

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

CRUISE REPORT

FRV MARA

23 June - 4 July 1975

Objectives

1. To evaluate the general techniques for fish behaviour studies on pelagic gears.
2. To compare the behaviour of fish towards (a) a standard trawl comprising panels of different mesh size and (b) a trawl with gradually decreasing mesh size along its length.
3. To determine the overall geometry of the gears in relation to their design.

Narrative

The gear was loaded and rigged on board Mara on the morning of 23 June. Mara then sailed, on the afternoon of the same day, to commence gear trials. The trials were continued until Thursday 26 June when poor weather curtailed diving operations. The Grad 1m net was then taken ashore and altered while Mara conducted an echo sounder survey for sprat concentrations. Diving operations recommenced on Friday 27 June and continued till the end of the cruise on 4 July.

Results

A total of 37 dives were made on the Grad 1m and Mk 1m gears.

A constant watch was kept on the echo sounder for traces of sprat concentrations but these were scarce and those recorded were at depths over 20 fathoms, which were not suitable for diver observation. Nevertheless the diving techniques evolved for the observation of gear geometry indicated their suitability for the study of fish behaviour in the vicinity of pelagic trawls. In future to eliminate the need for a lengthy search routine and to fulfil objective 2 it would be necessary to conduct trials at times and in areas where there were known and dense concentrations of fish.

The gear was shot and fished in water depths of 12 fathoms and over. The divers were able to observe and photograph all sections of the gear at a towing speed of 3 knots and with net openings of $7\frac{1}{2}$ fathoms.

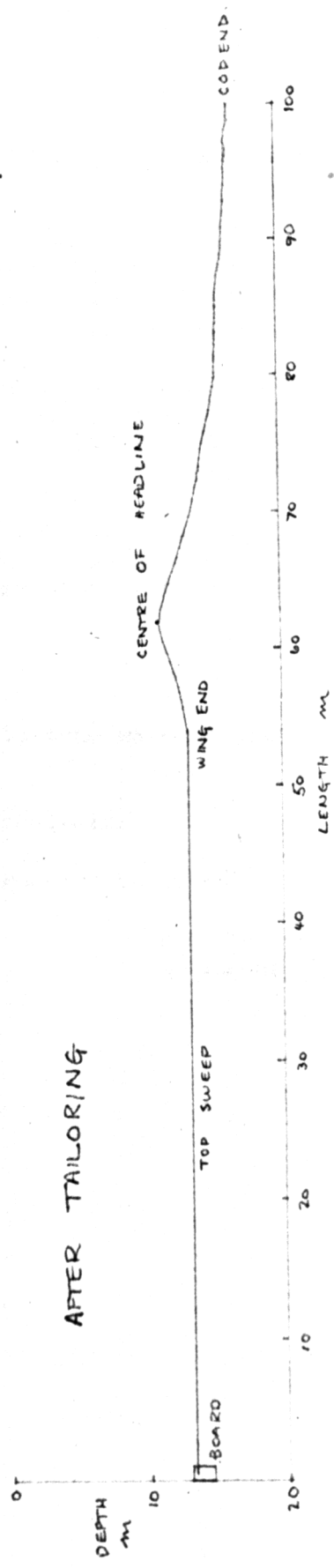
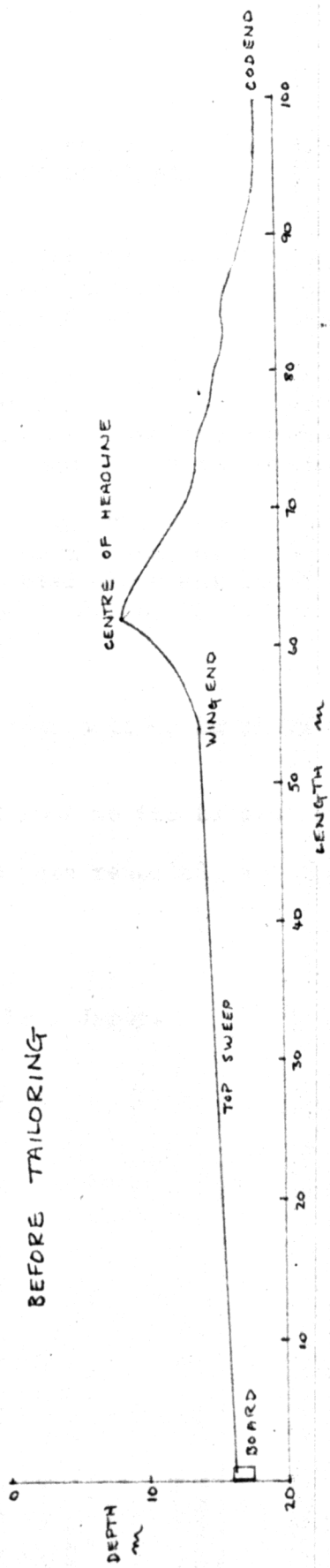
Depth readings and photographs were taken at various points on the gear and related to the design of the net. From these, modifications were made to the gear to improve its overall performance and shape. (eg see attached figure)

Cine photography was used to record flow patterns around the doors and net, made visible by dye columns.

Detail analysis of the results are presently being carried out.

S T R de Silva
24 July 1975

Seen in draft - J Jappy



TOP SECTION OF GRAD MESH NET BEFORE AND AFTER TAILORING.