

PREVENTING POLLUTION FROM SHIPS

Ship scrapping must be done responsibly

Various types of air emissions from ships are likely to feature high on the international and European agenda in the years to come. Operational discharges of hazardous substances by ships remains a common feature along the European coastline, and this practice is rightly becoming increasingly unacceptable to the public at large. Yet the reception and treatment of ship-generated waste and cargo residues is not always handled in an effective and environmentally sound manner in all EU ports. EMSA's inspection visits to waste facilities should help to improve the implementation of EU legislation and related operational practices, but there is still a long way to go before all incentives for ships to pollute the seas are removed. The more recent forms of environmental concerns, such as ballast water management and ship recycling, will also require specific attention, in particular during the phase when new rules are to be implemented and enforced at international and EU level.

EMSA is also leading the development of the SafeSeaNet and CleanSeaNet systems. SafeSeaNet locates and tracks ships and their hazardous cargoes, and will incorporate the use of Automatic Identification Systems (AIS) and Long Range Identification and Tracking (LRIT) capabilities.

CleanSeaNet uses satellite remote sensing technology to provide oil pollution alerts and images to those monitoring EU and surrounding waters. When they are effectively integrated, it will be possible to use the SafeSeaNet system to identify the most likely vessels responsible for pollution which has been spotted by CleanSeaNet and verified by national surveillance.

EMSA's wide-ranging technical expertise, together with its mandate and experience to co-operate closely with the Member States and with the Commission, makes it well-placed to meet these environmental challenges. In addition to continuing and intensifying the tasks outlined here, EMSA will, in close cooperation with the Commission, continuously assess the need for further action in the environmental field, with a view to contributing to cleaner seas around the European Union and beyond.

Further Information

The EMSA website contains further information on this and all the other activities of the Agency, and it can be accessed at: <http://www.emsa.europa.eu>



Ships are required to offload their waste when they are in port

THE GLOBAL CONTEXT

Shipping is fundamental to our well being, with around 90% of European Union external trade going by sea and more than 3.7 billion tonnes of freight a year being loaded and unloaded in EU ports. If not properly managed, the effect on the environment could be devastating, as ships often carry large volumes of hazardous cargo and produce a significant amount of pollutants throughout their life cycles.

Oil spill accidents of over 10,000 tonnes have contributed to a total of over 600,000 tonnes of oil being spilled into EU waters in the last two decades, and the global total is much larger. Even so, it is estimated that some 80 per cent of the total pollution from ships originates from operational discharges (such as discharges of waste oils or tank cleaning operations), and that much of this is deliberate and in violation of international rules. The release of oil and other harmful substances

(including noxious liquid substances, sewage, garbage and air pollution) into the marine environment is regulated in great detail in the International Convention for the Prevention of Pollution from Ships (MARPOL). This convention was adopted by the International Maritime Organization (IMO) in 1973. It has been amended a number of times and is being continuously complemented and strengthened to meet the ever-increasing demands of the world community. Yet the standards set out in MARPOL are far too often not complied with, and it is well-known that many less responsible ship operators regularly discharge their ship-generated waste and cargo residues at sea. However, the precise extent of this practice is still uncertain.

There are a number of reasons for failure to comply with the international pollution standards, including: lack of adequate facilities in ports to receive ships' waste (which may motivate or even compel the

ship to discharge at sea); cost-savings (as the costs for delivery to shore may be prohibitive and may cause significant delays to ships); or mere convenience on behalf of the ship's crew and/or operator.

With respect to air pollution, the modest international regulation of shipping so far contrasts with the efforts made in relation to land-based sources. As a result of this, and of the steadily increasing transport and cargo volumes transported by sea, shipping has become the main source of man-made emissions of sulphur oxides (SOx). It is estimated that SOx emissions from ships in the EU will amount to 75 per cent of the total land-based emissions by 2010 and that they will be approximately equal by 2015. MARPOL Annex VI includes standards on maximum sulphur content in marine fuel, but those standards are so high that they almost lose their practical significance, apart from in so-called SOx Emission Control Areas (SECAs).

The same applies to the regulation of nitrogen oxides (NOx), where the emissions from shipping are expected to equal the total of land-based emissions by 2020. In 2008, MARPOL was significantly revised to change these trends and the new rules on SOx and NOx emissions will be considerably strengthened over time. However, these changes are long-term and will only bring tangible benefits to air quality after a number of years. Regulation on carbon dioxide (CO₂) and other greenhouse gases from shipping is entirely lacking, despite their contribution being some two to five per cent of the global emission total.

Shipping also causes more invisible types of pollution. Recent concerns include the harmful environmental effects of substances in anti-fouling paint used on ships' hulls, and of species which are transported from one sea area to another in ballast water tanks. Both concerns have led the IMO to adopt specific conventions on the topics

in 2001 and 2004 respectively. In addition, pollution is caused when ships are constructed and maintained, and when they are dismantled at the end of their life cycles. The latter is of particular concern at the present time, given that much of the world's ship breaking is done in countries where neither workers nor the environment have adequate protection against harmful practices and substances involved in ship recycling. A convention on the safe and environmentally sound recycling of ships is currently being drafted by the IMO and it is set for adoption in May 2009.

A EUROPEAN RESPONSE

The EU Regulatory Framework

General

The reduction of pollution from shipping has formed an integral part of EU maritime safety policy from its beginnings in 1993. Indeed, around half of the over forty EU regulatory instruments (directives and regulations) which deal with maritime safety have an explicit objective of protecting the environment, and almost all maritime safety measures contribute at least indirectly to that objective. The most important measures which are aimed specifically at reducing deliberate ship-sourced pollution are described here.

Ship-generated waste and cargo residues

The discrepancy between the existing rules on operational pollution and prevalent practices was already acknowledged by the European Commission in its communication "A Common Policy for Safe Seas" of 1993, which called for further initiatives to improve the implementation of the international rules and standards. The European Union has since addressed this matter in two different directives.

In November 2000, the European Parliament and the Council adopted Directive 2000/59/EC on port reception facilities for ship-generated waste

Type of waste	Type of ship	Waste generated
Sludge *	Ships using heavy fuel oil	1.5 - 2% of consumption
Ships using marine diesel	0.5 % of consumption	
Oily bilge water	Average ship of 30,000 dwtc	20 m ³ /month
Crew waste	All	3 kg/person/day
* The average 35,000 gt panamax bulk carrier: - consumes around 35 tons of fuel per day - produces around 0.7 tons of sludge per day		

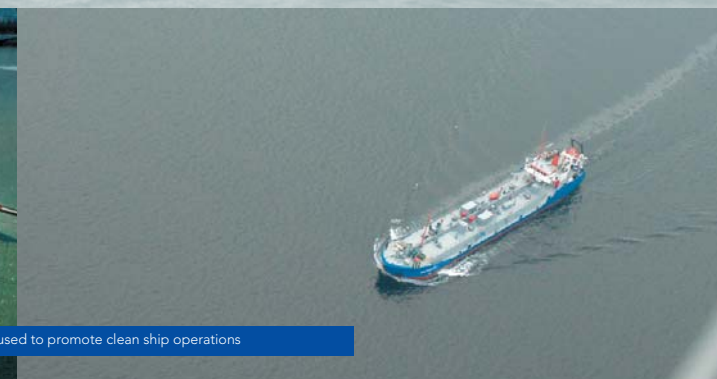
Sources: European Sea Ports Organisation:

- Waste Management Plan for Ship Generated Waste (2000)

- Workshop on Port Reception Facilities for Ship Generated Waste and Cargo Residues (2001)



Both incentives and penalties are used to promote clean ship operations





Even the smallest EU ports and harbours are now addressed by Directive 2000/59/EC



Air pollution from ships is becoming a higher priority at international and EU level

and cargo residues. This directive complements MARPOL, which mainly focuses on ships' obligations while at sea, by requiring ports to provide adequate facilities to receive waste, and by setting out rules as to when ships are to use those facilities. More specifically, the Directive imposes obligations on all EU ports (including recreational ports and marinas) to provide adequate facilities to receive ship waste and cargo residues on the basis of waste management plans developed for each port, and sets out the main principles for the fee systems to be applied for waste delivery. Ships are required to deliver their waste to the facilities unless they have sufficient storage capacity to proceed to the next port of call. The Directive also includes provisions on prior notification of waste delivery, and sets out the main principles relating to the documentation and administration needed to ensure effective communication between the authorities involved.

Directive 2005/35/EC on ship-source pollution and on the introduction of penalties for infringements addresses the punitive side of non-compliance with MARPOL. It reproduces the MARPOL standards and provides that any intentional or seriously negligent infringement of those standards, whether in the coastal waters of the Member States or on the high seas, shall be effectively dealt with by EU

Member States. By requiring EU Member States to implement effective, proportionate and dissuasive penalties for infringements of the MARPOL rules, the Directive provides an additional disincentive for ship operators and others to pollute the seas. Directive 2005/35/EC also calls for the development of an information system to ensure its effective implementation, and for common practices and guidelines for the monitoring and early identification of ships engaged in unlawful discharges.

Air pollution

So far, only the emission of SO_x is regulated by EU law. Directive 2005/33/EC implements the MARPOL requirements of a maximum of 1.5 per cent sulphur content in fuel for any ship travelling in the coastal waters of an EU Member State in SECAs (presently only the Baltic Sea and the North Sea) and for passenger ships operating regular services to and from any EU port. Even stricter criteria will apply for ships at berth in EU ports as from 2010. The Directive also imposes verification obligations on Member States to ensure that the marine fuels sold in the EU correspond to the stated specification.

Other

Regulation 782/2003/EC phases out and prohibits the use of paint with organotin or tributyl tin (TBT) components by implementing the 2001 IMO Convention on the Control of Anti-Fouling Systems on Ships within EU law. This is supplemented by Directive 76/769/EEC (as amended), which prohibits the marketing and use of organostanic compounds within the EU. Regulation 1013/2006/EC on shipments of waste prohibits the export of hazardous waste to developing countries, and ships destined for recycling may under certain conditions fall within the scope of that Regulation. As to ballast water, the principal link to existing EU legislation is that treatment technologies which use active substances are subject to the evaluation process of Directive 98/8/EC concerning the placing of biocidal products on the market.

cargo residues are handled in practice. While on site, they visit competent authorities (such as port state control authorities), ports and ships and/or hold interviews with local actors (such as waste contractors) in order to obtain a clear picture of the situation. The outcome of each visit is reported to the Commission as an input to decision making, and the goal is to complete the first cycle of visits to all Member States before mid-2010.

In addition to this ongoing task, more specific evaluations have been undertaken with respect to particular aspects of the Directive. These include:

- an assessment of the fee systems applied in Member State ports. This evaluated the strengths and weaknesses of different cost recovery systems and assessed the prospects for a more harmonised EU-wide fee system in order to provide incentives for the delivery of ship-generated waste in ports. The study, which involved visits to 50 different EU ports, formed the basis of a technical report that was sent to the Commission as input for potential follow up in the EU decision-making process (Article 8 of the Directive);
- an assessment of waste reception and handling plans in various types of ports. 129 waste reception and handling plans from 20 Member States were assessed, and the resultant report was sent to the Commission and Member States concerned for information and potential follow up (Article 5 of the Directive), and;
- a study on 'green ships,' which was undertaken through EMSA with a view to assessing the possibility of determining common criteria for ships with minimised waste production. Such ships would benefit from reduced delivery fees in accordance with Articles 8(2)(c) and 12(4) of the Directive.

THE ROLE OF EMSA

EMSA was established under Regulation 1406/2002/EC to contribute to the enhancement of maritime safety and the prevention of pollution by ships within the Community. Its main role is to assess the practical implementation and impact of existing EU rules and to provide the European Commission and EU Member States with the necessary assistance and expertise to properly apply the Community legislation in this field. This includes several different tasks related to the prevention of pollution from ships.

At the heart of these activities lies the monitoring of compliance with Directive 2000/59/EC. Based on a request by the Commission, EMSA assesses how the Directive is implemented in practice in the EU Member States. Agency staff regularly visit Member States and individual ports to obtain the best possible knowledge of how ship waste and



Ship waste discharge facilities

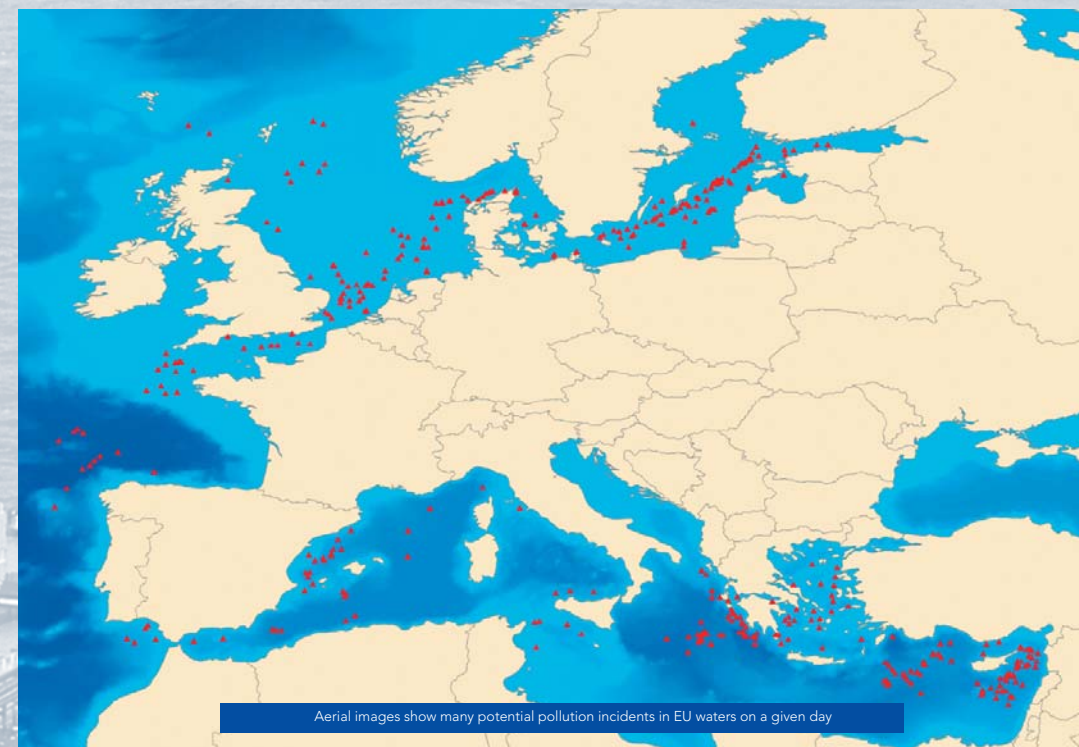


EMSA regularly organises workshops focusing on different aspects of the Directive for Member States and other interested parties. These bring together experience of the implementation of the Directive and promote the dissemination of best practices. In addition, the Agency participates, under the auspices of the Commission, in the work of the IMO Marine Environment Protection Committee, and also in relevant regional marine environmental protection frameworks which deal with ship-generated waste and related matters.

The European Union and its Member States are continuously monitoring European coastal waters with the objective of spotting pollution incidents and identifying the polluters. The monitoring is done by using surface vessels, surveillance aircraft and remote sensing satellites. These capabilities are improving all the time, although much still needs to be done before they are able to provide a fully comprehensive, consistent and reliable picture of pollution in EU waters. Via Directive 2005/35/EC, EMSA is involved in the development of technical solutions and in the provision of technical assistance in relation to the implementation of the Directive. This includes actions such as tracing discharges by satellite monitoring, and the EMSA CleanSeaNet system now supplies satellite images and information on pollution to Member States. CleanSeaNet has become an important part of the pollution monitoring network and is continually improving its capabilities.

The Commission has also asked EMSA to provide technical assistance in monitoring compliance with the requirements relating to sulphur content in fuel that were introduced via Directive 2005/33/EC. This includes both the monitoring of the sulphur content in fuels sold in Member States and the monitoring of compliance with the standards set out in the Directive. The latter applies to all ships, regardless of where they are registered. So far, the main aspects of this work have included: the conclusion of a study to obtain information on the quality of bunker fuel in relevant EU ports and on board ships (with direct input from industry); and organising various meetings and workshops with the relevant Member States authorities and other stakeholders to improve knowledge of the implementation of the Directive in practice.

A separate study assessing the alternatives for reducing NO_x emissions from pre-2000 ship engines was finalised in early 2008. At international level, EMSA closely follows and participates in the developments at the IMO, notably in relation to the revision and implementation of MARPOL Annex VI. Monitoring developments at the IMO also forms an important element of the Agency's activities related to greenhouse gases, which is likely to be a major challenge for shipping in the years to come. EMSA has also been requested to assist the Commission in obtaining detailed information on ship design and movements in order to obtain a better picture of the current CO₂ emission situation. This will be used as a basis for potential future international or European legislation in this field.



Aerial images show many potential pollution incidents in EU waters on a given day

In relation to anti-fouling systems, EMSA has provided technical expertise and input to the Commission for the implementation and revision of Regulation 782/2003/EC. A particular focus has been on the practical enforcement issues facing the authorities and the shipping industry once the EU Regulation, along with the IMO Convention on which it is based, enter into force in 2008. An EMSA-led correspondence group has identified several issues which may require further clarification in this respect.

The IMO Convention for the Control and Management of Ships' Ballast Water and Sediments is not yet in force, and there are concerns as to whether appropriate technical solutions will be available to implement it fully, should it come into force in the near future. On this issue, EMSA has been requested by the Commission to monitor the on-going international and regional developments and to actively collaborate with the Commission to promote a coherent approach for the implementation of the IMO Convention in the various regional seas around Europe.

There are also growing international concerns over the dismantling of vessels at the end of their working lives. EMSA has been closely involved in this matter, and is providing technical assistance to the Commission in relation to the on-going development of the IMO Convention and the development of an EU-wide strategy for ship dismantling. Apart from assisting the Commission at IMO and related working group and EU

coordination meetings, EMSA has also hosted a series of workshops and other types of cooperation with Member States and other interested parties in this area. A study assessing the various possibilities for the certification of ship recycling facilities in order to demonstrate that they meet the applicable standards will be finalised in 2008.

Looking to the Future

None of the environmental concerns referred to in this leaflet are likely to reduce in importance. On the contrary, concerns relating to the prevention and reduction of pollution from ships have grown constantly over time within the EU institutions, the international maritime community and among the general public, and they look set to continue doing so in the future. Even during the relatively brief existence of EMSA, it is clear that tasks in this field have widened significantly, and there is no sign of a reversal of the trend.

Shipping cannot afford to be (or even be perceived to be) an industry which fails to take its environmental responsibilities seriously. As land-based industries implement stringent environmental requirements and policies, shipping's proportional share of the total output of pollutants increases and pressure for further action grows. Keeping up with these tasks includes several different types of action, both in relation to implementing rules that already exist and complementing them with new standards.



ENVISAT satellites monitor pollution in EU waters within the CleanSeaNet system.