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In Confidence not to be quoted without reference to the Laboratory

10EER80  
JLM

'FRV EXPLORER'

Cruise 10/80  
Report  
5-25 Sept 1980

**Objectives:**

To carry out a herring larval survey in the Orkney-Shetland area.

**Narrative:**

The scientific staff joined 'FRV EXPLORER' at Leith on the afternoon of 4/9 when scientific equipment was on-loaded and set up. The vessel departed Leith at noon on 5/9 and headed northwards testing en route an I.O.S. - Mufax depth metering system attached to a Gulf III sampler. 'EXPLORER' called briefly at Aberdeen on 5-6/9 to take on fuel and to disembark Mr E Darlington of I.O.S. who had supervised the setting-up of the mufax system.

Sampling of the survey grid commenced at 18.45 hrs on 6/9, in the Moray Firth, and continued uninterrupted until 12/9 when severe weather stopped work and the vessel put into Kirkwall. By bringing forward the half-landing, at Kirkwall, from 15-16/9 to 13-14/9 the time lost to the scientific programme was cut to a minimum. Sampling was again commenced at 14.50 hrs on 14/9. 'EXPLORER' called in briefly to Kirkwall Bay on the afternoon of 17/9 when additional plankton nets were collected from the airport. Sampling thereafter continued uninterrupted till 12.30 hrs on 24/9 after which time 'EXPLORER' proceeded to Aberdeen where she docked at 1800 hrs that day.

**Results:**

**Fish Larvae:** A total of 261 samples were collected at stations approximately 10 miles apart. 27 stations were sampled x 3, 81 stations x 2 and 18 x 1 - the latter being to the northern extremity of the survey area and had been observed to contain few or no larvae when first sampled. The greatest concentrations of larvae were found, as indicated on the chart, at stations around the Orkney Islands and southwards into the Moray Firth to 58°15'N and west of 01°00'W.

Of the 261 samples collected a total of 232 was monitored using the I.O.S. Mufax metering system. Only minor technical/operational problems were encountered with this system and it was found to be possible to control the depth sampled to within 1-2 meters of that required.

Two other vessels, Rose Marie (Holland) and Anton Dorn (Germany) were also conducting larval surveys in broadly the same area at the same time. 'EXPLORER' failed to make radio contact with 'Rose Marie' but 'Anton Dorn' confirmed the presence of large numbers of larvae off the east coast of northern Scotland. Communication was also maintained with 'EXPLORERS' sister vessels 'CLUPEA and 'SCOTIA' who were likewise engaged in larval surveys in adjacent areas at this time.

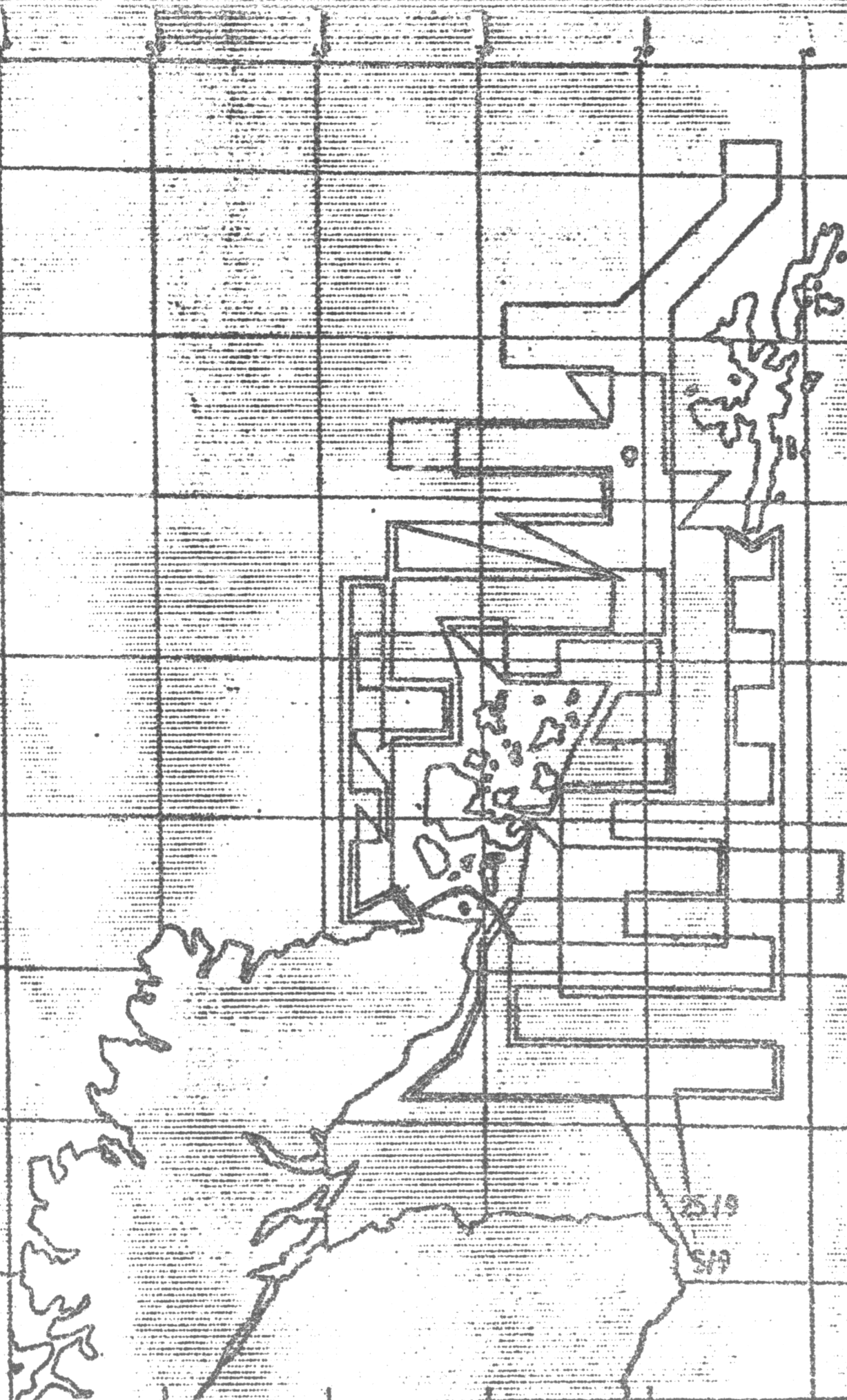
Pelagic Fish: 'EXPLORERS' Simrad EK38 echo sounder was operated continuously throughout the cruise. The presence of mackerel/herring - type marks were noted and their distribution was as per attached chart.

#### Marine Mammals:

During the survey the Officers on Watch noted the presence of marine mammals. A total of 14 observations was made, 3 of pilot whales (Globicephala) and 11 of dolphins (Delphinus/Lagenorhynchus), the numbers per pod ranging from 1 to ca 100. The distribution of these mammals was as indicated on the attached chart. It is noteworthy that the dolphins paid particular interest to the Gulf III sample, and the attached transmitter, diving and accompanying the sampler to the surface when hauling on several occasions.

J Gauld  
2/10/80

Seen in draft J Ross  
Act/commanding officer



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R.S. Explorer

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# Distribution of fish larvae, pelagic fish traces and marine mammals

