

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD
FISHERIES LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND

1978 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 3

(PROVISIONAL: Not to be quoted without prior reference to the author)

STAFF

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DURATION

Left Grimsby 0809 h 28 February

Arrived Grimsby 1240 h 18 March

LOCALITY

North Sea

AIMS

1. To participate in the ICES international young fish survey for 1-group herring and gadoids.
2. To sample post-larval herring using the Isaacs-Kidd midwater trawl.
3. To take surface and bottom temperature and salinity readings on each trawl station.
4. To measure the influence of temperature on the incubation and early larval stages of the sprat and other species using a shipboard incubation apparatus.

Other aims received too late for inclusion in the published cruise programme:-

5. To obtain length and girth measurements of cod, haddock and whiting.
6. To identify stomach contents of cod, haddock and whiting.
7. To collect sandeels and small gadoids for fish food.

NARRATIVE

The scientific staff joined CIROLANA at 1530 h 27 February, and the ship sailed at 0809 h the next day to steam to Markhams Hole to fish the first of the 38 statistical squares allocated to England in the International Young fish survey. The survey consisted of a specified number of 30 minute tows with the French GOV trawl (see below for description) and two tows with an Isaacs-Kidd trawl within each allocated statistical square. The tows with the French GOV trawl were generally carried out during daylight hours, those with the Isaacs-Kidd trawl always at night.

Fishing commenced at 1654 h 28 February and the statistical squares worked in an anti-clockwise direction around the North Sea (see track chart). On each French GOV trawl station, all species were counted and weighed and samples of cod, whiting, haddock, Norway pout, herring and sprat measured. Within each block of four statistical squares 3 otoliths were taken from each cm length group of cod, haddock, Norway pout and whiting together with details of sex, maturity, stomach contents and the girth of those fish between 20 and 45 cm. 3 otoliths per $\frac{1}{2}$ cm length group were taken from herring and note made of sex, maturity, V.S. and K2. Samples of sprats were deep frozen for later examination. Otoliths of all species except whiting between 15-25 cm which presented some interpretation problems, were read on board and raised age distributions produced.

All material collected in the Isaacs-Kidd trawl was identified and measured on board.

The survey continued without interruption from bad weather and with no damage to gear except in one station when the lower belly had to be replaced, until 0855 h 14 March when the ship was forced to dodge about 30 miles off the Humber. Work restarted at 1706 h 15 March and the last of the allocated squares finished by 0842 h 16 March. Two extra squares were then worked before the cruise was terminated.

During this cruise CIROLANA was in contact with other ships participating in the survey and collected catch data from JOHAN HJORT, TRIDENS and SOLFA. These data together with those obtained by CIROLANA were sent to Mr Burd in Copenhagen on 13 March.

CIROLANA docked at Grimsby at 1240 h 18 March.

RESULTS

1. All the statistical squares allocated to England were fished. The data for the herring and gadoids (except whiting) were processed at sea and will be evaluated in conjunction with that collected by other participants. The distribution of the 1977 and 1976 year classes of cod, haddock and Norway pout as found by CIROLANA are shown in Figures 1-3 and that of the 1976/77 year class of herring in Figure 4.
2. 78 tows were made in 39 statistical squares with the Isaacs-Kidd trawl. Two double oblique tows were made in each square unless the water was very deep, when two single oblique tows were made instead. The distribution of post-larval herring and sprats taken with this gear is shown in Figure 5. Problems were encountered with this gear. Initial attempts to tow with a headline transducer fitted to the net were abandoned when it became obvious that the trawl was being towed on the transducer cable rather than the trawl warp presumably because of excess torque on the cable winch. A 'warp-out' -depth relationship was established with Kelvin tubes and used in the remainder of the tows.

The Isaacs-Kidd trawl needs to be modified before further use on CIROLANA. It needs to be stronger, all projecting corners on the depressor rounded to prevent the netting catching up when shooting, have recessed shackles and a canvas sleeve to replace the netting in the fore part of the net.

3. Surface and bottom temperatures and salinity samples were taken by means of Nansen casts on each trawl station.
4. No spawning sprats or other suitable species were caught for the incubation experiment.

5. The length-girth relationship was established on a total of 282 cod, 371 haddock and 421 whiting.
6. Stomach contents were examined and the three most important food components identified of 551 cod, 524 haddock, 769 whiting and 136 Norway pout.
7. 15 Kg of small gadoids were deep frozen for FCU.

OTHER MATTERS

1. The gear used on this trip was the French G.O.V. (Grande ouverture verticale) trawl with a headline length of 36 m and a groundrope of 4.7 m. 46 x 8" metal floats were fixed to the headline with an Exocet Kite in the centre. The groundrope was constructed of 6" diameter rubber discs in the bosom and bunts and 4" diameter rubber discs in the wing pieces. Wire bridles and legs with a total length of 90 m were used to connect the trawl to 4.5 sq m. Polyvalent otter boards. Cod-end mesh size was 50 mm with the final 5m being lined with 22 mm mesh size nylon netting.

Headline height was measured at 18 ft. The gear proved to be almost trouble free on this survey, repairs being required only once with a split in the lower belly.

2. 42 vessels (some identified as Danes) were observed fishing at 55°49'N 01°11'E on 10 March. Some mid-water traces were seen on the echosounder.

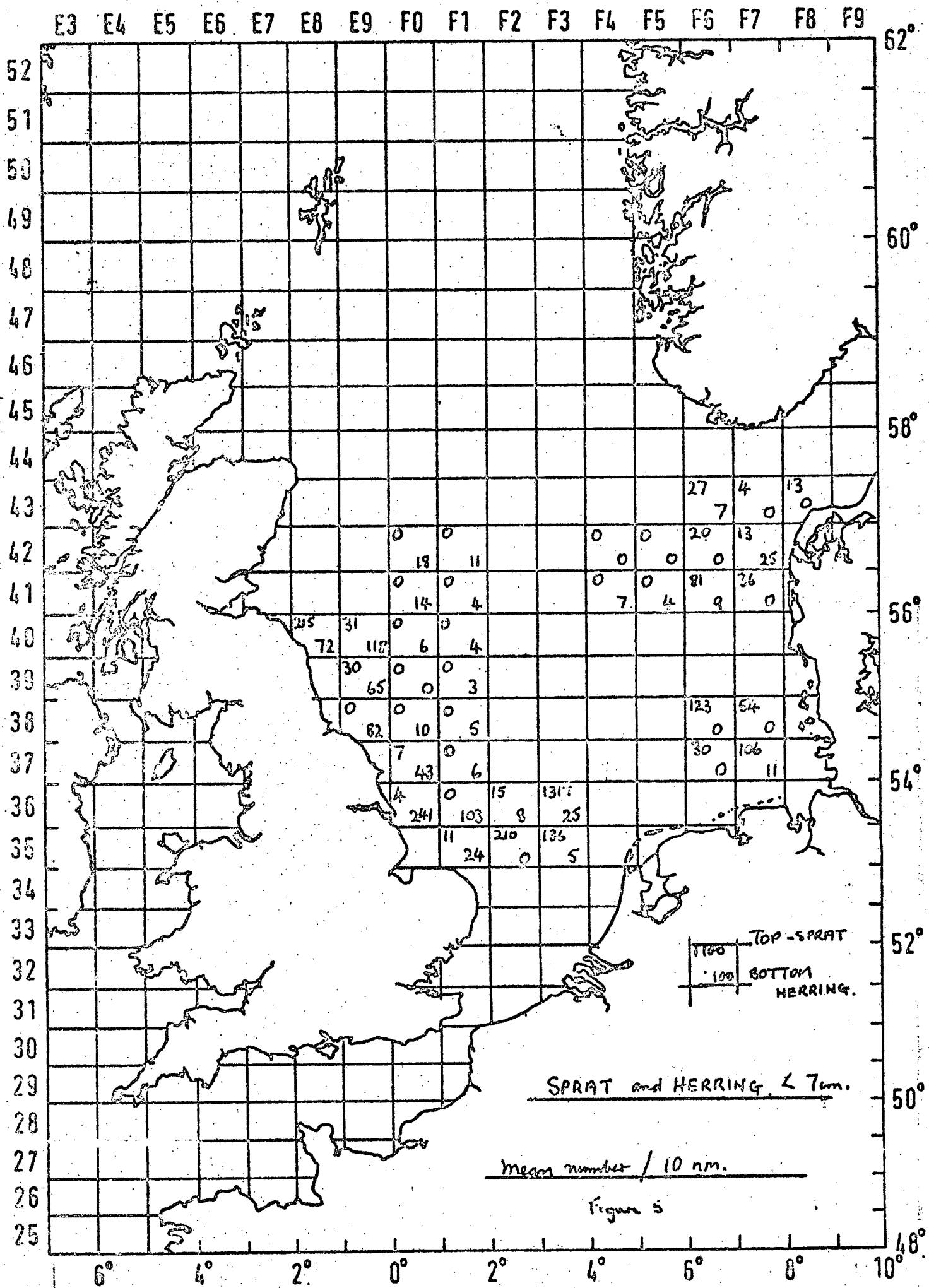
W G Parnell
21 March 1978

SEEN IN DRAFT: Captain T H Finn - Master
W J Saxby - Fishing Skipper

INITIALLED: AJL

DISTRIBUTION:

Basic List
W G Parnell
J D Riley
T Williams
C N Humphreys
A M Watson
G J Howlett
B C Mumford
B J Knights
S Stevens
D J Snowball



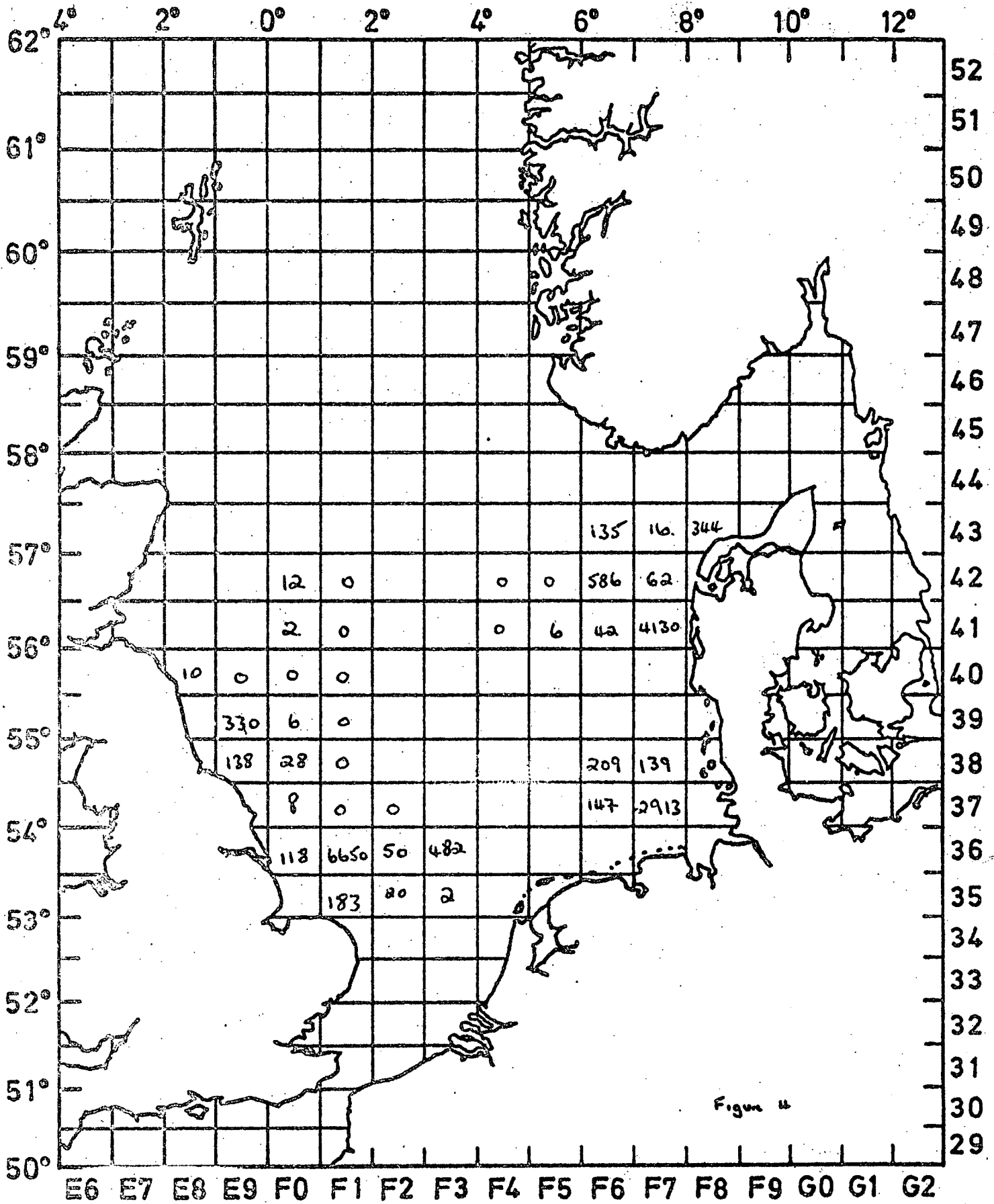
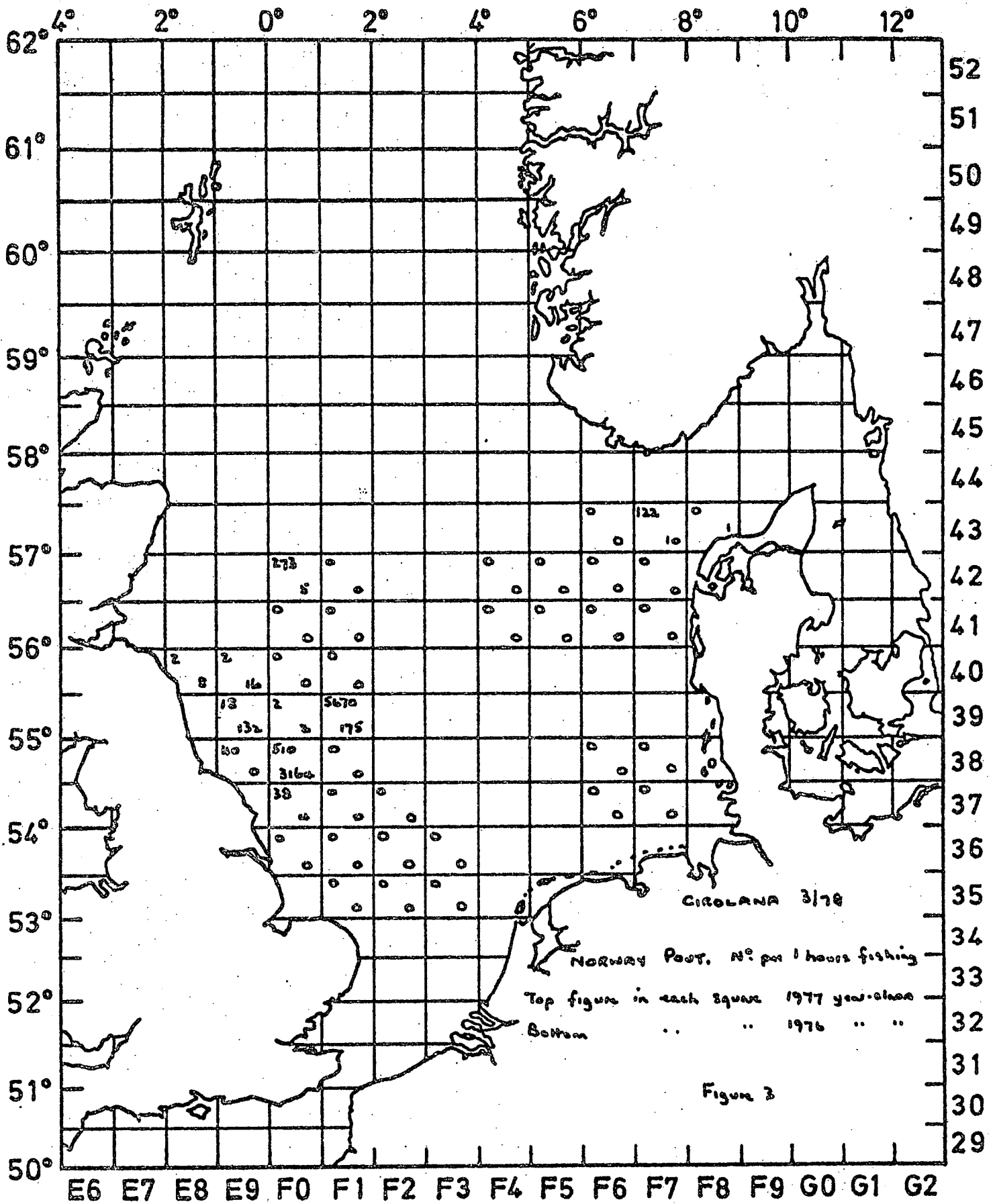
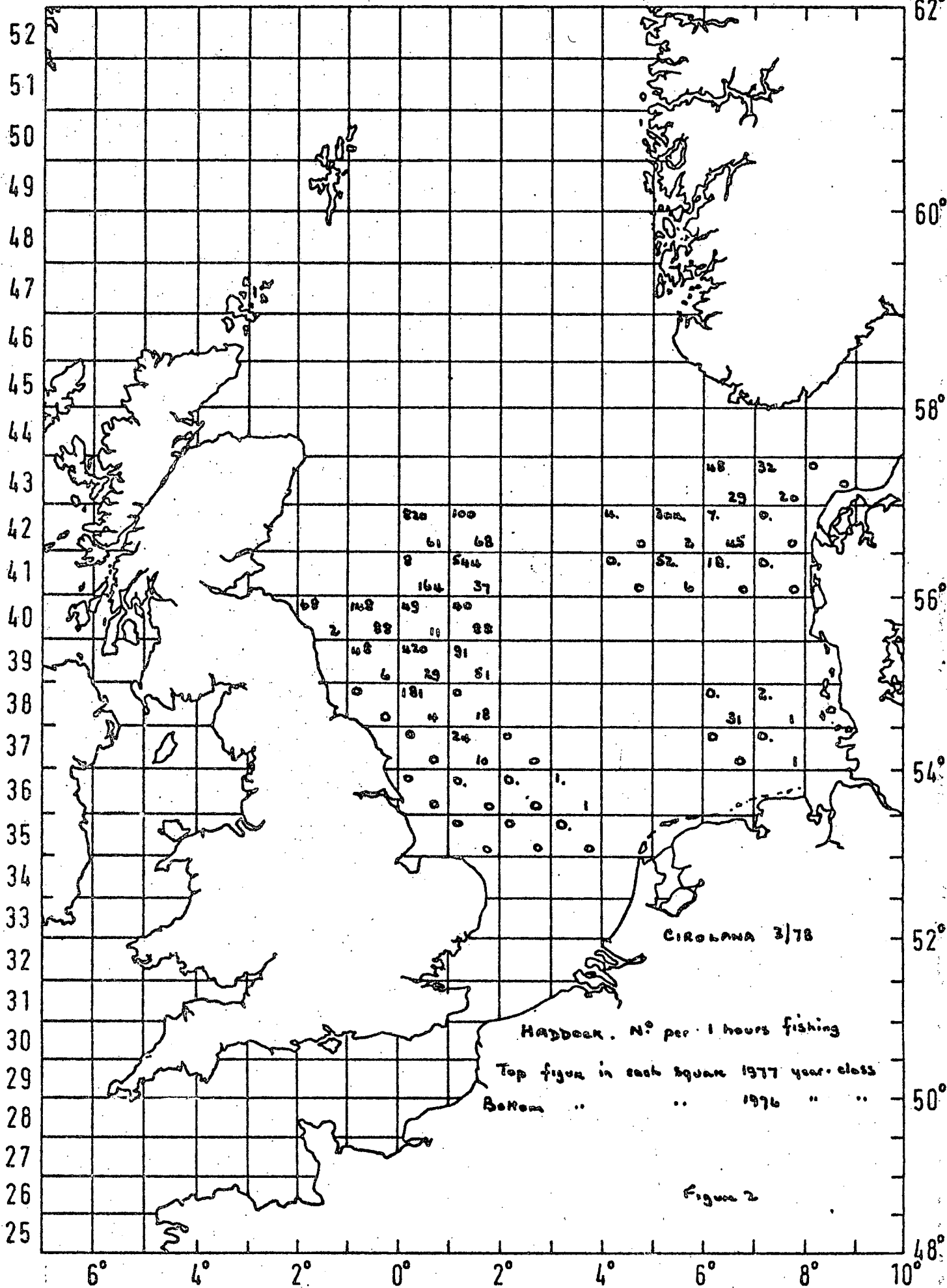


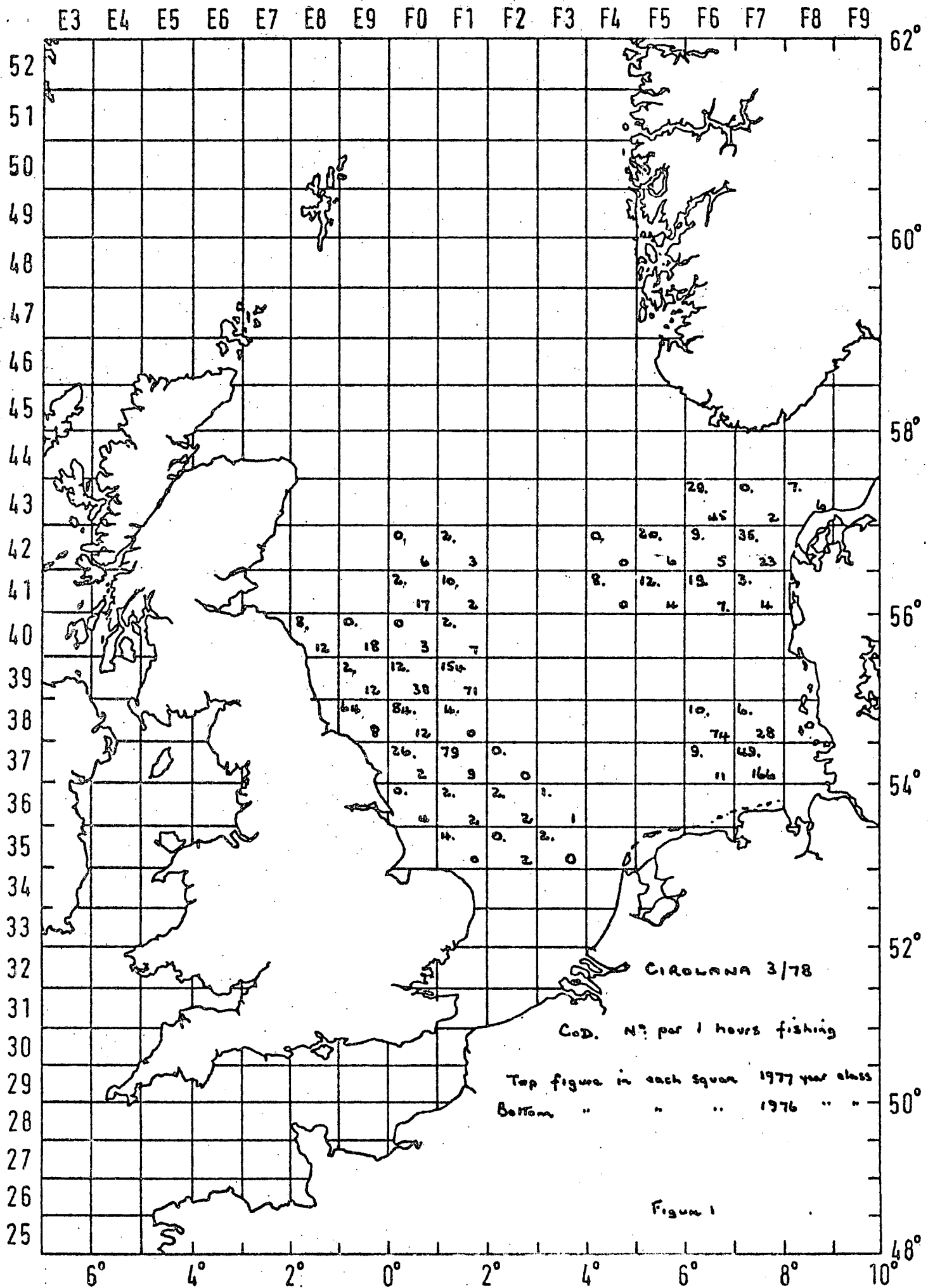
Figure 11

1-gp Herring Nos/hr.
 AUTUMN SPAWNERS.



E3 E4 E5 E6 E7 E8 E9 F0 F1 F2 F3 F4 F5 F6 F7 F8 F9





E3 E4 E5 E6 E7 E8 E9 F0 F1 F2 F3 F4 F5 F6 F7 F8 F9

