Input paper: [[1]](#footnote-1) PAP-6.1.5.1

Input paper for the following Committee(s): check as appropriate Purpose of paper:

**□** ARM **□** ENG X PAP **X** Input

**□** ENAV **□** VTS **□** Information

Agenda item [[2]](#footnote-2)

Task Number 2

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Proposal of IALA Workshop on MASS

# Summary

This document proposes IALA Workshop on Maritime Autonomous Surface Ships (MASS) to all IALA technical committees and PAP.

## Related documents

Related documents include:

* PAP-6.1.5.1.1 – Workshop proposal

# Background

Recent development of ICT enables maritime community to develop or introduce a highly automated or autonomous ship including unmanned vessel in near future. Responding to this development, IMO Maritime Safety Committee (MSC) initiated the regulatory scoping exercise (RSE) from its 99th session and is expected to complete RSE at its 102nd session in May 2020. In parallel with the IMO movement, there are various MASS trials conducted or planned worldwide.

# Discussion

IMO developed the preliminary definition of MASS for the purpose of RSE as follows:

***Maritime Autonomous Surface Ship (MASS)*** *is defined as a ship which, to a varying degree, can operate independent of human interaction.*

IMO also organized the degree of autonomy as follows:

*.1* ***Ship with automated processes and decision support:*** *Seafarers are on board to operate and control shipboard systems and functions. Some operations may be automated.*

*.2* ***Remotely controlled ship with seafarers on board:*** *The ship is controlled and operated from another location, but seafarers are on board.*

*.3* ***Remotely controlled ship without seafarers on board:*** *The ship is controlled and operated from another location. There are no seafarers on board.*

*.4* ***Fully autonomous ship:*** *The operating system of the ship is able to make decisions and determine actions by itself.*

MASS includes not only unmanned autonomous ship but also remote controlled ship and highly automated manned ship and has many operational patterns. Such MASS should be operated safely in sea area where aids to navigation services are provided. However different from other ships, many MASS use sensors such as radar, AIS, camera, LIDAR, microphone, etc. for situation awareness and are less relied on or completely without human sight and hearing. Considering this MASS feature, many questions arise whether current aids to navigation services can accommodate to the emergence of MASS in future. For example,

* Can MASS see and recognize visual aid?
* Can MASS hear and recognize fog signal?
* Can VTS operator communicate with MASS?
* How does e-navigation apply to MASS?

Therefore aids to navigation service and/or VTS provider needs to correctly understand MASS, to develop its policies and to identify technical challenges and IALA as the international authority of whole marine aids to navigation services including VTS should make its position on MASS. The proposed workshop will provide a place for the discussion and development of the IALA position on MASS by all IALA technical committees.

# Action requested of the Committee

The IALA technical committees and PAP are requested to consider the proposal and decide as appropriate.

1. Input document number, to be assigned by the Committee Secretary [↑](#footnote-ref-1)
2. Leave open if uncertain [↑](#footnote-ref-2)