

REPLIES OF IRISH MARITIME LAW ASSOCIATION

CMI INTERNATIONAL WORKING GROUP ON UNMANNED SHIPS - POSITION PAPER AND QUESTIONNAIRE

REQUEST TO RESPOND TO QUESTIONNAIRE BY 31 MAY 2017

We are enclosing the Position Paper and Questionnaire prepared by the CMI International Working Group on Unmanned Ships.

"Unmanned Ships" are becoming a reality, and it is anticipated that the first unmanned cargo ship may be launched as soon as 2018.

As is clear from the Position Paper, there is much to be done to prepare the legal framework for the safe operation of such ships (if ships they are), and this has now been recognised by the IMO Maritime Safety Committee which has included on the agenda for its June meeting a proposal by a number of countries that IMO should commence a scoping exercise to establish the extent of the need to amend the regulatory framework to enable a safe, secure and environmental operation of "unmanned ships" within the existing IMO instruments.

The IWG has been invited to attend this meeting and we anticipate participating in the exercise. It will be of considerable benefit if National Associations are able to respond to the questionnaire attached as soon as possible – preferably before the end of May – so that responses can be used to outline for the MSC some of the issues arising.

We very much hope that you will be able to respond to the Questionnaire by the deadline of 31 May 2017.

With many thanks,

Tom Birch Reynardson
Chair of CMI International Working Group on Unmanned Ships

CMI QUESTIONNAIRE ON UNMANNED SHIPS

INTRODUCTION

Unmanned ships are those which are capable of controlled movement on the water in the absence of any onboard crew. Control is performed in essentially two ways. It can be performed by remote-control, whereby a shore-based remote controller uses a computer and joystick to control the unmanned ship's movement and signalling using radio and satellite communications. In doing so the controller is aided by the streaming of the ship's vicinity effected by cameras and aural sensors affixed to the ship's hull / chassis. There is a small delay in the transmission of information to and from the ship, like with all forms of satellite communication. On the other hand, the ship may be "controlled" autonomously. This involves the ship being pre-programmed before deployment, and, thereafter, performs a predetermined nautical course without any human interaction. This control, as well as a degree of collision avoidance capability, is affected with the use of highly sophisticated software technology, control algorithms and sonar radar.

Whereas unmanned ships in operation today are small in size (<20m in length) and essentially used for marine scientific research and military purposes their number has risen exponentially in recent years and so has the number of research projects aimed at developing the first unmanned merchant ships of 500 grt or more.

In order to ensure that the required regulations are in place once these ships become a technical reality, CM/ Executive Council has set up an International Working Group (JWG) to study the current international legal framework and consider what amendments and/or adoptions and/or clarifications may be required in relation to unmanned ships.

In answering the questions below please assume that they are made in relation to an unmanned ship of 500 grt or more.

1. National law

- 1.1. Would a "cargo ship" in excess of 500 grt, without a master or crew onboard , which is either
- 1.1.1. remotely by radio communication?
 - 1.1.2 controlled autonomously by, inter alia, a computerised collision avoidance system, without any human supervision
- constitute a "ship" under your national merchant shipping law?

Merchant shipping in Ireland are regulated by the Merchant Shipping Acts 1894 to 2010. Vessels are defined as including any ship or boat or any other description of vessel used in navigation. Ship includes every description of vessel used in navigation not propelled by oars. The answer to question 1.1 is YES.

- 1.2 Would an unmanned "ship" face difficulty under your national law in registering as such on account of its unmanned orientation?

No, the only practical requirement to register a ship is to have her Tonnage Certificate and there should be no difficulty in having a ship measured even if she is unmanned.

- 1.3 Under your national law, is there a mechanism through which, e.g. a Government Secretary may declare a "structure" to be a "ship" when otherwise it would not constitute such under the ordinary rules?

No.

14. Under your national merchant shipping law, could either of the following constitute the unmanned ship's "master"

14.1. chief on-shore remote-controller. **No.**

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142 The chief pre-programmer of an autonomous ship. **No.**

143 Another 'designated' person who is responsible on paper, but is not immediately involved with the operation of the ship. **No.**

15. Could other remote-controllers constitute the "crew" for the purposes of your national merchant shipping laws? **No. Seaman is defined as including every person (except masters and pilots) employed or engaged in any capacity on board any ship. Words put into italics for emphasis.**

2. United Nations Convention on the Law of the Sea, 1982 (UNCLOS)

21. Do you foresee any problems in treating unmanned ships as "vessels" or "ships" under the Law of the Sea in your jurisdiction (i.e. that such ships would be subject to the same rights and duties such as freedom of navigation, rights of passage, rights of coastal and port states to intervene and duties of flag states) in the same way as corresponding manned ships are treated? **Ireland has ratified the Law of the Sea on the basis that its provisions have been implemented by domestic legislation. The Law of the Sea has no direct effect in Ireland.**

22 Paragraphs (3) and (4) of UNCLOS Article 94 include a number of obligations on flag states with respect to the manning of such ships. Do you think that it is possible to resolve potential inconsistencies between these provisions and the operation of unmanned ships without a crew on board through measures at IMO (under paragraph (5) of the same Article) or do you think other measures are necessary to ensure consistency with UNCLOS. If so, what measures? **It would be the view of the IMLA that the provisions of Article 94 would have to be expressly written into Irish domestic law in provisions expressly referring to unmanned ships.**

3. IMO Conventions – The International Convention for the Safety of Life at Sea (SOLAS) 1974 (as amended)

3.1. Does your national law implementing the safe manning requirement in Regulation 14 of Chapter V of SOLAS require at least a small number of on board personnel or does the relevant authority have the discretion to allow unmanned operation if satisfied as to its safety? **The Marine Survey Office has the power to grant exemptions but there is no precedent for the exercise of any such discretion to unmanned ships.**

3.2. Regulation 15 of SOLAS Chapter V concerns principles relating to bridge design. It requires decisions on bridge design to be taken with the aim of, inter alia, "facilitating the tasks to be performed by the bridge team and the pilot in making full appraisal of the situation...". In the context of a remote controlled unmanned ship, could this requirement be satisfied by an equivalent shore-based facility with a visual and aural stream of the ship's vicinity? **Not in Irish law.**

3.3. As interpreted under national law, could an unmanned ship, failing to proceed with all speed to the assistance of persons in distress at sea as required by Regulation 33 of SOLAS Chapter V, successfully invoke the lack of an on-board crew as the reason for omitting to do so (provided that the ship undertook other measures such as relaying distress signals etc.)? **No.**

4. The International Regulations for Preventing of Collisions at Sea, 1972 (COLREGS)

4.1. Would the operation of an unmanned "ship" without any on board personnel, per se, be contrary to the duty / principle of "good seamanship" under the COLREGS, as

interpreted nationally, regardless of the safety credentials of the remote control system? Questions of "good seamanship" are treated by the Irish courts as questions of fact.

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- 4.2. Would the *autonomous* operation of a "ship", without any on-board personnel *or any human supervision*, be contrary to the duty / principle of "good seamanship", under the COLREGS, as interpreted nationally, regardless of the safety credentials of the autonomous control system? **As above, questions of good seamanship are questions of fact.**
- 4.3. As interpreted under national law, could the COLREG Rule 5 requirement to maintain a "proper lookout" be satisfied by camera and aural censoring equipment fixed to the ship transmitting the ship's vicinity to those "navigating" the ship from the shore? **No, rule 5 expressly requires that every vessel shall at all times maintain a proper lookout by sight**
- 4.4. Would a ship navigating without an on-board crew constitute a "vessel not under command" for the purposes of COLREG Rule 3(f), read together with COLREG Rule 18, as interpreted under your national law? **Sending a ship to sea unmanned would not constitute an exceptional circumstance within the meaning of Rule 3 (f), but it would certainly not be an exceptional circumstances when many such ships are sent to sea or when two such ships meet at sea.**
5. The International Convention on Standards of Training Certification and Watchkeeping, 1978 (STCW Convention)
- 5.1. The STCW Convention purports to apply to "seafarers serving on board seagoing ships". Would it therefore find no application to a remotely controlled unmanned ship? **Corret.**
- 5.2. As interpreted under national law, can the STCW requirement that the watchkeeping officers are physically present on the bridge and engine room control room according to Part 4 of Section A-VIII/2 be satisfied where the ship is remotely controlled? Is the situation different with respect to ships with a significantly reduced manning (bearing in mind that the scope of the convention only applies to seafarers on board seagoing ships)? **No.**
6. Liability
- 6.1. Suppose a "ship" was navigating autonomously i.e. through an entirely computerised navigation / collision avoidance system and the system malfunctions and this malfunction is the sole cause of collision damage – broadly, how might liability be apportioned between shipowner and the manufacturers of the autonomous system under your national law? **The ship-owner would be primarily liable for the damage his ship has caused. He might be able to pass this liability on to the manufacturers under the terms of the contract between them. In all cases, injured persons would have a direct cause of action against the manufacturers also.**
- 6.2. Arts. 3 and 4 of the 1910 Collision Convention provide for liability in cases of fault. As interpreted under your national law, does the fact that the non-liability situations listed in Art. 2 are not conversely linked to no-fault, leave room for the introduction of a no-fault (i.e. strict) liability (for e.g. unmanned ships) at a national level? **The Collision Convention 1910 has not direct effect in Ireland, it applies through the provisions of the Maritime Convention Act 1911 as amended by the Civil Liability Act 1961. In general liability in Ireland is based on fault. However, breach of a statutory provision may preclude a defence of contributory negligence.**

