

MARITIME SAFETY COMMITTEE  
99th session  
Agenda item 5

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**REGULATORY SCOPING EXERCISE FOR THE USE OF  
MARITIME AUTONOMOUS SURFACE SHIPS (MASS)**

**General comments on a way forward**

**Submitted by ITF**

**SUMMARY**

*Executive summary:* This document provides general comments on the regulatory scoping exercise for the use of Maritime Autonomous Surface Ships, and suggests a way forward based on a review of the related documents

*Strategic direction, if applicable:* 2

*Output:* 2.7

*Action to be taken:* Paragraph 13

*Related documents:* MSC 99/5, MSC 99/5/1, MSC 99/5/2, MSC 99/5/3, MSC 99/5/5, MSC 99/5/7, MSC 99/5/8, MSC 99/5/9, MSC 99/INF.3, MSC 99/INF.5 and MSC 99/INF.8

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).

**Introduction**

2 In order to facilitate the scoping process, Australia and co-sponsors have proposed, in document MSC 99/5/5, a plan of approach for the regulatory scoping exercise. In addition, a number of other members and observers have submitted useful comments defining the issues and suggesting matters that need consideration going forward. In document MSC 99/5, the Secretariat has provided a very detailed and useful guide on a process to ensure that a comprehensive and coordinated analysis of the issues raised by autonomous or semi-autonomous ships is undertaken across all IMO committees and divisions within the Secretariat.

## Discussion

3 In document MSC 99/5/5, the co-sponsors have noted many of the concerns that they, the ITF and other commenters have in common. Autonomous ships, however they are defined, raise many complex and difficult issues that affect not only this Committee and its sub-committees, but the entire Organization. It is recognized by all that the issues will impact safety, security, the ship-shore interface and interactions with ports, pilotage, responses to incidents and the marine environment.

4 A major concern is that time constraints could result in a scoping exercise that fails to identify and address all of the various relevant issues. There is a critical need for a comprehensive analysis of the issues and the development of a regulatory framework that ensures highly automated ships are capable of at least a level of safety comparable to conventional ships, and that any future progression to unmanned ships is an evolutionary process effectively managed through regulation to ensure safety and avoid serious disruptions to the industry, including its impact on the human element factors.

5 Noting the views of knowledgeable maritime professionals, other members and observer commentators and the shipowners whose investments in technology will shape the future, unmanned ships in international shipping are in the distant future for numerous economic and technical reasons. It is anticipated that, in the foreseeable future, international shipping will focus on gaining efficiency through information and communication technologies, digitalization and automation to support onboard human decisions and improve performance both on the bridge and in the engine-room.

6 The way forward is best approached as a phased development, as proposed by Japan in document MSC 99/5/9, with a phase in of technology and its practical applications in commercial usage in the actual international operating environment. The first phase would be the development of semi-autonomous systems to support and supplement shipboard functions in conjunction with onboard human supervision and intervention. It would determine what functions were capable of being performed routinely with little human intervention and what functions required higher levels of human involvement. There would be a natural evolutionary progression to higher levels of semi-autonomous systems where their use was proven safe and economically justified. The regulatory framework would be user experienced and demand driven, rather than technology driven by suppliers.

7 At the same time, sensor technology with data exchange technology and communication links to permit shore-based monitoring of shipboard functions could be further developed to permit improved levels of management of shipboard functions, performance and efficiency with shore-based support. The reliability, safety and economic benefits in actual commercial usage would determine the future demand for remote monitoring and control, and the possibility of a progression to unmanned ships. Again, the regulatory framework would be user experienced and demand-driven, rather than technology-driven.

8 In a later phase, ships may be capable of operating in dual mode relying on semi-autonomous systems under routine circumstances with higher levels of onboard human involvement under non-routine circumstances such as high traffic, congested waters, rough weather, equipment failure, or unforeseen circumstances.

9 User experience would determine the point at which it may be economically feasible and technically justified to phase in shore-based rather than onboard human involvement for higher level decisions. The reliability, safety and economic benefits in actual commercial usage would determine the future role of remote monitoring and control, and the potential for a progression to unmanned ships.

10 A road map outlining the phases needed for a progression to unmanned ships could be developed as a useful guide to a way forward. However, the timelines should be set based on attaining specific goals rather than specific dates.

11 At this time, the focus should be on identifying functional requirements for various operating scenarios and a regulatory framework for ensuring that the semi-autonomous systems managing those functions are safe and reliable. It could have a short-term significant impact on ship safety and efficiency.

12 Having fully autonomous unmanned ships as the primary goal of a regulatory framework at this time, is an unrealistic time-consuming distraction from what could be a productive advancement in safety and efficiency through technology.

**Action requested of the Committee**

13 The Committee is invited to note the information provided.

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