

MARITIME SAFETY COMMITTEE  
98th session  
Agenda item 22

MSC 98/INF.13  
4 April 2017  
ENGLISH ONLY

**ANY OTHER BUSINESS**

**A pre-analysis on autonomous ships**

**Submitted by Denmark**

**SUMMARY**

*Executive summary:* This document contains a pre-investigational report on autonomous ships – Maritime Autonomous Surface Ships (MASS). The purpose of the report is to describe the potentials of autonomous ships, on the basis of international activities of direct relevance to the investigation. The report briefly summarizes how to define various levels of autonomy

*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 7

*Related documents:* MSC 98/20/2 and MSC 98/22/7

**Introduction**

1 One of the IMO's objectives according to the strategic plan is to "provide an effective and efficient response to shipping trends, developments and incidents and, in so doing, stave off regional or unilateral tendencies that conflict with the Organization's regulatory framework". To achieve this, the IMO will need to proactively identify, analyze and address emerging issues, thus maintaining its role as the global regulator of international shipping.

2 In order to support the Committee in this task, Denmark hereby provides a report on the issue for the perusal of the members of the Committee.

3 The Danish Maritime Authority has requested the assistance of the Technical University of Denmark (DTU) for connecting and planning a number of tasks to be included in coming efforts to shed light on the importance of unmanned ships. The Danish Maritime Authority considers technological developments to be at the core of these projects and has

asked the DTU to assist with the identification of research and innovation activities that would be important to acquire this insight.

4 This report is a pre-investigation, the purpose of which is to describe the potentials of autonomous ships, on the basis of international activities of direct relevance to the investigation. It briefly summarizes how to define various levels of autonomy. From the lowest level with completely manual operation, where the navigating officer gets his information from electronic charts and where he gets information about his own position, course and speed as well as an overview from radar that also presents other ships' course and speed; over various levels of decision-support, where automatics take care of still more tasks; to levels of actual autonomy.

5 This part is based on the experience and knowledge gained from so-called self-propelled cars and un-manned aircraft and refers to ongoing reflections from similar ship projects. Eventually, the report presents proposals for specific research and innovation projects.

6 The report has been financed by The Danish Maritime Fund and made available for download online from:

[www.dma.dk/documents/publikationer/autonome%20skibe\\_dtu\\_rapport\\_uk.pdf](http://www.dma.dk/documents/publikationer/autonome%20skibe_dtu_rapport_uk.pdf).

#### **Action requested of the Committee**

7 The Committee is invited to note the information provided in the report.

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