

Project 349

FISHING VESSEL
STABILITY ASSESSMENT



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AN INVESTIGATION INTO SIMPLIFIED STABILITY ASSESSMENT METHODS FOR SMALL FISHING VESSELS

EXECUTIVE SUMMARY

The main objective of this study was to provide the MSA with sufficient information from which to develop a simplified stability assessment method for small fishing vessels. The study consisted of two main investigations:

- a. The documentation of stability assessment methods used by other nations, particularly those with large fishing fleets. These are described in Section 3 of this report.
- b. The development of a simplified stability assessment method for small UK fishing vessels. This is described in Section 5 of this report.

This simplified method was developed for craft less than 12 metres in length, this currently being the lower limit to which current stability regulations are applicable, but greater than 7 metres, this being a typical minimum size at which the vessels stability is largely unaffected by crew movement on board.

The objectives set for its development were aimed at providing a method that was:

- a. simple and inexpensive to perform at the dockside and which required minimum calculation effort.
- b. not necessarily dependant on detailed hull form or weight information.
- c. an acceptably reliable measure of stability consistent with present regulations.
- d. applicable to a wide range of monohull craft.

It was determined that the method would be based on the result of a heel test undertaken in the depart port condition, and some principal dimensions obtainable at the dockside. It is however argued that a roll test would be considerably more convenient and acceptable once reliable hull factors could be determined.

The stability would be deemed to be satisfactory if the measured initial stability (GM) was greater than a minimum value. This minimum GM is defined as that which is required by each individual vessel in its depart port condition in order to meet the main requirements of the current UK fishing vessel stability criteria in all reasonable operating conditions.

This minimum value of GM was then characterised and formulated using a parametric analysis of typical fishing vessel hull forms combined with a regression analysis of the stability characteristics of 60 modern fishing craft.

Although not specifically part of the study, catamaran craft and open boats are also discussed in the report.

The main recommendations made in the report are to adopt the proposed simplified stability assessment method for craft between 7 and 12 metres in length and to urgently determine a reliable method for establishing roll test hull factors for craft in this category so that the more convenient roll test may be used.