

SUSTAINABLE ENVIRONMENT PROTECTION IN SHIPPING

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International Maritime Organization (IMO)



Basic facts



- UN specialized agency with Headquarters in London
- Safety and security of international shipping and prevention of pollution from ships
- 171 Member States and 3 Associate Members
- 77 NGOs and 65 IGOs affiliated
- Annual budget £30+ million
- Secretariat - 265 staff



Environmental issues

Marine Environment Protection Committee (MEPC)

IMO's senior technical body on marine pollution related matters, aided in its work by a number of IMO's Sub-Committees.

Sub-Committee on Pollution Prevention and Response (PPR)

Prevention and control of pollution of the marine environment; recycling of ships; evaluation of safety and pollution hazards of liquid substances in bulk transported by ships; control and management of harmful aquatic organisms in ships' ballast water and sediments; biofouling; pollution preparedness, response and cooperation for oil and hazardous and noxious substances.

Sub-Committees under MEPC and MSC (Maritime Safety Committee)

Sub-Committee on Implementation of IMO Instruments (III)
Sub-Committee on Carriage of Cargoes and Containers (CCC)



IMO's work on environmental issues

- MARPOL
- Air pollution and energy efficiency
- Greenhouse gas (GHG) emissions
- Ballast water management
- Ship recycling
- Ships operating in polar waters (Polar Code)
- Pollution preparedness and response (OPRC)
- Dumping of wastes at sea (London Convention)
- Scientific advice (GESAMP)



International Convention for the Prevention of Pollution from Ships

Annex I: Oil

Annex II: Noxious liquid substances in bulk

Annex III: Harmful substances in packaged form

Annex IV: Sewage

Annex V: Garbage

Annex VI: Air pollution

(2008 NO_x Technical Code)





Review required by MARPOL reg VI/14.8

MARPOL regulations

■ Regulation 14.1.3 of Annex VI:

- 1 The sulphur content of any fuel oil used on board ships shall not exceed the following limits: ...

.3 0.50% m/m on and after
1 January 2020.

■ Regulation 14.8 of Annex VI:

- 8 A review of the standard set forth in paragraph 1.3 of this regulation shall be completed by 2018 to determine the availability of fuel oil to comply with the fuel oil standard set forth in that paragraph and shall ...

Steering Committee

- Review initiated in September 2015
- Steering Committee established to oversee review
- Following tender process CE Delft was awarded contract for review study
- Steering Committee meets regularly to consider progress reports by CE Delft
- Final report expected for July 2016, for consideration and decision at MEPC 70 (Oct. 2016)

Air pollution - Fuel oil quality



Development of control measures agreed

Outcome of Committees

- MEPC 66: agreed to develop possible quality control measures for fuel oil delivered to ships
- MSC 93: "out of specification" marine fuels are serious safety issue
- MEPC 67 to 69: correspondence group considers issues
- MEPC 69 encouraged fuel oil supply industry to develop draft best practice for fuel oil providers and agreed that best practice for oil purchasers/users and for Member States/coastal States

Correspondence group

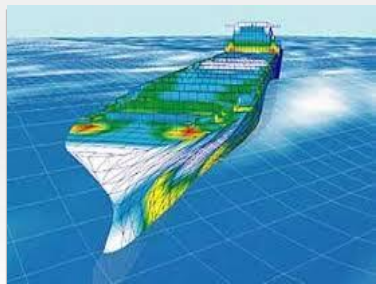
CG re-established and instructed to:

- develop best practice for fuel oil providers and agreed that best practice for oil purchasers/users and for Member States/coastal States
- report to MEPC 71 (May 2016)





EEDI – Energy Efficiency Design Index



MARPOL Annex VI:

Chapter 3: Requirements for control of emissions from ships

Chapter 4: Regulations on energy efficiency of ships

(entered into force on 1 January 2013)



Mandatory under chapter 4:

EEDI – Energy Efficiency Design Index

SEEMP – Ship Energy Efficiency Management Plan

IEE (International Energy Efficiency Certificate)

$$\text{EEDI} = \frac{\text{Impact to environment}}{\text{Benefit to society}} = \frac{\text{Power} \times \text{fuel consumption} \times \text{CO}_2 \text{ emission factor}}{\text{Capacity} \times \text{ship speed}}$$

(transportation work)



Third IMO GHG Study 2014 approved at MEPC 67

Study found that shipping, in total, accounted for approximately 3.1% of annual global CO₂ emissions for the period 2007–2012. For international shipping, the CO₂ estimate dropped from **2.8% in 2007** to **2.2% in 2012**.

Year	Global CO ₂	Total shipping	% of global	International shipping	% of global
2007	31,409	1,100	3.5%	885	2.8%
2008	32,204	1,135	3.5%	921	2.9%
2009	32,047	978	3.1%	855	2.7%
2010	33,612	915	2.7%	771	2.3%
2011	34,723	1,022	2.9%	850	2.4%
2012	35,640	938	2.6%	796	2.2%
Average	33,273	1,015	3.1%	846	2.6%

Monitoring of emissions



Data collection system for fuel consumption

Outcome of MEPC 69

- Mandatory data collection system for fuel consumption of ships approved for adoption at MEPC 70 (Oct 2016)
- Part of three-step approach: data collection; data analysis; and consideration of policy options and decision-making on any measures
- Basis for further work on GHG emissions from shipping by delivering concrete data to work with

Correspondence group

- Corresponding amendments to SEEMP Guidelines
- Guidelines for data verification procedures
- Electronic communication and standardized reporting format
- IMO Ship Fuel Consumption Database
- Guidelines to address non-party ships submitting data



Further action on climate change

- MEPC 69 welcomed Paris Agreement as major achievement by international community
- Also unanimously recognized IMO's role in mitigating impact of GHG emissions from international shipping and acknowledged current efforts and measures already introduced to enhance energy efficiency of ships
- Data collection system as significant contribution to ongoing work by international community to mitigate climate change
- IMO only Organization to have adopted energy-efficiency measures legally binding across an entire global industry
- Working group at MEPC 70 to discuss how to progress the matter

Transfer of technology for ships



Ad hoc Working Group



Resolution MEPC.229(65) on Promotion of technical cooperation and transfer of technology relating to the improvement of energy efficiency of ships

Establishes Ad hoc Expert Working Group (TT-EG) on facilitation of transfer of technology for ships



Results considered by MEPC 69 in April 2016

- Impact MARPOL Annex VI on developing countries
- Inventory of energy-efficient technologies for ships (information portal under development – GloMEEP)
- Barriers to transfer of technologies
- Enabling transfer between MARPOL Parties - Model Agreement approved (MEPC.1/Circ.861)

Ballast water management

BWM Convention

Objective: Prevent, reduce and eliminate the risks to environment, human health, property and resources caused by the transfer of aquatic organisms and pathogens by ships.

Discharge of ballast water into the sea shall be managed according to the provisions of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention).

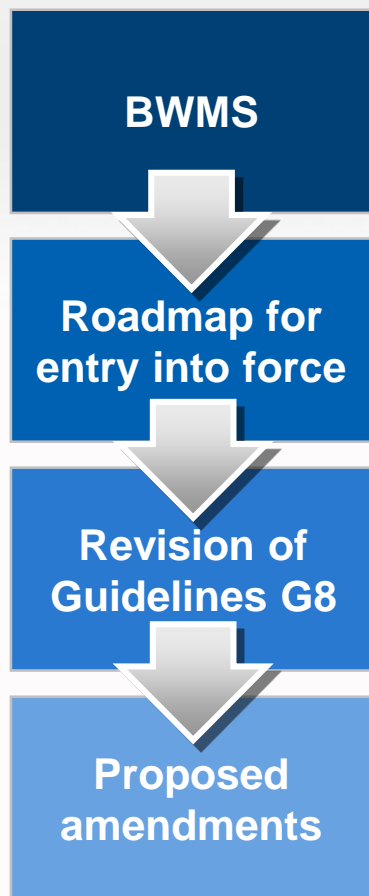
Status: Not yet in force
49 States, 34.81% world fleet
(35% needed for EIF)



Ballast water management



Outcome of MEPC 69 (April 2016)



- Number of type-approved ballast water management systems making use of Active substances reaches 65.
- Roadmap for development of measures to facilitate implementation of the Convention agreed at MEPC 68 as guidance for further work.
- Revision of Guidelines for approval of ballast water management systems (G8) continues in correspondence group.
- Draft amendments to regulation B-3 of the Convention relating to the time scale for implementation of the requirements approved.



Hong Kong Convention

Objective: Ensuring that ships, when being recycled after reaching the end of their operational lives, do not pose any unnecessary risks to human health, safety and the environment.

The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009, addresses all aspects of ship recycling.

Status: Not yet in force
4 accessions
(15 needed for EIF)

- design, construction, operation and preparation of ships so as to facilitate safe and environmentally sound recycling without compromising their safety and operational efficiency
- operation of ship recycling facilities in a safe and environmentally sound manner
- establishment of an appropriate enforcement mechanism for ship recycling, incorporating certification and reporting requirements
- Inventory of Hazardous Materials



IMO/Norad TC project for Bangladesh



Key data

- **Goal:** Improvement of safety and environmental standards in the country's ship recycling industry
- **Partners:** Norad, IMO, BRS, ILO, UNIDO
- **Budget:** US\$ 1.2 million from Norad, US\$ 250,000 from EU/BRS
- **Timeframe:** October 2014 to December 2016 (26 months) (Phase I)



New mandatory requirements for polar shipping



- **International Code for ships operating in polar waters (Polar Code) – Parts I and II**

Adopted in November 2014 by MSC (Part I) and May 2015 by MEPC (Part II). Will take effect on **1 January 2017** upon entry into force of associated SOLAS and MARPOL requirements.

- **Amendments to SOLAS (new chapter XIV)**
- **Amendments to MARPOL Annexes I, II, IV and V**

Will make parts I-A (Safety measures) and II-A (Pollution prevention measures) of the Polar Code mandatory. Expected to enter into force on 1 January 2017.

HOW THE **POLAR** CODE PROTECTS THE ENVIRONMENT

OIL



DISCHARGES

Discharge into the sea of oil or oily mixtures from any ship is prohibited



STRUCTURE

Double hull and double bottom required for all oil tankers, including those less than 5,000dwt (A/B ships constructed on or after 1 January 2017)



HEAVY FUEL OIL

Heavy fuel oil is banned in the Antarctic (under MARPOL). Ships are encouraged not to use or carry heavy fuel oil in the Arctic



LUBRICANTS

Consider using non-toxic biodegradable lubricants or water-based systems in lubricated components outside the underwater hull with direct seawater interfaces

INVASIVE SPECIES



INVASIVE AQUATIC SPECIES

Measures to be taken to minimize the risk of invasive aquatic species through ships' ballast water and biofouling

SEWAGE



DISCHARGES I

No discharge of sewage in polar waters allowed (except under specific circumstances)



TREATMENT PLANTS

Discharge is permitted if ship has an approved sewage treatment plant, and discharges treated sewage as far as practicable from the nearest land, any fast ice, ice-shelf, or areas of specified ice concentration



DISCHARGES II

- Sewage not comminuted or disinfected can be discharged at a distance of more than 12nm from any ice-shelf or fast ice
- Comminuted and disinfected sewage can be discharged more than 3nm from any ice-shelf or fast ice

GARBAGE



PLASTICS

All disposal of plastics prohibited (under MARPOL)



FOOD WASTES I

Discharge of food wastes onto the ice is prohibited



FOOD WASTES II

Food wastes which have been comminuted or ground (no greater than 25mm) can be discharged only when ship is not less than 12nm from the nearest land, nearest ice-shelf, or nearest fast ice



ANIMAL CARCASSES

Discharge of animal carcasses is prohibited



CARGO RESIDUES

Cargo residues, cleaning agents or additives in hold washing water may only be discharged if: they are not harmful to the marine environment; both departure and destination ports are within Arctic waters; and there are no adequate reception facilities at those ports. The same requirements apply to Antarctic area under MARPOL

BACKGROUND INFO



THE INTERNATIONAL CODE FOR SHIPS OPERATING IN POLAR WATERS WILL ENTER INTO FORCE ON 1 JANUARY 2017

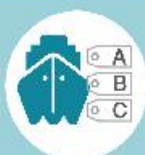


IT APPLIES TO SHIPS OPERATING IN ARCTIC AND ANTARCTIC WATERS: ADDITIONAL TO EXISTING MARPOL REQUIREMENTS



IT PROVIDES FOR SAFE SHIP OPERATION AND PROTECTS THE ENVIRONMENT BY ADDRESSING THE UNIQUE RISKS PRESENT IN POLAR WATERS BUT NOT COVERED BY OTHER INSTRUMENTS

DEFINITIONS



SHIP CATEGORIES

Three categories of ship designed to operate in polar waters in:

- A) at least medium first-year ice
- B) at least thin first-year ice
- C) open waters/ice conditions less severe than A and B



FAST ICE: Sea ice which forms and remains fast along the coast, where it is attached to the shore, to an ice wall, to an ice front, between shoals or grounded icebergs

ICE-SHELF: A floating ice sheet of considerable thickness showing 2 to 50m or more above sea-level, attached to the coast

CHEMICALS



DISCHARGES

Discharge of noxious liquid substances (NLS) or mixtures containing NLS is prohibited in polar waters

Pollution preparedness and response



OPRC Convention and Protocol

International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 (OPRC 90) provides framework to facilitate international co-operation and mutual assistance in major oil pollution incidents.

Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances, 2000 (OPRC-HNS Protocol) extends regulatory framework to address pollution incidents involving hazardous and noxious substances, i.e. chemicals.





Latest guidelines addressing certain aspects



Approved by MEPC 68 (May 2015)

- Guidelines on international offers of assistance in response to a marine oil pollution incident
- Part III of the Guidelines for the use of dispersants for combating oil pollution at sea (Operational and technical sheets for surface application of dispersants)



Expecting approval by MEPC 70 (October 2016)

- Part IV of the IMO Dispersant Guidelines (Sub-sea dispersant application)
- Section II of the Manual on Oil Pollution – Contingency Planning
- Guide on oil spill response in snow and ice conditions
- Update of the IMO OPRC Model Courses

Dumping of wastes at sea



London Convention and Protocol

Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972, and its 1996 Protocol.

Regulate dumping of wastes and other matter at sea, by providing framework to prevent, reduce and where practicable eliminate marine pollution caused by dumping.

Annual meetings of Contracting Parties held at IMO and report directly to Council and Assembly.



Joint group of experts on scientific aspects of marine protection



GESAMP



Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) provides authoritative, independent, interdisciplinary scientific advice to organizations and governments to support the protection and sustainable use of the marine environment



- established in 1996, Secretariat hosted by IMO (MED)
- sponsored by 9 UN agencies with interests and responsibilities in marine environmental matters
- GESAMP experts participate in individual capacity
- IMO leads 2 working groups: EHS and BWG



IMO



FAO



UNESCO



IOC



WMO



UNIDO



IAEA



UN

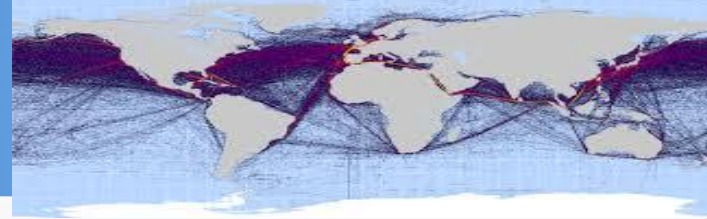


UNEP



UNDP

Thank you for listening.



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