



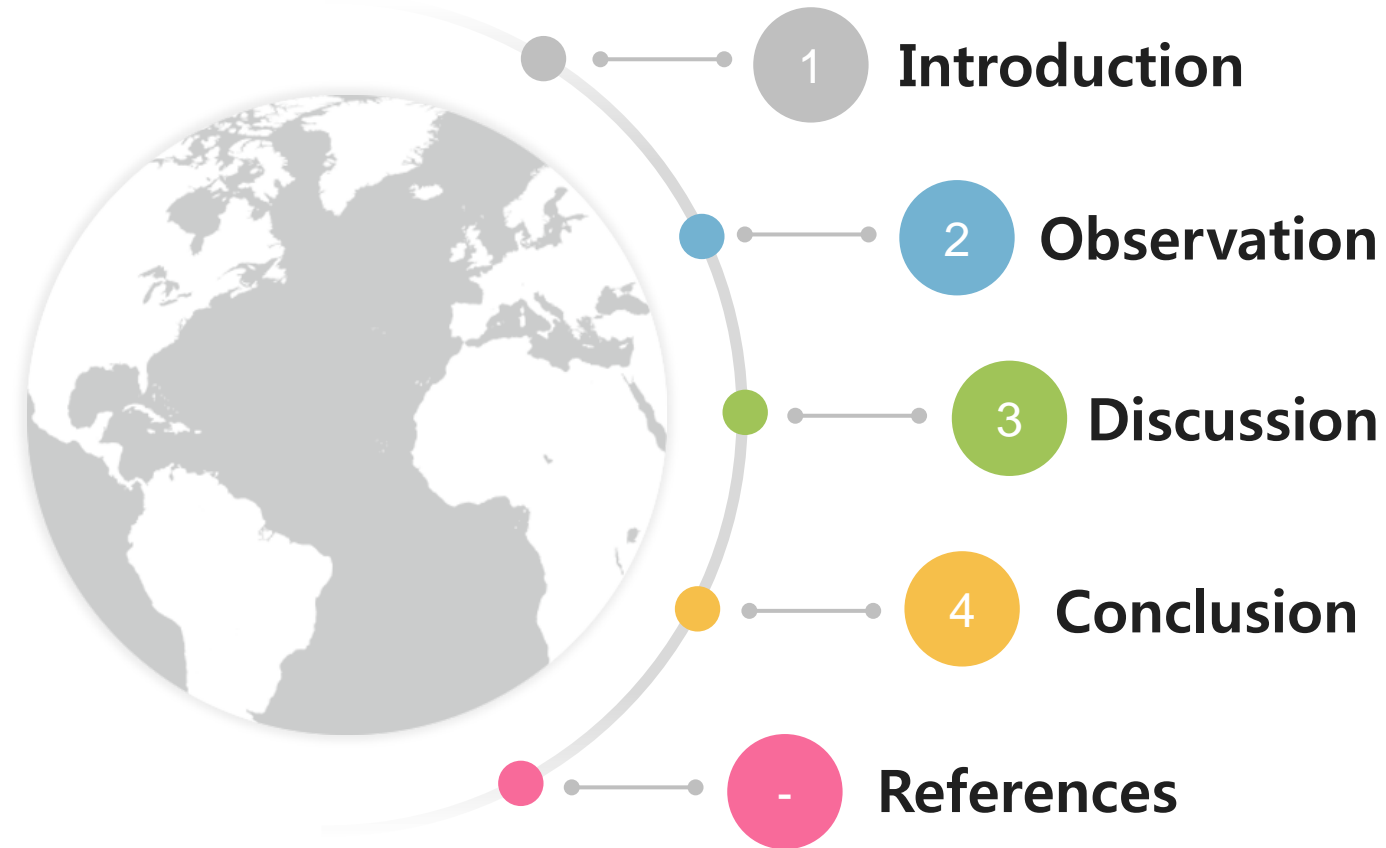
모의**IMO**총회
The Mock IMO Assembly

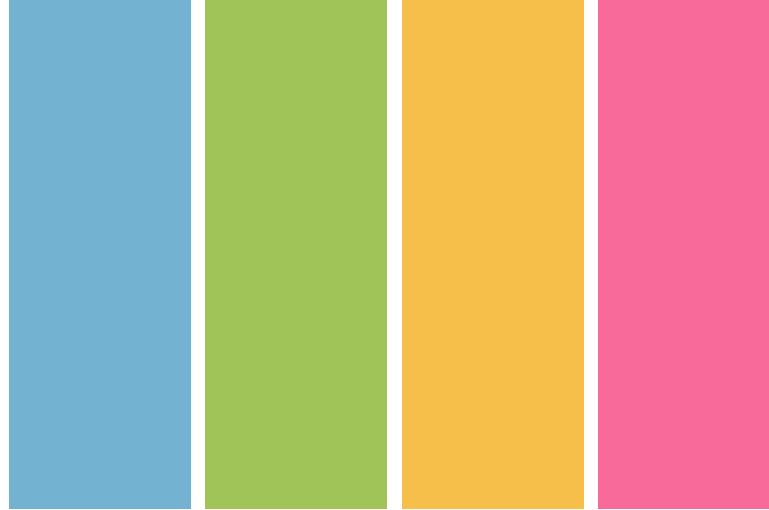
Proposals to the Regulatory Scoping Exercise for MASS

: With a Focus on **SOLAS** Convention

Team Sea Fungus

Contents





1. Introduction

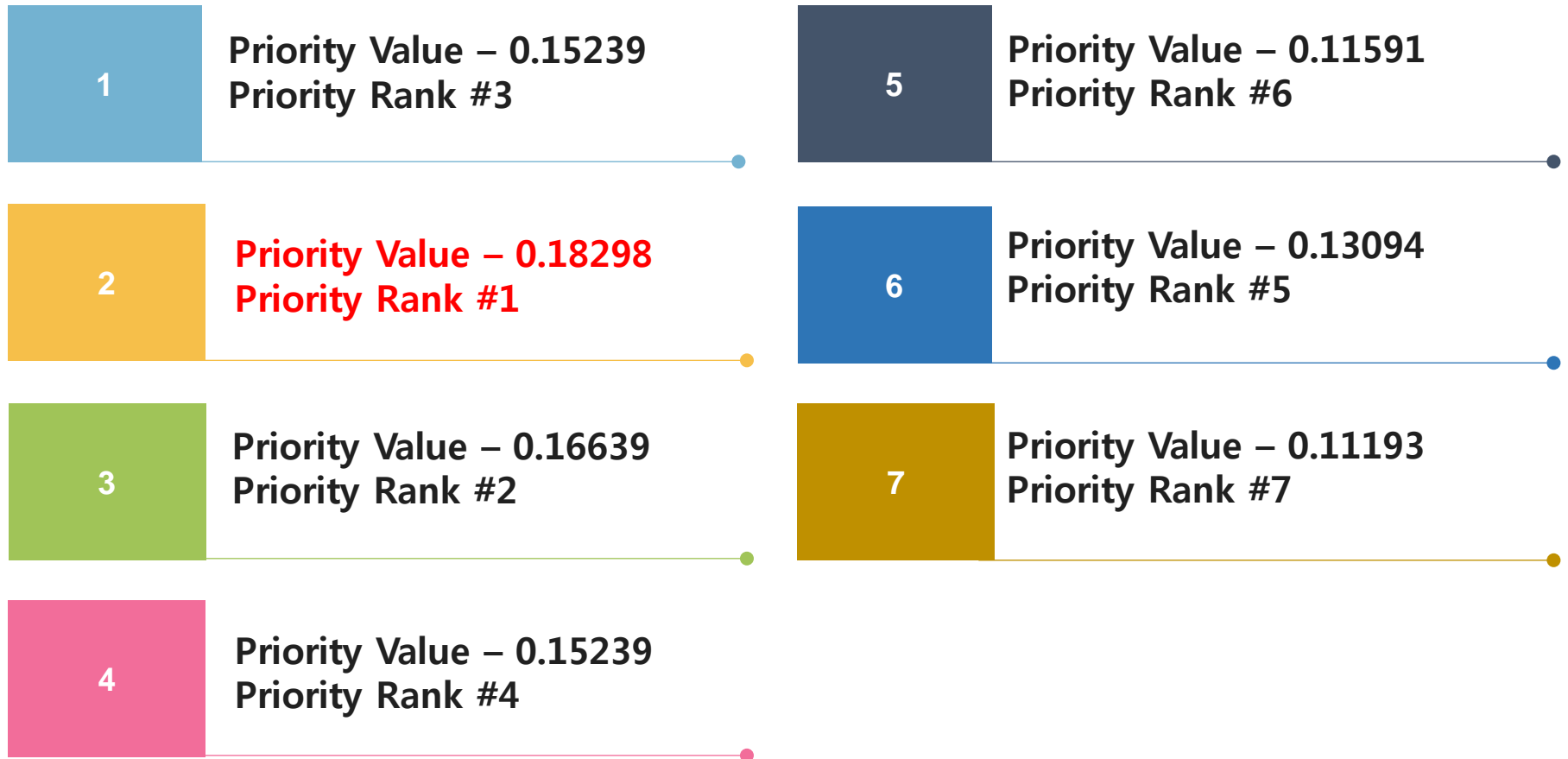
Strategic Direction

A 30-RES.1110, Strategic Plan

- 1 Improve implementation
- 2 Integrate new and advancing technologies in the regulatory framework
- 3 Respond to climate change
- 4 Engage in ocean governance
- 5 Enhance global facilitation and security of international trade
- 6 Ensure regulatory effectiveness
- 7 Ensure organizational effectiveness

Strategic Direction

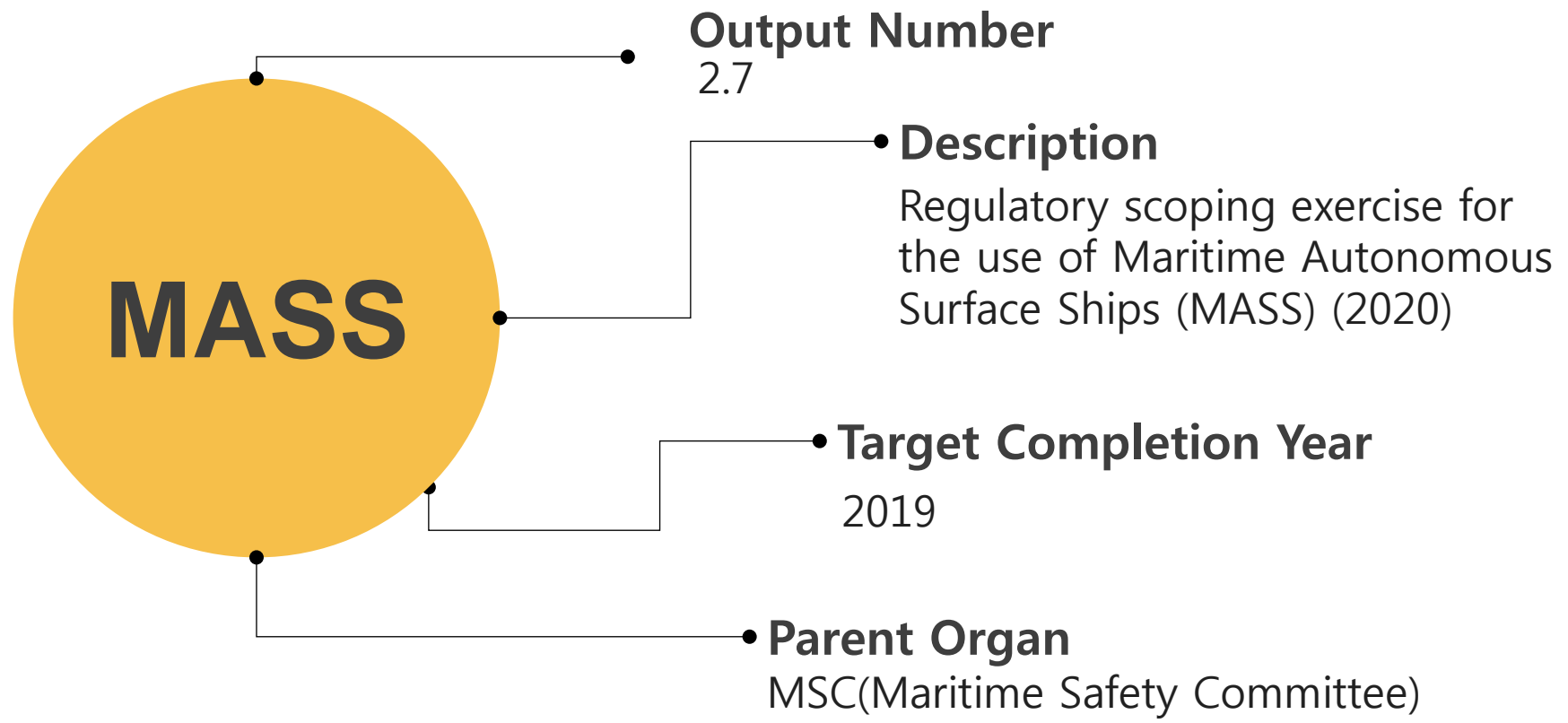
A 30-RES.1110, Strategic Plan



Korea Maritime Institute
Survey on how to effectively implement the IMO Strategic Direction

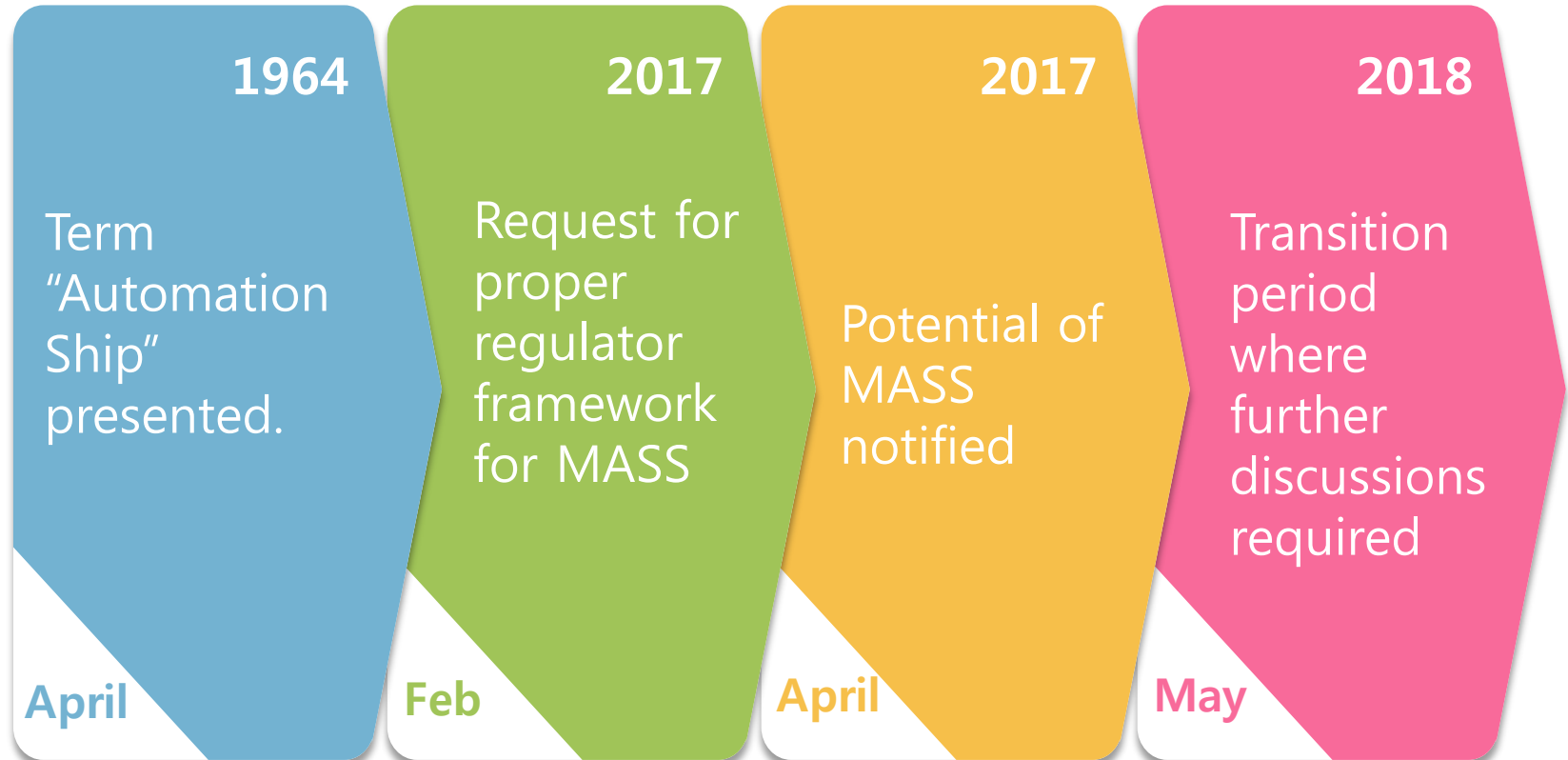
Strategic Direction

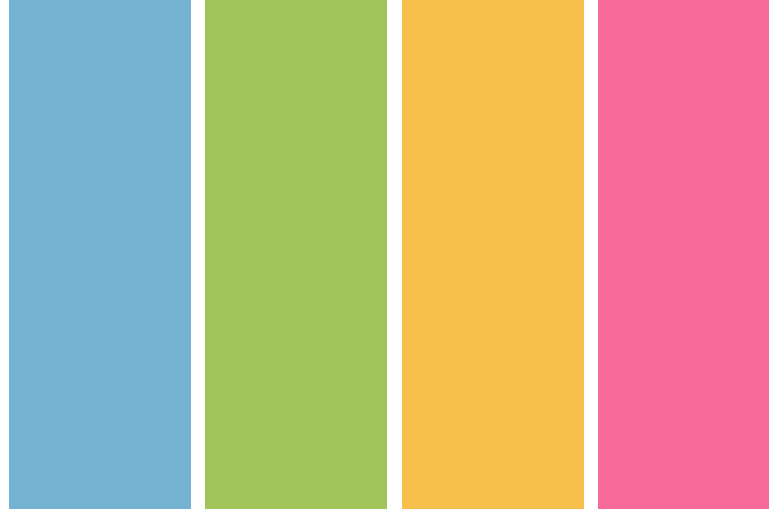
A 30-RES.1110



History of MASS

IMCO Conference, MSC 98-20-2, MSC 98-INF.13, MSC 99/WP.9





2. Observation

Current Trend of MASS

MSC 99/WP.9 - Report of the Working Group, MSC 99/5/12

Ships with decision support system(s) that permit **taking over control** and/or management of the system or ship, irrespective of whether control is exerted from **on board or off-board**.

**Maritime
Autonomous
Surface
Ship**

- Encompass Navigation system
- Engine Control
- Cargo Handling & Control
- Emergency Situation
- Others

**Shipboard System
&
Functions**

Person competent to perform the designated
Duties and Responsibilities on board the ship

Seafarers

Regulatory Scoping Exercise

MSC 99/WP.9 - Report of the Working Group

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 its purview may be affected in order to address MASS operations

Instruments

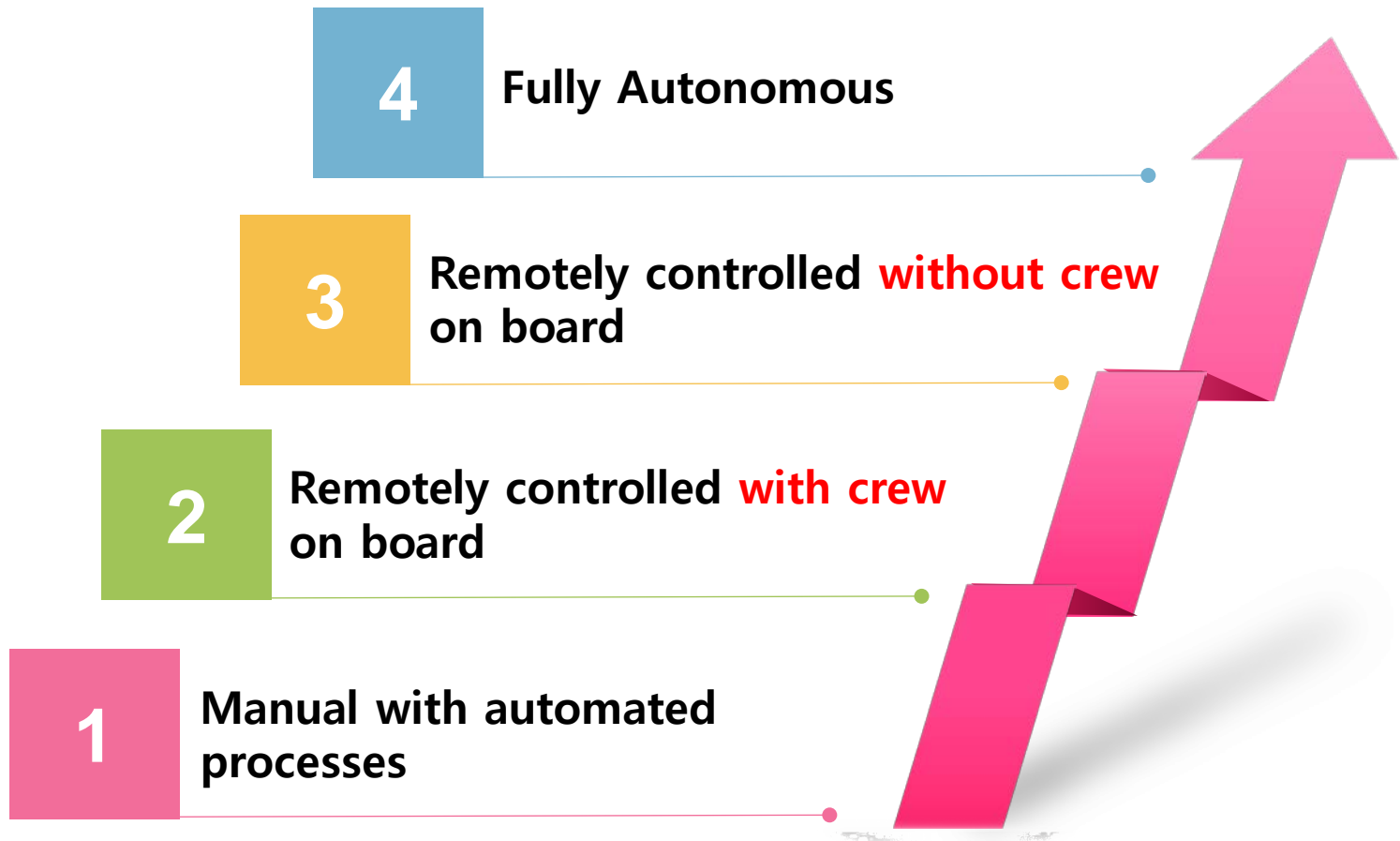
(Appendix 1)

COLREG 1972, CSC 1972, LL 1966, LL PROT 1988, SAR 1979, SOLAS 1974, SOLAS AGR 1996, SOLAS PROT 1978, SOLAS PROT 1988, SPACE STP 1973, STCW 1978, STCW-F 1995, STP 1971, TONNAGE 1969

RSE Methodology

MSC 99/WP.9 - Report of the Working Group - 1. Introduction

Level of Autonomy



RSE Methodology

MSC 99/WP.9 - Report of the Working Group

Mass Application

1

- Apply to MASS
- Preclude to MASS operations

2

- Apply to MASS
- Do not Preclude Mass Operations
- Require no Actions

3

- Apply to MASS
- Do not Preclude Mass Operations
- Need to be Amended

4

- Have no Application to MASS operations

Possible way of addressing MASS operations

1

- Equivalences as provided for by the Instruments

2

- Amending existing Instruments

3

- Developing new Instruments

4

- None of the above

Plan of work for RSE

MSC 99/WP.9 - Report of the Working Group – Appendix 3

TASK	MSC 99 WG	ICG	MSC 100 WG	MSC 101 WG
Framework	X		X	
Consolidated Document			X	
Correspondence Group		X		
First Step			X	X ₁
Second Step				X ₁
Interim Guidelines	X ₂		X ₃	

Definition of Number next to 'X'

1. If required
2. Invite submissions
3. Consideration

Plan of work for RSE

MSC 99/WP.9 - Report of the Working Group – Appendix 3

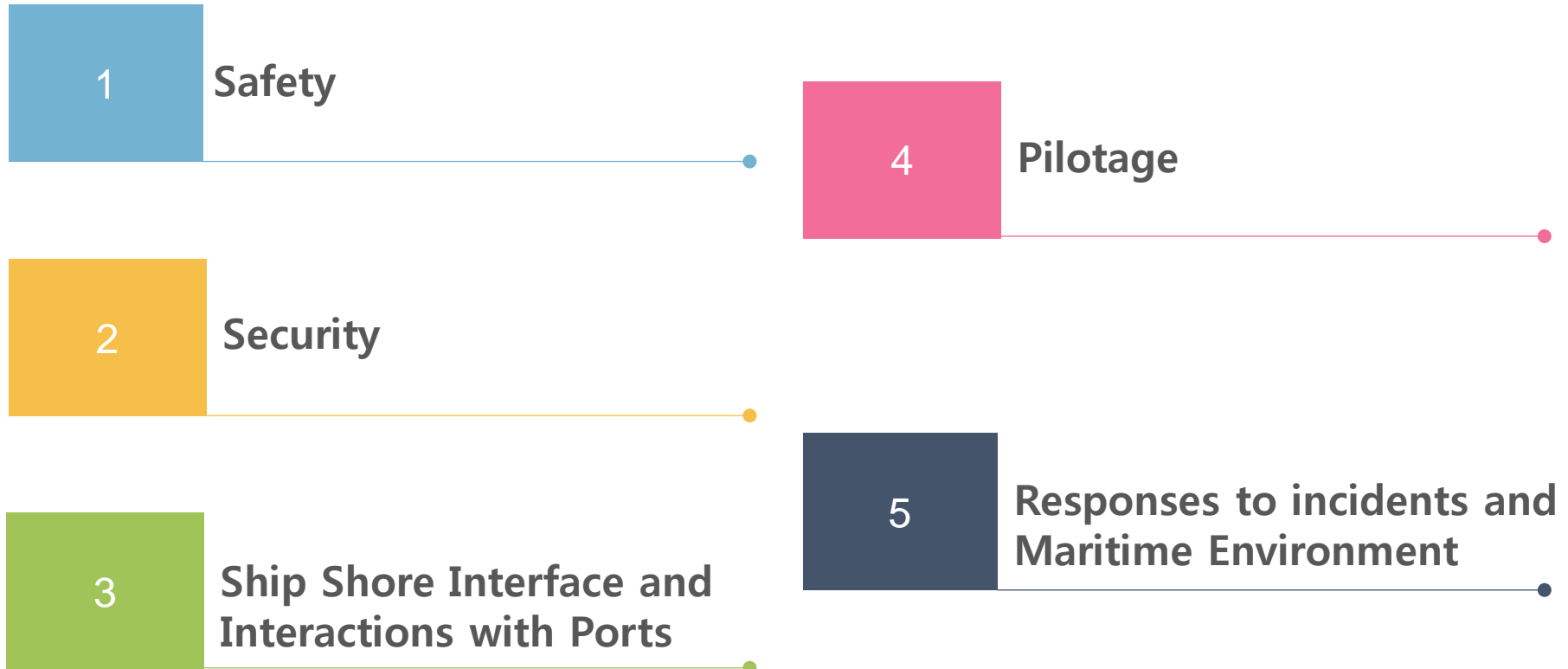
TASK	ICG/WG	MSC 102 WG	MSC 103 WG
Framework			
Consolidated Document			
Correspondence Group			
First Step	X ₁	X ₁	
Second Step	X ₁	X	X ₁
Interim Guidelines			

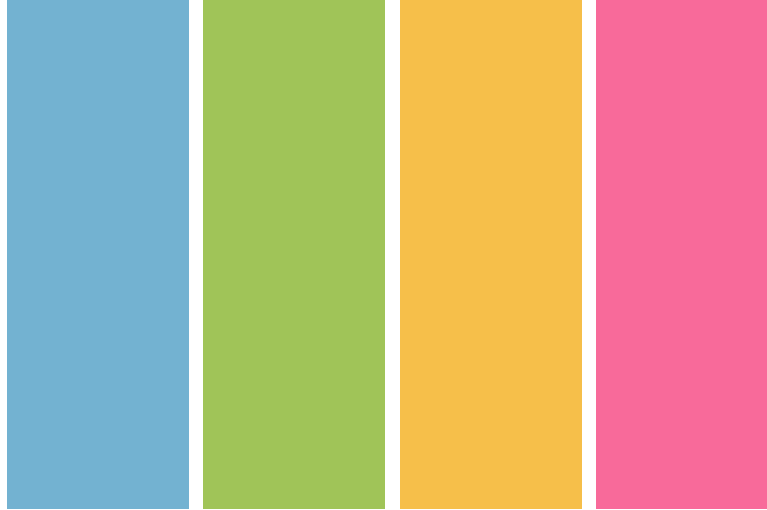
Definition of Number next to 'X'

1. If required
2. Invite submissions
3. Consideration

Factors that affect Maritime Organizations

MSC 99/5/10 - General comments on a way forward (ITF)

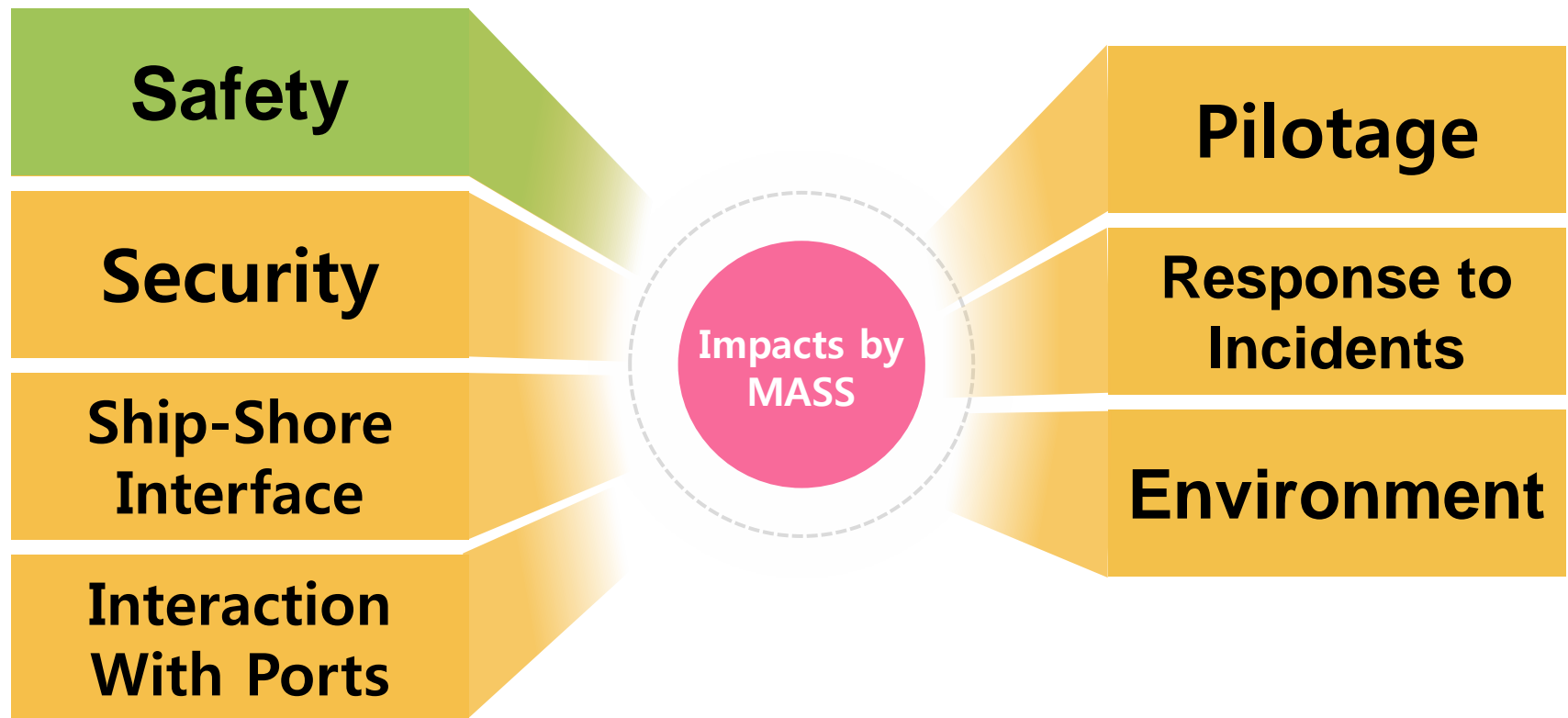




3. Discussion

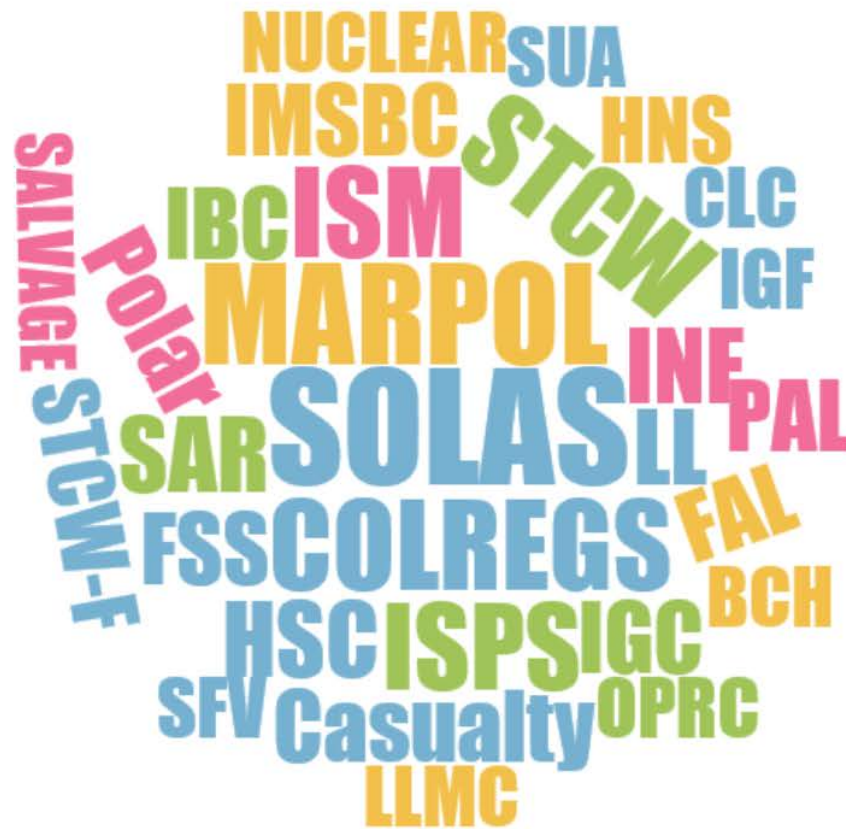
Impacts by MASS

MSC 99/5/12



Amendments on Conventions & Codes

MSC 99/5/3



3. Discussion

Amendments on Conventions & Codes

MSC 99/5/3

MARPOL Annex I / Reg. 37

SOPEP

**STCW Convention & Codes
Chapter VIII, VIII/2**

Watchkeeping & Additional

**International Convention on
Load Lines. Annex I, Ch. II, Reg. 10**

The term of **"Master"**

SAR. Ch. V

Ship reporting systems

**International Safety Management
Code. Part A, Ch. 6**

Resources and personnel

INF Code. Ch. 10

Shipboard Emergency Plan

COLREGS

Interaction between autonomous and conventional ships

Amendments on Conventions & Codes

MSC 99/5/3



Proposals to SOLAS Convention

SOLAS (The International Convention for the Safety of Life at Sea) Convention

Development based on **new convention: Safety of Unmanned Ship**

- The basic structure of USS will be **same as SOLAS**(Safety of Life At Sea)

- **UNMANNED** Ships (Degree 3, 4) will be applied to

Safety of Unmanned Ship convention

- **MANNED** Ships (Degree of autonomy 1, 2) will be applied to

SOLAS convention

Proposals to SOLAS Convention

SOLAS (The International Convention for the Safety of Life at Sea) Convention

Amendment #1

SOLAS (Safe Of Life At Sea) / Chapter III / Reg. 10

Manning of survival craft and supervision



01.

This regulation applies to
all ships

02.

There shall be a sufficient
number of
**trained persons on
board**
for mustering and assisting
untrained persons

03.

There shall be a
**sufficient number
of crew members,**
who may be deck
officers or certificated
persons...

Proposals to SOLAS Convention

SOLAS (The International Convention for the Safety of Life at Sea) Convention

Amendment #1

SOLAS (Safe Of Life At Sea)

Chapter III / Reg. 10

Manning of survival craft and supervision

Degree 3, 4:
Manning not
required

Safety of Unmanned
Ship

Degree 1, 2

Be Retained

Proposals to SOLAS Convention

SOLAS (The International Convention for the Safety of Life at Sea) Convention

Amendment #2

SOLAS (Safe Of Life At Sea) / Chapter IV / Reg. 16

Radio personnel



01.

Every ship shall carry **personnel** qualified for distress and safety **radiocommunication** purposes to the satisfaction of the Administration...

02.

In passenger ships, at least one person qualified in accordance...

Proposals to SOLAS Convention

SOLAS (The International Convention for the Safety of Life at Sea) Convention

Amendment #2

SOLAS (Safe Of Life At Sea)

Chapter IV / Reg. 16

Radio Personnel

Degree 3, 4:
Manning not
required

**Safety of Unmanned
Ship**

Degree 1, 2

Be Retained

Proposals to SOLAS Convention

SOLAS (The International Convention for the Safety of Life at Sea) Convention

Amendment #3

SOLAS (Safe Of Life At Sea) / Chapter V / Reg. 12

Vessel traffic services



01.

Vessel traffic services (VTS) contribute to...



02.

Contracting Governments undertake to arrange for...



03.

Contracting Governments planning and implementing VTS shall...

(Resolution A.857(20))

Proposals to SOLAS Convention

SOLAS (The International Convention for the Safety of Life at Sea) Convention

Amendment #3

Resolution A.857(20)

GUIDELINES FOR VESSEL TRAFFIC SERVICES

2.3.4 **When the VTS is authorized to issue instructions to vessels**, these instructions should be result-oriented only, leaving the details of execution, such as course to be steered or engine maneuvers to be executed, to the master or pilot on board the vessel. Care should be taken that VTS operations **do not encroach upon the master's responsibility for safe navigation** or disturb the traditional relationship between master and pilot.

Proposals to SOLAS Convention

SOLAS (The International Convention for the Safety of Life at Sea) Convention

Amendment #3

Resolution A.857(20)
GUIDELINES FOR VESSEL
TRAFFIC SERVICES

Degree 3, 4:
Instruction to
onshore
control center

**Safety of Unmanned
Ship**

Degree 1, 2

Be Retained

Proposals to SOLAS Convention

< Safety of Unmanned Ship >

- **Amendment #1 (Manning of survival craft and supervision)**

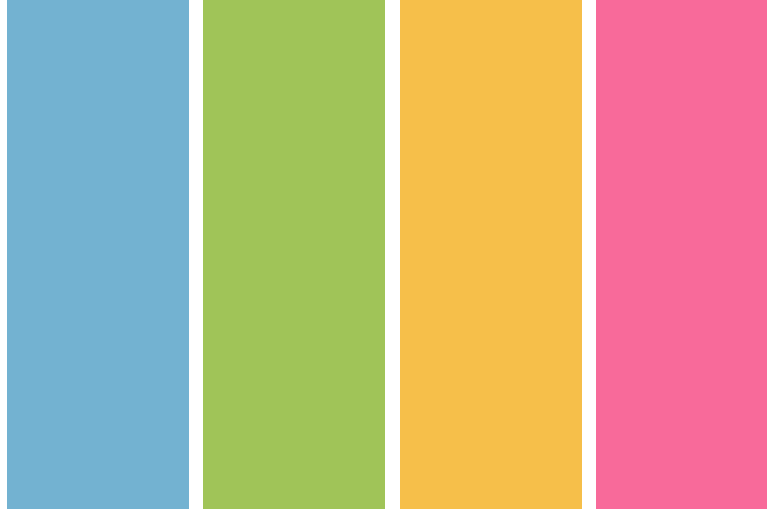
1. Manning of survival craft and supervision is not required for **vessel with degree of autonomy 3 and 4.**

- **Amendment #2 (Radio Personnel)**

1. The person who is **responsible** to vessel's radiocommunication which is **degree of autonomy 3** should be **qualified for distress and safety radiocommunication** purposes to the satisfaction of the Administration.
2. In case of vessel which is **degree of autonomy 4** is **excepted on this clause.**

- **Amendment #3 (GUIDELINES FOR VESSEL TRAFFIC SERVICES)**

1. When the VTS is authorized to issue instructions to vessels which is **degree of autonomy 3 and 4**, these instructions should be given to **onshore control center.**



4. Conclusion

Finalized Regulatory Scoping Exercise

MSC 99/WP.9 - Report of the Working Group - Annex 1, Appendix 2

References Degree	Degrees of Autonomy	Mass of Application	Possible way of addressing MASS Operations
1	<ul style="list-style-type: none"> Ship with Automated & Decision Support 	<ul style="list-style-type: none"> Apply to MASS Preclude to MASS operations 	<ul style="list-style-type: none"> None of the above
2	<ul style="list-style-type: none"> Remotely Controlled Unmanned Vessel 	<ul style="list-style-type: none"> Apply to MASS Do not Preclude Mass Operations Require no Actions 	<ul style="list-style-type: none"> Developing new Instruments
3	<ul style="list-style-type: none"> Remotely Controlled Unmanned Vessel 	<ul style="list-style-type: none"> Apply to MASS Do not Preclude Mass Operations Need to be Amended 	<ul style="list-style-type: none"> Amending existing Instruments
4	<ul style="list-style-type: none"> Fully Autonomous Vessel 	<ul style="list-style-type: none"> Have no Application to MASS operations 	<ul style="list-style-type: none"> Equivalences as provided for by the Instruments

Finalized Regulatory Scoping Exercise

MSC 99/WP.9 - Report of the Working Group - Annex 1, Appendix 2

Provision	First step		Second step	
	Degree of autonomy	MASS application	Possible way of addressing MASS operations	Comments/Remarks
Chapter III / Reg. 10	.1	.2	.4	Should be Retained
	.2	.2	.4	Should be retained
	.3	.1	.3	Manning of survival craft and supervision is not required
	.4	.1	.3	Manning of survival craft and supervision is not required
Chapter IV / Reg. 16	.1	.2	.4	Should be retained
	.2	.2	.4	Should be retained
	.3	.1	.3	People who is charged of vessel's communication should be qualified
	.4	.1	.3	Vessel is not required for people who is qualified
Chapter V / Reg. 12	.1	.2	.4	Should be retained
	.2	.2	.4	Should be retained
	.3	.1	.3	VTS should give instructions to control center onshore
	.4	.1	.3	VTS should give instructions to control center onshore

References

- [1] International Maritime Organization, "Resolution A.1110(30). STRATEGIC PLAN FOR THE ORGANIZATION FOR THE SIX-YEAR PERIOD 2018 to 2023". 08-12-2017.
- [2] MARITIME SAFETY COMMITTEE, "REGULATORY SCOPING EXERCISE FOR THE USE OF MARITIME AUTONOMOUS SURFACE SHIPS (MASS) Report of the Working Group", presented at the MSC 99/WP.9., MARITIME SAFETY COMMITTEE, 2018.
- [3] MARITIME SAFETY COMMITTEE, "REGULATORY SCOPING EXERCISE FOR THE USE OF MARITIME AUTONOMOUS SURFACE SHIPS (MASS) Comments on document MSC 99/5/5", presented at the MSC 99/5/12, MARITIME SAFETY COMMITTEE, 2018.
- [4] MARITIME SAFETY COMMITTEE, "REGULATORY SCOPING EXERCISE FOR THE USE OF MARITIME AUTONOMOUS SURFACE SHIPS (MASS) Recommendations on identification of potential amendments to existing IMO instruments", presented at the MSC 99/5/3, MARITIME SAFETY COMMITTEE, 2018.
- [5] RESOLUTIONS / Assembly / 20th Session / Res.A.857(20). GUIDELINES FOR VESSEL TRAFFIC SERVICES. 1997.
- [6] International Maritime Organization, SOLAS(Safety Of Life At Sea) 1974. 1980.
- [7] H. S. Park, H. C. Lee, H. J. Lee and B. R. Kim, "A Study on the Sustainable Development Strategic Plan of the IMO". Korea Maritime Institute, 2017.



Thank you!