

Fol. 41 G

This paper not to be cited without prior reference to the author

International Council for
the Exploration of the Sea

C.M. 1984/G:33
Demersal Fish Committee
Ref: Shellfish Committee

REPORT OF THE CRUISE OF F/F "ELDJARN"
TO EAST GREENLAND WATERS IN NOVEMBER 1983

by

Odd M. Smedstad
Institute of Marine Research
Bergen, Norway

ABSTRACT

The area between 67°N and Kap Farvel was investigated in the period 7. to 21. November. The report gives catch data for some demersal fish species and shrimps.

RÉSUMÉ

Le territoire entre 67°N et Kap Farvel était exploré dans la période de 7. à 21. Novembre. Le report donne des captures pour quelques poissons du fond et des crevettes.

MATERIAL AND METHODS

The cruise started from Bergen 31 October 1983, and finished in Bergen 25 November. The aim of the survey was to investigate distribution and abundance of demersal fish and shrimps. The investigations started in the north at Dohrn bank and due to unexceptional good weather conditions, the investigations could be carried out south to Kap Farvel without any interruptions. However, parts of the coastal waters could not be

investigated due to drifting ice, (Fig. 1), and between 63°15'N and 62°30'N it was impossible to reach the continental shelf.

F/F "Eldjarn" is a purse seine/blue whiting trawler built in 1978 and rebuilt in 1982/83 for research purposes. Total length is 60.31 m and the main engine has 3400 hp. The bottom trawl used was the "Campelen Super" 1800 mesh with the following specifications: 30 m headline, 19 m ground rope, 40 mm mesh size in the body and 35 mm in the cod end. The gear was equipped with 4 iron bobbins in the middle and smaller rubber bobbins at the wings. The sweep wires were 40 m long. The pelagic trawl in use was a "Harstad" capelin trawl with a vertical opening of about 16-20 m. The echo sounder in use was a "Simrad EK 400" with a frequency of 38 kHz and the integrations were done on a NORD-100 computer.

Totally 36 hauls were made with the bottom trawl and 5 hauls with the pelagic trawl. On most of the bottom trawl stations the trawl was towed 1.5 nautical miles, but on station nos. 483, 485, 486, 490, 492 and 494 the trawl was towed 3 nautical miles, on station nos. 486, 507, 511, 512 and 513 it was towed 1 nautical mile and on station nos. 514 and 515 it was towed 0.5 and 0.3 nautical miles respectively. The catches of the most important species are shown in Tables 1 and 2. During the cruise, 57 hydrographical stations were carried out with a CTD sonde.

RESULTS

Hydrography

The surface temperatures and the bottom temperatures are shown in Figs. 3 and 4.

COD

Cod were never so numerous that it was recorded as concentrations on the echo sounder. In average 6 specimens per hour trawling were caught. The cod were mainly caught at the edge

of the continental shelf and at the slope (Fig. 5). Very few small specimens were caught (Fig. 9).

REDFISHES

Fig. 6 shows echo registrations of redfish. Both species are included and the figure shows that the species are concentrated near the continental slope. Some specimens were caught in the Irminger Sea, but here the concentrations were so scattered that it was impossible to distinguish redfish from bathypelagic fish or blue whiting. In the catches redfish were separated into Sebastes marinus and S. mentella, but it was not always easy to distinguish between the species. Especially the small specimens created difficulties. Errors may therefore occur in the material.

S. marinus was the most numerous in the catches. Fig. 10 shows that the continental shelf mainly were inhabited by small fish while the bigger fish were concentrated at the edge and on the slope. South of 63°N mainly small fish were caught, but in this area it was only possible to trawl upon the banks.

S. mentella were caught in smaller numbers than S. marinus. Also the small S. mentella were concentrated on the shelf while the bigger were caught at the edge and on the slope. South of 63°N both small and big specimens were caught.

36 specimens were caught out in the Irminger Sea. All of them were mature.

BLUE WHITING

Blue whiting was recorded along the continental slope, and also in the Irminger Sea (Fig. 7). Specimens 15 to 19 cm long amounted to about 88% of the catches, while the rest were 20 to 24 cm long. No bigger fish were caught. Thus, we have concluded that all blue whiting recorded in the area were of the 1982 year class, a year class reported to be exceptionally numerous in the Norwegian Sea.

CAT-FISHES

Cat-fish and smaller cat-fish were caught on several stations, but as seen from Fig. 9 most of the specimens were smaller than 30 cm.

OTHER DEMERSAL FISH

Long rough dab were caught in 18 trawls, but in small numbers. Further we caught 45 Greenland halibut, 5 blue ling, and 3 small halibut.

SHRIMP (Pandalus borealis)

Shrimp were only caught in any amount north of 66°N (Fig. 8). The greatest catch was 243 kg per hour. However, this area was badly investigated because of the ice conditions.

Table 1 contn.

St. no.	Pos.	Depth	Cod	<u>Sebastes</u> <u>marinus</u>	<u>Sebastes</u> <u>mentella</u>	Blue whiting	Smaller cat-fish	Cat-fish	Greenland halibut	Blue- ling	Shrimp
	35°00'	320	B	-	-	-	-	-	-	-	-
496	65°02'		A	-	-	2	-	-	-	-	-
	34°22'	442	B	-	-	+	-	-	-	-	-
497	64°34'		A	8	266	72	1414	2	4	-	2
	35°08'	370	B	22	210	36	51	6	8	-	2
498	64°56'		A	-	18	6	-	-	-	-	-
	36°04'	170	B	-	19	3	-	-	-	-	-
499	65°02'		A	-	-	-	-	-	-	-	-
	36°19'	253	B	-	-	-	-	-	-	-	-
500	64°25'		A	60	122	-	-	-	24	-	-
	37°03'	185	B	56	216	-	-	-	3	-	-
501	64°29'		A	-	16	432	-	-	-	-	-
	37°22'	390	B	-	10	50	-	-	-	-	-
502	64°03'		A	-	-	456	-	-	-	-	-
	37°21'	465	B	-	-	336	-	-	-	-	-
503	63°50'		A	18	26	36	184	-	28	-	-
	36°43'	315	B	56	17	5	7	-	3	-	-
504	63°36'		A	-	1616	-	8	-	8	-	-
	37°30'	297	B	-	706	-	+	-	+	-	-
505	63°40'		A	10	362	-	-	2	-	-	-
	37°58'	225	B	15	38	-	-	+	-	-	-
506	63°44'		A	2	24	504	-	-	68	-	-
	39°10'	236	B	5	5	21	-	-	8	-	-
507	63°31'		A	-	1365	-	-	105	-	-	-
	38°31'	238	B	-	273	-	-	11	-	-	-
508	63°22'		A	64	80	2	38	-	32	-	-
	39°16'	308	B	190	154	+	1	-	2	-	-
510	63°18'		A	-	82	320	22	4	26	2	-
	39°44'	344	B	-	66	103	1	18	2	4	-

Table 1 contn.

St. no.	Pos.	Depth	Cod	<u>Sebastes</u>		Blue	Smaller	Greenland Blue-				
				<u>marinus</u>	<u>mentella</u>	whiting	cat-fish	Cat-fish	halibut	ling	Shrimp	
511	62°17'		A	-	12	459	1950	3	-	-	3	-
	40°31'	405	B	-	5	199	83	1	-	-	2	-
512	62°02'		A	-	-	3	-	-	-	-	-	-
	40°54'	250	B	-	-	2	-	-	-	-	-	-
513	61°59'		A	6	9639	483	108	-	12	-	-	-
	41°16'	238	B	13	342	57	4	-	1	-	-	11
514	61°14'		A	-	-	-	-	24	-	-	-	-
	41°33'	250	B	-	-	-	-	4	-	-	-	-
515	60°53'		A	30	5040	-	-	-	480	-	-	-
	42°05'	181	B	78	174	-	-	-	50	-	-	4
Catch per hour			A	6	528	150	110	4	20	2	4	
			B	14.9	65.9	30.4	4.4	2.1	2.6	1.8	0.9	14.2

x) trawl damaged

Table 2. Catch per hour trawling (3 n.m.) in numbers (A), and weight in kg (B) in the pelagic trawl catches.

S no.	Pos.	Depth	Cod	<u>Sebastes</u>		Blue
				<u>marinus</u>	<u>mentella</u>	whiting
489	65°20'		A	-	-	31
	31°28'	400	B	-	-	1
509	63°24'		A	-	-	223684
	39°21'	320	B	-	-	10000
516	61°09'		A	-	-	9
	39°54'	400	B	-	-	8
517	62°19'		A	-	-	22
	37°56'	500	B	-	-	16
518	64°20'		A	-	-	5
	34°00'	500	B	-	-	4

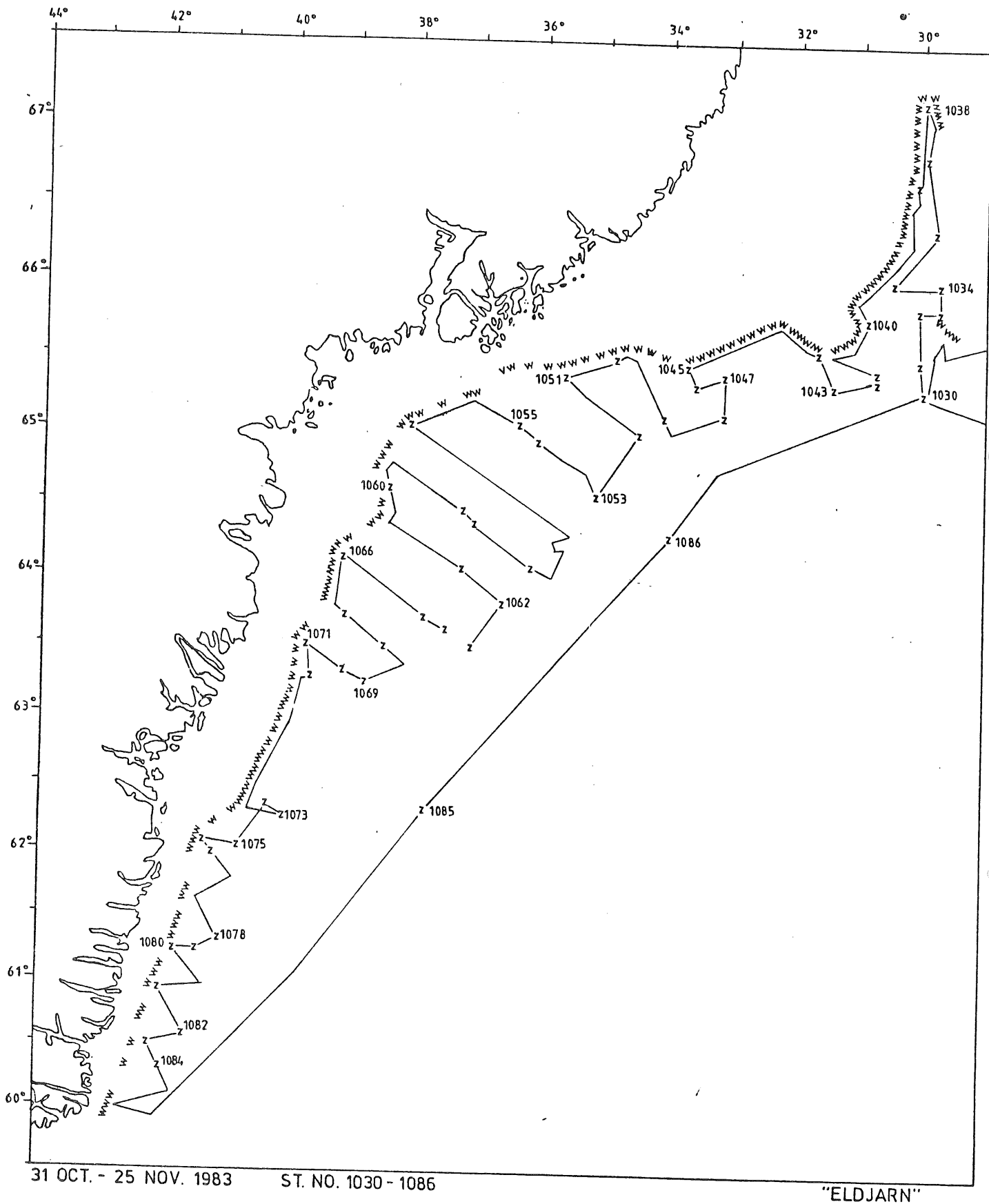


Fig. 1. Survey tracks and hydrographical stations, November 1983.

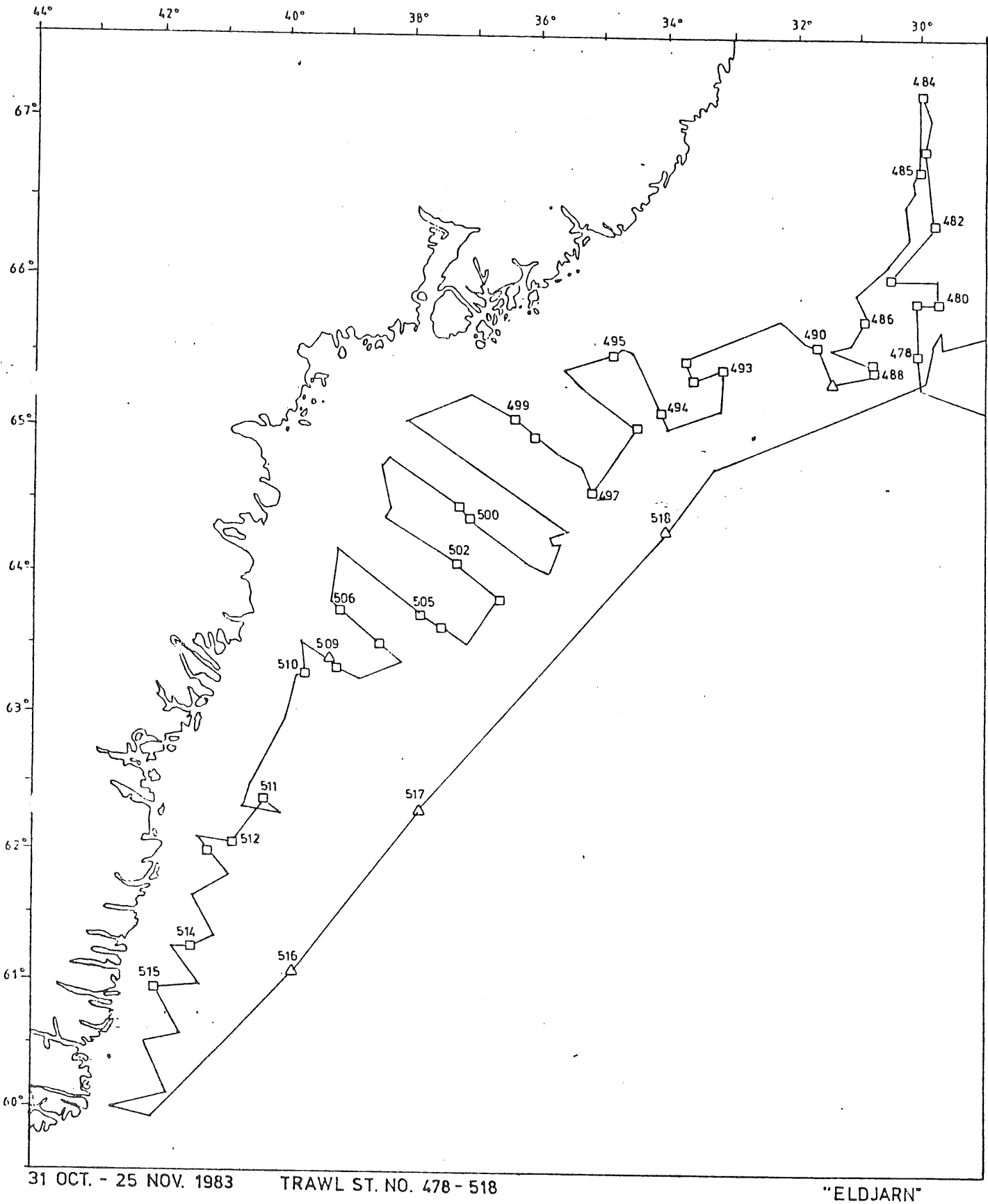


Fig. 2. Survey tracks and trawl stations, November 1983.
 □ = Bottom trawl, Δ = pelagic trawl.

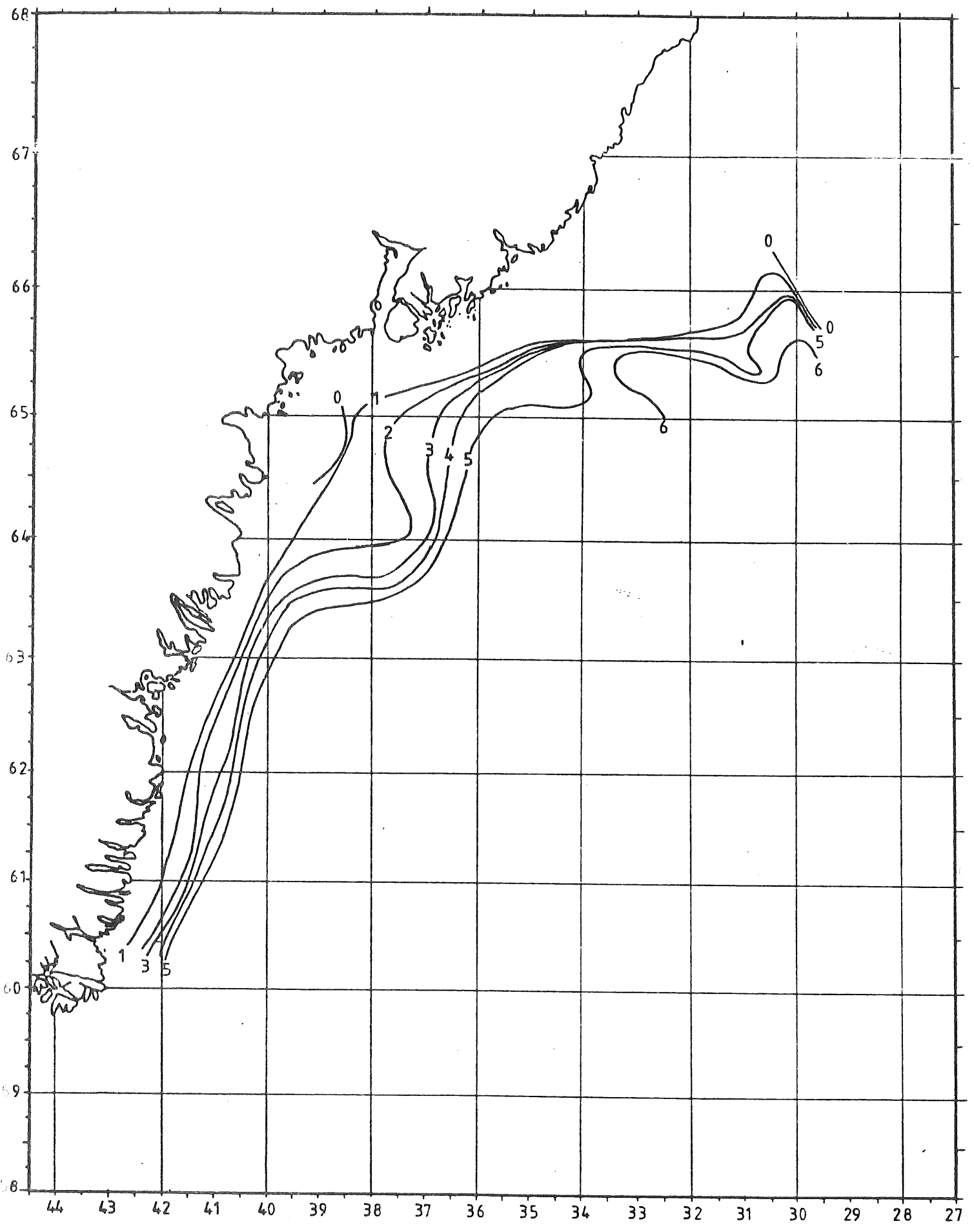


Fig. 3. Surface temperatures, November 1983.

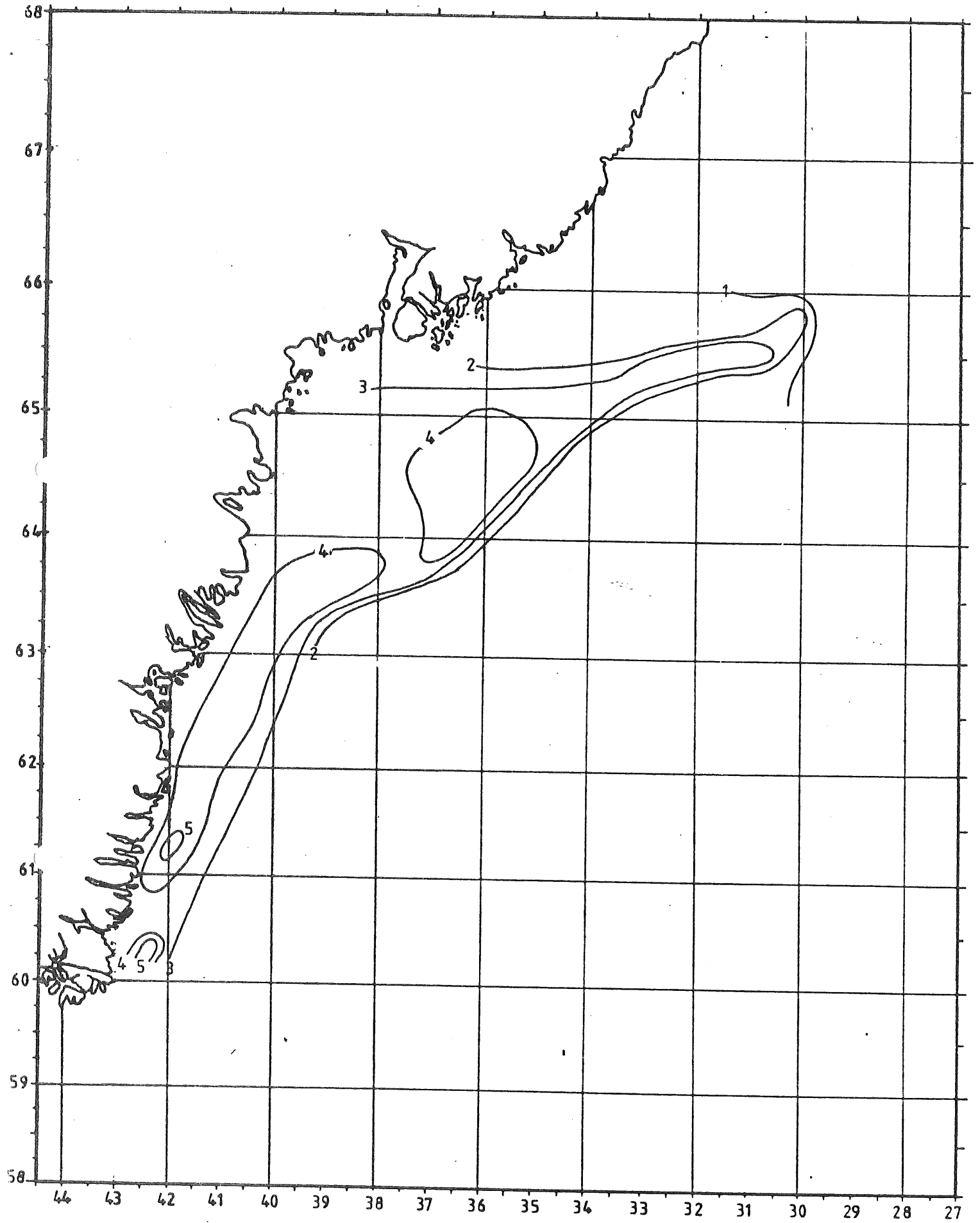


Fig. 4. Temperatures at the bottom.

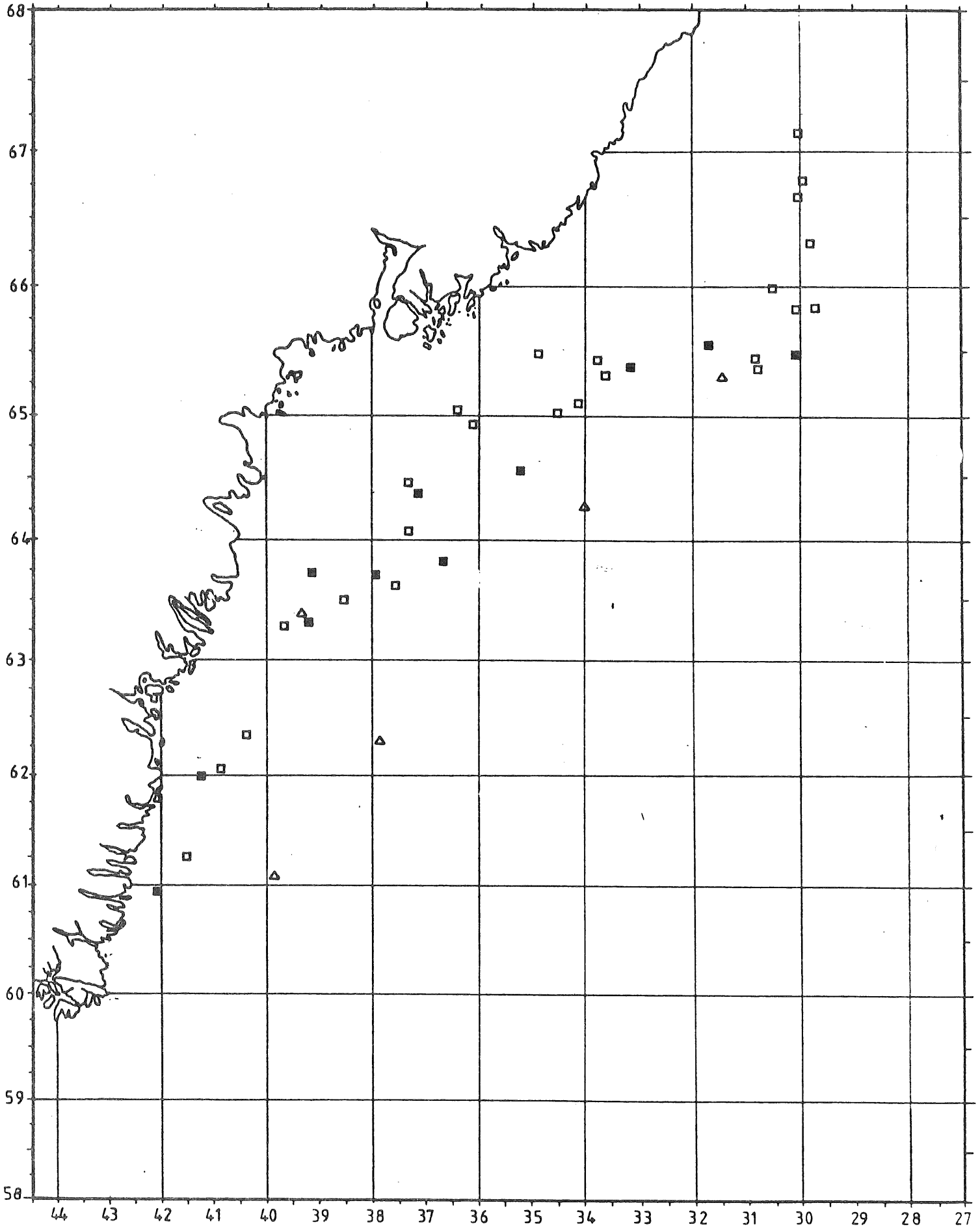


Fig. 5. Cod. Filled squares: catches of cod.

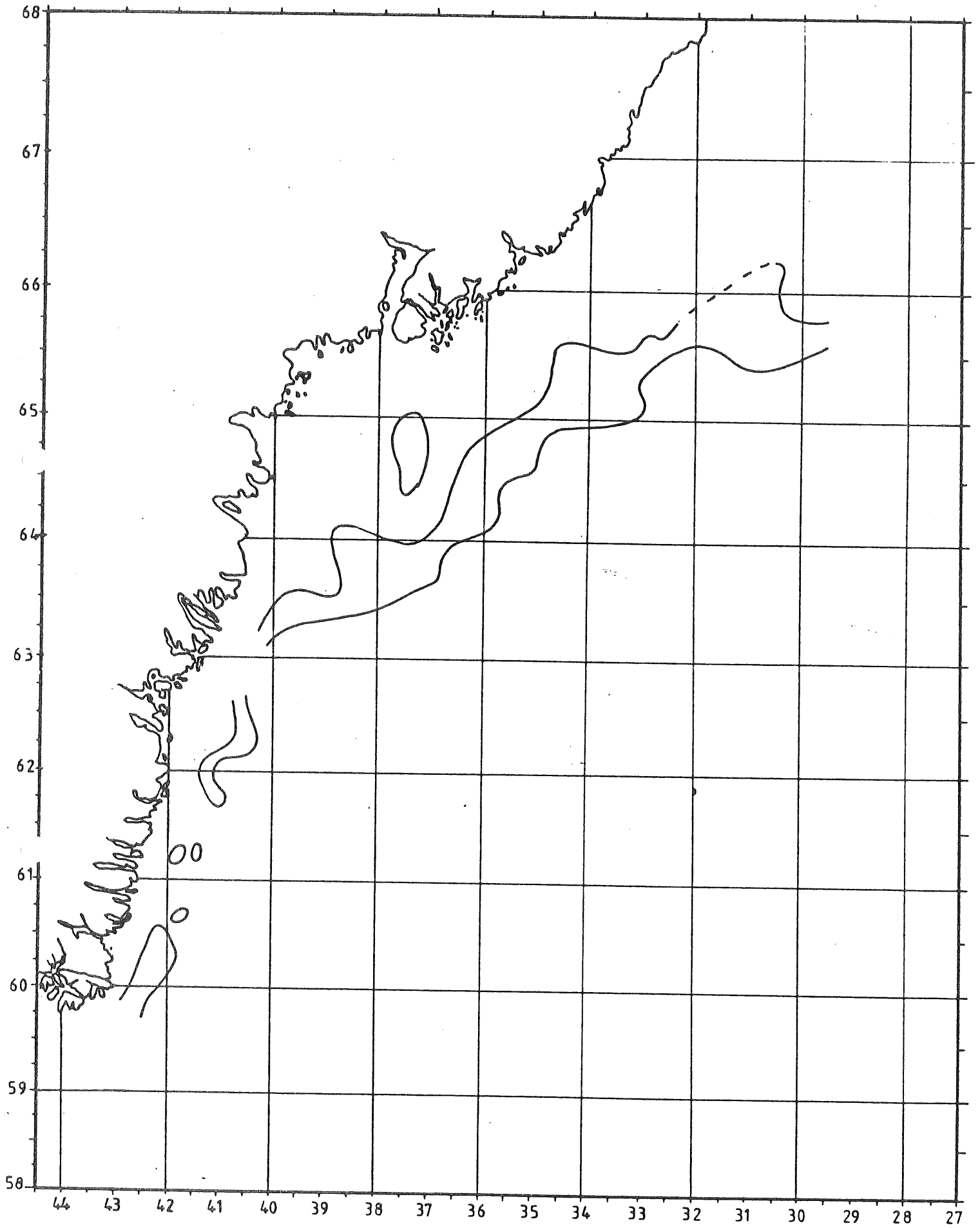


Fig. 6. Echo registrations of redfish.

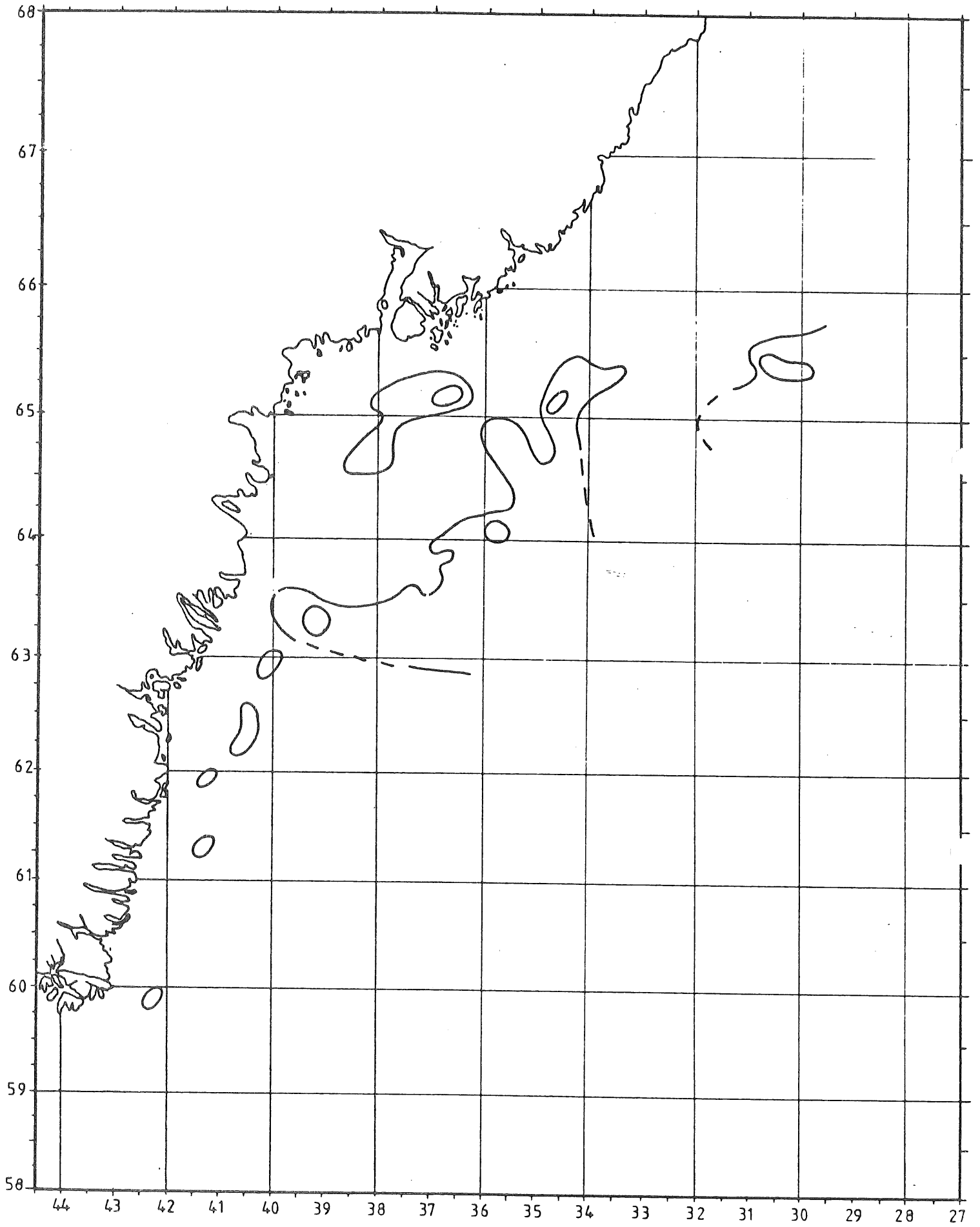


Fig. 7. Echo registrations of blue whiting.

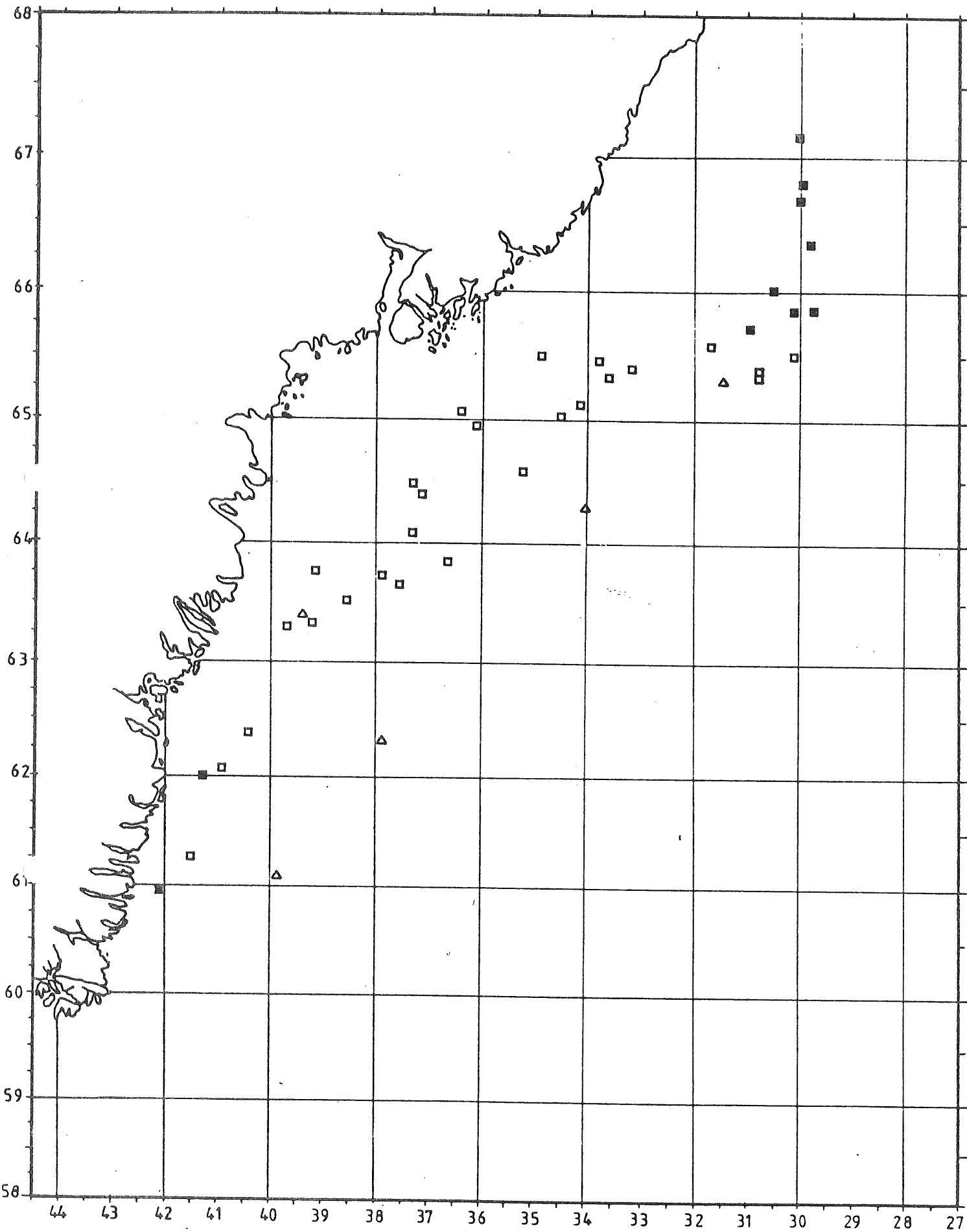


Fig. 8. Shrimp. Filled squares: catches of shrimp.

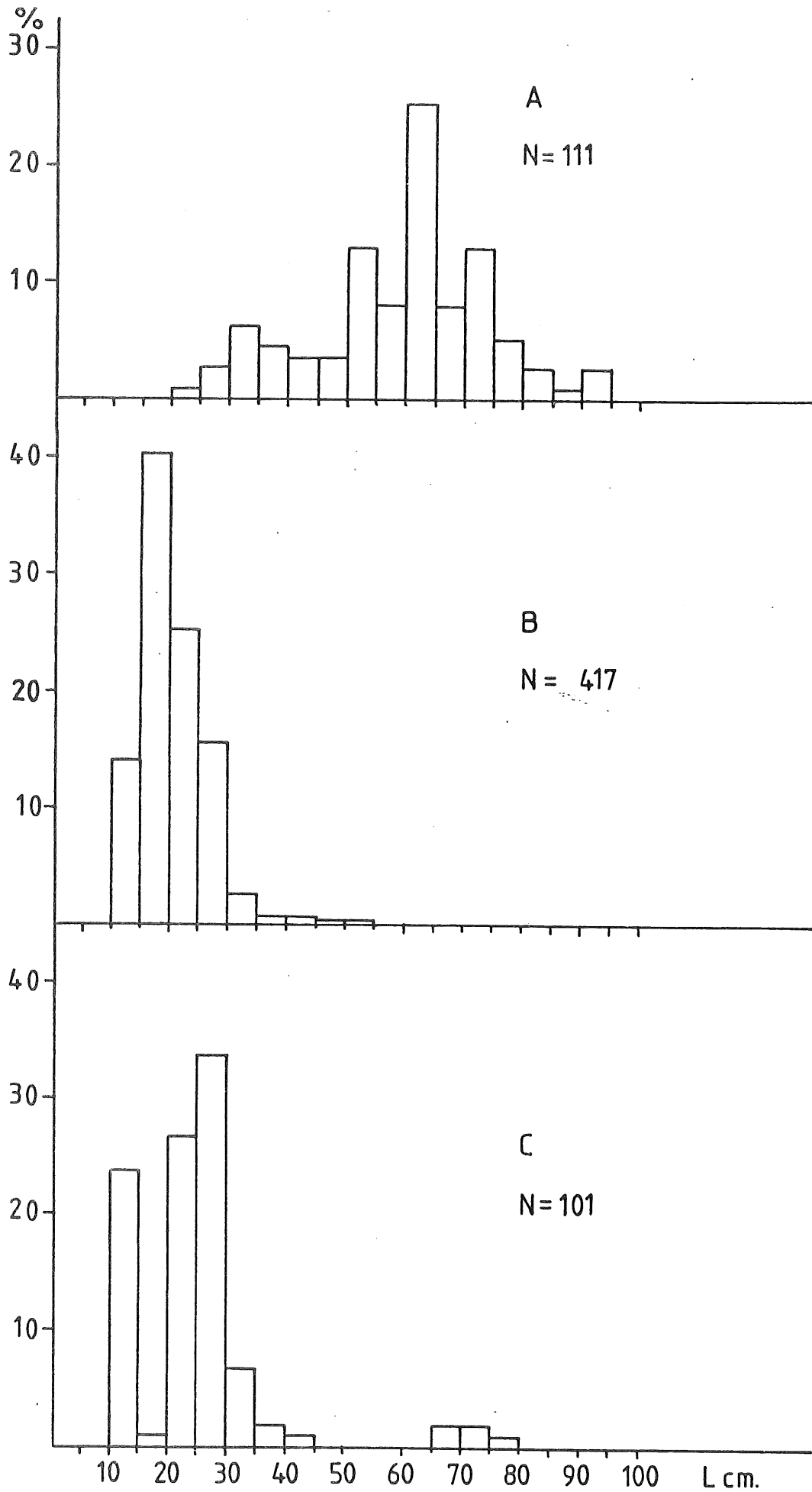


Fig. 9. Length compositions. A: Cod. B: cat-fish. C: smaller cat-fish.

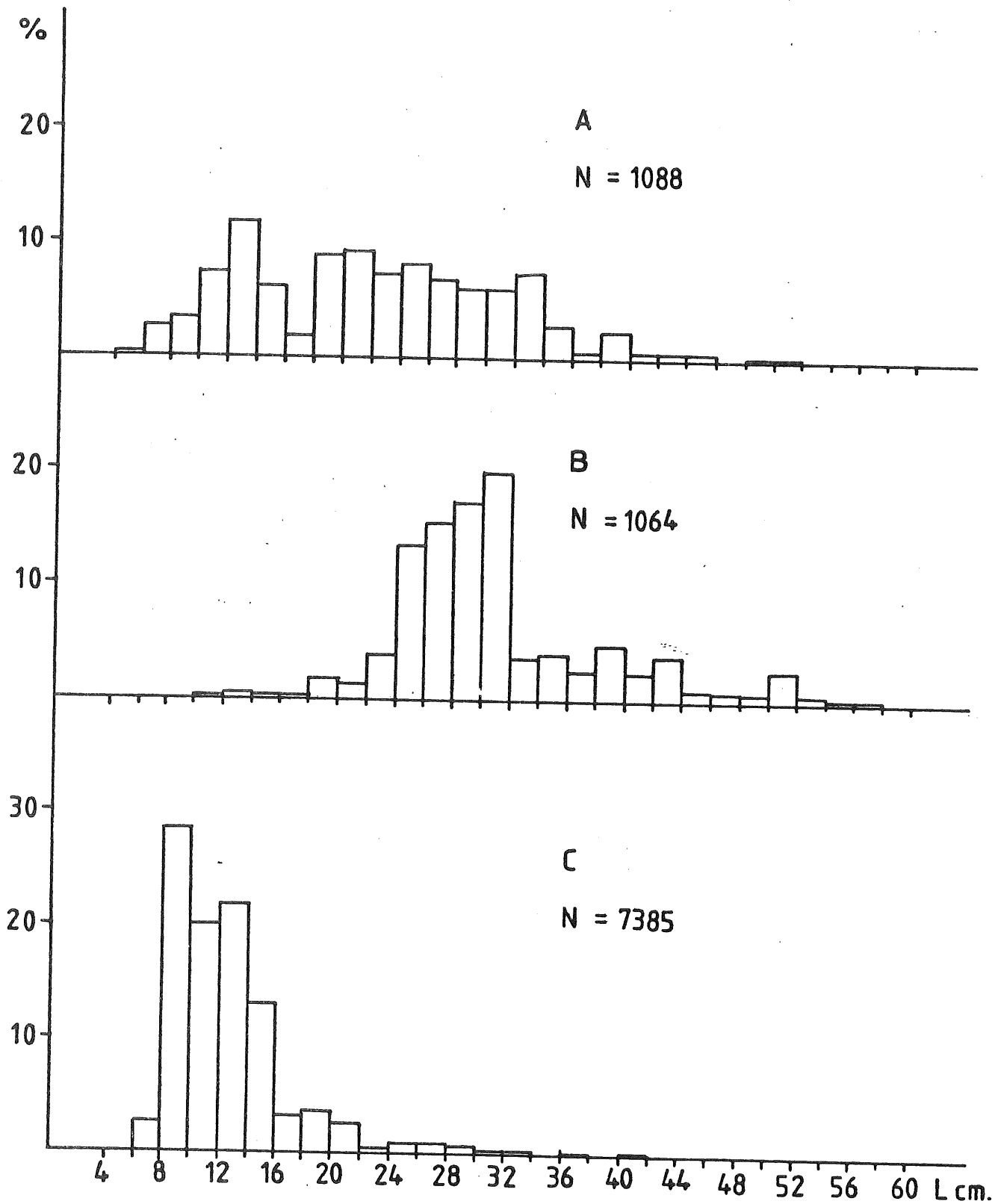


Fig. 10. Length compositions of Sebastes marinus A: On the continental shelf north of 63°N . B: At Continental slope north of 63°N . C: South of 63°N .

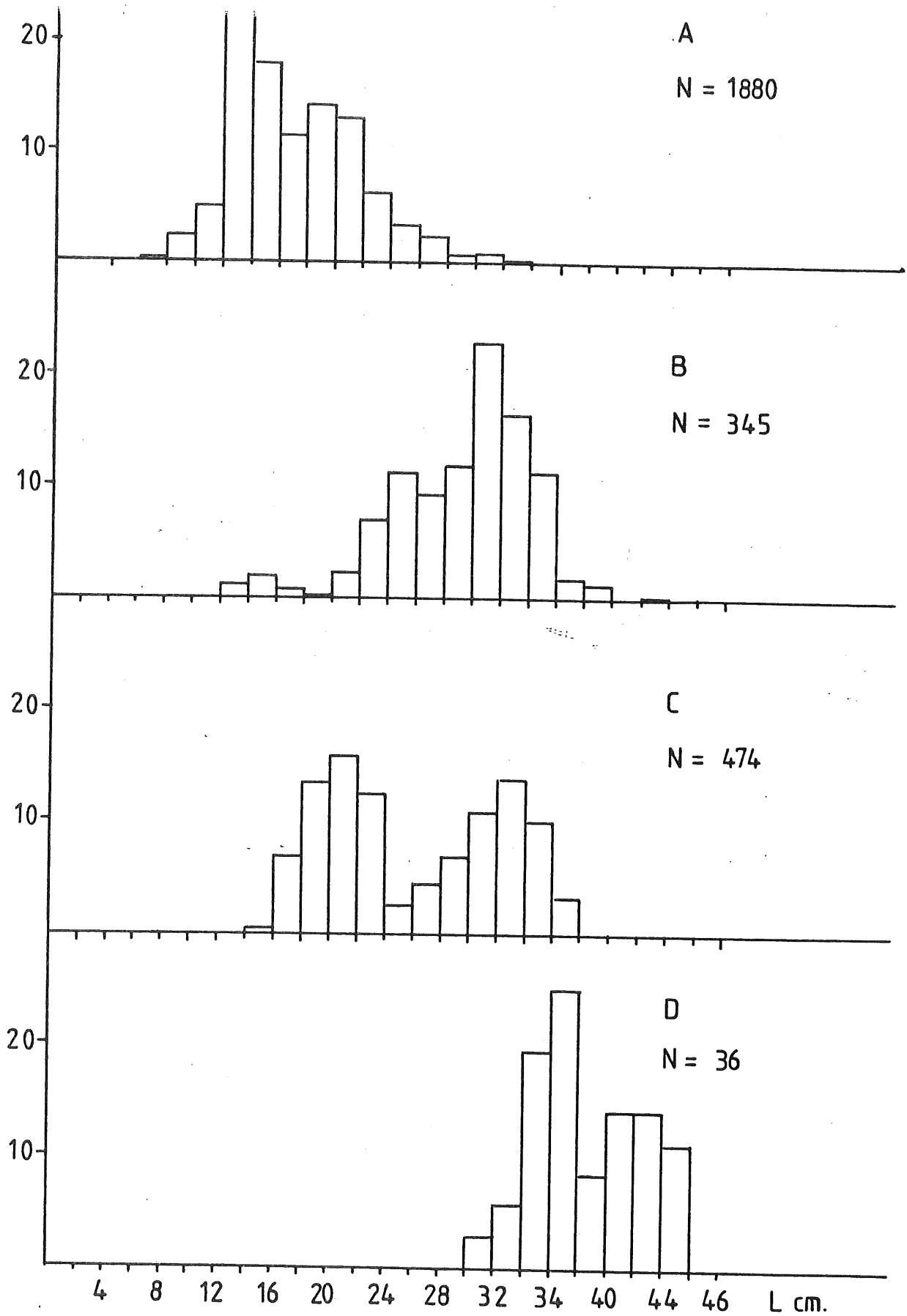


Fig. 11. Length compositions of *Sebastes mentella* A: On the continental shelf north of 63°N. B: At the continental slope north of 63°N. C: In the Irminger Sea. D: N = 36