



Maritime &  
Coastguard  
Agency

# UK Regulating MASS

## Navigating a way forward

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Sept 2022

# Maritime 2050

*“Regulation lags behind technology”*

*“There is an industry desire for regulatory action to be taken”*

*“We need a regulatory framework”*

## Aims of Maritime 2050

- Strengthen reputation for maritime innovation
- Clean maritime growth
- Grow maritime workforce and transform their diversity, and
- ***Introduce legislative framework for MASS***



# Supporting industry now...



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## MARINE GUIDANCE NOTE

### MGN 664 (M+F) Certification Process for Vessels using Innovative Technology

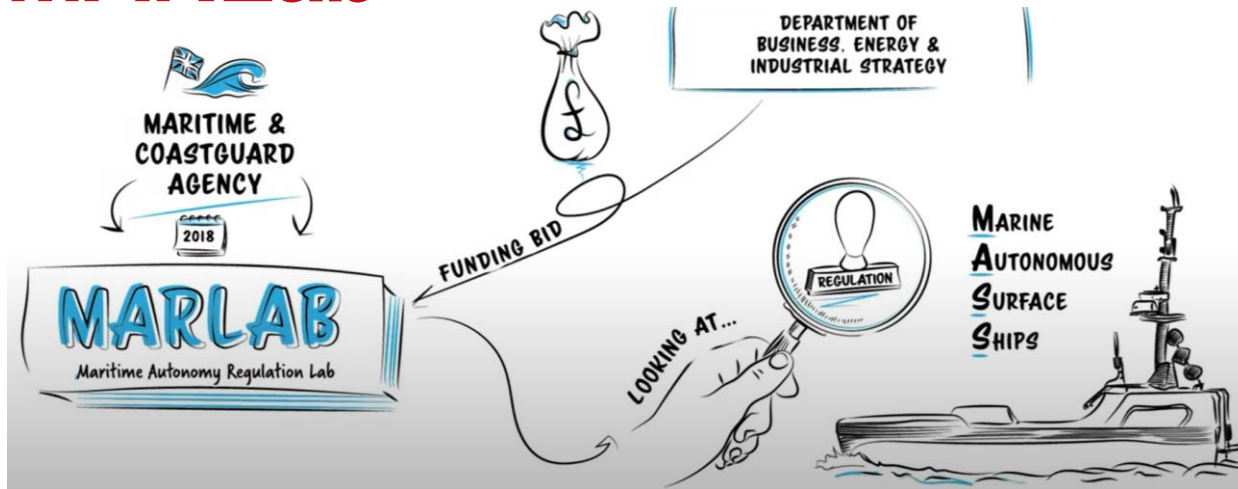
Notice to all port authorities, shipyards, shipowners, vessel designers, operators, surveyors, certifying authorities, recognised organisations and interested stakeholders.

Applicant activities	MCA activities
<b>1 – Early Engagement</b> <i>Refer to IMO MSC.1/Circ.1455 Annex par. 4.5</i>	
<ul style="list-style-type: none"> <li>a) Share concept Design Documents.</li> <li>b) Share high-level Hazard Log*.</li> <li>c) Confirm intention to start the certification.</li> </ul>	<ul style="list-style-type: none"> <li>a) Preview the information and confirm the innovative aspects.</li> <li>b) Discuss other stakeholders' involvement (e.g., local authority, class societies).</li> <li>c) Confirm the Initial Meeting can take place.</li> </ul>
<b>2 – Preliminary Stage of Certification</b> <i>Refer to IMO MSC.1/Circ.1455 Annex par. 4.6 to par. 4.10</i>	
<p><b>Initial Meeting</b></p> <ul style="list-style-type: none"> <li>a) Attend the Initial Meeting, fill the MCA forms and create the Action Register*.</li> </ul> <p><b>Approval Basis (preliminary)</b></p> <ul style="list-style-type: none"> <li>b) Submit the Regulatory Gap Analysis,</li> <li>c) Submit preliminary documentation: Design Documents, Approval Basis, Certification Plan.</li> </ul> <p><b>Activity and Reporting</b></p> <ul style="list-style-type: none"> <li>d) Submit the Terms of Reference (ToR) of the activity.</li> <li>e) Submit the activity report.</li> </ul>	<p><b>Initial Meeting</b></p> <ul style="list-style-type: none"> <li>a) Attend the Initial Meeting.</li> </ul> <p><b>Approval Basis (preliminary)</b></p> <ul style="list-style-type: none"> <li>b) Review the Regulatory Gap Analysis and preliminary documentation.</li> <li>c) Agree the preliminary Approval Basis.</li> </ul> <p><b>Activity and Reporting</b></p> <ul style="list-style-type: none"> <li>d) Preview the ToR and may observe the activity.</li> <li>e) Review the activity report.</li> <li>f) May issue preliminary feedback.</li> </ul>
<b>3 – Final Stage of Certification</b> <i>Refer to IMO MSC.1/Circ.1455 – Annex par. 4.11 to par. 4.18</i>	
<p><b>Approval Basis (final)</b></p> <ul style="list-style-type: none"> <li>a) Submit final documentation: Design Documents, Approval Basis, Certification Plan.</li> </ul> <p><b>Activity and Reporting</b></p> <ul style="list-style-type: none"> <li>b) Submit the ToR of the activity.</li> <li>c) Submit the Summary of Justifications and related evidence (e.g., reports, drawings).</li> <li>d) Submit in-service documentation.</li> </ul> <p><b>Initial Survey and Certification**</b></p> <ul style="list-style-type: none"> <li>e) Assist the initial survey of the vessel.</li> </ul>	<p><b>Approval Basis (final)</b></p> <ul style="list-style-type: none"> <li>a) Review final documentation.</li> <li>b) Agree the final Approval Basis.</li> </ul> <p><b>Activity and Reporting</b></p> <ul style="list-style-type: none"> <li>c) Preview the ToR and may observe the activity.</li> <li>d) Review and agree the Summary of Justifications and related evidence (e.g., reports, drawings).</li> <li>e) Review in-service documentation.</li> </ul> <p><b>Initial Survey and Certification**</b></p> <ul style="list-style-type: none"> <li>f) Complete the initial survey of the vessel, and issue certification including exemptions/equivalences and conditions.</li> </ul>
<b>4 – Operation</b> <i>Refer to IMO MSC.1/Circ.1455 – Annex par. 4.18</i>	
<ul style="list-style-type: none"> <li>a) Operate in accordance with operating requirements, certificate conditions, and any applicable Safety Management System (SMS).</li> </ul>	<ul style="list-style-type: none"> <li>a) In-service survey &amp; inspection of the vessel as for certification.</li> </ul>

*Table 1 – Summary of the certification stages and related activities*  
 \*Note: These registers should be maintained and submitted throughout the process.  
 \*\*Note: Depending on the type of technology and particular application, verification & validation activities other than the Initial Survey may be part of the final stage and included in the Certification Plan.



# MARLab



## MARLab

Role and responsibility of master, crew and seafarer

Definitions and terminology

Clarification on application of Health and Safety laws

Role and responsibility of the remote operator

Documents carried or displayed

Extent of jurisdiction (geographical)

Enforcement

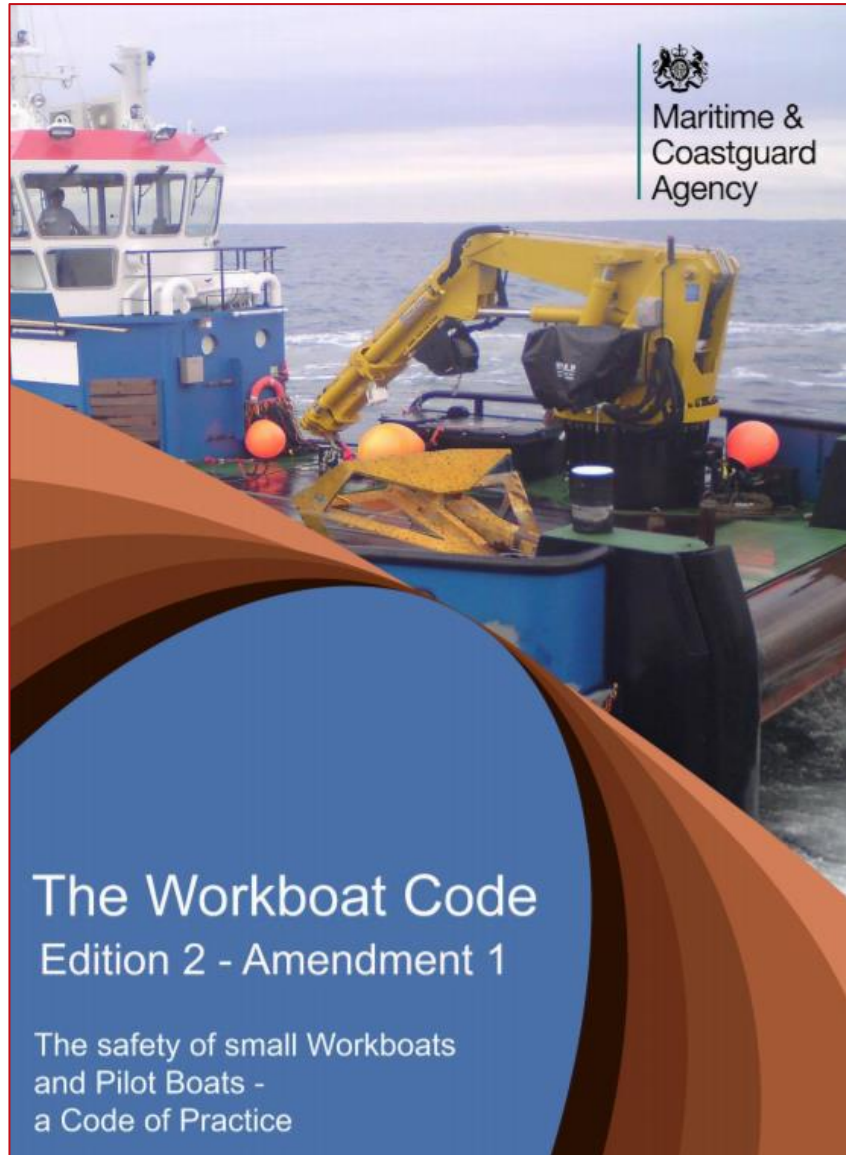
Manning /Watchkeeping

Gap: Remote Operation Centres





# Regulatory Developments



## **Future of transport regulatory review consultation:** Maritime autonomy and remote operations

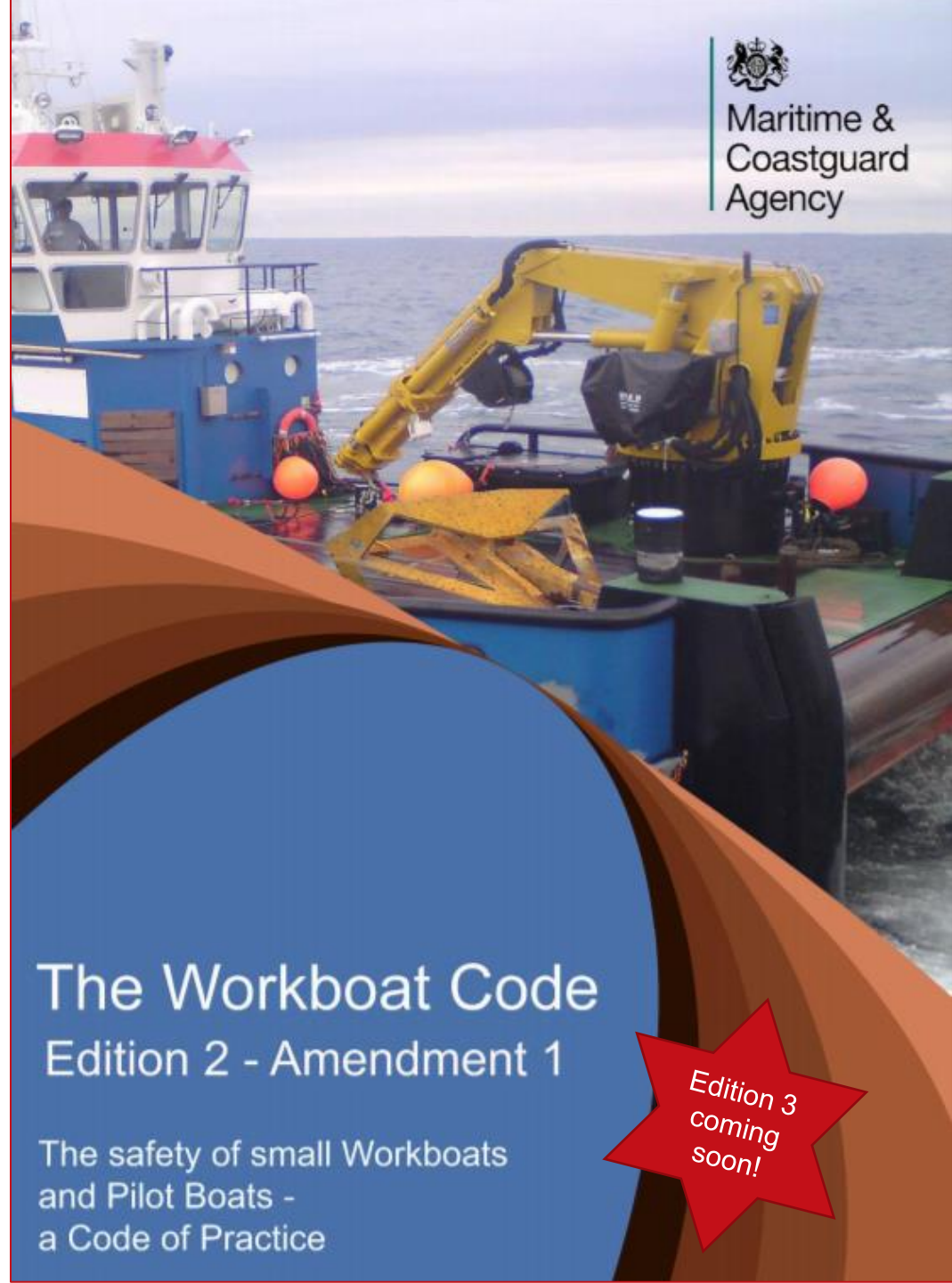
September 2021

# Workboat Code

“Remotely Operated Unmanned Vessel (ROUV)” means a vessel with no persons on board, that is operated from a location remote to the vessel

“Remote Operation Centre (ROC)” means either a shore-based location which is permanent or mobile or a manned vessel from which a ROUV is operated

“Remote Operator” means any person, including the Master, with recognised or certifiable experience who is engaged in the remote operation of a ROUV



## The Workboat Code Edition 2 - Amendment 1

The safety of small Workboats  
and Pilot Boats -  
a Code of Practice

Edition 3  
coming  
soon!

# Transport Bill

## Update primary legislation

- all sizes of MASS
- Remote Operation Centres
- Autonomous Underwater Vehicles
- software used to operate MASS
- Ports and Harbours regulations

## Challenges

- Terminology
- Jurisdiction



Open consultation  
**Future of transport regulatory review:  
maritime autonomy and remote  
operations**

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From: [Department for Transport](#)  
Published 28 September 2021

**Summary**

Seeks views on areas of maritime autonomy regulation that are outdated, a barrier to innovation or not designed with new technologies and business models in mind.

This consultation closes at  
**11:45pm on 22 November 2021**

**Consultation description**

We're seeking opinions and evidence from all those with an interest in what an innovative and flexible regulatory framework looks like for emerging transport technologies.

Maritime autonomy and remote operations is one of the priority areas of the Future of Transport regulatory review.

# Terminology

## Dilemma 1: Is MASS a ship?

- If yes, then powers to create regulation and to regulate MASS already exist
- but, would “vessel” cover innovative designs?
- considering inclusion of the term “craft”

***“ship***

***includes every description of vessel under navigation”***

## Dilemma 2: USV, MASS or autonomous ship?

- must cover fully autonomous and remotely operated (and the range between the two)
- no clear line between a ship and a MASS

***“automated ship***

***A ship capable, for some or all of the time, of navigating, or being navigated, otherwise than by a person on board.”***





# Roles

## ***“Remote Master***

***In relation to an automated ship a person (except a pilot) who has command or charge of the ship without being on board”***

## ***“Remote Operator***

***In relation to an automated ship means a person who is employed or engaged to control by electronic means any way in which the ship operates without being on board the ship”***

## **Dilemma 3: Seafarer or not?**

- MLC applies to seafarers on commercial, seagoing ships.
- Financial implications
- Sea-time and revalidation of certificates
- Local Health and Safety requirements

**UK approach: Remote operators and Remote Masters are not seafarers.**

**Equivalent powers to ensure training, manning, and support for these roles is equivalent to those at sea.**



# Jurisdiction

## Dilemma 4: ROCs: home or away?

- Defining a ROC in primary legislation?
- Power to regulate the safety of MASS and their operation (either remotely or via software)
- Support industry and technology

## Dilemma 5: Enforcement overseas?

- Use powers already in place for enforcement
- Considering data location and accessibility





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## Conclusions

- MASS are ships
- Where possible use current powers
- Terminology being considered:
  - “automated ship”
  - “remote operator”
  - “remote master”
- ROUV regulations are ready