Input paper: [[1]](#footnote-1) VTS52-9.2.1

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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) 9

Technical Domain / Task Number 2 1.1.1

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

# Implications of MASS from a VTS Perspective

# background

As scheduled in the IALA’s 2018 - 2022 Work Programme, work commenced on *Task 1.2.5 -* *Develop a Guideline on the Implications of Maritime Autonomous Surface Ships from a VTS Perspective* at VTS50 by:

* Reviewing / updating the Task Register, noting the contents have not been reviewed since the 2018 - 2022 Committee Task Plan was approved by Council in December 2017.
* Preparing ‘Guiding Principles’ to assist drafting the guidance. These were prepared based on assumptions that:
	+ MASS be required to participate in VTS in the same manner as conventional ships. That is, the same regulatory reporting requirements and obligations with regards to the issue of advice, warnings and instructions as deemed necessary.
	+ The Task Group should remain cognizant of, and contribute to, the scoping exercise being progressed by PAP cross-committee Group on the implications of MASS on VTS documents (*PAP41-6.1.5.1 Impact of MASS on Marine AtoN*).

The Guiding principles provide a framework for drafting the guidance in a manner that will assist authorities interact with all ships and contribute to the safety and efficiency of ship movements in the VTS area, recognising:

* + The advent of MASS within VTS areas and their interaction with conventional ships.
	+ The data and information exchange between MASS, conventional ships, VTS and allied services.
	+ The role of VTS in contributing to the safety and efficiency of navigation and the protection of the environment through:
	+ The provision of timely and relevant information on factors that may influence the ship's movements and assist on-board decision making;
	+ The monitoring and management of ship traffic to ensure the safety and efficiency of ship movements; and
	+ Responding to developing unsafe situations.

Work continued at VTS51, with the following outcomes:

* **Case Studies** – The use of case studies was identified as a useful tool in developing the Discussion Paper to assist the Committee achieve a common understanding of MASS and its implications on the provision of VTS.

Particularly, ‘case studies’ provide a mechanism to gain insight into ‘trials’ and test beds’ being conducted, outcomes, lessons learnt, emerging information, implications for VTS, etc.

A draft document was prepared, highlighting possible projects being conducted, or about to commence, in 10 countries was completed and made available on the IALA website - [***https://www.iala-aism.org/technical/mass/***](https://www.iala-aism.org/technical/mass/)

* **Discussion Paper** – A first draft of a discussion paper was prepared to clearly, and concisely, identify:
	+ Trends and opportunities presented by MASS
	+ Issues / challenges 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. Noting the advent of MASS will be ongoing for many years and that this document will be reviewed and updated, as appropriate, following each VTS Committee meeting.
* **Preparation of Guidance** – The Committee was of the view that preparation of guidance material should continue to be paused, noting:
	+ The Regulatory Scoping Exercise completed by the IMO in May 2021 identified far ranging implications to international conventions which need to be worked through. For example:
		- *“ …. a number of high-priority issues, cutting across several instruments, that would need to be addressed at a policy level to determine future work.*
		- *These involve the development of MASS terminology and definitions, including an internationally agreed definition of MASS and clarifying the meaning of the term “master”, “crew” or “responsible person”, particularly in Degrees Three (remotely controlled ship) and Four (fully autonomous ship).”*
		- *“Other key issues include addressing the functional and operational requirements of the remotecontrol station/centre and the possible designation of a remote operator as seafarer”.*
		- *“….. the best way forward to address MASS in the IMO regulatory framework could, preferably, be in a holistic manner through the development of a goal-based MASS instrument.”*
	+ The development of the Discussion paper.
	+ 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 Maritime Autonomous Surface Ships (MASS).
		- MASS UK Industry Conduct Principles and Code of Practice.

# introduction

Participants in the Group included:

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| **Surname** | **First Name** | **Affiliation** |
| Trainor | Neil  | Australian Maritime Safety Authority |
| Guèvremont | Jean | Canadian Coast Guard |
| Wei  | Liu | China Maritime Safety Administration |
| Li | Yuanhang | China Maritime Safety Administration |
| Hansen | Dorte | Defence Command Denmark Naval Staff |
| Kallio | Esa  | Fintraffic Vessel Traffic Services Ltd |
| Martikainen | Tuomas | Transport Infrastructure Agency |
| Sobott | Toni | Transport Infrastructure Agency |
| Aaltonen | Matti | Transport and communications Agency Traficom |
| Talja | Sari | Fintraffic Vessel Traffic Services Ltd |
| Landi | Michele | Italian Coast Guard |
| Noguchi  | Hideki | Japan Coast Guard |
| Drenth  | Martijn | Dutch Pilots' Corporation |
| Martikainen | Tuomas | Transport Infrastructure Agency |
| Metayer | Herve | Directorate for Maritime Affairs |
| Berrevoets | Maarten  | Directorate for Maritime Affairs, Maritime Affairs Department |
| Gutteling | Rob | Port of Rotterdam |
| Van Dorrser | Harmen | Port of Rotterdam |
| Ahmad | Kamal  | Maritime and Port Authority of Singapore |
| Chong | Yew Huat | Maritime and Port Authority of Singapore |
| Carson-Jackson | Jillian | Nautical Institute |
| Rostopshin | Dmitry | Wartsila |
| Matias | Fernando | SASEMAR |
| Eade | Peter | VISSIM |
| Trent | Michael  | Radio Technical Commission for Maritime Services (RTCM) |
| Alverez | Jaime | IALA |

The Group met 4 times following VTS51 via MS Teams.

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| **Meeting** | **Date** |
| TG 1.2.5-01 | 9 December 2021 |
| TG 1.2.5-02 | 25 January 2022 |
| TG 1.2.5-03 | 16 February 2022 |
| TG 1.2.5-04 | 02 March 2022 |

# Discussion

Since VTS51, the TG1.2.5 has focused on reviewing/updating *Section 3.4 –Embracing and Influencing the development of MASS,* as a means, tofacilitate strategically planning for MASS and ensure VTS continues to contribute to 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, noting:

* The proposed preparation of a road map, including scope, steps, and timelines for detailed consideration at MSC 105;
* Endorsement of a new output “Development of a goal-based instrument for maritime autonomous surface ships (MASS)", in the outputs of MSC for the 2022-2023 biennium, with a target completion year of 2025; and
* The VTS Committees view at VTS51 that preparation of guidance material should continue to be paused.

Key changes to *Section 3.4 –Embracing and Influencing the development of MASS*, include:

* **Case Studies** – The ongoing use of ‘Case Studies’ to assist gaining a greater understanding of MASS and its implications by monitoring their development/outcomes and identifying opportunities for involvement/engagement is a key element and the ‘Case Studies’ document has been updated and can be download from - [***https://www.iala-aism.org/technical/mass/***](https://www.iala-aism.org/technical/mass/)
* **Discussion Paper** – The paper has been reviewed and updated to assist the Committee achieve a common understanding of MASS and its implications on the provision of VTS by clearly and concisely identifying:
	+ Trends and opportunities presented by MASS.
	+ Issues / challenges 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 Group was also of the view that the VTS Committee should forward the Discussion Paper to ENAV for their comment/input.

A copy of the Discussion Paper is at *VTS52-9.2.1.1 WP TG.1.2.5 Discussion paper - Implications of MASS from a VTS Perspective*.

* **Position Paper –** The Group is of the view thatpreparation of a concise ‘Position Paper’ to communicate the Committee’s opinion and intentions on key considerations / operational requirements for the management of ship traffic to ensure the safety and efficiency of ship movements by mitigating the development of unsafe situations with a mix of conventional and autonomous ships, VTS and RCCs.

While this will assist the Committee, it may also assist members and IALA to engage with the IMO’s consideration of a mandatory instrument regarding MASS.

Items being considered for a “Position Paper’ include, for example:

* + What’s required to manage ship traffic and the interactions between conventional and autonomous ships, VTS and RCC’s, including any gaps.
	+ Standards for digital communications, both autonomous and conventional ships
	+ The role of VTS and interaction with RCC’s and autonomous ships
* **IALA Policy Documents** - Key documents associated with the *IALA Strategic Vision 2018-2026* should be regularly reviewed by the VTS Committee with a view to recommending updates to reflect the advent of MASS and provide the policy framework to facilitate embracing these developments, including:
	+ *Position on the Development of Marine Aids to Navigation Services 2019*
	+ *Current Drivers and Trends*
* **Fast Tracking Adoption of New/Revised IALA Guidance** - Two new Tasks already adopted:
	+ Ensuring VTS Guidance Documents evolve with the Advent of Mass.
	+ Digital VTS Communications.
* **Greater IALA Engagement with** **MSC and FAL**

Section to be developed.

The Group is also of the view that consideration be given to holding a joint ‘brain storming’ session between the ‘Future VTS’ and ‘MASS’ Task Groups at VTS52 to explore ‘operational requirements’ for VTS to provide ‘ships’ with information on factors that may influence ship movements and assist ‘onboard decision-making’ by digital communications / data exchange and to manage ship traffic.

**Note**: ‘ship’ – refers to conventional and autonomous and ‘onboard decision-making’ refers to the “responsible entity” for the ‘ship’

No amendments are proposed to the following documents from VTS51:

* The contents in Task Register for this task (*VTS51-7.1.2 WP VTS Task Register 2018-2022*)*.*
* The Guiding Principles (*VTS51-9.6.3 WP Guiding Principles - Future VTS*).

# Action requested of the Committee

The Committee is requested to consider:

* The revised Discussion Paper prepared by TG 1.2.5; and
* The development of a “*Position Paper’* to communicate the Committee’s opinion on key considerations for the management of ship traffic to ensure the safety and efficiency of ship movements by mitigating the development of unsafe situations with a mix of conventional and autonomous ships, VTS and RCCs to stakeholders.

The ‘position paper’ could be a ‘stand-alone’ document, like the ‘Case Studies’ document.

* + (Refer to *Section 3.4.3 - Position Paper* as per the enclosure)

ENCLOSUREs:

1. Draft revision of the *Discussion Paper – Implications of MASS from a VTS perspective* (*VTS52-X.X.X.X WP TG.1.2.5 Discussion paper - Implications of MASS from a VTS Perspective*).
1. Input document number, to be assigned by the Committee Secretary [↑](#footnote-ref-1)
2. Leave open if uncertain [↑](#footnote-ref-2)