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IUMI Webinar: “Getting ready for the future: Update on regulatory developments for MASS”

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Content

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1. From Ship to Shore: A Fundamental Shift Calling for New Rules

Two Extremes as an Illustration

- Humans only on board
  - No shore contact
  - All actions taken from on board
  - Human needs
- All tasks performed by man
- One ship builder

- Humans only on land
  - Constant ship/shore contact
  - No (human) actions taken from on board
  - No need for human facilities
- Few tasked performed by man
- Individual suppliers of technical equipment

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2. CMI International Working Group for Unmanned Ships

CMI (Comité Maritime International)

The CMI primary objective or "raison d'être" is to contribute by all appropriate means and activities to the unification or uniformity of maritime law. This remains a laudable goal today, and one that I intend to pursue while also recognizing that the drafting of maritime conventions (a traditional role of the CMI) has been largely assumed by United Nations agencies and other inter-governmental organizations such as IMO, UNCITRAL, UNCTAD, UNIDROIT, IOPC Fund, and ILO, among others.

Christopher O. Davis, President of the CMI (The Maritime Executive, 15.11.2018)

CMI International Working Group for Unmanned Ships

- Founded in 2015
- Position paper on potential legal barriers in 2016
- Reported to MSC in spring 2017 and has attended all sessions since
- Legal Director of IMO and other IMO interests have attended the last years' CMI Assemblies to discuss MASS regulatory work and how CMI may be able to assist
- Made extensive submissions to MSC 99 in May 2018 including
  - Tabular analyses of inter alia SOLAS, STCW, COLREGS
  - Summary of Questionnaire
- Supports the joint submission for a proposal for a framework for the LEG Regulatory Scoping Exercise (LEG 106/8/xxx)

Tabular analyses of inter alia SOLAS, STCW, COLREGS

Part C Regs IV/6--18 Ship requirements	This section includes equipment requirements for various radio installations on board ships, along with installation, performance and maintenance requirements. It introduces four different sea areas (A1-A4) with different requireements depending on the operating area of the ship concerned. Reg 12(1) requires that "*Every ship, while at sea, shall maintain a continuous watch*"	Clarification / amendment	The key question for unmanned ships is whether the requirements of the Chapter can be met by persons who are not located on the ship (by means of relay or other means). This needs to be clarified i.a. by accepting that the term 'navigation bridge' in Reg 6(3) can be understood as referring to the control centre. If that question is settled, it is clear that other provisions of the chapter, such as the watch requirements of Reg 12 and qualification requirements referred to in Reg 16 apply for (remote) radio operators for unmanned ships. Whether the same applies for the energy source requirements of Reg 13 is unclear, but independent reserve power supply for the relaying equipment could be justified.
Reg IV/16 Radio personnel	*1 Every ship shall carry personnel qualified for distress and safety radiocommunication purposes to the satisfaction of the Administration.*	Amendment	Unmanned ships cannot "carry" such personnel.
		Chapter V: Navigation	
Reg V/1 - Application	*1) Unless expressly provided otherwise, this chapter shall apply to all ships on all voyages, except: 1 - warships, naval auxileries and other ships owned or operated by a Contracting Government and used only on government non-commercial service; and 2 -... 2) The Administration may decide to what extent this chapter shall apply to ships operating solely in waters landward of the baselines which are established in accordance with international law 3) ... 4) The Administration shall decide the extent to which the provisions of regulations 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27 and 28 do not apply to the following categories of ships: 1- ships below 150 gross tonnage engaged on any voyage; 2- ships below 500 gross tonnage and not engaged on international voyages; and 3- finshing vessels*	Clarification	On this basis, the Chapter applies to remotely controlled and/or autonomous ships. Guidelines on practical aspects of compliance and on the extent of any general compliance dispensation under para 4 would be desirable.
Reg V/2 - Definitions	*For the purpose of this chapter: 3) All ships means any ship vessel or craft irrespective of type and purpose*	Clarification	Same as above. To be noted that this covers not only ships and vessels, but also "craft" which may further extend the application of this Chapter.
Reg V/3 - Exemptions and equivalence	*1) The Administration may grant general exemptions from the requirements of regulations 15, 17, 18, 19 (except 19.2.1.7), 20, 22, 24, 25,26, 27 and 28 to ships without mechanical means of propulsion. 2) The Administration may grant to individual ships exemption or equivalents of a partial or conditional nature, when any such ship is engaged on a voyage where the maximum distance from the shore, the length and nature of the voyage, the absence of general navigational hazards, and other conditions affecting safety are such as to render the full application of this chapter unreasonable or unnecessary, provided that the Administration has taken into account the effect such exemptions and equivalents may have upon the safety of all other ships. 3) Each Administration shall submit to the Organizaton, as soon as possible after the 1 January in each year, a report summarizing all new exemptions and equivalents granted under paragraph 2 of this regulation during the previous calender year and giving reasons for granting such exemptions and equivalents. The Organzation shall circulate such particulars to the other Contracting Governments for information.*	No action needed	A provision which may be important for Administrations seeking to exempt unmanned ships from the Chapter V requirements depending on their operational itinerary.

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3. Update on Regulatory Developments in IMO

The IMO

IMO Committees

MSC

MEPC

LEG

FAL

TCC

SAFETY /TECHNICAL

ENVIRONMENT

LEGAL / LIABILITY

FACILITATION

TECHNICAL CO-OP.

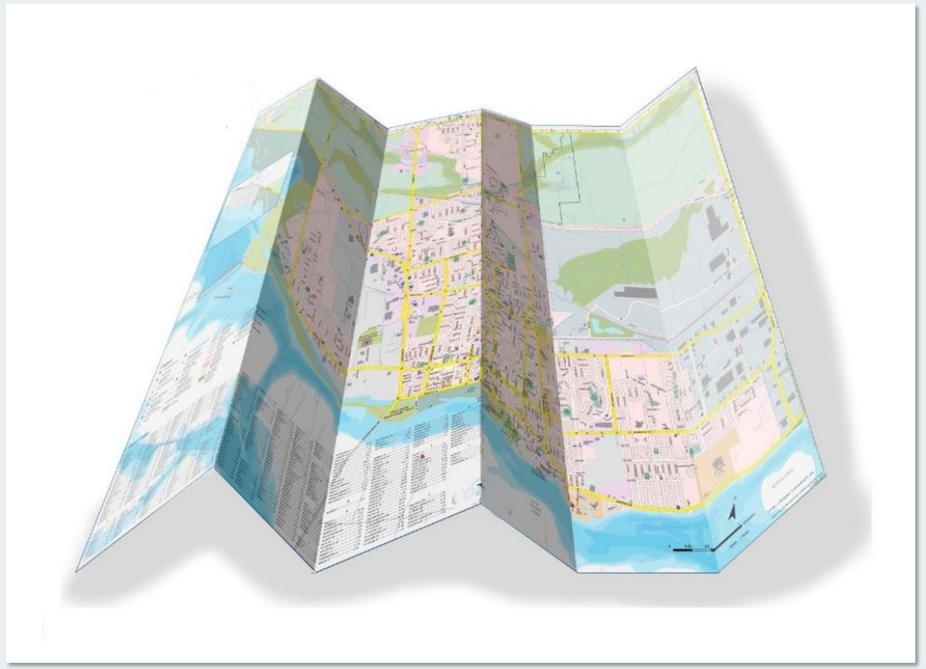
Status of Work in MSC

MSC | MEPC | LEG | FAL | TCC

- **MSC 98 (May 2017)**
  - Decision to undertake Regulatory Scoping Exercise (RSE) and develop interim guidelines for MASS trials
- **MSC 99 (May 2018)**
  - MASS Working Group tasked with drafting RSE Framework
  - Preliminary RSE Framework endorsed
  - Intersessional MASS Correspondence Group tasked to test preliminary Framework
- **MSC 100 (December 2018)**
  - MASS Working Group reviewing work and recommendations of Correspondence Group
  - RSE Framework approved of by Committee with minor changes
  - Decision to hold an intersessional MASS Working Group in September 2019

The MSC Regulatory Scoping Exercise

- RSE Framework adopted in December 2018 (MSC 100)
- Aim: To determine how safe, secure and environmentally sound MASS operations might be addressed in IMO instruments
- Objective: To assess the degree to which the existing regulatory framework under the purview of MSC may be affected
- Methodology: Two step approach
  1. Initial review of IMO Instruments
  2. Analysis of most appropriate way to address MASS operations
- Target completion date: May 2020 (MSC 102)



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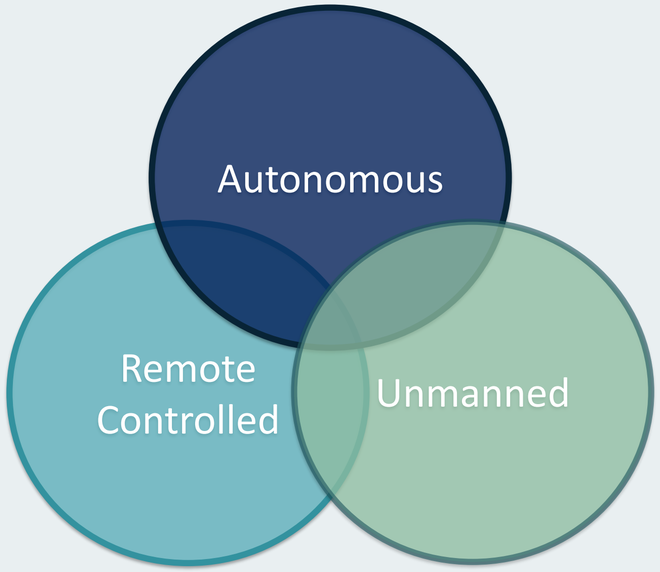
Four Degrees of Autonomy

1. 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 a seafarer on board ready to take control.

2. 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.

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

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



First Step: Initial Review

Template for the regulatory scoping exercise

Instrument: [Name of instrument]

Rule/Regulation	First step		
	Degree of autonomy	MASS application (.A, .B, .C, .D)	Comments/Remarks (explain analysis conducted in determining MASS application and potential gaps)
Regulation III/17-1	Degree one	B	
	Degree two	B	
	Degree three	C	
	Degree four	C	
	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.

SOLAS III Regulation 17-1. Recovery of persons from the water

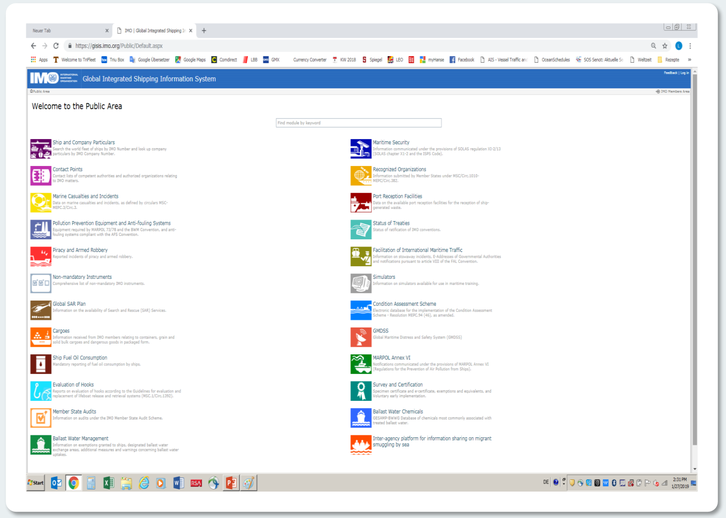
1 All ships shall have ship-specific plans and procedures for recovery of persons from the water, taking into account the guidelines developed by the Organization. The plans and procedures shall identify the equipment intended to be used for recovery purposes and measures to be taken to minimize the risk to shipboard personnel involved in recovery operations. […]

Instruments and Member State Preparing First Step Review

- SOLAS 1974
  - II-1……..France
  - II-2……...Japan
  - III……Netherlands
  - IV……Turkey
  - V ……China
  - VI and VII ……...Japan
  - IX ……Norway
  - XI-1 and XI-2 ……Finland
- SOLAS Prot. of 1978 and 1988
- SOLAS AGR 1996
- COLREG 1972……...Marshall Islands
- CSC 1972……Japan
- LL 1966 and LL Prot. 1988…….....India
- SAR 1979 ……....Spain, France
- SOLAS Prot. of 1978 and 1988
- SPACE STP 1973
- STCW 1978 and STCW Code…..…USA
- STCW-F 1995……Japan
- STP 1971
- TONNAGE 1969

Way Forward

- Web platform to be lunched by mid-February 2019 to facilitate the further RSE work to be undertaken
  - Access: All registered IMO members including NGOs
  - All suggestions and communication in relation to review be submitted via
- First step review completion date: July 2019
- Intersessional MASS Working Group September 2019
  - Evaluation and final modifications
  - Authorization (on behalf of MSC) to commence the second step
- Second step review = high level analysis of the most appropriate way of addressing MASS
- Target completion date second step and RSE: May 2020 (MSC 102)
- Start drafting work?



Interim Guidelines

- Aim to establish a harmonized international framework enabling international tests of MASS operations
- MSC 100 agreed that should
  - Be a single set, addressing issues in general and not be too technical in nature
  - Cover the safe, secure and environmentalfriendly MASS operation
  - Take principles of existing international instruments into account and
  - Trials be reported to the Organization
- Not the primary focus of Working Group at MSC 100
- Norway volunteered to coordinate intersessional work to develop guidelines to be discussed at MSC 101 in June 2019

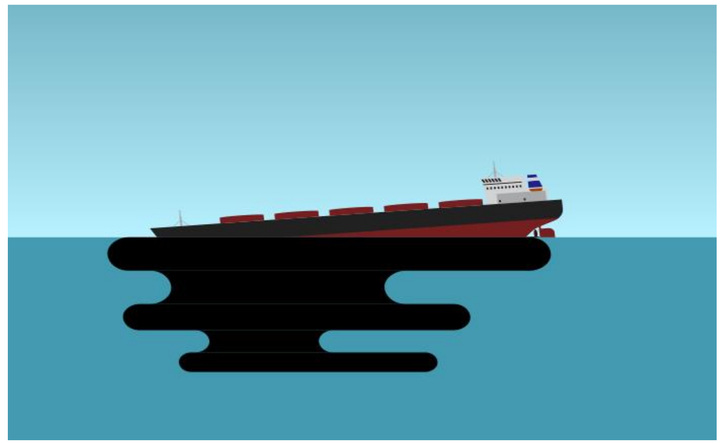
Status of Work in LEG

MSC | MEPC | **LEG** | FAL | TCC

- **LEG 105 (April 2018)**
  - Decision to undertake Regulatory Scoping Exercise (RSE) and gap analysis with target completion date in 2022 (LEG 109)
- **LEG 106 (March 2019)**

The LEG Regulatory Scoping Exercise

- Proposal for framework for the RSE submitted for LEG 106 by Canada and Co-sponsors including CMI (LEG 106/8/xxx)
- Suggesting to use the MSC Framework as foundation / base document
  - Degrees of autonomy
  - Two step approach
- Recognizing however, that the LEG instruments are fundamentally different in nature from those under the purview of MSC and MEPC
  - Subjects addressed: Liability, compensation and jurisdiction
  - Not operational in nature
  - Do no provide for equivalences
- Therefore suggesting to use an amended template not differentiating between degrees of autonomy in every case during first step
- Proposal to establish a Working Group at LEG 106 in March 2019 with mandate to develop framework



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4. Comments and Conclusions

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Comments and Conclusions

- Initial studies indicate that few current provisions preclude MASS operation
- But that there is a broad spectra of possible interpretations of current provisions
- Also just as important to review what is not there, e.g. technical standards
- In going forward arguably also a need to differentiate more carefully between autonomy – manning – remote operation, each of which raises issues of its own
- IMO faced with a one of a kind challenge
- Unlike Polar Code MASS will not only require supplementation of existing rules but also amendments
- In order to achieve international harmonization important that whatever way choses provides for sufficient clarity – a minimum of changes may not serve this purpose

- **Thank you!**

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- **Feedback survey**

- **Next webinar: 12 Feb 2019 – Humidity Management in Containers**

- **IUMI Online Cargo Tutorial**

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