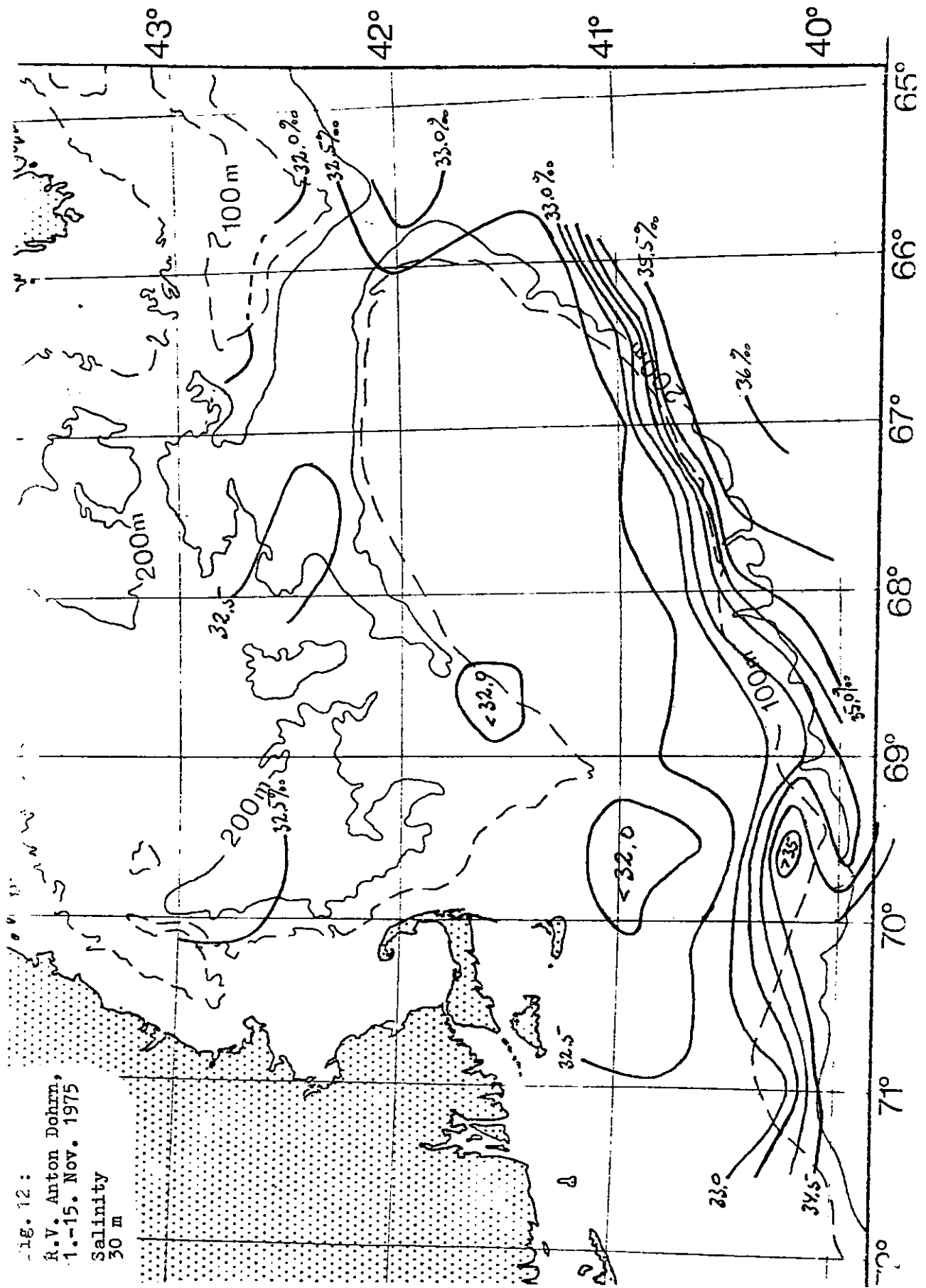


Fig. 12:
R.V. Anton Dohrn,
1.-15. Nov. 1975
Salinity
30 m

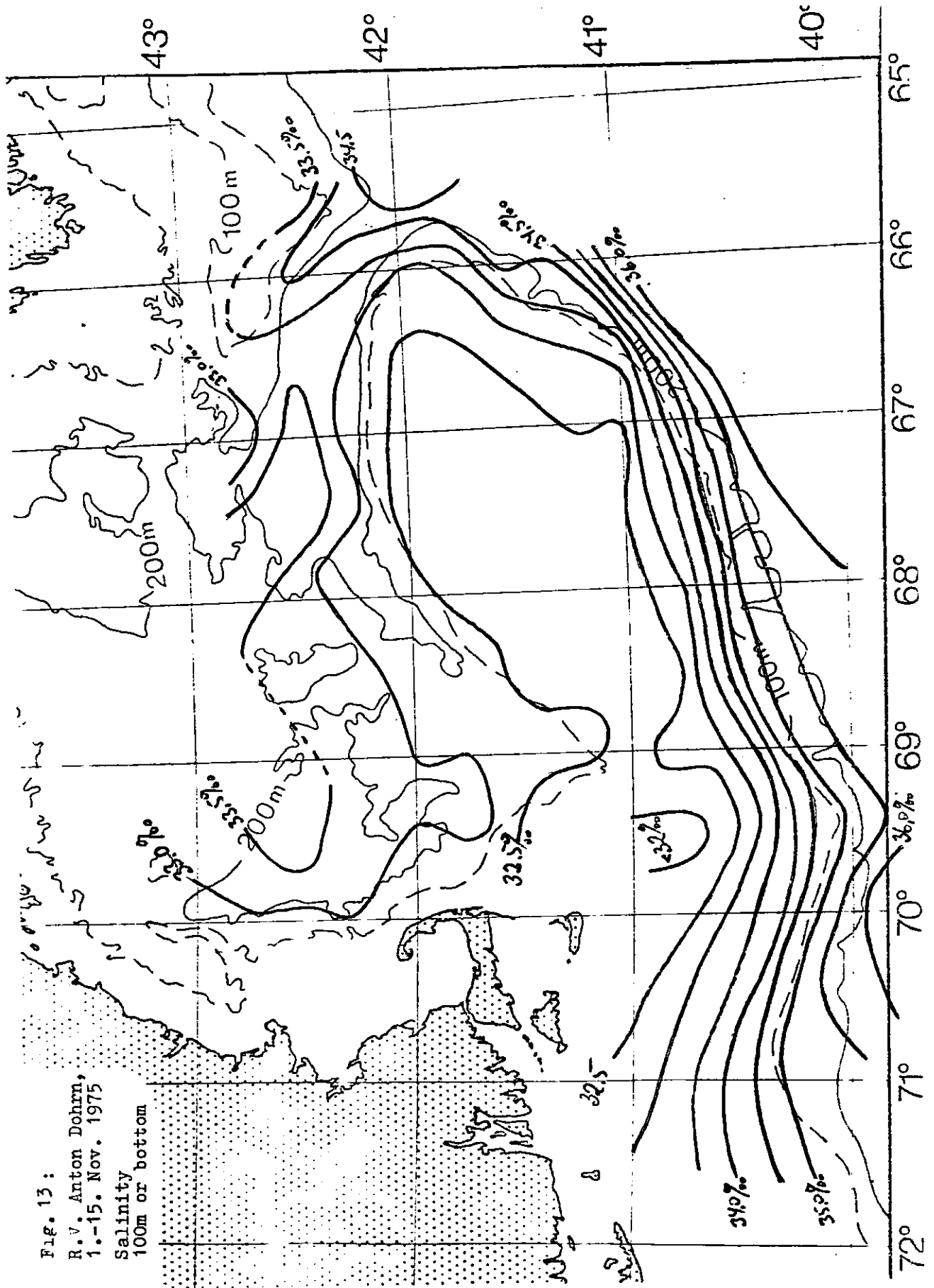


Fig. 13 :
R. V. Anton Dohrn,
1.-15. Nov. 1975
Salinity
100m or bottom

