

IMO Regulatory Scoping Exercise on MASS

5th UK MASRWG Conference 15-16 January, 2020
London

Autonomous shipping

Background to MASS – where in the IMO

International Maritime Organization

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

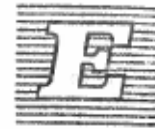
Autonomous shipping Background to MASS – “swinging sixties”

MSC VIII (March 1964)...

INTER-GOVERNMENTAL MARITIME
CONSULTATIVE ORGANIZATION



I M C O



MSC VIII/11
9 March 1964

Original: ENGLISH/FRENCH

MARITIME SAFETY COMMITTEE - 8th session
Agenda item 11

AUTOMATION IN SHIPS

Note by the Secretariat

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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.



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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”

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Framework – degrees of autonomy

1. Ship with automated processes and decision support: Seafarers on board but some operations may be automated and at times be unsupervised.
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.
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.

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Framework – methodology – the 2 steps

- **First step:** to identify provisions in IMO instruments which, as currently drafted preclude MASS...
 - First step “regulation by regulation”
 - Identify gaps and themes (common issues throughout)
- **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...
 - Second step “high level”.

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 18 Codes.

MARPOL 73/78

FAL 1972

SUA 2005

SALVAGE 1989

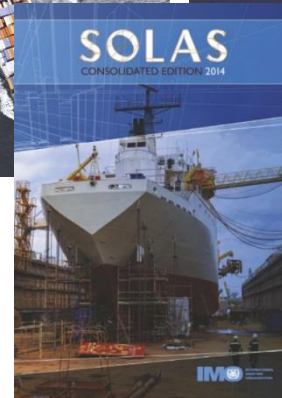
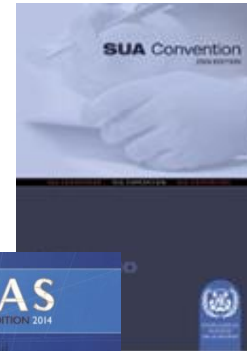
OPRC 1990

CLC 1969

NUCLEAR 1971

HNS 1996

...



SWEDISH
TRANSPORT
AGENCY

Autonomous shipping IMO Regulatory Scoping Exercise

Preliminary lessons learnt

- Potential common gaps/themes important to solving regulatory barriers across all IMO instruments
- Meaning and role of the Master, crew or responsible persons is a fundamental issue to be addressed
- Remote operator and Remote Control Centre needs defining
- Various complexities in the most appropriate way(s) of addressing MASS operations



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IMO Regulatory Scoping Exercise

Timeline...

- Safety and Security regulations (MSC)
 - Consideration comments for step 2 and presentation of results for the whole exercise in Dec2019/Feb 2020
 - Final consideration in May 2020 at MSC 102
- Facilitation Convention (FAL)
 - Commenting stage to the initial analysis in December 2019
 - Consideration of comments and presentation of results in January 2020
 - Final consideration and results in April 2020 (FAL 44)
- Legal regulations (LEG)
 - Presentation of the results for the second step in Nov/Dec 2019
 - Final consideration in March 2020 (LEG 107)

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Post IMO Regulatory Scoping Exercise

Near future activities..

- Discussions on priority of future regulatory work in the IMO, including a roadmap/strategy
- Reminder: the regulatory scoping exercise is a scoping exercise
- Drafting (amended or creating new) regulations needs new activities and continued efforts from all involved: new outputs need to stay on the busy IMO agenda
- Environmental protection: when will the Marine Environment Protection Committee (MEPC) engage?
- IMO needs continued activity from all stakeholders
- New work outputs needs to be submitted to MSC 102 and MSC 103.

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IMO's Interim Guidelines for MASS trials

In general...

- High-level, generic: scope/application, principles and main objectives
- Applicability determined by respective mandatory instrument
- Roles and responsibilities: relevant authorities and stakeholders
- Compliance with mandatory instruments should be ensured
- Case-by-case: every trial is unique
- Keep it under review.

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IMO's Interim Guidelines for MASS trials

Principles and main objectives...

- Risk management
- Compliance with mandatory instruments
- Manning and qualifications of personnel involved in MASS trials
- Human element (including monitoring infrastructure and system-human interface)
- Infrastructure for safe conduct of trials
- Communications and data exchange
- Reporting requirements and information sharing
- Trial awareness
- Cyber risk management
- Scopes and objectives for each individual trial.



Thank you for your attention!

Questions?

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