

## ANNEX 2

### FRAMEWORK FOR THE REGULATORY SCOPING EXERCISE FOR THE USE OF MARITIME AUTONOMOUS SURFACE SHIPS (MASS)

#### Aim

1 The aim of the regulatory scoping exercise is to determine how safe, secure and environmentally sound Maritime Autonomous Surface Ships (MASS) operations might be addressed in IMO instruments.

#### Objective

2 The objective of the regulatory scoping exercise on MASS conducted by the Maritime Safety Committee is to assess the degree to which the existing regulatory framework under its purview may be affected in order to address MASS operations.

#### Glossary

3 For the purpose of the regulatory scoping exercise, "Maritime Autonomous Surface Ship (MASS)" is defined as a ship which, to a varying degree, can operate independent of human interaction.

4 To facilitate the process of the regulatory scoping exercise, the degrees of autonomy are organized as follows:

**Degree one: *Ship with automated processes and decision support:*** Seafarers are on board to operate and control shipboard systems and functions. Some operations may be automated and at times be unsupervised but with seafarers on board ready to take control.

**Degree two: *Remotely controlled ship with seafarers on board:*** The ship is controlled and operated from another location. Seafarers are available on board to take control and to operate the shipboard systems and functions.

**Degree three: *Remotely controlled ship without seafarers on board:*** The ship is controlled and operated from another location. There are no seafarers on board.

**Degree four: *Fully autonomous ship:*** The operating system of the ship is able to make decisions and determine actions by itself.

5 The above list does not represent a hierarchic order. It should be noted that MASS could be operating at one or more degrees of autonomy for the duration of a single voyage.

#### Instruments

6 The list of mandatory instruments related to maritime safety and security to be considered as part of the regulatory scoping exercise is set out in appendix 1. These instruments should be reviewed on a regulation or rule level. Subsidiary mandatory instruments established under each parent instrument should also be considered to the level necessary to establish how they will be affected.

7 The review of mandatory instruments should be prioritized. In instruments containing both mandatory and non-mandatory parts, non-mandatory parts may be considered as part of the regulatory scoping exercise, when deemed necessary, to obtain a complete understanding of how the mandatory provisions are affected in order to address MASS operations (e.g. STCW Convention and Code).

### **Type and size of ships**

8 The application of the regulatory scoping exercise should be restricted to the applicability of the instruments under consideration.

### **Methodology**

9 As a first step, the regulatory scoping exercise will identify provisions in IMO instruments which, as currently drafted:

- .1 apply to MASS and prevent MASS operations; or
- .2 apply to MASS and do not prevent MASS operations and require no actions; or
- .3 apply to MASS and do not prevent MASS operations but may need to be amended or clarified, and/or may contain gaps; or
- .4 have no application to MASS operations.

10 Once the first step is completed, a second step will be conducted to analyse and determine the most appropriate way of addressing MASS operations, taking into account, inter alia, human element,\* technology and operational factors by:

- .1 equivalences as provided for by the instruments or developing interpretations; and/or
- .2 amending existing instruments; and/or
- .3 developing new instruments; or
- .4 none of the above as a result of the analysis.

11 Appendix 2 provides the template to be used to guide the documentation of results and, if necessary, present the results of the first step of the regulatory scoping exercise.

### **Plan of work and procedures**

12 A plan of work and procedures for the regulatory scoping exercise is provided in appendix 3.

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\* Refer to resolution A.947(23), *Human element vision, principles and goals for the Organization*.

APPENDIX 1

**LIST OF INSTRUMENTS RELATED TO MARITIME SAFETY AND SECURITY**

COLREG 1972 – International Regulations for Preventing Collisions at Sea, 1972

CSC 1972 – International Convention for Safe Containers (CSC), 1972, as amended

LL 1966 – International Convention on Load Lines, 1966

LL PROT 1988 – Protocol of 1988 relating to the International Convention on Load Lines, 1966

SAR 1979 – International Convention on Maritime Search and Rescue, 1979

SOLAS 1974 – International Convention for the Safety of Life at Sea, 1974, as amended

SOLAS AGR 1996 – Agreement concerning specific stability requirements for ro-ro passenger ships

SOLAS PROT 1978 – Protocol of 1978 relating to the International Convention for the Safety of Life at Sea, 1974

SOLAS PROT 1988 – Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974

SPACE STP 1973 – Protocol on Space Requirements for Special Trade Passenger Ships, 1973

STCW 1978 – International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended

STCW-F 1995 – International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel, 1995

STP 1971 – Special Trade Passenger Ships Agreement, 1971

TONNAGE 1969 – International Convention on Tonnage Measurement of Ships, 1969

APPENDIX 2

TEMPLATE FOR THE REGULATORY SCOPING EXERCISE

Instrument: [Name of instrument]

Rule/Regulation	First step		
	Degree of autonomy	MASS application	Comments/Remarks (explain analysis conducted in determining "MASS application and potential gaps)
	Degree one		
	Degree two		
	Degree three		
	Degree four		
	Degree one		
	Degree two		
	Degree three		
	Degree four		

References:

Degrees of autonomy:

- Degree one: Ship with automated processes and decision support
- Degree two: Remotely controlled ship with seafarers on board
- Degree three: Remotely controlled ship without seafarers on board
- Degree four: Fully autonomous ship

MASS application:

- .A apply to MASS and prevent MASS operations; or
- .B apply to MASS and do not prevent MASS operations and require no actions; or
- .C apply to MASS and do not prevent MASS operations but may need to be amended or clarified, and/or may contain gaps; or
- .D have no application to MASS operations.

## APPENDIX 3

### PLAN OF WORK AND PROCEDURES FOR THE REGULATORY SCOPING EXERCISE

#### 1 General

1.1 This note provides draft procedures for the regulatory scoping exercise on Maritime Autonomous Surface Ships (MASS).

1.2 The regulatory scoping exercise should be conducted taking into account the agreed framework and methodology and any relevant decisions of the Committee.

#### 2 Web platform for the conduct of the regulatory scoping exercise

2.1 A web platform will be developed by the Secretariat as part of GISIS to facilitate the regulatory scoping exercise.

2.2 The platform will be developed in two stages, as follows:

- .1 a form for uploading the initial review of IMO instruments (to be completed by 15 February 2019); and
- .2 additional forms to allow submission of comments and other functionalities (e.g. printing, exporting, filtering, etc. (to be completed by the end of March 2019)).

2.3 The web platform will be connected to the IMO Web accounts, providing access only to registered IMO Members.<sup>1</sup> All IMO Members will have read-only access to the web platform.

2.4 The web platform should make a clear distinction between the first and the second step of the agreed methodology.

2.5 The information contained in the web platform should be retained for future references until the Committee decides otherwise.

#### 3 First step

##### 3.1 Initial review of IMO instruments

3.1.1 The initial review should be conducted by volunteering Member States, either individually or as a group. In case of a group, only one Member State will be provided with access to upload and edit the information.

3.1.2 The initial review involves only the first step of the agreed methodology.

3.1.3 Member States can volunteer to conduct the initial review of either a whole or part of an instrument (e.g. specific chapters) for all degrees of autonomy or for specific ones. Priority should be given to the consideration of degrees two and three.

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<sup>1</sup> Whenever the term "IMO Member" is used in this document, it includes Member Governments, associated Member Governments, intergovernmental organizations with observer status and non-governmental organizations in consultative status.

3.1.4 Only users authorized by the Member State conducting the initial review of a specific instrument will be allowed to upload and edit the information.

3.1.5 If necessary, the Secretariat will assist with the pre-population of the number and titles of rules and regulations on the web platform.

3.1.6 Upon completion of the initial review, the web platform will be locked for editing.

### **3.2 Commenting stage**

3.2.1 Once the initial review is completed, IMO Members will be authorized to submit comments through the web platform.

3.2.2 Comments could be submitted either on specific rules/regulations or as general comments on the instrument under review (e.g. in case of gaps in regulations).

3.2.3 As part of the commenting stage, the web platform should provide an option to indicate whether the IMO Member agrees or disagrees with the initial review. If the option "disagree" is chosen, then an explanatory comment should be provided specifying the alternative MASS application.

3.2.4 Each IMO Member will only be able to submit one comment per rule/regulation and degree of autonomy under consideration and one general comment on the instrument under consideration. In order to facilitate the subsequent consideration, comments on specific rules/regulations and general comments on the instrument under consideration will be limited to specific number of characters (to be determined according to IT functionalities).

3.2.5 After an agreed period, the web platform will be locked for comments.

### **3.3 Consideration of comments and presentation of results**

3.3.1 The volunteering Member State(s) that conducted the initial review should consider all comments received and modify the initial review, as appropriate.

3.3.2 In order to facilitate the consideration of comments, the web platform should provide statistics of the number of IMO Members that had agreed or disagreed with the initial review.

3.3.3 The volunteering Member State(s) should also prepare a summary of results addressing in particular the main issues identified during step one in respect to specific degrees of autonomy and the specific gaps identified, if any.

3.3.4 The above summary of results should be submitted by the volunteering Member State(s) for consideration by the Committee or by a group authorized to that effect.

### **3.4 Consideration of the results of the first step**

3.4.1 The Committee or a group authorized by the Committee should consider the results of the first step submitted by the volunteering Member State(s), taking into account the information in the web platform, and making any necessary final modifications, as appropriate.

3.4.2 When the consideration is completed, the Committee or a group authorized by the Committee should authorize the commencement of the second step.

3.4.3 Upon completion of the first step, the information related to step one will be closed for editing or modification.

#### **4 Second step**

##### **4.1 Analysis of the most appropriate way of addressing MASS operations**

4.1.1 The initial analysis should be conducted, preferably, by the volunteering Member State(s) that conducted the initial review.

4.1.2 The initial analysis involves the second step of the agreed methodology.

4.1.3 Only users authorized by the Member State conducting the initial analysis of a specific instrument will be allowed to upload and edit the information related to the second step.

4.1.4 Upon completion of the initial analysis, the web platform will be locked for editing.

4.1.5 The initial analysis should be high level and should not be conducted regulation by regulation.

##### **4.2 Commenting stage**

4.2.1 Once the initial analysis is completed, IMO Members will be authorized to submit comments through the web platform.

4.2.2 As part of the commenting stage, the web platform should provide an option to indicate whether the IMO Member agrees or disagrees with the initial analysis. If the option "disagree" is chosen, then an explanatory comment should be provided, specifying the most appropriate way of addressing MASS operations.

4.2.3 Each IMO Member will only be able to submit one comment per analysis.

4.2.4 After an agreed period, the web platform will be locked for comments.

##### **4.3 Consideration of comments and presentation of results**

4.3.1 The volunteering Member State(s) that conducted the initial analysis should consider all comments received and modify the initial analysis, as appropriate.

4.3.2 In order to facilitate the consideration of comments, the web platform should provide statistics of the number of IMO Members that had agreed or disagreed with the initial analysis.

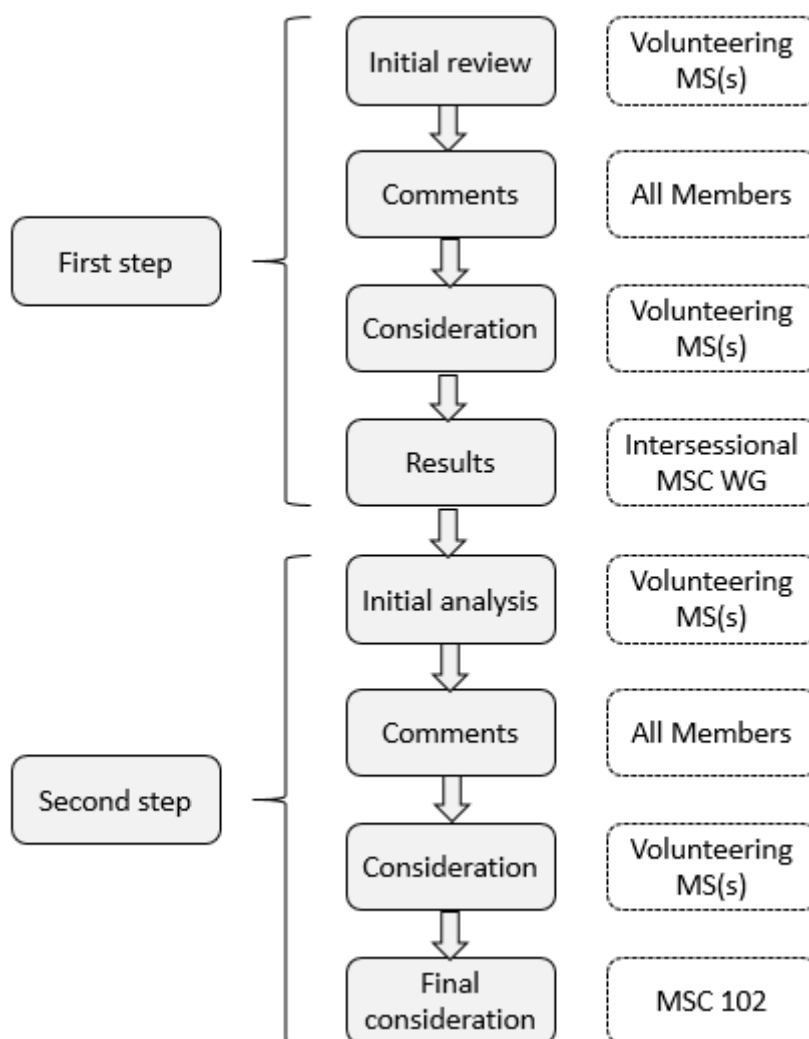
4.3.3 The volunteering Member State(s) should also prepare a summary determining the most appropriate way of addressing MASS operations specific to degrees of autonomy.

4.3.4 The above summary should be submitted by the volunteering Member State(s) for the Committee's consideration.

##### **4.4 Final consideration**

4.4.1 The Committee should consider the results of the first and second steps taking into account any relevant information, as appropriate.

### Process for the regulatory scoping exercise



### Timeline for the regulatory scoping exercise

Action	Deadline	Who?
Upload of the initial review of IMO instruments	April 2019	Volunteering Member State(s)
Commenting stage related to the initial review	May/June 2019 (two months)	All IMO Members
Consideration of comments and presentation of results	July 2019 (one month)	Volunteering Member State(s)
Consideration of the results of the first step	[2 to 6 September 2019]	[Intersessional MSC Working Group]
Analysis of the most appropriate way of addressing MASS operations (second step)	September/October 2019 (two months)	Volunteering Member State(s)
Commenting stage related to the initial analysis	November 2019 (one month)	All IMO Members



Action	Deadline	Who?
Consideration of comments and presentation of results	December 2019/January 2020 (two months) – deadline for submissions to MSC 102	Volunteering Member State(s)
Final consideration	May 2020	MSC 102

**List of instruments and volunteering Members undertaking or supporting the review of instruments**

Instrument	Chapter/ Section	Degree of autonomy	Member preparing the initial review	State the	Supporting/assisting
SOLAS 1974					
	Chapter II-1	All	France		Sweden, Iran (Islamic Republic of)
	Chapter II-2	All	Japan		
	Chapter III	All	Netherlands		Belgium
	Chapter IV	All	Turkey		China, Japan
	Chapter V	All	China		Denmark, Japan, Singapore
	Chapter VI	All	Japan		
	Chapter VII	All	Japan		
	Chapter IX	All	Norway		China, Republic of Korea, Russian Federation
	Chapter XI-1	All	Finland		
	Chapter XI-2	All	Finland		
SOLAS AGR 1996					
SOLAS PROT 1978					
SOLAS PROT 1988					
STCW 1978 and STCW Code		All	United States		Japan, New Zealand, Republic of Korea, Russian Federation
STCW-F 1995		All	Japan		New Zealand
COLREG 1972		All	Marshall Islands		China, Japan, Singapore, United States
CSC 1972		All	Japan		Finland
LL 1966		All	India		
LL PROT 1988		All	India		
SAR 1979		All	Spain, France		Turkey

<b>Instrument</b>	<b>Chapter/ Section</b>	<b>Degree of autonomy</b>	<b>Member preparing initial review</b>	<b>State the</b>	<b>Supporting/assisting</b>
SPACE STP 1973					
STP 1971					
TONNAGE 1969					

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