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REPORT FROM THE COMMISSION

**Third Annual Report from the European Commission on CO₂ Emissions from Maritime
Transport (period 2018-2020)**

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1. Introduction

Maritime transport plays an essential role in the EU economy, and it will keep doing so in a climate-neutral Europe.

As part of the package to deliver the European Green Deal, the Commission proposed in July 2021 a series of measures to ensure that the maritime transport sector contributes to the EU's climate ambitions. These measures include extending the European emissions trading to maritime transport, a dedicated initiative to boost demand for sustainable alternative fuels (the FuelEU Maritime initiative), and the revision of existing directives on energy taxation¹, alternative fuel infrastructures² and renewable energy³.

This 'basket of measures' aims to reduce greenhouse gas emissions by addressing the various barriers to the decarbonisation of the sector (technological barriers, economic barriers, etc.) through two complementary angles: first, the improvement of energy efficiency (i.e. using less fuel) and, second, the greater use of renewable and low-carbon fuels (i.e. using cleaner fuels). The measures will allow the creation of a virtuous ecosystem for cleaner fuels, boosting demand, distribution, and supply thereof. In addition, the Commission will continue supporting research and innovation towards the decarbonisation of maritime transport, in particular through Horizon Europe and the ETS-financed Innovation Fund.

Moreover, the Commission is committed to support actions at global level to encourage the decarbonisation of the sector, notably at the International Maritime Organization (IMO) through the swift implementation and revision of the initial IMO Strategy for greenhouse gas emission reductions.

The first step to cut emissions is understanding what is being emitted and where. In this context, monitoring CO₂ emissions from maritime transport is necessary to enable the deployment of future policies.

Transparency brings accountability and incentives for emission reductions. This is the purpose of the EU Regulation on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport adopted in 2015⁴ ('the EU Maritime MRV Regulation'). Through this legislation, a large amount of CO₂ verified emission data and other relevant information is reported every year, making possible the publication of an annual report that provides a comprehensive and granular understanding of CO₂ emissions from ships travelling to, from and between ports located in the European Economic Area (EEA). It also provides valuable analysis on the characteristics and energy efficiency of ships, helping to better understand maritime transport CO₂ emissions.

¹ Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity, OJ L 283, 31.10.2003, p. 51–70.

² Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the deployment of alternative fuels infrastructure, OJ L 307, 28.10.2014, p. 1–20.

³ Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (recast), OJ L 328 21.12.2018, p. 82.

⁴ Regulation (EU) 2015/757 of the European Parliament and of the Council of 29 April 2015 on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport, and amending Directive 2009/16/EC, OJ L 123, 19.5.2015, p. 55–76.

This is the third annual report on CO₂ emissions data from ships entering and leaving EEA ports, collected under the EU Maritime MRV Regulation. The present report covers the first three compliance cycles, i.e. data collected for the period 2018-2020. It builds on the previous reports⁵ and allows for a comparison of data, and examining trends in emissions, and energy efficiency, over the three available reporting years.

⁵ Communication C(2020) 3184 final and Communication C(2021) 6022 final

2. Data reported for 2020 reveals structural differences compared to previous two years

The analysis of the data reported for 2020 reveals structural differences between 2020 and the two previous years, reflecting the impact of two major events. First, at the beginning of 2020, a stricter sulphur limit for ships' fuel oil, decided by IMO, came into force and, second, the COVID-19 crisis had a significant impact on seaborne trade and maritime passenger transport.

The monitored journeys (all trips to/from EEA ports) emitted in 2020 around 126.1 million tonnes of CO₂ into the atmosphere. Those emissions originated from almost 11 700 ships.

The impact of the COVID-19 pandemic on the maritime shipping sector shows that compared to 2019, reported CO₂ emissions dropped by 14.1%, while the number of ships submitting an emission report decreased by 5.4%.

In 2020, fewer ships have been active within the scope of the EU Maritime MRV Regulation, and they have, on average, been less active, resulting in lower total CO₂ emissions. There were lower CO₂ emissions for almost all ship types, except for LNG- and combination carriers. In absolute terms, CO₂ emissions dropped especially for passenger ships, including cruise ships, but the decrease has also been high for container ships, bulk carriers and Ro-pax ships. Compared to 2019, CO₂ emissions reported for 2020 decreased on all the different types of voyages as well as at berth, but especially on intra-EEA voyages, with a decrease of around 21%.

Expressed in terms of fuel consumption, the monitored ships consumed in 2020 40.4 million tonnes of fuel. This is around 14% less than in 2019 (when comparing with updated 2019 data). Around 5.5% of the 2020 fuel consumption was consumed at berth.

The new IMO limit on the sulphur content in the fuel oil used on board ships, which came into force at the beginning of 2020, resulted in a significant shift in terms of fuel type used, mainly towards light fuel oil (+197%), but could have also had an influence towards LNG (+12%) and diesel oil (+10%). In 2020, the consumption of non-conventional (non-fossil) bunker fuel remained negligible.

LNG is mainly consumed by LNG carriers (86% of 2020 LNG consumption), but in 2020, compared to 2019, more LNG was also consumed by other ship types, including Ro-pax vessels, oil tankers and containers ships.

3. The monitored fleet: shipping routes, speed time and time spent at sea

According to EUROSTAT data, all inward and outward seaborne extra-EU-27 trade flows, measured in gross weight of freight handled in the EU's main ports, decreased in 2020 compared to 2019, with the exception of the outward flow to China, which increased. Moreover, there was a high demand of waterborne transport services between the EU and countries such as Russia, USA, Canada, Brazil, and neighbouring non-EU countries such as the UK, Norway and Turkey.

Speed variation between 2018, 2019 and 2020 per ship type is negligible, which means they have not slowed down structurally per ship type.

For all ship types, except for refrigerated cargo carriers, within the scope of the EU Maritime MRV Regulation, the average time spent at sea decreased in 2020 compared to 2018 and 2019. Passenger ships such as cruise ships have been hit the hardest.

The overall conclusion is that cargo ships have in general been less used in 2020 compared to 2019 and 2018, but when used, they have operated at normal speed.

4. Technical and operational efficiency of the monitored fleet

The CO₂ reduction that can be observed for 2020 is mostly related to the economic effects of the COVID-19 crisis and not to an improvement of the efficiency of the fleet or an improvement of the carbon intensity of the energy used by the ships.

In 2020, companies reported the Energy Efficiency Design Index (EEDI) for 3 177 ships (27%), and the Estimated Index Value (EIV) for 8 374 ships (72%). As the EEDI is required for ships built as of 2013 (2015 for some ship types), this gives a further indication on the age of the ships covered by the EU Maritime MRV Regulation.

The average operational efficiency of the ships that have been active both in 2020 and 2019 has not changed if measured in terms of CO₂ per distance. However, when calculated in terms of CO₂ per transport work (mass distance), for the relevant subset of ships, it shows a slight improvement (-1.5%).

5. The implementation of the EU Maritime MRV Regulation in 2020

The main achievement of the EU Maritime MRV Regulation is the insight gained in the environmental performance of the largest vessels (above 5000 gross tonnage) entering or leaving EEA ports. This enables shipping companies, and other stakeholders, like Member State authorities, to identify trends in the overall performance of individual vessels and/or the entire fleet. It is an important basis for the development and implementation of an EU policy to decarbonise maritime transport.

In terms of implementation actors (notably shipping companies) are more familiar with the system, resulting in smoother internal procedures and better quality of the submitted data. Punctuality in data submission saw a year on year improvement for the reporting year 2020. 66% of all emissions reports were submitted to the European Commission by May, up from 55% the year before. The number of initially non-compliant emission reports is decreasing over time, and almost 70% of the emissions reports were verified as satisfactory without any need for additional revision. Some of the verified emissions reports still include outliers, which are easily identifiable, typing mistakes. The number of such reports has decreased over the last three years and their impact is low, below 1% of total emissions for the 2020 reporting period.