

MARITIME SAFETY COMMITTEE
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Agenda item 20

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WORK PROGRAMME

Maritime Autonomous Surface Ships Proposal for a regulatory scoping exercise

Comments on MSC 98/20/2

Submitted by the International Transport Workers' Federation (ITF)

SUMMARY

Executive summary: This document provides comments on MSC 98/20/2, Maritime Autonomous Surface Ships and proposes expansion of the outputs to permit a broader examination of the issues

Strategic direction: 5.2 and 5.4

High-level action: 5.2.1, 5.2.2, 5.2.4 and 5.4.1

Output: No related provisions

Action to be taken: Paragraph 12

Related documents: MSC 95/INF.20; resolution A.947(23) and LEG/MISC.8

General

1 This document is submitted in accordance with the provisions of paragraph 6.12.5 of the document on the *Organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies* (MSC-MEPC.1/Circ.5). This document comments on MSC 98/20/2, Maritime Autonomous Surface Ships, proposal for a regulatory scoping exercise.

Introduction

2 It is acknowledged that emerging technology and autonomous systems need to be managed and controlled to govern the pace and scope of their development to achieve an appropriate balance between automation, the human element and the larger needs of society. The challenge for regulators is to ensure that a holistic approach takes into account all aspects of technology driven change and that the benefits clearly outweigh all of its risks and negative disruptive aspects.

Discussion

3 It should be recognized that the use of technology and autonomous systems in shipping is already a reality with onboard autonomous information systems coupled with Integrated Navigation Systems (INS) and Integrated Bridge Systems (IBS) providing state-of-the-art decision support to masters, and navigation and engineering officers on the latest modern ships. What is being proposed is scoping the current regulatory framework for needed revisions to shift the management and control of ship to a remote shore-based operator via a satellite-based communication link on unmanned ships on international voyages.

4 The issue is also larger than just unmanned ships. Autonomous remotely controlled ships could be partially manned with crew or personnel that do not include a master or qualified navigation and engineering watch officers as all decisions and control are with a shore-based operator. Such ships present many of the same issues as unmanned ships and should be included in any scoping exercise.

5 The scoping and possible revision of regulations should not take place in isolation from their potential consequences. The scoping of regulations to accommodate remotely controlled or unmanned ships should also scope the possible consequences of any revision on the safety of shipping from a technical and human element perspective. As well as the legal implications for established general maritime law, and the possible conflicts with other international documents, such as UNCLOS.

6 The method of work of the Maritime Safety Committee requires any proposed Work Plan for an output to demonstrate that the human element has been sufficiently addressed. Resolution A.947(23), *Human Element Vision, Principles and Goals for the Organization*, defines the human element as "a complex multi-dimensional issue that affects maritime safety, security and marine environmental protection. It involves the entire spectrum of human activities performed by ships' crews, shore-based management, regulatory bodies, recognized organizations,.....". The proposed Work Plan is notably lacking in any required consideration of the human element in its outputs.

7 The proposed outputs are narrowly focused on only the needed regulatory revisions to allow unmanned ships to engage in international voyages. This is based on acceptance of an unverified assumption that unmanned ships are equally as safe and reliable as manned ships. That assumption needs to be examined in the scoping exercise and include reliability, robustness, resiliency and redundancy of the underlying technical, communications, software and engineering systems.

8 It is anticipated that autonomous ships in international trades will evolve progressively in stages with different levels and mix of autonomous systems. Each stage may present different technical, legal, regulatory and operational issues. The proposed scoping exercise to merely identify which IMO documents need to be revised to permit the operation of unmanned ships underestimates the complexity of the issues that need to be addressed.

9 There is a need to address the problem: a lack of a common definition of an autonomous ship. To reach a consensus on appropriate regulation there is a need for clarity as to what ships and level of autonomy is being discussed.

10 An IMO regulatory framework for the operation of unmanned ships on international voyages must be in conformity and consistent with the obligations of flag States under IMO treaty regimes as well as UNCLOS. The extensive implications of UNCLOS on the work of the IMO has been studied by the IMO Secretariat and their report is contained in LEG/MISC.8.

A scoping exercise should include a review of IMO treaty regimes and UNCLOS provisions and their implications for unmanned ships by the IMO Legal Affairs Office.

Proposal

- 11 The proposed Work Plan should encompass and include:
- .1 a precise definition of what is meant by an "autonomous ship" to create clarity as to what types of maritime vehicles or ships and levels of autonomy are being addressed in regulations;
 - .2 the IMO Legal Affairs Office providing a report to the IMO Legal Committee on the implications of IMO treaty regimes and UNCLOS for unmanned ships which the IMO Legal Committee should discuss and provide further guidance;
 - .3 the output of the Work Plan should cover all autonomous ships, partially manned or unmanned, that depend upon remote shore-based operators for control of a ship;
 - .4 the output of the Work Plan should include scoping of the full range of human element factors within different levels of autonomy for both shipboard and shore-based personnel;
 - .5 the output of the Work Plan should include scoping of the reliability, robustness, resiliency and redundancy of the underlying technical, communications, software and engineering systems; and
 - .6 consideration of conducting a Formal Safety Assessment or gap analysis be made as to the safety, technical, human element and operational aspects of autonomous remotely controlled or unmanned ships.

Action requested of the Committee

- 12 The Committee is requested to consider the comments above and, in particular, proposals in paragraph 11, and take action, as appropriate.
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