

Indexed *AB*

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FRV "SCOTIA"

CRUISE 12/87

12SR87

REPORT

2-21 December 1987

Personnel

M Walsh	SSO
J Gauld	HSO
W MacDonald	SO
I Leaver	ASO
D Beveridge	ASO
W Leiper	Craftsman
M Saisay	Visitor
G Leaper	NCC (10-21 December)

Objectives

1. To carry out a survey for 0- and 1- group mackerel in ICES Division VIa and the north western part of IVa.
2. To monitor sea surface temperature and salinity throughout the survey.
3. To collect water samples for radio caesium analysis.
4. To collect mackerel ovaries for fecundity investigations.

Narrative

"Scotia" departed from Greenock at 2000 on 2 December and proceeded to the area north of Ireland. Six trawl stations were completed north west of Ireland before proceeding south of the programmed survey area to cover 5 additional rectangles west of Ireland which had not been completed in an Irish survey. During the remainder of the first half of the cruise trawl hauls were made in all programmed high priority rectangles south of 58°30'. All hauls in the first half of the cruise were made using a GOV trawl, with heavy ground gear C with the 530 mm steel bobbins removed, short (47 metre) sweeps, "flown" wings and Scanmar monitors to record headline height and wing end spread. "Scotia" docked in Stornoway for the half landing at 0900 on 10 December.

"Scotia" sailed from Stornoway at 0900 on 11 December to carry out a three day pelagic trawling survey of the St Kilda area where catches of 0-group mackerel had been taken in the first half of the cruise. Five east-west transects across the Continental Shelf were made to determine vertical and horizontal distribution in the area. Both 38 kHz and 120 kHz echo sounders were run continuously during this period and trawl hauls were made both at predetermined positions along the transects and where echo traces were observed.

For the remainder of the cruise the GOV trawl was used and all programmed stations between 58°30'N and 61°00'N and west of 1°W were worked. The survey had to be curtailed prematurely at 1430 on 19 December as a result of damage to the ship's after-propulsion motor. "Scotia" then sailed for Aberdeen at slow speed arriving at 0845 on 21 December.

Results

Cruise tracks showing fishing and radio caesium stations for each half of the cruise are given in Figures 1 and 2. A total of 51 hauls including 15 invalid tows were made with the GOV trawl and 13 hauls with the pelagic trawl.

Catches of 0-group, 1 group and 2+ group mackerel per hour per statistical rectangle are shown in Figures 3-5. As in previous winter surveys concentrations of both juvenile and adult mackerel were located north west of Ireland and south of St Kilda. 0-group mackerel (yearclass 1987), were found over the entire north-south range of the survey in contrast to the previous two December surveys when they were confined to the southern half of the area.

The abundance of 0-group mackerel in the catches was higher than in the two previous December surveys, but lower than that of the strong 1984 yearclass sampled as I-group in the 1985 March survey. The overall age composition of sampled catches was:

Age Group	0	1	2	2+
Yearclass	1987	1986	1985	1984
Percentage	63.5	3.0	5.3	28.2

The 2+ age group was dominated by the 1984 yearclass.

Among other pelagic species both herring and horse mackerel were more abundant in the catches than in the two previous surveys, especially to the south of 58°N.

Results from the three day pelagic trawl survey were inconclusive. Echo traces of any description were very scarce during the first 1½ days and hauls made at predetermined positions where no echo traces were evident generally yielded zero catches. This was the case on the first station where 0-group mackerel had been taken previously using the GOV trawl. Three hauls were made at, respectively, just above the bottom, in midwater and 5 metres below the surface. In the second 1½ days echo traces were more numerous and were invariably confined to the bottom 25% of the water column. Catches from these echo traces were dominated either by herring or horse mackerel with a small by-catch of mackerel.

During the course of the cruise surface temperature and salinity were logged every 10 minutes and radio caesium samples were collected at Cape-Wrath, Fair Isle and Aberdeen.

Mackerel ovaries were collected for fecundity investigations and a mackerel weight-length relationship was determined from 215 observations:

$$Wt (gms) = 5.4926 \times Length (cms)^{3.3137}$$

M Walsh  
21 January 1988

Seen in draft: N E McInnes, CO

Figure 1 SCOTIA 12/87. 2/12/87 - 10/12/87

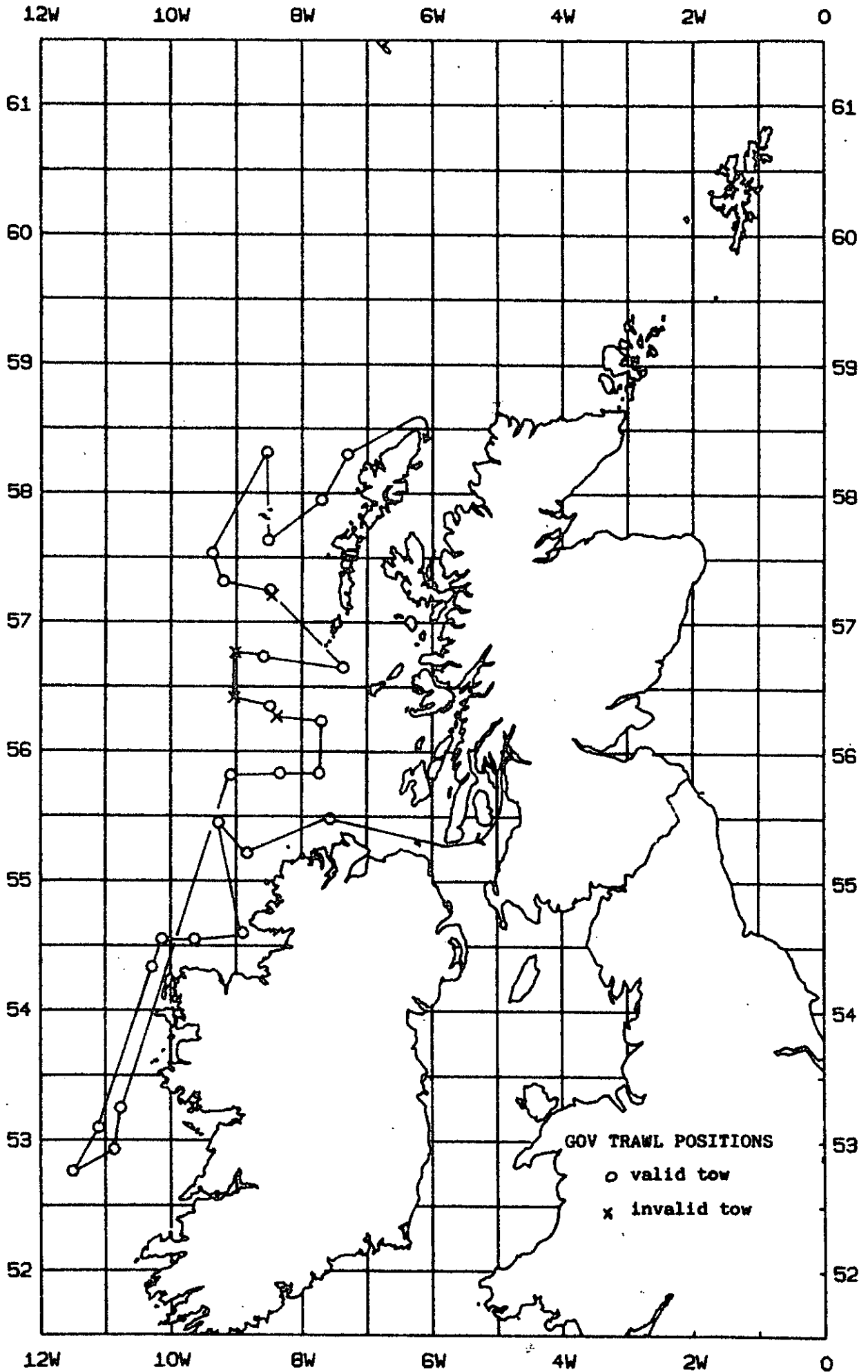


Figure 2

SCOTIA 12/87. 11/12/87 - 21/12/87

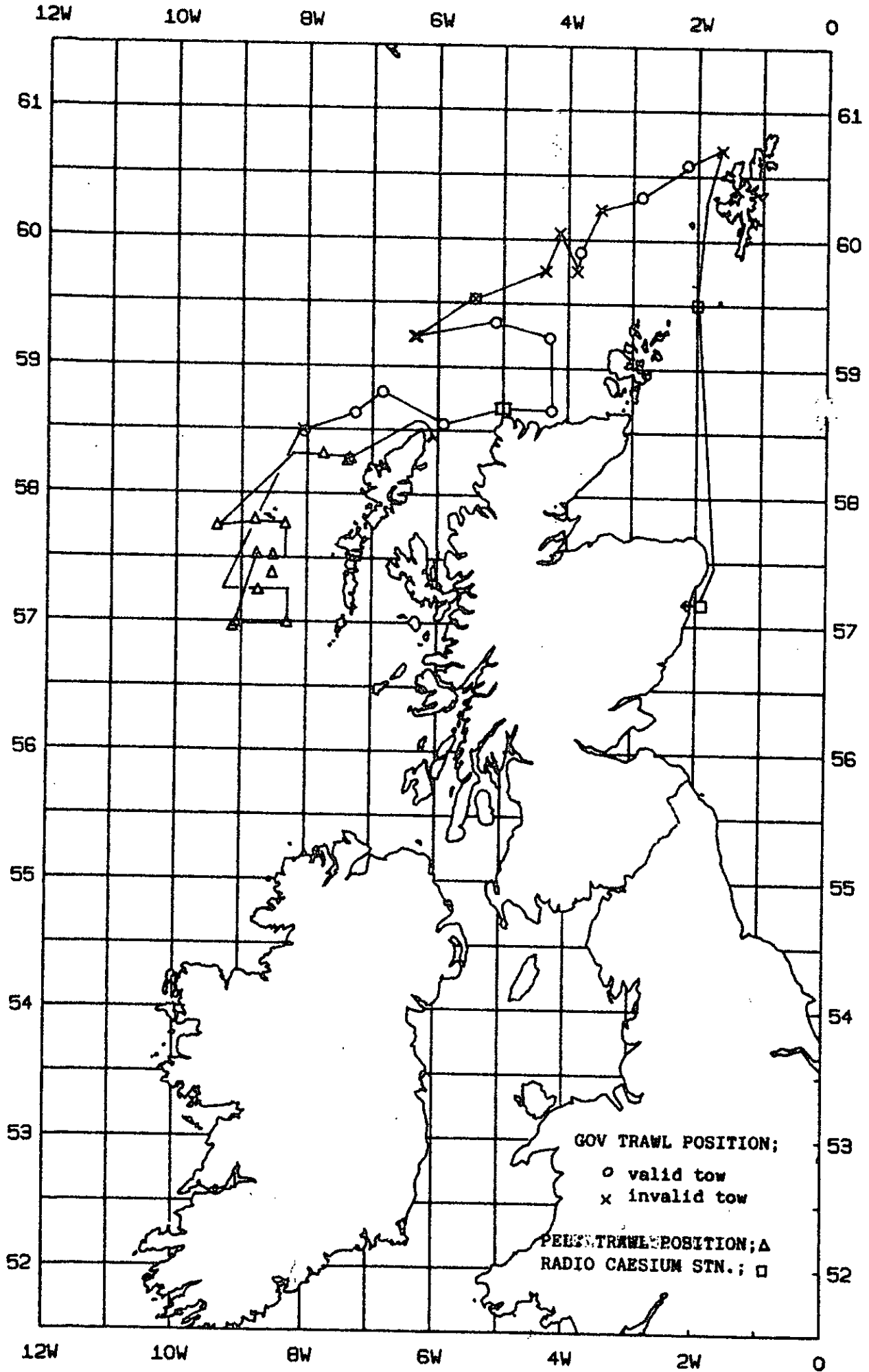


Figure 3

0-Group Mackerel December 1987. Number per hours trawl

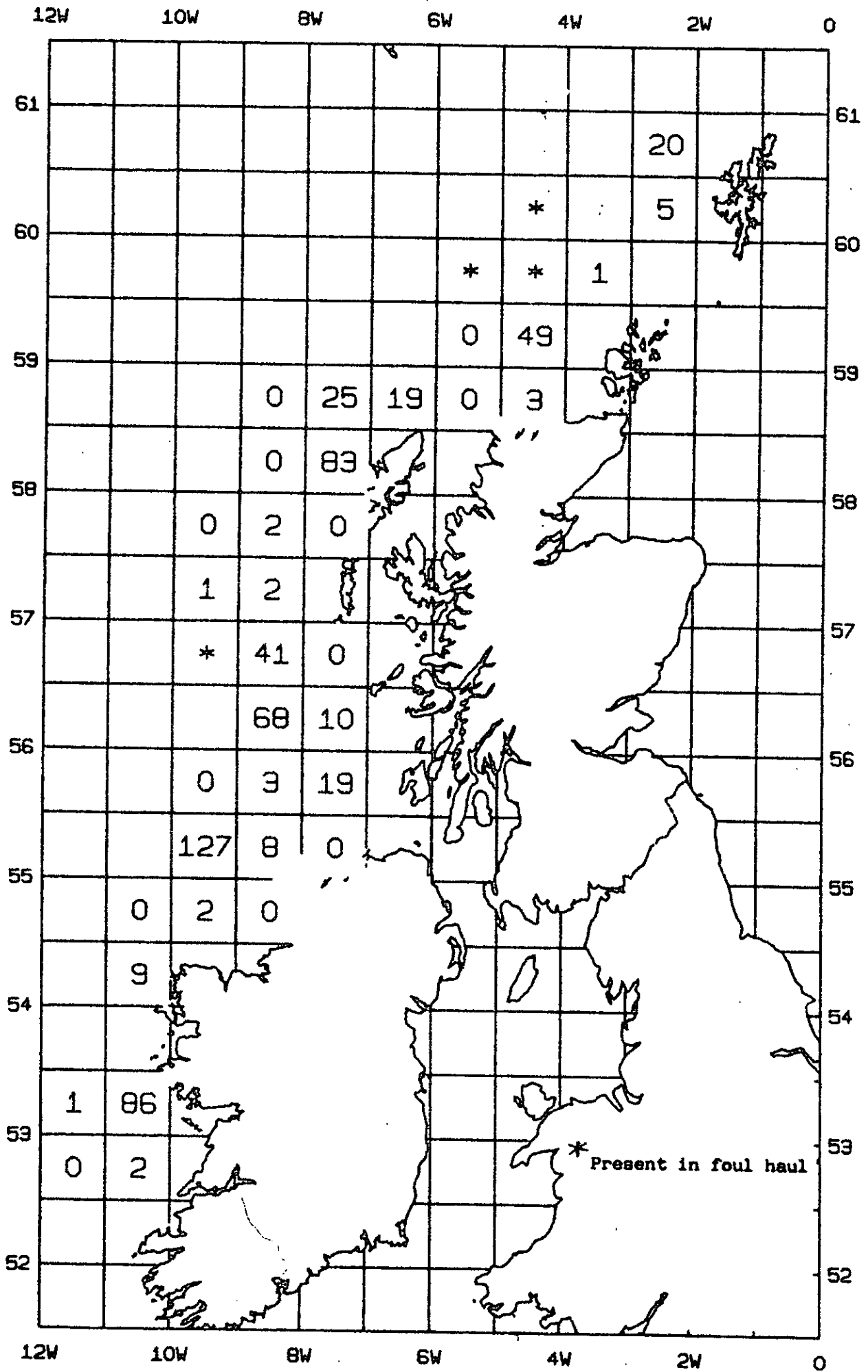


Figure 4

1-Group Mackerel December 1987. Number per hours trawl

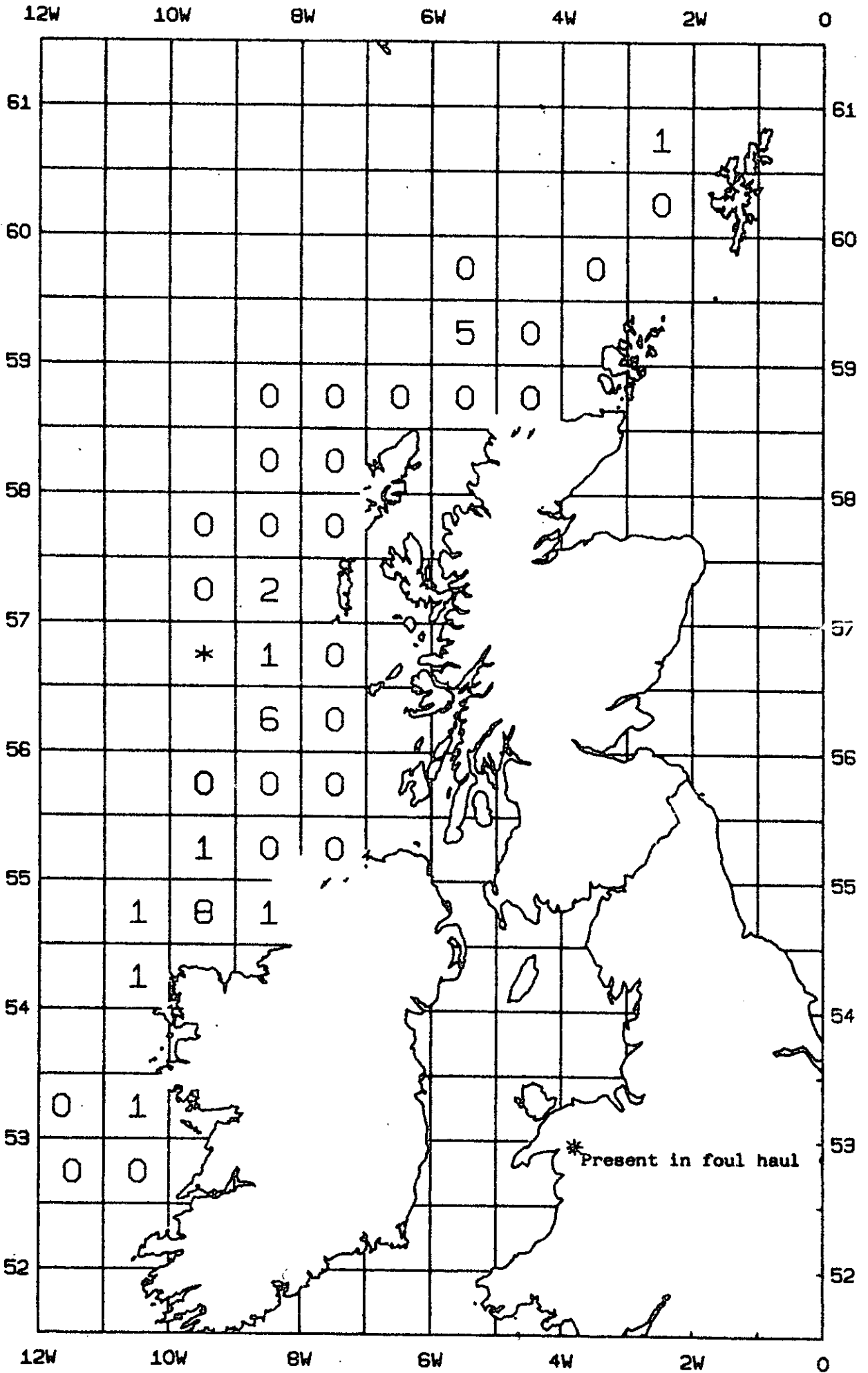


Figure 5 2-Group and older Mackerel. December 1987. Number per hours trawl

