



IUMI Policy Agenda





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¹ Items are listed in alphabetical order.
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UNDER REVIEW

1. Autonomous / unmanned transports

Brief description

Unmanned transports are gaining acceptance from industry and public entities as research and innovation bring the possibility of driverless trucks and vessels closer to realization. This raises some legal and liability issues that need to be resolved.

Insurers also need to address the risks related to innovative technologies and the internet of things. New types of failure modes may be introduced due to the lack of knowledge and unforeseen interdependencies in the system design, operation complexity, and environmental challenges. Cyber-attacks, connectivity, interactions between components and between technical systems and humans, and autonomy assisted accidents are among the challenges.

To become insurable, the use of autonomous systems must rely on proper industry standards, certification and classification regimes. Verification of safe performance is crucial.

Vessels

An unmanned vessel can be both remote controlled or fully automated, and it has been suggested that the first crewless vessel will be in service by the end of the decade. Most likely, there will be a number of variations and a stepwise progress, including the use of automated technologies with a reduced number of crew on board and for certain manoeuvres.

A proposal on how to characterize and classify ship autonomy is currently considered by the International Organization for Standardization (ISO). MSC has thus far agreed to focus on the following two levels of autonomy: (1) Remotely controlled ship with seafarers on board and (2) Remotely controlled ship without seafarers on board.

Interim guidelines for trials of MASS were finalized by MSC in June 2019. As a basic principle, these trials shall meet at least the same level of safety, security and environmental protection as required for conventional vessels.

In May 2021, MSC 103 approved the outcome of a regulatory scoping exercise (RSE) undertaken to determine the extent of the need to amend the regulatory framework to enable the safe, secure and environmental operation of maritime autonomous surface ships (MASS) within the existing IMO instruments. In April 2022, MSC 105 agreed to develop a non-mandatory, goal-based code for MASS, potentially entering into force on 1 January 2028 as a mandatory code through SOLAS and other IMO instruments. In June 2023, MSC 107 progressed the development of the code and agreed in principle that the code would apply to SOLAS cargo vessels and high-speed craft. It was further agreed in principle that the code should contain a risk-analysis based approach, that a human master shall be responsible regardless of the vessel's mode of operation and that there was

no need to amend COLREG to accommodate MASS at this stage. The non-mandatory MASS Code is planned to be ready by 2025. The work will continue in a Correspondence Group until MSC 108 in May 2024.

The outcome of a similar regulatory scoping exercise and gap analysis of conventions was approved by the IMO Legal Committee (LEG) in July 2021, while the Facilitation Committee (FAL) approved results of their scoping exercise in May 2022.

In January 2022, the Chairs of the three IMO committees proposed to establish a joint MSC-LEG-FAL Working Group on MASS to meet intersessionally. The first meeting of the WG was held in September 2022.

There are also several other initiatives relating to legislation and insurance of autonomous vessels. These include; Comité Maritime International (CMI) has formed an International Working Group on Unmanned Vessels, Association Mondiale de Dispatcheurs (AMD) are considering how the adoption of unmanned vessels may impact marine insurance claims and the application of general average, and the International Group of P&I Clubs (IG) has formed a working group to consider liability matters. BIMCO is drafting a standard contract for autonomous vessels, adapted from the SHIPMAN 2009 agreement, and titled AUTOSHIPMAN. The contract will include provisions for autonomous vessel-related services and the operation of a remote control centre.

Trucks

Autonomous trucks have the potential to make freight transport more efficient, cost-effective, reliable, sustainable and, above all, safer. Autonomous trucks also hold the potential to solve one of the biggest problems plaguing the trucking industry – a massive labour shortage. These factors are driving the demand for self-driving trucks.

In 2019, experts from the World Forum for Harmonization of Vehicle Regulations (WP.29) under the leadership of China, the European Union, Japan and the United States, have developed a Framework Document to guide the future normative work of the United Nations on this strategic area for the future of mobility. WP.29 adopted in 2021 an amendment to a United Nations Regulation on Automated Lane Keeping Systems (ALKS) that lays down the technical requirements for their use in heavy vehicles including trucks, which makes it the first binding international regulation for the introduction of so-called SAE Level 3 vehicle automation in heavy vehicles on the roads.

In Europe, the approval for a fully automated commercial vehicle (SAE Level 4 or 5) still faces massive hurdles. The existing EU law always requires a person in command of the vehicle and thus the full controllability of the vehicle. Pending harmonization under EU law, some EU member states (e.g. Germany) are willing to establish a national legal framework to create suitable conditions for the introduction of regular operations.

There are various pilots worldwide where trucks roll along public roads, with these test vehicles either having a safety driver in the cab to take over should issues arise or being accompanied by a mobile support team.

Samples

- 2019, self-driving trucks on highways in southwest Virginia/USA (TORC)
- 2021, self-driving trucks on the E4 motorway between Södertälje and Jönköping in Sweden (SCANIA)
- 2022, self-driving trucks on roads in the western city of Deding/China (ALIBABA)
- 2022, remote controlled trucks on western highways in Tennessee/USA (EINRIDE)

Relevant authority / organisations and documents

- **IMO – Maritime Safety Committee (MSC), Legal Committee (LEG), Facilitation Committee (FAL):**
 - **MSC98/20/13:** Comments on MSC98/20/2, submitted by the International Transport Workers' Federation (ITF), 13 April 2017.
 - **MSC99/INF.3:** Final report – analysis of Regulatory Barriers to the use of Autonomous Ships, submitted by Denmark, 18 January 2018.
 - **MSC99/INF.5:** Report of a survey on what maritime professionals think about autonomous shipping, submitted by IFSMA and ITF, 9 February 2018.
 - **MSC.1/Circ.1604:** Interim guidelines for MASS trials, 14 June 2019.
 - **LEG107/8:** Summary of results of analysis of IMO instruments under the purview of the Legal Committee, submitted by CMI, 13 December 2019.
 - **MSC102/5/16:** Summary of result analyses of IMO instruments under the purview of the Maritime Safety Committee, submitted by CMI, 11 February 2020.
 - **MSC103/5/3:** Updates to proposed terminology for MASS, submitted by ISO, 15 March 2021.
 - **MSC.1/Circ.1638:** Outcome of the regulatory scoping exercise for the use of maritime autonomous surface ships (MASS), 3 June 2021.
 - **LEG.1/Circ.11:** Outcome of the regulatory scoping exercise and gap analysis of conventions emanating from LEG with respect to MASS, 15 December 2021.
 - **MSC105/7:** Proposal by the Chair for a draft road map for maritime autonomous surface ships, 10 January 2022.
 - **LEG109/13/3 / MSC105/7/4 / FAL46/14/1:** Proposal for the establishment of a joint MSC-LEG-FAL Working Group on MASS to consider common gaps and themes identified during the regulatory scoping exercises conducted by the three committees, submitted by the Chairs of MSC, LEG and FAL, 14 January 2022 / 18 January 2022.
 - **MASS-JWG.1/WP.1:** Report of MSC-LEG-FAL joint working group on MASS on its first session, 9 September 2022.
 - **MSC107/5:** Development of a goal-based instrument for MASS, Report of the Correspondence Group, 27 February 2023.
 - **MASS-JWG2/WP.1:** Report of the MSC-LEG-FAL joint WG on MASS on its second session, 21 April 2023.

- **MSC108/WP.9:** Development of a goal-based instrument for MASS, Report of the Working Group, 7 June 2023.
- **University of Gent:** Article in Journal of International Maritime Law on the law of unmanned merchant shipping – an exploration, Professor Dr Eric Van Hooydonk, 2014
- **Maritime UK & LR:** MASS UK Industry Conduct Principles and Code of Practice (V5), November 2021
- **Maritime Unmanned Navigation through Intelligence in Networks (MUNIN)**
- **Norwegian Forum for Autonomous Vessels**
- **ONE SEA Autonomous Maritime Ecosystem (Finland):** Finnish Maritime Industries, ecosystem for autonomous marine transport in the Baltic Sea in 2025.
- **European Union:**
 - Resolution on Civil law rules on robotics, 16 February 2017.
 - EU Regulation 2019/2144 on vehicle general safety (including autonomous vehicles), 27 November 2019.
- **UN:**
 - ECE/TRANS/WP.29/2019/34/Rev.1, revised Framework document on automated/autonomous vehicles.
 - ECE/TRANS/WP.29/2020/81, uniform provisions concerning the approval of vehicles with regard to Automated Lane Keeping Systems.
- **CMI:** International Working Group on “Maritime Law for unmanned craft”; MSC 99/INF.8: Work conducted by the CMI WG, 13 February 2018.
- **Classification societies:**
 - **Lloyd’s Register:** Cyber-enabled ships – ShipRight procedure assignment for cyber descriptive notes for autonomous & remote access ships, Version 2.0, December 2017.
 - **Bureau Veritas:** Guidelines for Autonomous Shipping, December 2017.
 - **DNV GL:** Autonomous and remotely operated ships (DNVGL-CG-0264), September 2018.
 - **ABS:** Autonomous vessels white paper, February 2022.
- **CORE Advokatfirma & Cefor:** Maritime autonomous surface ships – zooming in on civil liability and insurance, 10 December 2018.
- **European Maritime Safety Agency (EMSA):** Study of the risks and regulatory issues of specific cases of MASS (SAFEMASS), DNV GL report, 25 March 2020.
- **MarLab Marine Autonomous Surface Ships Data Project**
- **UK Department of Transport:** Future of transport regulatory review consultation: Maritime autonomy and remote operations, September 2021.
- **Nippon Foundation:** MEGURI 2040 Fully Autonomous Ship Program.
- **Central Commission for the Navigation of the Rhine (CCNR):** Automated navigation work at the CCNR.
- **Society of Automotive Engineers (SAE):** J3016_202104 - Definitions for six levels of driving automation, revised 30 April 2021.



Timeline / important dates

- IUMI webinar: Legal aspects, Dr M. Guth, Dabelstein & Passehl, 11 May 2017.
- MSC scoping exercise June 2017 - June 2020.
- EU research programme Horizon 2020: 2018-2020.
- LEG scoping exercise April 2018 – July 2021.
- IUMI webinar: Update on regulatory developments for Maritime Autonomous Surface Ships (MASS), Dr L. Wiedenbach, ASD, 29 January 2019.
- LEG 109: 21 – 25 March 2022.
- MSC 105: 20-29 April 2022.
- FAL 46: 9 – 13 May 2022.
- C 127: 11 – 15 July 2022.
- Target completion year within MSC for a non-mandatory code: 2025.
- MSC 107: 29 May – 9 June 2023.
- Intersessional Working Group: 30 October – 3 November 2023.
- Joint MSC-LEG-FAL WG meeting: April 2024.
- MSC 108: 13-24 May 2024.

IUMI will:

- Monitor ongoing industry and government-run projects, and provide input as appropriate.
- Monitor development of a MASS Code by the IMO and take part in discussions on regulatory amendments.
- Encourage classification societies to take an active role in both technical and operational risk aspects of increasingly autonomous vessels.
- Encourage the development of industry standards, certification schemes and class requirements for autonomous systems and remote control centres.
- Participate in the LEG web platform working group.

2. Environmental, Social and Governance (ESG) issues

Brief Description:

The business of marine insurers is to provide insurance cover against “named perils” or against “all risks”. Shareholders of insurance companies and members of mutuals expect the management to run the business in a sound and viable manner. The assureds expect insurers to be financially able to cover claims, and use insurance for this purpose as a risk management tool. To understand and mitigate the risks, insurers will perform risk assessments based on information available to them and offer risk mitigation and loss prevention services. *“The insurance industry’s core business is to understand, manage and carry risk”* (preamble of the UN Environment Programme Financial



Initiative's Principles for Sustainable Insurance). With increasing importance attached to a forward-looking and sustainable business conduct, a growing number of insurers take environmental, social and governance (ESG) factors into consideration during their decision-making processes. Investors, regulators, and society at large are placing increased focus on sustainability within corporations.

The growing pressure and urgency across all sectors of society to respond and find solutions to ESG issues has led to some rethinking within the marine insurance industry. Individual companies are reconsidering their targets and responsibilities beyond their core businesses to incorporate sustainability. These insurance companies work on a better understanding and overarching principles to identify and define ESG standards that align with their values and commitments as a company. This approach will also guide what information they will seek from clients and other third parties. Considerations may comprise aspects of underwriting, claims handling, loss prevention, investment strategies, recruitment and education. Acknowledging the importance of ESG issues for the industry, some insurance companies have already integrated ESG issues and principles into their corporate strategy and established reporting procedures to ensure compliance with a company's defined ESG standards.

A number of IUMI's current policy topics have an ESG angle, e.g. fuel oil safety. This section of the Policy Agenda deals only with what falls under the responsibility of the Policy Forum and includes a lobbying angle. IUMI's overall role and involvement on ESG matters has been tasked to a separate ESG Working Group that was formed in 2021.

ESG initiatives with (marine) insurance relevance

Global initiatives such as United Nations (UN) Sustainable Development Goals (SDGs) have led to a rise in awareness of ESG issues. In the insurance context, the UN Environment Programme Finance Initiative's (UNEP FI) Principles for Sustainable Insurance (PSI) are central. UNEP intends the four principles to serve as a global framework for the insurance industry to address ESG risks and opportunities. The four principles are:

1. Embed environmental, social and governance issues relevant to our insurance business in the decision-making.
2. Work together with clients and business partners to raise awareness of environmental, social and governance issues, manage risk and develop solutions.
3. Work together with governments, regulators and other key stakeholders to promote widespread action across society on environmental, social and governance issues.
4. Demonstrate accountability and transparency in regularly disclosing publicly our progress in implementing the Principles.

The Principles have led to one of the largest collaborative initiatives between the UN and the insurance industry—the PSI Initiative. Over 200 organisations worldwide have adopted the four Principles for Sustainable Insurance, including insurers representing over 30% of world premium volume. The purpose of the PSI Initiative is to better understand, prevent and reduce ESG risks,



and better manage opportunities to provide quality and reliable risk protection. In February 2020, IUMI became a supporting institution of the UNEP FI PSI.

In 2020, the UNEP FI launched the first guideline for “Underwriting environmental, social and governance risks in non-life insurance business”. The guide is not intended as a formal standard which organizations are required to comply with or follow directly. It is instead an optional support tool to help organizations grasp this wide-ranging topic, particularly those with no or limited ESG expertise. The guideline was subject to a public consultation in 2019, and the full 1.0 version of the guide was published in June 2020.

Another marine related initiative is the Biodiversity Beyond National Jurisdiction (BBNJ) Agreement. The negotiations began in 2017 and concluded in March 2023. The UN Member States agreed on a treaty to protect biodiversity on the high seas which facilitates the plan to declare 30 percent of all sea areas to be protected areas by 2030. While this marks a milestone in marine protection, the treaty must be ratified by 60 countries before it comes into force.

The EU is also making significant strides to move its sustainability ambitions forward with the EU Taxonomy Regulation of 18 June 2020. The purpose is to provide companies, investors and policymakers with appropriate definitions and encourage investments in environmentally sustainable economic activities. This is to be achieved with the creation of a taxonomy, i.e. the introduction of a uniform procedure with which the economic activity of companies is classified into categories. The Taxonomy Regulation establishes six environmental objectives:

- Climate change mitigation
- Climate change adaptation
- The sustainable use and protection of water and marine resources
- The transition to a circular economy
- Pollution prevention and control
- The protection and restoration of biodiversity and ecosystems

According to Article 8 of the Taxonomy Regulation, EU companies that are required to submit a non-financial statement must disclose how and to what extent their activities are linked to environmentally sustainable economic activities. The disclosure requirement applies above a certain company size (currently 500 employees), and includes lines of marine insurance. For this purpose, it must be determined whether and to what extent a particular insurance activity is taxonomy-compliant, i.e., meets certain taxonomy criteria. The details are regulated in two delegated acts. These delegated regulations specify, on the one hand, which economic activities are relevant and, on the other hand, how the contents are to be disclosed. From January 2022, information on the taxonomy-eligible economic activity must first be provided. From 2024, there is a reporting obligation for taxonomy compliance in the annual report for the previous financial year. From January 2023, specific nuclear and gas energy activities are covered by the list of economic activities of the EU-taxonomy and specific disclosure requirements for businesses related to their activities in the gas and nuclear sector apply.

On 5 January 2023, the amended EU Corporate Sustainability Reporting Directive (CSRD) entered into force. This new directive modernises and strengthens the rules concerning the social and environmental information that companies have to report. A broader set of large companies, as well as listed SMEs, will now be required to report on sustainability. The new rules will apply for the first time in the 2024 financial year, for reports published in 2025.

The Poseidon Principles for Marine Insurance (PPMI) were launched in December 2021 with IUMI as a supporting partner. The Principles establish a forward-looking framework to engage with the shipping industry and support net-zero insurance. They are designed to assess and disclose the climate alignment of marine hull insurers' underwriting portfolios. The first annual climate disclosure report was published on 26 January 2023.

Marine insurance related ESG issues

Bribery and corruption

In February 2020, IUMI co-sponsored a paper to the IMO with a proposal to develop a guidance to address bribery and corruption in the maritime sector. A key objective in this work was to align actions in the maritime sector with the UN Convention against Corruption (UNCAC). The "Guidance to implement and adopt procedures against maritime corruption" was published in a Circular from the Facilitation Committee (FAL) in June 2022 (FAL.5/Circ.48).

Climate change

Climate change is considered one of the most pressing issues of our time. It has also been identified by IUMI as a major concern to marine insurers. The effects of global warming are already evident and are changing the nature of the insured assets. The frequency of weather-related catastrophes has increased significantly which drives up losses and leaving some assets uninsurable. The potential impact of climate change is therefore a fundamental issue for regulators. International shipping emitted around 1,056 million tonnes of CO₂ annually in 2018 and is responsible for approximately 3% of global greenhouse gas emissions. The Paris Agreement on Climate Change and the work of the International Maritime Organization (IMO) are examples of regulatory efforts to address climate change.

In April 2018, the IMO adopted the Initial IMO Strategy on the reduction of GHG emissions from vessels. A revised Strategy was adopted by MEPC 80 in July 2023, setting a well-to-wake target of net-zero GHG emissions by 2050. Interim goals were agreed with a 20% reduction by 2030 (compared with 2008), including a 40% carbon intensity reduction target and 5% uptake of net-zero technologies, fuel and/or energy savings, and 70% reduction by 2040. There was also an agreement in principle on a new GHG intensity fuel standard and possible price on GHG emissions. These new GHG measures should be developed in view of adoption in 2025 and entry into force from 2027.

In February 2023, IUMI co-sponsored a proposal for a new output at the IMO to undertake a regulatory assessment of safety aspects associated with reducing GHG emissions from vessels in line with the Organization's strategy and to develop a road map to support the safe delivery of

IMO's strategy. The proposal was agreed by the Maritime Safety Committee in June 2023, and work will continue in a Correspondence Group coordinated by the United States.

The Fourth IMO GHG Study 2020 is the first IMO greenhouse gas study published since the adoption of the Initial IMO Strategy on reduction of GHG emissions from ships. It demonstrates that whilst further improvement of the carbon intensity of shipping can be achieved, it will be difficult to reach IMO's 2050 GHG reduction ambitions through energy-saving technologies and speed reduction of ships. Therefore, under all projected scenarios, in 2050, a large share of the total amount of CO₂ reduction will have to come from the use of low-carbon alternative fuels.

The Marine Environment Protection Committee (MEPC) adopted in June 2021 a measure demanding energy efficiency requirements on existing vessels starting from 2023, and the introduction of carbon intensity targets for vessels with a first reporting deadline in March 2024.

The European Union is implementing its own legislation through their Fit for 55 package. In January 2024, the EU's Emissions Trading System (EU ETS) will be extended to cover CO₂ emissions from all large ships (of 5 000 gross tonnage and above) entering EU ports, regardless of the flag they fly. In addition, the package includes a requirement for owners to buy cleaner fuels and ports to ramp up supply of shore power and liquefied natural gas (LNG) as fuel.

A significant push for decarbonisation in the maritime industry is not only underway within regulatory authorities but also in form of various industry initiatives comprised of a diverse range of maritime stakeholders, e.g. the Poseidon Principles for Marine Insurance referred to above. These efforts are necessary as the existing fleet is going to be non-compliant with IMO requirements soon. Changes in vessel design, fuel and propulsion types, and infrastructure will affect the risk landscape for marine insurers going forward. Marine insurers must be prepared to assess new risks and potential safety concerns. Moreover, they are likely to play a role as facilitators for decarbonisation by providing guidance and advice to their insureds.

Conflict minerals

Supply chain due diligence requirements regarding so-called conflict minerals aimed at greater transparency, are applicable or introduced by (supra) national law makers.

EU Regulation 2017/821, which came into force on 1 January 2021, puts in place a framework for EU-based importers of certain metals and minerals origination from conflict-affected and high-risk areas (CAHRAs). The purpose is to ensure that trade into the EU is not funding conflicts and human rights abuses.

Importers, traders, smelters and refiners of

- concentrates and ores containing 3TG (tin, tantalum, tungsten and gold), and
- metals containing or consisting of 3TG

have to carry out obligatory due diligence checks on suppliers and origin of the materials.

The importers, including those who are not established in the EU, must declare minerals and/or metals for release and circulation in the EU. Smelters and refiners who exercise any form of

extraction and/or metallurgy processing aiming at producing a metal from a mineral, are under the same due diligence obligation. Downstream users who do not directly import any of these materials are exempted from this obligation.

The supply chain due diligence obligations can be summarized as follows:

- adopt a supply chain policy for 3TG and communicate this to suppliers and the public; this includes risk assessment, a strategy to respond to identified risks, third party independent audits in the supply chain,
- implement due diligence standards as per OECD guidance²;
- senior management to establish strong company management systems to control, hold records of the process and report,
- incorporate appropriate contractual provisions in the supply chain,
- provide for information and disclosure to authorities, and
- establish a complaint procedure for stakeholders including access to an external expert.

A review of the regulation commenced in September 2022 and may widen its scope to include other minerals and metals.

Similar provisions are part of the US 'Dodd-Frank' Act section 1502 aiming at the Democratic Republic of Congo (DRC) and neighbouring countries.

Illegal, unregulated, unreported (IUU) fishing

Seafood is a nutritious meal for millions of people across the world and an essential food protein in many developing countries. A major problem for sustainable fisheries management is illegal, unregulated and unreported fishing (IUU fishing). Vessels engaged in IUU fishing activities do not comply with safety measures on board, do not use legal fishing gear, do not follow fisheries management regulations and/or do not comply with regulations on quotas, fishing areas, closed seasons or prohibited species. The IUU catch is not recorded in catch registers. This is an important aspect because fishing stocks are estimated based on these registers.

Marine insurers can support the suppression of IUU fishing activities by refusing or cancelling insurance to vessels which have been blacklisted for involvement in illicit actions. The ocean conservation group Oceana in cooperation with UNEP FI's PSI have engaged with marine insurers and associations including IUMI to develop guidelines to control or mitigate the risk of insuring vessels and companies associated with IUU fishing. Oceana in cooperation with a group of maritime professionals, including marine insurers, has developed an online tool to facilitate the exchange of information on IUU fishing vessels between companies that provide services to the global fishing sector. Through this tool, registered users can notify each other when a vessel on the official IUU vessel list of any regional fisheries management organisation (RFMO) has sought and been denied services or had services cancelled. Users will also be sent an alert when new vessels get added to the IUU vessel lists.

² <https://www.oecd.org/corporate/mne/mining.htm>

A separate initiative is “Vessel Viewer” which is being developed by the Ocean Risk Alliance (ORRAA). This IUU fishing risk assessment tool is intended to help insurers quickly evaluate the risk that a vessel or a group of vessels may engage in or support IUU fishing. Through the tool, insurers will be able to access key information on vessel identity, behaviour and risk indicators.

IUMI supports the adoption of the Cape Town Agreement (CTA) of 2012 on the Implementation of the Provisions of the 1993 Protocol relating to the Torremolinos International Convention for the Safety of Fishing Vessels. This IMO treaty to address fishing vessel safety is not in force yet. The absence of an international mandatory regime makes effective control and monitoring of fishing vessels difficult. The CTA sets minimum requirements on the design, construction, equipment, and inspection of fishing vessels of 24 meters in length and over. The agreement further facilitates better control of fishing vessel safety by flag, port and coastal States. Swift ratification of the CTA is therefore desirable and supported by IUMI.

In March 2023 the Joint Hull Committee (JHC) published a ‘Fishing Vessel Due Diligence Clause’ emphasizing readiness by marine underwriters to tackle the issue of IUU fishing.

Plastic litter

Over 300 million tons of plastic are produced every year for use in a wide variety of applications. At least 8 million tons of plastic end up in the oceans annually. Researchers estimate a plastic leakage into the ocean in 2040 of 29 million tons. Under the influence of UV radiation, wind, currents and other natural factors, plastic fragments into small particles, termed microplastics (particles smaller than 5 mm) or nanoplastics (particles smaller than 100 nm). Marine species ingest or are entangled by plastic debris which causes severe injuries and death. Plastic pollution threatens food safety and quality, human health, and coastal tourism.

The main sources of marine plastic are land-based. However, ocean-based plastic originates primarily from the fishing industry, nautical activities and aquaculture. In 2018, the IMO’s Marine Environment Protection Committee (MEPC) adopted the IMO Action Plan to address marine plastic litter from ships. It aims to enhance existing regulations and introduce new supporting measures to reduce marine plastic litter from vessels. One aspect of the Action Plan is the consideration of a compulsory mechanism to declare the loss of containers at sea.

The contents of lost containers contribute to marine litter. The carriage of so-called “**nurdles**” (pre-production plastic pellets) is a particular concern. Nurdles are in widespread use and large quantities of containers of this commodity are being shipped. In May 2021, the MV X-Press Pearl spilt 11,000 tonnes of plastic pellets off the shore of Colombo, Sri Lanka. If nurdles are lost overboard, the consequences to the environment are significant as they float and can be widely distributed. Marine wildlife often mistake nurdles for food, causing injury and entering the food chain.

In April 2022, the IMO Sub-Committee on Pollution Prevention and Response (PPR) supported the need for measures reducing the environmental risk of marine transport of microplastic particles and synthetic resin pellets. Concrete proposals included amendments to MARPOL 73/78 Annex III and classification according to section 2.9.3 of the IMDG Code “Environmentally hazardous substances

(aquatic environment)" to strengthen stowage requirements for containers containing plastic pellets, and to develop guidance for handling pellets.

The PPR Sub-Committee subsequently instructed a Correspondence Group on Marine Plastic Litter from Ships to further consider the options for reducing the environmental risk associated with the maritime transport of plastic pellets and to advise the Sub-Committee on the best way forward. The group comprised more than 150 participants from all interested sectors, including IUMI. A CG report with recommendation of a non-binding IMO circular and considerations of legal framework options was submitted to PPR for its 10th session in April 2023. On this basis the Sub-Committee agreed a draft MEPC circular on recommendations for the carriage of plastic pellets by sea in freight containers. The draft circular recommends that plastic pellets should be packed in good quality packaging which should be strong enough to withstand the shocks and loadings normally encountered during transport. Packaging should be constructed and closed to prevent any loss of contents which may be caused under normal conditions of transport. Transport information should clearly identify those freight containers containing plastic pellets. In addition, the shipper should supplement the cargo information with a special stowage request. The draft text has been submitted to the Sub-Committee on Carriage of Cargoes and Containers (CCC 9, which meets in September 2023) for input.

The PPR Correspondence Group was also instructed to further progress work on reporting mechanisms for lost **fishing gear**. PPR was further instructed by the Marine Environment Protection Committee (MEPC) in July 2023 to consider a proposal for requiring a ship-specific plan for the on-board management of fishing gear.

Seafarers' wellbeing

Seafarers are at the heart of the maritime sector. They are enablers of global shipping and without them international trade of the essential goods and products around the world would collapse. The COVID-19 pandemic has created an unprecedented crew change crisis which is further exacerbated by the war in Ukraine. Moreover, seafarers are under increasing pressure from competitive voyage schedules and have to handle their tasks with fewer crew members. Evidence from accident records and research literature both point to the serious impact that fatigue may have on the safety and welfare of seafarers. More information on the central role of seafarers can be found under the "social" banner of the [ESG section of IUMI's website](#).

Ship recycling

Vessels are considered hazardous waste under international environmental law such as the Basel Convention and the EU Ship Recycling Regulation. According to the NGO Shipbreaking Platform, 443 ocean-going commercial vessels were sold to the scrap yards in 2022. Of these vessels, 292 large tankers, bulkers, offshore platforms, cargo and passenger vessels were dismantled in Bangladesh, India and Pakistan, amounting to 80% of the gross tonnage broken up globally. The process of dismantling often does not occur in safe and environmentally sound working conditions. The practice of "beaching" vessels to break them up poses significant risks to the health and safety of the workers. It also causes environmental damage due to the toxic materials released during the process.

The IMO's Hong Kong Convention is aimed at ensuring that vessels when being recycled do not pose any unnecessary risk to human health and safety or to the environment. The Hong Kong Convention was adopted in May 2009 and will enter into force in June 2025. Regulations in the Convention cover the design, construction, operation and preparation of vessels to facilitate safe and environmentally sound recycling and the establishment of an appropriate enforcement mechanism for vessel recycling, incorporating certification and reporting requirements. Vessels to be sent for recycling will be required to carry an inventory of hazardous materials which will be specific to each vessel. IUMI welcomes the ratification of the Hong Kong Convention to ensure a minimum standard of safety and environmental standards during the dismantling of vessels.

The EU put in place its own regulatory measure. From 31 December 2018, the EU Ship Recycling Regulation mandates the recycling of all large sea-going vessels sailing under an EU flag to take place in yards included in the European List of ship recycling facilities. The regulation aims to make ship recycling safer and environmentally sound. The 11th edition of the European List of ship recycling facilities was published in July 2023 and contains 48 yards, including 38 yards in Europe, 9 yards in Turkey and 1 yard in the USA.

The EU Ship Recycling Regulation has implications for marine insurance. Insurers involved in actions which may be considered illegal exports of ships to yards not included on the European List of ship recycling facilities may be held liable. Being associated with unsustainable practices such as “beaching” of vessels may further lead to reputational risks. IUMI is raising awareness for this issue by holding presentations and [webinars](#) on the topic. IUMI further supports the work of the Ship Recycling Transparency Initiative (SRTI) which aims at ensuring better labour and environmental standards by requiring shipowners to disclose their ship recycling policies and practices.

Livestock transports

Livestock carriers are a special type of ship intended to transport cattle, sheep and other animals. Most of the vessels engaged in this trade are converted from a general cargo vessel, i.e. not specifically designed for the purpose of carrying live animals. Converted livestock carriers are often fitted with multiple decks to accommodate the cattle. This set-up enhances the windage area and impacts the stability of the vessels. As these ships are often converted only after sailing in the trade they have been designed for originally, the fleet of livestock carriers has a fairly high average age which is often associated with fatigue in the strength of the structure as well as old main engines and propulsion systems. The track record of livestock carriers involved in major incidents is therefore relatively poor. Examples include the sinking of the Gulf Livestock 1 in the East China Sea in September 2020 with 43 crew and 6,000 cattle onboard and the capsizing and subsequent sinking of the Queen Hind in Romania in November 2019 with 14,000 sheep onboard.

The welfare of live animals during maritime and road transport poses additional safety as well as ethical concerns. Often, appropriate care cannot be afforded to the large number of animals being transported, leaving them exposed to food and water deprivation, rough seas, heat and cold stress. Overflow of faecal material regularly leads to faecal soiling of feed and water troughs as well as coat contamination. Due to the severe stress and suffering of the animals during long voyages, the New Zealand government in April 2021 banned live cattle exports by sea, with a two-year period to

phase out the trade. Other countries such as the UK are considering to ban live animal exports and introducing further elements of animal welfare in transport, such as reducing maximum journey times, giving animals more space and headroom during transport, and stricter rules on transporting animals in extreme temperatures or by sea.

The PSI's ESG Guide for Non-Life Insurance includes risk mitigation examples and good practice related to animal welfare for the live transport of animals. Marine insurers covering these risks are encouraged to review the treatment of animals during transport and to promote best practice among their insureds.

Summary

Based on the many initiatives and expectations concerning ESG and how this is handled also by marine insurers, IUMI will play a role by facilitating a dialogue within the IUMI membership on ESG issues involving public stakeholders, authorities and industry partners as appropriate.

Relevant authority / organizations and documents:

- **Cape Town Agreement** of 2012 on the Implementation of the Provisions of the 1993 Protocol relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977, 11 October 2012.
- **International Maritime Organization (IMO), MEPC and PPR:**
(www.imo.org/en/OurWork/Environment/Pages/Default.aspx#have)
 - **Resolution MEPC.310(73):** Action Plan to address marine plastic litter from ships (MEPC73/19 - Annex 10), adopted 26 October 2018.
 - **LC 41/9:** Update on recent development with respect to marine litter and microplastics, note by Secretariat, 5 July 2019.
 - **JWG 4/9:** Cooperation and dialogue on environmental issues relating to fisheries, note by Secretariat, 24 September 2019.
 - **MEPC75/7/4:** Proposal to establish an International Maritime Research and Development Board, submitted by BIMCO, CLIA, ICS, INTERCARGO, INTERFERRY, INTERTANKO, IPTA and WSC, 18 December 2019.
 - **MEPC75/INF.5:** Preliminary analysis of what R&D work activities could be undertaken by IMRB, submitted by ICS, BIMCO, INTERTANKO, CLIA, INTERCARGO, IPTA, INTERFERRY and WSC, 18 December 2019.
 - **MEPC75/8:** Update on recent interagency cooperation and capacity-building activities on marine plastic litter, submitted by the Secretariat, 18 December 2019.
 - **MEPC75/8/3:** Report of the Correspondence Group on development of a strategy to address marine plastic litter from ships, 27 December 2019.
 - **FAL44/13:** IMO guidance to address bribery and corruption in the maritime sector, submitted by Liberia, Marshall Islands, Norway, United States, Vanuatu, ICS, IUMI, IAPH, BIMCO, IMPA, IFSMA, INTERTANKO, IG, InterManager, IPTA, IHMA, IBIA, FONASBA, ITF and NI, 7 February 2020.
 - **MEPC75/WP.3:** Final report of the seventh meeting of the Intersessional Working Group on Reduction of GHG Emissions from Ships, 10 November 2020.
 - **IMO Fourth Greenhouse Gas Study 2020.**

- **MEPC77/8/3:** Follow-up work emanating from the action plan to address marine plastic litter from ships, submitted by Sri Lanka, 1 October 2021.
- **PPR9/15/1:** Proposed amendments to the criteria for the identification of harmful substances in package form – Classification of plastic pellets, submitted by Cook Islands, Jamaica, Monaco, Norway, Palau, Saudi Arabia, United Arab Emirates, Vanuatu, ICS, SPREP and WSC, 26 January 2022.
- **PPR9/15/2:** IMO guidelines on best practice related to clean-up of plastic pellets, submitted by Norway, 28 January 2022.
- **PPR9/15/9:** Comments on proposal to classify plastic pellets as dangerous goods, submitted by Dangerous Goods Advisory Council, 11 February 2022.
- **FAL.5/Circ.48:** Guidance to implement and adopt procedures against maritime corruption, 1 June 2022.
- **FAL.5/Circ.50:** Guidelines for the prevention and suppression of the smuggling of wildlife on ships engaged in international maritime traffic, 1 June 2022.
- **PPR10/INF.5, 6 & 7:** Comments on transport of plastic pellets received during the three rounds of correspondence of the Correspondence Group on marine plastic litter from ships, submitted by Norway, 20 January 2023.
- **PPR10/13:** Report of the Correspondence Group on marine plastic litter from ships, 20 January 2023.
- **PPR10/INF.13:** Guidelines on clean-up of plastic pellets from ship-source spills, submitted by Norway, South Africa, ITOPI and IG, 17 February 2023.
- **MSC107/17/21:** Proposal for a new output to facilitate a regulatory framework to support the safe delivery of IMO's strategy on reduction of GHG emissions from ships, submitted by Belgium, Cook Islands, Germany, Greece, Kingdom of the Netherlands, Panama, Republic of Korea, United Arab Emirates, United Kingdom, ICS, IUMI, BIMCO, IACS, OCIMF, INTERTANKO, SIGTTO, IBIA and SGMF, submitted 28 February 2023.
- **United Nations**
 - **Environmental Programme Financial Initiative (UNEP FI)**
 - Principles for Sustainable Insurance, 2012
 - Guidelines to control or mitigate the risk of insuring vessels and companies associated with illegal, unreported and unregulated (IUU) fishing, 2018.
 - PSI ESG Guide for non-life insurance, Version 1.0, June 2020.
 - Final report on the project to pilot the TCFD recommendations, January 2021.
 - **UN Sustainable Development Goals (SDG)**
 - **Paris Agreement on Climate Change**
- **European Union:**
 - **Conflict minerals regulation** , 22 November 2016.
 - **2020/C 349/01:** Guidelines on the enforcement of obligations under the EU Ship Recycling Regulation relating to the Inventory of Hazardous Materials of vessels operating in European waters, 20 October 2020.
 - **Taxonomy:**
 - Directive (EU) 2022/2464 Corporate Sustainability Reporting, amended 14 December 2022.

- [Fact sheet](#)
 - [Questions and Answers](#) (February 2022) on the EU Taxonomy Complementary Climate Delegated Act covering certain nuclear and gas activities (enacted July 2022).
- [Fit for 55 package](#), 14 July 2021.
 - [EU ETS – FAQ maritime transport](#)
- [Special report 20/2022: EU action to combat illegal fishing – Control systems in place but weakened by uneven checks and sanctions by Member States](#), 26 September 2022.
- Deforestation-free products Regulation (EU) 2023/1115, December 2022.
- **United States:**
 - [Dodd-Frank Act Section 1502](#)
- **Neptune Declaration:** Declaration on seafarer wellbeing signed by IUMI in January 2021.
- **IACS:** Position paper – Developing and implementing technical measures to support GHG emission reduction targets, 8 March 2021.
- **[Maritime Technologies Forum](#)**, launched 26 April 2021.
- **[Operation Clean Sweep](#)**
- **ECSA:** Position paper on the fuel EU maritime proposal, October 2021.
- **COP26:** [Clydebank Declaration for green shipping corridors](#), 10 November 2021.
- **[Poseidon Principles for Marine Insurance](#)**, launched 15 December 2021.
 - [2022 annual climate disclosure report](#), 26 January 2023.
- **IPEN & CJS:** [X-Press Pearl – a ‘new kind of oil spill’](#), February 2022.
- **BIMCO, FONASBA, IAPH, IFSMA, InterManager, INTERTANKO, IPTA & IUMI:** [Glossary of Climate Change Definitions in relation to Shipping](#), 30 June 2022.
- **OCEANA:** [Tool to pull the plug on pirate fishing](#), 2022.
- **[Partnership for Carbon Accounting Financials \(PCAF\)](#)**
- **GreenVoyage 2050:** [Alternative marine fuels: Regulatory mapping](#)
- **Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships**, enters into force 26 June 2025.

Timeline / important dates:

- Presentation Hermelo Bacani, UNEP FI PSI, during IUMI Toronto Conference, 17 September 2019
- IUMI becomes a UNEP FI PSI ‘Supporting Institution’, February 2020.
- BBNJ agreement negotiations completed in March 2023.
- IUMI webinar UNEP ESG PSI guide, 6 October 2020.
- MEPC 75: 16-20 November 2020.
- EU conflict minerals regulation entered into force 1 January 2021.
- MEPC 76: 14-25 June 2021.
- MEPC 77: 22-26 November 2021.
- MEPC 78: 6-10 June 2022.
- Launch of the Poseidon Principles for Marine Insurance with IUMI as a supporting partner, 15 December 2021.

- PPR 9: 4-8 April 2022.
- MEPC 79: 12-16 December 2022.
- EU deforestation-free regulation into force on 29 June 2023.
- MEPC 80: 3-7 July 2023.
- Extension of EU ETS for maritime transport from 2024.
- IMO:
 - 20% reduction of GHG emissions by 2030
 - 70% reduction of GHG emissions by 2040
 - Net-zero GHG emissions by 2050
 - New GHG measures (GHG intensity fuel standard and price on GHG emissions) to be adopted in 2025 and entry into force in 2027.

IUMI will:

- Inform IUMI's membership where appropriate about developments with regard to ESG issues and facilitate where necessary an internal dialogue in order to agree on IUMI positions.
- Explain and communicate IUMI's standpoints to other industry participants and public stakeholders / authorities.
- Participate in the industry and public dialogue on 'ESG risks and principles'.
- Support the ratification of the Cape Town Agreement on the implementation of the Torremolinos Convention for the safety of fishing vessels.
- Support the ratification of the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships.

3. Fuels

Brief description

The shipping sector accounts for approx. 3% of global CO₂ emissions. International agreements on the need to combat climate change require the reduction of greenhouse gas emissions from shipping. In addition to regulatory pressures from the IMO, other stakeholders such as banks, charterers and the broader public are setting requirements for the environmental performance of vessels, for instance in connection with the financing of new ships and new chartering agreements. Therefore, the industry must examine low and zero carbon ship propulsion systems taking into account the entire value chain, not just the combustion cycle. Notwithstanding the imperative of the green energy transition, it is crucial to assess potential safety concerns associated with measures to reduce the carbon footprint. In light of the urgency to decarbonise shipping, proper risk management is critical and safety must not become an afterthought.

IMO's Sub-Committee on Carriage of Cargoes and Containers (CCC) initiated in September 2021 the development of guidelines on the safety of vessels using hydrogen as fuel under the

International Code for Ships using Gases or Other Low-flashpoint Fuels (IGF Code). The guidelines will address both liquefied and compressed fuel, and will be developed by a Correspondence Group. In April 2022, the Maritime Safety Committee (MSC) agreed to develop guidelines for safety of ships using ammonia as fuel as an interim measure for newly built vessels. In September 2022, CCC 8 agreed on a holistic approach to the development of the guidelines for ammonia, tackling both safety and environmental considerations simultaneously. The work will continue in a Correspondence Group and is scheduled to be finalized in 2024.

An important aspect of using alternative fuels safely is not only a comprehensive review of risks associated with the new fuels and propulsion methods, but also thorough consideration of how human performance may be influenced by new equipment, new ways of collaboration, and new procedures and processes for bunkering. At the same time, conventional fuel types will be in use for the foreseeable future and until the transition period is concluded.

This section of the Policy Agenda looks at regulatory measures and challenges related to conventional fuels. The second part provides an overview of safety aspects related to a selection of greener fuels, both conventional and alternative.

A. Regulations and challenges related to conventional fuels

Fuel oil safety – IMO

The Maritime Safety Committee (MSC) agreed in December 2018 to include in its biennial agenda an output on 'Development of further measures to enhance the safety of ships relating to the use of fuel oil', with a focus on safety issues related to flashpoint requirements. MSC 103 re-established the Correspondence Group on oil fuel safety in May 2021 to further consider draft requirements and guidelines until MSC 105.

In November 2022, MSC 106 adopted amendments to SOLAS chapter II-2 requiring vessels carrying oil fuel to be provided with a bunker delivery note, prior to bunkering, stating that the flashpoint of the actual fuel batch is in conformity with SOLAS regulation II-2/4.2.1. Contracting governments are requested to inform the IMO of cases where oil fuel suppliers have delivered fuels that do not meet the requirements and take appropriate action against those suppliers. The amendments will enter into force on 1 January 2026. In June 2023, MSC 107 approved draft guidelines for sampling procedures to harmonize with the new requirements. The Committee also approved draft amendments to SOLAS related to oil fuel parameters other than flashpoint, requiring that oil fuel shall not jeopardize the safety of vessels, adversely affect the performance of the machinery or be harmful to crew. The draft amendments were subsequently submitted to MEPC for concurrent approval.

Fuel contamination

In March 2022, the Maritime and Port Authority of Singapore (MPA) was notified that a number of vessels had been supplied in the Port of Singapore with HSFO containing high concentration levels of chlorinated organic compounds (COC). The contaminated fuel oil was traced back to fuel purchased by Glencore Singapore in January and February 2022. The contaminated HSFO was loaded at the Port of Khor Fakkan, UAE onto a tanker and shipped to floating storage facilities to

be further blended. The blended HSFO was subsequently delivered to storage facilities in Singapore. Fuel onboard the tanker was found to contain high concentrations of COC, of up to 21,000 ppm. The MPA-licensed bunker suppliers who supplied the contaminated fuel had carried out tests on the fuel supplied based on the international standards of petroleum products of fuel (ISO 8217). However, as the current international standards do not require tests for COC, the contamination was not detected promptly. Some 200 vessels were affected by the off-spec HSFO sold in Singapore in February and March 2022.

A similar case occurred in 2018 in the U.S. Contaminated supplies of biodiesel fuel that were first reported in the US Gulf region in February 2018 led to a range of technical problems, including blocked fuel filters, fuel pump seizures and even loss of main engine power. The cost of an engine damage could be up to USD 800,000 for an individual vessel. The loss of engine power from such contamination may lead to serious incidents such as collisions and groundings.

Testing to ISO 8217 levels will not necessarily show if the fuel is contaminated or not, as the suitability of biofuels requires gas chromatography and specialised equipment in a laboratory to determine any contamination. This test will generally take 7 to 10 days, and there are currently not enough laboratories to perform the necessary testing. Consequently, vessels are forced to sail with fuel in separate tanks and rely on the ability of the crew and equipment to make the fuel fit for use.

IUMI believes that the current system with the end-user taking all the risk is unacceptable. Rather than the end user, refineries should be compelled to do the testing and confirm the delivery of non-contaminated fuels. IUMI advocates for this approach in the ongoing work on fuel oil safety in the IMO's Maritime Safety Committee. In parallel, the ISO review of low-sulphur fuels should also include an amendment of the ISO 8217 to deal with biofuels.

A joint MEPC-MSC circular addressing the delivery of compliant fuel oil by suppliers was approved by MEPC 74 and MSC 101 in May and June 2019, respectively. The circular recommends that Member States take appropriate action to ensure that fuel oil suppliers under their jurisdiction deliver compliant fuel.

B. Low/zero carbon fuels

Ammonia

Ammonia offers a potential long term solution for the maritime industry's transition towards a low carbon value chain. Green ammonia can be produced from renewable power by electrolysis of H₂O, making it a zero carbon fuel. However, due to the extreme toxicity of the fuel it is critical to assess the safety issues of ammonia in order to mitigate risks for people, assets and the environment. Risks such as toxicity and flammability must be addressed for both key equipment, spaces dedicated to ammonia storage and alternative vessel designs. Unless satisfactory safety systems and operations are implemented, the properties of ammonia may lead to an increased overall risk level associated with its use as fuel on vessels.

Battery-powered propulsion

Battery-powered propulsion is suitable for stop-and-go operating cycles such as ferries. Ferry operators in Europe, North America and Asia have been testing and deploying hybrid propulsion systems for the last decade, and the technology has been adopted for passenger vessels of various sizes.

Thermal runaway constitutes the largest risk for batteries used in maritime operations. Thermal runaway occurs if the lithium-ion cells used in marine batteries are subjected to mechanical abuse, suffer from internal manufacturing defects, or operate over or under the correct voltage or internal temperature. In these situations, heat may be generated within the lithium-ion cells which may increase to a point whereby it melts the separators inside the cells. This reaction can result in the temperature increasing until the cell emits toxic and flammable gasses. If ignition occurs, these gasses can create a fire which can be difficult to extinguish. In large concentrations, these gasses are also capable of causing explosions. Preventing thermal runaway is therefore key, for instance through the use of active cooling systems and internal thermal barriers as part of an effective safety management system.

Biofuels

Biomass is a renewable fuel source. Its use for marine fuels can be considered a carbon neutral way of generating energy because the organic matter used to produce biofuels roughly absorb as much CO₂ during their lifetime as they release when burned. Biofuels are produced from organic matter that is largely unsuitable for food or feed. However, their potential to reduce the amount of arable land earmarked for normal food production is contentious.

For biodiesel, fuel lubricity, conductivity and corrosion are areas of concern. Due to oxidation, it tends to lose lubricity over long periods of time, which may cause wear on essential components. Because electrical conductivity can cause static charges, it is likely to need anti-static additives. Corrosion from the degradation of biodiesel can weaken steel holding tanks and pipelines over time, compromising storage and transportation. Biofuels with high acidity can cause increased wear on engine components, so the engine manufacturer should be consulted when considering the use of fatty acid methyl esters (FAME) in a conventional engine. In the latest specification, ISO 8217:2017 recommended limiting the proportion of FAME in distillate fuel oil blends to 7%, creating the first industry standard for fuel oil with a provision for biofuel.

Fuel cells

Fuel cells produce energy from an electro-chemical process. Two reactants, typically hydrogen and oxygen, merge within the fuel cell to produce water, releasing electrical energy and thermal energy in the process. Although hydrogen is the most commonly used fuel in fuel cells, methanol and ammonia are viable alternatives. The reactants consumed by the fuel cell are stored externally and are supplied to the fuel cell in a similar way as in conventional diesel engines. Hence, a fuel cell has the potential to produce power as long as it has a supply of reactants.

Hydrogen, methane and other gaseous fuels that are lighter than air need special ventilation arrangements to prevent the creation of hazardous areas. For many types of fuel cells, the non-hydrogen supply is externally reformed to hydrogen and other by-products prior to introduction into

the fuel cell, so the hydrogen portion of the fuel system needs special consideration. Fuel management, identifying the risks to personnel and managing the hazardous areas associated with the ships' physical layouts, operations and maintenance are key safety challenges with fuel cell systems. Toxic exposure, asphyxiation and explosions are among the risks to crews and the vessel.

Hydrogen

Hydrogen is a potential alternative fuel for ship propulsion. It requires energy to produce hydrogen which could originate from conventional fuels or non-fossil sources such as wind, hydro-electric or nuclear to make it low/zero carbon. For hydrogen, challenges relate to extremely low temperatures (-253°C) if stored as a liquefied gas, and high pressure (250–700 bar) if stored as compressed gas. The hydrogen molecule is the smallest of all molecules, making it challenging to contain. It also has a wide flammability range and ignites easily. The properties of hydrogen may therefore lead to an increased overall risk level associated with its use as fuel on ships unless satisfactory safety systems and operations are implemented.

Asphyxiation and explosions are potential risks for the crew and the vessel. For the onshore and offshore personnel, an extensive assessment of the hazards associated with physical layout, operations, maintenance, transfer and carriage of the fuel are necessary to ensure safe operations. Onboard ventilation, alarm systems and fire-protection strategies and other measures to limit the likelihood and effects of leakage will need to be designed into hydrogen-dedicated assets.

Liquid natural gas (LNG)

Liquefied natural gas (LNG) is the cleanest-burning fossil fuel currently available at scale; its use as a marine fuel is supported by advanced engine technologies that have been proven in practice. As a fuel, it reduces nitrogen oxide (NO_x) emissions, eliminates most sulfur oxides (SO_x) and particulate matter, and contributes to carbon dioxide (CO₂) reduction. However, methane slip is a cause for concern because methane, when considered as a greenhouse gas, is much more potent than CO₂.

Familiarity with the properties and characteristics of methane is critical to understanding the safety hazards associated with the use of LNG as a marine fuel. It is not considered to be corrosive nor toxic. Instead, the hazards are related to its storage, transport and combustion, and they also include cryogenic temperatures, vapour flammability and asphyxiation. Due to heat leakage through the insulation into the LNG cryogenic tanks, some of their contents continuously evaporate and generate boil-off gas, which increases tank pressure, potentially raising the risk of LNG and methane vapour releases. Those vapours are flammable and have the potential to asphyxiate workers. If a vapour spill comes in contact with a ship's structure, it causes brittleness and fracturing.

In a liquid state, LNG is not considered flammable and cannot ignite. However, LNG vapours become flammable when the percentage of methane in air reaches 5-15% and it can ignite when introduced to an ignition source. The auto-ignition temperature of methane is relatively high (595°C). When released from LNG, methane vapours will at first be heavier than air and then rapidly become lighter than air as it warms beyond -100°C. It is therefore crucial that safeguards are in

place to prevent a flammable mixture from occurring, and to ensure that any sources of ignition are nowhere near.

Nuclear

This source of power has been considered in the past and work was paused after Fukushima. Given the problems associated with other alternative fuels, research into the viability of nuclear propulsion for vessels is being actively undertaken with much hope focused on molten salt reactors.

Relevant authority / organisations and documents

- **IMO – MEPC & MSC**

- **MSC93/INF.8:** Safety implications arising from the supply of “Out of Specification” Marine Fuels, submitted by ICS and IPTA, 13 March 2014.
- **MEPC70/INF.12:** Study on fuel oil quality, submitted by INTERTANKO, 22 July 2016.
- **ISWG-AP1/2/12:** Safety implications associated with 2020 fuels and their respective challenges, submitted by Liberia, Marshall Islands, ICS, BIMCO, INTERTANKO, INTERCARGO and WSC, 15 May 2018.
- **MEPC 73/5/17:** Joint industry guidance on potential safety and operational issues related to the supply and use of 0.50% maximum sulphur fuels, submitted by ISO, OCIMF, IPIECA, IMarEST, RINA and IBIA, 31 August 2018.
- **MSC100/8/1:** Effective implementation of existing provisions for fuel quality and safety in IMO conventions, submitted by Liberia, ICS, INTERTANKO, IPTA and INTERFERRY, 28 September 2018.
- **MSC100/8/2:** Safety implications and respective challenges associated with 2020 compliant fuels, submitted by Bahamas, Liberia, Marshall Islands, Panama, BIMCO, INTERCARGO and INTERTANKO, 28 September 2018.
- **MEPC.1/Circ.875:** Guidance on best practice for fuel oil purchasers/users for assuring the quality of fuel oil used on board ships, 26 April 2018.
- **MEPC.1/Circ.875/Add.1:** Guidance on best practice for fuel oil suppliers assuring the quality of fuel oil delivered to ships, 9 November 2018.
- **MEPC.1/Circ.878:** Guidance on the development of a ship implementation plan for the consistent implementation of the 0.50% sulphur limit under MARPOL Annex VI, 9 November 2018.
- **MSC101/8/2:** Development of further measures to enhance the safety of ships relating to the use of fuel oil, submitted by ICS, INTERTANKO, INTERCARGO and IPTA, 16 April 2019.
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- **MSC-MEPC.5/Circ.15:** Delivery of compliant fuel oil by suppliers, 24 June 2019.
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- **MSC.1/Circ. 1622:** Guidelines for the acceptance of alternative metallic materials for cryogenic service in ships carrying liquefied gases in bulk and ships using gases for low-flashpoint fuels, 2 December 2020.
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- **MEPC76/5:** Review of 2020 marine fuels quality, submitted by ISO, 29 January 2021.
- **CCC7/3/9:** Comments on CCC7/3/Rev.1 and proposal for developing guidelines for the use of ammonia and hydrogen as fuels, 14 June 2021.
- **MSC104/15/9:** Development of non-mandatory guidelines for safety of ships using ammonia as fuel, submitted by Japan, Singapore, ICS and INTERCARGO, 2 July 2021.
- **MSC104/15/30:** Necessity of deliberations on operational safety measures and fire safety measures, submitted by Japan, 30 July 2021.
- **A32/12/2:** The development of safety requirements at the needed pace and detail to support the achievement of a decarbonization goal, submitted by IACS, 23 November 2021.
- **MSC105/2/2:** The development of safety requirements at the needed pace and detail to support the achievement of a decarbonization goal, submitted by IACS, 15 February 2022.
- **CCC8/13:** Report of the Correspondence Group – safety information for the use of ammonia, 17 June 2022.
- **CCC8/2/1:** The development of safety requirements for alternate fuels and technologies at the needed pace and detail to support the achievement of the IMO's decarbonization goals, submitted by IACS, 14 July 2022.
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- **SSE9/INF.8:** Experimental study for basic considerations of characteristics of hydrogen dispersion and explosion in ships, submitted by the Republic of Korea, 23 December 2022.
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 - **COM(2021)562**: Proposal for a regulation on the use of renewable and low-carbon fuels in maritime transport and amending Directive 2009/16/EC ('FuelEU'), 14 July 2021.
- **CIMAC**
 - ***Congress 2013, Paper no. 51***: "Onboard fuel oil cleaning, the ever-neglected process How to restrain cat-fine damages in two-stroke marine engines". Paper presented by experts from MAN Diesel and Turbo (Denmark), DNV Petroleum Services (Singapore), NanoNord (Denmark), Alfa Laval Tumba (Sweden).
 - ***Position Paper 6/2015***: New 0.1% sulphur marine (ECA) fuels, June 2015.
 - ***WG7 Fuels***:
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 - Fuel quality Guide - Ignition and combustion, 2011.
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 - Guideline – Marine fuel handling in connection to stability and compatibility, November 2019.
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- **Joint Hull Committee** information pack: Marine engine damage due to catalytic fines in fuel, joint paper with Braemar (The Salvage Association), 26 September 2013
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- **BIMCO, ICS, INTERCARGO and INTERTANKO:** 2020 Fuel Oil Quality and Safety Survey, 19 August 2020.
- **Cefor:**
 - Technical Forum Memo 9: Post-IMO 2020 experiences, 7 April 2021.
- **ABS:** Advisory on decarbonization applications for power generation and propulsion systems, March 2022.
- **Integr8 Fuels:** Fuels quality report 2022, September 2022.
- **Lloyd's Register / Thetius:** Bunker testing, October 2022.
- **The Maritime Just Transition Task Force:** Position Paper - Mapping a maritime just transition for seafarers, 9 November 2022.
- **Mærsk Mc-Kinney Møller Center for Zero-carbon Shipping & Lloyd's Register:** Recommendations for design and operation of ammonia-fuelled vessel based on a multi-disciplinary risk analysis, 26 June 2023.

Timeline / important dates

- **Sulphur limits:**
 - Californian waters: 0.1% sulphur limit as of 1 August 2012.
 - European and North American ECAs: 0.1% sulphur limit as of 1 January 2015.
 - MARPOL – outside ECAs: 0.5% sulphur limit as of 1 January 2020.
 - China:
 - Coastal territorial waters, except coastline Hong Kong, Macao and Taiwan: 0.5% sulphur limit as of 1 January 2019.
 - Inland water ECAs: 0.1% sulphur limit as of 1 January 2020.
 - Regulated waters of Hainan Island: 0.1% sulphur limit as of 1 January 2022.
 - South Korean ECA:
 - Certain ports introduced 0.1% sulphur limit from 1 September 2020.
 - 0.1% sulphur limit when navigation in the ECA area from 1 January 2022.
- MEPC 74: 13 - 17 May 2019.



- MEPC 75: 16-20 November 2020; adoption of guidelines and treatment of MARPOL samples.
- MSC 105: 20-29 April 2022.
- CCC 8: 19-23 September 2022.
- 2nd IMO symposium on low- and zero-carbon fuels for shipping: 21 October 2022.
- MSC 106: 2-11 November 2022.
- MSC 107: 31 May-9 June 2023.
- IMO Energy Efficiency Existing Ship Index (EEXI) enters into force 1 January 2023.
- New ISO 8217 standard expected to be published in 2023.

IUMI will:

- Encourage an amendment of the 60mg/kg limit for cat fines and the inclusion of biofuels in the ISO standard.
- Support a review by MSC of the safety aspects of implementing the 0.5% sulphur limit that took effect from 2020.
- Suggest that refineries are compelled to test and confirm the delivery of non-contaminated fuels.
- Increase awareness for alternative low and zero carbon fuel types and propulsion methods, and contribute towards any necessary safety regulation amendments.

4. Liability

Brief description

The insurance of marine liabilities helps to protect third party rights. Since the liability (e.g. for environmental damages caused by an oil-spill) can be extraordinarily high, sufficient insurance coverage for these liabilities is crucial. Many international liability conventions rule compulsory insurance requirements, and direct action against insurers is partly ruled as well.

Marine liability insurance is mainly provided by Protection and Indemnity Clubs (P&I Clubs) organized as mutual insurers with shipowners as members. The 12 largest P&I Clubs are organized under the umbrella of the International Group of P&I Clubs (IG).

While the member companies of IUMI's member associations predominantly provide insurance coverage for property damages to the hull and machinery of vessels or offshore energy units, and cargoes in transit, some of the companies also offer marine liability insurance through reinsurance arrangements or directly through covers such as 'fixed premium P&I'.

Potential gaps in liability insurance for ‘non-IG insurers’

In April/May 2014, the IMO Legal Committee (LEG 101) adopted Guidelines for accepting insurance companies, financial security providers and IG P & I Clubs to verify the compulsory insurance requirements. With a reference to these guidelines, six Member States suggested in a submission to LEG 107 in March 2020 that further consideration may be desired of problems encountered in some oil pollution incidents involving insurers that are not members of the IG. The belief is that this is an issue that affects not only the 1992 CLC, but also other IMO liability conventions.

The issue is also being examined by the governing bodies of the IOPC Funds, and during the 108th session of the IMO Legal Committee in July 2021, the IOPC Funds provided an update on the problems encountered in some oil pollution incidents involving ‘non-IG insurers’. 147 incidents were identified of which 44 incidents either had no insurer or the insurer was unidentified. Of the remaining 103 incidents, 20 incidents were found to be insured by non-IG insurers and 6 of these resulted in the IOPC Funds providing compensation before the shipowner’s limit of liability had been reached. Even though the majority of the incidents only pertain to the Civil Liability and Fund Conventions, it is in the IOPC Funds’ view a more general problem that needs to be addressed to ensure that victims can be properly compensated in the event of a marine incident. In the case of incidents covered by the Civil Liability and Fund Conventions, victims can be compensated by the IOPC Funds if oil pollution damage occurs in a State that is a member of the Fund conventions. However, this safety net does not exist for the other liability and compensation conventions where no fund exists and only the shipowner and their insurer can provide compensation. These problems can be grouped into three categories:

- Proper implementation of international conventions: State Parties to the Conventions have an obligation to ensure that they have properly implemented the Conventions, including any subsequent amendments.
- Proper understanding of international convention requirements: Not all parties involved in the international conventions may have a proper understanding of the requirements. For example, non-IG insurers may not be aware that the conventions provide a right to direct-action against an insurer.
- Proper application/enforcement of international conventions: For international conventions with compulsory insurance requirements, States are required to ensure that ships flying their flag do not operate without having the appropriate State issued certificate validating that insurance or other financial is in place. States are also required to ensure that ships entering or leaving ports in their States have a valid State issued certificate. When States are issuing Convention certificates, they need to ensure that the insurance in place, including the amount, complies with the Convention requirement. The amount of insurance is intended to cover all of their liabilities under the specific international conventions, but also requires dedicated amounts.

A proposal for a new output was submitted by five Member States in December 2021, and LEG 109 subsequently established a Correspondence Group, which included IUMI, with the following key workstreams:

- development of informational pamphlets for the Bunkers Convention, Civil Liability Convention, Athens Convention and the Wreck Removal Convention to assist Flag States, Port State control officers, shipowners, and insurers in their interpretation and application of the liability and compensation requirements of the Conventions
- review of existing IMO guidelines; primarily IMO Circ. No. 3464 for accepting insurance certificates,
- development of a new GISIS module for those involved in issuing convention certificates.

In March 2023, LEG 110 approved the text of three pamphlets (Bunkers Convention, Civil Liability Convention and Wreck Removal Convention). Further, an intersessional Correspondence Group was established to review the IMO guidelines and create a new GISIS module.

1910 Collision Convention

The Comité Maritime International (CMI), at the recent Executive Council meeting, established an international working group to consider the review of one of CMI's most successful conventions, the Collision Convention 1910. The Legal Committee of the IMO has shown interest in assisting the CMI in piloting this project. The CMI Intersessional Working Group aims to provide input of what the new convention should include prior to LEG 110.

The initiative for a new IWG flows from two sources. First, the IMO is reviewing a series of instruments, including the Collision Convention 1910, as may be required to accommodate the concept of autonomous ships. Secondly, the Italian Maritime Law Association set up its own working group in 2019 to canvass its membership on the expediency of reviewing the Collision Convention 1910 along with the 1952 conventions concerning civil and penal jurisdiction where a collision occurs.

The 1910 convention covers very important aspects of collision liability. It has been adopted by numerous countries. The review could include the scope of application of a revised convention, court jurisdiction over collisions and compulsory insurance for collision liability. All aspects of the 1910 convention could be considered, and the CMI prepared a questionnaire to maritime law associations in February 2023 to get some further guidance. IUMI is represented in the CMI WG by the Legal & Liability Committee Chair Charles Fernandez.

Relevant authority / organisations and documents

Non-IG insurers

- **IMO – Legal Committee**
 - **Circular Letter 3464:** Guidelines for accepting insurance companies, financial security providers and the IG P & I Clubs, July 2014.
 - **LEG 107/6:** Compulsory insurance requirements under IMO conventions and insurance problems, submitted by Canada, Denmark, Italy, Japan, Norway and Republic of Korea, 9 January 2021.

- **LEG 108/5:** Review of insurance problems with non-IG insurers, submitted by IOPC Funds, 20 April 2021.
- **LEG109/13:** Proposal to add a new output under the work programme on the Development of guidance for the proper implementation and application of IMO liability and compensation conventions, submitted by Canada, Denmark, Italy, Japan and United Arab Emirates, 24 December 2021.
- **LEG110/7:** Report of the Correspondence Group on measures to transparently assess the need to amend liability limits, submitted by Australia, 20 December 2022.
- **LEG110/10:** Proposed measures related to Guidance for the proper implementation and application of IMO liability and compensation conventions, submitted by Canada, Greece, Italy, Malaysia, Republic of Korea, United Arab Emirates, ICS, IG and IUMI, 22 December 2022.
- **LEG110/WP.6:** Measures to assess the need to amend liability limits, report of the Working Group, 20 March 2023.
- **IOPC Funds**
 - **IOPC/OCT18/5/5/1:** The 20 incidents involving the IOPC Funds and non-IG insurers are available in this document.
 - **IOPC/NOV20/5/5/1:** Conclusions of the sixth joint Audit Body and the recommended measures and future tasks to be undertaken in respect of the risk relating to 'non-IG insurers'.
- **CMI:** Questionnaire to maritime law associations on the collision conventions, 20 February 2023.

Timeline / important dates

- LEG 107: 27-30 November, 1 December 2020.
- LEG 108: 26-30 July 2021.
- IMO Council, 34th extraordinary session, 8-12 November 2021.
- IMO Assembly, 6-15 December 2021.
- LEG 109: 21-25 March 2022.
- LEG 110: 20-24 March 2023.
- CMI questionnaire: deadline 31 May 2023.
- CMI colloquium: 14-16 June 2023, Montreal.

IUMI will:

- Monitor developments via the IUMI Legal & Liability Committee and Policy Forum.
- Liaise directly with the IMO LEG as required to represent members' interests.
- Support a new output on addressing problems with so called 'non-IG insurers'.
- If agreed, support the work of the IMO Legal Committee in developing further clarity and education to avoid problems with so called 'non-IG insurers'.
- Explain to IMO Member States and other interested bodies such as the IOPC Funds the practical aspects of insurance related to marine liability insurance of insurance entities not belonging to the IG.

5. Low pressure fuel systems

Brief description

More than one third of all fires on board vessels start in the engine room. Leaking oil pipes or equipment placed very closely to a potential ignition source – a so called hot spot – has been identified as the cause of several of these engine room fires.

Measures to control such leaks are described in SOLAS Reg.II-2/4. The regulation includes, amongst others, requirements to

- use suitable materials in piping conveying flammable oils,
- minimise the number of joints in such piping,
- use screening and jacketed high pressure fuel oil pipes to prevent flammable oil sprays, and
- properly insulate hot surfaces.

While the risk of fires from high pressure systems has decreased with the implementation of new design rules for the fuel pipes in 2003, the low pressure pipes/systems remain a significant risk.

To further consider measures that would be effective to reduce the risk of fires from low pressure fuel systems and mitigate the consequences, IACS and IUMI formed a correspondence group comprised of technical experts from the membership of both associations.

Identification of hot spots, use of thermography, and proper installation of insulation were among the preventive measures identified for further discussion and review by IACS.

Relevant authority / organisations and documents

- **IMO – MSC:**
 - **MSC/Circ.601:** Fire protection in machinery spaces, 29 January 1993.
 - **Resolution MSC.31:** SOLAS amendments, 23 May 1994.
 - **MSC/Circ.647:** Guidelines to minimize leakages from flammable liquid systems, 6 June 1994.
 - **MSC/Circ.851:** Guidelines on engine-room oil fuel systems, 1 June 1998.
 - **MSC.1/Circ..1321:** Guidelines for measures to prevent fires in engine-rooms and cargo pump-rooms, 11 June 2009.
- **IACS:**
 - **Rec.No.18/Rev. 2:** Fire prevention in machinery spaces of ships in service – Guidance to owners, February 2021.
 - **Rec.No.58/Rev. 2:** Fire protection of machinery spaces, February 2021.
 - **UR35/Rev.8:** Fire protection of machinery spaces, June 2005.
- **Cefor:** [Technical Forum Memo 6: Fire risks due to leakage from low pressure fuel pipes, 22 May 2017.](#)



Timeline / important dates

- Report from IACS-IUMI correspondence group, IUMI-IACS meeting 18 May 2021.
- Presentation by Sverre Andersen (NHC) in IACS-industry technical meeting 20 July 2021.

IUMI will:

- Take part in discussions on how to prevent and mitigate fire risks due to leakage from low pressure fuel systems.

6. Safety of container vessels

Brief description

The increasing size of container vessels and recent incidents contribute to the high awareness and importance placed by insurers on several issues related to the safety of these vessels. Fires count among the worst hazards of the global shipping industry, and every ineffective attempt to extinguish a fire puts the crew at risk. Damage to the environment, cargo and the vessel also increases. Misdeclaration of cargo and insufficient firefighting capabilities are currently two of the main challenges related to this peril.

Container contents

The contents of a container must be known if it is to be transported safely, but misdeclaration is a recurring safety problem. This applies equally to road, rail, brown and blue water transport.

Containers often contain a wide range of hazardous and toxic substances. It is reported that approximately 20% of containers in transportation are misdeclared. An analysis from the Cargo Incident Notification System (CINS) shows that in just over a quarter of the incidents where causation was detected were attributable to cargo being misdeclared. This may lead to insufficient handling of the container, and worst case an incorrect firefighting strategy that may increase the danger of combustion of the goods in the container.

In July 2019, IUMI co-sponsored a submission to the IMO Sub-Committee on Carriage of Cargoes and Containers (CCC) containing a proposal to undertake a comprehensive review of maritime special provisions that are often used to exempt goods from the safety provisions of the International Maritime Dangerous Goods (IMDG) Code. This was agreed by CCC in September 2019, and a Correspondence Group subsequently submitted a report in June 2020. The Correspondence Group was permitted to continue their considerations under the approved terms of reference and submitted an addendum to the original report in May 2021 and another report in June 2022. The CCC Sub-committee agreed in September 2022 to implement many of the recommendations from these reports. Outstanding issues were referred to an Editorial & Technical Group for further consideration.

Firefighting system on container vessels

Insufficient firefighting capacity on board large container vessels poses a challenge that is only increasing with the size of these vessels.

Based on a 2008 impact assessment, the IMO's Maritime Safety Committee (MSC) approved in June 2013 new requirements for fire protection of on-deck cargo areas. The amended SOLAS regulation II-2/10 requirements only apply to new vessels constructed on or after 1 January 2016. In addition to all other fire protection arrangements as per existing regulations, vessels designed to carry five or more tiers of containers on or above the weather deck shall from then on also be provided with mobile water monitors and at least one water mist lance.

Although these changes were a step in the right direction, a concern remains with the firefighting equipment on existing vessels. With the growing size of container vessels, the challenge of insufficient firefighting arrangements is becoming even greater.

Consequently, IUMI recommended in a position paper from September 2017 that responsible authorities, class and relevant industry stakeholders engage in discussions on how to further improve the fire detection, protection and firefighting capabilities on board container vessels. Together with Germany, Bahamas, BIMCO and CESA, IUMI co-sponsored a submission to the IMO Maritime Safety Committee's 102nd session with a view to amending SOLAS. MSC 103 agreed, based on paper MSC102/21/3 and 102/21/7, to include in the biannual agenda of the Sub-Committee on Ship Systems and Equipment (SSE) for 2022-23 and the provisional agenda for SSE 8 in February/March 2022 an output on "Development of amendments to SOLAS chapter II-2 and the FSS Code concerning detection and control of fires in cargo holds and on the cargo deck of container ships", with a target completion year of 2025, in association with the Sub-Committee on the Carriage of Cargoes and Containers (CCC), as and when requested by SSE. The amendments shall apply to new ships and they shall enhance provisions for early fire detection and effective control of fires in containerized cargoes stowed on and under deck of container ships. The amendments shall enter into force on 1 January 2028, provided they are adopted before 1 July 2026. A group of experts had been formed by IUMI to outline a road map for amending SOLAS. Based on input from this group, six flag states, IUMI, BIMCO and IACS submitted in November 2021 a paper with a proposed outline and initial assessment of gaps and regulations to SSE.

- In December 2021, EMSA launched a 'Study Investigating Cost Efficient Measures for Reducing the Risk from Cargo Fires on Container Vessels (CARGOSAFE)', which follows the structure of a Formal Safety Assessment (FSA) and includes the tasks of hazard identification, risk analysis, risk control options, cost effectiveness assessment, and making recommendations for decision making. In November 2022, MSC 106 agreed to establish a FSA expert group to review the outcome of any relevant studies (including CARGOSAFE) relating to detection and control of fires on container vessels. The CARGOSAFE report was finalized in March 2023 and subsequently submitted to MSC 107 for consideration by the FSA expert group. Further consideration of possible regulatory amendments will be on the agenda of the IMO Sub-Committee of Ship System and Equipment (SSE) in March 2024.

Loss of containers

According to the World Shipping Council, an average of 1,566 containers were lost overboard on an annual basis between 2008 and 2022. In late 2020 and early 2021, several incidents occurred where vessels lost large numbers of containers overboard at sea. High profile accidents include the One Apus which lost a total of 1,816 containers (November 2020) and the Maersk Essen which lost 750 containers (January 2021) during their respective voyages. These events show the necessity to review the root causes of the incidents. A complex set of technical and operational aspects play a role requiring a careful assessment.

Container ships have grown at an incredible pace over the past 40 years. While the maximization of economies of scale and the overall impact of transportation costs is impressive, this does come with increased risk.

The growing size of container vessels has led to large beams and container stack heights which result in relatively large metacentric heights (GM). This makes the vessels very stable/stiff which in rough weather conditions can cause high rolling accelerations. The effect of strong winds on the on-deck container stacks, also known as 'sail area' or 'air draft', further increases the windage area causing extreme momentum. Specific wave patterns may also lead to violent movements such as parametric or synchronous rolling, exerting severe loads on the container lashing and securing gear.

The stowing, lashing and securing of containers is another factor potentially contributing to the loss of containers at sea. The distribution of weight within a container stack has an impact on the stability of a vessel. If the weight of a container is not properly declared it may be stowed in an unsuitable location within the stack, causing its collapse. When considering the impact of improper container weight and number of containers transported by these ships, the multiplied effect is an important consideration. Enforcement of the IMO's verified gross mass (VGM) regulation is therefore critical to the safe operation of containerships.

Improper or damaged lashing and securing equipment, twistlocks and containers can also cause the collapse of a container stack. A chain is only as strong as its weakest link, hence one element in the container stowage and securing process may lead to the collapse of a container stack which in turn may clash with its neighbouring container stack causing the breakdown of several stacks.

On the operational side, calculation methods are used to determine the maximum capacity of containers to be loaded for a vessel. These models are based on "in-design conditions" which preclude, for instance, unfavourable sea conditions. "Off-design" conditions must be averted by the crew at an operational level, e.g. through weather routing and passage planning. The accuracy of these calculation models is an essential safety component. The models also underlie economic considerations to maximize a vessel's capacity. The rules for the calculations must therefore be based on a level playing field which ensures that they keep within safe boundaries.

Other contributing factors may involve human error, including, but not limited to, errors in cargo stowage plans, improper adherence to container stack plans, correctly following lashing plans, re-



securing of lashings during voyages, poor cargo stowage within containers, adherence to weather routing, and prudent vessel navigation while in heavy weather.

Climate change and the increasing frequency of severe weather both at sea and ashore is a factor. Improvements in marine weather forecasting and weather routing services are beneficial in planning for severe weather.

Cargo underwriters have been and will continue to be impacted by the loss of containers overboard. The high number of casualties within a short period of time is unprecedented. IUMI takes the view that although it is premature to define this as a systemic threat, every container lost is one container too many. Losses are not just limited to the containers lost overboard. There is also cargo damaged as a result of container stack collapses, damages to the vessels, and environmental impact. Resulting Cargo, Hull & Machinery, Protection & Indemnity and Marine Liability losses as well as uninsured losses have a significant economic impact. There is also concern that salvage capabilities have not kept pace with the increase in vessel size. Therefore, the various aspects relevant to the safe carriage of containers must be reviewed and action taken to correct the shortcomings.

Work to this effect is ongoing in the TopTier Project hosted by the Dutch MARIN Institute. IUMI is involved in several of the work streams which aim to address the problems in its full complexity. An initial outcome of the project is a Notice to Mariners which provides guidance to crew and operational staff of container vessels on how to plan, recognize and act to prevent parametric rolling in following seas. Several education videos have also been published. IUMI further co-sponsored two updates to the IMO on the progress of the MARIN Top Tier Joint Industry Project (JIP) on securing container safety which includes detailed information about the work streams.

In May 2021, the IMO Maritime Safety Committee (MSC) agreed to develop measures to facilitate detection, reporting, positioning, tracking and recovery of containers lost at sea as a new work item. In June 2023, MSC 107 approved draft amendments to SOLAS which will require the Master to report without delay any lost containers to the nearest coastal State and the flag State. The amendments are expected to enter into force on 1 January 2026.

In February 2023, IUMI co-sponsored a paper to the Maritime Safety Committee, proposing new output on prevention of loss of containers at sea. The proposal was agreed by MSC 107 in June 2023, and subsequently allocated to the Sub-Committee on Carriage of Cargoes & Containers (CCC). Further, MSC 107 also agreed to include an output on 'Revision of the Revised guidelines for the preparation of the Cargo Securing Manual (MSC.1/Circ.1353/Rev.2) to include a harmonized performance standard for lashing software to permit lashing software as a supplement to the Cargo Securing Manual'.

Relevant authority / organisations and documents

- **IMO - Maritime Safety Committee (MSC) and Sub-Committees on Ship Systems and Equipment (SSE) and Carriage of Cargoes and Containers (CCC)**
 - **CCC1/INF.2:** Investigation on the fire and explosion on board the MSC Flaminia, submitted by Germany, 3 June 2014.
 - **CCC6/10/1:** Revision of the inspection programmes for cargo transport units carrying dangerous goods, submitted by New Zealand and ICHCA, 5 July 2019.
 - **CCC6/6/17:** Non-declaration and misdeclaration of dangerous goods – special provisions in the IMDG Code, submitted by Liberia, ICS, IUMI, BIMCO, ICHCA, IGP&I, IVODGA and WSC, 5 July 2019.
 - **MSC102/21/3:** Proposal for a new output to evaluate the adequacy of fire protection, detection and extinction arrangements on board containerships to fight container fires, submitted by Marshall Islands, Singapore, IACS and WSC, 7 February 2020.
 - **MSC102/INF.2:** Information on insurance related economic aspects associated with containership fires, submitted by IUMI, 7 February 2020.
 - **MSC102/INF.3:** Analysis of current safety regulations concerning fire-fighting on board containerships, submitted by IUMI, 7 February 2020.
 - **MSC102/21/7:** Proposal for a new output for the fire protection on containerships regarding the review of relevant parts of SOLAS chapter II-2 with regard to fire protection in the cargo area on and under deck, submitted by the Bahamas, Germany, IUMI, BIMCO and CESA, 11 February 2020.
 - **MSC102/21/13:** Proposal for a new output on containers lost at sea, submitted by Vanuatu, 14 February 2020.
 - **FAL44/2020 & CCC7/6/1:** The role of the Rotterdam Rules in safety and facilitation, submitted by CMI, 14 February 2020.
 - **MSC102/21/19:** Comments and proposal for a new output on containers lost at sea, submitted by EU Member States & EC, 20 March 2020.
 - **MSC102/21/24:** Comments on documents MSC 102/21/3 and MSC 102/21/7, submitted by Liberia, ICS, ICHA, IG, IVODGA, ITF and WSC, 24 March 2020.
 - **CCC7/6/2:** Report of the Correspondence Group on a review of Maritime Special Provisions, 5 June 2020.
 - **CCC7/6/12:** Documentation requirements for exempted dangerous goods, submitted by Liberia, BIMCO, ICHCA, ICS, IG, IVODGA and WSC, 24 July 2020.
 - **MSC103/20/10:** Draft SOLAS amendments for the mandatory carriage of electronic inclinometers on container ships and bulk carriers, submitted by France, Germany, the Netherlands and ICS, 1 March 2021.
 - **CCC7/6/2/Add.1:** Report of the Correspondence Group on a review of Maritime Special Provisions, 30 April 2021.
 - **MSC103/WP.1/Rev.1:** Draft report of MSC 103, 17 May 2021.
 - **MSC104/17/4:** Preventing loss of containers at sea, submitted by Australia, France, Germany and Netherlands, 28 July 2021.

- **SSE8/10:** Proposal for a road map amending SOLAS chapter II-2 to address firefighting capabilities on board container vessels, submitted by Bahamas, France, Germany, Marshall Islands, Norway, Singapore, IUMI, BIMCO and IACS, 26 November 2021.
- **SSE8/10/1:** Proposals for enhancing the capabilities of containerships for early fire detection in cargo holds and on cargo decks, submitted by China, 24 December 2021.
- **SSE8/10/2:** Comments on document SSE 8/10 – proposing draft guidelines for water mist lance, submitted by Denmark, 26 November 2021.
- **SSE8/10/3:** Comments on document SSE 8/10, submitted by Germany, Liberia, Panama, Philippines, ICS, IACS, IG, ITF and WSC, 7 January 2022.
- **CCC8/12:** Lashing software as a supplement to container stowage and securing plan, submitted by IACS, 29 March 2022.
- **MSC.1/Circ.1649:** Guidelines for the implementation of the inspection programmes for cargo transport units, 20 May 2022.
- **CCC8/11** Estimate of containers lost at sea, submitted by WSC, 13 June 2022.
- **CCC8/11/1:** Development of measures re the detection and mandatory reporting of containers lost at sea that may enhance the positioning, tracking and recovery of such containers, submitted by EU Member States, EC, BIMCO, IUMI, World Sailing and WSC, 17 June 2022.
- **CCC8/6/1:** Report of the CG on a review of maritime special provisions, 17 June 2022.
- **CCC8/INF.13:** Safety concerns from fire incidents on board container ships carrying dangerous goods, submitted by Singapore, 14 July 2022.
- **MSC106/INF.16:** Update on the progress of the MARIN Top Tier Joint Industry Project (JIP) on securing container safety, submitted by Australia, Denmark, Germany, Netherlands, Singapore, IUMI and WSC, 30 August 2022.
- **CCC8/WP.5:** Report of the Working Group (measures re. the detection and mandatory reporting of containers lost at sea), 22 September 2022.
- **SSE9/10:** Proposal for fixed water monitor for control of fire on the cargo deck of containerships, submitted by Qatar, Republic of Korea and United Arab Emirates, 25 November 2022.
- **MSC107/17/6:** Proposal to revise MSC.1/Circ.1353/Rev.2 to permit lashing software as a supplement to container stowage and securing plan, submitted by France, Germany, IACS and ICS, 27 February 2023.
- **MSC107/17/12:** Proposal for a new output on prevention of loss of containers at sea, submitted by Australia, Belgium, Chile, Denmark, France, Germany, Kingdom of Netherlands, Morocco, Republic of Korea, Spain and IUMI, 28 February 2023.
- **MSC107/10:** CARGOSAFE FSA study, submitted by Sweden, 28 March 2023.
- **CCC9/INF.25:** Update on the progress of the Top Tier Joint Industry Project (JIP) on container losses, submitted by Australia, Germany, Kingdom of the Netherlands, IUMI and WSC, 19 July 2023.

- **IUMI:**
 - Press release 20 September 2016; call for further industry cooperation to tackle containership fires.
 - **Memo & press release 19 September 2017: Fire-fighting on container vessels** (<https://iumi.com/opinions/position-papers>).
 - **IUMI Discussion Paper on Containers lost at Sea, December 2021.**
- **Cargo Incident Notification System (CINS):**
 - Guidance - Safety considerations for ship operators to risk-based stowage of dangerous goods on containerships, 25 November 2019.
 - Guidelines for the carriage of seed cake in containers, January 2020.
- **ABS:**
 - Fighting Fire on Container Ships, 2016.
 - Guide for fire-fighting systems for cargo areas of container carriers, October 2019.
- **German Federal Bureau of Maritime Casualty Investigation:** Investigation Report 15/19 – Fire in the area of the deck cargo on board the container ship Yantian Express in the Atlantic Ocean on 3 January 2019, 30 January 2020.
- **Tokyo MoU:** Safety Bulletin 03/20 – Safety risks of casualties caused by cargoes, May 2020.
- **CINS / IGP&I:** Guidelines for the carriage of seed cake (including seed meal) in containers, June 2020.
- **National Cargo Bureau:** White paper – A comprehensive holistic approach to enhance safety and address the carriage of undeclared, misdeclared and other non-compliant dangerous goods, 6 July 2020.
- **Cargo Integrity Group:** Quick guide to the UN-sponsored Code of Practice for Packing of Cargo Transport Units (the CTU Code), September 2020.
- **European Maritime Safety Agency:**
 - Analysis of marine casualties and incidents involving container vessels, September 2020.
 - Invitation to tender no EMSA/OP/2021 for study investigation cost efficient measures for reducing the risk from cargo fires on container vessels (CARGOSAFE), 15 June 2021.
 - CARGOSAFE report, 16 March 2023.
- **Transport Safety Investigation Bureau – Singapore:** Final report – Fire on board Maersk Honam at Arabian Sea on 6 March 2018, 5 October 2020.
- **CONTAIN:** Pilot project report – Exploring the challenges of containership fires, Danish Institute of Fire and Security Technology, 25 January 2021.
- **World Shipping Council (WSC):** Containers lost at sea, update June 2022.
- **Britannia P&I, Waves Group & Lloyd's Register:** Reducing container losses – operational guidance, September 2022.
- **TopTier Joint Industry Project:** Securing container safety.
- **IACS:** Container ship safety position paper, 16 January 2023.
- **Cargo Fire and Loss Innovation Initiative (CFLII)**
- **ClassNK:** Guidelines for additional fire-fighting measures for container carriers, April 2023.



Timeline / important dates & decisions

- Entry into force of amended FSS Code & SOLAS regulation II-2/10: 1 January 2016.
- IUMI webinar: Mark Russell (Gard) on firefighting of container vessels and misdeclaration of container content, 2 November 2017.
- MSC 101 – IUMI lunch presentation, 5 June 2019.
- Gard conference, Arendal, 17-18 October 2019.
- SSE 7: 2-6 March 2020. IUMI lunchtime presentation by Are Solum (Gard), 4 March 2020.
- MSC 103: 3-14 May 2021.
- MSC 104: 4-8 October 2021.
- SSE 8: 28 Feb-4 March 2022.
- CCC 8: 19-23 September 2022.
- MSC 106: 2-11 November 2022.
- MSC 107: 31 May – 9 June 2023.
- FSA Expert Group meeting, IMO - London: 26-36 October 2023.
- SSE 10: 4-8 March 2024.
- SSE target completion year output on container fires: 2025.
- MSC target completion year output to develop measures to prevent loss of containers at sea: 2025.
- SOLAS amendment container fires: 1 January 2028, provided amendments are adopted within 1 July 2026.
-

IUMI will:

- Support a holistic approach to preventing and mitigating fires starting in the cargo on board container vessels.
- Support measures that improve the monitoring of containers and their contents.
- Support internationally harmonized legislation and national regulations based on the CTU Code.
- Monitor and support measures to ensure the structural safety of large container vessels.
- Support an amendment of SOLAS to improve fire safety.
- Support the NCB recommendations from July 2020 to address the carriage of undeclared, misdeclared and other non-compliant dangerous goods.
- Support the implementation of the findings of the TopTier JIP into the IMO to affect the regulatory improvements with regard to containers lost at sea.

7. Safety of RoRo vessels

Brief description

Due to the “Norman Atlantic” fire just before New Year 2014 and the fire on the “Sorrento” in April 2015, IMO increased its focus on the evacuation and safety of RoRo vessels. The Maritime Safety Committee (MSC) highlighted the need for an international response to the casualty reports from the marine accident investigations and act to enhance the current safety regime.

Marine underwriters have witnessed that the frequency of fires in the Car/RoRo segment is at a level twice the frequency of fires on most other vessel types. Cargo fires are the most frequent type of fires, which could be related to the fire risk of cars in general, as well as challenges with detecting, locating and extinguishing fires on these vessels. Refrigeration units, transportation and charging of electric and other alternative fuel vehicles, stowaways and passengers on ro-ro decks are other factors that potentially increase the fire hazard.

Interferry released in March 2016 Operational Best Practice Guidance on ferry safety for ro-ro passenger ships. The key finding of their review is that more attention should be given on response time in case of an incident.

MSC 97 agreed in November 2016 to include in the 2016-2017 biennial agenda of the Sub-Committee on Ship Systems and Equipment (SSE), with the support of the Sub-Committees on Ship Design and Construction (SDC) and Human Element, Training and Watchkeeping (HTW), an output on “Review SOLAS chapter II-2 and associated codes to minimize the incidence and consequences of fires on ro-ro spaces and special category spaces of new and existing ro-ro passenger ships”. SSE agreed in March 2017 on a two-step approach: 1) the development of Interim Guidelines, and 2) the development of amendments to SOLAS and associated codes. The interim guidelines for minimising the incidences and consequences of fires on ro-ro spaces and special category spaces of new and existing ro-ro passenger vessels were approved by MSC 101 in June 2019. The guidelines cover prevention/ignition, detection/decision, extinguishing fires, containment and integrity of life-saving appliances and evacuation.

Revised guidelines for the design and approval of fixed water-based fire-fighting systems for ro-ro and special category paces were issued by MSC in June 2023 (MSC.1/Circ.1430/Rev.3).

In June 2023, MSC 107 approved amendments to SOLAS chapter II-2 and the Fire Safety Systems (FSS) Code for new and existing ro-ro passenger vessels. The amendments will enter into force 1 January 2026 for new ro-ro passenger vessels and from 1 January 2028 for existing ro-ro passenger vessels.

Carriage of alternative fuel vehicles

Carriage of battery electric vehicles (BEVs) present a particular challenge when a fire breaks out. In March 2020 during SSE 7, a document about risks associated with the transport of lithium-ion battery powered vehicles was introduced. As a follow up, interested Member States and international organisations could submit proposals to the Maritime Safety Committee (MSC) for a

relevant new output to address these risks. In April 2022, MSC 105 agreed to a new output on the evaluation of the adequacy of fire protection, detection and extinction arrangements in vehicle, special category and ro-ro spaces in order to reduce the fire risk of vessels carrying new energy vehicles. The output will also include considerations of the charging of electric vehicles on board vessels. The scope of the application will be considered by the SSE sub-committee. Work will start in March 2024, with SOLAS amendments not expected to enter into force before 1 January 2032.

In view of the serious incidents caused by fires originating in vehicles, a Correspondence Group was established by the IMO sub-committee on Carriage of Cargoes and Containers (CCC) in September 2022. The CG will review the transport provisions in view of improving the carriage regulations, consider appropriate measures to address the hazards and report to CCC 9 in 2023.

IUMI has established a working group which includes car manufacturers and ship operators to consider the risks of the carriage of BEVs and to develop best practice and recommendations for marine insurers.

Relevant authority / organisations and documents

- **IMO – Maritime Safety Committee (MSC) & Sub-Committee on Ship Systems and Equipment (SSE)**
 - **MSC96/INF.3:** Electric mobility on ro-ro and ro-pax ships. Report of the Formal Safety Assessment study, 9 February 2016.
 - **MSC96/16/1:** Formal Safety Assessment - Considerations on the revision of SOLAS regulation II-2/20 – fire safety in connection with the transport of vehicles with electric generators or electrically powered vehicles, submitted by the EC and Member States, 8 March 2016.
 - **MSC97/19/3:** Work programme – Fire safety of ro-ro passenger ships, submitted by EU Member States and the EC, 1 August 2016.
 - **SSE5/INF.4:** Information from several relevant studies, submitted by EC and the EU Member States, 8 December 2017.
 - **SSE6/6/1:** Review of relevant recent accident investigation reports from the EU, submitted by the EC and EU Member States, 30 November 2018.
 - **SSE7/6/6:** Draft amendments to SOLAS regulation 11-2/20 regarding ships carrying lithium-ion battery vehicles, submitted by China, 8 January 2020.
 - **MSC104/15/19:** Proposal for a new output to evaluate the adequacy of fire protection, detection and extinction arrangements in vehicle, special category and ro-ro spaces in order to reduce the fire risk of ships carrying new energy vehicles, submitted by China, 2 July 2021.
 - **CCC8/6/6:** Special provisions for the transport of vehicles, submitted by the United States, 12 July 2022.
 - **SSE9/INF.6:** Information on the output of 'Evaluation of fire protection, detection and extinction arrangements in vehicle, special category and ro-ro spaces in order to reduce the fire risk of ships carrying new energy vehicles', submitted by China, 23 December 2022.

- **MSC107/INF.5:** Test of the efficiency of a fixed water-based extinguishing system in relation to a lithium-ion battery fire in a vehicle, submitted by Interferry, 6 March 2023.
- **MSC.1/Circ.1430/Rev.3:** Revised guidelines for the design and approval of fixed water-based fire-fighting systems for ro-ro spaces and special category spaces, 27 June 2023.
- **CCC9/6/10:** Proposal for amendments to the IMDG Code on stowage and segregation of lithium battery energy storage cabinets, submitted by China, 19 July 2023.
- **Interferry:** RoRo Deck Fire Safety - Operational Best Practice Guidance, 8 March 2016 (MSC96/6/2).
- **DNV GL:** Fires on Ro-Ro decks, 20 June 2016.
- **European Maritime Safety Agency (EMSA):**
 - FIRESAFE – study investigating cost effective measures for reducing the risk from fires on ro-ro passenger ships, SP Technical Research Institute of Sweden, Bureau Veritas, Stena Rederi, December 2016 (SSE4/INF.8).
 - Guidance on the carriage of AFVs in Ro-Ro spaces, 23 May 2022.
- **IUMI: Position Paper: Fires on ro-ro passenger vehicle decks, 7 February 2017** (<https://iumi.com/opinions/position-papers>).
- **Alternative Fuel Vehicle Project:** Report: Safe transportation of alternative fuel vehicles, 13 June 2017.
- **Standard Club:** A master's guide to Fire Safety on Ferries, April 2018.
- **LASH FIRE** international R&D project.
- **UK Government:** Marine Guidance Note (MGN) 653 (M) Electric vehicles onboard passenger roll-on/roll-off (ro-ro) ferries, 21 July 2022.
- **DBI ELBAS Project:** Electric vehicle fires at sea: New technologies and methods for suppression, containment, and extinguishing of battery car fires onboard ships, 2 February 2023.
- **RINA:** Guide for the carriage of alternative fuelled vehicles on board Ro-Ro ships, 1 February 2023.

Timeline / important dates

- MSC 97: 21-25 November 2016.
- IACS/IUMI Technical Cooperation Group: 6 June 2017.
- EMSA FIRESAFE study II, 2018.
- MSC 101: 5-14 June 2019.
- SSE 8: 28 Feb – 4 March 2022.
- LASH FIRE: September 2019 – August 2023.
- LASH FIRE conference, EMSA, 9-11 October 2022.
- LASH FIRE conference, 28 June 2023.
- CCC 9: 18-29 September 2023.
- SSE 10: 4-8 March 2024.



IUMI will:

- Support Interferry RoRo Deck Fire Safety Operational Best Practice Guidance.
- Support ongoing work at the IMO to improve safety of RoRo vessels and Car Carriers.
- Provide input to IMO for consideration of risks associated with the transport of new energy vehicles.
- Develop best practice and recommendations in relation to the carriage of BEVs.

STANDING ITEMS

8. Maritime security / piracy

Brief description

Best Management Practice (BMP) 5, use of private armed security guards, UN and IMO guidelines, national regulations, legality of payment of ransoms, and ISO rules for the use of force are some of the issues still very much on the international maritime security agenda.

The International Maritime Bureau (IMB) Piracy Reporting Centre (PRC) reported 115 piracy and armed robbery incidents worldwide in 2022 - the lowest recorded figure in three decades. Half of the incidents occurred in Southeast Asian waters, particularly in the Singapore Straits where incidents increased to a seven-year high from 49 incidents in 2021 to 55 in 2022. Incidents in the Singapore Straits account for 65% of all incidents in Asia, according to the ReCAAP Information Sharing Centre. The trend continued into 2023 with a 25% significant increase in reported incidents in the Singapore Straits according to the mid-year report from IMB.

Following an increase in the reported incidents in the Gulf of Guinea in the first half of 2023 with 65 incidents against 58 in the same period in 2022, the IMB has raised concern on the resurgence of incidents. The IMB calls for continued, robust regional and international naval presence as a deterrent to address these crimes.

A maritime security working group was convened during the IMO's Maritime Safety Committee (MSC) meeting in May 2021 to discuss further collaboration and possible action to address piracy in the Gulf of Guinea. The IMO Assembly subsequently updated a resolution for the area in view of in December 2021. Nigeria's Deep Blue Project and the Gulf of Guinea Maritime Collaboration Forum are complementary initiatives, created to support the fight against piracy in the region.

In January 2021, the EU Council approved the launching of the first pilot case of the Coordinated Maritime Presences (CMP) concept in the Gulf of Guinea (GoG), which has seen member states deploy warships to the region. The purpose is to support efforts by the coastal states and the organisation of the Yaoundé Architecture to address increasing security challenges such as armed piracy and kidnapping for ransom, which undermine maritime security and good governance of the oceans. Following a review of the pilot, the EU proposed a two-year extension of the CMP mandates, starting in January 2022.

South American ports in Brazil, Guyana, Peru, Mexico and Haiti continue to be affected by the crime of armed robbery, but overall there was a reduction in incidents partially attributed to a 33% decrease in Caliao anchorage in Peru.

While no incidents were reported in the Gulf of Aden in 2022, the IMB Piracy Reporting Centre continues to encourage vigilance among shipmasters, particularly when transiting close to the

Somali coast. In consequence, insurers will continue to ask owners about their security precautions in this region.

The EU Maritime Security Revised Action Plan was adopted in June 2018. The revised Plan underlines that international cooperation at sea is instrumental to achieve safe and secure seas across regions and improve global maritime security. Although NATO reassigned its counter-piracy mission in the Indian Ocean in November 2016, the European Union has extended its counter-piracy operation until 31 December 2024. IUMI notes the continuing support from EU and the Combined Maritime Forces (CMF) and believes the extended security corridor to be prudent.

With drawdown and the passage of time in mind, the 5th edition of the piracy-specific Best Management Practice (BMP5) was published in June 2018. BMP5 compiles a useful and comprehensive guidance which introduces effective measures for the protection of crew, vessels and cargo while transiting the Red Sea, the Gulf of Aden, the Indian Ocean and the Arabian Sea. The shipping industry's Indian Ocean High Risk Area was removed 1 January 2023.

Best Management Practices to Enhance Maritime Security for Vessels & Mariners Operating Off the Coast of West Africa including the Gulf of Guinea (BMP WA) was published in March 2020. The BMP WA is the result of a collaborative work between industry organisations, supported by government and military organisations, to help mariners detect, deter and delay external threats to their safety in this region.

Ukraine

The conflict continues with no end in sight. but initial Russian aims contracted following strong Ukrainian resistance. The European strategic picture has been recast with the continent recognizing the downside of oil and gas reliance on a country with contrasting strategic ambitions. The sanctions picture is complex and the effects of the measures are unclear. What is clear is that insurers have had to handle a range of extra due-diligence issues and several carriers have opted out altogether. Additionally, many reinsurers have utilized territorial exclusions leaving the primary market with a newly limited reality. Underwriters have sustained significant losses arising from the vessels trapped by the hostilities and there will likely be disputes over those cargoes stranded or stuck in warehouses.

Relevant authority / organisations and documents

- **International Maritime Organization (IMO)**
 - **Global Integrated Shipping Information System (GISIS)**: Recent reported incidents of piracy & armed robbery.
 - ***MSC102/10/3***: Security in the Gulf of Guinea, submitted by ICS, BIMCO, OCIMF, INTERTANKO and INTERCARGO, 10 March 2020.
 - ***Circular Letter No. 4382***: Piracy in the Gulf of Guinea, 10 February 2021.
 - ***Resolution A.1069(28)***: Prevention and suppression of piracy, armed robbery against ships and illicit maritime activity in the Gulf of Guinea, 15 December 2021.

- **MSC106/INF.10:** Removal of the Indian Ocean High Risk Area, submitted by ICS, BIMCO, OCIMF, INTERTANKO, INTERCARGO and IMCA, 22 August 2022.
- **BMP5:**
 - Best Management Practices to Deter Piracy and Enhance Maritime Security in the Red Sea, Gulf of Aden, Indian Ocean and Arabian Sea, June 2018.
- **BIMCO's GUARDCON contract**
 - **IGP&I GUARDCON West Africa** – IG clubs' version including the recommended amendments in Circular 1, 9 April 2014.
- **European Union:**
 - EU Maritime Security Factsheet: The Gulf of Guinea, 25 January 2021.
- **EU Naval Force (EU NAVFOR)** – Operation Atalanta.
- **ICC International Maritime Bureau – Piracy Reporting Centre**
- **Maritime Security Centre Horn of Africa (MSCHOA)**
- **Joint War Committee (JWC):** Listed areas.
- **IUMI:** Position Paper - Piracy and its suppression, 29 January 2016.
- **Maritime Domain Awareness for Trade – Gulf of Guinea (MDAT-GoG)**
- **ICS, BIMCO & INTERTANKO:** Interim Guidance on Maritime Security in the Southern Red Sea and Bab Al-Mandeb, 24 January 2018.
- **BMP WA:**
 - Best Management Practices to Deter Piracy and Enhance Maritime Security off the Coast of West Africa including the Gulf of Guinea, 30 March 2020.
- **U.S. Coast Guard:** Port Security Advisory (1-20), 10 June 2020.
- **Benin:** Interministerial decree concerning means of protection of ships in territorial waters, 13 July 2020.
- **BIMCO, ICS, INTERTANKO, INTERCARGO & OCIMF:**
 - Joint statement: Increased security threats for vessels operating in the Gulf of Guinea, 21 October 2020.
 - Recommended risk mitigation measures, 5 January 2021.
- **OCIMF:** Guidance for the employment of private maritime security companies, October 2021.
- **NATO Shipping Centre.**
- **US MARAD:** Advisory 2022-003: Persian Gulf, Strait of Hormuz, Gulf of Oman, Arabian Sea, Gulf of Aden, Bab al Mandeb Strait, Red Sea and Eastern Indian Ocean – Threat to commercial vessels, effective date 30 August 2022 – 26 February 2023.
- **IUMI:** IUMI welcomes IMO initiative to free vessels trapped in Ukrainian ports, 13 February 2023.
- **Industry associations:** Joint open letter to UN on seafarers trapped in Ukraine, 20 February 2023.

Timeline / important dates

- EU Naval Force Operation Atalanta extended until 31 December 2024.
- Indian Ocean High Risk Area no longer in place from 1 January 2023.

IUMI will:

- Monitor and inform IUMI membership of new developments.
- Strongly support implementation of BMP5 and consider amendments and/or more suitably adapted versions for new areas/threats as and when appropriate.
- Support implementation of ISO PSA 28007 as the sole standard when determining rules for the use of force.
- Endorse guidelines issued by BIMCO and ICS for vessels and crews.
- Encourage governments to support counter-piracy operations through naval task forces and other means of support off the Horn of Africa.
- Encourage owners and insurers to remain vigilant in the Indian Ocean.
- Support all efforts to find a lasting solution to ensure the safe passage of vessels and crew in the Strait of Hormuz and Persian Gulf.

9. Sanctions

Brief description

International sanctions are front and centre to the major economic powers' political strategies and objectives. Shipping as a key cog to the global economy is an obvious sector to be adversely impacted by rises in geopolitical tensions. While sanctions are nothing new, the targeting of financial services have demonstrated the need for marine insurers to keep up to date with new sanction regimes and how to comply with them.

In recent years the application of unilateral sanctions, i.e. without broad, international consensus, has escalated significantly, as has the potential over-reach by governments to try and control the actions of entities trading in their country or using their currency but not directly sanctioned by them – the 'secondary sanctions' phenomenon. The increasing use of 'tit-for-tat' sanctions between the major trading nations further raises the political temperature and difficulties for internationally focused industries such as shipping.

There has been an increasing focus by sanctions authorities on the maritime sector, with pressure on owners, operators and insurers to adopt ever more extensive due diligence and compliance checks in order to manage evolving and complex risks. The May 2020 guidance Sanctions Advisory by OFAC, the Department of State and the U.S. Coast Guard is probably the most important sanctions development for marine insurers in recent years. Its intent is to reshape all aspects of maritime industry behaviour and touches upon fundamental issues for our community – for instance, AIS manipulation, know your customer, supply chain risk, information sharing with counterparties and the recommended use of insurance policy provisions. In July 2020, the UK sanctions regulator, OFSI, followed suit.

It is beyond the scope of this document to analyse specific sanctions measures or regimes except to make the wider point that sanctions measures are updated on an almost daily basis across multiple jurisdictions, which require continued due diligence by those in the shipping sector. Moreover, in some cases, sanctions requirements are either ambiguous or conflict across jurisdictions.

Insurers maintain exhaustive checks and systems to avoid insuring sanctioned entities in the first place, or paying claims where sanctions are introduced mid-policy term. Insurance policies will generally include as standard a sanctions exclusion clause, in addition to provisions, both implied and expressed, around illegal activity by the insured. But the speed of sanctions developments and differences in approaches and legislation across jurisdictions is a challenge. Furthermore, secondary sanctions can leave both insurers and their clients in the difficult situation of having competing sanctions measures in place, particularly so where there is the ‘threat’ of potential sanctions should the parties pursue what may be an otherwise valid commercial contract. Moreover, as the sanctions threat evolves so does the increasing technology employed by bad actors to circumvent measures – AIS manipulation being the best example but also including physical manipulation of the vessel, GNSS spoofing and falsification of documents.

The list below, while not exhaustive, indicates where information can be found from four key sanction regimes.

Key sanction regimes – information links

- **United Nations:**
 - [Security Council - General Information about Sanctions](#)

- **United States of America:**
 - [U.S. Office of Foreign Assets Control \(OFAC\) Sanctions List Search](#)
 - [U.S. Treasury OFAC Sanctions Programs](#)
 - [U.S. Treasury OFAC Recent Actions](#)
 - [OFAC Specially Designated Nationals \(SDN\) List](#)
 - [OFAC Guidance to address illicit shipping and sanctions evasion practices \(14 May 2020\)](#)

- **European Union:**
 - [EU Consolidated list of sanctions](#)
 - [EU Sanctions Map](#)
 - [11th package of restrictive measures against Russia](#)

- **United Kingdom:**
 - [HM Treasury – Financial sanctions targets by regime](#)
 - [UK Office of Financial Sanctions Implementation](#)
 - [OFSI Financial sanctions guidance for entities and individuals operating within the maritime shipping sector \(December 2020\)](#)
 - [Lloyd’s Marine sanctions guidance – Enhanced Due Diligence measures](#)

- **IUMI:**
 - OFAC webinar 10 June 2020
 - Sanctions update webinar (HFW and Windward), 8 December 2021.

- **BIMCO:** [Sanctions clause for container vessel time charter parties 2021.](#)

- **China:** [Anti-foreign sanctions law necessary to fight hegemonism, power politics: official.](#)

Glossary of abbreviations

ABS – American Bureau of Shipping
AFV – Alternative Fuel Vehicle
AIFTA – ASEAN-India Trade Area
AKFTA – ASEAN-Republic of Korea Free Trade Agreement
AMD – Association Mondiale de Dispatcheurs
ASEAN – Association of Southeast Asian nations
BBNJ – Biodiversity Beyond National Jurisdiction
BMP – Best Management Practice (BMP WA – Best Management Practice West Africa)
BRI – Belt and Road Initiative (People’s Republic of China)
C – Council (IMO)
CCC – Sub-Committee on Carriage in Cargoes and Containers (IMO)
CFLII – Cargo Fire and Loss Innovation Initiative
CG – Correspondence Group
CIMAC – International Council on Combustion Engines
CINS – Cargo Incident Notification System
CIRM – Comité International Radio-Maritime
CLC – Civil Liability Convention
CLIA – Cruise Lines International Association
CMF – Combined Maritime Forces
CMI – Comité Maritime International
COLREG – Convention on the International Regulations for Preventing Collisions at Sea
CPTPP – Comprehensive and Progressive Agreement for Trans-Pacific Partnership
CTU Code – Code of Practice for Packing of Cargo Transport Units
DBI – The Danish Institute of Fire and Security Technology
DG MOVE – Directorate-General Mobility and Transport (EC)
EC – European Commission
ECA – Emission Control Area
ECSA – European Community Shipowners’ Associations
EEA – European Economic Area
EEXI – Energy Efficiency Existing Ship Index (IMO)
EFTA – European Free Trade Association
EIOPA – European Insurance and Occupational Pensions Authority
EMASOH – European Maritime Surveillance Mission in the Strait of Hormuz
EMSA – European Maritime Safety Agency
ENISA – European Network and Information Security Agency
ESG – Environmental, Social and Governance
ETS – Emission Trading System (EU)
EU – European Union
EU NAVFOR – EU Naval Forces
FAL – Facilitation Committee (IMO)

FIATA – International Federation of Freight Forwarders Association
FONASBA – The Federation of National Associations of Ship Brokers and Agents
FTA – Free Trade Agreement
GDP – Gross Domestic Product
GHG – Greenhouse Gas
GNSS – Global Navigation Satellite Systems
GoG – Gulf of Guinea
HTW – Sub-Committee on Human element, Training and Watchkeeping (IMO)
IACS – International Association of Classification Societies
IAPH – International Association of Ports and Harbors
ICS – International Chamber of Shipping
IFSMA – International Federation of Shipmasters' Associations
IG – International Group of P&I Clubs
IMB – International Maritime Bureau
IMDG Code – International Maritime Dangerous Goods Code
IMO – International Maritime Organization; a United Nations specialized agency
INTERCARGO – International Association of Dry Cargo Shipowners
InterManager – international association of ship and crew managers
INTERTANKO – International Association of Independent Tanker Owners
IPTA – International Parcel Tankers Association
ISM Code – International Safety Management Code
ISPS Code – International Ship and Port Facility Security Code
ISO – International Organization for Standardization
ISU – International Salvage Union
ITF – International Transport Workers' Federation
IUU – Illegal, unreported and unregulated fishing
LEG – Legal Committee (IMO)
MARPOL – International Convention for the Prevention of Pollution from Ships
MASS – Maritime Autonomous Surface Ships
MEPC – Marine Environment Protection Committee (IMO)
MSC – Maritime Safety Committee (IMO)
MSCHOA – Maritime Security Centre Horn of Africa
MR – Mutual Recognition (ROs)
NATO – North Atlantic Treaty Organization
NCSR – Sub-Committee on Navigation, Communications and Search and Rescue (IMO)
OCIMF – Oil Companies International Maritime Forum
OFAC – Office of Foreign Assets Control (United States)
OFSI – Office of Financial Sanctions Implementation (United Kingdom)
ORRA – Ocean Risk Alliance
Polar Code – International Code for Ships Operating in Polar Waters
POLARIS – Polar Operational Limit Assessment Risk Index System
PoR – Places of Refuge
PPMI – Poseidon Principles for Marine Insurance
PPR – Sub-Committee on Pollution Prevention and Response (IMO)
PSA – Port Security Advisory



PSI – Principles for Sustainable Insurance (UNEP FI)
RCEP – Regional Comprehensive Economic Partnership (between 15 Indo-Pacific nations)
ReCAAP ISC – Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia Information Sharing Centre
RO – Recognised Organisation
ROADSEC – European road freight transport sector security guidelines
SAE – Society of Automotive Engineers
SDC – Sub-Committee on Ship Design and Construction (IMO)
SDG – Sustainable Development Goals (UN)
SOLAS – International Convention for the Safety of Life at Sea
SSE – Sub-Committee on Ship Systems and Equipment (IMO)
STCW – International Convention on Standards of training, Certification and Watchkeeping for Seafarers
TAPA – Transport Asset Protection Association
TEN-T – Trans-European Transport Network (EC)
UI – Unified Interpretation (IACS)
UN – United Nations
UNCAC – Convention Against Corruption (UN)
UNCLOS – Convention on the law of the seas (UN)
UNEP FI – United Nations Environment Programme Finance Initiative
UR – Unified Requirement (IACS)
WSC – World Shipping Council