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12SR86

FRV "Scotia"

Cruise 12/86

REPORT

28 November - 17 December 1986

<u>Personnel</u>	M Walsh	SSO
	P Hopkins	HSO
	W MacDonal	SO
	D Beveridge	ASO

Objectives

- 1 To carry out a survey for 0- and 1-group mackerel
- 2 To monitor sea surface temperature and salinity throughout the survey
- 3 To collect water samples for radio caesium monitoring
- 4 To collect mackerel ovaries for fecundity investigations
- 5 To collect and freeze mackerel for biochemical analysis and to determine a weight-length relationship

Narrative

"Scotia" departed from Aberdeen at 1600 on 28 November and headed for the Shetland area. The working area was extended northeastwards from that programmed in view of up-to-date information on the distribution of mackerel shoals from the commercial fishing fleet. A radio caesium sample was taken at Fair Isle before commencement of trawling at 1100 on 29 November. The GOV trawl was used throughout the survey.

After completing the first three trawl stations, a mini echo-sounder survey was carried out at night in an area some 20 miles east of Muckle Flugga, where an international mackerel fishing fleet was operating.

The trawling survey was continued the following day but later curtailed by severe weather. Gale force winds prevented or restricted fishing operations during five out of nine days available for fishing in the first half of the cruise before "Scotia" docked in Campbeltown for the half landing at 0930 on 8 December. During this period a total of 17 hauls were made; a radio caesium sample was collected at Cape Wrath on 4 December.

"Scotia" sailed from Campbeltown at 1130 on 9 December and headed for the west of Ireland. Severe southerly gales during the following three days permitted only two trawl hauls to be made in this area and, with no immediate prospect of any improvement, it was decided to head for St Kilda. A further

nine hauls were carried out between gales before the last trawl was irreparably damaged on the evening of 16 December. Two radio caesium samples were collected at the Pentland Firth and off Aberdeen before "Scotia" docked in Aberdeen at 1700 on 17 December (cruise tracks are attached).

Surface temperature and salinity was logged every 10 minutes throughout the cruise.

**Results**

A total of 28 hauls were made, damage being sustained during 10 of them. Catches of mackerel by age group are shown on the attached charts with highest overall abundance off Northwest Ireland and south of St Kilda as in several previous winter trawling surveys. The abundance of the 1985 year class (1-group) was low in the catches as in last year's December survey. The 1986 year class (0-group) was also scarce. Amongst the older age groups the 1984 year class made up over 95% of the catch confirming its relative abundance west of Scotland as previously indicated during "Scotia" trawl surveys in March and December 1985 and March 1986.

Catch rates of other pelagic and demersal species were lower than in December 1985. One large haul of herring (>1000 per hour) was made at 57°37'N 8°31'W. All fish species were measured and otoliths taken as shown in the table below.

Mackerel	Herring	Haddock	Whiting	Norway pout
166	364	437	267	128

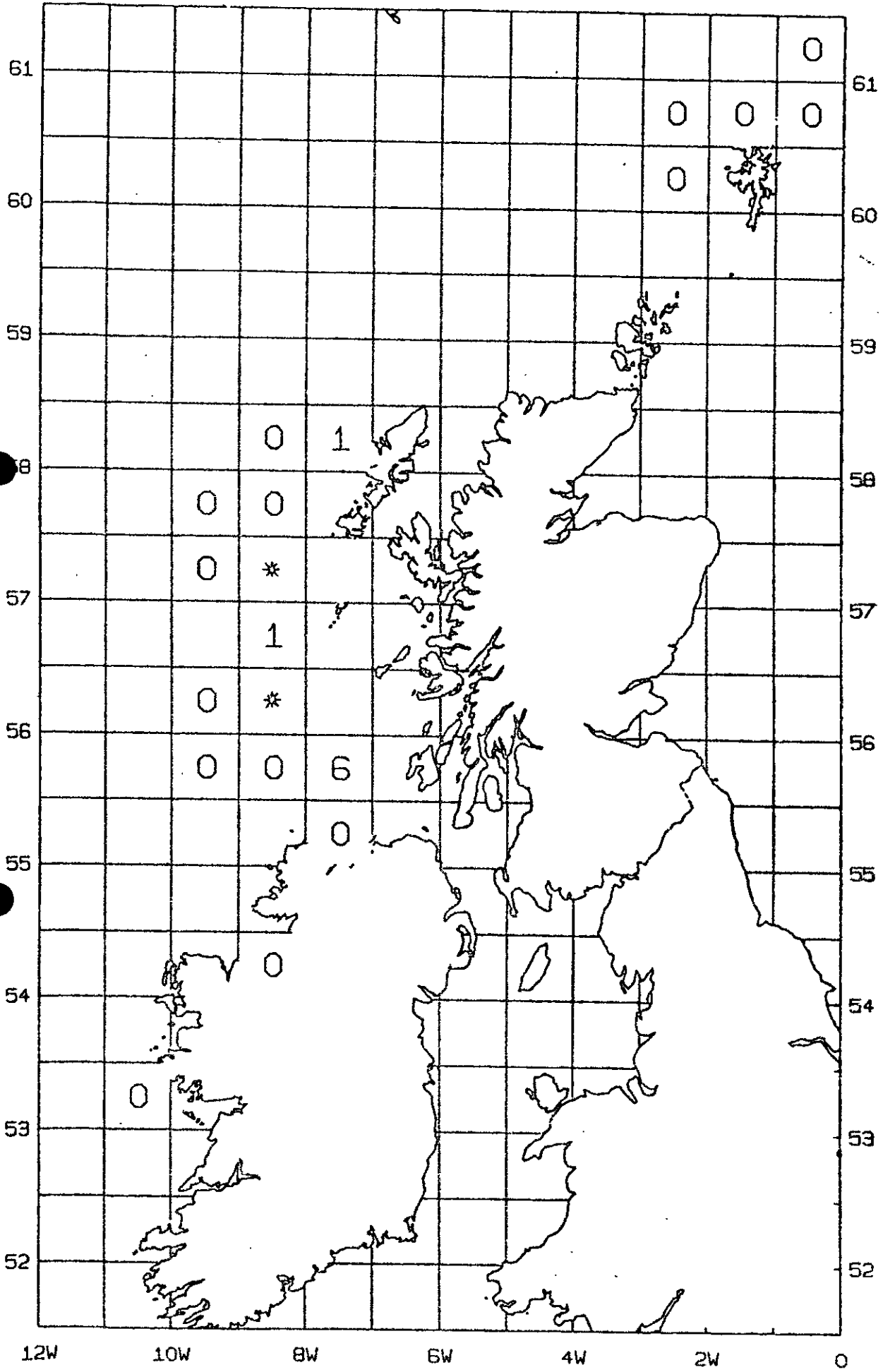
Mackerel samples and their ovaries were collected for fecundity studies, biochemical analysis and a weight-length relationship. In addition herring samples were collected for racial analysis, mixed small gadoids for species identification training, and a collection of 12 different fish species was made for the Seals Research Unit.

M Walsh

12 January 1987

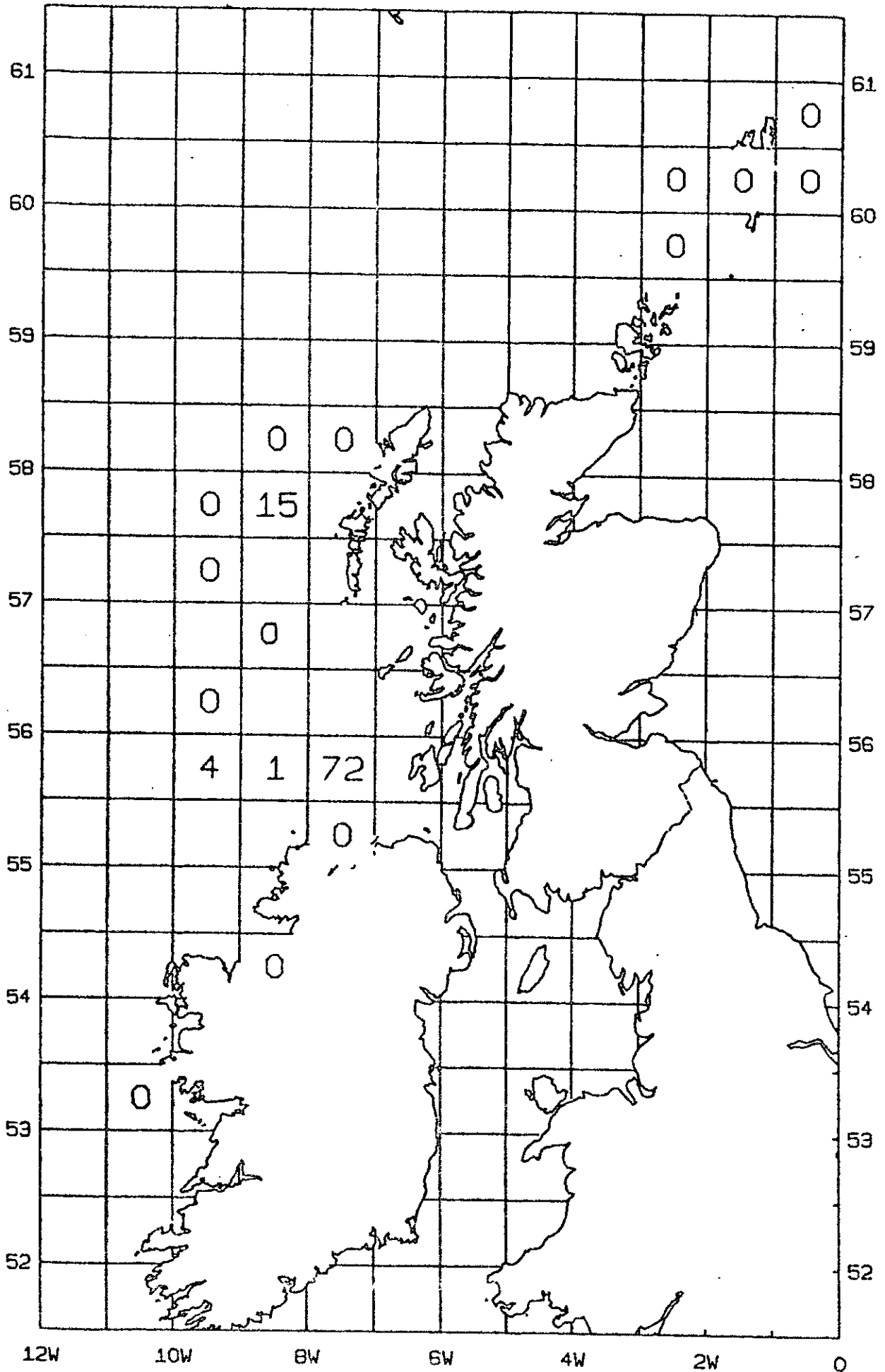
Seen in draft: G E McInnes

0-Group mackerel, December 1986. Number per hours trawl

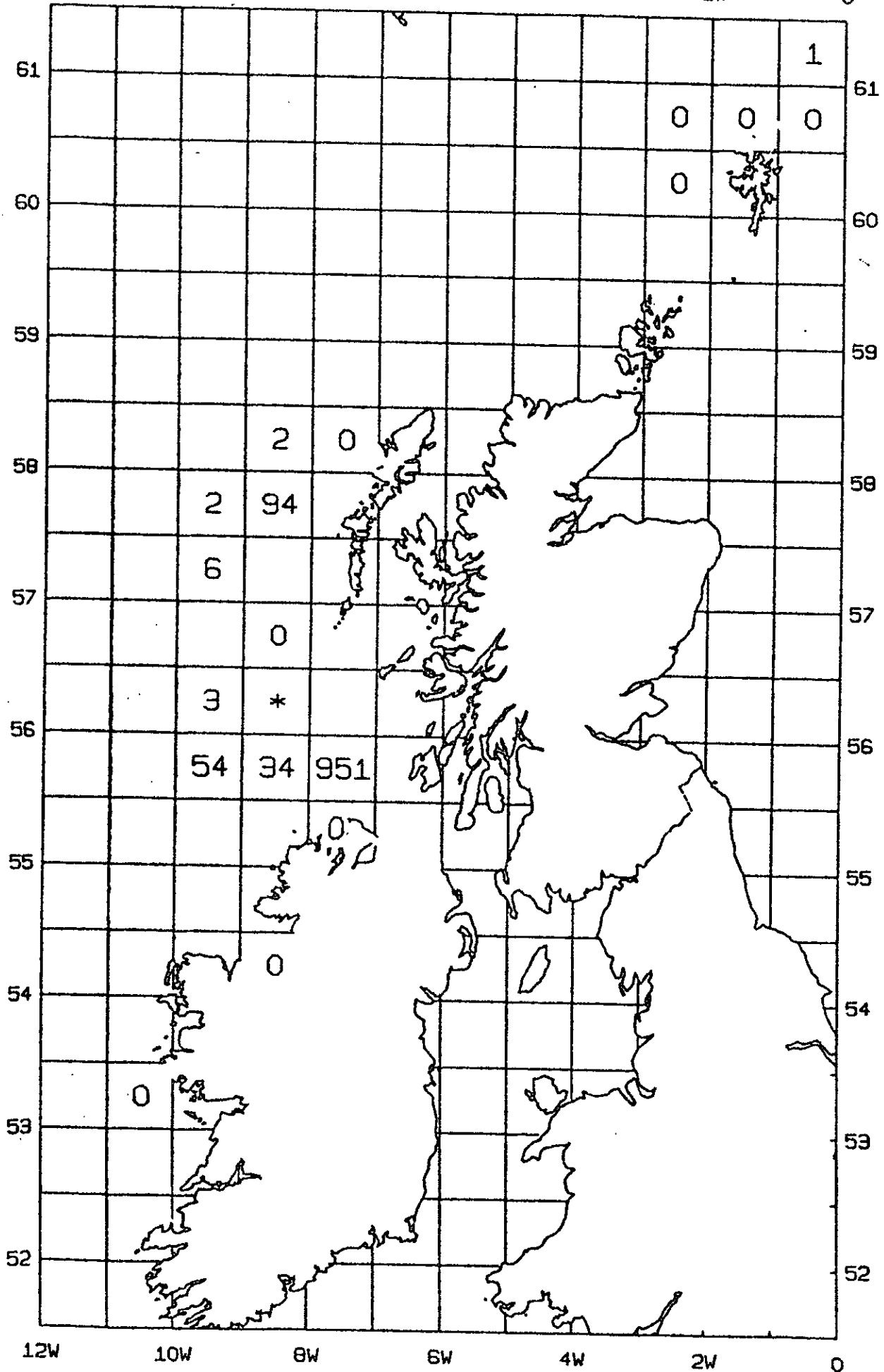


\* Present in foul haul

12W 1 - group mackerel, December 1986. Numbers per hours trawl 0



2 - group & older mackerel. December 1986. Numbers per hours trawl  
 12W 10W 8W 6W 4W 2W 0

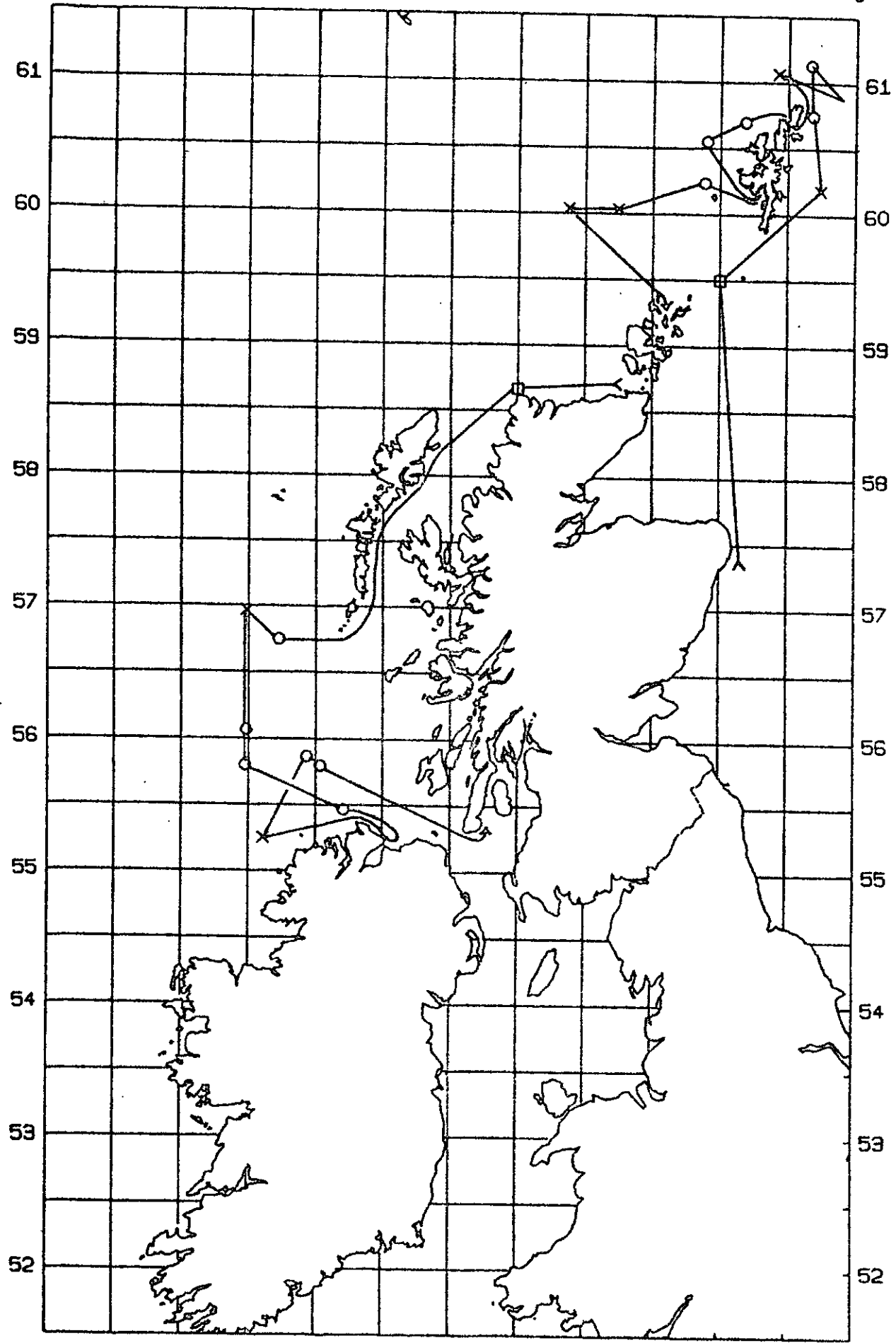


\* Present in foul haul

12W 10W 8W 6W 4W 2W 0

Scotia 12/86. 28/11/86 - 8/12/86

61 60 59 58 57 56 55 54 53 52

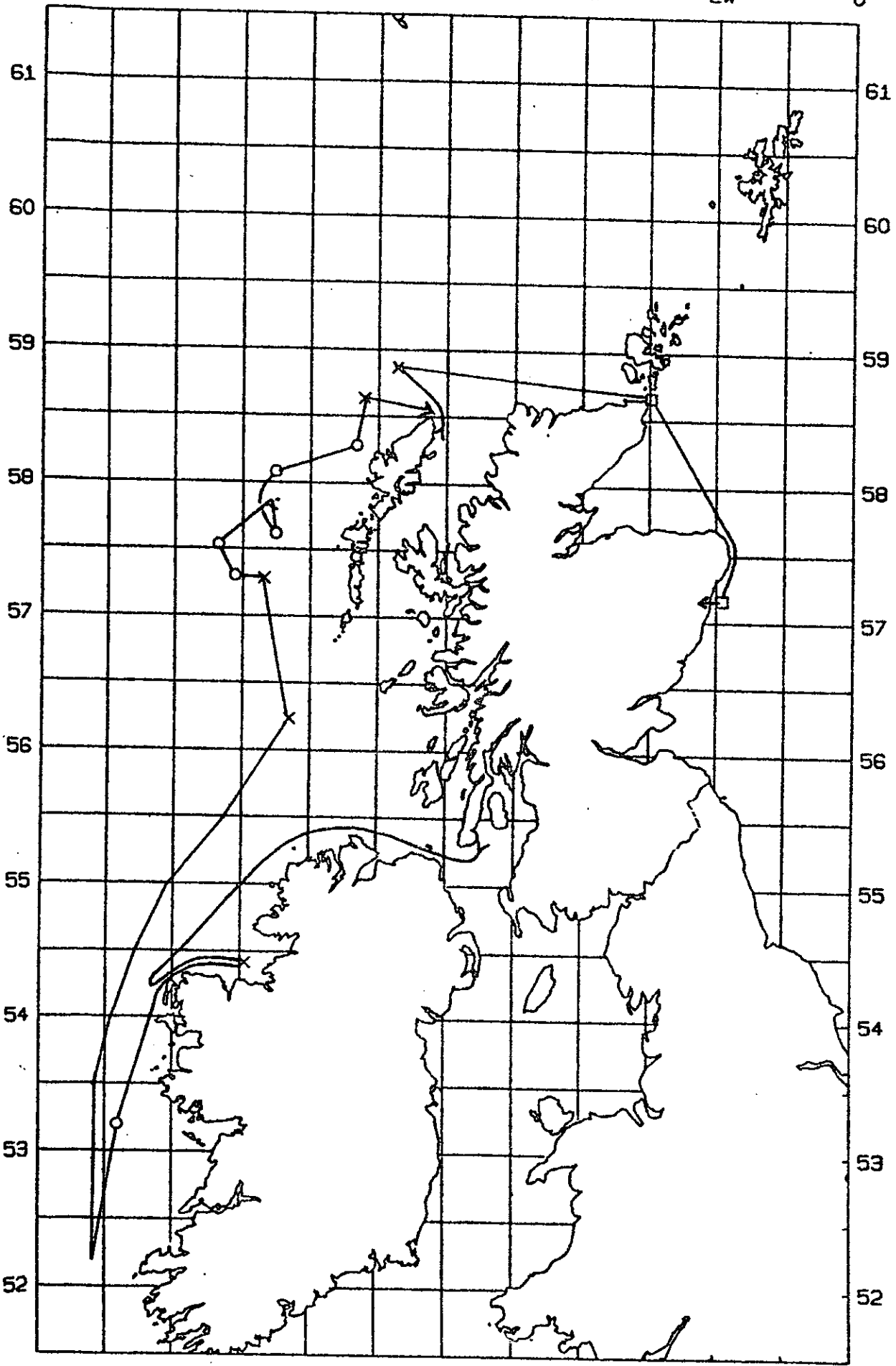


Gov Trawl Position: ○ valid tow    x invalid tow    □ radio caesium station

12W 10W 8W 6W 4W 2W 0

Scotia 12/86. 9/12/86 - 18/12/86

61 60 59 58 57 56 55 54 53 52



Gov Trawl Position: O valid tow X invalid tow □ radio caesium station