Second RINA Forum on the Safety of Small Fishing Vessels

18 September 2013, London

1. Introduction

The Royal Institution of Naval Architects (RINA) held a first Fishing Vessels Safety Forum of experts on 19 July 2011. This Forum was prompted by knowledge of the very high fatality rate of fishermen, especially those operating boats under 15m length and to investigate how the Institution might contribute to improving what many members considered to be an unacceptable situation.

The report and recommendations that followed from the first Forum were widely distributed to government agencies and the fishing industry and during the past two years RINA has collaborated with a number of bodies to advance these recommendations.

This is the report of a second Forum convened by RINA with experts drawn from all areas of interest as before, to review progress and to discuss what further assistance the Institution might provide. The focus is on vessels below 15m in length which are presently unregulated in the UK, and are outside the remit of EMSA.

For ease of reference progress is recorded in the report against each of the main recommendations from the first Forum, which were directed to appropriate bodies for consideration and possible action. Where a significant response has been received in reply, this has been referenced under the sender heading in this report.

Additional recommendations arising from this second Forum are given in Section 5 of this report.

2. Objectives:

2.1 To review the progress made as a result of the recommendations of the first Forum.

2.2 To continue to identify what naval architects can do to improve the safety of small fishing vessels.

3. Progress Made on the Recommendations of the First Forum:

The main recommendations resulting from the Forum[1], from a naval architectural perspective, and a commentary on subsequent developments are as follows:

3.1 MCA – UK Maritime and Coastguard Agency:

i. A mandatory requirement for stability assessment might be desirable for small fishing vessels (under 15m length), to ensure that they have adequate stability and freeboard, and are not overloaded in the hold and on deck. From this, clear guidance to owners and skippers on safe working practices should follow.

[1] All recommendations are shown in blue text and are numbered sequentially in lower case roman numerals.

This is still under consideration. A comparison of various freeboard standards has been conducted on a sample of Northern Ireland fishing vessels under 15m length, in which study a comparison of GM values estimated from roll tests has been made with those derived from a full inclining experiment.

The MCA has included the development of more robust stability requirements for future generations of fishing vessels as part of their long term strategy (5-10 years).

ii. There are many alternative ways of assessing the stability of a fishing vessel, even for vessels without hydrostatic data, while the need for effective and practical stability guidance for small fishing vessels remains. Various options are proposed in MGN 427 (F) for stability assessment and guidance, including a roll test, which was used successfully in the past for larger vessels.

A revision of MGN 427 is to be undertaken by MCA and FISG with a view to simplifying the guidance given. An MGN advising skippers/owners how they may conduct their own roll test is under consideration.

Although not perfect, a raw screening system by roll testing might well be revisited by the MCA, for the large number of existing small fishing vessels without data. This will help identify the vessels most at risk; it would also revalidate the roll factor for the GM for each group of vessels, as well as the "required GM", which takes account of the average range of stability.

Alternative simplified methods of assessing the stability of fishing vessels for which no stability data is available are under active consideration. A trial of the Wolfson Freeboard Mark is planned, but it has proved difficult to attract owners/skippers to participate.

iii. It is recommended that a member of the RINA Safety Committee should be involved in the development process for the new Code of Practice for small fishing vessels. There are various standards that can be referenced in this work, such as the Code of Practice for small commercial vessels (MGN 280), which already includes a freeboard/stability requirement for similar-sized commercial vessels. Other standards include the recent FAO/ILO/IMO recommendations for fishing vessel of less than 12m, and the Nordic Boat Standards, which include standards for stability assessment, loading guidance, minimum freeboard, and construction standards etc.

As a result of the first forum report, MCA (Sir Alan Massey, ref: CE 5/2012, dated 15 Feb 2012) invited RINA to join meetings of the FISG Codes and Stability Sub Group. A presentation on the report of the first RINA Forum was given at the meeting on 14 March 2012 by Dr Tony Morrall.

The development of a new Code of Practice for the Safety of Fishing Vessels under 24m Length, drawing heavily on the recently revised Workboat Code, is planned for completion in 2016, but has yet to commence. RINA will be participating fully in this work.

Other developments at MCA

The MCA has developed and will soon publish a comprehensive and detailed strategy for addressing the safety of fishing vessels, looking at short (1-2 years), medium (3-5 years) and long-term (5-10 years) stages.

3.2 DEFRA – UK Department for Environment, Food and Rural Affairs and MCA

iv. The regulatory and licensing authorities should reconsider how the regulations, which have produced the "rule beaters", should be applied in the future. This could be achieved by limiting the vessels' range of operation, relative to its hold and deck pound capacity, rather than to a length requirement, which has become too blunt an instrument. Further research into the safety implications of the various options for regulatory break-point regimes would be of benefit to help identify the most appropriate system to enhance the safety of small fishing vessels.

DEFRA, in the person of minister Richard Benyon MP, has eventually replied to this recommendation (ref: PO312580/DuR dated 24 Sept 2013), indicating that the current economic climate does not permit consideration of alternative regulatory break points at present, because of the significant investment from both industry and tax-payers that would be required. MCA have however included this topic in their long-term (5 to 10 year) strategy objectives.

RINA intends to respond to DEFRA emphasising the safety issues generated by the existing length-based legislation and reiterating the need for progress on this subject. See also additional recommendation xvi in Section 5.2 of this report.

3.3 MAIB – UK Marine Accident Investigation Branch:

v. The MAIB and other similar marine accident investigation organisations should continue to convey the lessons learned from fishing vessel accidents to fishermen and designers, through their website, publications and interaction with the industry. Highlighting the lessons learned from small fishing vessel accidents is a vital source of information for addressing recurrent problems.

The MAIB has responded emphasising its continuing commitment in this respect (Steve Clinch, 8 Mar 2012).

3.4 SEAFISH (UK):

vi. The RINA Safety and Small Craft Committees should offer to help *SEAFISH* develop best practice information for small fishing vessels, on topics such as bilge systems, structural standards, structural modifications, risk assessment, and safe and practical operational designs to minimise the risks to fishermen. This might take the form of leaflets and/or DVDs.

Little progress has been made to date, but a good liaison has now been established which it is hoped will now enable this recommendation to be taken forward. SEAFISH has recently responded, (Simon Potten, 10 June 2013) welcoming closer collaboration with RINA.

vii. The RINA Safety and Small Craft Committees should offer to help *SEAFISH* develop and promote best practice guidance notes for naval architects, designers, boat builders and surveyors, for design and survey considerations that affect the safety of small fishing vessels, such as: stability assessment for all anticipated operating conditions, sea kindliness for safe motions, especially for the "rule-beaters", ergonomic design of the working deck to minimise hazards, guidance for the skipper on safe operational limits (sea state, maximum load / hold capacity, etc.), maintaining the hull's structural, weather tight and watertight integrity and the carriage of safety equipment.

Little progress has been made to date, but a good liaison has now been established and SEAFISH have recently requested RINA's assistance in reviewing their current training programme in respect of naval architectural aspects, and RINA have enthusiastically agreed.

3.5 EMSA – European Maritime Safety Agency:

viii. The European Commission should be encouraged to collate accident data, including root cause, and require the investigation of accidents to fishing vessels of less than 15m length. This sector represents a large proportion of the fishing fleet and is associated with high numbers of fatalities and vessel losses.

The Executive Director of EMSA has responded (ref B.2_DRI_2013_083467, dated 6 Aug 2013) that because current EC Directives (2009/18/EC and 97/70/EC) do not apply to fishing vessels with a length of less than 15 metres, EMSA cannot take this recommendation forward at present. However he has transmitted our report to the European Commission for their consideration.

3.6 Developments at RNLI

The RNLI is planning a series of safety videos/DVDs aimed at fishermen and have recently asked for RINA's help and input, which will of course be forthcoming. Tri-partite collaboration with SEAFISH is also expected to be beneficial.

4. Observations and Suggestions

The following observations and suggestions were made during the Second Forum.

4.1 Overloading

This remains a serious and persistent problem. The following points were made:

(a) Marking maximum safe volume within the fish hold, limiting the volume of deck pounds or limiting the number of standard fish boxes are possible approaches. Another is to fit a built-in sounding pipe as a means of monitoring draught (freeboard) at sea, which would be located near amidships and the centreline and fitted with a level gauge.

(b) Overloading might also be inhibited if catch is limited by owner being given a "landing quota" that is sufficiently restrictive as to improve safety over the "catch as much as you can carry" approach. How to define such a quota in relation to boat size would have to be determined.

(c) Vessels engaged in "bulk fishing" are believed to be at significantly higher risk than others, and so perhaps, regardless of length/size should be subjected to full stability analysis. A clear definition of bulk fishing would be required.

(d) Adoption of a strongly contrasting hull paint scheme up to the watertight weather deck might highlight to skippers and external observers when a vessel is so heavily immersed that sufficient reserves of buoyancy and effective freeboard no longer exist.

4.2 Stability and freeboard

These subjects continue to pose serious issues, such as:

(a) Methods of controlling the effects of vessel modifications on the lightship weight and centre-of-gravity height are badly needed. Annual profile photographs of each boat taken in the departure condition would enable the boats most seriously at risk to be identified very quickly and at minimal cost. Such boats could then be visited by SEAFISH and/or MCA surveyors, who could conduct targeted roll/heeling tests and freeboard checks.

(b) Despite being a foreseeable and potentially hazardous operating condition, the stability when engaged in lifting is not routinely required to be assessed, even on vessels for which a full stability analysis is required.

(c) Wolfson Mark freeboards are intended for use in relation to the vessel when heeled under operational loads, and not as an upright freeboard mark like a Load Line. They do therefore inherently include the effect of a boat's stability. How useful they will be to industry will hopefully be determined as a result of the planned MCA trial.

(d) While roll testing is a useful way of screening for inadequate initial stability, unless combined with some form of minimum freeboard requirement there is no assurance of sufficient range of positive stability.

(e) Lack of sufficient freeboard aft so as to adequately resist pooping has been identified as a particular problem associated with series-produced proprietary hulls.

4.3 Vessel design and construction

These were the subject of a number of suggestions:

(a) Many problems arise with owner-completed commercial hulls not having any naval architectural input whatsoever. A means of directing owners to sources of professional help is highly desirable, perhaps through SEAFISH.

(b) Grant funding to assist owners to implement a change of fishing method should only be given subject to demonstrating sufficient stability and freeboard by full stability analysis.

(c) Periodic surveys of hull integrity are particularly necessary for older, especially wooden boats, and could be encouraged by being made a requirement when renewing insurance.

4.4 Detail design

This can seriously affect the survivability of fishing vessels and their crews. The following topics were identified:

(a) Good design of potential downflooding openings liable to be open when loading catch at sea (eg: by the use of hoppers) can reduce flooding risks substantially. The positioning of engine room vents can often be critical.

(b) There is significant scope for improving the safety of crews (especially those engaged in potting) by good design of the working deck, by separating crew from running gear as much as practicable.

(c) Provision of practical means of man-overboard recovery is often lacking, especially for boats operated single-handed.

(d) The means of auto-release of life rafts and EPIRBs merits further development to minimise the risks of entanglement, for example taking into account recent Icelandic developments.

(e) Vessel modification by adding deck shelters often reduces forward visibility from the wheelhouse to a dangerous extent.

4.5 Safety information

(a) Information has an important part to play in guiding skippers. The format of simplified stability guidance information needs to be agreed upon, but may have to await the outcome of the trial of the Wolfson Freeboard Mark.

(b) The idea has been mooted of establishing an "ask the experts" feature in one of the fishing industry newspapers, in which fishermen can ask any questions they wish, and receive general advice from a panel of experts.

5. Additional Recommendations

Note: The numbering continues from the recommendations made after the First Forum and repeated in Section 3 of this report.

5.1 MCA – UK Maritime and Coastguard Agency:

In addition to recommendations i to iii given in Section 3:

ix. As an initial step towards identifying vessels that are potentially at higher risk (especially as a result of modifications), and as a precursor to implementing basic stability and freeboard requirements for vessels under 15m length, the MCA is recommended to compile a database of the outline particulars of these vessels and their owners, accompanied by several photographs. Surveyors can then use this reference information to identify vessels where the stability and freeboard may have been adversely affected, and to advise the owners accordingly.

x. Lack of requirements or clear guidance on minimum safe (upright) freeboard inhibits effective progress on preventing overloading. The MCA is recommended to urgently develop such requirements or guidance.

xi. Because vessels using bulk fishing methods are those most vulnerable to overloading and loss of stability, consideration should be given to requiring a full stability analysis for all such vessels, regardless of their length.

xii. Because of the serious adverse effect on the vessel, the stability when using lifting gear should routinely be required to be assessed, most especially on vessels for which a full stability analysis is required.

xiii. The MCA is recommended to persevere with the planned trial of the Wolfson Freeboard Mark as recommended by MAIB. Take-up may be substantially improved with the active participation and encouragement of FISG and SEAFISH.

xiv. Together with SEAFISH to consider a trial of a built-in freeboard measurement gauge to enable approximate draught monitoring when at sea.

xv. Together with RINA, in order to encourage innovation, to consider an officially-led design competition for a 'safe' fishing vessel design (perhaps for each type of fishery).

5.2 DEFRA – UK Department for Environment, Food and Rural Affairs and MCA:

Further to recommendation iv given in Section 3.2:

xvi. DEFRA is strongly recommended to give further, more detailed consideration of the alternatives to length as regulatory break-points, given the very powerful effect such break-points can have on the safety of fishing vessels.

5.3 SEAFISH (UK):

In addition to recommendations vi and vii given in Section 3.4:

xvii. In conjunction with MCA, SEAFISH is recommended to actively promote participation in the planned trial of the Wolfson Freeboard Mark, and to illustrate its use during their stability awareness training courses.

xviii. In order to identify design improvements SEAFISH is recommended to conduct a review of deck handling gear and winches relative to accidents where control was lost when snagging on the bottom or when unexpected loads are encountered, and consequent capsize. This should include consideration of possible means of reducing the heeling effect of fishing gear such as by improving the location of net drums and means of lowering trawl gear/wires to deck level in an emergency.

xix. SEAFISH is recommended to include training on "do's and don’ts" when snagging of gear occurs. The seamanship advice of peers in the industry should be sought and promulgated.

5.4 MMO – Marine Management Organisation:

xx. When considering grant aid to fishermen to change their fishing methods, as such modifications can easily render the vessel unsafe, the MMO is strongly recommended to make such grants conditional on a full stability analysis, showing compliance with the current requirements for vessels over 15m in length.

5.5 EC - European Commission:

xxi. The European Commission is strongly encouraged, in relation to fishing vessels of less than 15m length, to collate accident data, including root cause, and require the investigation of accidents. This sector represents a large proportion of the fishing fleet and is associated with substantial numbers of fatalities and vessel losses, and yet is currently outside the remit of EMSA.