

R1/6

In Confidence - Not to be quoted without reference to the Laboratory

FRV 'Clupea'

Cruise 3/82

Report

31 March - 23 April 1982

3CR82

### OBJECTIVES

1. To determine the performance of a new pelagic sampling trawl for a range of warp lengths, speeds and wing-end weights, using instrumentation and underwater television.
2. To determine the fishing capabilities of the trawl.
3. To develop methods of measuring mesh angles and angles of netting panels to the water flow using underwater TV.

### NARRATIVE

'Clupea' sailed from Troon on the evening of 31 March. Preliminary hauls with the TV vehicle (RCV) and fishing gear were made during passage to Ullapool for the weekend. Because visibility was poor under water, the following week was spent mainly in the Sound of Raasay on instrumented trials to determine the performance of the gear over a range of warp lengths, speeds and wing-end weights. The weekend was spent in Ullapool.

From 12 to 15 April the water was still not clear and further instrumented hauls were made as well as several fishing hauls. Marks of small herring close to the seabed were fished successfully between the Shiant Islands and the Eye Peninsula. One haul on Friday 16 April was made between Rubh Re and Longa Island where the water clarity was much improved.

The weekend was again spent in Ullapool after which 'Clupea' returned to fish the area between Rubh Re and Longa until Wednesday evening. 'Clupea' then sailed for Aberdeen which was reached on the evening of 22 April. The ships speed log was calibrated over the measured mile before docking.

### RESULTS

Comprehensive performance data was obtained to enable graphs to be drawn up of footrope depth against warp length over a range of speeds and wing-end weights. An example is attached for wing-end weights of 100 kg per side. The gear was found to have a satisfactory mouth opening and spread as well as overall shape, when an extension of 0.5 m was used in the lower sweep. 'Clupea' was able to tow the gear at a maximum of approximately 5.5 knots in calm weather.

Marks of small spent herring (ca 24 cm) were found on the 73 m (40 fathom) contour round the East Shiant's Bank. Between Rubh Re and Longa Island sporadic but larger marks of similar sized herring and scattered marks of sandeels were found. During five hauls at Rubh Re 205 baskets of herring were caught at an average rate of 8.5 baskets per hour. During two of these hauls larger ripe herring (27 cm) were caught. During these fishing hauls towing speed was normally between 3 and 4 knots. The RCV precluded the use of higher speeds.

Film of herring swimming in the codend, extension and 100 mm panel were obtained. Large dense shoals were observed as well as small groups and individuals. Visibility was not good enough to observe fish at the mouth of the net.

Instruments for measuring mesh angles and angles of netting panels to the water flow were tested. They were found to be difficult to shoot cleanly and prone to snagging on the netting. Modification to the design will be made prior to testing on the following cruise.

Accelerometer measurements of warp vibration were obtained for a range of conditions during trawling. Measurements were also made on a streamed warp alone.

R S T Ferro  
10 May 1982

Seen in draft G Geddes

# CLUPEA PELAGIC SAMPLING TRAWL PT. 163

100 KG WEIGHT ON EACH WING-END.

Example of variation of footrope depth with warp length and speed.

