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

**□** ARM **□** ENG **□** PAP **X** Input

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

Agenda item [[2]](#footnote-2) 8.2

Technical Domain / Task Number 2 1.2.5

Author(s) / Submitter(s) Intersessional Group 1.2.5

# implications of mass from a vts perspective

# background

The Committee commenced Task 1.2.5 – *Develop guidance on the Implications of Maritime Autonomous Surface Ships (MASS) from a VTS Perspective* at VTS50. Key elements of the task include:

* **Discussion Paper** - Preparing a Discussion Paper to assist the Committee achieve a common understanding of MASS and its implications on the provision of VTS, focussing on:
  + The ‘operational requirements’ for managing ship traffic and the interaction between VTS, ships (both conventional and autonomous), allied services and RCCs through mix of traditional VHF voice, digital communications, and automated data exchange; and
  + Clearly and concisely identifying:
    - Trends and opportunities presented by MASS.
    - Issues / challenges / expectations for the management of ship traffic in a VTS area.
    - Options, policies, and strategies for VTS to embrace / influence MASS.
    - Implications for the regulatory and legal framework for VTS.
    - Implications for IALA Standards relating to VTS.

The Discussion Paper is seen as pivotal to gaining a common understanding of the implications of MASS from a VTS perspective and provide the foundation for preparing the guidance.

* **Guidance** – Preparing guidance to assist VTS providers contribute to the safety and efficiency of vessel movements in the VTS area with the advent of MASS.

At VTS51 and VTS52 the Committee concluded that work on Guidance document be paused, pending preparation of the Discussion Paper, and recognizing:

* + The road map for the development of a goal-based instrument for MASS (IMO Maritime Safety Committee (MSC 106).
  + The consideration of ‘Case Studies’.
  + Existing guidance available for MASS trials such as:
    - The IMO Interim Guidelines for MASS Trials (MSC.1/Circ.1604).
    - EU Operational Guidelines for Safe, Secure and Sustainable Trials of MASS.
    - MASS UK Industry Conduct Principles and Code of Practice.

Further background is available at the Task Register (*VTS52-13.2.0.2 WP VTS Task Register 2018-2022)* and the Guiding Principles (*VTS52-13.2.1.3 TG-1.2.5 Guiding Principles).*

# Discussion

At VTS52 the Task Group was requested to prepare the following for the Committee’s consideration at VTS53, with a view for forwarding to Council:

* An updated Discussion Document, and
* A draft high-level brief on the implications of MASS from a VTS perspective, focussing on:
  + The operational considerations for managing ship traffic and the interaction between VTS, ships (both conventional and autonomous), allied services and RCCs through mix of traditional VHF voice, digital communications, and automated data exchange.
  + How to communicate these to stakeholders and engage in the development of the road map being considered by MSC for the development of a goal-based instrument for MASS.
  + Opportunities for engaging in the development of the road map being considered by MSC for the development of a goal-based instrument for MASS.

1. **Discussion Paper** – No amendments have been made to the document tabled at VTS52. The Task Group intends to review / update the document at VTS53, taking into consideration the intersessional work and the outcomes from MSC106, particularly the road map for the development of a goal-based instrument for MASS.

Committee members are encouraged to provide comment on the Discussion Document.

1. **Draft high-level brief** – A first draft of the proposed brief has been prepared for the Committees consideration and forwarding to Council (Annex A)

The Task Group intends to review / update the draft brief at VTS53 and Committee members are encouraged to provide comment on the draft.

# Action requested of the Committee

The Committee is requested to note:

* The Discussion Paper - VTS52-13.2.1.4
* The draft high-level brief (Annex A)

11 - TECHNICAL ACTIVITIES

*11.4 – VTS Committee*

11.X.X.X Implications of MASS from a VTS Perspective

Note by the VTS Committee

# INTRODUCTION

The advent of MASS will have significant implications for how VTS contributes to the safety of life at sea, safety and efficiency of navigation and the protection of the environment within the VTS area by mitigating the development of unsafe situations.

This includes how VTS will manage ship traffic and the interaction between VTS, ships (both conventional and autonomous), allied services and RCCs through mix of traditional VHF voice, digital communications, and automated data exchange to mitigate the development of unsafe situations by:

* Providing timely and relevant information on factors that may influence the ship's movements and assist onboard decision-making.
* Monitoring and managing ship traffic.
* Responding to developing unsafe situations.

The Committee commenced *Task 1.2.5 – Develop guidance on the Implications of Maritime Autonomous Surface Ships (MASS) from a VTS Perspective* at VTS50. A key component in undertaking this task has been the preparation of a Discussion Paper to assist the Committee achieve a common understanding of MASS and its implications on the provision of VTS

# DISCUSSION

The Discussion Paper is seen as pivotal to gaining a common understanding of the implications of MASS from a VTS perspective and provide the foundation for preparing guidance to assist VTS providers contribute to the safety and efficiency of vessel movements in the VTS area with the advent of MASS. The document:

* Focusses on the ‘operational requirements’ for managing ship traffic and the interaction between VTS, ships (both conventional and autonomous), allied services and RCCs through mix of traditional VHF voice, digital communications, and automated data exchange; and
* Aims to clearly and concisely identify:
  + Trends and opportunities presented by MASS.
  + Issues / challenges / expectations for the management of ship traffic in a VTS area.
  + Options, policies, and strategies for VTS to embrace / influence MASS.
  + Implications for the regulatory and legal framework for VTS.
  + Implications for IALA Standards relating to VTS.

The Discussion Paper has been prepared based on the following assumptions:

* MASS will be required to participate in VTS. That is, subject to the same:
* Regulatory reporting requirements, and
* Obligations with regards to the issue of advice, warnings and instructions as deemed necessary.
* MASS will be subject to COLREG, as amended.
* MASS will be required to broadcast status as to who/what is in command at any time (Master/on-board DST, Remote Control Center).

The paper focuses on key operational considerations for managing ship traffic the paper, including:

* What’s required to manage ship traffic and the interactions between conventional and autonomous ships, VTS and RCC’s, such as:
  + The role of human operators in transitioning from the traditional means of vessel navigation, management of ship traffic and communications, to more highly automated means of voyage planning, digital data exchange, and MASS.
  + Ensuring the intent of messages conveyed to actors, including allied services, is the same, irrespective of the technology used to deliver it (e.g., voice/digital/automated data exchange*)*
    - This includes the provision of information and issuing warning, advice and instruction to achieve the purpose of VTS.
  + How VTS receives, assimilates and processes data and information from MASS.
  + How does VTS interact with MASS and the entity in control of the ship (RCC/automated systems), including managing interaction with multiple RCC’s.
  + How VTS responds to the development of unsafe situations (conventional ships and MASS).
  + Knowing the degree of MASS for individual ships.
  + Emerging situations where a ship needs to be contained / controlled to mitigate incident effects (national governments, VTS, other agencies).
* Standards for digital communications, both autonomous and conventional ships, including how:
  + ‘Ships’ provide reports and information required by a VTS.
  + VTS provide ‘ships’ with information on factors that may influence ship movements and assist ‘onboard decision-making’.
* The role of VTS and interaction with RCC’s and autonomous ships.

Recognizing that much of the advent of MASS is within the remit of other international organizations, particularly the IMO, there is a rapidly emerging need for the VTS community and IALA to engage in the change process occurring and the road map for the development of a goal-based instrument for MASS (IMO Maritime Safety Committee) to communicate the functional / operation requirements to manage ship traffic within the VTS following the advent of MASS. In this regard the Discussion Paper also explores:

* Paragraph on ‘How to communicate these to stakeholders and engage in the development of the road map being considered by MSC for the development of a goal-based instrument for MASS’
  + - * to be prepared at VTS53.
* Paragraph on ‘Opportunities for engaging in the development of the road map being considered by MSC for the development of a goal-based instrument for MASS’
  + - * to be prepared at VTS53.

# THE COUNCIL IS REQUESTED TO

NOTE: the development of the Discussion Paper – Implications of MASS from a VTS Perspective and, as appropriate, bring it to the attention of their competent authorities and VTS providers to assist the Committee engage with stakeholders and strategically embrace emerging practices, technologies and trends to ensure VTS practices in planning for the future.

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