European Maritime Safety and Security Report

Japan Association of Marine Safety
London Research Office

INTRODUCTION

The last report of 2025 focuses on news related to the topics of maritime safety, technology and security.

The first article provides a comprehensive summary of a recent EMSA report on maritime safety. The second article gives an update on developments on MASS in Germany. The third article sketches an overview of news at EU-level on Global Navigation Satellite System (GNSS) interference. The report concludes with a study by Frontex about how Earth Observation Technologies can support border surveillance. When summarising the main findings of the Frontex study, a special focus is placed on maritime applications.

EMSA publishes comprehensive report on safety

In December, EMSA published the second edition of its EMSAFE report[1], which aims to draw a comprehensive picture of the maritime safety landscape in the EU, while also putting it in a global context. The report is the successor of the first edition[2] of the EMSAFE report, published back in 2022.

In her introductory words EMSA's Executive Director, Maja Markovčić Kostelac describes the report as a "*key tool and a reference for policymakers at national and European level, maritime administrations, industry, and civil society*."[3] The report among others describes and analyses the evolution of the fleets' characteristics and safety performance against the background of challenges such as the ageing of the fleet, digitalisation, decarbonisation and the need to retain and attract a qualified workforce. Importantly, the report "*does not cover issues in relation to the 'shadow fleet' or the sabotage of critical maritime infrastructure. These are issues that have developed rapidly and recently, and are outside the scope of this analysis.*"[4]

One central concern raised by the report is the aging trend of the European passenger ship fleet. This is perceived as being problematic as safety standards date back to when a ship was built. As a consequence, many older ships are not up to date when it comes to the latest safety requirements. The report provides an example by explaining that "*38 % of the ships in operation were built at a time when the applicable damage stability standards were those of the 1960 and 1974 versions of the International Convention for the Safety of Life at Sea (SOLAS)*"[5].

Another area of improvement identified by the report are the working conditions of seafarers. This has negative impacts on the ability to attract a skilled workforce, EMSA points out. According to the report, the number of masters and officers with certificates of competency issued by EU Member States decreased by 20 % between 2019 and 2023.[6] Parts of this trend can be attributed to Brexit, but the report finds that challenging working conditions play a role as well.

As regards search and rescue (SAR), the report sees it as "*an essential element of accident response"*. In this context it emphasises the role new technologies, such as remotely piloted aircraft systems and satellite-based Earth-observation services, can play."[7]

When it comes to current and upcoming challenges for maritime safety, the report lists the increasing size of passenger vessels, fire-safety of batteries - this relates both to electric vehicles onboard and, in the future, also to electric vessels - and the fuel and digital transitions.

[1] https://emsa.europa.eu/publications/item/5598-emsafe-report-2025.html
[2] https://emsa.europa.eu/emsafe-2022
[3] Foreword, page 5
[4] Executive summary, page 23
[5] Executive summary, page 24
[6] p.24
[7] P. 26

At a launch event[8], industry representatives and the IMO Secretary General welcomed the report, but also criticised that the data provided in the report are not more recent than 2023.

Germany launches roundtable on MASS

A press release[9] issued by the German Federal Maritime and Hydrographic Agency (BSH), which is the main government agency for maritime affairs in Germany, announced the creation of a roundtable on MASS. This is evidence of the government's involvement in the topic and also is a sign that German authorities are opting for a bottom-up approach that involves stakeholders before adopting hard regulation on the topic. The roundtable is a joint initiative by the Federal Maritime and Hydrographic Agency (BSH) and the German flag state administration, aiming to bring together businesses, research institutes and regulators and provide input to rules at national, European and international level.

As a first concrete step, the roundtable is due to provide input to develop a comprehensive national legal framework on autonomous vessels, which is currently still lacking in Germany. The work of the roundtable builds upon already existing rules and guidance at international and EU-level, including the preparatory work[10] for an IMO MASS code, the EU Operational Guidelines[11] on trials of Maritime Autonomous Surface Ships as well as the Memorandum of Understanding[12] on cooperation regarding the international operation of MASS (MASS MoU) of the North Sea coastal states, which Germany joined as a member last July.

The article also explains that current projects on MASS in Germany mainly focus on the deployment of remotely operated workboats in offshore wind farms, as well as tests on remote control and autonomous navigation. One project example from the past is the Galileo Nautic[13] project which consisted of upgrading a conventional research vessel in a way that it can autonomously perform berthing operations in real traffic conditions.

[8] https://emsa.europa.eu/emsafe

[9] https://www.bsh.de/SharedDocs/Pressemitteilungen/DE/Text_html/html_2025/Pressemitteilung-2025-28-11.html

[10] https://www.imo.org/en/mediacentre/hottopics/pages/autonomous-shipping.aspx

[11] https://transport.ec.europa.eu/system/files/2020-11/guidelines_for_safe_mass.pdf

[12] https://mobilit.belgium.be/sites/default/files/documents/publications/2024/MoU%20on%20Maritime%20Autonomy_20231128.pdf

[13] https://www.futuremobilitycenter.de/forschung/projekte/kat6/galileo-nautic.html

GPS jamming and spoofing remains high on the agenda at EU level

The disruption of Global Navigation Satellite System signals (GNSS interference), a phenomenon that has been frequently observed in the EU over past months, is being discussed and addressed at several levels. Given that vessels can be affected, the topic has an important maritime safety and security component.

EU Telecommunications Ministers discussed the issue at a Council meeting[14] in December. The agenda item was proposed by Lithuania, a country particularly affected by the phenomenon, and supported by other member states. The Lithuanian delegation stressed that the situation has worsened over the last months and that there are new interference sources affecting the country. The most affected sector is aviation but other sectors including shipping are also hit. The Lithuanians estimate that disruptions are not accidental and that they originate from Russian territories. The authorities consider the interference an intentional act that violates international law. They consider it unacceptable behaviour that requires joint action and that no member state can address this threat alone. The intervention ended with a call to protect aviation, navigation, and other critical infrastructures. The statements made by other delegations reflected general consensus that the threat of GNSS interference is growing rapidly and that joint coordinated action at EU level is the only way to address the issue. At the end, a Commission representative echoed the concerns made by ministers. Importantly, the representative noted that an EU wide action plan will be put forward some time next year.

The topic is also receiving increased attention in the European Parliament, as evidenced by a recent question[15] by MEP Sérgio Gonçalves, a Portuguese MEP from the centre-left S&D group. In his question, the MEP highlights that threats posed by GPS interference are also present outside the Baltic, specifically referring to the Atlantic. In his answer[16] Transport Commissioner Tzitzikostas provides more information on the EMSA AIS spoofing group and its latest updates.

At operational level, Frontex reports[17] that it has developed a small-scale application to alert patrol vessels when navigation signals are jammed or spoofed and help crews maintain awareness of their position. The project involves the EU Agency for the Space Programme (EUSPA), the Romanian Coast Guard, the European Commission's Joint Research Centre (JRC) and industrial partners.

[14] https://www.consilium.europa.eu/en/meetings/tte/2025/12/05/

[15] https://www.europarl.europa.eu/doceo/document/E-10-2025-003811_EN.html

[16] https://www.europarl.europa.eu/doceo/document/E-10-2025-003811-ASW_EN.html

[17] https://www.frontex.europa.eu/media-centre/news/news-release/frontex-pilots-galileo-based-tracking-solution-to-detect-navigation-signal-interference-Hxud64

Frontex study shows potential of earth observation technologies

Frontex has published a report[18] that aims to outline the potential of earth observation technologies for border surveillance. In a press release[19], the agency explains that the aim is not to replace human capacities by this technology, but to provide border officers with additional tools and data to fulfil their mission. According to Frontex, the study is intended as a reference document to "*border and coast guard authorities, policymakers and researchers across the European Border and Coast Guard community and beyond*."

The study includes some maritime use-cases on maritime border surveillance, vessel detection and tracking and coastal- and pre-frontier monitoring.

When it comes to border surveillance, the report highlights that "*border surveillance is a critical use case for EO (Earth Observation) technologies due to the vast oceans and coastlines that are difficult to patrol solely with ships or aircraft*".[20] Key applications of the technology in the field of border surveillance relate to the monitoring of wide sea-areas, tracking of illegal fishing and smuggling activities as well as maritime search and rescue. The study mentions several cases in which satellite technology helped authorities find and seize ships that were smuggling drugs, cigarettes or other illicit goods. Earth Observation can also help monitoring illegal migration movements. In terms of weaknesses and threats of the application, the study points out weather-dependency, cybersecurity vulnerabilities and possible detection avoidance by small vessels.

As regards vessel detection and tracking, it is considered "*vital for maritime security, especially for countries with vast coastlines*".[21] Here again, possible weaknesses relate to the fact that small vessels can escape the net and that there are vulnerabilities in terms of cybersecurity.

Coastal and pre-frontier monitoring is defined as "*observing areas just outside or approaching a nation's borders – coastal waters before boats land, or neighbouring territories that are launch points for migration or crime*".[22] Given the extensive coastline of the EU, this is key to make border surveillance more efficient according to the study.

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[18] https://www.frontex.europa.eu/assets/Publications/General/2025-12-05_Earth_Observation_for_Border_Management.pdf

[19] https://www.frontex.europa.eu/media-centre/news/news-release/new-frontex-study-shows-how-earth-observation-technology-can-strengthen-eu-border-security-OerWRx

[20] Frontex study, p.15

[21] Frontext study, p.19

[22] Frontext study, p.22