

IN CONFIDENCE: NOT TO BE QUOTED WITHOUT REFERENCE TO THE LABORATORY
CRUISE REPORT

FRS CLUPEA

30 April - 17 May 1974

OBJECTIVES

1. To determine and compare the engineering characteristics of the MK3C and MK2C pelagic trawls.
2. To use and evaluate instruments which locate the net with respect to the ship when she is manoeuvring.
3. To locate blue whiting shoals and to study their behaviour when Explorer is trawling through them using Sonar.
4. To study the handling of large pelagic gears on side trawlers using a power block.

NARRATIVE

Clupea sailed on Tuesday 30 May and proceeded to deep water grounds to the NW of Foula. Gear trials commenced at 14.20 hours on 1 May. Bad weather prevented work on 2 May but work continued on the 3rd. On Saturday 4 May FRS Clupea sailed into Kirkwall for the week-end.

During the next week gear trials continued and a sonar survey for Blue whiting was carried out. FRS Clupea rendezvoused with FRS Explorer on 8 May when some gear was off loaded and instruments checked. Persistent bad weather prevented trials on the 9 and 10. It was possible during this period to locate transponder which was towed by the ships rubber boat. On 11 May at 12.00 hours. Clupea returned to Kirkwall for the week-end.

The trials continued until the 15th when the ship went alongside FRS Explorer to transfer the netzonde equipment and to install a distance marking circuit on to the Echo integrator on Explorer. Clupea then sailed for Aberdeen arriving at 7.00 hours, on 16 May a day earlier than scheduled.

RESULTS

Fully instrumented engineering tests were carried out on the MK2C. The data obtained for the MK2C using warp lengths of 100, 150, 200 and 300 fms were as follows:-

Deck parameters Warp tensions, divergence and declination; Ships speed and Decca positions.

Board parameters Board depths (both boards). Heel Pitch, Attack, and board to warp angles. Board spread. Tensions in front of the boards (T_2) and tensions aft (T_{3U} and T_{3L})

Net parameters Wing end tensions (port and starboard T_5 and T_6). Net depth and vertical opening. Wing-end spread.

The tests on the MK3C were limited to two hauls in the time available.

These tests were part of a series being undertaken to study how the Engineering characteristics of pelagic trawls varies with its size.

When conducting turning manoeuvres it was possible to locate the net within an accuracy of $\pm 2^{\circ}$ for both the declination and azimuth and the range to within ± 5 fms. It was also found that these accuracies could be improved if the frequency of the transponder and the sonar were the same.

The sonar survey was carried out along the edge of the shelf (200-300fms) from $60^{\circ} 38'N$ $3^{\circ} 20'W$ to a position 100 miles North of Cape Wrath. The results which showed intermittent light traces of Blue whiting were handed over to FRS Explorer.

The moving of the heavy power block, necessary for hauling in of large nets, at the end of a gilson arm required more effort and time than anticipated. Therefore it was decided that a hydraulic arm located between the main winches (as used on FRV Mara) would be needed to ease handling difficulties. A suitable design is being prepared.

Due to the worsening weather conditions in the deep waters in which Explorer worked it was not possible to fulfil part (3) of the objectives.

A detailed report will be issued towards the end of the year after full analysis of the data.

S T R De Silva
9 July 1974