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Cruise Report

FRV Mara

3 - 29 June 1974

Objectives

1. To instrument and observe the White Sea trawl which has been further modified
2. To try to increase the spread of the gear by inserting larger top and bottom panels.
3. To study the relative effects on net drag of proportional increases in netting in a 4 panel trawl design.
4. To make geometric comparison of total box and semi box trawl structures.

Narrative

"Mara" operated from Buckie for the duration of the cruise working on the Lossiemouth/Spey Bay test area. On four days, weather conditions precluded the continuance of the gear testing programme, but it was possible on one of these days to calibrate the speed logs over the measured mile.

Introduction of the lower rated load cells has considerably improved the quality of measurements on gear. They allow a far greater degree of accuracy in determining the tensions that are experienced with this size of vessel and gear.

With increasing expertise the diving team are now able to make a more comprehensive assessment of gear performance and to provide a wider range of key measurements and observations at fixed towing speeds. Combined with the instrumented results it is now possible to reconstruct geometrically a fairly accurate picture of the complex structure of a trawl under towing conditions.

Under water visibility was poor on the early part of the trip but improved in the later stages to allow some useful photography.

Results

The modifications made to the net structure have successfully removed the faults that were apparent during the March/April cruise. The slackness in the square has been taken up and tension is now evenly distributed across its width. The new hanging ratios of the netting along the wing headline and wingend line have eased the tension in this area and helped to reduce the uplift that was being transmitted to the groundrope legs. This combined with increased weighting on the groundrope ensures that ground contact is being maintained along its entire length. Although the net appears to be in fishing trim, tank tests will be required to study in detail the significance of the changes made, followed by commercial trials to assess fishing performance.

Increases in the width of the top and lower panels had little or no effect on the lateral spread of the net but produced marked differences in headline heights. These were: Standard panels 13'; intermediate panels 16'; large panels 19'. The increases in drag generated have still to be assessed from the instrumented results although it could be seen that at higher speeds "Mara" had little or no reserve power.

The intervention of bad weather prevented work on the 4th objective of the cruise which will now require to be included in some future trial.

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15 October 1974