

# Regulatory Scoping Exercise of IMO instruments

The 4th UK Maritime Autonomous Systems  
Regulatory Conference

2019-01-17

**Henrik Tunfors**  
Senior advisor

# International Maritime Organization

- 1948 Inter-Governmental Maritime Consultative Organization (IMCO), changed to IMO in 1982
- The IMO Convention entered into force in 1958
- Governance and organization structure:
  - Assembly
  - Council
  - Main Committees (**MSC**, MEPC, LEG, FAL)
  - Sub-Committees
- Member States and International Organizations (IGOs, NGOs etc.)

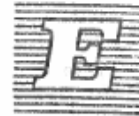
# Looking back...

## MSC VIII (March 1964)...

INTER-GOVERNMENTAL MARITIME  
CONSULTATIVE ORGANIZATION



IMCO



MSC VIII/11  
9 March 1964

Original: ENGLISH/FRENCH

---

MARITIME SAFETY COMMITTEE COMMITTEE - 8th session  
Agenda item 11

AUTOMATION IN SHIPS

Note by the Secretariat

# Autonomous ships

## IMO's regulatory scoping exercise on MASS

The ninety-eighth session of the Maritime Safety Committee (MSC 98), agreed to work on a "**Regulatory scoping exercise for the use of Maritime Autonomous Surface Ships (MASS)**", with a target completion year of 2020.



# Autonomous ships

## IMO's regulatory scoping exercise on MASS

### Why?

- The Organization should be proactive and take a leading role on this issue
- To review IMO's international regulatory framework and
- Determine which provisions **apply** or not to MASS and may preclude or not MASS operations (as currently drafted)
- **Identify** gaps or issues and **analyse** the best way to address.

# Autonomous ships

## IMO's regulatory scoping exercise on MASS

### MSC 98–100 (June 2017–December 2018)

- The need to take into consideration the human element and legal aspects
- Not a “drafting exercise”
- The work on MASS should be user-driven and not technology driven
- LEG 105 (April 2018) RSE with a target completion year of 2023 for LEG instruments.
- MSC to take a coordinating role.

# Autonomous ships

## IMO's regulatory scoping exercise on MASS

### Framework – definition

For the purpose of the regulatory scoping exercise, MASS is defined as:

“a ship which, to a varying degree, can operate independent of  
**human** interaction”

# Autonomous ships

## IMO's regulatory scoping exercise on MASS

### Framework – degrees of autonomy

1. Ship with automated processes and decision support
2. Remotely controlled ship with seafarers on board
3. Remotely controlled ship without seafarers on board
4. Fully autonomous ship.



# Autonomous ships

## IMO's regulatory scoping exercise on MASS

### Framework – methodology – the 2 steps

- **First step:** to identify provisions in IMO instruments which, as currently drafted:
- First step “regulation by regulation”
- **Second step:** to analyse and determine the most appropriate way of addressing MASS operations, taking into account, inter alia, human element, technology and operational factors by:
- Second step “high level”.

# Autonomous ships

## IMO's regulatory scoping exercise on MASS

### Framework – documentation step 1

#### APPENDIX 2

#### 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)
	Degree one		
	Degree two		
	Degree three		
	Degree four		
	Degree one		
	Degree two		
	Degree three		
	Degree four		

# Instruments to be considered

COLREGs 1972

CSC 1972

LL 1966

LL PROT 1988

SAR 1979

SOLAS 1974

SOLAS AGR 1996

SOLAS PROT 1978

STCW 1978

STCW-F 1995

STP 1971

SPACE STP 1973

TONNAGE 1969

...and Codes.

MARPOL 73/78

FAL 1972

SUA 2005

SALVAGE 1989

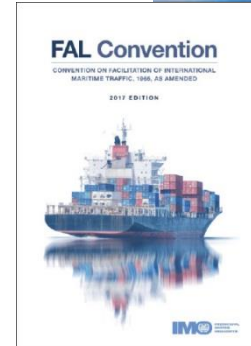
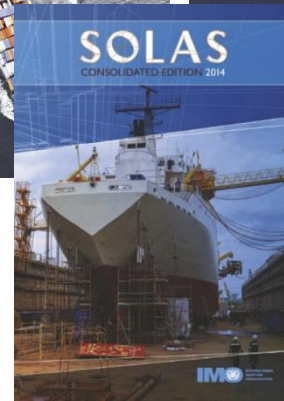
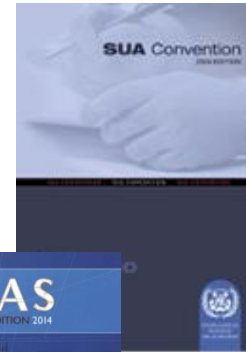
OPRC 1990

CLC 1969

NUCLEAR 1971

HNS 1996

...



NSPORT  
RELSEN

# Autonomous/Smart ships

## IMO's regulatory scoping exercise on MASS

### Timeline for the regulatory scoping exercise (MSC)

- **First step:** January-April-September 2019
- Inter-Sessional Working Group September 2019
- **Second step:** October-December 2019
- MSC 102 Final consideration: May 2020

# Autonomous/Smart ships

## IMO's regulatory scoping exercise on MASS

### List of instruments and volunteering States

Instrument	Chapter/ Section	Degree of autonomy	Member preparing the review	State initial	Supporting/assisting
<b>SOLAS 1974</b>					
	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		

# Autonomous/Smart ships

## IMO's regulatory scoping exercise on MASS

### List of instruments cont'd

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

# Summing up and final remarks

- Regulatory scoping exercise on Maritime Autonomous Surface Ships (MASS)
- High level exercise
- Deadlines 2020/2023 so far
- MSC, LEG --- MEPC, FAL?
- Participation of **all stakeholders** is required: IMO, ship owners, industry, Administrations, shore services, other international organizations, amongst others
- MSC 101 to consider proposals related to the development of guidance for MASS trials.

**Thank you** for your attention!

Questions?



# The Swedish Transport Agency

We enable the travel and  
transport needs of tomorrow



@transportstyrelsen



@TS\_Nyheter