



MASS UPDATE PART 1 REGULATIONS: CATCHING UP WITH TECHNOLOGY

With Maritime Autonomous Surface Ships' (MASS)-related developments being announced on an almost weekly basis, autonomous vessels cannot now be overlooked. New collaborations, projects and products are being launched at an increasing pace. The race for regulators to, firstly, keep up with the technology involved and, secondly, cautiously consider the introduction of new or amended legal instruments that will integrate that technology, becomes even more challenging.

As discussed in our last MASS bulletins¹, autonomous vessels and underwater vehicles of varying levels of autonomy are now being regularly tested and deployed in several regions around the world.

The International Maritime Organization (**IMO**) has been closely monitoring technological advancements in relation to MASS to ensure its regulatory framework is adequate as well as being aligned with developments in this space.

Regular readers of our bulletins will recall that following completion of the Regulatory Scoping Exercise in 2021, the IMO established the Joint Maritime Safety committee (**MSC**), Legal Committee (**LEG**) and Facilitation Committee (**FAL**) Working Group on MASS (collectively the **JWG**) to address common high-priority safety, legal and facilitation issues and examine how existing IMO instruments could apply to MASS. The purpose of this exercise was to detect potential regulatory gaps.²

Summary of the IMO JWG second session

The JWG held its first session in September 2022. The second session, held at the IMO Headquarters in April 2023, set out the progress made by the JWG on its review of the use and operation of MASS.

During the second session it was agreed, among other things, that:³

- A human master should be responsible for MASS operations, regardless of the mode of operation or degree or level or autonomy;
- Depending on the technology in use, the master may not be required on board but should have the means to intervene when needed;
- Subject to certain conditions, one master may be responsible for more than one MASS at the same time;

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- Subject to certain conditions, several masters may also be responsible for a MASS on a single voyage;
- The roles of MASS crew members did not form part of the discussion, as the definition of the role of the master could influence crew roles and responsibilities;
- With respect to remote operations:
 - A remote operations centre (ROC) will be defined as “A location remote from the MASS that can operate some or all aspects of the functions of the MASS” and a remote operator as “A qualified person who is employed or engaged to operate some or all aspects of the functions of a MASS from a remote operations centre”;
 - Only one ROC must be responsible for a MASS at any one time;
 - Under certain circumstances it might be possible for one or more ROCs to be responsible for a MASS on a single voyage;
 - Subject to certain conditions, one person, e.g. a master, can be responsible at the ROC for more than one MASS at the same time.

Further details can be found on the IMO Website.⁴

The third session of the JWG relating to MASS developments will be held between 11-15 September 2023. During this session the implications, challenges and opportunities of MASS operations for ports and public authorities will be discussed.

“Making Headway on the IMO MASS Code” Symposium

On 30 May 2023, the “Making Headway on the IMO MASS Code” Symposium was held at the IMO Headquarters, co-sponsored by the IMO and the Republic of Korea.⁵ Particular emphasis was placed on recent technological developments relevant to MASS, as well as how the industry could be impacted by their introduction and how ports can digitalise processes to accommodate their needs (an issue that will be discussed at the JWG third session in September 2023 – see above).

Importantly, the JWG has been instructed to resume its work drafting a code to regulate MASS operations (the **Code**). The Code is anticipated to become effective in 2025 and is intended to create a robust regime, prioritising safety concerns to facilitate MASS operations. This is intended to enhance safety of life at sea as well as regulate the carriage of cargo on board and of the vessel itself.⁶

¹ <https://www.hfw.com/Autonomous-vessels-the-momentum-is-building>, <https://www.hfw.com/Autonomous-Ships-The-Future-Is-Now>, <https://www.hfw.com/Autonomous-ships-MASS-for-the-MASSes> and <https://www.hfw.com/Autonomous-Ships-Known-Knowns-and-Known-Unknowns-Jan-2022>

² <https://www.imo.org/en/MediaCentre/HotTopics/Pages/Autonomous-shipping.aspx>

³ [https://www.imo.org/en/MediaCentre/MeetingSummaries/Pages/Joint-MSC-LEG-FAL-Working-Group-on-Maritime-Autonomous-Surface-Ships-\(MASS\)-.aspx](https://www.imo.org/en/MediaCentre/MeetingSummaries/Pages/Joint-MSC-LEG-FAL-Working-Group-on-Maritime-Autonomous-Surface-Ships-(MASS)-.aspx)

⁴ [https://www.imo.org/en/MediaCentre/MeetingSummaries/Pages/Joint-MSC-LEG-FAL-Working-Group-on-Maritime-Autonomous-Surface-Ships-\(MASS\)-.aspx](https://www.imo.org/en/MediaCentre/MeetingSummaries/Pages/Joint-MSC-LEG-FAL-Working-Group-on-Maritime-Autonomous-Surface-Ships-(MASS)-.aspx)

⁵ <https://wwwcdn.imo.org/localresources/en/MediaCentre/Documents/Circular%20Letter%20No.4706%20-.pdf>

⁶ <https://www.imo.org/en/MediaCentre/MeetingSummaries/Pages/Symposium-on-%CA%BAMaking-headway-on-the-IMO-MASS-Code%E2%80%9D.aspx>

It is expected that when the Code initially comes into effect in 2025 it will be non-mandatory and apply only to MASS carrying cargo. The IMO currently intends that the non-mandatory Code will become a mandatory goals-based MASS Code under the International Convention for the Safety of Life at Sea Convention from 1 January 2028.⁷ The IMO plans to extend the Code's application to passenger ships in due course.⁸

The next meeting of the JWC regarding the Code's development will be held in October 2023.⁹

Developments for regulating MASS in the UK

Regular readers of our MASS bulletins will recall that during the first half of 2022, a consortium made up of HFW, Robosys Automation and Houlder worked with the United Kingdom Maritime and Coastguard Agency (MCA) to identify regulatory gaps and barriers to the development of safe, secure, and environmentally friendly autonomous and remotely operated vessels over 24m in length. The consortium team reviewed existing UK primary and secondary legislation and international instruments to identify both regulatory and physical as well as cyber security issues. It also organised a workshop to explore key questions around MASS rendering assistance to persons in distress.

The aim of the project was to explore how operations of these vessels might be addressed in the UK's primary and secondary legislation and the degree to which existing legislation may need to be amended to facilitate MASS operations, and so complements the work that has since been undertaken by the MCA.

Following on from this exercise, the MCA has continued its work on detecting barriers, gaps and challenges in the process of building a regulatory and certification system for MASS to operate in UK waters

which were presented at separate IMO seminars in September 2022 and May 2023.¹⁰

Following a public consultation period in 2022 by the MCA on the new Statutory Instrument (SI) and The Merchant Shipping (Small Workboats and Pilot Boats) Regulations 2023 and its accompanying code, it is anticipated that the 3rd edition of the Code of Practice for the Safety of Small Workboats and Pilot Boats (the **Workboat Code**), will be introduced in Q3 of 2023.

The Workboat Code will apply to UK workboats worldwide and non-UK workboats in UK waters operating out of UK ports and which are less than 24m in load-line length, including remotely operated unmanned vessels (ROUV) operating as workboats when they are in commercial use, as well as certain other types of vessels.

In a similar way to the IMO Code, the Workboat Code will provide a non-mandatory regulatory regime for UK vessels. The general consensus is that this will be more suitable than a rigid legal framework that has been adopted in other merchant shipping legislation.

The Workboat Code includes definitions for ROUVs, ROC and "remote operator". It will outline the general requirements for:

- the relevant ROUVs;
- safety guidance against risk of fire or build-up of bilge water;
- steps to be followed for pre-departure checks;
- methods of responding to distress;
- navigation;
- the remote control of such ROUVs; and
- an outline of safety management systems to ensure the protection of other water users, the ROUV itself and the marine environment.

The MCA has also been considering new definitions for autonomous ships for the UK's primary legislation regulating maritime activities, the Merchant Shipping Act 1995. The MCA is currently steering away from the term "MASS", because the term MASS is not defined internationally, and other terms such as "unmanned surface vehicle" (USV) and "autonomous ship" are still widely used. The proposed definition of "automated ship" as "a ship capable, for some or all of the time, of navigating, or being navigated, otherwise than by a person on board", will also ensure the different levels of autonomy are incorporated.¹¹ The MCA's current view is that ROCs may not have to be based in the UK as long as the UK has sufficient powers of enforcement.¹²

Conclusions

The regulatory authorities and law makers are starting to reduce the gaps in terms of what needs to be dealt with to allow MASS vessels to operate in mainstream shipping. Key to the integration of MASS vessels will be certain definitions such as MASS, ROUV, Remote Operating Centre (ROC), etc. that will have to be dealt with consistently. Issues concerning accountability for the vessels and the people who oversee and operate them will be critical to resolve. Above all, consistency is required among legal instruments to allow the smooth and efficient operation of MASS within the global shipping industry.

Stakeholders in the shipping sector who are interested in remote operations are strongly encouraged to stay up to speed not only with market/business developments but also the regulatory advances. As autonomous shipping accelerates to become a reality, shipping professionals will need to stay ahead of the changes and stay informed.

⁷ <https://www.imo.org/en/MediaCentre/HotTopics/Pages/Autonomous-shipping.aspx#:~:text=The%20aim%20is%20to%20adopt,FAL%20Working%20Group%20on%20MASS and https://www.imo.org/en/About/Events/Pages/IMO-MASS-Code-Symposium.aspx>

⁸ <https://www.imo.org/en/MediaCentre/Pages/WhatsNew-1908.aspx>

⁹ <https://www.imo.org/en/MediaCentre/Pages/WhatsNew-1908.aspx>

¹⁰ <https://www.imo.org/en/OurWork/Safety/Pages/MASS.aspx> and <https://www.imo.org/en/MediaCentre/MeetingSummaries/Pages/Symposium-on-%CA%BAMaking-headway-on-the-IMO-MASS-Code%E2%80%9D-.aspx>

¹¹ For more information, see the MCA's presentation at Day 2 of the September 2022 seminar discussed above by clicking on the following link: https://wwwcdn.imo.org/localresources/en/OurWork/Safety/PublishingImages/Pages/MASS/06_Katrina Kemp_UK Regulating MASS navigating a way forward.pdf

¹² Ibid.

If you are interested in finding out more about our MASS-related work or would like to seek guidance with respect to autonomous shipping matters, please feel free to reach out to our team.



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