

R1/6

2CR79

In Confidence:- Not to be quoted without reference to the laboratory AMM

FRV CLUPEA

Cruise 2/79

REPORT

16 February - 15 March 1979

Objectives

- 1 To carry out a midwater trawling survey for 1-group herring in the lochs on the west coast of Scotland.
- 2 To carry out a programme of daylight, dusk and night trawling in suitable areas of fish concentration to gauge the effect of diurnal behaviour on availability of 1-group herring to the pelagic trawl.
- 3 To use the Marine Laboratory echo integrator with towed body transducer and the EK 38 sounder to investigate fish concentrations and to try and identify echo targets by the use of underwater television.

Narrative

CLUPEA was delayed by bad weather for four days at the start of this cruise and finally left Aberdeen at 1100 am on 16 February. After proceeding through the Pentland Firth in continuing bad weather CLUPEA docked in Stornoway for the weekend on 17 February. CLUPEA was delayed by a radar fault on Monday 19 February but subsequently crossed the Minch the same night to begin working stations on the mainland side. Stations were completed at Kyle of Tongue, Durness, Loch Eriboll, Loch Inchard and Loch Laxford before CLUPEA returned to Stornoway on 21 February for the long weekend.

On 27 February after the long weekend break CLUPEA crossed the Minch and started working on the mainland side once again. Trawl hauls were completed at Loch Broom, Loch Ewe, Rhu Re and Loch Snizort and echointegration tracks were carried out between these locations. On 5 March a scientist and a crew member were picked up at Kyle of Lochalsh and CLUPEA then proceeded to Loch Hourn where an echointegration track was carried out and areas of echo contacts were further investigated by trawling and by the use of underwater TV. CLUPEA anchored on the night of 6 March and carried out a echointegration and trawling survey along the south coast of Skye the next day. Because of a bad forecast CLUPEA made for the Sound of Mull and en route encountered a dense echo target in deep water at the approaches of the Sound. This trace was investigated with the underwater TV system.

On 8 March CLUPEA proceeded through the Sound of Mull and carried out an echointegration and trawling survey in the Firth of Lorne during the period 8-9 March. CLUPEA returned to Tobermory for the weekend and crossed to Dunstaffnage on 11 March to allow for crew changes. On 12 March CLUPEA made for the Clyde and a

short echointegration and underwater TV survey was carried out in Kilbrannon Sound before CLUPEA docked in Troon on 14 March at the end of the cruise.

### Trawling

Fourteen trawl hauls were carried out with the International Young Gadoid Pelagic Trawl (PT112) fitted with an 11 mm knotless codend during this survey. One good haul of 13 baskets of sprats was taken in Loch Inchard, but elsewhere catches were very small. Catches of one basket or less of assorted sprats, herring and other species were taken in Loch Broom, NW of Lismore and in Loch Hourn respectively. The size ranges and modal lengths of herring from these areas are given below.

Catch	Length range in cm	Modal length in cm
Loch Broom 1 basket	13 - 31.5	21
Lismore 4 "	7.5 - 17.5	11
Loch Hourn 3 "	10 - 14	12

Suitable concentrations of herring for diurnal trawling experiments were not encountered during this cruise.

### Echointegration

Echointegration tracks were carried out wherever possible during the survey using the Marine Laboratory Echointegrator with the EK 38 sounder and the towed body transducer. This system was calibrated at the start of the cruise.

Three features were noteworthy about this survey:- Firstly no significant echo targets that could be positively identified as 1-group herring were encountered. Secondly, the irregular nature of the sea bed often caused severe difficulties because of loss of bottom lock. Thirdly it proved impossible to use both the EK 38 sounder and the ship's navigational EQ sounder as this produced problems of interference.

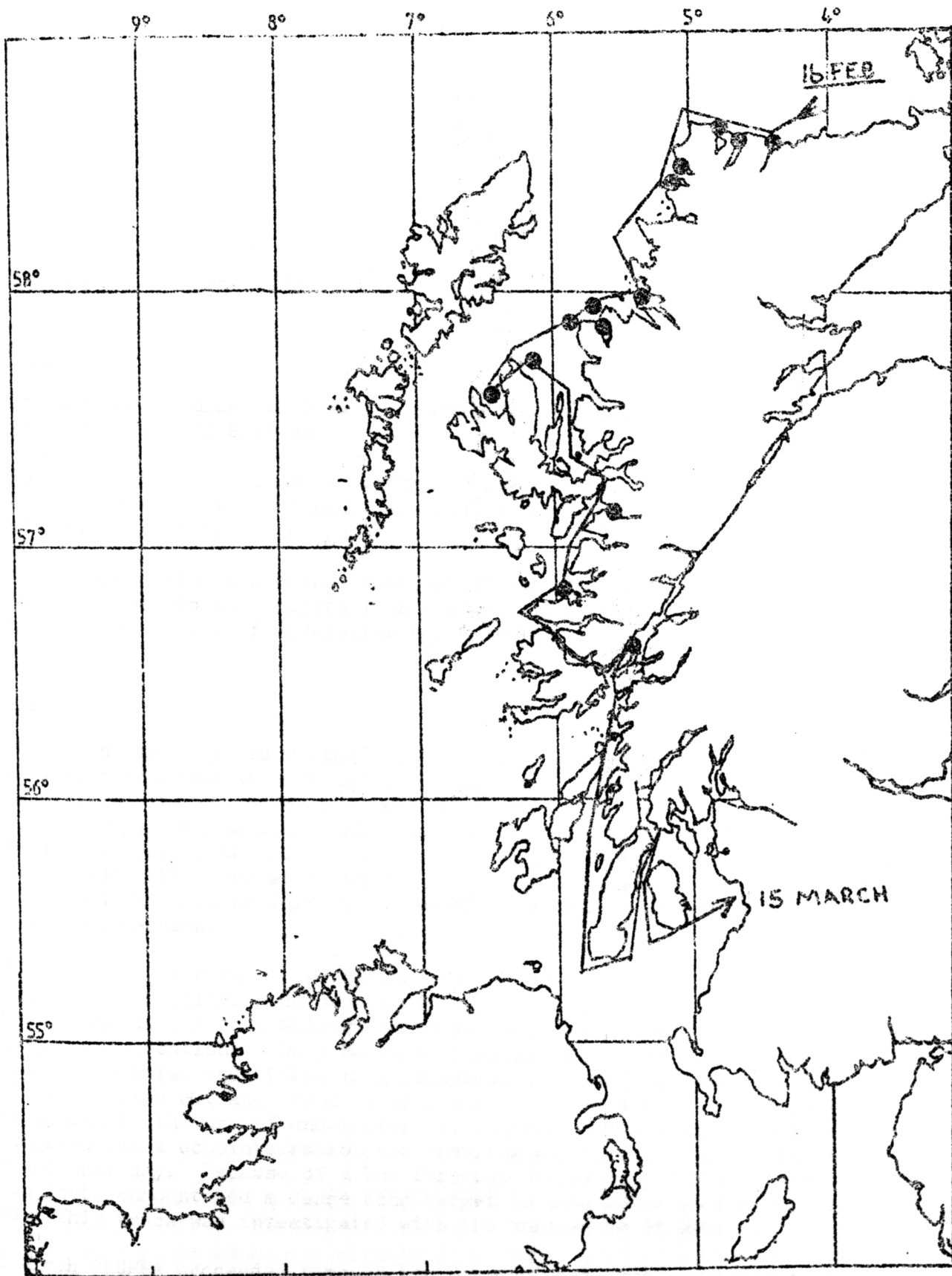
### Underwater Television

A static low-light underwater TV system was used on five occasions during the cruise to investigate echotraces; these were in Loch Broom, Loch Inchard, Loch Hourn, the Sound of Mull and Kilbrannon Sound respectively. On these occasions the traces appear to have been mainly caused by aggregations of euphausiids which were identified from trawled samples as Pasiphaea sivado and Meganyctiphanes norvegica. In the approaches to the Sound of Mull a particularly dense trace was encountered at night, and although no trawling was carried out on this occasion the camera revealed a dense concentration of planktonic organisms which were thought to be euphausiids extending over a vertical range in excess of 25 fathoms.

J A Morrison

7 March 1980

Seen in draft A Mair



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