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FRV EXPLORER

CRUISE 10/81

10ER81
HJT

REPORT:
4-23 November 1981

OBJECTIVES:

1. To carry out an echointegrator and midwater trawling survey for 0-group sprats in the western half of the central North Sea.

2. To investigate the depth distribution of 0-group sprats at different times of day and night.

NARRATIVE:

'Explorer' sailed from Aberdeen at 1700 on 4 November and proceeded direct to the area off Hartlepool. After one trawl haul, the heavy northerly swell ruled out further trawling in this area and a slow passage was made to the Firth of Forth during the night of 5-6 November. On 6 November, four hauls were made in the Forth and to the east and a passage was then made to Dogger Bank to complete the southern part of the survey. On 9 November trawling was carried out off the Northumberland coast and a passage was then made to the Bell Rock area. By 0700 on 10 November a westerly gale prevented further work and 'Explorer' anchored in the lee of Inchkeith until 0230 on 11 November. After investigating the depth distribution of 0-group sprats in the Montrose area, an acoustic calibration was carried out in Lunan Bay. On 12 November further trawl hauls were carried out off Berwick but in increasing northwesterly winds work was subsequently confined to an echointegrator grid close to the coast north to Cruden Bay, and then south to the Forth. On 14 and 15 November further trawl stations were completed east of Montrose and in the Moray Firth, but a severe southerly gale prevented further trawling on 15 November and a course was made for Aberdeen docking at 0815 on 16 November. Mr Hope Jones of the Nature Conservancy Council left the ship during the half-landing.

'Explorer' sailed at 1130 on 17 November, completed two local trawl stations, and then headed for the Moray Firth in an increasing southwesterly wind. By 0800 on 18 November, the wind was gale force and stations were completed in sheltered areas along the Moray Firth coast. On 19 November the survey was interrupted from 1000 to 1500 by a request from the Laboratory to retrieve marker buoys in the area near the Sutors of Cromarty. After one more station in the firth, a course was set for the Montrose area. A southerly gale increased to force 10 by the morning of 20 November and 'Explorer' hove to in St Andrew's Bay and then made for Aberdeen to put Mr Edelsten ashore by pilot boat at 0830 on 21 November. Further trawl hauls were carried out off the east coast, and in an increasing northwesterly wind, 'Explorer' docked at Aberdeen at 1600 on 23 November.

Acoustic survey

Over large parts of the area surveyed (see attached chart), particularly in the south, a dense diffuse echotrace was encountered. Echotraces characteristic of small clupeids, consisting of more discrete marks often

near the sea bed were recorded only in the Firth of Forth and in the Montrose area. Elsewhere it was not possible to discriminate fish from the heavier diffuse trace. Consequently, it is unlikely that it will be possible to use the results of this survey to provide an estimate of the biomass of clupeids.

Trawling survey

A total of 39 hauls were made with the International Young Gadoid Pelagic Trawl (PT 154) fitted with an 11mm knotless mesh codend (see attached chart), fished in a stepped haul at three depths. Thirty two of the 40 trawl stations were completed. Sprats were caught in 25 hauls. O-group sprats ranging in length from 3-9cm were caught solely in inshore stations and were about a fifth as abundant as in 1980 in statistical rectangles sampled in both years. The largest numbers were caught to the east of Montrose and Lunan Bay, with smaller numbers in the inner Moray Firth, the Firth of Forth and off Teesmouth. Older sprats up to 16cm in length, were caught in the largest numbers in the Firth of Forth and inshore along the northeast coast of England, with smaller numbers offshore in the latter area. Very small numbers were caught north of the Forth either east of Scotland or in the Moray Firth.

Herring were caught in comparable numbers to sprats. O-group were caught in the Moray Firth, east of Montrose, in the Firth of Forth and along the northeast coast of England. Overall, they were about two-thirds as abundant as in 1980. Larger herring, mainly 1-ringers, were caught in significant numbers in the inner Moray Firth and in one haul north of the Tyne, and in small numbers east of Scotland and along the northeast coast of England. This age group was about three times more abundant than in 1980.

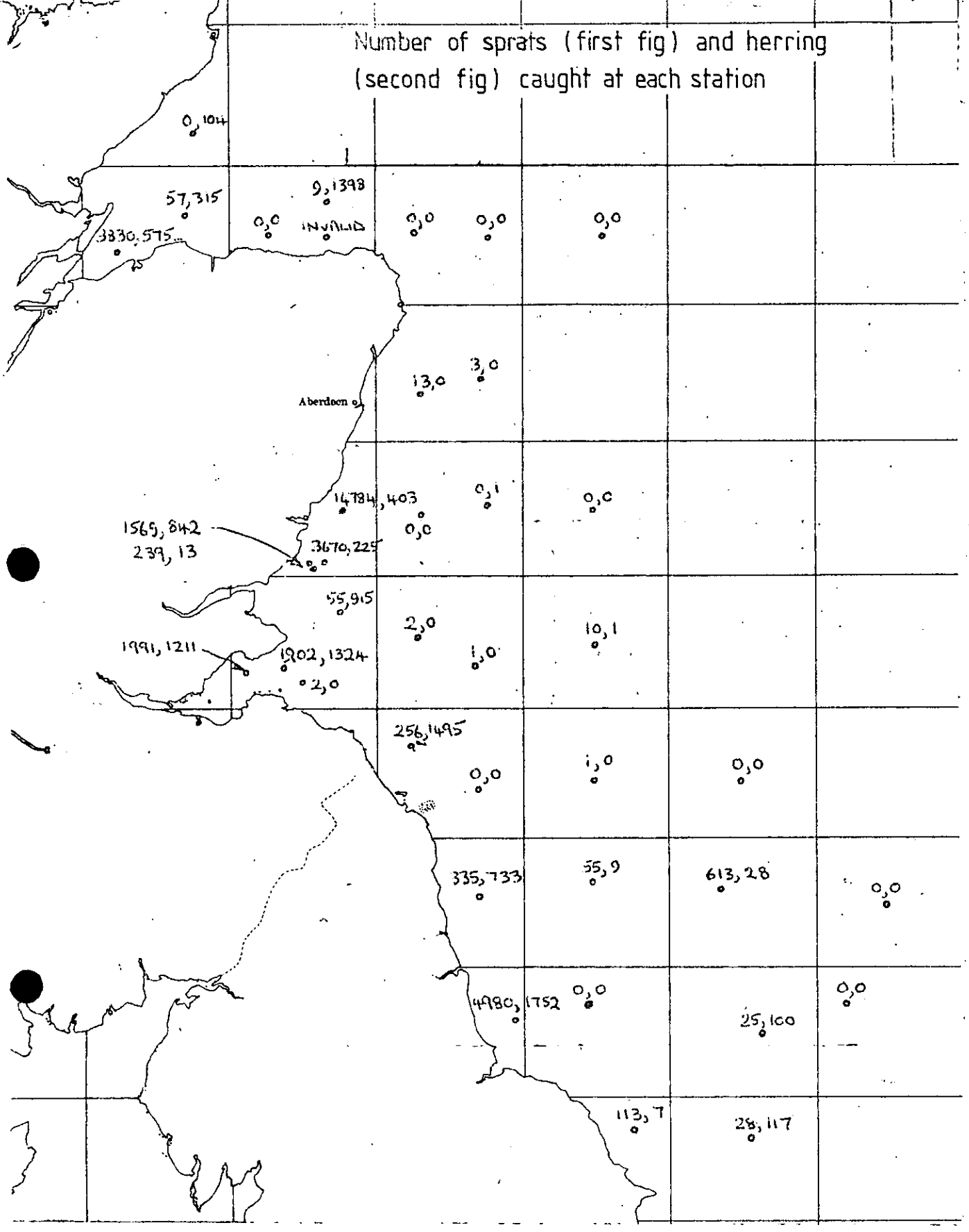
Very small numbers of other commercial species were caught. O-group whiting were noticeably scarcer than in the previous year. In many hauls considerable numbers of small organisms were caught, in some cases meshed in the codend. Gobies, a small squid (Alloteuthis subulata) and herring larvae were the predominant components, with smaller numbers of Sepiola and rocklings. In some hauls, crangonids, pandalids and euphausiids were also caught. The same assemblage of species was caught in 10 hauls using an Isaac Kidd midwater trawl (positions shown on attached chart) and it seems likely that they were the cause of the diffuse echotrace referred to above.

Depth distribution of sprats

In the Lunan Bay area, a trawl haul close to the seabed (38m depth) contained sprats ranging in length from 4.5-13.5cm and herring from 8-23cm in length. A haul 10-20m from the surface contained only the smaller component of sprats (5-7.5cm) and herring (8.5-10cm). The latter haul also contained very large numbers of enmeshed herring larvae, some of which were still alive on board. A series of 6 horizontal Isaac Kidd hauls in the same area off Montrose at different depths were returned to the Laboratory for analysis.

R.S. BAILEY
13 January 1982

Seen in draft: T.H. Henderson, C.O.



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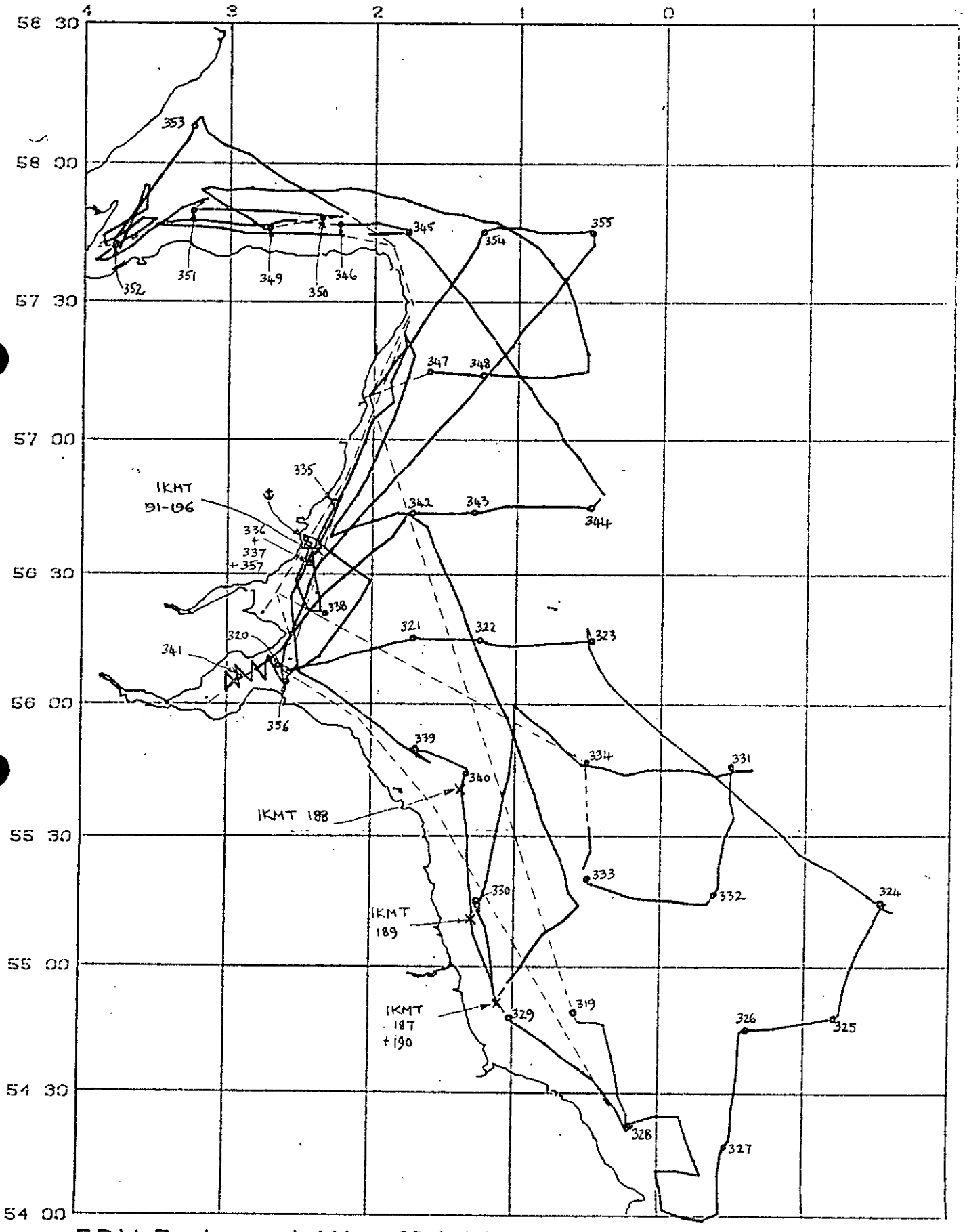

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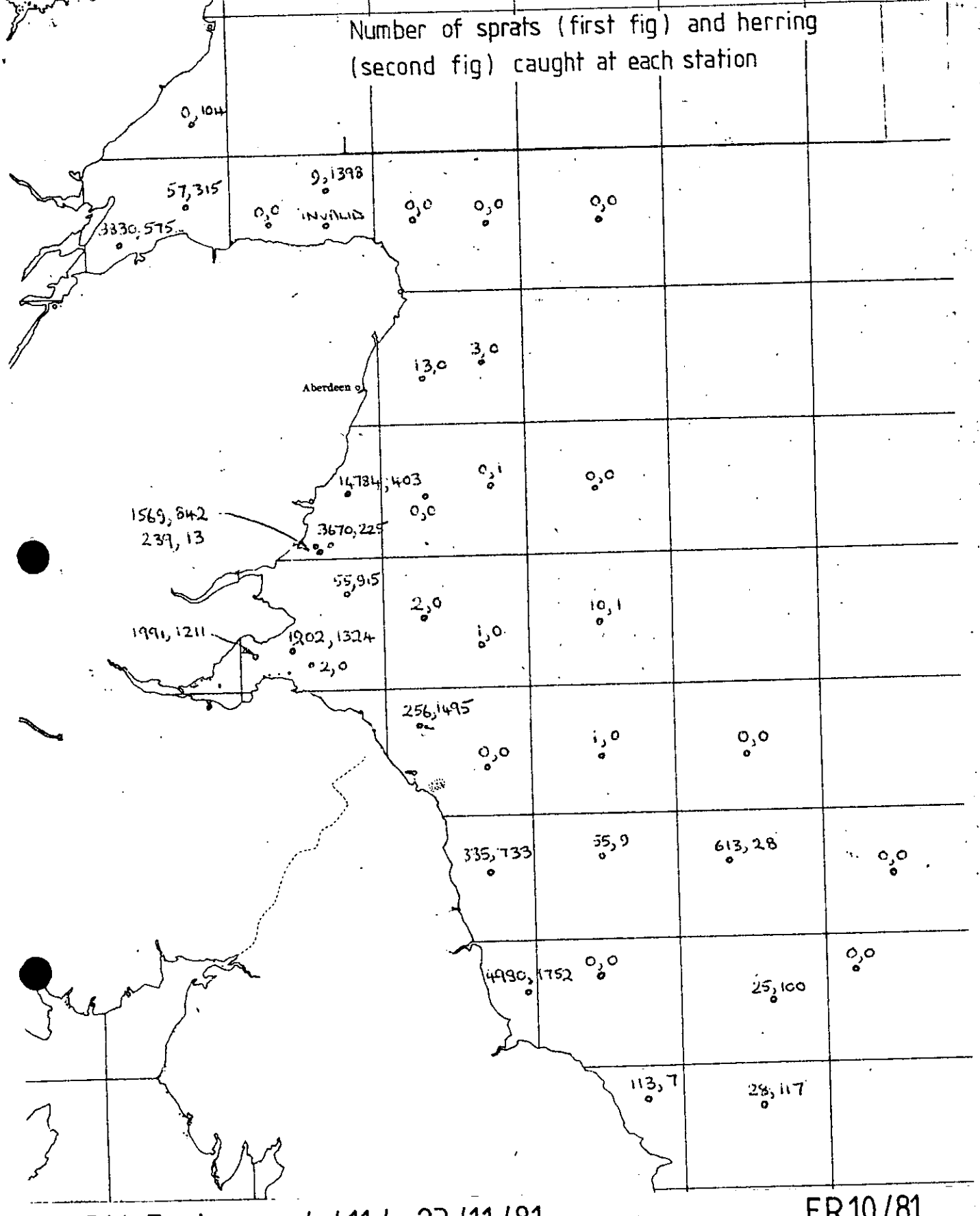

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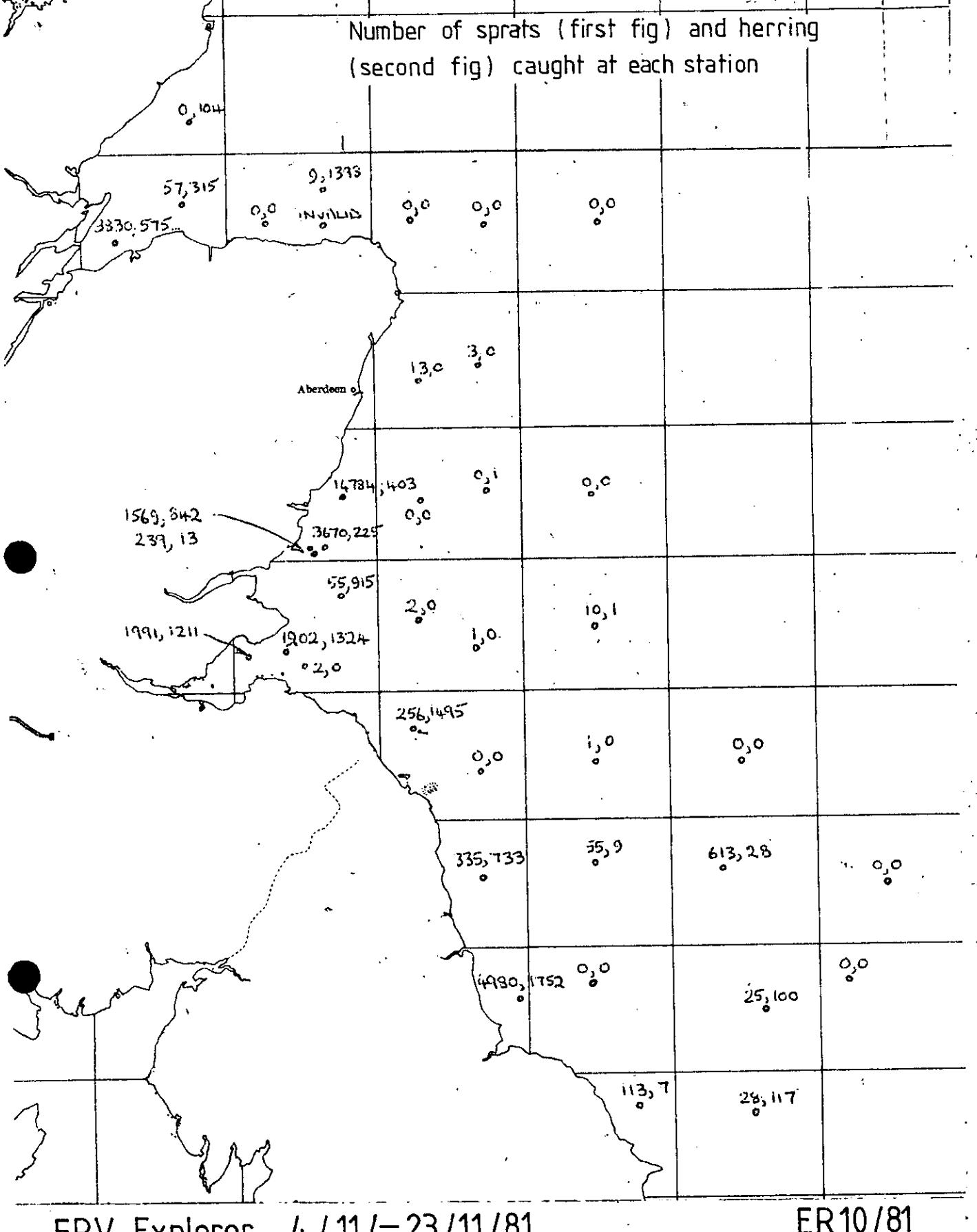

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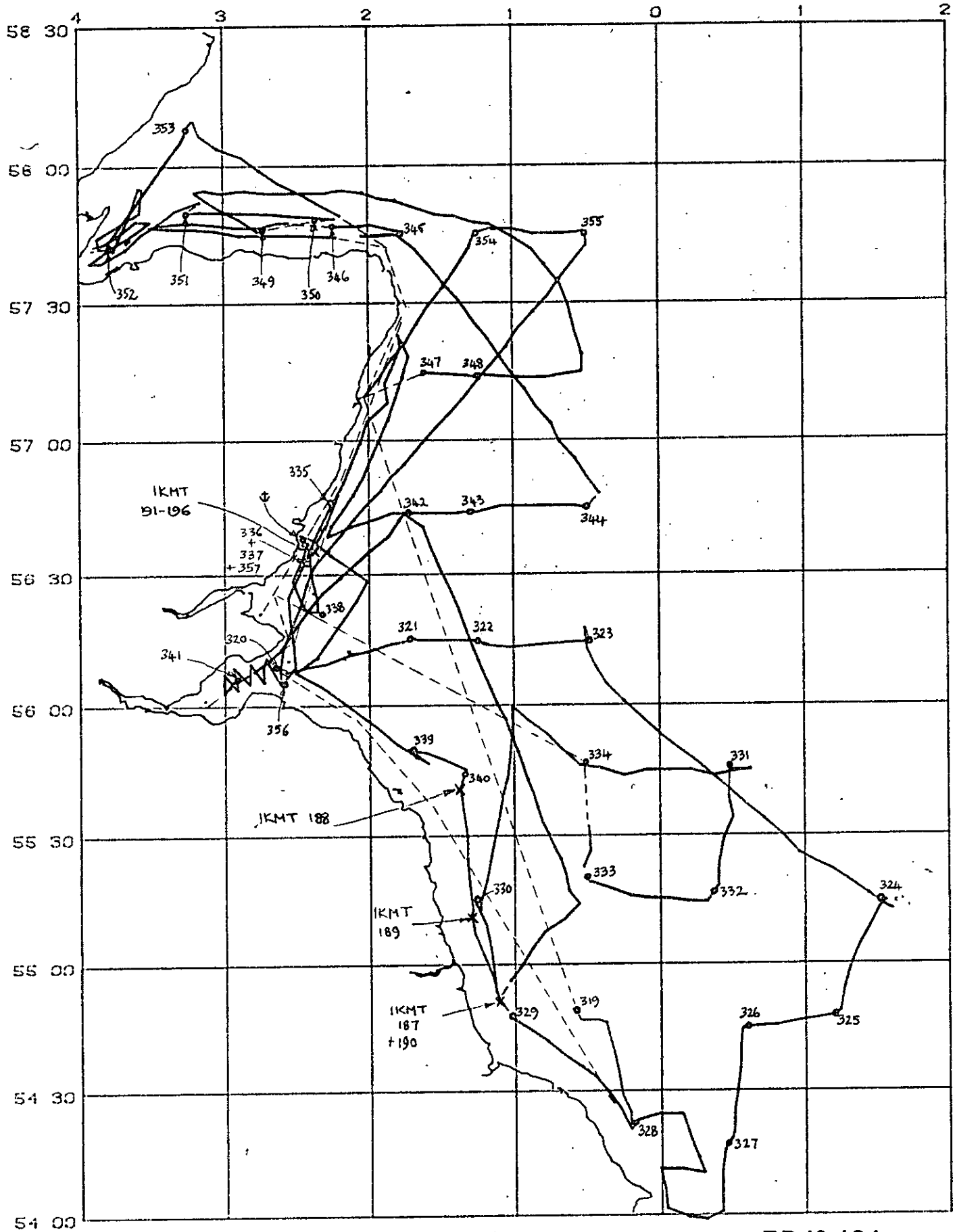

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