

IMO and Its Roles in Maritime Safety Security Environmental Protection

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IMO and Its Roles

1. International Maritime Conventions
2. IMO's Efforts
3. Current Issues

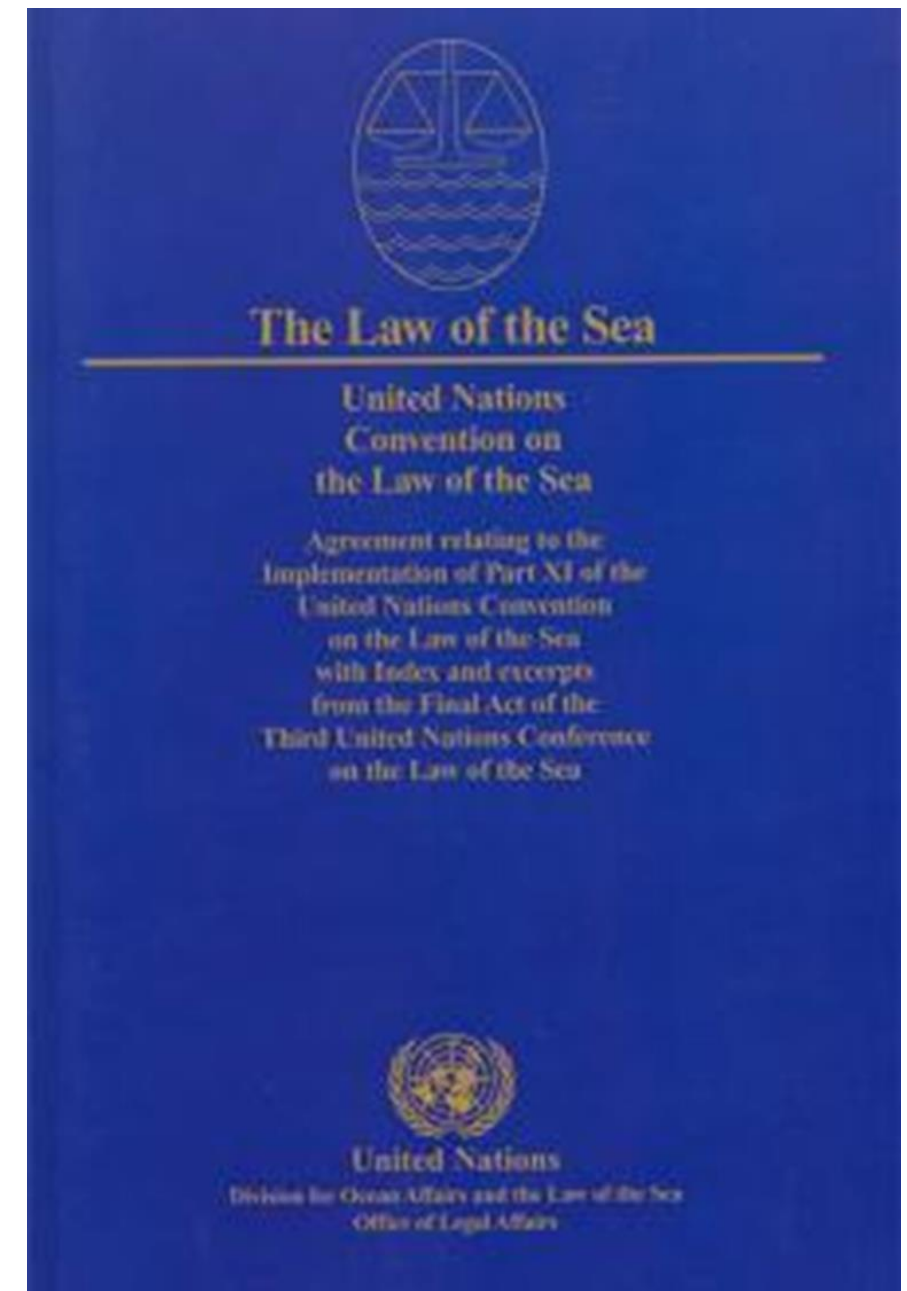
1. **International Maritime Conventions**
2. IMO's Efforts
3. Current Issues

1 International Conventions

UNCLOS

United Nations Convention on the Law of the Sea

- Global legal framework for ocean governance



1 International Conventions

UNCLOS:

Article 94 - **flag State** jurisdiction;

Articles 21/35/41/54 - **coastal State** jurisdiction;

Article 218 – **port State** jurisdiction;

1 International Conventions

IMO

**International
Maritime
Organization**



1 International Conventions

IMO is referred to, in UNCLOS, the

“**competent international organization**”,
in connection with international shipping rules and
standards concerning **maritime safety**,
efficiency of **navigation** and prevention and control
of marine pollution from ships.

1 International Conventions

UNCLOS and IMO Instruments

- UNCLOS is a framework convention;
- UNCLOS general provisions can be implemented only through operative regulations in other international agreements, like IMO rules and standards.

1 International Conventions

The best way of improving safety of navigation at sea is by developing international regulations that are followed by all shipping nations.

IMO first task was to develop SOLAS, then followed with others like COLREGs, SAR etc.

1 International Maritime Conventions

IMO safety conventions:

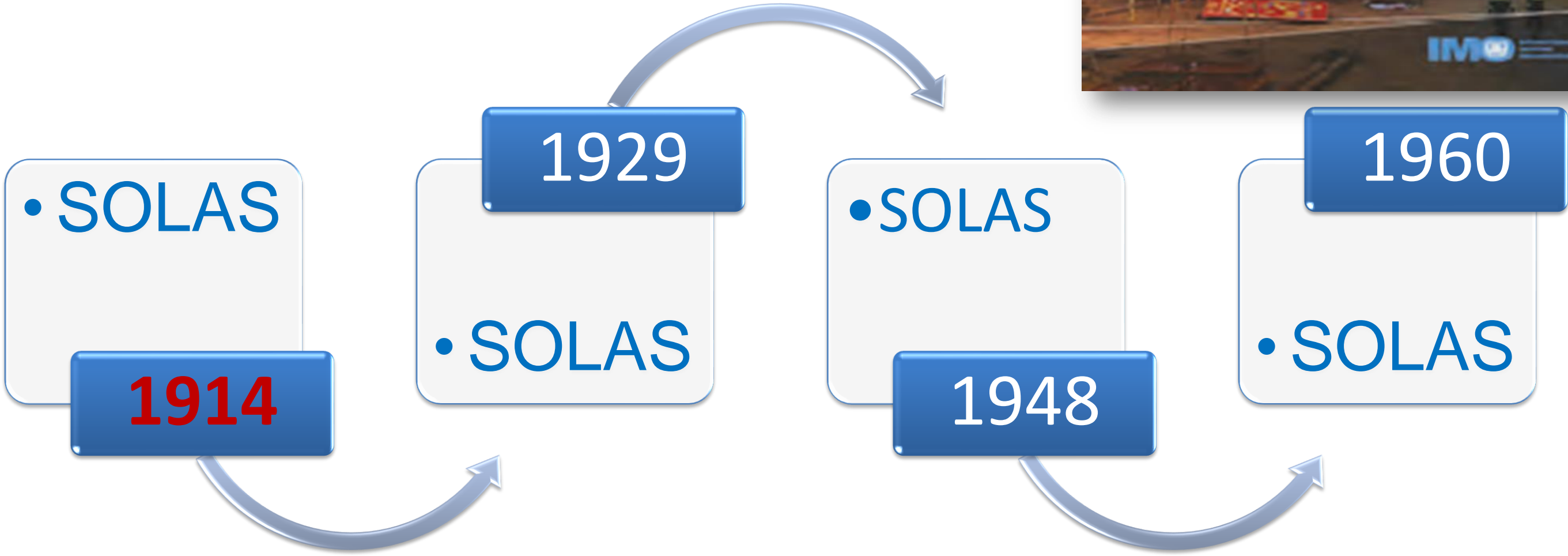
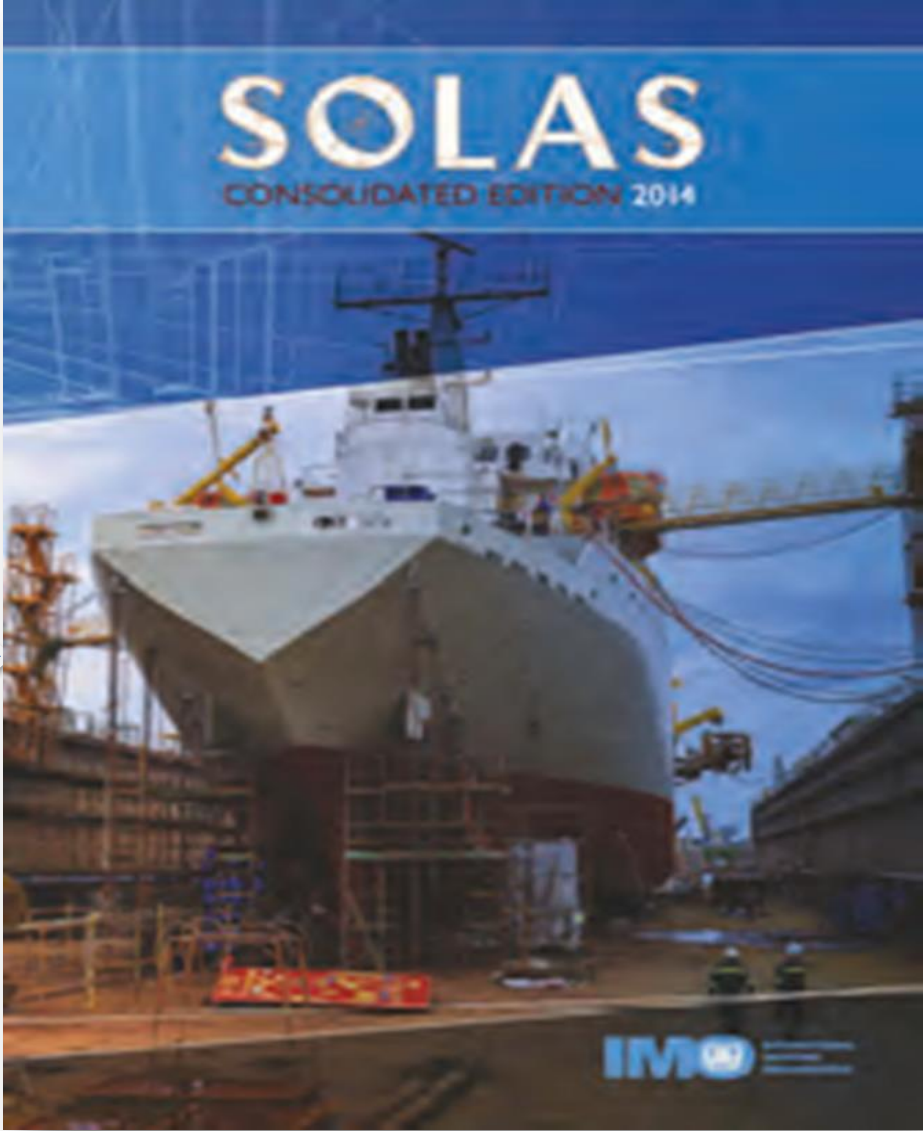
- SOLAS 1974,
- Load Lines 1966,
- Tonnage 1969,
- COLREG 1972,
- STCW 1978, (Manila Amendments)
- SAR 1979

1 International Conventions

SOLAS

International
Convention of Safety
of Life at Sea





1 International Conventions

SOLAS Chapters

V Safety of navigation

IX Management of safe operation of ships

XI-1 Special measures to enhance maritime safety

XI-2 Special measures to enhance maritime security

1 International Conventions

Chapter V Safety of navigation

- **Navigation & meteorological warnings**
- **Search and rescue**
- **Ships' routing**
- **Ship reporting system**

1 International Conventions

Chapter V Safety of navigation

- Vessel traffic services
- Ships' manning
- Long-range identification and tracking of ships
- Safe navigation

1 International Conventions

COLREGs

Convention on the
International
Regulations for
Preventing Collisions
at Sea, 1972



1 International Conventions

COLREGs include 38 rules divided into five sections:

Part A - General;

Part B - Steering and Sailing;

Part C - Lights and Shapes;

Part D - Sound and Light signals;

Part E - Exemptions.

1 International Conventions

Part A - General

Part B - Steering and Sailing;

Part C - Lights and Shapes

Part D - Sound and Light signals

Part E - Exemptions

1 International Conventions

COLREGs

There are also four Annexes of technical requirements

- lights and shapes & their positioning;
- sound signalling appliances;
- additional signals for fishing vessels;
- international distress signals.

1 International Conventions

STCW 1978,

Manila Amendments

**International Convention
on Standards of Training,
Certification and
Watchkeeping for
Seafarers,**



1 International Conventions

STCW Convention

Chapter II Master/deck de

Chapter III Engine dept.

Chapter V Special training

...

Chapter VIII Watchkeepin



1 International Conventions

SAR 1979

International Convention
on Maritime Search and
Rescue, 1979



1 International Conventions

SAR 1979

Chapter 1 – Terms and definition

Chapter 2 – Organization and co-ordination

Chapter 3 – Co-operation between States

Chapter 4 – Operating procedures

Chapter 5 – Ship reporting systems

IMO and Its Roles

1. International Conventions
- 2. IMO's Efforts**
3. Current Issues

2 IMO's Efforts

Shipping is the most international of all the world's great industries, and one of the most dangerous.



2 IMO's Efforts

Maritime safety involves:

- Ship design and construction
- Ship system and equipment
- Carriage of cargoes and containers
- Navigation, communication and SAR
- Human element, training & watchkeeping

2 IMO's Efforts

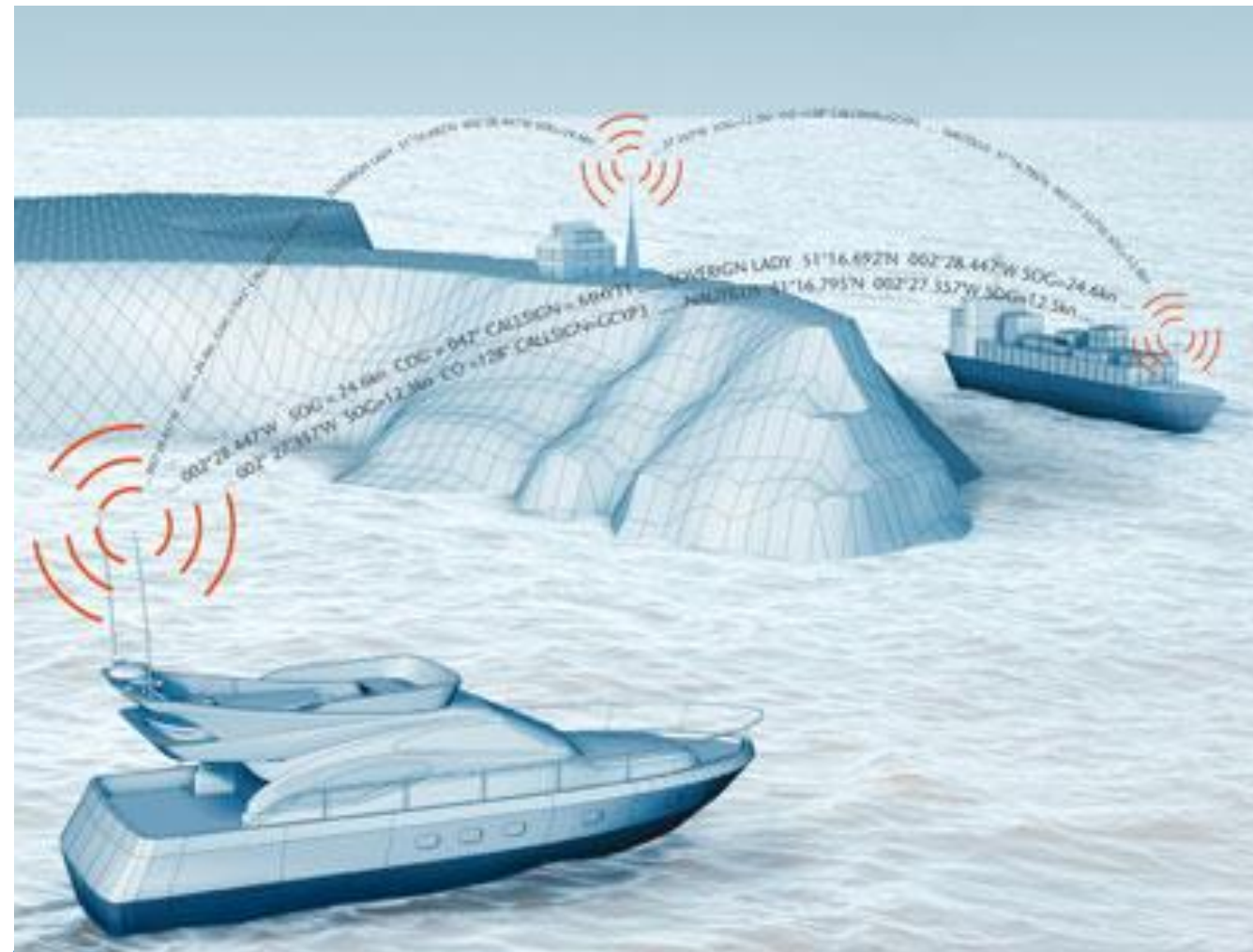
IMO has always paid great attention to improvement of navigational safety:

- IMO conventions / legal instruments (SOLAS, COLREG, STCW etc.);
- Standards and Codes
- Technical measures

2 IMO's Efforts

AIS

Automatic identification systems are capable of providing information about the ship to other ships and to coastal authorities automatically.



2 IMO's Efforts

ECDIS

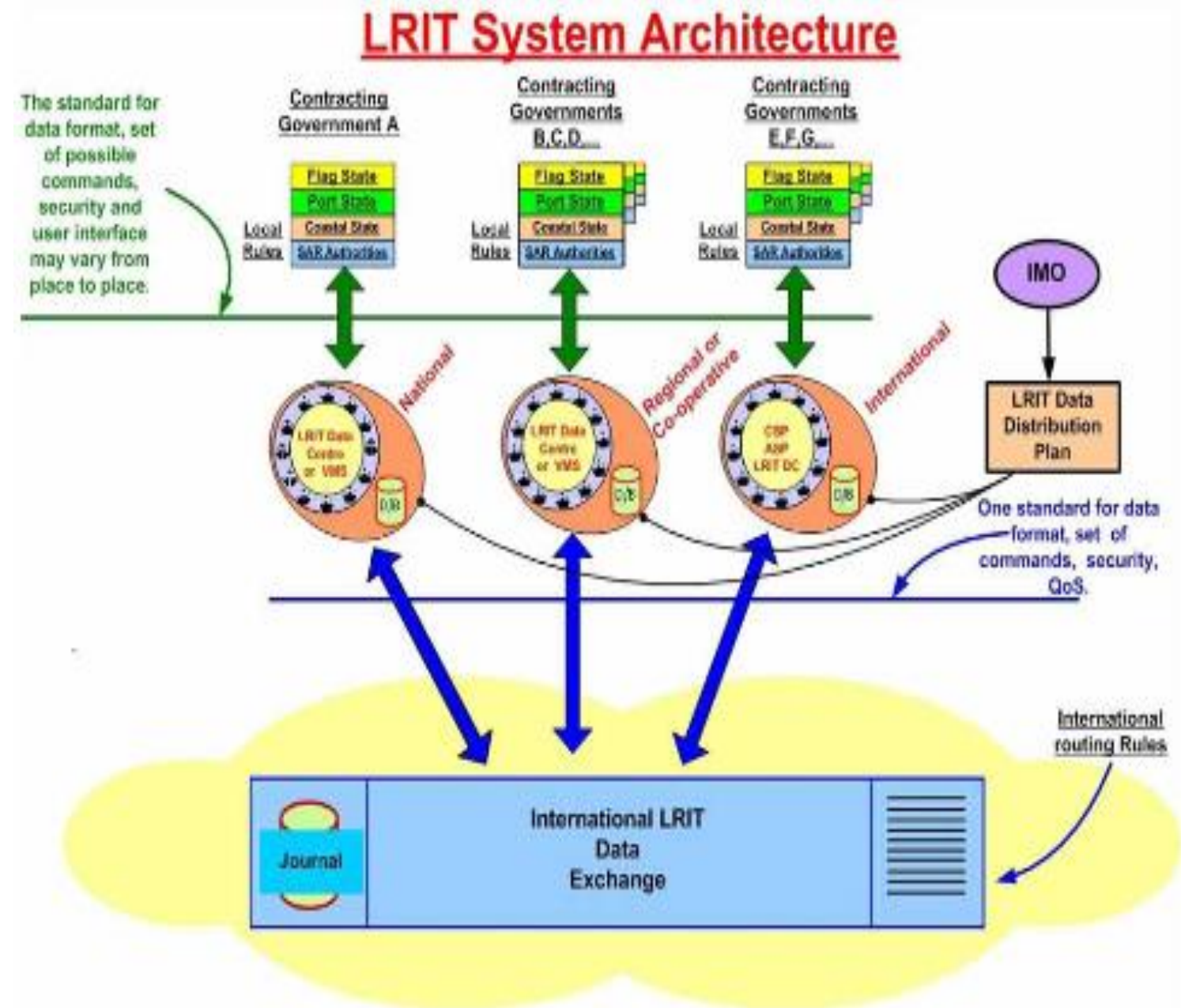
Electronic Chart Display and Information Systems are mandatory to carry for new ships since 1 Jan. 2011.



2 IMO's Efforts

LRIT

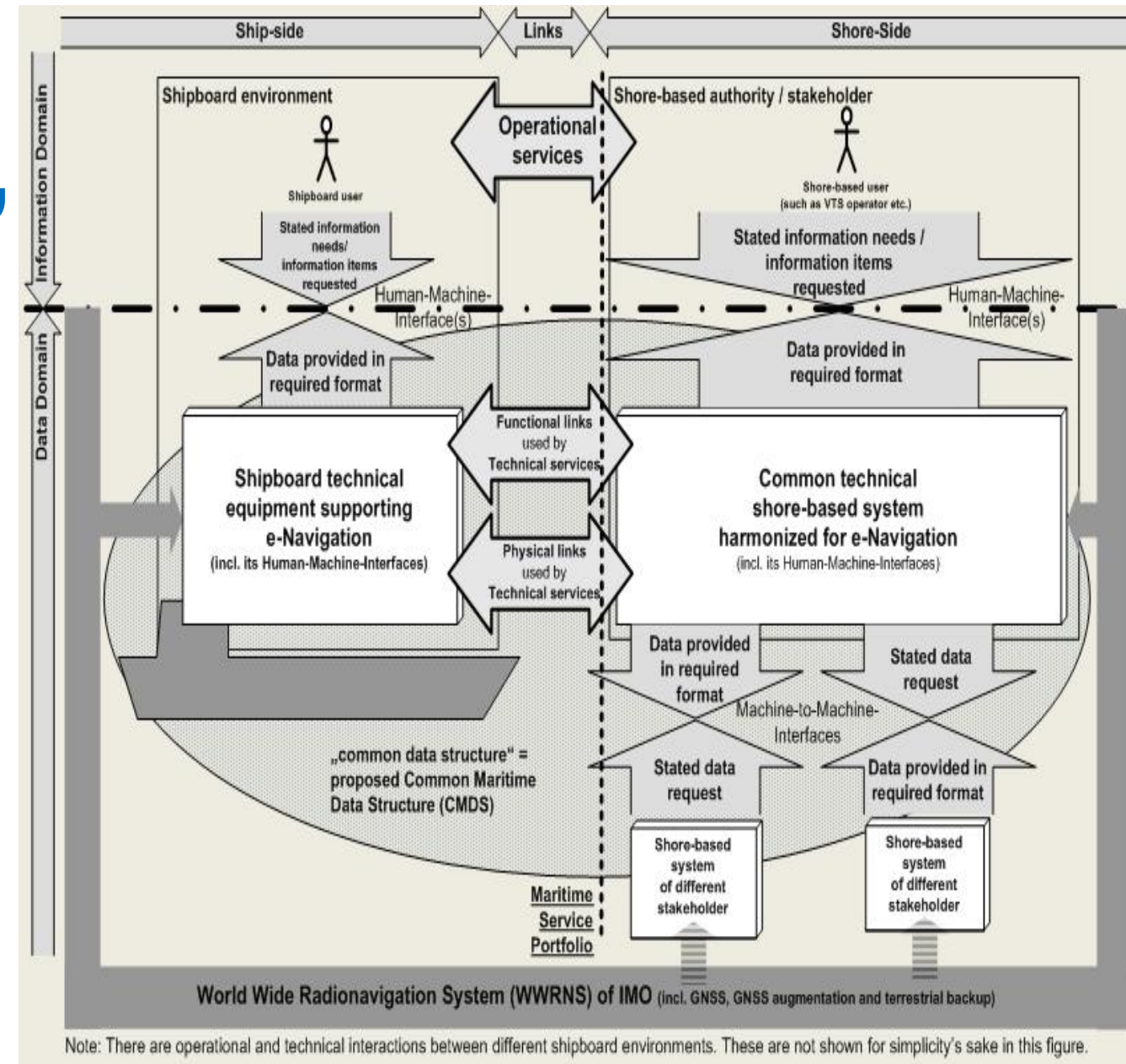
Long-range identification and tracking provides for global identification and tracking of ships.



2 IMO's Efforts

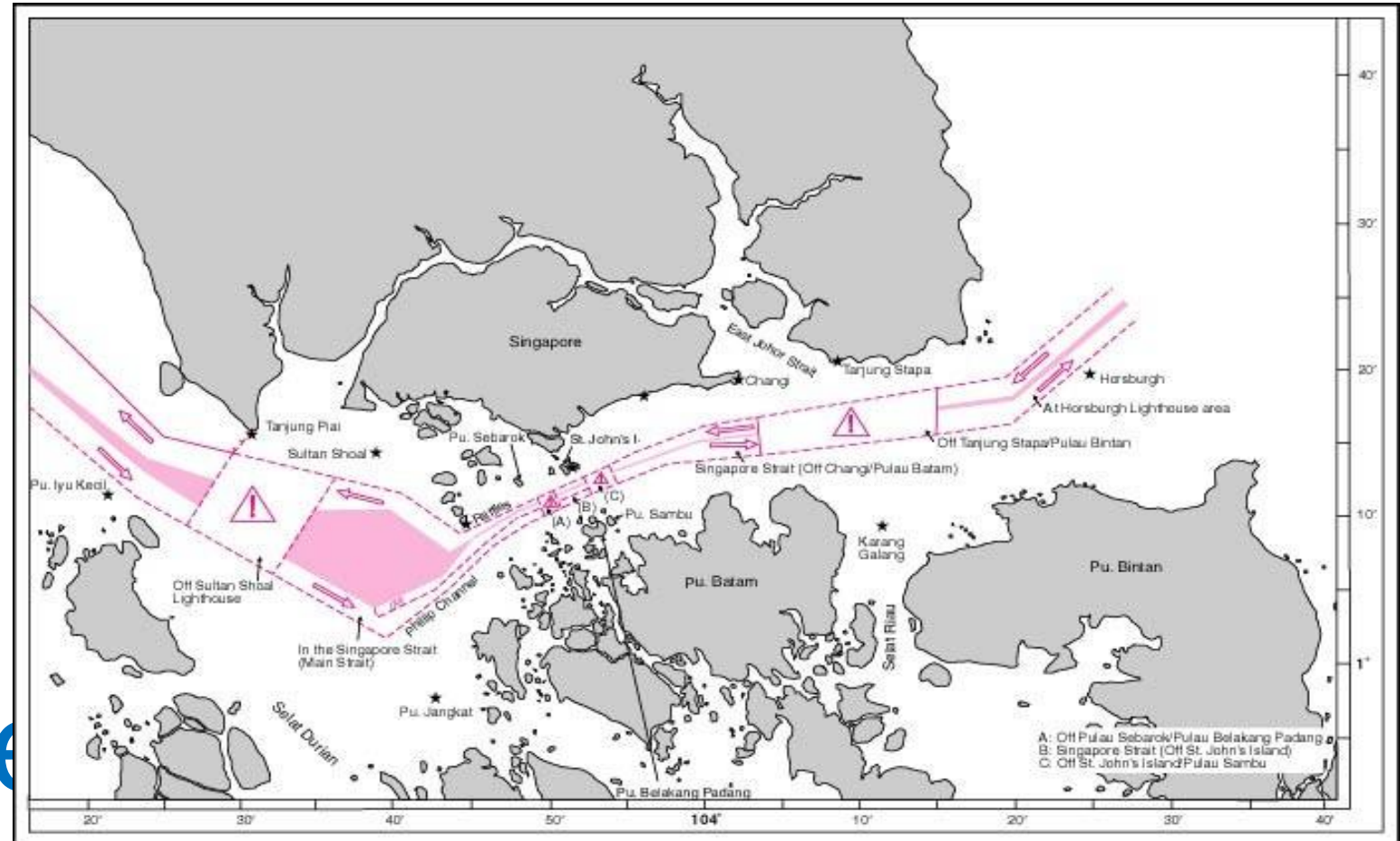
E-navigation

harmonised collection, integration, exchange, presentation, analysis of marine information to enhance navigation safety and security at sea and protection of marine environment.



2 IMO's Efforts

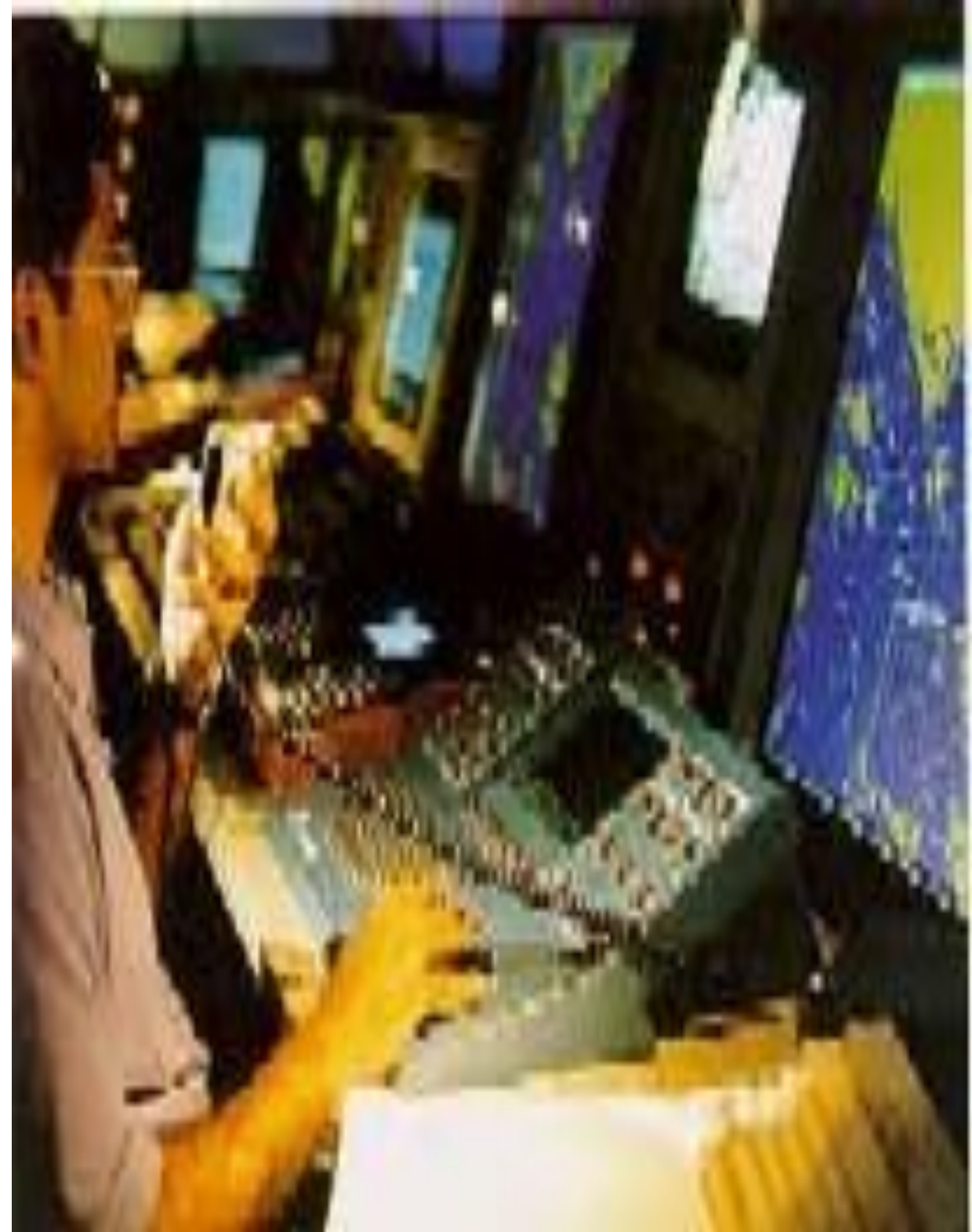
Ships' routeing
TSS & ship routeing
are established in
major congested
shipping areas, where
collisions & groundings
are greatly reduced.



2 IMO's Efforts

VTS

Vessel Traffic Services are shore-side services providing information to ships, management of traffic within a port or waterway.



2 IMO's Efforts

Preventing Collisions at Sea

Guidance for determining safe speed, risk of collision and conduct of vessels operating in or near TSS.



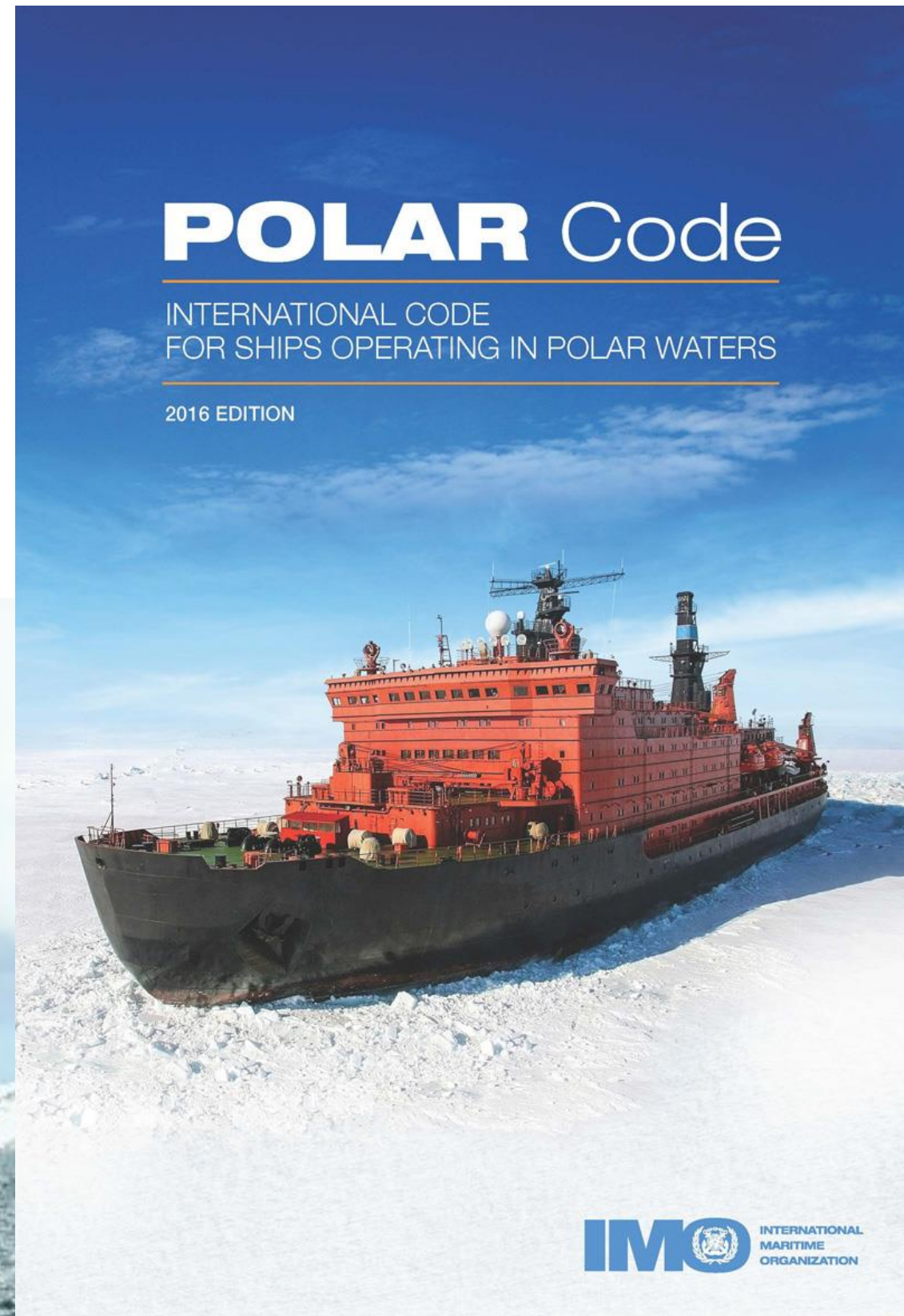
2 IMO's Efforts

**Safety of
Ro-Ro Ships,
Passenger
Ships.**



2 IMO's Efforts

Shipping in Polar Waters



2 IMO's Efforts

FSA

Formal Safety Assessment is a structured and systematic methodology, aimed at enhancing **maritime safety**, including protection of life, health, the marine environment, using **risk analysis** and cost benefit assessment.

2 IMO's Efforts

GBS

Goal-based standards are high-level standards and procedures that are to be met through regulations, rules and standards for ships.

2 IMO's Efforts

Conventions;

Performance standards;

Technical measures;

Functional requirements.

IMO and Its Roles

1. International Conventions
2. IMO's efforts
3. **Current Issues**

3 Current Issues



MSC 98

Maritime Safety Committee, June 2017



Agenda Items at MSC 98

- Maritime Autonomous Surface Ship;
- Passenger ship stability amendments;
- Cyber risk management;
- Piracy & armed robbery against ships;
- Goal-based standards verification audit;

MSC 98

- E-navigation strategy and operational safety;
- Ships routing systems;
- SOLAS amendments;
- IMSBC, HSC, LSA, MODU Codes amendments;

MSC 98

- Functional requirements of SOLAS chapter III;
- GMDSS modernization plan;
- Guidance and guidelines;

Maritime Autonomous Surface Ships (MASS) Scoping exercise

- IMO takes a proactive & leading role;
- scoping exercise is a starting point;
- this will be completed in four MSC sessions, through to mid-2020.

Scoping exercise is to touch on issues:

- human element,
- maritime safety & security,
- interactions with ports & pilotage,
- responses to incidents,
- protection of marine environment,

Scoping exercise is to address:

- different **levels** of automation,
- semi-autonomous to unmanned ships,
- **definition** of autonomous ship,

Maritime Autonomous Surface Ship

Levels of autonomy (Lloyds Register)

AL 0	Manual – no autonomous function.
AL 1	On-ship decision support
AL 2	On and off-ship decision support
AL 3	'Active' human in the loop
AL 4	Human on the loop – operator/supervisory
AL 5	Fully autonomous – rarely supervised
AL 6	Fully autonomous - unsupervised

Source: LloydsRegister: Cyber-enabled ships, July 2016

Scoping exercise is to consider:

- **legal aspects,**
- **responsibility** in MASS accident,
- **consequences** to cargo,
- **implications** to shoreside,

Scoping exercise includes identifying:

- a) IMO regulations which preclude **autonomous and unmanned** operations;

Scoping exercise includes identifying:

- b) IMO regulations that would have **NO** application to autonomous and unmanned operations, as they relate purely to a human presence on board;

Scoping exercise includes identifying:

- c) IMO regulations which do not preclude unmanned operations but may need to be **amended** in order to ensure that the **construction and operation** of MASS are carried out safely, securely, and in an environmentally sound manner.

Maritime cyber risk management

Resolution on maritime cyber risk management in safety management systems is adopted.

Administrations to ensure that maritime cyber risks are appropriately addressed in safety management systems no later than the first annual verification of the company's Document of Compliance after **1 January 2021**.

Mandatory International Safety Management (ISM) Code includes a requirement for all identified risks to ships, personnel and the environment to be assessed and for appropriate safeguards to be established.

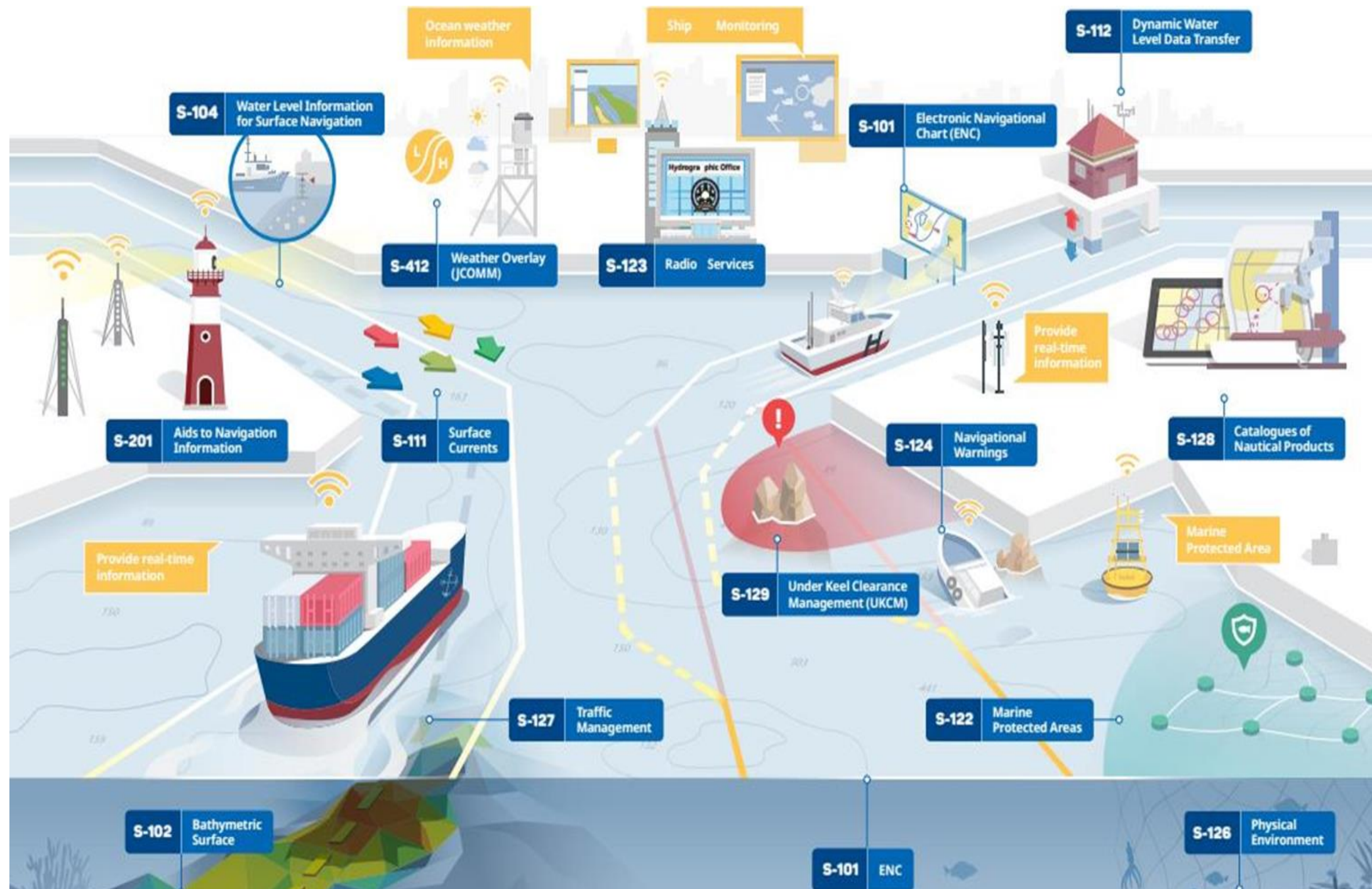
E-navigation strategy

Guidelines for shipborne position, navigation and timing (PNT) data processing, which provides guidance on enhancing safety and efficiency of navigation by improved provision of position, navigation and timing (PNT) data to bridge teams, including pilots, and shipboard applications (AIS, ECDIS).

E-Navigation application in China

E-Pearl River

- green routes,
 - safe,
 - secure,
 - efficient,
 - env. Sound.
- ...



Marine Environment Protection Committee 71

IMO, the United Nations agency charged with regulating international shipping, has progressed its environmental agenda at the recent meeting of MEPC 71 held 3 to 7 July,

- clarified ballast water management schedule,
- progressed GHG and air pollution issues,
- adopted new NOx emission control areas,
- designated a Particularly Sensitive Sea Area,
- agreed to work on implementation of 0.50% global sulphur limit.

Ballast Water Management Convention clarity

MEPC 71 agreed a practical implementation schedule for ships to comply with the IMO Ballast Water Management (BWM) Convention, which aims to stem the transfer of potentially invasive species in ships' ballast water.

- BWM treaty enters into force on 8 September 2017.
- By 11 October 2017, the BWM Convention has been ratified by **65** countries, representing **73.92%** of world merchant shipping tonnage.
- Indonesia, Malaysia, Singapore,

Implementation of global sulphur limit

- MEPC 71 agreed the scope of work needed to achieve consistent implementation of the **0.50%** m/m global limit of the sulphur content of ships' fuel oil, which will come into effect from 1 January 2020
- adopted amendments to MARPOL Annex VI to designate North Sea and Baltic Sea as emission control areas (ECAs) for nitrogen oxides (**NO_x**),
- Both ECAs will take effect on 1 January 2021,

Designation of Tubbataha Reefs Natural Park (Philippines) as a PSSA

- MEPC 71 approved the final designation of the **Tubbataha Reefs Natural Park**, situated in the Sulu Sea, Philippines as a Particularly Sensitive Sea Area (PSSA),
- the aim is to reduce the risk of ship groundings in the park, thereby preventing any resulting marine pollution and damage to the fragile coral reef ecosystem, as well as ensuring the sustainability of local artisanal fisheries.

Reduction of greenhouse gas emissions from ships

- MEPC 71 continued to build on solid work IMO has undertaken to address greenhouse gas (GHG) emissions from international shipping,
- adoption of an initial IMO strategy on the reduction of GHG emissions from ships in 2018,
- second meeting of Intersessional Working Group on Reduction of GHG Emissions from Ships held 23 to 27 October 2017 has made progress in starting to shape a draft initial IMO GHG strategy
- refining vision for IMO's further commitment to reducing GHG emissions from international shipping.

IMO Secretary-General Kitack Lim said,

- The working group made some considerable progress in bringing together the proposals for the different elements of the draft IMO GHG strategy.
- I am confident that Member States will continue to work on this ahead of the next working group session, to build convergence so that the draft initial IMO GHG strategy can be adopted as planned at the next MEPC session in April 2018.



Thank You

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