

**REGULATING THE OPERATION OF AUTONOMOUS AND REMOTELY OPERATED VESSELS >24M LENGTH**

Contents

[1. Background 3](#_Toc80610294)

[2. Objectives 4](#_Toc80610295)

[3. Work Programme 4](#_Toc80610296)

[4. Project Plan 6](#_Toc80610297)

[5. Costings 8](#_Toc80610298)

[6. Evaluation Criteria 8](#_Toc80610299)



**SPECIFICATION**

**CONTRACT FOR REGULATING THE OPERATION OF AUTONOMOUS AND REMOTELY OPERATED VESSELS >24M LENGTH**

The Maritime & Coastguard Agency (MCA) is an Executive Agency of the Department for Transport (DfT). The MCA is responsible throughout the UK for implementing and developing the UK Government’s maritime safety and environmental protection policy. That includes co-ordinating Search and Rescue at sea through Her Majesty’s Coastguard 24 hours a day, and checking that ships meet UK and international safety rules. The MCA work to prevent the loss of lives at the coast and at sea, to ensure that ships are safe, and to prevent coastal pollution: **Safer Lives, Safer Ships, Cleaner Seas.**

The MCA provides a full range of search and rescue, counter pollution, survey, inspection and enforcement activities and has 12 major business activities:

|  |  |
| --- | --- |
| Survey | Seafarers’ Services |
| Inspection | Search and Rescue |
| Enforcement | Pollution Response and Salvage |
| Ship Registration | Stakeholder Communication |
| Navigation Services | Ministerial Services |
| Strategic Prevention Design/Development | Regulatory Process |

These activities are supported by support services responsible for providing a range of administrative functions including infrastructure, MCA people, financial management and administration and corporate management.

In accordance with the Equality Act 2010, in our capacity as a public body we have a statutory duty to eliminate unlawful discrimination, promote equality of opportunity and promote good race relations between people of different groups. Contractors will be expected to ensure that the service they provide promotes good relations between the MCA and its customers and does not directly or indirectly discriminate on the grounds of race in accordance with both the Act and the duty.

You are invited to submit a tender for the following project:

**TCA 3/7/1154 REGULATING THE OPERATION OF AUTONOMOUS AND REMOTELY OPERATED VESSELS >24M LENGTH**

# Background

As the development of autonomous and remote operations technology continues alongside its introduction into the marine environment, there is a need to ensure that UK law keeps pace to ensure the safe, secure, and environmentally-sound operation of remotely operated[[1]](#footnote-2) or autonomous vessels[[2]](#footnote-3). For the purposes of this document we will refer to these types of vessels as ‘MASS’ (Maritime Autonomous Surface Ships).

This project is required to build upon the findings of The Maritime Autonomy Regulation Lab Report (MARLab) (2019).[[3]](#footnote-4) This report highlighted a number of issues and areas for clarification in the Merchant Shipping Act 1995 (MSA) that need to be addressed to facilitate and enable the operation of these vessel types. For example, the need for the clarification of terms such as ‘Master’, updating obligations such as the onboard carriage of documentation, and addressing gaps such as the requirements for Remote Operation Centres[[4]](#footnote-5) (ROCs).

However, bidders should note that the focus of the MARLab legal review work was upon the requirements for operating MASS under 24 metres in length, for the purposes of trials in UK waters. Therefore, this project is to examine the legal gaps, issues and barriers to operating MASS over 24 meters in length, in and beyond UK waters. It is also required to consider the legal implications of remotely operated and autonomous submersibles and other novel forms and means of operating vessels at sea, which are predicted to emerge.

This review is also needed to ensure the MCA can support requests from governmental departments, including No.10 and DfT to update primary legislation to domestically legislate and authorise the operation of unmanned, autonomous and remotely operated vessels in the UK.

Without this work the UK’s position as a leader in autonomy will be impacted upon, our input to international discussions limited, and innovative organisations located in the UK, may decide to relocate or use other more progressive maritime administrations to support their projects.

**Jurisdictional matters surrounding MASS and MASS data**

The jurisdictional matters to be researched are critical to ensure that introducing the use of remotely operated vessels in the Work Boat Code Edition 3 and Future of Transport consultation does not present legal issues regarding vessels being operated in UK waters from other countries (and vice versa).

If this research is not undertaken there is a chance that the draft will be stopped by DfT legal or that the regulation will be put in place but will encounter problems when vessels are being operated from different countries and jurisdictions. This work to identify the jurisdictional issues will also be essential in order to develop future primary legislation for remotely operated and autonomous vessels outside of the scope of the workboat code, which we expect to increase in the coming years.

# Objectives

In order to put in place a domestic regulatory framework that is effective in dealing with the challenges presented by MASS2, and to lead discussions in international fora, the MCA requires a study to undertake a;

1. survey of the sections and schedules to the UK Merchant Shipping Act 1995 to identify regulatory gaps, issues and barriers to the operation of MASS >24m. The survey will also involve a survey of an agreed cross-section of statutory instruments prescribed under MSA 1995 (Appendix V3);
2. regulatory review of physical & cyber security and the implications for MASS;
3. review of the regulatory position for MASS rendering assistance to persons in distress; and a
4. regulatory review of jurisdictional matters surrounding MASS and MASS data

# Work Programme

The bidder should provide a detailed proposed work programme that they feel best meets the deliverables of the project. This should include a breakdown of schedules based on each deliverable listed at Section 6 under the proposal response requirements section. This will form part of the tender evaluation criteria. (See Section 7)

The contractor shall undertake an independent review and will include credible reference materials and relevant stakeholder engagement, to endeavour to answer the following questions as part of the deliverables. Whilst it is acknowledged that listed deliverables are inter-related and may not necessarily be tackled in the order presented, bidders should note that the findings from WP4 are required most urgently and should be prioritised, such that findings may be advanced through interim reporting.

**WP1 - Survey of UK Merchant Shipping legislation to identify regulatory issues**

**WP1.1 Survey of selected primary and secondary legislation**

Work Package 1.1 will involve a survey of the sections and schedules to the Merchant Shipping Act 1995 to identify barriers to the operation of MASS >24m as well as regulatory gaps. WP1.1 will also involve a survey of an agreed cross-section of statutory instruments prescribed under MSA 1995 (Appendix V3).

The survey will firstly identify which section / regulations apply to which MASS > 24m on account of its specific length and tonnage. Secondly, regulations which may present compliance issues will be identified for consideration by MCA. This process should be repeated for remotely operated and unmanned submersibles and other novel forms and means of operating vessels at sea, which are currently predicted.

Key questions which should be discussed within the findings, alongside any others which are identified.

1. Is the existing definition of a ship adequate for all future forms of MASS currently predicted? If not, what kinds of distinction may be required to enhance this definition and why?
2. Are any of the responsibilities / obligations of a Master of a MASS different from those of a Master on board a conventional ship? What are the implications of making such a distinction?
3. What provisions are made for an entity or person to be accountable for a vessel if;
	1. that vessel is remotely operated.
	2. that vessel is operated autonomously, by a ‘machine-in-loop’; or
	3. during a single voyage control of that vessel is transferred between different ROC or between Master and autonomous controller?

**WP2 – Physical and Cyber Security for MASS**

**WP2.1 Focused regulatory review**

Work Package 2.1 will review select UK and international instruments which regulate physical and cyber security in the marine space, including ships, port and ROC. Where appropriate, consideration will be given to cyber-security regulation in other sectors where gaps are identified in maritime cyber regulation. Review will consider compliance issues faced by MASS as well as any gaps in security regulation.

**WP3 – MASS rendering assistance to persons in distress**

**WP3.1 Focused regulatory review**

Work Package 3.1 will review the numerous provisions in UK and international law which contain a duty to render assistance to persons in distress at sea, usually incumbent on the vessel’s master, to assess their requirements. These include, e.g.: Art 98 UNCLOS; Regulation V/33 SOLAS; Art 10 Salvage Convention 1989; s.92 MSA 1995. Review will then consider the extent to which MASS operators may comply and the implications, if any, for MASS design and operation. Key questions which should be discussed within the findings, alongside any others which are identified:

1. Is there any explicit or implied obligation for an unmanned MASS to render assistance to persons in distress?
2. Is there any explicit or implied obligation for permanently unmanned MASS to be designed/configured and/or to carry apparatus, which is for the sole purpose of rendering assistance to persons in distress?
3. What requirements are there for a fully autonomous MASS to monitor and respond to a radio distress message (e.g. DSC or verbal)?
4. Is there any current provision which may oblige MASS vessels to identify themselves as unmanned and/or autonomously controlled (e.g. using AIS, or physically)?

**WP4 – Jurisdictional matters surrounding MASS and MASS data**

**WP4.1 Review of law enforcement mechanisms for MASS operations**

Work Package 4.1 will consider a number of jurisdictional matters regarding law enforcement against MASS and their operators. Key questions which should be discussed within the findings, alongside any others which are identified:

1. What are the practical and legal issues about regulating;
	1. MASS operating in UK waters, being controlled from outside the UK jurisdiction;
	2. UK registered MASS being controlled from outside the UK jurisdiction;
	3. ROCs based within the UK jurisdiction, controlling foreign registered MASS;
	4. inspection and survey of overseas ROCs;

WP also extends to the data “on board” the MASS. WP4.1. This may include information recorded in the Official Log Book, as well as information pertaining to the command, control and performance of the MASS; some of which may be generated/recorded on board the MASS and/or ROC. Where appropriate reference may be made to law enforcement approach in other sectors. Key questions which should be discussed within the findings, alongside any others which are identified;

1. What, if any, data may be requested by UK authorities from a MASS operator or overseas ROC, and on what basis?
2. How are ownership and rights to MASS data currently defined in applicable UK and international law?

# Project Plan

**Delivery Period**

The project is expected to start as soon as possible after placement of order and with a final report delivered by 31 December 2021.

The review is expected to take between 8 to 10 weeks to deliver a draft report. A draft report must be delivered by 1 December 2021. Following submission of the draft report a meeting shall be organized between the MCA and the contractor to review the report and agree amendments and further clarifications required. A final report should be submitted to MCA no later than 3 months after the kick-off meeting.

Following completion of the project the main authors are expected to present the main findings of the report to MCA senior staff. This meeting will be arranged by the MCA as soon as possible after submission of the final report but no later than31 January 2022 and must be considered as part of delivery of the contract.

**Key Milestones**

Please provide an in-depth project plan which should include key milestones, slippage, risks, assumptions, dependencies, resources and contingencies and your methodology for implementation.

A kick-off meeting will be held between the MCA and the contractor to agree outputs of individual tasks prior to next activity.

You should provide a well-presented, easy to understand proposal, providing relevant and appropriate information demonstrating your understanding of the requirement.

The proposal must be in the form of a statement demonstrating understanding of the Suggested Work Programme, how it is envisaged they will be delivered

**Your proposal must be submitted electronically with no more than the equivalent of 5 sides of A4, with an annex should visuals CVs and other findings be relevant as evidence. (No more than the equivalent of an additional 5 sides of A4**).

Please ensure your answers detail and provide evidence for:

* *How you are going to approach the Work Programme, in section 3*
* *where appropriate please provide evidence such as:*
	+ *Credentials*
	+ *Curriculum Vitae’s*
	+ *Testimonials*
	+ *Recommendations*
	+ *Commitments that you make in the tender*

Your tender response should follow the order of the Work Programme (Section 3) and address all the requirements below to provide a clear, logical, and well organised presentation of the proposal content:

* *A work breakdown structure providing milestones per task and overall completion date for the project.*
* *a detailed project plan identifying any risks and potential slippages throughout the proposal.*
* *The proposal should also identify any risks or slippages with the required timescales.*
* *A concise summary of any assumptions and dependencies required to facilitate the project should also be included.*

**Deliverables**

Review of the findings to be presented in the form of a written report which, for each work package, sets out;

* the research approach, citing referenced sources;
* the identified articles, which inform the findings;
* a presentation of the findings, including;
	+ gaps, issues and/or barriers identified in the applicable legislation/regulation
	+ a response to any key questions presented in the brief
	+ any other broader points for consideration by the MCA (particularly where this will assist with the development of changes to legislation/regulation)

Note: WP 1.1 survey results should be presented in tabular form, which will illustrate provisions requiring review by MCA in respect of different lengths and tonnages of MASS, with brief comments.

Table 1 gives the deliverables required under this tasking. Project commencement (T0) is expected to be as soon as possible after placement of order. The work is expected to be complete by 31 December 2021.

|  |  |  |
| --- | --- | --- |
| **#** | **Deliverable** | **Timescale** |
| 1 | An outline project approach - brief report or presentation (for discussion at the kick-off meeting) | T0 + 2 weeks |
| 2 | A project schedule (for discussion at the kick-off meeting)  | T0 + 2 weeks |
| 3 | A list of the primary reference sources which will be used to deliver the work - (for discussion at the kick-off meeting) | T0 + 2 weeks |
| 4 | Project review meetings/updates including a project kick-off meeting at T0+2 weeks, then every 2-3 weeks thereafter  | T0+2 weeks, then every 2-3 weeks |
| 5 | Draft report including the outputs from the workstreams including draft recommendations (for MCA review)Presentation to the MCA | T0+8 weeks |
| 6 | Final report  | T0+14 weeks |
| 7 | Out-brief and presentation of the work | T0+15 weeks |

# Costings

The Bidders should note that the approved budget for this Project is in the range of £20,000 - £31,000.

Complete in detail the Firm Price Schedule (ANNEX A attachment) giving a clear breakdown of your costs. Please note that your bid will be evaluated on the Total Cost amount entered into the Jaggaer Portal and not on the breakdown of your costs.

# Evaluation Criteria

Tenders will be evaluated according to the criteria in the following table: each work package is evaluated and then scored.

Please provide supporting evidence for each work package: -

|  |
| --- |
| **Quality requirements** |
| **WP** | **Criterion** | **Required Response**  | **Criterion Weighting** |
|  | Please describe in detail, with supporting evidence, how you will deliver on the requirements of the work package.  | Your response must also detail the following:a) A definition of MASS, presented as a simple taxonomy, which would be used to guide your research, and demonstrates an understanding of the different ways in which the technology may be used, as applicable to this project.b) Evidence of your understanding of current and future trends in the application of remote operation and autonomous technologies on maritime vessels.c) Details of the approach you would take to Survey an agreed cross-section of statutory instruments prescribed under MSA 1995 (Appendix v3 attached)d) Relevant experience and qualifications of the staff who would be assigned to work on this work package.  | 13%  |
| 2 | Please describe in detail, with supporting evidence, the approach you would take to deliver on the requirements of the work package. | Your response must detail the following:a) A review of select UK and International Instrumentsb) The consideration given to compliance issues faced by MASS as well as any gaps in security regulation. c) An analytical overview outlining current and potential physical and cyber security risk for MASS d) Identification of potential gaps in the regulationsIt must also detail the relevant experience and qualifications of the staff assigned to work on this work package. | 13%  |
| 3 | Please describe in detail, with supporting evidence, the approach you would take to deliver on the requirements of the work package. | Your response must consider the UK and international laws relating to rendering assistance to persons in distress. | 13%  |
| 4 | Please describe in detail, with supporting evidence, the approach you would take to deliver on the requirements of the work package | Your response must take into consideration jurisdictional questions regarding law enforcement against MASS and their operators.You should also indicate what other industries you propose to research for examples of best practice or of how they have successfully addressed similar jurisdictional issues. | 13% |
| Project Plan | Your response must include a clear and comprehensive implementation project plan that describes the strategy and process you will follow. It must also detail lead time for commencing the work packages including any potential project slippage. |  | 13%  |
| Report | Your response must explain in detail how the findings from the work Packages will be incorporated into a concise and quality report. |  | 25%  |
| Social Value | Provide a description of the actions you would take to minimise the amount of CO2 emitted by your organisation on the MCA's behalf and provide a statement on what your organisation does to minimise the risk of modern slavery in your supply chain. |  | 10% |

**Tenders will be evaluated with a 60/40 split between quality and cost.**

The MCA will evaluate submissions against the criteria below to identify the most economically advantageous submission to the set requirements. The tasks that are evaluated on are titled below. Considerations to form the evaluation criteria outlined below are highlighted in Section 3.

Submissions will be assessed individually and scored based on the above weightings and criteria below.

Quality score:

|  |  |  |
| --- | --- | --- |
| **Score**  | **Assessment**  | **Reason**  |
| (5)  | Satisfactory response that fully meets the requirement and includes all relevant supporting evidence.  | A score of 5 will be achieved by demonstrating a robust understanding and methodology that specifically meets the Task objective. The response provided will have full and comprehensive supporting evidence and examples. |
| (3)  | Minor weaknesses in the response or detail missing  | A score of 3 will be achieved where the proposed approach meets the basic requirements by demonstrating an understanding of the Tasks and experience of the allocated resource with the exception that the supporting commentary and/or evidence does not fully explain, justify or provide a fully comprehensive response to examples.  |
| (1)  | Unsatisfactory response with major weaknesses  | A score of 1 will be achieved as per the criteria for achieving a score of 3 with the exception that the supporting commentary and/or evidence does not fully explain or justify the approach to the Tasks, experience of allocated resource and only some aspects of the MCA’s requirements are fully met.  |
|  | Inadequate response | A score of 0 will be achieved for any answer that does not meet the level required to score a 1 or above.  |

***Below is an example of how the scoring and weighting would work in this specification***

**Weightings**

**Quality Score represents 60% of the Total Score**

Quality Score = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ x Weightings

 Highest Quality Score Possible for the Criterion

**Price Score represents 40% of Total Scores**

**Lowest Bid Cost**

Cost Score = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ x Weightings

 Each Bidder’s Cost

**TOTAL SCORE = Total Quality Score + Total Cost Score**

1. Remotely operated vessels, for the purposes of this project, refer to surface and sub-surface vessels where there is a human element involved in the control or operation of the vessel, but that human element is not located onboard the vessel; or to a vessel that carries crew but some functions of the vessel are controlled from a location remote from the vessel. [↑](#footnote-ref-2)
2. Autonomous vessels, for the purposes of this project, refers to surface and sub-surface vessels that are capable of decision making and operating without human input. [↑](#footnote-ref-3)
3. MARLab Maritime Autonomy Regulation Lab (MARLab) Report, 11 November 2020. Available at: [www.gov.uk/government/publications/maritime-autonomy-regulation-lab-marlab-report/maritime-autonomy-regulation-lab-marlab-report](http://www.gov.uk/government/publications/maritime-autonomy-regulation-lab-marlab-report/maritime-autonomy-regulation-lab-marlab-report) [↑](#footnote-ref-4)
4. The ROC is a location from which a MASS may be operated, which is not situated onboard the vessel. [↑](#footnote-ref-5)