

R1/6

In Confidence: Not to be quoted without prior reference to the Laboratory

FRV 'Clupea'
Cruise 4/84

Report
27 March - 16 April 1984

Objectives

1. To measure the engineering performance of BT 156 (a two panel demersal trawl) using three sizes of both vee and flat doors to provide data for the derivation of empirical formulae to match door size correctly to net size. To investigate the effect of flotation and different water depths.
2. To obtain net drag data for BT 156 using both full and cut-away lower wings.

Narrative

Clupea sailed from Greenock on the evening of 27 March. Fully instrumented trials were conducted from 29 March to 2 April off the North coast near Scrabster. One day's work was lost due to bad weather. Buckie was chosen for the half-landing on 3 April because of the prevailing weather conditions. Trials continued from 4 to 8 April in the Moray Firth, sets of doors being exchanged in Buckie as required.

A further mid-cruise break was taken on 9 April in Buckie and the cruise was completed by the evening of 15 April. Clupea was unloaded on 16 April.

Results

Thirty fully instrumented hauls were completed in sixteen working days with a success rate of nearly 80% for the instrumentation. Data were collected on the 3 sets of vee and 3 sets of flat doors using the two panel demersal trawl BT 156 in water depths of 30 m and 90 m corresponding approximately to warp length to water depth ratios of 5 : 1 and $3\frac{1}{2}$: 1. Comprehensive sets of measurements were obtained over a range of speeds from 2.5 to 4 knots.

The range of door sizes produced markedly different variations of gear performance with towing speed. As expected, with larger doors the spread increased with speed while with smaller doors the spread decreased with speed. Significant measurable changes in vee door performance were observed when the warp and backstop attachment positions were altered substantially.

The triangle positions on two sets of the flat doors produced an inward heel suggesting that they were not performing optimally. The heel and pitch angles changed with speed in a well-defined way. Only limited measurements were made on flat doors with this instrument before it was lost.

The drag of the net was obtained with the lower wings cut away in addition to the full wing version.

There was no time to obtain data with additional flotation.

R S T Ferro
18 May 1984

Seen in draft
W Smith