Submission to the twenty third session of the UN open-ended Informal Consultations on Oceans and the Law of the Sea (ICP)

"New maritime technologies: challenges and opportunities"

by the International Maritime Organization (IMO)

IMO

IMO is the United Nations specialized agency responsible for developing and adopting measures to improve the safety and security of international shipping and to prevent marine and atmospheric pollution from ships. IMO conventions, upon entry into force, cover all ships, regardless of the flag they fly, as ships of non-convention States entering the waters or ports of convention States are subject to the "no more favourable treatment principle", which is embedded in IMO treaties. In other words, this principle allows for a level playing-field so that ship operators cannot cut corners or compromise on safety, security and environmental performance. This approach is also a vehicle for innovation and efficiency within the shipping and maritime industries.

IMO currently has 175 Member States, and more than 130 observers from international organizations and NGOs representing all maritime interests. IMO has adopted over 50 treaties, the vast majority of which are in force and are globally binding. In addition, to supplement these treaties, numerous measures such as guidelines, guidance, recommended practices and codes have been agreed.

IMO and greener shipping

Shipping and maritime activities are prime users of the oceans. Shipping is invaluable to global trade and economic growth. Shipping carries over 80 per cent of world trade, providing the most economic and environmentally sustainable way of transporting cargo.

The maritime sector, like the rest of the world, is voyaging through substantial changes as it tackles climate change and one of the biggest challenges being addressed by the IMO is the decarbonization of international shipping. IMO is working tirelessly to ensure that the regulatory framework is constantly enhanced and strengthened to meet new demands and challenges, and it is those regulations that drive innovation and the new technologies that are fundamental to the maritime sector's energy transition and achieving the Sustainable Development Goals (SDGs).

New maritime technologies for greener shipping

The World Maritime theme for 2022 was 'New technologies for greener shipping' chosen to reflect the need to support a green transition of the maritime sector into a sustainable future, while leaving no one behind. Central to this transition is promoting inclusive innovation and the uptake of new technologies, especially in the context of developing countries, and in particular the small island developing States (SIDS) and least developed countries (LDCs).

IMO is actively supporting that greener transition and showcasing maritime innovation, research and development, and the demonstration and deployment of new technologies through a number of major projects including:

- *The Global MTCC Network (GMN)* – this initiative unites Maritime Technologies Cooperation Centres (MTCCs) in targeted regions into a global network to promote technologies and operations to improve energy efficiency in the maritime sector and help navigate shipping into a low-carbon future:

https://www.imo.org/en/OurWork/PartnershipsProjects/Pages/IMO-EuropeanUnionProject.aspx

- *GreenVoyage2050* – this partnership project between the Government of Norway and IMO launched in May 2019 aiming to transform the shipping industry towards a lower carbon future and spur global efforts to demonstrate and test technology solutions: https://www.imo.org/en/OurWork/PartnershipsProjects/Pages/GreenVoyage2050.aspx

- *IMO CARES (Coordinated Actions to Reduce Emissions from Shipping)* - a long-term programme with the objective to accelerate demonstration of green technologies and their deployment globally in a manner that facilitates blue economic growth in developing regions: https://www.imo.org/en/OurWork/PartnershipsProjects/Pages/IMO-CARES.aspx

IMO regulations and guidelines are also driving innovation and new technologies in other topic areas, including ballast water management, biofouling and marine plastic litter.

IMO's International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention) aims to control and monitor the discharge of ballast water and sediments from ships, to prevent the spread of non-native species and pathogens, by requiring ballast water exchange and the treatment of ballast water. The BWM Convention restricts permissible discharge concentrations for viable organisms in ballast water. This regulatory requirement has driven the demand for, and the development of, new technologies that are able to clean the ballast water, referred to as ballast water treatment systems (BWTS) or ballast water management systems (BWMS), to meet a performance standard based on agreed numbers of organisms per unit of volume.

The IMO 2011 Guidelines for the control and management of ships' biofouling also address invasive aquatic species and offer a set of best management practices to manage biofouling and minimize their transfer. IMO's GloFouling project promoted the development of new technologies to prevent and/or manage marine biofouling, with the aim of increasing energy efficiency and to protect biodiversity by preventing the spread of invasive aquatic species. Examples include in-water cleaning systems, new anti-fouling components and the use of robotics for monitoring and inspecting surfaces. the TEST Biofouling project is building on achievements, networks, and knowledge built by the GloFouling project and will deliver technology demonstration activities and capacity building activities in relation to the implementation of the IMO Biofouling Guidelines:
https://www.imo.org/en/OurWork/PartnershipsProjects/Pages/TEST Biofouling.aspxproject

On marine litter the GloLitter Partnerships Project supports the IMO 2018 Action Plan, and the 2021 Strategy to address marine plastic litter from ships, promote compliance with relevant FAO instruments (including the Voluntary Guidelines on the Marking of Fishing Gear), target waste management in ports and also emphasise implementation and enforcement of IMO's London Convention and London Protocol regime on dumping of wastes at sea: https://www.imo.org/en/OurWork/PartnershipsProjects/Pages/GloLitter-Partnerships-Project-.aspx

Challenges and opportunities

While technological advances in the maritime sector present many opportunities, they in turn require a cycle of regulatory and legal change. The IMO therefore aims to integrate new and advancing technologies in its regulatory framework, balancing the benefits against safety and

security concerns, the impact on the environment and on international trade facilitation, the potential costs to the industry, and their impact on personnel, both on board and ashore.

For example, it is important that the IMO regulatory framework for Maritime Autonomous Surface Ships (MASS) keeps pace with technological developments that are rapidly evolving. IMO recently completed a regulatory scoping exercise on Maritime Autonomous Surface Ships (MASS) that was designed to assess existing IMO instruments to see how they might apply to ships with varying degrees of automation. Work has also started on the development of a goal-based instrument regulating the operation of maritime autonomous surface ships.

In addition to technologies directly related to ships, IMO, as the secretariat for the London Convention and Protocol on the Prevention of Pollution from Dumping of Wastes at Sea, is also addressing emerging technologies for climate change mitigation, in particular carbon capture and sequestration in sub-seabed formations and marine geoengineering, that have the potential widespread, long-lasting or serve effects on the marine environment. For further information see: https://www.imo.org/en/OurWork/Environment/Pages/EmergingIssues-default.aspx

IMO unites the global maritime industry in exploration and development of new technologies for greener shipping and recognises and supports the role they play, and will continue to play in underpinning IMO's commitment to provide the institutional framework necessary for a green and sustainable global maritime transportation system.