European Maritime Safety Agency

EMSA OUTLOOK 2023

EMSA

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European Maritime Safety Agency

TABLE OF CONTENTS

Foreword from the Chairperson of the Administrative Board

I am pleased to present the EMSA Outlook for 2023. This report highlights the many ways the Agency works to deliver on the goals of a safe and sustainable maritime sector in Europe.

While the restrictions due to the COVID-19 pandemic have been lifted in large parts of the world, the pandemic has had lasting effects on the way we work. The working arrangements of EMSA have increasingly become independent of time and place with new tools, such as virtual meetings and virtual courses.

Looking back at 2022, the anniversary year of EMSA, the Agency has yet again proved its ability and agility in terms of supporting the enforcement efforts of Member States. Among other things, EMSA has developed a tool to help enforce the implementation of the EU sanctions against Russia.

The work of the Agency on sustainability, digitalisation, surveillance, simplification, safety, security and capacity building has also evolved over the past years. With the range of new tasks that EMSA has been entrusted with, it is time to revise and futureproof the founding regulation of EMSA.

Once again, I would like to congratulate the Agency on the 20th Anniversary and to applaud the whole EMSA team for their continuous efforts and agility.

EMSA is a cornerstone of maritime cooperation across EU Member States. Only through close collaboration may we improve safety and provide efficient solutions for the maritime sector. As chair of the Administrative Board, I look forward to contribute to the important tasks of EMSA in the coming year.

Andreas Nordseth
Chairman of the Administrative Board

Foreword from the Executive Director

Welcome to the EMSA Outlook 2023 where we present the activities of the year ahead and the areas in which we will work to meet ambitious objectives targeting greater sustainability, safety, security, simplification and digitalisation. Through our services in the maritime domain and the technical, scientific and operational assistance we provide, we will be working to take forward the European Union's priorities as well as to bring added value for the Member States and the European Commission.

Sustainability is now more than ever a key priority and our agenda reflects this. We will continue to provide our expertise and support in the implementation of the European Green Deal and its related action points. At international level, we will continue to assist the European Commission and Member States on the revision and implementation of the IMO's GHG strategy, including on the fuel lifecycle GHG intensity guidelines.

Safety will be underpinning all our sustainability actions. We will continue to study alternative power sources for ships, and to develop guidance for their safe use in cooperation with relevant stakeholders. We will support the development and implementation of safety standards, providing technical support and proposing initiatives to address outstanding safety concerns that have been identified, *inter alia* in our flagship EMSAFE report, and in the safety analyses we have produced based on data reported to the European Maritime Casualty Information Platform (EMCIP).

We will remain committed – together with our sister agencies, EFCA and Frontex – to offering cross-sectoral support to national authorities carrying out coast guard functions. Our current geopolitical landscape makes our joint cooperation, particularly in the area of security, more important than ever. As current chair of the cooperation framework, EMSA will be hosting the Annual Coast Guard Event in Lisbon in June, which will provide a forum to discuss the various contributions the agencies can make to ensure a safer and more secure European Union. At an operational level, EMSA will be organising a Multipurpose Maritime Operation for the first time, to be held in the Baltic Sea with the active participation of several EU Member States.

In this context, my thoughts turn also to Ukraine. We are witnessing the unprovoked aggression of the Russian Federation towards a sovereign state, something that goes against the European values of democracy and peace that we all hold so dear. The European Union has shown strength and solidarity towards Ukraine in these dark times and will continue to do so. Here at EMSA, our services are supporting the implementation of the grain deal and the monitoring of the implementation of sanctions. And our support will remain in place for as long as it is necessary.

The upcoming revision of EMSA's mandate is expected to reach the co-legislators in the first part of 2023. As this development moves forward and true to our spirit and values, we will remain attentive to emerging issues, striving to be ready to add value for the Member States and the European Commission to the best of our capacity. In this respect, I also take this opportunity to express my sincere gratitude to the members of our Administrative Board for their ongoing support and guidance, as well as to our dedicated staff without whom none of our achievements would be possible.

Maja Markovčić Kostelac
Executive Director

Executive summary

The EMSA Outlook 2023 publication presents the main steps the Agency plans to take in the upcoming year to deliver its annual work programme in line with the multi-annual strategic objectives and based on the information contained in the Single Programming Document (2023-2025) as adopted by EMSA's Administrative Board. The Agency's activities have been broadly divided into seven thematic areas with the four key areas of Sustainability, Safety & Security, Surveillance and Simplification, followed by the three cross-cutting areas of Digitalisation, Technical Assistance and Strategic Support. This structure is reflected in the chapters of the publication, for which we share some highlights below:

SUSTAINABILITY

With increasing urgency for action in the field of sustainability, EMSA will be providing support in the implementation of the measures linked to the European Green Deal, such as the 'Fit for 55' package which refers to the EU's target of reducing net GHG emissions by at least 55% by 2030. This package includes among others the FuelEU Maritime proposal, the extension of the EU Emissions Trading System to maritime transport and the revision of the Alternative Fuels Infrastructure Regulation. EMSA will continue to work alongside the European Commission to support any further initiatives of relevance for greener shipping, including the EU Taxonomy for sustainable maritime financing.

On the international front, the Agency will be assisting the European Commission and the Member States in the revision and implementation of the IMO Strategy on the reduction of GHG emissions from ships, in particular as regards the development and implementation of carbon intensity and alternative fuel standards for shipping, including the ongoing work on Marine Fuel Lifecycle GHG Analysis, and with a focus also on the corresponding safety, technological and operational challenges.

EMSA will continue to support the European Commission and the Member States in the implementation and revision of the EU MRV Regulation, the Port Reception Facilities Directive, the Sulphur Directive, the Ship Recycling Regulation, the Regulation on the prohibition of organotin compounds and the Ship Source Pollution Directive. Finally, EMSA will also assist in the implementation and potential revision of the Marine Strategy Framework Directive for the aspects related to maritime transport.

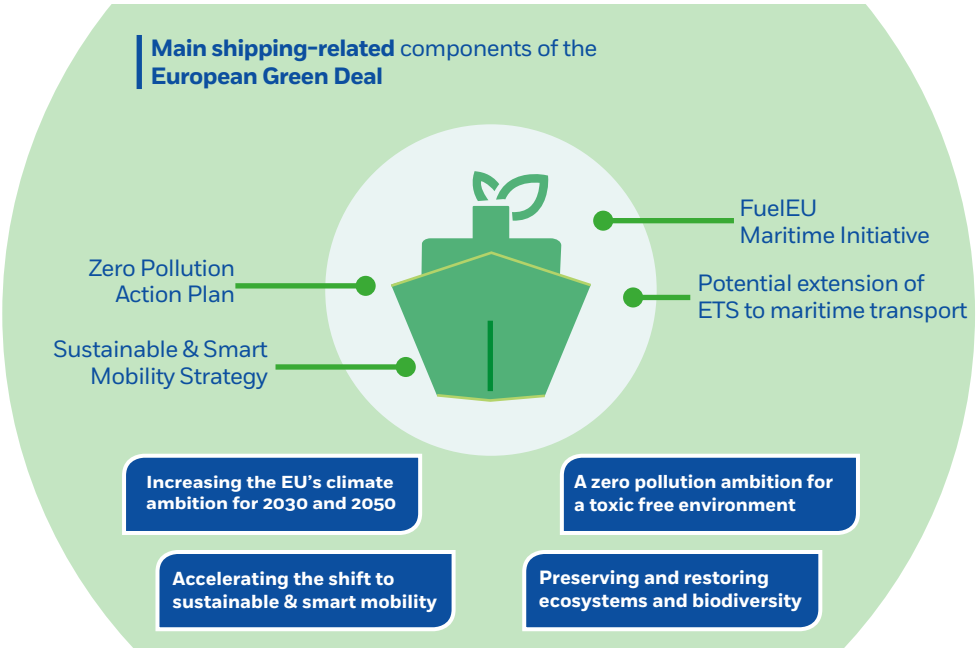
Following the publication of the first European Maritime Transport Environmental Report (EMTER) in 2021 in cooperation with the European Environmental Agency, the Agency will start working on the preparation of a new report, expected for 2024. Studies will also continue in the field of sustainable alternative sources of power for ships with a focus in 2023 on hydrogen and wind-assisted propulsion.

Satellite-based services will, with RPAS-based monitoring activities, continue to provide additional support to the protection of the marine environment, including emissions monitoring and pollution monitoring and response, beyond the capabilities currently available to Member States.

EMSA will continue to enhance its toolbox of pollution response services, taking into consideration the feedback received from the Member States, lessons learnt from accidents and technological developments. Due consideration will be given to expanding the type of equipment available along the EU coasts and to increasing the ability to respond to pollution in shallow waters and to threats caused by HNS, low sulphur fuels and new fuels. The development of a software tool to support the preparedness of Member States for combatting oil pollution will be launched.

The EMSA contracted pollution response vessels will continue to be gradually equipped, when technically and operationally possible, with lightweight RPAS, which in case of a pollution related incident can be piloted from the vessels to support recovery operations.

The Agency will also continue developing its services regarding Hazardous and Noxious Substances (HNS) to provide Member States under the MAR-ICE Network and MAR-CIS database with quick and accurate expert information and dedicated services for the response to chemical spills. Dedicated national on-line information sessions on the MAR-ICE Network will continue to be provided to increase Member States' familiarisation with the Agency's HNS services and open to the beneficiaries of the ENP projects.



SURVEILLANCE

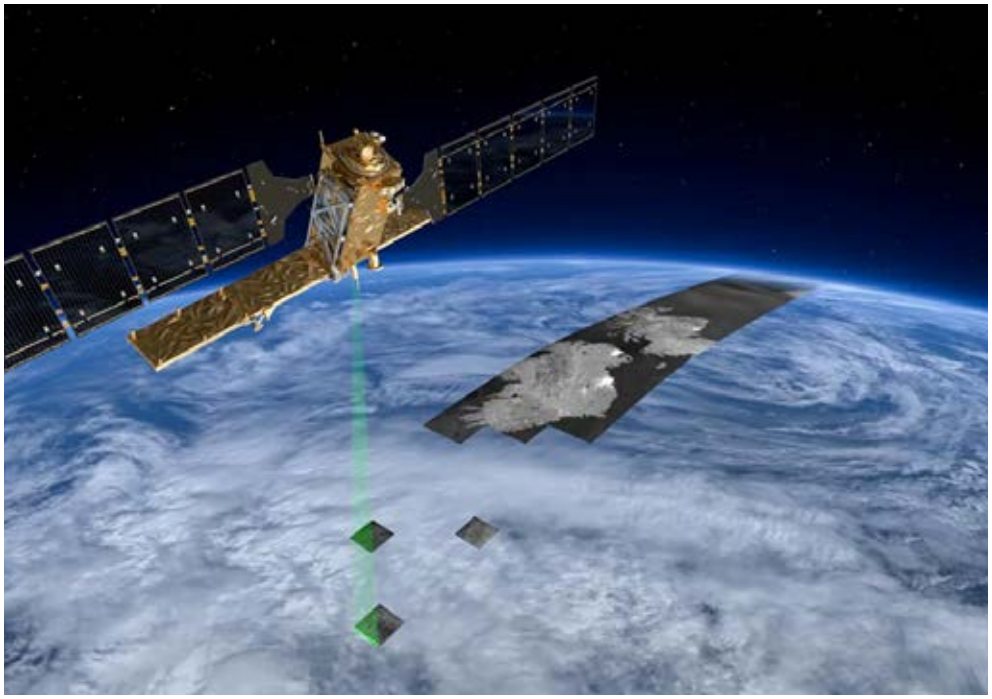
In the surveillance domain, national authorities performing coast guard functions in the Member States and EU Agencies will continue to benefit from the innovative maritime surveillance services EMSA has developed and will continue to develop. These complement surveillance capabilities achieved by more traditional means (terrestrial AIS, manned aircraft and patrol vessels).

Regarding satellite-based surveillance, EMSA will continue to improve its CleanSeaNet service (CSN), for routine monitoring of the seas and detection of illegal discharges and polluting vessels, as well as in support of emergency response in case of large-scale accidental spills. In addition, the Agency will explore further how its satellite-based surveillance services can be better used to support Member States in their Search and Rescue activities.

As a complement to the detection and monitoring of pollution at sea, the satellite-based surveillance services will continue to be provided by EMSA for all Member States and EU authorities with surveillance competences. The Contribution Agreement signed in 2021 establishes the continuity for service delivery of Copernicus Maritime Surveillance Services until 2027. This enables the Agency to continue providing operational worldwide monitoring services from satellites to a wide range of user communities (fisheries control, maritime safety, maritime security, law enforcement, marine pollution monitoring and customs).

While satellite-based monitoring provides cost efficient surveillance capability over very large areas, Remotely Piloted Aircraft services (RPAS) provide live, very high-resolution information, day or night, over a large distance combined with the capability to stay on-site in case of a certain event at sea (SAR, identification, investigations, etc.).

This unique information greatly improves the maritime picture and provides Member States and EU Agencies with the information needed to support their activities.



CleanSeaNet provides services based on a wide range of Synthetic Aperture Radar satellites, with the vast majority coming from Copernicus Sentinel-1.

EMSA fixed wing RPAS operating over the Gulf of Genoa for multipurpose missions, including the monitoring of whales within the Pelagos Sanctuary.

With regard to multipurpose surveillance operations in 2023, the RPAS Regional Strategy will be further consolidated, with more permanently deployed operations in regions of common operational interest for more than one Member State, and for EU operations involving the European Fisheries Control Agency (EFCA) or the European Border and Coast Guard Agency (Frontex).

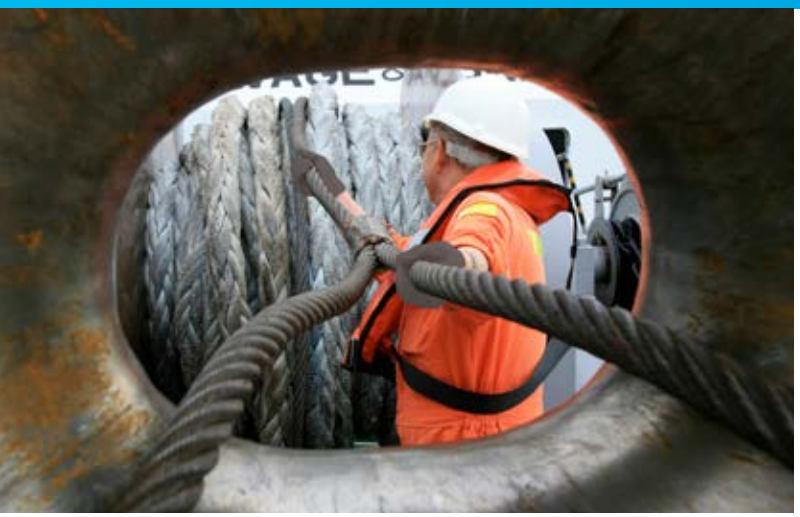
This longer-term perspective allows for a more in-depth integration of EMSA services, becoming part of the operational procedures of Member States, thereby increasing their operational added value. Member States will be given the opportunity to benefit from RPAS surveillance operations at sea, share such resources and experiences, and to identify, develop, and implement 'best practice' for RPAS operations used for maritime surveillance, pollution detection and emission monitoring.

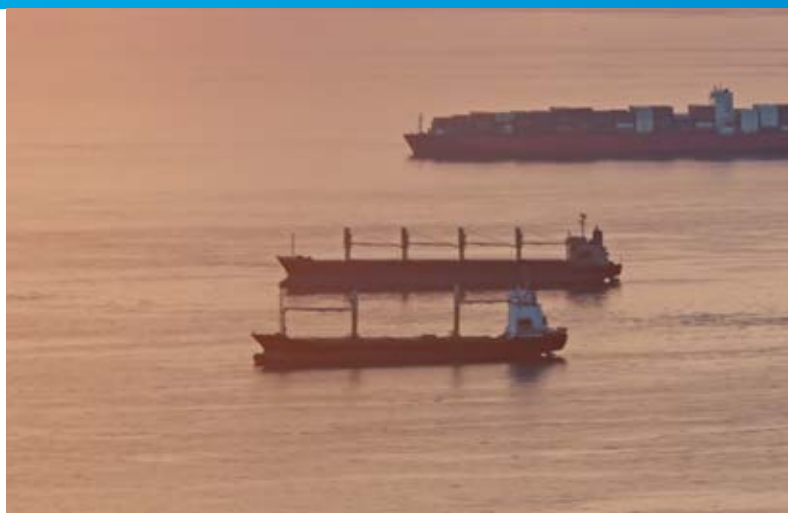
Global SAT-AIS data feeds will continue to be procured by the Agency to support monitoring of vessels worldwide, i.e. to allow for the identification of so-called 'dark vessels' in combination with the Earth Observation services.

With Earth Observation, RPAS, satellite communication and SAT-AIS services, EMSA provides to Member States complementary tools to complete their maritime picture for security, safety and sustainability purposes, by offering resources at EU level in a cost-effective manner.

Additionally, in 2019 EMSA was tasked by the European Commission to establish an operational network allowing all EU Member States authorities and EU bodies with an interest in maritime surveillance to share information through the so-called Common Information Sharing Environment (CISE). During the period up to the end of 2023, the CISE transitional phase, EMSA is in charge of coordinating the activities. Subject to the relevant decision that will be taken by the Commission and the EMSA Administrative Board, EMSA will start to work on the operational phase.

EMSA RPAS operating for regional services in the East Baltic Sea, flying cross-border in support of national authorities in Estonia, Finland and Latvia.





SAFETY AND SECURITY

Safety and security-related considerations remain high on the Agency's agenda particularly as the maritime sector faces increasing challenges and opportunities in these areas with the various transitions underway, including efforts towards zero-carbon fuels and the propulsion systems required to use them, and the drive towards digitisation and automation. EMSA will further study the safety risks posed by alternative fuels and will start to work on guidance for the safe use of these fuels together with stakeholders (addressing them one-by-one). The Agency will also finalise the work on the safe use of battery systems in maritime applications. The Agency will also assign new studies with a focus on key safety issues and pursue the follow up to previous and ongoing studies.

EMSA will continue to build expertise and support the development, implementation and enforcement of safety standards providing technical support to the European Commission and the Member States on the work carried out at EU and IMO level, including proposing initiatives where safety problems have been found, especially in the passenger ship safety area. The safety of fishing vessels will also be assessed in support of the European Commission's initiative in this field.

EMSA will also continue to support Maritime Administrations in their Flag State implementation effort and in their Port State Control role providing knowledge-based solutions and expertise, operational assistance upon request for Accident Investigation (e.g. with Remotely Operated Vehicles providing underwater services), and hosting specific applications and databases (e.g. EMCIP, the MED Portal, THETIS and its modules, RuleCheck, etc.).

In addition, EMSA will continue to work as a reliable partner in the field of Marine Equipment, by providing technical secretariat services to the MarED Group of Notified Bodies, managing the MED Portal and supporting the European Commission upon request in the regular update of the standards.

In the area of maritime security, EMSA will support the Commission and the EFTA Surveillance Authority in assessing and verifying independently the implementation and enforcement of EU maritime security legislation. The Agency will participate in the MARSEC (Maritime Security) Committee and will work with the European Commission to keep up to date the Best Practice Guidance for the Member States on MARSEC inspections.

Finally, EMSA will pursue the exchange of best practices and cross-sectoral cooperation on maritime cybersecurity for the maritime cluster. The Agency will propose, where possible, new actions based on a mapping exercise and the conclusions of the conducted gap analysis. This will include guidance to Member States in this field and the development of a specific course by the EMSA Academy.

SIMPLIFICATION

EMSA supports greater simplification through a variety of digital services. Vessel and voyage related data is shared among targeted users across the EU via the SafeSeaNet system whose information flows and system functionalities are designed to boost the efficiency of maritime traffic and transport. In 2023, EMSA will continue to develop and improve SafeSeaNet to support new and revised EU legislation.

SafeSeaNet will be further upgraded to offer data exchange services between Maritime National Single Windows of the Member States and to offer facilitation services to coastal stations for ship-to-shore reporting. Such developments will aim at simplifying the fulfilment of reporting obligations by reusing information already reported and applying the 'once only' principle of the European Maritime Single Window environment. These developments will consolidate the role of SafeSeaNet as cross-border and cross-sector exchange platform for maritime information.

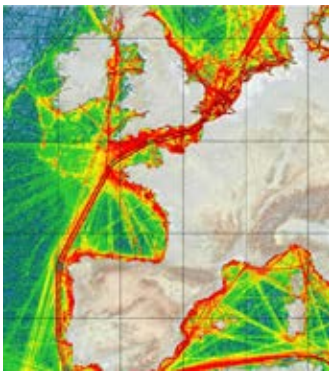
The Regulation establishing a European Maritime Single Window environment (EMSWe) significantly increases the potential of digitalisation in many areas including port-call optimisation and is an important step forward for the implementation of the single market in the maritime sector based on digital solutions. EMSA will continue to support the European Commission and the Member States in the elaboration of the common data set, the harmonised specifications and rules for the EMSWe ensuring that the same data sets can be reported in all ports of the EU in a harmonised manner.

EMSA will contribute to the work of the IMO on harmonised data models and message structures for the electronic fulfilment of reporting obligations defined by international instruments.

Traffic Density Maps represent an effective way of displaying vessel movement patterns and present valuable benefits to Member States' competent authorities for security and

safety purposes as well as for Maritime Spatial Planning. EMSA will continue enhancing the Traffic Density Mapping service providing more sophisticated services which allow users to better evaluate the overall shipping density within selected areas.

Following the outcome of the exercise to explore the feasibility for EMSA to offer a platform in support of Member States for issuing seafarers' eCertificates, the final requirements, functional and technical specifications for an eCertification platform will be completed, bearing in mind the relevant EU legislative framework on Data Protection. EMSA will continue the ongoing digitalisation activities to support the eCertification objectives to facilitate the work of the Member States in their capacity as flag, port and coastal states.



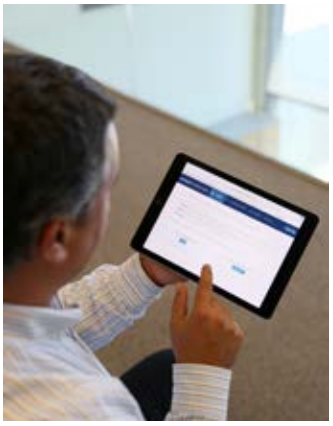
The traffic density mapping service computes ship position data from several sources, including terrestrial and satellite AIS.

DIGITALISATION

Integrated Maritime Services (IMS) will continue to be enhanced with additional customised features, functionalities, data sets and individual services in line with the evolving requirements of the growing user communities. The main improvements will focus on user interfaces (SEG – SafeSeaNet Ecosystem Graphical User Interface and the IMS Mobile App), as well as the System-To-System (S2S) interfaces for the provision of specific services to the national systems. The IMS will continue providing Automated Behaviour Monitoring - ABM services, based on algorithms analysing vessel position reports for the detection of abnormal and/or specific behaviours.

The establishment of the maritime picture in the Cloud, which began in 2022 and will continue through to 2024, will facilitate the possibility of IMS transiting into a real time maritime traffic picture experience as a pre-condition for the Agency to offer a new generation of services with more advanced analytical solutions and applications enhanced by AI and machine learning in the following years.

The THETIS family of digital solutions will continue to be enhanced in 2023. With the aim of having a harmonised approach on the reporting of port state control inspections, EMSA will continue with further technical discussions on the possible expansion of the THETIS inspection database to support additional PSC MoU regions and promotion of data-exchange initiatives.



Emissions reporting data in THETIS-MRV is also available to the public.

THETIS-EU has been extended with a new inspection module supporting the recording of inspections to livestock vessels carried out under Council Regulation (EC) 1/2005 and will be further developed in cooperation with the European Commission's Directorate-General for Health and Food Safety (DG SANTE). The main objective will be to establish a harmonised monitoring and enforcement information system – which will also serve as a common platform for sharing of information and alerts – to ensure the proper implementation of the Council Regulation by the Member States.

The EMSA Maritime Support Services (MSS) is defined as the point of contact for any assistance required in the context of a maritime accident or event where EMSA services could be needed, e.g. in case of pollution or SAR cases, as defined in EMSA's Contingency Plan and the Working Arrangement with the European Commission's

Ukraine is a beneficiary of the Black and Caspian Sea Project (BCSEA II) through which EMSA takes steps to build up the national capacities of the participating countries.

Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO). Together with this task, MSS will continue to provide helpdesk services to the EMSA users' communities and monitor the performance of EMSA IT maritime applications. As the information centre where most of the vessel traffic data is collected, the MSS will continue to analyse vessel traffic data and provide reliable data and figures when required, such as was done to assist in the definition of the recovery policies and specific measures during and in the aftermath of the COVID-19 crisis.

The Russian Federation's invasion of Ukraine triggered the need to support the European Commission and the Member States in relation to the monitoring of the impact on maritime traffic in the Black Sea region and to assist Member States in the implementation of sanctions applied by the EU. EMSA issues daily reports that include the tracking of vessels of EU interest, information on vessels unable to leave specific ports, the overall evolution of traffic in the area and information on any other relevant developments such as reported attacks on ships. EMSA also produces a detailed monthly report on the impact of developments in Ukraine on maritime traffic and seaborne trade.

TECHNICAL ASSISTANCE

EMSA's visits and inspections continue to be a key tool to improving maritime safety, security and sustainability, through the identification of strengths and weaknesses in the implementation of EU law. Combined with the horizontal analyses carried out on the findings established during the visits, the Member States and the European Commission gain a clear picture of where additional effort would be beneficial or changes to EU law may be desirable.

Visits and inspections offer the possibility of identifying strengths and weaknesses with the overall aim of improving maritime safety, security and sustainability across the board.

For the visit cycles concluded in 2022 (Sulphur Directive and Port State Control Directive), the related end-of-cycle workshops will provide a clear opportunity in this regard. The third cycle of visits on seafarer training that started in 2022 will continue, together with the existing cycles on marine equipment, bulk carriers and passenger ship safety.

In respect of Recognised Organisations (RO), the inspection programme is expected to return to pre-COVID-19 levels. The legislative changes on RO recognition and oversight have seen increased participation by the Member States in EMSA's inspections and the European Commission's assessment processes. The increased transparency and exchange of information between the European Commission, EMSA and the Member States enhances the overall oversight of RO at EU level, which in turn improves compliance by RO. Assistance will also be provided to the European Commission and Member States for the ongoing work at IMO level on the development of guidance on assessments and applications of remote surveys. In terms of the Human Element, assistance to the Commission and the Member States regarding the development, adoption and implementation of European and international legislation, such as the STCW Convention and respective Code, will be a key focus for the period. Meanwhile,

EMSA's STCW inspection activity in third countries continues to be crucial in assisting the European Commission with recognising and ensuring STCW certification and compliance.

The learning services provided by the Agency through the EMSA Academy will contribute to build capacity at national level and support harmonised implementation and enforcement in the EU and beyond, thereby fostering safety, security and sustainability. The EMSA Academy Quality Management System will be fully operational in 2023 and numerous courses will be certified following the principles of ISO 29993:2017 for the delivery of learning services outside formal education.

Traditional face-to-face and live broadcasting courses as well as part-time online courses on EU/international maritime legislation and other emerging needs (like maritime cybersecurity) and on EMSA's operational maritime applications, will be developed and delivered. The Common Core Curricula available to Member States will be enriched with the intermediate and advanced levels for Flag State Inspectors, and work is expected to be concluded for the development of the PSC Inspectors Curriculum - in cooperation with the Paris MOU – and of the Accident Investigators Curriculum. State-of-the-art tools, such as the eLearning Platform (MaKCs) and the Virtual Reality Environment for Ship Inspections (VRESI) will be used and further enhanced, in this way ensuring an enriched learning experience through the EMSA Academy.

Work will also be carried out in developing statistics (regular and ad hoc) and indicators. Support will continue to be provided both internally (preparation of visits and inspections, EMSAFE, EMTER, Annual Equasis Statistics) as well as externally (Commission and other external stakeholders). In addition, the Agency will continue to publish and enhance the EU Maritime Profile (EMPRO) thus raising awareness on shipping as well as recognising its important role for the general public.

EMSA will be working to build up the national capacity of European neighbourhood countries through both the SAFEMED V and BCSEA II projects. A new and enhanced project approach will foster support in flag state, coastal state and port state matters; offer access to the services of the EMSA Academy thereby ensuring life-long training as well as continued access to the maritime applications developed by the Agency (THETIS-MED, RuleCheck, CSN, MaKCs); and, pave the way to the digitisation of beneficiaries through enhanced access to tools and services.

STRATEGIC SUPPORT

In 2023, 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. As current chair of the Tripartite Working Arrangement, EMSA will hold the joint Annual European Coast Guard Event in 2023 which serves as a platform for national authorities, the EU agencies involved and the European Commission to exchange views on matters related to cooperation on coast guard functions.

In 2023 EMSA will start organising one Multipurpose Maritime Operation (MMO) per year in cooperation with identified Member State/s with an emphasis on the coast guard functions falling under its remit. The various arrangements, duration and assets deployed will be discussed and agreed with the relevant authorities co-organising the MMO.

EMSA will continue providing a range of services under the umbrella of various cooperation agreements to EU bodies or other EU stakeholders with maritime related functions in support of their overall objectives. Such organisations include the European Union Agency for Law Enforcement Cooperation (Europol), EU Naval Forces, European Fisheries Control Agency (EFCA), the European Border and Coast Guard Agency (Frontex), the Maritime Analysis and Operations Centre (MAOC (N)) and the Emergency Response Coordination Centre (ERCC). The new Working Arrangement (WA) signed between EMSA and DG ECHO at the end of 2022 will strengthen EMSA's support to the ERCC.

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

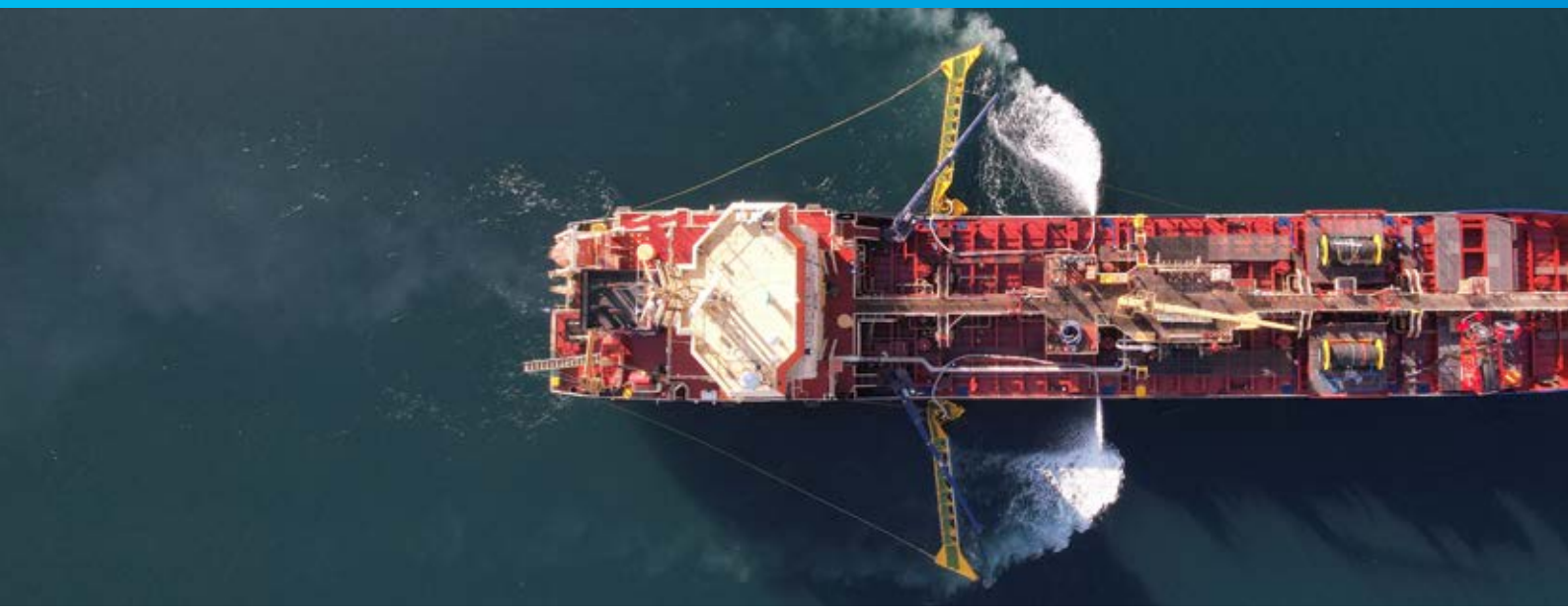
Prevention of Pollution by Ships

EMSA acts to lessen the environmental impact exerted by the maritime sector in the EU. In its role as facilitator and technical hub, the Agency supports the EU's priorities in the areas of decarbonisation, smart mobility, sustainable alternative fuels, ship energy efficiency and carbon intensity, accelerated 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 'Fit for 55' package which encompasses the Zero Pollution Action Plan, the FuelEU Maritime Proposal, Alternative Fuel Infrastructure Regulation and the extension of ETS to maritime transport. In 2023, aspects related to the revision of the Marine Strategy Framework Directive (MSFD) and the EU Taxonomy for Sustainable Financing may also be included in the Agency's activities on request. The entry into force of the FuelEU Maritime legislation and the extension of ETS to maritime transport will see the Agency on the front line to support their implementation and enforcement, including through the development of relevant tools.

In the legislative arena, in addition to the initiatives listed above, assistance in 2023 will be directed towards the development and implementation of rules in the areas of air pollution (SOx, NOx, PM), alternative emission abatement methods, anti-fouling paints, ballast water management, greenhouse gas emissions, marine litter, plastics, port reception facilities, liability and compensation, ship-source pollution, ship energy efficiency and carbon intensity, ship recycling, sustainable alternative fuels and technologies and cleaner power technologies and underwater radiated noise.

EMSA has been carrying out a number of studies related to alternative fuels with the focus in 2023 on studies addressing the use of hydrogen and wind-assisted propulsion.



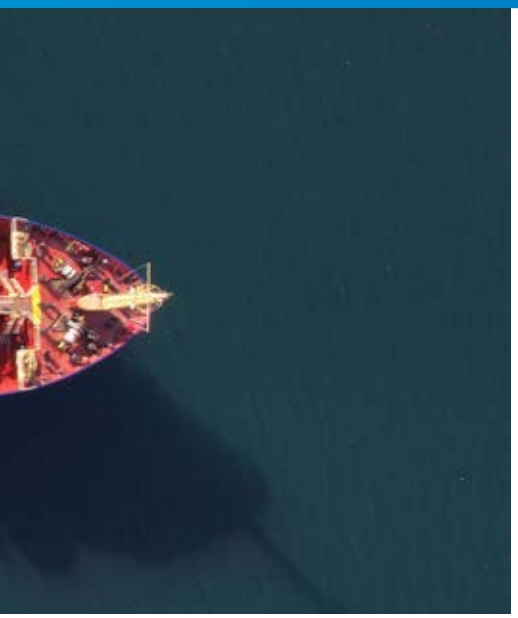
Implementation support tools will continue to be developed through THETIS and its associated modules which address compliance with rules in the areas of sulphur, port reception facilities, ship recycling and the monitoring, reporting and verification of CO_2 emissions.

Through the FuelEU Maritime proposal, 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. Coming on the back of the studies on biofuels and ammonia released in 2022, EMSA will take forward two additional studies in 2023 focussing on hydrogen and wind-assisted propulsion. In other environmental areas, EMSA will also follow up on the study on underwater radiated noise assisting Member States by assessing the level of underwater noise at national and regional level with the help of sound maps.

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. Support will also be given to the Sustainable Ports sub-group of the European Ports Forum which brings together both trade associations and national authorities to exchange information and provide advice on port-related matters.

On the international front, EMSA will continue to contribute to the wide-ranging developments at IMO including the ongoing revision of the GHG Strategy and implementation of its mid- to long-term measures, energy efficiency and carbon intensity, marine litter and underwater noise. Upcoming work on alternative fuels and technologies – particularly on developing technical requirements and standards for use - will be critical to their uptake at both global and EU level.

Work will also begin on the next edition of the European Maritime Transport Environmental Report in cooperation with the European Environmental Agency (EEA). The next edition is expected to be finalised in 2024 and will continue to offer a comprehensive overview of the current status of maritime transport and its impact on the environment.



Operational Pollution Response Services

Images from a quarterly drill involving the Ria de Vigo response vessel where the vessel deployed oil spill response equipment, monitored and guided by the EMSA RPAS quadcopter.

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, which is run by the Directorate General for European Civil Protection and Humanitarian Aid Operations (DG ECHO). 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 offshore 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. The various services take into account the existing response capacities of the Member States, in order to offer a quick response. While mechanical recovery of oil remains the main response strategy, some vessels are also equipped to use dispersants and these are available from stockpiles located in several spots along the EU coastline.

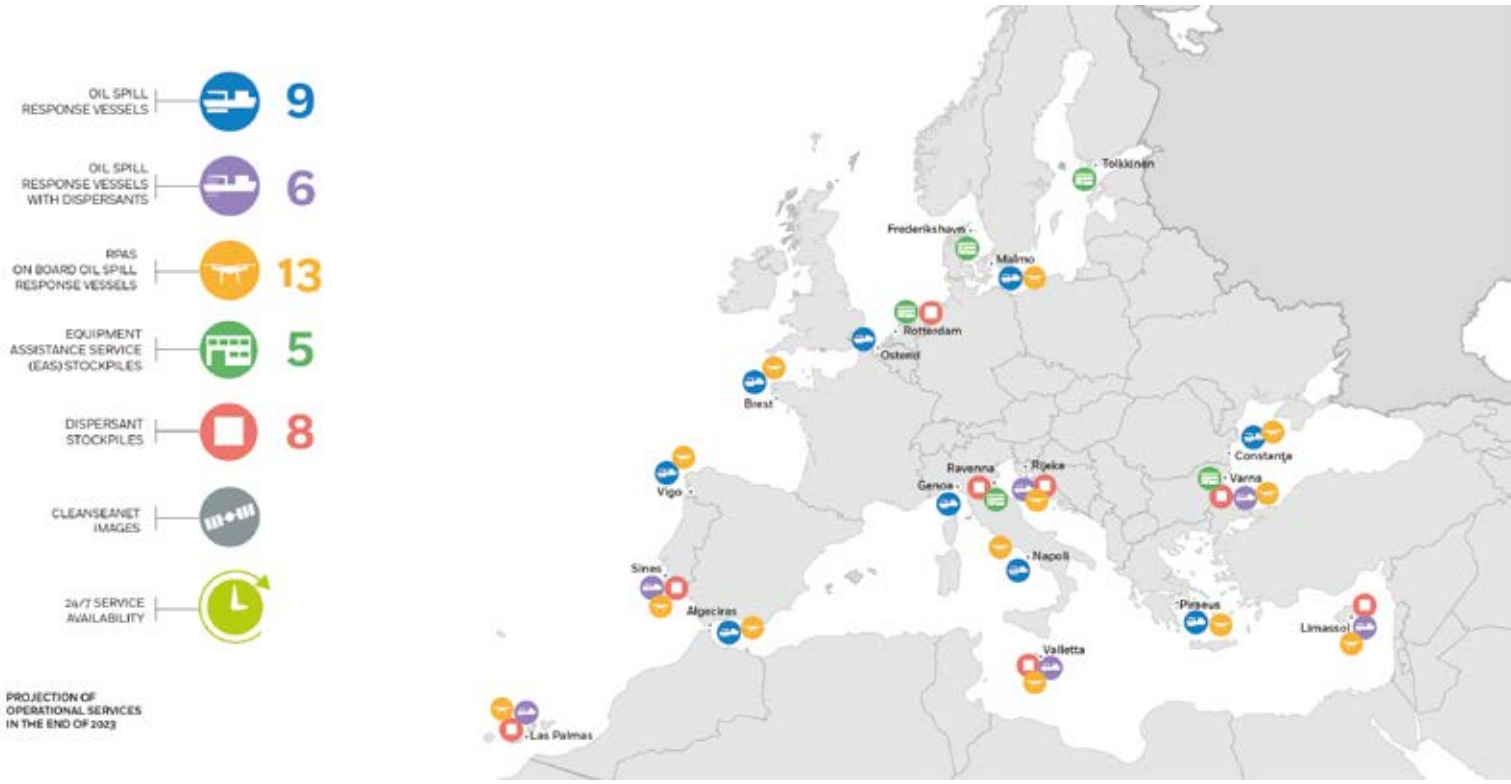
To diversify the response means, several Equipment Assistance Services (EAS) have been established, providing Member States with specialised response equipment – including near-shore equipment – which can be used by non-dedicated response vessels. The EAS arrangement for the Northern Baltic Sea is expected to become operational in 2023 following contract signature in 2022 and procurement will be relaunched for the Baltic Sea and North Sea to replace the non-renewable contracts expiring in 2024. The purchase of specialised HNS response equipment will also be initiated to extend coverage to incidents involving chemical spills.

In order to enhance pollution detection and monitor clean-up operations, EMSA's response vessels can be equipped with lightweight Remotely Piloted Aircraft Systems (RPAS) offering a live video stream to help identify areas of pollution and provide indications of the thickness of the oil slicks detected. The number of equipped vessels is expected to grow in the upcoming year from 10 currently to 13 by the end of 2023.

In the year ahead, EMSA will continue to manage these pollution response services, offering training as necessary to ensure a high level of readiness at all times and tendering for a simulation software tool to further enhance preparedness. Also, as part of ongoing cooperation on coast guard functions, EMSA will take an active part in supporting international multi-partner, multi-purpose exercises at sea with Member State authorities.

Both of EMSA's MAR-ICE and MAR-CIS services will continue to offer access to expertise in the event of a chemical spill whether through specialised chemical experts and/or chemical substance datasheets.

NETWORK OF EMSA CONTRACTED VESSELS, DISPERSANTS AND EQUIPMENT STOCKPILES



CleanSeaNet and RPAS for Emissions Monitoring

Europe-wide oil spill monitoring and polluter identification is made possible through a combination of different services offered by EMSA to EU and EFTA coastal states to support their users in identifying illegal discharges from sea-going vessels. The satellite imagery available from EMSA's CleanSeaNet service is used to facilitate the identification of ship-sourced discharges on the sea surface, contribute to the identification of possible polluters in combination with the SafeSeaNet traffic monitoring service, and monitor accidental pollution during emergencies. Rapid access is possible to a wide range of Earth Observation products based on Synthetic Aperture Radar (used for routine oil spill monitoring) and optical images (used mostly to support response operations linked with large accidental spills).

In 2023, EMSA is planning to extend the service to include the production of oil spill classification and quantification reports drawing on medium resolution optical sensors (e.g. Sentinel-2) to further support Member State authorities in their activities.

In addition to satellite imagery and vessel positioning data, Remotely Piloted Aircraft Systems (RPAS) are also particularly useful in the overall surveillance chain, increasing maritime situational awareness with additional sources of data thanks to the particular payload onboard.

At the request of one or more Member States, RPAS equipped with gas sensors can be deployed in areas of high traffic density to fly in the plume of passing merchant vessels to take measurements of their air emissions. This makes it possible to determine whether or not the vessel checked is using heavy fuel for propulsion exceeding the permitted sulphur limits in which case coastal authorities will be alerted. These alerts are recorded in the THETIS-EU system and can lead to follow-up by inspectors at the ship's next port of call. Emission measurements are to be extended to nitrous oxide to further support Member States as they implement the relevant rules in this regard.

In the event of an accidental oil spill, EMSA can deploy oil spill response vessels equipped with a lightweight RPAS to assist in the recovery operations by helping to closely monitor the deployed equipment making sure recovery of the discharge is as effective and complete as possible. In 2023, this service will be maintained through regular drills and expanded as far as is technically feasible.

CHAPTER 2

SURVEILLANCE

Multipurpose Maritime Surveillance RPAS

Unmanned aircraft coupled with powerful satellite communication have taken maritime awareness to the next level, enabling real-time maritime information transmission from assets at sea to personnel on shore. EMSA offers a service based on Remotely Piloted Aircraft Systems (RPAS) which come free of charge to EU Agencies and Member State authorities executing coast guard functions for use in a whole range of maritime scenarios. While the scope of these services was initially targeted to individual Member States, increasingly multipurpose regional services are being rolled out whereby several neighbouring coastal states can extend their operational capabilities, over a longer timeframe, using the same RPAS.

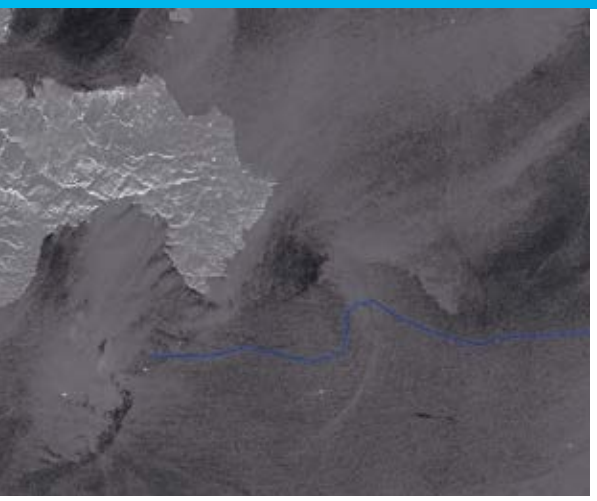
For incidents involving oil spills at sea, Member State authorities also have the option of adding a lightweight RPAS to their own vessels or to use a quadcopter available on one of EMSA's standby oil spill response vessels. These quadcopters are operated from onboard a vessel and allow for increased flexibility for monitoring and detection of pollution when responding to an incident at sea.

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 ship to measure the amount of sulphur being released into the air and thereby 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.

The Agency will also continue to offer the availability of RPAS services to its sister agencies, EFCA and Frontex, as well as to offer participation in Multipurpose Maritime Operations in cooperation with these agencies and Member State authorities. In 2023, EMSA's RPAS and SATCOM services will be used from onboard an EFCA vessel to support sea-fisheries control and compliance measures under EFCA's Joint Deployment Plans.

Depending on technological advancements by industry, the Agency will also continue evaluating the operational added value of the very latest RPAS platforms (including High Altitude Pseudo Satellites - HAPS) which would optimise existing services and provide new capabilities.

EMSA RPAS deployed in the Strait of Gibraltar for multipurpose maritime surveillance, including emissions monitoring, pollution detection, suppression of trafficking and smuggling operations, fisheries control and vessel traffic management.



Satellite-based Services and Surveillance Innovation

Data from Earth Observation satellites offer a unique view of our oceans, seas, and coasts. Satellites, and their on-board sensors, provide routine, cost effective, reliable and wide area maritime surveillance. In the event of a maritime emergency at sea, such as a large-scale oil spill or an incident requiring search and rescue, Member States can activate EMSA's contingency plan through which Earth Observation products are supplied to support follow-up action.

CleanSeaNet is the near real time European satellite-based oil spill monitoring and vessel detection service, set up and operated by EMSA since 2007. It analyses satellite images, mainly from Synthetic Aperture Radar (SAR) but also from optical missions, to detect possible oil on the sea surface, identify potential polluters and monitor the spread of oil during maritime emergencies.

The existence of this service serves as a powerful deterrent to would-be polluters and is available to all participating states. These include EU Member States and their overseas territories, candidate countries and EFTA/EEA States, as well as 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 which have signed the conditions of use for the system. Each country has access to the service through a dedicated user web interface.

In 2023, EMSA will continue to build up data feeds based on global Satellite-AIS coverage which offer the possibility of monitoring vessels worldwide in near real time. In combination with other Earth Observation services, this is also particularly useful for identifying 'dark vessels' and supporting their closer monitoring by surveillance authorities.

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, characterise, 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. 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. In addition, EMSA will assess new radar and optical satellite constellations, particularly those concerning rapid tasking and very high-resolution optical capabilities with the perspective to phase these into operational service.

Finally, EMSA will continue to implement machine learning algorithms for Earth Observation products in order to provide value-added products, developed in-house, to Member States. This activity encompasses 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 2023, 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.

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 EMSA would like to use these enhanced types of communications for its services in the near future. This is expected to be particularly useful where RPAS operations are concerned as there is considerable reliance needed on a stable and secure communication infrastructure.

The CleanSeaNet service is based on the regular ordering of Synthetic Aperture Radar satellite images, providing coverage both day and night, and independent of fog or cloud cover.

The Agency will further 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.

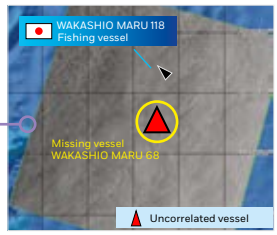
In collaboration with ESA, EMSA will continue looking into satellite-based VDES technology (VHF Data Exchange) and how this technology can be used to the benefit of EU Member States.

EARTH OBSERVATION PRODUCTS

EO value-added products offer additional information to satellite images. These can be provided either as a layer on top of the original satellite image or as a separate layer of information. EMSA offers the following products in to supporting search and rescue, specific operations and exercises at sea:

VESSEL DETECTION

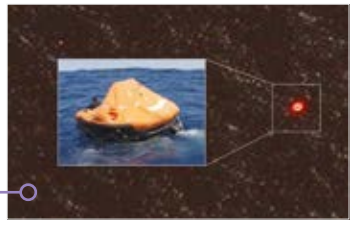
Vessel detections derived from radar and optical images are correlated against vessel reporting information (e.g. T-AIS; SAT-AIS; LRIT and VMS) to provide an overview of which vessels are reporting in a given area, and which are not.



In this image, a non-reporting vessel, corresponding to the FV Wakashio Maru No 68, was detected 300 NM from its last known position after 7 days adrift, during the search and rescue operation, in May 2021.

FEATURE DETECTION

Detects features of interest at sea, in the shoreline and in harbour areas which are not covered by other EO products.



In an exercise with the Portuguese Navy, a drifting life raft was detected in a very-high resolution optical image, in July 2020.

ACTIVITY DETECTION

Uses very high-resolution images to report information about activities of interest detected at the sea surface, including search and rescue operations, rendezvous at sea, vessels loitering close to ports or to ship lines.

In the aftermath of the sinking of Grande America, in March 2019, drifting containers were detected in very-high resolution optical images

OIL SPILL DETECTION

Uses high and medium-resolution radar images and very high-resolution optical images, focusing on oil spill detection and associated pollution source.

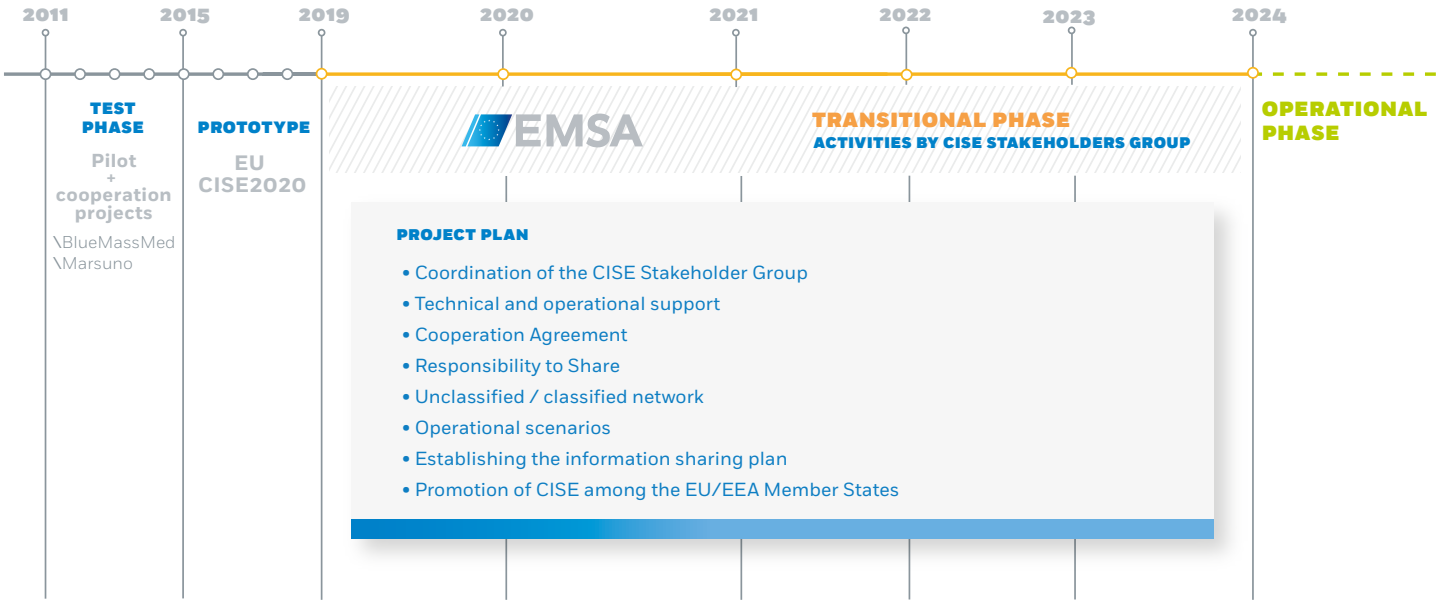
An oil spill of large dimensions was detected in a radar image, following the collision of Ulysse and CSL Virginia, in October 2018.

Copernicus Maritime Surveillance Service

The Copernicus Maritime Surveillance (CMS) Service provides Earth Observation products (satellite images and value adding products) to support a better understanding and improved monitoring of activities at sea, within a wide range of operational functions such as maritime safety and security, fisheries control, customs, law enforcement, marine environment pollution monitoring, and others. Implemented by EMSA, it is part of the Security Service of the EU's Copernicus Programme and comes under the direction of the Directorate-General for Defence Industry and Space with which the Agency has a Contribution Agreement until 2027. In 2023, the Agency will make efforts to forge links with Copernicus Research and Development projects with the aim of generating additional operational benefits extending beyond the reach of CMS to all EMSA's Earth Observation Services.

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 on a voluntary basis of exchanging surveillance information when they need to conduct missions at sea. The authorities involved in the CISE network belong to several sectors: defence, customs, safety, fisheries, law enforcement, environmental, border control, and transport. Since April 2019, EMSA has been involved in the setting up and enabling of the transitional phase which will take the project forward by turning it into a fully operational system. As this objective is set for the end of 2023, EMSA's efforts throughout the year will be focused on actively supporting the Member States already connected to ensure full preparedness, as well as on extending participation to other Member States and EU agencies so that they too can benefit from the CISE network.



CHAPTER 3

SAFETY AND SECURITY

Maritime Safety

EMSA aims to contribute to the improvement of 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, fit 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.

In response to the uptake of new alternative fuels and energy storage onboard, EMSA will work on safety aspects related to the adoption of cleaner fuels, such as ammonia, hydrogen and liquefied petroleum gas, as well as on conversion systems or Onshore Power Supply (cold ironing). The Agency will continue to develop guidance for the safe deployment of such alternative technologies, including best practice safety guidance, studies and supporting developments at IMO. A new series of safety studies will get underway providing follow-up to the hazard identification recommendations identified in the various studies on alternative fuels, which will become available in 2023 and beyond.

In 2023, 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 is also in the process of developing a risk-based assessment tool (RBAT) for the evaluation of new MASS projects, which should be finalised in 2023, and will share the results with relevant stakeholders.

EMSA will follow up on a series of commissioned safety studies (Cargosafe, Steersafe and RBAT MASS) providing technical input as necessary. Work related to the Maritime Equipment Directive (MED) will progress with EMSA making a technical review of the safeguard clause cases submitted, supporting MED stakeholders, and expanding the MED DB portal.

In 2023, EMSA will also assist the European Commission, where needed, in the revision and subsequent implementation of the Flag State, the Port State Control and the Accident Investigation Directives. As the EU Fishing Vessel Safety Initiative moves forward, EMSA will offer support to the European Commission in relation to the ongoing work to assess safety levels.

Equasis

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 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. In 2023, EMSA will also make efforts to improve and enhance the production of statistics while also updating the data sharing agreements in place with the various data providers. The objective remains to encourage quality shipping and eradicate substandard practices.

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 2023, EMSA will continue to work with the European Commission, IMO and ILO to foster the application of maritime labour standards in the EU.

The Agency will present the results of a study that was commissioned in order 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.

Technical assistance to the European Commission and the Member States will continue to be provided in relation to the planned revision, at IMO level, of the STCW Convention and Code.

The Agency will also continue to publish a statistical review offering a snapshot of the European labour market in terms of the number of seafarers holding valid certificates and endorsements, via information encoded in the STCW Information System. This review serves both EU Member States, the European Commission and the European Parliament for policy-making purposes, as well as ship owners and ship operators in terms of knowing the magnitude of manpower available in the EU to crew their vessels.

Accident Investigation

Technical investigations into marine casualties contribute to raising the overall level of maritime safety in Europe by helping to prevent consequences resulting from casualties such as 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 develop and implement 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 conducting safety analyses the outcome of which will contribute to sound decision-making in all safety areas, as has been demonstrated in the past for matters relating to navigation accidents and accidents involving passenger ships, ro-ro ferries, container ships and fishing vessels. More than 3 000 casualties and incidents are recorded on average each year in the database.

In 2023, 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 learnt from casualties, such as the study conducted in 2022 on navigational accidents (collisions, groundings and contacts) involving passenger, cargo and service ships.

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.

EMSA will continue discussing existing operational needs with the accident investigation bodies of the Member States, and will explore further ways to facilitate, streamline and expand provision of operational support to these bodies. This includes the use of underwater surveying services, based on ROV or remotely operated vehicles, to collect evidence in the event of a sunken vessel, for instance.

An improved layout of the overview of marine casualties and incidents will continue to be published on the EMSA website each year, covering data extracted from EMCIP since 2014. Finally, a study to detect potential Covid-19 related safety issues and emerging risks contributing to marine casualties and incidents will also be finalised in 2023.

Key figures from the 2014-2021 period as reported in the EMCIP and covering EU-27 and EEA.

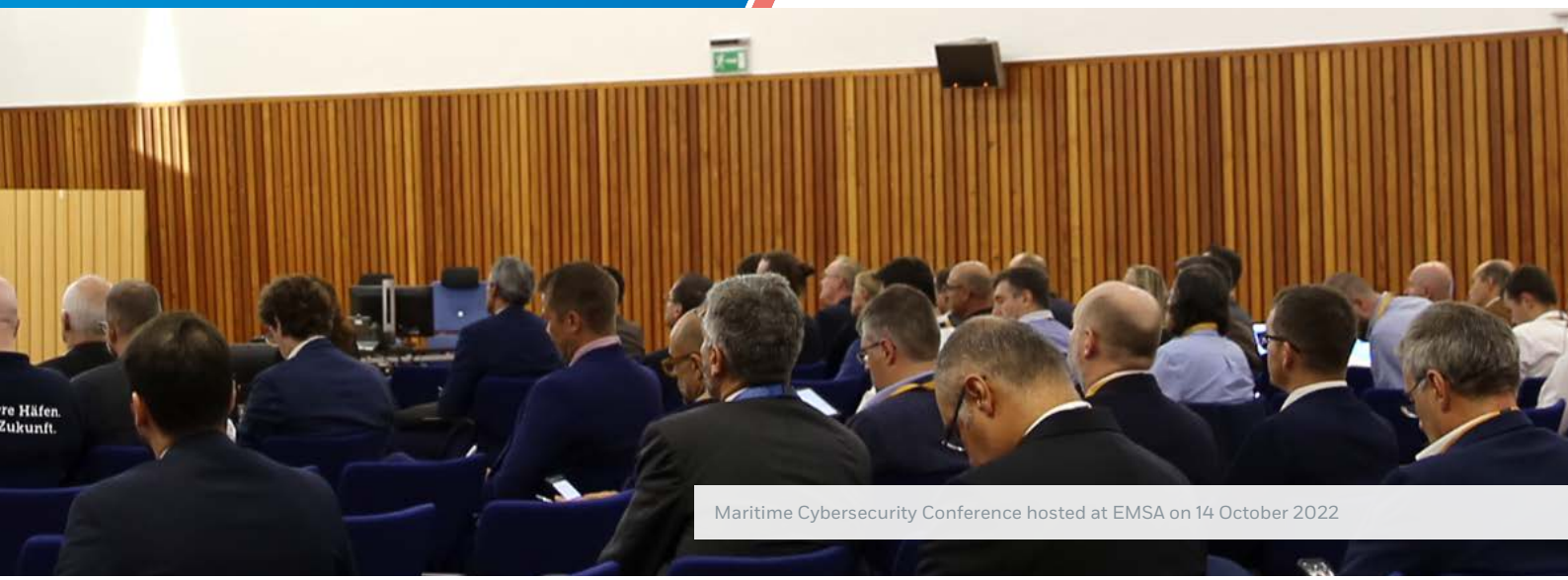
Maritime Security

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 2023 EMSA will assist the European Commission and the EFTA Surveillance Authority with maritime security inspections. EMSA will continue to maintain the reporting module in 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 providing practical guidance to Member State authorities.

EMSA will continue to provide support for the implementation of EU and international maritime security legislation both through the EU's MARSEC Committee as well as 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 European Coast Guard Function Forum. In addition to this, EMSA has set up a dedicated task force which has conducted a mapping and gap



Maritime Cybersecurity Conference hosted at EMSA on 14 October 2022

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 is developing an action plan for offering support on how to deal with maritime cybersecurity issues and, among others, the Agency will work to provide best practice guidance to the Member States in this field.

CHAPTER 4

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 continue to be enhanced in 2023: the Central Ship Database which receives and stores up-to-date information on ship identifiers and which serves as a reference for national systems will be expanded to cover a broader range of ship data and ship types; 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.

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 2023, this together with other data consolidation services will be offered to provide the possibility of extended analysis of ship movements and routes, which may be considered particularly useful for the implementation of environmental policies.

The SafeSeaNet system also accommodates 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 will be further upgraded to offer facilitation services to coastal stations for ship-to-shore reporting. Following the request from Croatia's Ministry of the Sea, Transport and Infrastructure, on behalf of the EUREKA Consortium (Italy, Greece and Slovenia) as well as non-EU Member States (Albania, Bosnia and Herzegovina and

The digital registration of crew and passenger data is particularly important for search and rescue operations in the event of an emergency.

Montenegro) and the approval of the EMSA Administrative Board, EMSA will provide Technical Assistance to the EUREKA Consortium for modernising the IMO adopted Ship Reporting System (SRS) in the Adriatic Sea (ADRIREP).

The main objective of amending ADRIREP is to automatise reporting from ships, as much as possible, reducing ships' administrative burdens while at the same time improving navigation monitoring through the use of modern technologies and tools. This includes integration with the Integrated Report Distribution (IRD) SafeSeaNet service developed under the Facilitation of Ship-to-Shore Reporting Pilot Project performed by EMSA. The Agency's IRD will be upgraded to support the interface for electronic ship reporting and act as a platform for sharing reports received from the ships between coastal stations participating in the ADRIREP system. A modernised ADRIREP could serve as a test bed and example for other Ship Reporting Systems (SRS) in the EU to implement more modern systems.

In 2023 efforts will also go towards the creation of a long-term data archive using cloud-based solutions and drawing on advanced analysis techniques. This will take SafeSeaNet to the next level both in terms of guaranteeing data quality and deriving intelligence from multiple datasets to the benefit of Member States.

Following the outcome of the study in 2023, EMSA will continue to cooperate with EUROSTAT to use SafeSeaNet data (plus other EMSA data such as detected port calls) to produce the Early Statistical Indicators used by the EU's Statistical Office.

EMSA will provide Technical Assistance to the EUREKA Consortium for modernising the IMO adopted Ship Reporting System (SRS) in the Adriatic Sea (ADRIREP).

European Maritime Single Window Environment

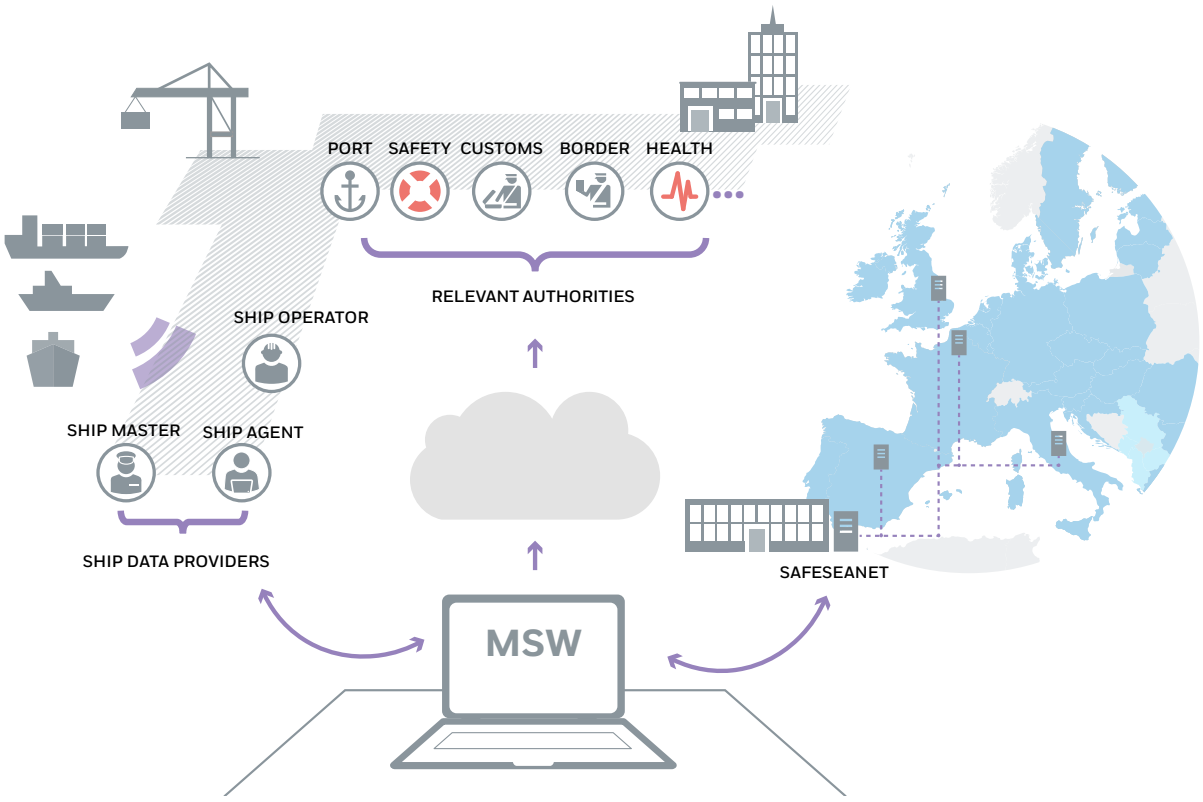
Maritime transport operators face a wide range of legal reporting requirements each time a ship arrives at or leaves a port. To reduce this administrative burden, EMSA worked closely with the European Commission to replace the Reporting Formalities Directive with a new Regulation which was finally adopted 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.

The Agency will continue to work with experts of the European Commission, the Member States and the shipping industry to define common standards for exchanging information between declarants and the National Single Windows and to develop information services that will allow the interoperability of all National Single Windows.

Furthermore, EMSA on behalf of the European Commission will contribute to the elaboration of the IMO Compendium on Facilitation and Electronic Business which defines a harmonised worldwide standard for the electronic fulfilment of reporting obligations in Maritime Single Windows.

The Agency will finalise the development of the European Maritime Single Window environment's common databases as defined in the corresponding Implementing Acts adopted in 2022 and will perform commissioning tests of the Maritime National Single Windows' interfaces with the databases to ensure that all Member States have access to the common reference data.

As Member States will be upgrading their National Single Windows, the Agency will be offering technical assistance to ensure full compliance and interoperability.



Long Range Identification and Tracking

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 69 LRIT Data Centres worldwide which provide services to 133 SOLAS Contracting Governments and Territories.

eCertification

The pandemic brought urgency to the shift towards digitalisation, driving shipping closer to paperless documentation. In 2023, EMSA will be helping to create a favourable environment in which the existing framework for the use of eCertification can be strengthened. The Agency will host operational systems to support the Member States in their capacity as flag state, port state and coastal state by enabling the sharing and central availability of statutory eCertificates. EMSA is working on an EU Seafarers' eCertification Platform to offer economies of scale as efforts are centralised in the process of developing, hosting and operating a state-of-the-art system. This platform will make it possible for interested Member States to issue STCW eCertificates in a secure, accredited and transparent way.

CHAPTER 5

DIGITALISATION

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 Naval Forces: Operations Atalanta and Irini, 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.

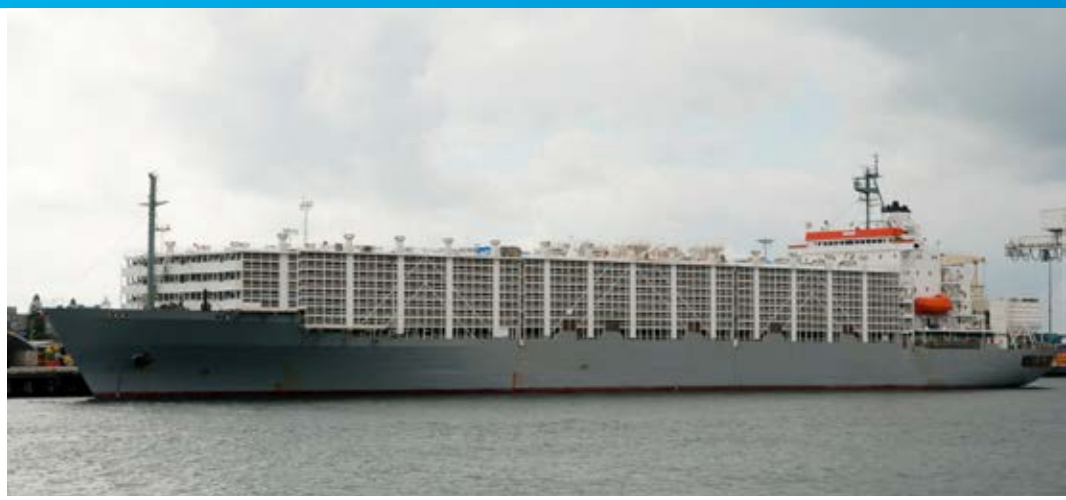
By integrating and correlating data from EMSA applications and external sources, services are delivered responding directly to a user's specific needs. The data effectively becomes actionable operational knowledge. Users benefit regardless of whether their needs lie in search and rescue, law enforcement or border control operations. In addition, as operational needs evolve, the services can be refined and developed. A Maritime Picture API (Application Programming Interface) will be made available through a system-to-system connection based on interoperable standards that enable integration with national Vessel Traffic Monitoring and Information Systems (VTMIS).

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, exploiting historical data and can be expanded to include new behaviours based on specific needs.

The establishment of the maritime picture in the Cloud, which began in 2022 and will continue through to 2024, will facilitate the possibility of transition of IMS from a near-real time maritime traffic picture into the real time maritime traffic picture experience as a pre-condition for the Agency to offer a new generation of services with more advanced analytical solutions and applications enhanced by AI and machine learning in the following years.

The Agency will continue to further its knowledge in the area of maritime data analytics finalising the first pilot project on the use of artificial intelligence and machine-based learning with a view to supporting specific operational scenarios within EMSA's Integrated Maritime Services. Based on the automated analysis of data and trends, the identified solutions will be expected to reduce the workload of maritime administrations by alerting their operators to events which may negatively impact maritime safety or security.

The development of a collaborative tool to enhance cross-border communication between IMS users in maritime safety-related scenarios will also be explored in the course of the year.



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, Russia and now the UK) 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.

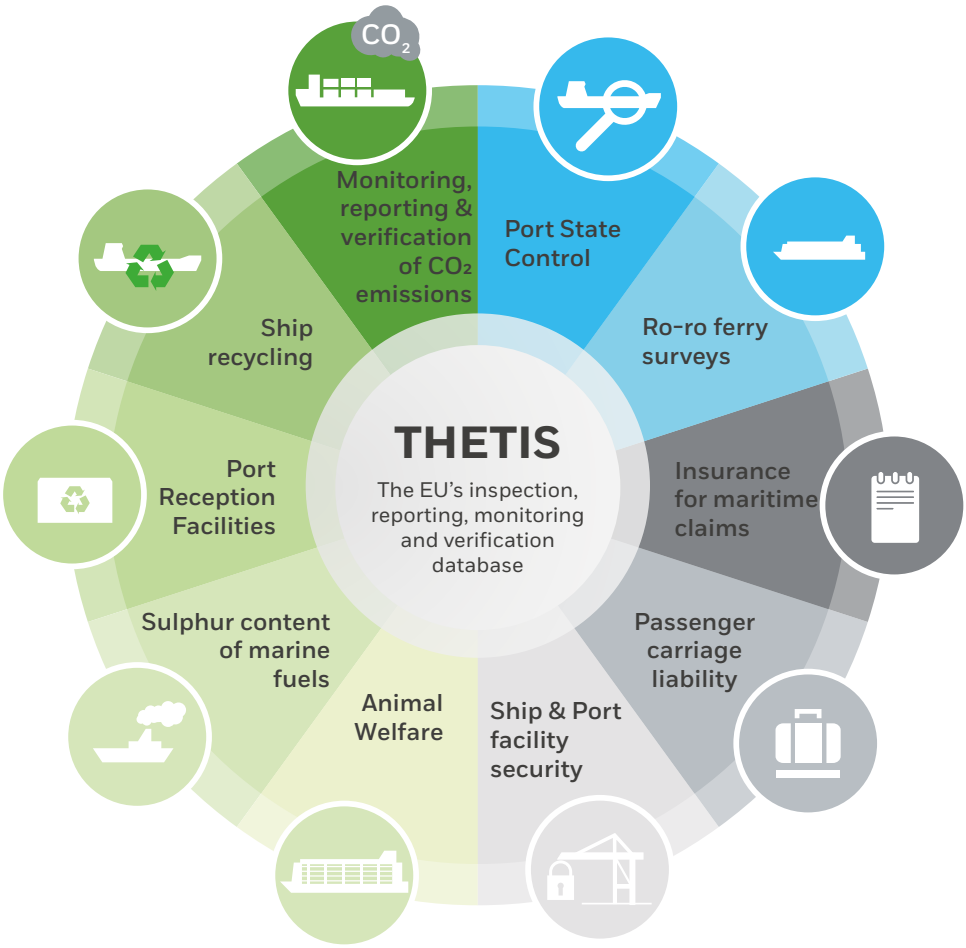
Additional functionalities have been added to the system, thereby supporting a wider range of Member State authorities and facilitating the enforcement of a broader set of European laws. Seven inspection regimes are now catered for in what is called THETIS-EU, covering: Sulphur, Port Reception Facilities, Maritime Security, Ro-Ro passenger ships, Ship Recycling, CO_2 Monitoring, Reporting and Verification, and mostly recently Animal Welfare.

In 2023, the latest module of THETIS-EU which supports inspections of livestock vessels and is aimed at safeguarding animal welfare will be enhanced further in cooperation with the European Commission's DG SANTE. This module allows veterinarian inspectors to target ships for inspection, declare cases of non-compliance and generate inspection reports for follow-up action.

The THETIS-EU sulphur module helps sulphur inspectors in ports to check a ship's sulphur compliance in the open sea. With direct information relay, EMSA's Remotely Piloted Aircraft Systems transmit air emission measurements taken when flying in the plume of a ship. Indications of excess sulphur content can then trigger inspections at the next port of call by alerting inspectors through the THETIS-EU system.

The THETIS-MRV CO_2 monitoring, reporting and verification system which companies have been using since 1 January 2018 to monitor and report on ship data covering CO_2 emissions and fuel consumption 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 CO_2 emissions may be considered particularly relevant for upcoming policy measures related to the FuelEU Maritime initiative as well as to the EU Emissions Trading Scheme's extension to maritime transport.

The THETIS-MED information system, which entered into service in 2020, will continue to support 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 contributes to the harmonisation of standards and procedures globally.



Maritime Support Services

The EMSA Maritime Support Services (MSS) is defined as the point of contact for any assistance required in the context of a maritime accident or event where EMSA services could be needed, e.g. in case of pollution or search and rescue cases, as defined in EMSA's Contingency Plan and the Working Arrangement with the European Commission's DG ECHO. Together with this task, the MSS will continue to provide helpdesk services to EMSA's user communities and monitor the performance of EMSA IT maritime applications.

As the information centre where most of the vessel traffic data is collected, the MSS will continue to analyse vessel traffic data and provide reliable data and figures when required, such as was done to assist in the definition of the recovery policies and specific measures during and in the aftermath of the COVID-19 crisis.

The Russian Federation's invasion of Ukraine triggered the need to support the European Commission and the Member States in relation to the monitoring of the impact on maritime traffic in the Black Sea region and to assist Member States in the implementation of sanctions applied by the EU. EMSA issues regular reports that include the tracking of vessels of EU interest, information on vessels unable to leave specific ports, the overall evolution of traffic in the area and information on any other relevant developments such as reported attacks on ships. EMSA also produces a detailed monthly report on the impact of developments in Ukraine on maritime traffic and seaborne trade.

MSS will continue delivering a weekly update to the list of sanctioned vessels (i.e. RF flagged), as well as a continuously updated derogations list as reported by the Member States. Additionally, MSS can issue notifications should a sanctioned vessel declare a port call in SSN and track vessels of special interest on request.

EMSA's Maritime Support Services (MSS) centre offers round-the-clock support.

EMSA services are supporting the implementation of the Black Sea grain deal as well as the monitoring of sanctions.

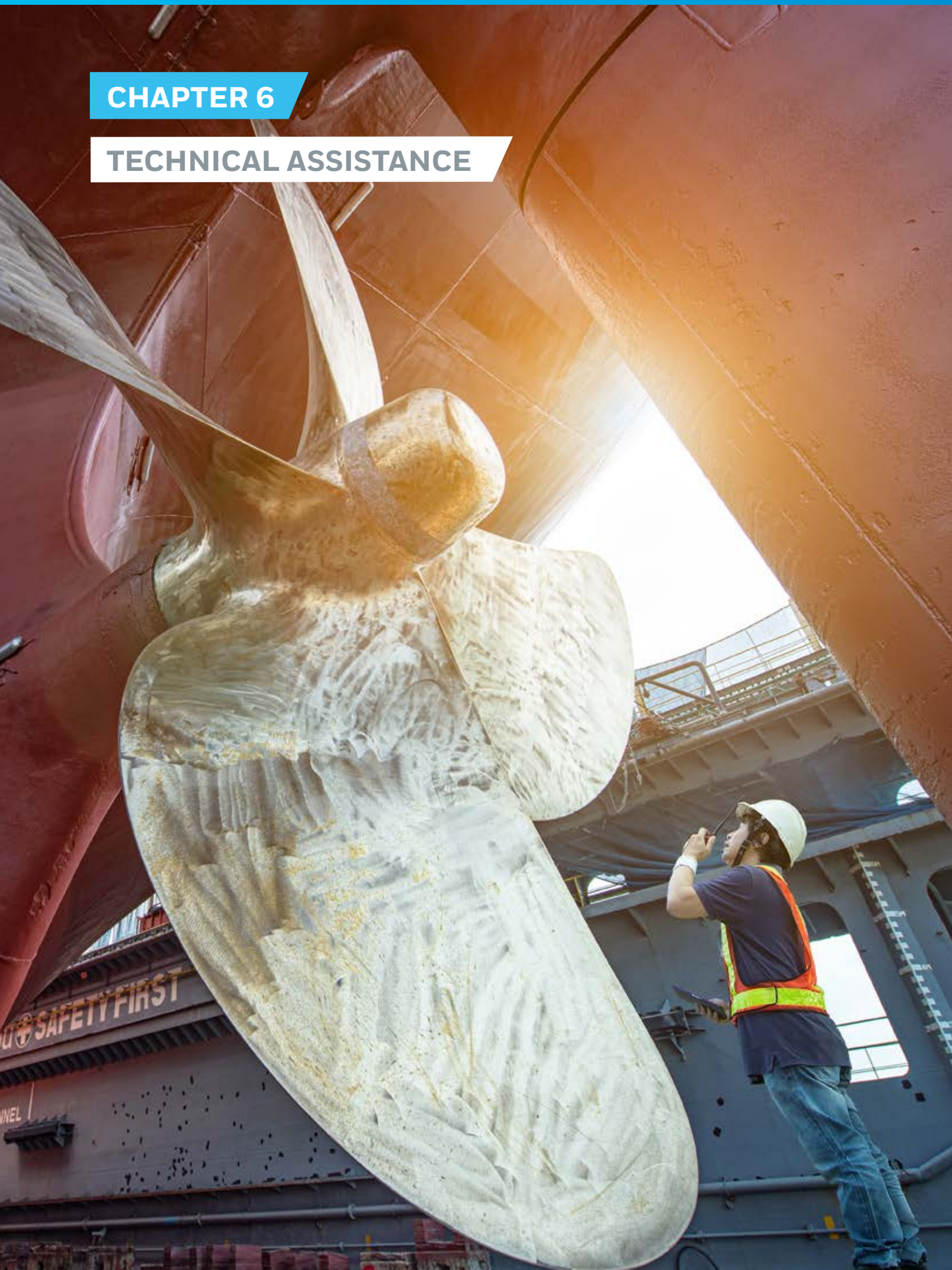
Since August 2022 and following the Ukrainian-Russian Grain Agreement, MSS is tasked to report daily on the vessels engaged in this trade, either inbound or outbound from the designated Ukrainian ports or whenever an event affecting any of these vessels is detected. These services adapt to new requirements as they are received and have progressively incorporated additional functionalities as the different packages of sanctions (such as the ones related to coal and oil) come into force. Data are supplemented through Marinfo, in particular for information related to ownership, commodities and change of flag.

The MSS will also continue to work with Member States to deliver regular reports on SafeSeaNet and LRIT implementation, and data quality at Member State sites, in this way contributing to the improved quality of the underlying data.

In 2023, the Dynamic Overview of National Authorities (DONA) will be fully operational with its three specific functionalities. It will provide information to the general public on the competent authorities responsible for the implementation of EU and International maritime legislation, it will contribute to the reduction of the administrative burden for Member States through the reporting gate and will support the work of the Member States with the provisions of reliable and up-to-date statistics. The reporting gate will be further enhanced to cater for more legal acts.

CHAPTER 6

TECHNICAL ASSISTANCE



Classification Societies

Classification societies develop and apply technical standards to the design, construction and survey of ships. Of more than 50 classifications societies worldwide, 12 are recognised at EU level and are inspected regularly by EMSA. Based on the reports submitted by the Agency, the European Commission assesses each of these recognised 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 (RO) and in doing so to increase the overall level of safety in the EU. In 2023 EMSA will conduct up to 20 RO inspections based on a programme decided jointly with the European Commission. The Agency will also support the European Commission and Member States in the discussions held at international level on remote surveys and inspections.

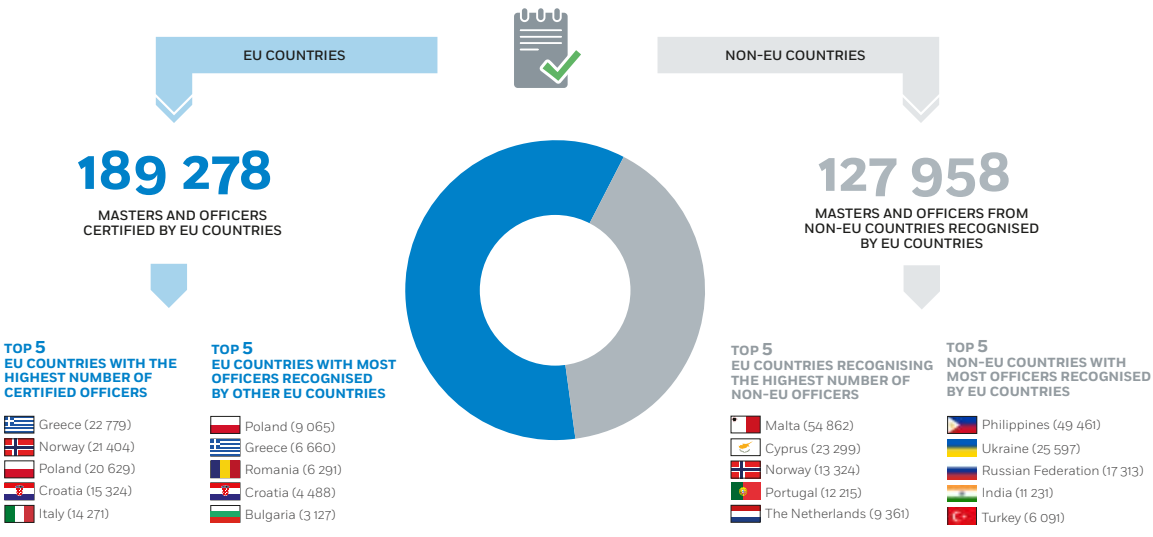
Seafarer Training and Certification

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 15 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 2023 EMSA will conduct up to five inspections to non-EU countries and up to four 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.

SEAFARER STATISTICS IN THE EU

A SNAPSHOT OF THE NUMBER OF SEAFARERS HOLDING CERTIFICATES OF COMPETENCY & ENDORSEMENTS ATTESTING RECOGNITION BY EU COUNTRIES VALID IN 2020, AS REPORTED IN EMSA'S STCW INFORMATION SYSTEM



Source: EMSA

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.

Combined with the horizontal analyses carried out on the findings established during the visits, the Member States and the European Commission gain a clear picture of where additional effort would be beneficial or changes to EU law desirable. For the visit cycles concluded in 2022 (Sulphur Directive and Port State Control Directive), the related end-of-cycle workshops will provide a clear opportunity in this regard.

Visits in 2023 will cover a broad range of implementation areas: the cycle of visits related to the marine equipment directive will continue (six visits); the cycle of visits related to the safe loading and unloading of bulk carriers launched in 2018 will continue (four visits); the cycle of visits related to passenger ship safety will continue, including the system for inspections for the safe operation of ro-ro passenger ferries and high-speed passenger craft (five visits); visits will be made to EFTA countries to monitor the implementation of new environmental legislation as transposed into the EEA Agreement (two visits).

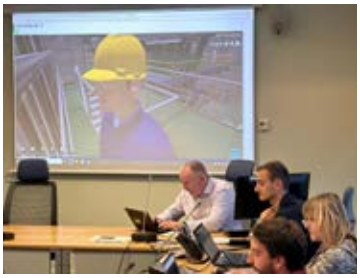
Capacity Building & the EMSA Academy

The EMSA Academy has been set up to provide learning services outside of formal education to all beneficiary organisations and their members. These include the EU Member States and EEA countries, European neighbouring countries, EU candidate and potential candidate countries, and members of the Paris MoU and Med MoU.

The EMSA Academy is also working together with Frontex and EFCA within the context of interagency cooperation and contributing to learning services which are open to these agencies' user communities. In 2023, joint training courses will be held with EFCA on fisheries and with both EFCA and Frontex on Search and Rescue (SAR).

In line with the structured and modular approach implemented by the EMSA Academy, work will focus on delivering the common core curricula for Sulphur Inspectors and Flag State Inspectors, as well as on developing the common core curricula for Port State Control Inspectors and Accident Investigators. This will be complemented by the delivering of a wide portfolio of training courses and part-time online courses, on maritime legislation and EMSA's operational applications, identified through a bottom-up approach that involves the competent authorities of the Member States. Work will begin also on a course on cybersecurity.

The EMSA Academy has adopted a blended training approach, therefore in addition to traditional training activities, support will be offered through e-learning courses, available in EMSA's Maritime Knowledge Centre (MAKCs), while through the virtual reality platform (VRESI) learners can perform ship inspections in a safe, realistic and controlled environment. This, together with an increasing portfolio of distance learning modules, will enable the Agency to reach a wider audience while maintaining the quality and depth of the training offered.



The EMSA Academy's blended training approach allows for learning services to be delivered through a flexible and scalable portfolio of tools and technologies.

Building up national capacities among Black and Caspian Sea countries is the aim of the BCSEA II project which offers various training opportunities and access to digital tools.

Finally, RuleCheck, the repository of relevant maritime legislation, will be further enhanced to support EU Member States in their capacity as flag and port states and eight out of nine regional port state control regimes in the world, thereby enhancing access to the up-to-date regulations, fostering further global harmonisation of the implementation of the international conventions and ensuring a level playing field.

The Agency will continue to provide data and statistics to the European Commission to support the revision of legislation, as well as to the general public through the EU Maritime Profile and to specialist audiences through the production of targeted reports.

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 the projects for the Mediterranean Sea (SAFEMED V) and the Black and Caspian Sea (BCSEA II), EMSA offers training courses and workshops, as well as access to tools (e.g. RuleCheck, MaKCs, THETIS-MED and VRESI) and services (e.g. IMS, CleanSeaNet). The project has been entrusted to the Agency following an approach that links the different functions covered by a maritime administration (as defined by IMO in the III Code) with the strategic priorities of the European Commission and those defined in the EMSA 5-year strategy. This approach foresees that each thematic area entails three types of action, namely tools and services, technical activities and training activities. In this way, the projects serve to foster support in flag state, coastal state and port state matters; offer access to the services of the EMSA Academy; and, pave the way for increased digitisation of the beneficiaries thanks to the tools and services made available.

Preparation for IMO audits is provided, as well as support for corrective follow-up. In 2023, targeted support will be offered to Ukraine for initiatives aimed at re-building capacity lost as a result of the Russian invasion.

CHAPTER 7

STRATEGIC SUPPORT

European Cooperation on Coast Guard Functions

European cooperation on coast guard functions refers to the joint work of three EU agencies (EMSA, EFCA and Frontex) and national authorities from across the EU. These functions comprise tasks related to safety and security at sea, such as search and rescue, border control, fisheries control, customs activities and environmental protection. The objective is to bring added value to the national coast guard authorities as well as to promote cooperation among them at EU level.

EMSA's tasks, as set out in the annual strategic plan for 2023, include: information sharing through the enhancement of the Maritime Data Catalogue to raise awareness of the different datasets available via the three agencies; surveillance and communication services which include the provision of Earth Observation data to support coast guard activities; capacity building through, for example, the Practical Handbook on European Cooperation on Coast Guard Functions; risk analysis to assess and address Member State needs; and, capacity sharing by way of Multipurpose Maritime Operations undertaken at the request of the Member States.

In 2023, EMSA as chair of the Tripartite Working Arrangement will hold the Annual European Coast Guard Event. This forum provides the ideal setting to consult national authorities performing activities under the remit of the coast guard functions and helps to strengthen cooperation with other EU and international partners on the three agencies' respective activities.

The agencies will also continue to contribute to the EU's Maritime Security Strategy (EUMSS) which aims to protect the strategic maritime interests of the EU worldwide. These are extensive in scope including areas such as overall security and peace, rule of law and freedom of navigation, external border control, maritime infrastructure (ports, underwater pipelines and cables, windfarms etc.), natural resources and environmental health, and climate change preparedness.

In terms of coast guard cooperation at EU level with EFCA and Frontex, EMSA will continue to offer RPAS services and promote the sharing of resources. Cooperation with EFCA is foreseen in particular by equipping one of EFCA's chartered vessels with RPAS and SATCOM services namely for pre-boarding activities but also by supporting EFCA's Joint Deployment Plans with synergies in the priority regions where EMSA intends to establish a more permanent regional RPAS service.

EMSA will also assess whether it can indirectly support some of the Multipurpose Maritime Operations organised by one of the two other coast guard agencies (EFCA and Frontex) by offering its RPAS services to the Member States and Agencies operational under the MMO when the necessary conditions are met.

EMSA takes over chair of the tripartite working arrangement, represented here by a ship's bell symbolising a change in watch.

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. EMSA will continue to follow up on the major overhaul of the tailored Integrated Maritime Services provided for fisheries monitoring and completed in 2021. In particular, the automatic exchange of information between EMSA and EFCA ship databases is expected to bring significant added value as it offers consolidated ship details to fisheries control authorities and completes the data related to fishing vessels for the benefit of all maritime authorities. EMSA will also explore the possible integration of information available at EFCA – such as that collected on scene during RPAS surveillance operations – with a view to enhancing the information available to fisheries control authorities.

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 2023 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 2023 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. EMSA may also support Frontex activities in the field of risk analysis relevant to the maritime domain. This would be done by combining datasets traditionally presented separately with the aim of mapping vessel activity and increasing search and query capabilities.

Maritime Analysis and Operations Centre (MAOC-N)

EMSA supports MAOC (N) in its efforts to suppress illicit drug trafficking by sea and air, under a Cooperation Agreement that has been automatically renewed since December 2020. By providing a wide array of maritime monitoring and surveillance tools and services, the Agency effectively helps to counter narcotics operations. MAOC-N is an initiative by six EU member countries (France, Ireland, Italy, Spain, the Netherlands, Portugal) and the UK and is co-funded by the Internal Security Fund of the European Union. From when it became operational in 2007 until May 2022, MAOC-N has supported the seizure of over 259 tons of cocaine and over 649 tons of cannabis from 2007 to May 2022.

Executive and Corporate 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.

EMSA has 40 photovoltaic panels, covering an area of about 160m^2 as part of the Agency's greening project.

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 is registered under the EU Eco-Management and Audit Scheme (EMAS) and has in place a dedicated environmental management system. This helps to ensure that the Agency not only endorses sound environmental management but also follows through on making continuous improvements.

In addition, the Agency's Integrated Quality and Environmental Management System (IQEMS) ensures that stakeholder needs and expectations are fulfilled and EMSA services are provided to a high level of quality and in an environmentally friendly manner. The certification by the external Certification Body (TUV Portugal) is the documented evidence of the effective implementation of the system.

As the Agency continues 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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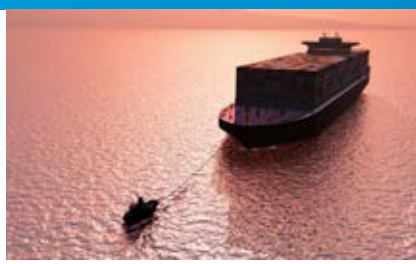

ABOUT THE EUROPEAN MARITIME SAFETY AGENCY

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.

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