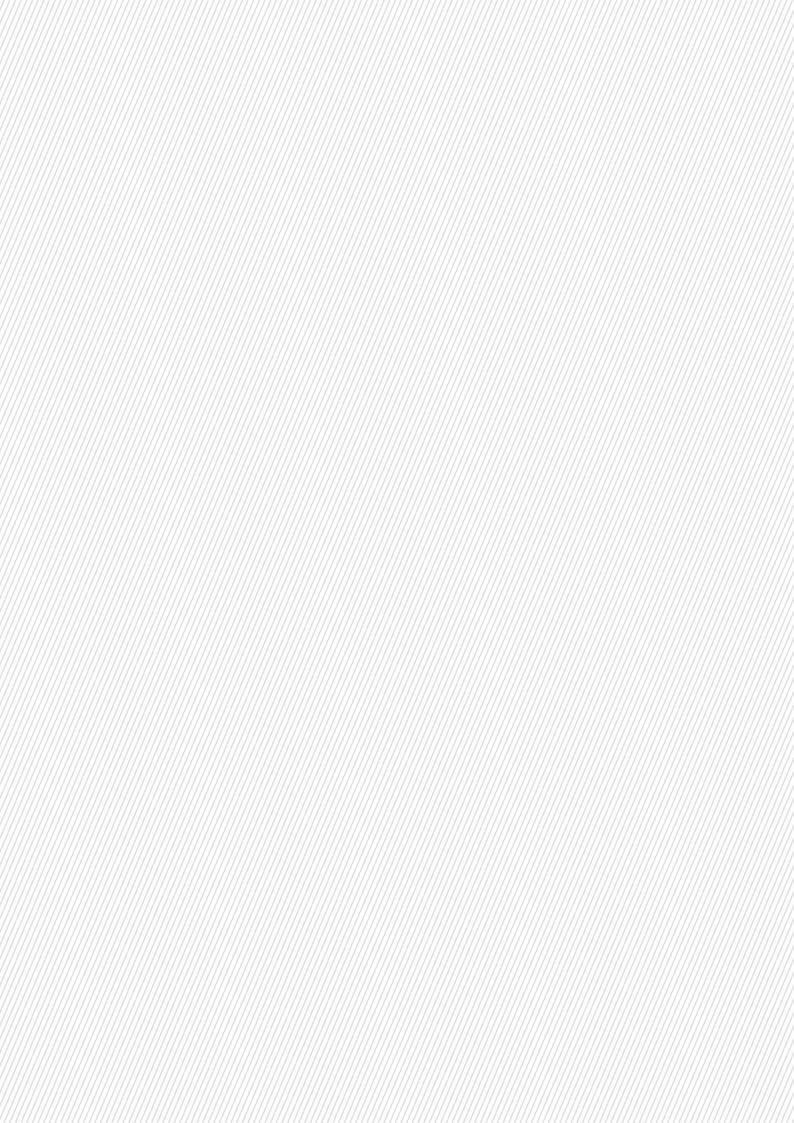


OUTLOOK 2021





EMSA OUTLOOK 2021



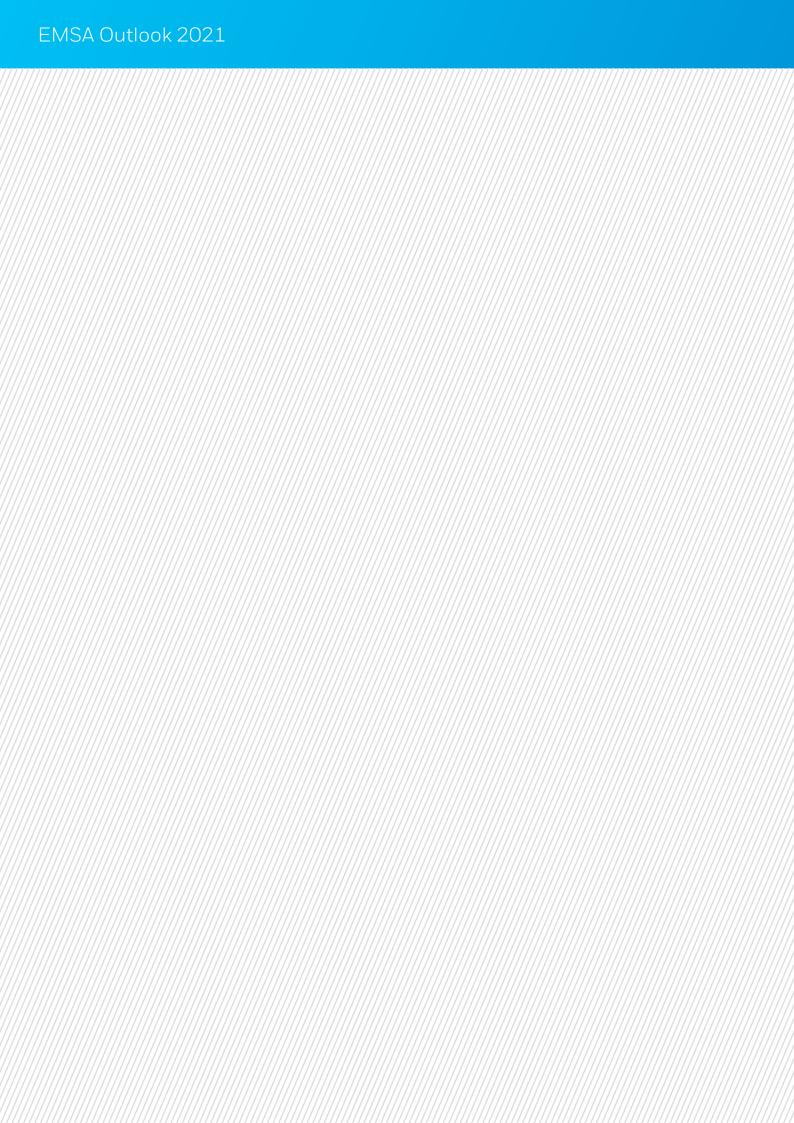
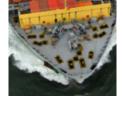
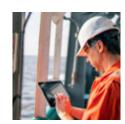


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Foreword from the Chairperson of the Administrative Board

It is my pleasure to introduce the EMSA Outlook for 2021. This publication highlights the main tasks required to deliver EMSA's multi-annual strategic objectives.

At the time of introducing this Outlook, the maritime world is facing great challenges due to the COVID-19 pandemic. We have all learned many things from this historic situation. In particular, we have become aware that collaboration and coordination of practical solutions are vital to ensure safe and efficient maritime transport; something that the services provided by EMSA aim to facilitate, as can be seen in this report.

EMSA's vision is to be the centre of excellence for a safe and sustainable EU maritime sector, and I believe that the tasks planned for 2021 form a clear step in achieving the vision.

The COVID-19 pandemic has also been a huge challenge for the management and staff of EMSA, who, despite the obstacles have continued their ongoing work in the fields of digitalisation, sustainability, surveillance, simplification, safety, and security. I commend the whole EMSA team for their efforts in these difficult times.

The EMSA Administrative Board and I look forward to following our joint efforts to contribute to these important tasks in the coming year.



Chairman of the Administrative Board



EMSA's 58th Administrative Board meeting, 17-18 June 2020, held virtually





Foreword from the Executive Director

I have great pleasure to present this year's edition of our annual Outlook report, which sets out the course and direction for EMSA in 2021. It is being delivered at a difficult and challenging time, both for the maritime sector and for the world in general, with the COVID-19 pandemic continuing to bring disruption to our lives and to our societies. At EMSA, we have adapted to these changed circumstances with agility and flexibility, thanks to the tireless dedication of our staff and the unflagging support of our members of our Administrative Board and its Chair.

The pandemic has proved beyond all doubt the importance of the maritime sector to the European Union, and the resilience of those who work in it. As economies and societies locked down across the world, ships kept sailing, bringing vital supplies of food, fuel and medical equipment to those confined at home, or sick in hospital. Over 80% of the EU's trade is sea-borne; we are a Union that is ever more reliant on the sea, and on those who sail on it.

For this reason, the sustainability of our oceans is of paramount importance, to combat climate change and to preserve our maritime environment for the future. EMSA's work with the European Commission on issues like carbon dioxide and sulphur emissions, alternative fuels, and ship recycling will contribute to the maritime dimension of the European Green Deal and support the blue economy. As the EU's "eyes on the sea," we continue to harness cutting-edge technology to meet our goals, as we currently do with the Remotely Piloted Aircraft System (RPAS) services, and through powerful satellite surveillance technology.

We remain committed to enhancing maritime safety. The work of the Agency in this area is instrumental to supporting the implementation of an attractive and competitive framework for quality shipping, quality operators and quality jobs.

We are active both in EU waters, and in neighbouring regions like the Southern Mediterranean and the Black and Caspian Sea. Here, capacity-building is key to creating a level playing field for all. To further support our efforts in this area, and those of our partners, 2021 will see our learning services move to the next level under the umbrella of the EMSA Academy, a flagship project for us in the coming months.

From its earliest days, EMSA has accelerated its technological development, on sea, in the air, and from space. We have become a rich source of maritime data, which can support future policies and initiatives for the sector, and throughout 2021, we will analyse how to best monitor and identify maritime trends for operational and strategic purposes. We will also increase our drive for further digitalisation, to bring more value and efficiencies to those who use our services.

The COVID-19 pandemic has shown us how unpredictable our world can be, and how quickly everything we take for granted can change. At EMSA, we continue to react quickly to these fast-moving events, using and building on what we have learned in the earlier stages of the pandemic to continue delivering value to the Member States, to the maritime sector, and to citizens.

Maja Markovčić Kostelac

Executive Director

Executive summary

This publication presents the main steps the Agency plans to take in 2021 to deliver on its multi-annual strategic objectives based on the information contained in the Single Programming Document (2021-2023) as adopted by EMSA's Administrative Board.

Given the outbreak of the coronavirus and the impact this has and will continue to have on the Agency's working practices in 2021, EMSA will make every effort to build on the experience gained in 2020 to make sure the objectives set for the year can be accomplished to the fullest extent possible.

Teleworking, video conferencing and new information services (e.g. publishing the preventive measures adopted by each EU Member State and EFTA country) are the Agency's new reality and will enable staff to continue their valuable work unabated.

In this publication the Agency's activities are broadly divided into four thematic areas which are also reflected in the organisation of the Agency. Here below we highlight a few of the developments for each of these thematic areas for the year ahead:







SUSTAINABILITY AND TECHNICAL ASSISTANCE



Strengthening our joint capabilities to protect the marine environment, mitigate climate change and rise to new challenges

In the year ahead, the Agency will be contributing to the European Green Deal – a set of policy initiatives by the European Commission with the overarching aim of making Europe climate neutral in 2050. An important report, the first of its kind, will be realised in 2021. The European Maritime Transport Environmental Report produced in close cooperation with the European Environmental Agency (EEA) will offer a comprehensive overview of the current status of maritime transport and its environmental footprint.

EMSA will continue to offer expertise and satellite or remotely piloted aircraft surveillance services in the field of environmental protection, helping the European Commission and Member States to address a wide variety of ship-sourced pollution and emission-related issues, including carbon dioxide and sulphur emissions, alternative fuels, port reception facilities, ship recycling, ballast water management, underwater noise and marine litter.

Coastal states will continue to benefit from the wide range of marine pollution response services available from EMSA, including oil spill response vessels, seaborne dispersant spraying, equipment assistance, and Remotely Piloted Aircraft System (RPAS) surveillance. These services will continue to be part of exercises in 2021, to enhance the capacity of Member States to respond to pollution at sea.

Visits to Member States, inspections to Recognised Organisations, and STCW inspections of non-EU countries will be conducted remotely, as far as feasible, and will be completed with the necessary field work once COVID-19 restrictions are lifted, with the objective of monitoring the implementation of the relevant EU legislation, and using the results to identify potential gaps and areas of best practice. Subject to the evolution of the pandemic, the cycle of visits relating to passenger ship safety will start in 2021, in light of the new rules applicable from 21 December 2019.

Through the support provided under the EMSA-EFCA Service Level Agreement (SLA), the Agency will contribute to reducing the adverse impacts that overfishing can have on ecosystems, especially in sensitive areas, as well as to improving the sustainability of fishery resources through enhanced monitoring, control, and surveillance.

The Agency's capacity building toolbox will continue to develop in 2021, with new technologies being used to enhance the overall learning experience and the development of structured curricula in support of professional development. Virtual reality and 3D simulation will help to create an ever more realistic, engaging and immersive experience. This will all be housed in the EMSA Academy as it starts to take shape and bear fruit.

SAFETY, SECURITY AND SURVEILLANCE



Raising maritime safety standards across the board and strengthening maritime security in Europe and beyond

Following the establishment of a reinforced Cooperation Agreement in 2020 reflecting the EMSA 5-Year Strategy, the Agency will continue to provide Integrated Maritime Services (IMS) to support the Maritime Analysis and Operations Centre (Narcotics) in monitoring of vessels suspected of drug trafficking at sea. This is line with EMSA's support, as the leading European hub of maritime information, to EU organisations such as European Union Naval Force-Somalia: Operation Atalanta and EUROPOL which are active in the security and law enforcement domains.

In 2021, autonomous shipping, passenger ship safety, fire safety, container ship safety, life-saving appliances, steering and manoeuvrability standards, safety standards for the use of alternative sources of energy and the International Safety Management (ISM) code are all areas in which EMSA will be active. For autonomous shipping for example, EMSA will also be developing a risk-based assessment tool and sharing the interim results with relevant stakeholders.

EMSA will follow up on a series of commissioned safety studies (Firesafe, Steersafe and Safemass) providing technical input as necessary. Safety issues related to containerships, fishing vessels, SAR and pleasure craft will also be a priority, as will passenger ship safety, for which EMSA will, among other actions, provide support for a study on Small Passenger Ship safety and will work on providing guidance for the carriage of Alternative Powered Vehicles on RoPax ships.

Work related to the Marine Equipment Directive (MED) will be continued by: providing services as the MarED Secretariat; developing the new MED Implementing Regulation; supporting MED stakeholders; and expanding the MED DB portal.

In 2020, in light of the COVID-19 pandemic, EMSA developed, together with the European Centre for Disease Prevention and Control (ECDC), a document providing guidance for the resumption of cruise operations in the EU. In 2021, based on the feedback received, EMSA will update the document and will monitor the situation as it evolves.

In 2021, EMSA will continue analysing data from the EMCIP accident database to identify lessons to be learned at EU level according to ship type, and will work to further provide safety analysis of available data, including developing relevant safety indicators. EMSA will discuss existing operational needs with the Accident Investigation Bodies (AIBs) of the EU Member States, and will explore ways to facilitate, streamline, and expand provision of operational support to the AIBs. The Agency will also actively assist the European Commission in the revision of the Flag State, the Port State Control and the Accident Investigation Directives initiated at the end of 2020.

EMSA will continue to work on security matters, notably on a project to study conditions for remote maritime security (MARSEC) inspections carried out by Member States. In addition, EMSA will follow up on issues related to cybersecurity, including developing an action plan on the basis of the gap analysis conducted in 2020, and will endeavour to enhance cooperation with the EU Agency for Cybersecurity (ENISA), as well as the ongoing work within the EU Maritime Security Committee (MARSEC) and in the IMO.

Remotely Piloted Aircraft System (RPAS) services will continue to be offered to Member States and EU Agencies. In 2021 the Agency will endeavour to progress further with the development of multipurpose regional services with the aim of sharing operational capabilities amongst neighbouring coastal states over a longer timeframe while using the same RPAS, although it remains a challenge to organise cross-border flights in the current regulatory landscape. During the course of the year, EMSA will transition from one generation of contracts to the next. The portfolio of RPAS services should be extended towards the end of the year with additional capabilities, including operating from vessels and RPAS operating along extended coastal lines.

Satellite surveillance services will also be used to detect and deter marine pollution through the oil spill surveillance and vessel detection service, CleanSeaNet, as well as to support improved monitoring of human activities at sea through the Copernicus Maritime Surveillance Service for a growing number of authorities. During the COVID pandemic, these remote surveillance services have become even more critical to monitor activities at sea. In 2021 EMSA hopes to conclude and sign a new Contribution Agreement with the European Commission (DG DEFIS) extending the Copernicus Maritime Surveillance Service at least until 2027.









DIGITAL SERVICES AND SIMPLIFICATION



Strengthening EMSA's role as chief information management hub for maritime surveillance and facilitating the simplification of EU shipping using digital solutions

EMSA provides digital services to different national authorities across the EU and EFTA Member States, as well as to the European Commission and related European bodies. By integrating and correlating data from EMSA's applications and external sources, services are delivered responding directly to a user's specific needs. In 2021, automated behaviour monitoring tools will continue to be developed, with new algorithms offering even more tailored alerts.

As the leading European hub for maritime related information, including satellite imagery, EMSA will continue to provide high quality /quantity data and analysis tools in this domain to EFCA, EUNAVFOR-Somalia: Operation Atalanta, Europol, Frontex and MAOC(N).

The coming year will see EMSA further widen the already extensive system-to-system functionalities established with the European Border and Coast Guard Agency (Frontex) in support of border control activities, with the Agency set to launch new tools such as the advanced analysis of vessel movements and particulars (the Dynamic Search Aggregator), while providing access for the first time to new types of information, such as vessel ownership details, automatically detected port calls on a global scale and the new historical Automated Behaviour Monitoring functionality. The partnership between EMSA and Frontex, built on a Service Level Agreement (SLA) first signed in 2013, contributes to the development of new tools and systems that bring added value to all end users of both Agencies.

In 2021 the focus will be on setting up a pilot project for data analytics. With the help of artificial intelligence, EMSA will be looking at the opportunity to analyse, monitor and identify trends at national, regional and global scales for operational and strategic purposes.

The THETIS information system will continue to expand with additional modules and functionalities. THETIS-Med is the latest development to enter into service to assist countries of the Mediterranean Memorandum of Understanding in targeting ships for inspection, as well as in recording the findings and sharing the results.

The European Maritime Single Window is another area in which EMSA will be looking to facilitate maritime transport operators by lessening their administrative burden as regards reporting requirements. The agency will continue its work with the European Commission, Member States and Industry associations to elaborate EU-harmonised specifications for the future European Maritime Single Window environment envisaged by Regulation (EU) 2019/1239. The aim is to offer harmonised reporting interfaces for ship operators to fulfil their reporting obligations and to ensure the "reporting once principle" at EU level.

European Maritime Safety Agency





EMSA will continue to develop and improve SafeSeaNet to support new and revised requirements stemming from the EU legislation. In 2021, the new SSN version 5 will be deployed in production to support the provision of information on persons on board passenger ships for search and rescue purposes in accordance with amended Directive 98/41/EC, and of information on ship waste for the purpose of inspections in accordance with Directive (EU) 2019/883.

MSA will initiate the development of the Dynamic Overview of National Authorities (DONA) with its three distinguishing functionalities (country profile, regular statistics and a reporting gate) to support Member States in their different functions, while at the same time reducing their administrative burden.

A pilot project to check the potential of the STCW-IS in support of the evolution of e-certificates for seafarers will be initiated, to explore the possibility of a platform which will allow Member States to issue such certificates via digital means.

As regards the Common Information Sharing Environment, EMSA will be looking to take the transitional phase forward turning what was initially a research project into a fully functioning EU-wide operating system. EMSA will be supporting Member States with the interoperability of the system, and drawing on the work accomplished during the pre-operational phase, EUCISE2020.

HORIZONTAL ACTIVITIES

In 2021, EMSA will continue the work on European cooperation on coast guard functions, jointly with EFCA, Frontex and the national authorities from across the EU. EMSA's tasks under the annual strategic plan will include: information sharing; surveillance and communication services; capacity building; risk analysis; and capacity sharing.

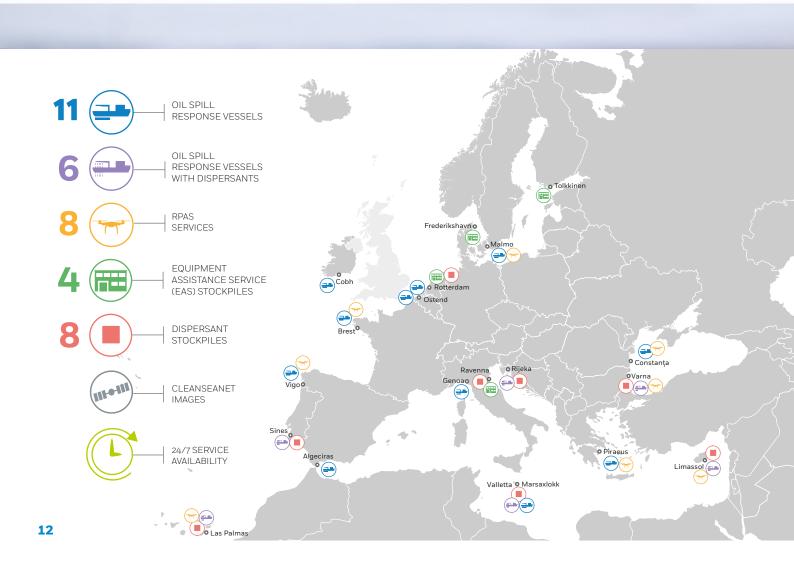
Where corporate and executive services are concerned, EMSA's management team will continue to take forward the strategic objectives of the Agency's five-year strategy, translating these into concrete activities and achievements. Efforts will be made to consolidate EMSA's place within the maritime cluster, as not just a reliable partner but also an innovative one, particularly in view of developments in the field. Good cooperate governance will be upheld and will include strengthened quality management and environmental practices, all while bringing increased visibility to the Agency.

CHAPTER 1

SUSTAINABILITY AND TECHNICAL ASSISTANCE



NETWORK OF EMSA CONTRACTED VESSELS, DISPERSANTS & EQUIPMENT STOCKPILES IN 2020



1.1 SUSTAINABILITY

Prevention of pollution by ships

Acting as facilitator and technical hub, the Agency supports the EU priorities of decarbonisation, smart mobility, sustainable alternative fuels, ship energy efficiency, promoting the use of on shore power supplies, protection of biodiversity, and zero-pollution ambitions. EMSA offers expertise in the field of environmental protection, helping the European Commission and EU Member States to address a wide variety of ship-sourced water and air pollution.

In the year ahead, the Agency will be contributing to the European Green Deal – a set of policy initiatives by the European Commission with the overarching aim of making Europe climate neutral in 2050 – in particular, the Agency will support the Zero Pollution Action Plan, the FuelEU Maritime Initiative and the potential extension of ETS or other market based measures to shipping.

In the legislative arena, assistance in 2021 will be directed towards the development and implementation of rules in the areas of port reception facilities, ship recycling, air pollution (SOx, NOx, PM), alternative emission abatement methods, sustainable alternative fuels and cleaner power technologies, ship energy efficiency, greenhouse gas emissions and the implementation and amendment of the EU MRV Regulation, ballast water management, anti-fouling, sanctions for ship source pollution and rules on liability and compensation.

Implementation support tools will continue to be developed through THETIS and its associated modules which address compliance with rules in the areas of sulphur, port reception facilities, ship recycling and the monitoring, reporting and verification of ${\rm CO}_2$ emissions.

Through the FuelEU Maritime initiative, the European Commission – with EMSA's assistance – is aiming to increase the use of sustainable alternative fuels in European shipping and ports by addressing market barriers and uncertainty over which technical options are market-ready. Studies will be commissioned by EMSA in this area with an initial focus on biofuels as well as in other areas of environmental interest including underwater noise.

The Agency will continue to act as technical secretariat of the European Sustainable Shipping Forum which has been providing a platform since 2013 for structured dialogue among maritime industry stakeholders and the European Commission in order to address the environmental sustainability challenges confronting the EU maritime transport sector.

On the international front, EMSA will continue to contribute to the wide-ranging developments at IMO including among others measures for decarbonisation of shipping, carbon intensity, energy efficiency, marine litter and underwater noise.

Work will also continue on the European Maritime Transport Environmental Report in close cooperation with the European Environmental Agency (EEA). The report is to be finalised in 2021 and will offer a comprehensive overview of the current status of maritime transport and its impact on the environment.

Operational pollution response services

EMSA offers a range of pollution response services to protect the areas in and around the European coastline. Various options are available to Member States on request via the European Commission's Emergency Response Coordination Centre. These can be selected based on the particular circumstances of the spill and the type of pollutant involved.

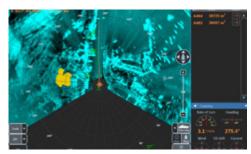
EMSA's services target marine pollution from both ships and oil and gas installations, and are intended to top up the capacity of coastal states in the event of a major spill at sea. The services are also available to countries sharing a regional sea basin with the EU.

EMSA pollution response services are based on a network of chartered commercial vessels which have been adapted and equipped to offer pollution response services. These vessels are on standby all year long and are positioned around the European coastline. They take into account the existing response capacities of the Member States, in order to offer a quick response. Although mechanical recovery of oil remains the main response strategy, some vessels are also equipped to use dispersants.

To diversify the response means, several Equipment Assistance Services (EAS) have been established, providing Member States with specialised response equipment which can be used by non-dedicated response vessels. The EAS arrangement for the Adriatic Sea is expected to become operational in 2021 and the procurement for a new arrangement for the Black Sea. Response vessels are equipped with be launched. lightweight Remotely Piloted Aircraft Systems (RPAS) to support pollution monitoring and detection operations.

With the objective of enhancing its toolbox, medium-size equipment will be included in the different stockpiles and a procurement procedure for near-shore equipment will be launched.

In the year ahead, EMSA will continue to participate in international multi-partner, multi-purpose exercises at sea with Member States as part of ongoing cooperation on coast guard functions.



Slick detection system



EMSA's oil spill response vessel *Bahia Tres* during an exercice



Aerial view of oil spill



EMSA's oil spill response vessel *Galaxy Eco* during an exercice

Sustainability & technical assistance





1.2 VISITS, INSPECTIONS AND HUMAN ELEMENT

Classification Societies

Classification societies develop and apply technical standards to the design, construction and survey of ships. Of the more than 50 classifications societies worldwide, 12 are recognised at EU level and are inspected regularly by EMSA. Based on the reports submitted, the European Commission assesses each of the 12 societies at least every two years, requests corrective measures and takes policy decisions. The aim is to improve the quality of the certification work undertaken by these recognised organisations and in doing so to increase the overall level of safety in the EU.

In 2021 EMSA will conduct up to 17 inspections based on a programme decided jointly with the European Commission, taking into account the evolution of the pandemic. In this context, a concentrated remote inspection programme of RO Head Offices with focus on remote surveys is already planned.

Seafarers' training and certification

Many EU registered ships are manned by seafarers who are not nationals of EU Member States. To ensure that these crew members are appropriately educated and trained, EMSA carries out inspections in the supplying countries. EMSA staff have been conducting such inspections for over 10 years, assessing their level of compliance with the requirements of the IMO's Convention on Standards of Training, Certification and Watchkeeping (the STCW Convention). Subject to the evolution of the pandemic, in 2021 EMSA will conduct up to five inspections to non-EU countries and up to three visits to EU countries, thereby contributing to a level playing field for the standards of seafarers in the EU and improved ship safety on board EU registered vessels and in EU waters.

In addition to these inspections, EMSA also runs the STCW information system. This system contains objective and comparable information on seafarers holding EU certificates/endorsements and therefore able to work on board EU registered ships.

Visits to Member States

EMSA has been monitoring the implementation of EU law in the Member States since its very beginning. Visits to Member States offer a valuable link between legal objectives and operational application. In this way, the European Commission can assess the extent to which EU law is being properly implemented in a given field. The visits provide a feedback chain on the effectiveness of the legislation and identify gaps where legal objectives are not being met.

Visits in 2021, conducted remotely as far as feasible, and to be followed by field work where relevant once COVID-19 constraints are lifted, will cover a broad range of implementation areas:

- the cycle of port state control visits will continue, including inspections for the safe operation of ro-ro passenger ferries and high-speed passenger craft (5 visits)
- compliance with the lower sulphur content of marine fuels requirement will be monitored (3 visits)
- the cycle of visits related to the marine equipment directive will continue (5-6 visits)
- the cycle of visits related to the safe loading and unloading of bulk carriers launched in 2018 will continue (4-5 visits)
- the cycle of visits related to passenger ship safety will begin (4-5 visits).

Human element

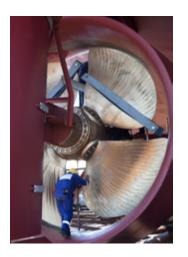
The human element is an important factor in maritime safety and encompasses the entire spectrum of human activities performed by ship crews, shore-based management, regulatory bodies and others. In 2021, EMSA is planning to hold a virtual workshop to foster debate on the application of maritime labour standards in the EU. The Agency will also commission a study to pave the way for the development of standards for shore-based personnel whose role it is to operate autonomous ships (MASS). In this way, the Agency will help to ensure a full consideration of the new challenges faced by those working in shipping. At international level, EMSA will offer its expertise in the preparation of submissions for comprehensive reviews of both the STCW and STCW-F Conventions which govern standards for the training and certification of about two million merchant seafarers globally.

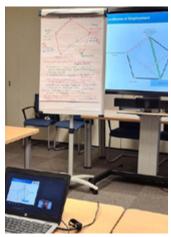
1.3 CAPACITY BUILDING

Analytics and research

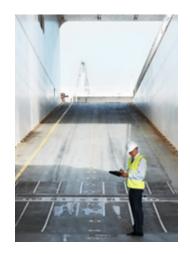
EMSA analyses the findings of the various visits and inspections it conducts, looking for issues of common interest, examining their root causes and identifying any contributing factors. In this way the Agency is able to promote good working practices, suggest ways forward and make cost effective recommendations. Workshops are held with the







Remote training on Maritime Labour Convention 26 June 2020



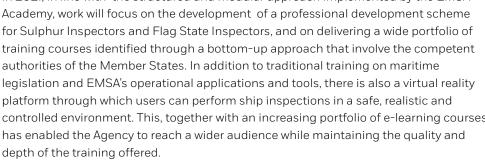
European Commission and Member States to share this valuable feedback and pursue continuous improvement both in the overall effectiveness of the legislation and its practical application. In 2021, compliance with the BULK Directive (Directive 2001/96/ EC) will be the main focus of the analysis.

In line with this, EMSA regularly provides statistics to support performance monitoring activities through the Marinfo system and the DONA (Dynamic Overview of National Authorities) platform, which is to be developed in 2021. The Agency also has the ambition of sharing simple and meaningful data with the general public to highlight the place of maritime transport in the EU and worldwide, as well as its impact on safety and the environment.

Capacity building and EMSA Academy



In 2021, in line with the structured and modular approach implemented by the EMSA Academy, work will focus on the development of a professional development scheme for Sulphur Inspectors and Flag State Inspectors, and on delivering a wide portfolio of training courses identified through a bottom-up approach that involve the competent authorities of the Member States. In addition to traditional training on maritime legislation and EMSA's operational applications and tools, there is also a virtual reality platform through which users can perform ship inspections in a safe, realistic and controlled environment. This, together with an increasing portfolio of e-learning courses, has enabled the Agency to reach a wider audience while maintaining the quality and



EMSA's Maritime Knowledge Centre and RuleCheck repository of maritime legislation will both feed into the EMSA Academy knowledge streams.

European neighbourhood countries

EMSA works to build up the national capacity of European neighbourhood countries, thereby helping to reinforce safety, security and environmental standards in a much broader geographical context than simply at EU level. Through both the SAFEMED IV and Black and Caspian Sea (BCSEA) projects, EMSA offers training courses and workshops, as well as access to tools (e.g. RuleCheck, MaKCs, THETIS-MED) and services (e.g. IMS, CleanSeaNet). Preparation for IMO audits is also provided, as well as support for corrective follow-up. SAFEMED IV beneficiaries include southern Mediterranean countries while BCSEA addresses eastern European neighbourhood countries around the Black and Caspian seas.



EMSA has had a virtual reality



BCSEA Project - Remote training on Port Facility Security



2.1 SAFETY & SECURITY

Maritime safety

EMSA aims to improve the safety of commercial shipping and quality standards of marine equipment. It does this by working with the European Commission to ensure a high level of harmonised safety standards is in place, adequate for purpose and properly followed. The Agency is uniquely positioned to do this, as it brings together technical expertise from the Member States as well as that from industry. This allows each safety issue to be considered from a variety of different perspectives, thereby enriching the outcome and making it more robust.

This is particularly valuable on the international front at the IMO where EMSA facilitates the EU's contribution and puts forward topics for consideration on its own initiative. These topics can arise from lessons learned from accidents, such as fire safety on board ro-ro passenger ships, or from needs to harmonise standards such as those related to steering and manoeuvrability, or those related to autonomous shipping. By taking an international approach, safety levels can be raised across the board and distortions in competition reduced.

In 2021, EMSA will proactively support the European Commission and the Member States in the work carried out at EU and IMO level in the field of maritime safety standards, putting forward initiatives where safety problems have been identified. Autonomous shipping, passenger ship safety, fire safety, container ship safety, life-saving appliances, steering and manoeuvrability standards, safety standards for the use of alternative sources of energy, and the International Safety Management (ISM) code are all areas in which EMSA will be active. For autonomous shipping, for example, EMSA will also develop a risk-based assessment tool and will share the results with relevant stakeholders.

EMSA will follow up on a series of commissioned safety studies (Firesafe, Steersafe and Safemass) providing technical input as necessary. Safety issues related to containerships, fishing vessels, SAR and pleasure craft will also be a priority, as will passenger ship safety for which EMSA will, among other actions, provide support for a Commission study on Small Passenger Ship safety, and will work on providing guidance for the carriage of Alternative Powered Vehicles on RoPax ships.

Work related to the Maritime Equipment Directive (MED) will be continued by EMSA providing services as the MarED Secretariat, developing the new MED implementing Regulation, supporting MED stakeholders, and expanding the MED DB portal.

Recognising the current uptake of ships using alternative energy and power systems, EMSA will work on safety aspects related to the adoption of alternative fuel technologies, including low flashpoint fuels, energy storage and conversion systems or Onshore Power Supply. The Agency will continue to develop guidance for the safe deployment of such alternative technologies, including best practice safety guidance, studies and supporting IMO development of the IGF Code (International Code of Safety for Ship Using Gases or Other Low-flashpoint Fuels) and Guidelines for ships using alternative technologies.

EMSA provides the management unit of Equasis, which is an online worldwide database giving details on port state control inspections, ship-related information from classification societies and P&I (insurance) ship specific data. The information is supplied by port state control regions (Paris MoU, Caribbean MoU, Indian Ocean MoU, US coast guard, etc.) as well as by the industry. EMSA will continue to support the day-to-day operation of the database, and will publish the regular annual statistical report on the world shipping fleet in the autumn, based on data extracted from the Equasis database. The objective is to encourage quality shipping and eradicate substandard practices.

In 2021, EMSA will also actively assist the European Commission in the process of the preparations of the revision of the Flag State, the Port State Control and the Accident Investigation Directives initiated at the end of 2020.

Accident investigation

Technical investigations into marine casualties contribute to raising the overall level of maritime safety in Europe by helping to prevent such casualties resulting in loss of life, loss of ships and pollution from happening again. EMSA's role in this process involves gathering the Member States' accident investigation bodies to encourage a more uniform approach as well as to provide technical support and training.

EMSA runs the EMCIP database of accidents, to which Accident Investigation Bodies submit data. The information contained in this database is a valuable basis for sound decision-making in safety areas related to passenger ships, ro-ro ferries and fishing vessels. Some 4 000 casualties and incidents are recorded on average each year in the database.

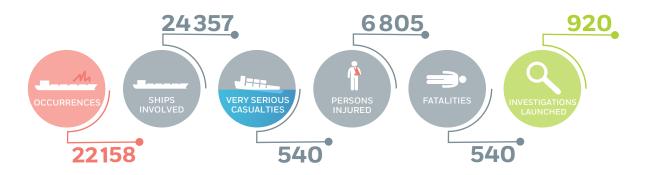
The EMCIP platform was upgraded in 2018 and will continue to be enhanced to ensure it offers an efficient and user-friendly service, including direct assistance to investigators and simplified data analysis by the Member States. In 2021, EMSA will continue analysing EMCIP data to identify lessons to be learned at EU level according to ship type, and will work to further provide safety analysis of available data developing relevant safety indicators. This will build on the studies released on lessons learned from casualties, such as the study conducted in 2020 on containerships.

Through EMCIP, EMSA will assist accident investigation bodies and maritime safety authorities with the dissemination of investigation data at regional and global level, such as to the IMO's Global Integrated Shipping Information System (GISIS) and the HELCOM Agreement, without any extra effort required from Member States.



On the night of January 1, 2019, MSC Zoe lost approximately 342 containers in heavy weather on the journey from Portugal to

KEY FIGURES 2014-2020



Safety, security & surveillance





EMSA will discuss existing operational needs with the Accident Investigation Bodies (AIBs) of the Member States, and will explore ways to facilitate, streamline and expand provision of operational support to the AIBs. A yearly publication giving an overview of marine casualties and incidents continues to be available on the EMSA website, covering data extracted from EMCIP since 2014. At the beginning of 2021, EMSA will also publish a preliminary annual overview of marine casualties and incidents to give an early insight into the accident investigation data of the previous year.

Maritime Security

Within the EU's legislative framework, maritime security refers generally to preventive measures taken for protection against unlawful acts such as piracy, armed robbery, terrorism and maritime violence. EMSA assists the European Commission and the EFTA Surveillance Authority by helping them to assess the implementation of EU maritime security legislation in the Member States and to identify any changes that may be needed to improve the overall level of maritime security.

In 2021 EMSA will assist the European Commission and the EFTA Surveillance Authority with maritime security inspections, either on site or remotely.

EMSA will continue to maintain the recently added reporting module to THETIS-EU, which assists Member State authorities when conducting maritime security inspections on board ships. The Agency will also assist the European Commission in the accreditation process for national security inspectors in line with EU legislation and will continue to work on security matters, notably working to provide guidance to Member State authorities, and developing a project to study remote MARSEC inspections. EMSA will continue to provide support for the implementation of EU and international maritime security legislation both through MARSEC and through the Stakeholder Advisory Group on Maritime Security chaired by the European Commission.

Due to the increased risk of cyberattacks aimed at disrupting the maritime domain, EMSA will be working to raise awareness and facilitate information exchange. The Agency is participating in the transport working group set up by the EU Agency for Cybersecurity (ENISA) as well as in other ongoing initiatives in the context of the EU's MARSEC Committee and the ECGFF. In addition to this, EMSA has set up a dedicated task force which has conducted a mapping and gap analysis of the measures already proposed for the maritime sector by IMO, maritime administrations, classification societies and other relevant entities such as ICS, BIMCO, and IACS. On the basis of this gap analysis, EMSA will be developing an action plan for offering support on how to deal with maritime cybersecurity issues.

2.2 SURVEILLANCE

Remotely piloted aircraft and satellite communication services

Unmanned aircraft coupled with powerful satellite communication have taken maritime awareness to the next level. EMSA offers a service based on Remotely Piloted Aircraft Systems (RPAS) which come free of charge to Member States and EU agencies on request, for use in a whole range of maritime scenarios. While the scope of these services was initially targeted to individual Member States, 2021 will increasingly see the development of a multipurpose regional service whereby several neighbouring coastal states can extend their operational capabilities, over a longer timeframe, using the same RPAS.

For incidents involving oil spills at sea, Member State authorities also have the option of adding a lightweight RPAS or quadcopter to EMSA's standby oil spill response vessels. These quadcopters are operated from on board the vessel and allow for increased flexibility when responding to an incident that is far from shore.

Following the introduction of rules limiting the sulphur content in ship fuel, EMSA made sniffer RPAS available, which can fly in the plume of a passing vessel to measure the amount of sulphur being released into the air, thus giving a good indication of the level of sulphur content burnt by the vessel observed. This helps in the detection of non-compliant vessels as local coastal authorities are alerted and can request an inspection at the next port of call. The results are uploaded to EMSA's THETIS-EU system to keep a record of all the measurements taken.

From early 2021, EMSA will further operate a lightweight RPAS over the Port of Antwerp in support of the Port Authorities there, to monitor vessel operations in the port to ensure that applicable environmental conditions are respected.

The Agency will also continue to offer specific fisheries and border-related services to its sister agencies, EFCA and Frontex, when requested.





The EMSA RPAS services have been developed to assist in maritime surveillance operations to support authorities involved in Coast Guard functions undertaken by Member States

Safety, security & surveillance





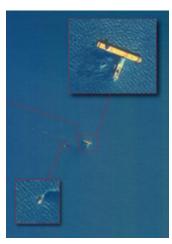
Satellite based surveillance services and innovation

Using satellite-based surveillance, CleanSeaNet is able to detect possible oil spills at sea and alert EU Member States accordingly. The Sentinel-1 satellite mission, followed by Radarsat-2 and TerraSar-X, is the main supplier of images using Synthetic Aperture Radar. In addition, optical satellite images can also be provided. This data can be correlated with vessel traffic routes in the same area, which may help to identify likely spill sources. At the same time, the existence of this service serves as a powerful deterrent to would-be polluters. The CleanSeaNet service is also available to beneficiary countries participating in programmes of the European Commission, such as IPA (Pre-Accession Assistance), SAFEMED IV and the ENP-programme for the Black and Caspian Sea.

In 2021 a new Contribution Agreement with the Commission (DG-DEFIS) will be signed, extending the Copernicus Maritime Surveillance activities until 2027. EMSA, as the entrusted entity for this service, will continue to provide satellite images to support a better understanding and improved monitoring of human activities at sea. EMSA is responsible, on behalf of the European Commission, for implementing all related technical and operational work. Services will cover the fields of fisheries control, law enforcement, maritime safety and security, law enforcement, customs, and marine environment, including pollution monitoring. The new agreement includes additional resources to establish links with research and development (R&D) projects, with the aim of facilitating the transition of research deliverables into operations.

In terms of new satellite-based technologies EMSA will assess how optical satellite data from medium resolution sensors (e.g. Sentinel-2) can be systematically used to detect, characterize and quantify the volume of any spilled oil. EMSA will also keep track of developments in the field of satellite-based marine litter monitoring, with specific emphasis on plastics.

With the aim of increasing its existing portfolio of satellite-based capabilities, EMSA will implement proofs of concept for new Earth Observation sensors (e.g. ICEYE, Capella, etc.) and, if deemed appropriate, organise the transition of these new capabilities to operations. EMSA will also assess the maturity, relevance and reliability of new radiofrequency detection satellites in the context of maritime surveillance activities, particularly in support of maritime safety, maritime security, law enforcement and fisheries control.



7 October 2018 - Collision between the roll-on/roll-off ferry Ulysse and general cargo ship CSL Virginia



Finally, EMSA will start implementing machine learning algorithms for Earth Observation products in order to provide value-added products, developed in-house, to Member States. This activity will be initiated in 2021 and will include vessel detection, oil spill detection and feature detection, both from SAR and optical products.

Monitoring the emergence of promising technologies and making these available on an operational level to Member States and the European Commission is one of EMSA's strategic objectives for the upcoming years. In 2021, EMSA will offer opportunities for Member State authorities to become more familiar with the new aerial and satellite-based technologies available, specifically on how these technologies can support national surveillance and detection needs.

Through the EU Satellite-AIS Collaborative Forum, EMSA will continue cooperation with Member States that have Satellite AIS capacity at national level and will explore ways on how such collaboration could be further beneficial to EMSA's users. In 2021, EMSA's SAT-AIS data services will be optimised to receive 30 million SAT-AIS messages. As a result, the SAT-AIS data services which the Agency provides to Member States and to EU Coast Guard Agencies will be significantly improved in respect of making a real-time worldwide maritime picture available, and will be composed of data feeds coming from independent satellite constellations, thus ensuring continuity of the data provision. Furthermore, the SAT-AIS data service is expected to improve the resolution of data sets through the deployment of sophisticated algorithms which will enable vessel identification, correlation with data coming from other sensors, and detection of anomalies or unusual behaviour. In 2021 EMSA will continue exploring new use cases by taking advantage of the cross-check capabilities offered by the EMSA Integrated Maritime Services platform.

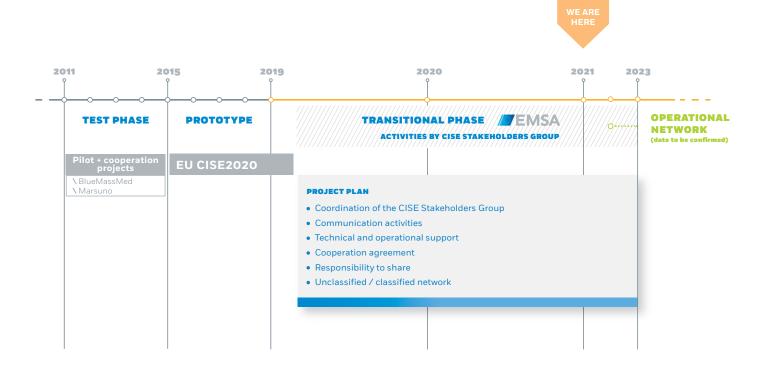
EMSA will continue to cooperate with the European Space Agency (ESA) in the field of integrated space-based solutions by further leveraging the use of space-based assets and technologies for enhancing maritime safety and surveillance services.

Following the agreement between EMSA and the Govsatcom ENTRUSTED Consortium led by the GSA, the Agency will actively participate by offering its user needs and requirements, as the EMSA would like to use these enhanced type of communications for its services in the near future.

EMSA will continue participating in the joint VDES demonstration project, which uses Norway's new NorSat-2 LEO satellite with a VDES test payload and VDES equipment on board a test vessel. The VDES demonstration project aims at demonstrating how VDES can be an important component of digitalisation by offering high-speed data exchange from ship to ship, between ships and shore, and between ships and satellites.

CISE transitional phase

The Common Information Sharing Environment (CISE) is an EU initiative which aims to make European and EU/EEA Member State maritime surveillance systems interoperable, by giving all relevant authorities from different sectors the possibility of exchanging classified and unclassified information when they need to conduct missions at sea. From April 2019, EMSA has been involved in the setting up and enabling of the transitional phase which will take this project forward by turning it into a fully operational system by end of 2023. In 2021, EMSA's focus will be on supporting the Member States already connected, as well as on extending participation to other Member States and EU agencies.





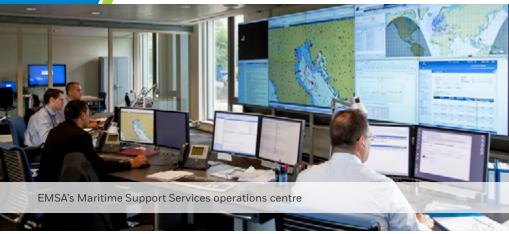






Digital services & simplification





3.1 MARITIME DIGITAL SERVICES

Maritime Digital Services

Getting a comprehensive overview of activity at sea is a challenge for most countries. To implement maritime policies effectively, governments and authorities need detailed, reliable knowledge about what happens at sea, in real time. EMSA offers a whole host of digital services designed to provide optimum maritime awareness to well over 150 different national authorities across the EU and EFTA Member States, as well as to the European Commission and related European bodies.

Chief among these is EMSA's Integrated Maritime Services (IMS), which support national authorities with maritime-related tasks, as well as the European Commission and five European bodies encompassing Frontex (border control), EFCA (fisheries monitoring), Europol (law enforcement), EU NAVFOR-Somalia: Operation Atalanta (anti-piracy) and MAOC(N) (law enforcement – narcotics). IMS is also available as part of EMSA's capacity building activities to non-EU countries, for which EMSA provides operational support, training and helpdesk assistance.

By integrating and correlating data from EMSA applications and external sources, services are delivered responding directly to a user's specific needs. The data effectively becomes actionable operational knowledge. Users benefit regardless of whether their needs lie in search and rescue, law enforcement or border control operations. And, as operational needs evolve, the services can be refined and developed.

Behaviour algorithms are used to detect unusual or suspicious ship behaviour as part of the Automated Behaviour Monitoring feature of IMS. This form of maritime surveillance can be used for a wide range of purposes, including safety, security, traffic monitoring, fisheries, border control, and accident/incident prevention. The algorithms also offer the possibility of detecting interlinked situations, exploit historical data and expand to include new behaviours based on specific needs. One example of this under development is the possibility of monitoring autonomous ship operations.

The Agency will continue to expand the EMSA Maritime Analytics Tool (EMAT) to cover more operational scenarios, assessed thematically from a time and risk-based perspective.

In 2021 the focus will be on setting up a pilot project for data analytics. Using artificial intelligence, EMSA will seek opportunities to analyse, monitor and identify trends at national, regional and global level, for operational and strategic purposes.

THETIS Information System

The THETIS information system was initially set up to allow port state authorities in the EU and Paris MoU countries (Canada, Iceland, Norway and Russia) to manage inspection data in a single window. It enables these authorities to target the right vessels for inspection, assists the European Commission by providing statistics on inspection results, and helps monitor the performance of Member States in relation to their international and European legal obligations.

Additional functionalities have been added to the system, thereby supporting a wider range of Member State authorities and facilitating the enforcement of a broader set of European laws. The provisions of the Sulphur Directive, the Port Reception Facilities Directive, the Ship and Port Facility Security Regulation and the ${\rm CO_2}$ Monitoring, Reporting and Verification Regulation and the Directive related to the safe operation of ro-ro passenger ships and high-speed passenger craft are all being catered for in dedicated modules of this flexible system (THETIS-EU and THETIS-MRV).

In 2021, the THETIS-EU sulphur module will continue to help sulphur inspectors in ports to check a ship's sulphur compliance in the open sea. This is facilitated by Remotely Piloted Aircraft Systems equipped with sensors monitoring individual ship emissions.

The THETIS-MRV $\mathrm{CO_2}$ monitoring, reporting and verification system is now fully operational and, companies have been using the system since 1 January 2018 to monitor and report on ship data covering $\mathrm{CO_2}$ emissions and fuel consumption. In 2021, the system is expected to enable greater alignment between international obligations and EU legislation thereby raising the level of awareness across the board and helping to remove market barriers. The information gathered in the system on $\mathrm{CO_2}$ emissions will continue to be made public.

THETIS-MED is the latest development which entered into service in 2020. This information system supports the members of the Mediterranean Memorandum of Understanding (Algeria, Cyprus, Egypt, Israel, Jordan, Lebanon, Malta, Morocco, Tunisia and Turkey) by helping them to target ships for inspection, as well as to record and share the results of these inspections. In this way, EMSA is contributing to the harmonisation of standards and procedures globally.

3.2 DIGITAL INFRASTRUCTURE

Maritime Support Services

The Maritime Support Services (MSS) centre is a 24/7 service helpdesk for users of the vessel traffic monitoring and surveillance systems hosted by EMSA. It provides continual monitoring of these systems, facilitating early incident management and high availability and performance standards. The MSS centre is the first point of contact for Member States whenever assistance is required in case of pollution accidents. In 2021 the centre will continue to provide users with timely helpdesk and monitoring services.

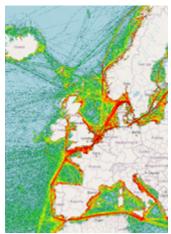
3.3 SIMPLIFICATION

SafeSeaNet



Vessel and voyage related information across the EU is shared among targeted users through the SafeSeaNet system. The information flows and system functionalities are designed to enhance maritime safety and security, as well as to boost the efficiency of maritime traffic and transport. EMSA works to provide the national administrations (port authorities, coastal stations, search and rescue, vessel traffic services, pollution response bodies, etc.) with 24/7 access to the system.

Importantly, EMSA works alongside national authorities to ensure the interaction of their systems with SafeSeaNet. This allows SafeSeaNet to serve as a European platform for maritime data exchange. Mandatory functions cover the collection and distribution of data on vessel traffic monitoring, port call information, dangerous and polluting cargo, security, waste and cargo residues, and incident and accident reports. The various central databases that form part of the SafeSeaNet ecosystem help to improve data quality on the individual national databases.



Four existing databases will be further enhanced in 2021: the Central Ship Database which receives and stores up-to-date information on ship identifiers and which serves as a reference for national systems such as the national single window; the Central Hazmat Database for information on dangerous and polluting goods which is particularly useful for decision-making on places of refuge for ships in need of assistance; the Central Location Database for information on locations and port facilities codes; and, the Central Organisations Database for information on authorities and organisations.

Traffic Density Maps

Gaining a better understanding of marine traffic – identifying where the main shipping lanes are and which ship types are navigating on which lanes, for example – is another way in which users can benefit from the SafeSeaNet service, through Traffic Density Maps, which can be generated according to specific criteria such as timeframe and ship type.



In 2021, the SafeSeaNet system will be upgraded to a fifth version. This release will accommodate the legal requirements laid down by two sets of EU rules: one on the registration of persons on board passenger ships; and the other on port reception facilities for waste from ships. Crew and passenger data must be registered digitally, using standardised administrative procedures (the national single window). This data can then be shared for the purpose of search and rescue operations in case of an emergency. As regards port reception facilities, the rules make sure that waste from ships is not discharged at sea but rather disposed of properly in ports with adequate waste reception facilities. Related waste information is transferred to the THETIS-EU inspection database. The exchange of information on incidents in EU waters between Member States' national authorities will be further improved.

SafeSeaNet provides a network for maritime data exchange

The pandemic brought urgency to the shift towards digitalisation, driving shipping closer to paperless documentation. In 2021, EMSA will be helping to create a favourable environment in which the existing framework for the use of eCertification can be strengthened.

EMSA Outlook 2021





European Maritime Single Window environment

Maritime transport operators face a wide range of legal reporting requirements each time a ship arrives at or leaves a port. To reduce this administrative burden, EMSA worked closely with the European Commission to replace the Reporting Formalities Directive with a new Regulation which was finally adopted in July 2019. The new Regulation, which is to be fully implemented by 2025, will bring together all reporting associated with a port call in a coordinated and harmonised way through the new European Maritime Single Window environment.

In 2021, EMSA will be involved in several tasks related to the implementation of this regulation, including: identifying the data to be exchanged via SafeSeaNet; drafting technical specifications for harmonised reporting and shared functionalities; and developing a joint ship, hazardous materials, and location database. This will be done in cooperation with experts from the European Commission, the Member States, and the maritime industry in order to create the required delegated and implementing acts by the summer and leave time for implementation in national systems.

Long range identification and tracking

In line with an amendment to the International Convention for the Safety of Life at Sea (the SOLAS Convention) introduced by the International Maritime Organisation in 2006, ships transiting through international waters are tracked through the Long-Range Identification and Tracking (LRIT) system. EMSA operates the European Union LRIT Cooperative Data Centre (EU LRIT CDC), through which Member States, Iceland, Norway, Georgia, Montenegro and Tunisia users can access the LRIT information of their ships worldwide as well as of any non-EU LRIT CDC Participating Country vessel bound to EU ports or sailing within 1000 nautical miles of EU waters. The central module, known as the International LRIT Data Exchange, is also hosted and operated by EMSA and interconnects 67 LRIT Data Centres worldwide which provide services to 131 SOLAS Contracting Governments and Territories. In 2021, efforts will go to maintain and upgrade these services as well as to support the Participating Countries as necessary.

Interoperability project

The interoperability project aims to provide seamless information exchange between EU, national authorities and maritime operators. It will allow Member State authorities to automatically receive and integrate information services provided by EMSA within their own systems, and to fuse this data with additional information only available at national

level. This will help to improve situational awareness at sea and reduce ship reporting obligations. Ship-to-shore reporting using VDE-SAT communications, European Maritime Single Window common databases and message formats, and SafeSeaNet statistics and vessel movement patterns form the main components of this project.

EFCA Service level agreement

EMSA supports the European Fisheries Control Agency in working to tackle illegal, unreported and unregulated fishing through the coordination of joint deployment plans. A service level agreement has been in place with EMSA since 2015 and is renewed yearly. On the one side, this agreement sets out the conditions for EFCA to provide EMSA with access to the VMS data and vessel identifiers of fishing vessels. On the other, it sets out the conditions for EMSA to provide EFCA with surveillance tools such as Integrated Maritime Services and Copernicus satellite imagery. Remotely Piloted Aircraft System (RPAS) drones are also part of this agreement and are being made available to EFCA for operational services. These services are part of the general European cooperation on coast guard functions between EMSA, EFCA and Frontex. In 2021, the major overhaul of the tailored Integrated Maritime Services provided for fisheries monitoring and control started in 2020 will be finalised and is expected to bring significant benefits.

FRONTEX Service level agreement

EMSA supports Frontex in conducting operations to address irregular migration and cross-border crime along European maritime borders. The service level agreement between Frontex and EMSA was extended indefinitely and includes support for the implementation of the European Border Surveillance System (EUROSUR). Activities in 2021 are based on an annual programme and service description agreed between the agencies. Among the many services provided to Frontex is Earth Observation which allows for the delivery of very high-resolution optical imagery for the monitoring of areas of interest, whether at sea, on the coastline or in port. In 2021 this support will continue and will include the sharing of incidental sightings of potential marine pollution to Member State coastal authorities through the CleanSeaNet system.







Corporate and executive services

EMSA's management team has the aim of building up the Agency as a recognised centre of excellence for a safe, secure and sustainable maritime sector which serves the needs of Member States and the European Commission alike. The management team is responsible for implementing this work programme and delivering on the objectives set, while reinforcing the Agency's role as an innovative and reliable partner for the maritime cluster in both Europe and beyond.

Good corporate governance, transparency, efficiency and flexibility are all essential qualities which EMSA's management team uphold and promote among staff in their respective functions. Strong human resources management including job mobility and career development opportunities is also a priority for the Agency to ensure staff reach their potential and remain fully motivated.

The Agency's quality management system ensures that stakeholder needs and expectations are met, and that the quality of EMSA's services remain at a consistently high level.

EMSA's registration in the EU Eco-Management and Audit Scheme (EMAS) ensures that the Agency endorses sound environmental management and follows through on making continuous improvements.

As the Agency looks to implement the five-year strategy, it will also make a point of increasing the visibility of its actions, ensuring that the work of the Agency is known among relevant target audiences and information multipliers. Effective, cost-efficient communication practices will be prioritised for this purpose.







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ABOUT THE EUROPEAN MARITIME SAFETY AGENCY

The European Maritime Safety Agency is one of the European Union's decentralised agencies. Based in Lisbon, the Agency's mission is to ensure a high level of maritime safety, maritime security, prevention of and response to pollution from ships, as well as response to marine pollution from oil and gas installations. The overall purpose is to promote a safe, clean and economically viable maritime sector in the EU.

Get in touch for more information

European Maritime Safety Agency

Praça Europa 4 Cais do Sodré 1249–206 Lisboa Portugal

Tel +351 211209 200 / Fax +351 211209 210 emsa.europa.eu / Twitter@EMSA_Lisbon