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AMM

In Confidence: NOT TO BE QUOTED WITHOUT REFERENCE TO THE LABORATORY.

FRV EXPLORER

CRUISE 9/78

REPORT

22 August - 12 September 1978

Objectives:

1. To carry out herring larval surveys to the north and west of Scotland.
2. To carry out an acoustic survey for herring and other pelagic fish in the area using the Marine Laboratory's echo-integrator.

Narrative

EXPLORER departed from Leith at 1800 on 22 August and proceeded to the north coast to begin the herring larvae sampling grid. In conjunction with the sampling grid the echo integrator was run continuously. EXPLORER called at Stornoway on 29 August for repairs to the radar and Decca navigation units, sampling continuing thereafter. On 31 August EXPLORER deviated briefly from the sampling grid to land a sick crew member at Scrabster. At the half-landing at Stornoway on 4-5 September, Miss A Smith replaced Mrs M Black on the scientific staff. EXPLORER was detained a further day at Stornoway awaiting a crew member to replace the sick man landed at Scrabster.

Sampling recommenced on 6 September and continued until 9 September when force 8 gales halted sampling for 24 hours.

The sampling grid was completed for the second time on 11 September. A start was made on a third circuit of the sampling grid but N.W. gales forced a halt to operations. EXPLORER returned to Aberdeen, docking at 1130 hours on 12 September.

Herring Larvae Sampling

The principal objective of this cruise was to carry out a survey for herring larvae in the designated area.

Stations at approximately 10 mile intervals were worked using a Dutch Gulf III sampler. The sampling depth throughout the cruise was from the sea surface to an estimated 5 m off the sea bed at a towing speed of 5 knots. A total of 227 samples were taken and preserved in 10% formalin for analysis at the Laboratory.

### Echo Integration

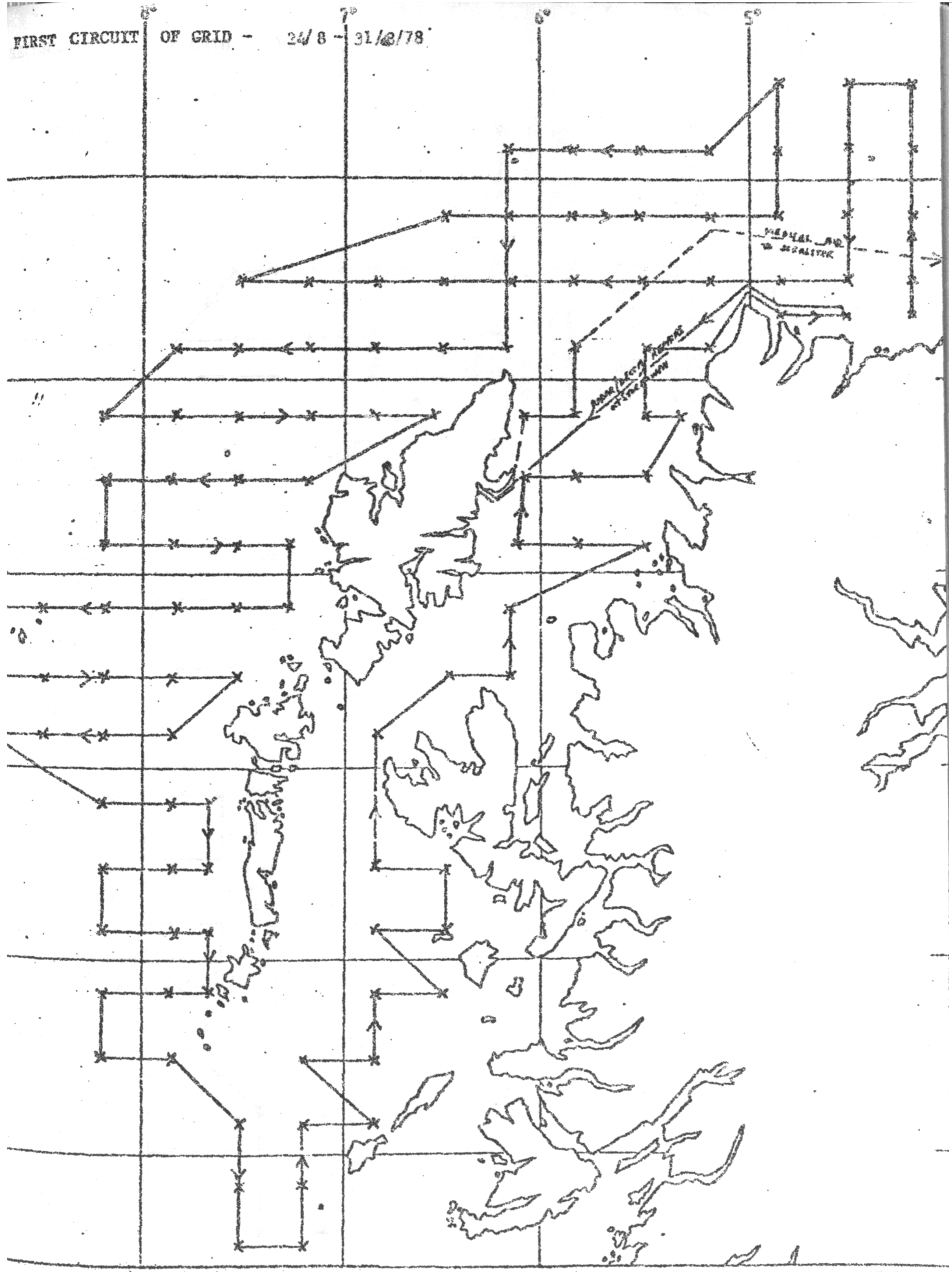
The secondary objective of the cruise was to conduct an acoustic survey over the area sampled for herring larvae. During the cruise a Marine Laboratory Echo Integrator unit linked to the ship's Simrad EK50 echo-sounder was run continuously. Integrated values of acoustic biomass were calculated at half-hourly intervals and the ship's position plotted each hour. The integrated channels selected after initial surveying were 5-50 m, 50-200 m and from 5-10 m above the sea-bed. The ship's hull transducer was used throughout.

No large concentrations of pelagic fish were observed. Several small mid-water shoals were, however, observed in the Tiree-Coll area. Integrated values in both the 5-50 m and 50-200 m channels varied widely between successive readings and between successive sampling circuits. Charts of calculated mean acoustic values per quarter statistical rectangle for the 5-50 m, 50-200 m and total water column are appended. As it was not possible to calibrate the ship's hull transducer it was not possible to convert the integrated values into absolute units of biomass. Furthermore, as no sampling of those bodies giving high acoustic counts was carried out it was not possible to identify these bodies specifically.

J. A. Gauld  
20.11.78

Seen in draft: J W Gillon

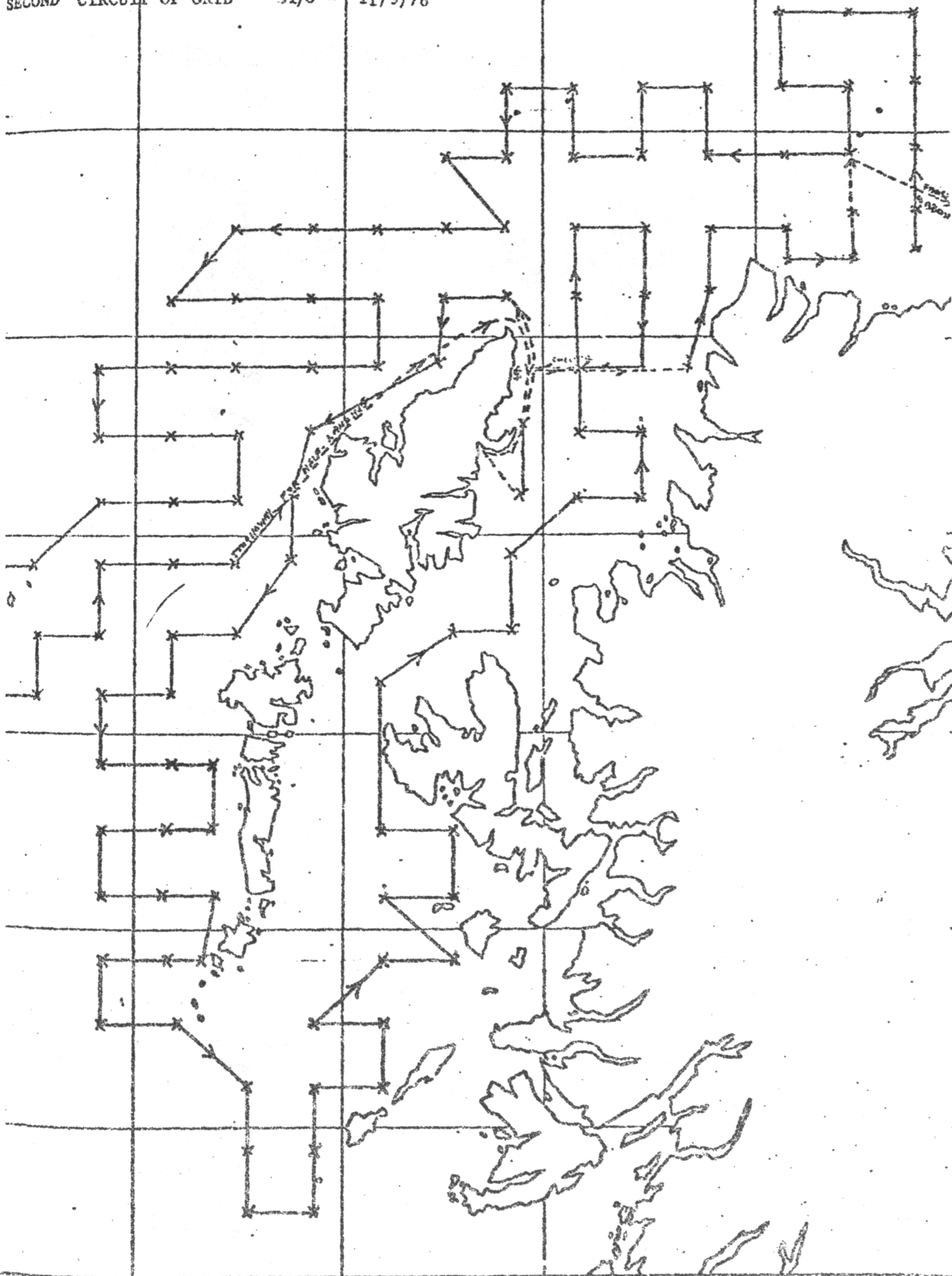
FIRST CIRCUIT OF GRID - 24/8 - 31/8/78



FRS Explorer

24/8 — 31/8/1978

9EP78



# F.R.V. 'Explorer' - West Coast Acoustic Survey, Aug-Sept 1978

## FIRST CIRCUIT

## SECOND CIRCUIT

