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Removal of formatting issues and correction of number of stakeholders consulted.
The text shall read as follows:

COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT REPORT

Accompanying the document

PROPOSAL FOR A DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

**amending Directive 2005/35/EC on ship-source pollution and on the introduction of
penalties, including criminal penalties, for pollution offences**

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Glossary

<i>Term or acronym</i>	<i>Meaning or definition</i>
CSN	CleanSeaNet service - EMSA European satellite-based oil spill monitoring and vessel detection service
Detection	Any activity undertaken by national authorities or EMSA to notify on a possible illegal discharge into sea e.g. by satellite surveillance (CleanSeaNet), monitoring of the sea area by aerial and coastal surveillance (aircrafts and coastguard patrol boats).
Discharge	Discharge, jettisoning or disposal of polluting substances into sea.
ECD	Environmental Crime Directive
ECJ	European Court of Justice
EEZ	Exclusive Economic Zone
EMSA	European Maritime Safety Agency
Enforcement	Any activity undertaken by national authorities for the purpose of detection, verification or prosecution.
European seas	All maritime zones in the EU in accordance with the 1982 United Nations Convention on the Law of the Sea (UNCLOS Convention)
EU	European Union
IMO	International Maritime Organisation
MARPOL	The International Convention for the Prevention of Pollution from Ships of 1973 and the Protocol of 1978 as subsequently amended
PRF	Port Reception Facilities
Prosecution	Any activity undertaken by national authorities, under administrative or criminal law, deciding that the offender should be penalised by imposing a fine or other penalty or otherwise related court proceedings with regards to ship-source pollution offences, based on the evidence collected under the investigation of the incident and any additional evidence that will be brought in the relevant proceedings by the parties.
Scrubbers	Exhaust Gas Cleaning Systems, both open-loop and closed-loop. The discharge water from scrubbers, treated by the 2021 IMO Guidelines for Exhaust Gas Cleaning Systems as 'EGCS residues', are prohibited to be discharged overboard into sea.
SPP	Ship-Source Pollution
SSN	SafeSeaNet, the EU maritime information exchange system - vessel traffic monitoring and information as defined in Directive 2002/59/EC. It comprises a network of national SafeSeaNet systems in Member States and a central SafeSeaNet system acting as a nodal point managed by EMSA.

THETIS	EU Port State Control vessel inspection database
THETIS EU	EU Inspection Database to support inspections carried out under EU maritime safety and environmental legislation (other than Port State Control) e.g. Port Reception Facilities Directive 2019/883/EU
UNCLOS	United Nations Convention on the Law of the Sea
Verification	Any activity undertaken to check if a discharge took place at sea e.g. coastguard dispatch to the site. The definition of verification for the purpose of this report excludes inspections at ports.

1. INTRODUCTION: POLITICAL AND LEGAL CONTEXT

This Impact Assessment accompanies a legislative proposal for a revision of *Directive 2005/35/EC on ship-source pollution and on the introduction of penalties, including criminal penalties, for pollution offences* as amended by Directive 2009/123/EC (hereinafter “the SSP Directive” or “the Directive”). The Directive is one of EU’s initiatives aiming at **less pollution to the sea from maritime transport**.

The Directive is one of the building blocks of the EU maritime safety acquis which helps to prevent pollution to the sea from maritime transport. Maritime transport is a key sector for the EU economy as it embodies the main transport mode for European imports and exports to the rest of the world. Maritime transport is estimated to carry around 80% of worldwide goods transported and around 30% of intra-EU transport activity¹. In 2019, 1.9 billion tonnes were transported by sea to/from the main EU ports. In addition, 418 million passengers aboard ferries and cruise vessels embarked and disembarked in EU ports in 2019.

Although the maritime sector brings substantial economic and social benefits to the EU, it also has an impact on the environment. Ships may cause pollution of the sea through accidents and (intentional) operational discharge. Oil spills are a concerning source of marine pollution, as they are difficult to clean up and can last for long periods of time in the marine environment. The cargo and fuel carried by vessels can be a threat to the marine environment in case of an accident. Other polluting substances released by ships, accidentally or intentionally, such as garbage and sewage also have a negative effect on the sea. They can severely pollute marine and coastal habitats, causing damage to the natural environment and have a negative impact on the economy². Although maritime accidents are a prominent source of ship-source pollution, the majority of pollution comes from deliberate discharges, such as tank-cleaning operations and waste discharges. Not all of these sources of pollution are in the scope of the SSP Directive.

Currently, the SSP Directive tackles the illegal discharges of oil and noxious substances. Not all waste that is generated on board of the ships has to be delivered to the ports. Some can be discharged into the sea. Tank-cleaning operations are also in principle allowed. The Directive defines an illegal discharge as a discharge from a ship that does not meet the relevant international standards. The Directive tackles the problem of illegal discharges by incorporating the international standards and penalising a ship that does not comply with those standards. The level of ambition of the Directive is framed by the international standards and the developments in the international arena. The Directive does not set EU standards for protecting the marine environment from polluting substances. The SSP Directive was designed to address the missing link between the cause of certain pollution of the sea and the accountability of the persons responsible for it, while taking into account the specific characteristics of the judicial systems of the Member States.

This initiative aims to ensure that the response of Member States to certain pollution incidents is dissuasive by making this response more effective (e.g. through strong surveillance processes, EU information exchange mechanisms, Member State cooperation in verification and prosecution), and to address more types of polluting substances/ waste categories in line with developments at international level. In other words, the aim of the initiative is to support Member States in their timely response i.e. detection of illegal discharges and the identification of polluters. It should foster verification (e.g. evidence collection) and principally increase effective prosecution and penalising.

¹ European Commission (2021), The EU Blue Economy Report 2021.

² European Maritime Safety Agency and European Environment Agency, 2021, [European Maritime Transport Environmental Report](#) (EMTER)

At the time of adoption of Directive (EU) 2019/883 on Port Reception Facilities³ (the delivery of waste from ships in ports), the co-legislators called for a revision of the SSP Directive, as the tool to prevent pollution to the sea, and which dovetails with the efforts to ensure adequate reception facilities for waste from ships in ports. The **Sustainable and Smart Mobility Strategy**⁴ announced that “efforts under the zero pollution ambition should be made to drastically reduce the broader environmental footprint from the sector [...]”. This revision should therefore contribute to delivering the zero pollution ambitions of the **European Green Deal**⁵. The Communication on the EU Action Plan ‘Towards Zero Pollution for Air, Water and Soil’⁶ underlined the need for preventing pollution and tackling threats to the health of people, animals and ecosystems⁷.

The Directive contributes towards the objective “to combat [...] ocean pollution, including through [...] promoting of environmentally friendly shipping by using best available technologies [...]” which has been underlined in the outcomes of the **Conference on the Future of Europe**⁸ and towards the general objective to ensure a uniform level of maritime safety and environmental protection underlined by several Council conclusions and in particular those from 2017⁹, 2020¹⁰ and 2022¹¹.

The Directive also contributes towards Sustainable Development Goal (SDG) 14 “Conserve and sustainably use the oceans, seas and marine resources for sustainable development” which covers safeguarding marine and coastal ecosystems by preventing and reducing marine pollution. One of the goals (SDG 14.1) is to prevent and significantly reduce marine pollution of all kinds. The Directive also contributes towards SDG 3 (“Ensure healthy lives and promote well-being for all at all ages”) and, with its provisions on prosecution, towards SDG 16 (“Peace justice and strong institutions”), as outlined in Annex 3.

International context

The Directive does not set standards for Member States/ship operators on the allowable quantity of discharge of pollutants. These standards are set at global level at the UN **International Maritime Organisation** (IMO)¹². The Directive’s focus is on applicable penalties for discharges that are not in line with these international standards.

³ Directive (EU) 2019/883 of the European Parliament and of the Council of 17 April 2019 on port reception facilities for the delivery of waste from ships, amending Directive 2010/65/EU and repealing Directive 2000/59/EC (OJ L 151, 7.6.2019, p. 116–142)

⁴ COM(2020) 789 final - Sustainable and Smart Mobility Strategy – putting European transport on track for the future; FLAGSHIP 2 –Creating zero-emission airports and ports, point 27. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0789>

⁵ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en#documents

⁶ <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52021DC0400>

⁷ The ‘One Health’ approach calls for action to mobilise sectors, disciplines and communities to foster well-being and tackle threats to the health of people, animals and ecosystems, as well as taking action on climate change, and contributing to sustainable development.

⁸ [Conference on the Future of Europe](#). Report on the final outcome. Proposal 2, measure 7

⁹ "Priorities for the EU's maritime transport policy until 2020: Competitiveness, Decarbonisation, Digitalisation to ensure global connectivity, an efficient internal market and a world-class maritime cluster"

¹⁰ "EU Waterborne Transport Sector – Future outlook: Towards a carbon-neutral, zero accidents, automated and competitive EU Waterborne Transport Sector"

¹¹ [Joint Communication on the EU's International Ocean Governance agenda](#)

¹² International Maritime Organization ([imo.org](https://www.imo.org)) is a United Nations specialised agency; all EU Member States are IMO members. The European Union cannot be a member but the Commission holds observer status as an Intergovernmental Organisation.

Due to its history and cross-border nature, maritime transport has developed a specific regulatory structure. The IMO developed its International Convention for the Prevention of Pollution from Ships¹³ (**MARPOL**). MARPOL has six annexes covering various categories of pollutants as presented in Table 1. The MARPOL Convention provides rules to determine what type and quantity of pollutants a ship is allowed to dispose of at sea and what is an illegal discharge. While MARPOL outlines the rules to follow, enforcement responsibilities and the development of tools for dealing with non-complying ships is left to the IMO parties. MARPOL (Article 4(4)) encourages States to adopt adequate penalties for ship-source pollution violations without however specifying the nature of such penalties. All EU Member States are parties to MARPOL.

Table 1. Sources of marine pollution covered by the MARPOL Convention

Sources of marine pollution covered by the MARPOL Convention
Oil (Annex I)
Noxious liquid substances (HNS) in bulk (Annex II)
Harmful substances carried by sea in packaged form (Annex III)
Sewage from ships (Annex IV)
Garbage from ships (Annex V)
Air pollution from ships (Annex VI)

Source: [IMO](#)

More specifically, MARPOL annexes include standards, such as:

- Annex I – it is illegal if a ship discharges **oil** with concentration above 15 ppm (parts per million)¹⁴;
- Annex II – it is illegal if a ship discharges **noxious liquid substances** at a rate exceeding the maximum rate for which the underwater discharge outlets were designed¹⁵;
- Annex III – it is illegal if a ship jettisons **harmful substances in packaged form** where it is not necessary for securing the safety of the ship or saving life at sea¹⁶;
- Annex IV – it is illegal if a ship discharges **sewage** which is not pre-treated¹⁷;
- Annex V – it is illegal if a ship discharges **garbage** food waste, which cannot pass through a screen with openings less than 25 mm¹⁸;
- Annex VI – a ship cannot release **scrubber discharge water** into sea which do not comply with the criteria set in guidelines e.g. pH, PAH, turbidity, nitrates and water additives criteria¹⁹.

EU context

The policies on preventing pollution from ships were developed between 2000 and 2009, in the wake of two major maritime accidents of the ships **Erika** and **Prestige** causing substantial oil

¹³ [https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-\(MARPOL\).aspx](https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx)

¹⁴ This applies to tankers above 400 GT while en route outside a special area, for oil, which originates from cargo pump room bilges and has not been processed through oil filtering equipment.

¹⁵ This applies to ships while en route at a speed less than 7 knots discharging residues of noxious liquid substances in Category X, Y or Z (as per the International Bulk Chemical Code) at a distance less than 12 nautical miles from the nearest land and in a depth of water less than 25 meters.

¹⁶ This applies to the jettisoning of packaged goods as per the International Maritime Dangerous Goods Code.

¹⁷ This applies to ships while en route at a speed less than 4 knots and at a distance less than 12 nautical miles from the nearest land, instantaneously discharging sewage held in holding tanks, which is not comminuted or disinfected.

¹⁸ This applies to ships while en route within a special area at a distance less than 12 nautical miles from the nearest land and for food waste which was not comminuted or grounded.

¹⁹ In accordance with the 2021 IMO Guidelines for Exhaust Gas Cleaning Systems

spills²⁰. The lack of rules on the prevention of pollution from ships represented a void in EU legislation at the time. The Port Reception Facilities Directive and the Port State Control Directive²¹ covered pollution from ships, but there were no rules making the actual act of pollution illegal under EU law.

The legislative proposal for the SSP Directive²² was adopted in only four months after the oil spill from the Prestige. At the time of the adoption, there was significant political will and public pressure to act quickly in the field of ship-source pollution prevention. The proposed initiative's scope was oil and noxious substances (i.e. the first two out of the six MARPOL Annexes) because these two pollutant types were of greatest concern at the time of adoption.

The SSP Directive addresses illegal discharges of oil (Annex I) and noxious substances (Annex II) from ships into the sea. 'Illegal' in this context refers to accidental or intentional discharges that do not meet MARPOL standards. The standards from MARPOL are mirrored in the Directive (Article 5). Illegal discharges by ships must result in the EU in **penalties for the pollution offence**, thereby preventing/discouraging illegal discharges and consequently ensuring safety and environmental protection in maritime transport.

The overall objective is a Union policy on safe seas also to discourage the pollution from ships into sea. EU legislation in the maritime field usually incorporates IMO standards in order to ensure their proper enforcement. EU action in the field of preventing pollution from ships both complements and enforces the international framework as defined within IMO. The transposition of IMO rules into the EU legal system makes these provisions actionable before the European Court of Justice (ECJ). National governments can be taken to court if they break EU law, and this helps to ensure that enforcement across the Union is uniform. The same principle applies to all legislation of the maritime acquis e.g. Port State Control Directive, Flag State Control Directive, Accident Investigation Directive.

The SSP Directive incorporates the international ship-source pollution standards set by the MARPOL Convention into EU law and requires Member States to take enforcement measures in specific situations and to introduce effective, proportionate and dissuasive penalties (Article 8 of the Directive). Figure 1 depicts these measures and the enforcement chain in the Directive.

²⁰ MV Erika accident in 1999, France (20,000 tonnes of oil), MV Prestige accident in November 2002, Spain (63,000 tonnes of oil).

²¹ Directive 2009/16/EC of the European Parliament and of the Council of 23 April 2009 on port State control (OJ L 131 28.5.2009, p. 57)

²² Proposal for a Directive of the European Parliament and of the Council on ship-source pollution and on the introduction of sanctions, including criminal sanctions, for pollution offences, COM/2003/0092 final - COD 2003/0037

Figure 1. Law enforcement chain in the SSP Directive



The SSP Directive not only incorporates international standards. It additionally offers to the Member States information on the detection of possible spills (CleanSeaNet). It also makes the international framework clearer by establishing an EU liability regime²³. Furthermore, the Directive established EU competence in criminal matters. At the time of the Directive's adoption, there was no criminal competence of the EU. The approach to criminal penalties has evolved over time in the EU through framework decisions, court cases and most recently through the revision of the Environmental Crime Directive²⁴ (see the section below on *synergies* for information on the Environmental Crime Directive).

While the situation in the EU has considerably improved since the times of the Erika and the Prestige accidents with no major oil spill in EU waters since 2002, the problem identified when Directive 2005/35/EC was adopted is still relevant. Illegal discharges from ships continue to happen in European seas. Drawing on the findings of the evaluation, the legislative proposal for the revision of the SSP Directive aims to further incorporate international substantive rules by extending the scope of the Directive to cover all MARPOL Annexes. In addition, the revision aims to complement the international framework by providing further clarification of the existing EU liability regime, in particular with regards to exceptions from liability, further strengthening of the existing information and experience exchange as well as introduce new measures on types and levels of penalties which will help Member States better enforce the requirements of the MARPOL Convention.

Synergies with other EU policy instruments

The relevant EU policy instruments addressing water-based pollution and waste management are described in this section. The evaluation concluded that the Directive needs to be adapted to the

²³ For the purpose of this report the 'EU liability regime' relates to persons (natural or legal) being held accountable for an illegal discharge - for example, the company or master of the ship is responsible for an illegal discharge if committed carelessly or with the intention to cause damage, subject to the exceptions from liability provided by MARPOL.

²⁴ Directive 2008/99/EC of the European Parliament and of the Council of 19 November 2008 on the protection of the environment through criminal law (OJ L 328, 6.12.2008, p. 28–37)

changes resulting from new legislation, in particular in the context of the Environmental Crime Directive and the Port Reception Facilities Directive.

The **Environmental Crime Directive**²⁵ (ECD) lays down a list of environmental offences that Member States must consider as criminal offences. Ship-source pollution criminal offences are currently not covered by the ECD. In 2021, the Commission adopted a proposal for a new ECD²⁶, which covers for the first time SSP infringements. This is to align with the post-Lisbon legal basis for harmonisation of criminal law (Article 83(2) TFEU²⁷). The proposal for a new ECD foresees transferring the description of the criminal offence from the SSP Directive to the ECD. The criminal offence for ship-source pollution, as defined in the proposal for a new ECD, mirrors the offence description of the current SSP Directive. Consequently, the criminal provisions in the SSP Directive will cease to apply and therefore will need to be removed from the SSP Directive. The SSP Directive will continue to include the sectorial provisions (e.g. on the definitions of illegal discharges considered as infringements) and provide for administrative penalties for ship-source pollution when the act will not qualify for criminal proceedings. The ECD and the SSP Directive would therefore work in a complementary fashion.

The **Port Reception Facilities Directive**²⁸ (PRF) imposes requirements for the delivery of waste from ships to ports. The PRF Directive aims at maximising the delivery of waste from ships through economic incentives (cost recovery systems) and enforcement. Ships have to report their advance waste notifications and waste delivery receipts, which form the basis for inspections recorded in an EU database called THETIS EU²⁹. The SSP Directive complements the PRF Directive. While the PRF Directive implements the proper collection and management of waste, the SSP Directive discourages the illegal discharge of such waste into sea. The PRF Directive's delivery obligation mirrors that of the discharge prohibitions in MARPOL and covers Annex I-II as well as IV-VI³⁰. Hence, there is a need to bring the scope of the two directives closer so that the SSP Directive covers all discharges into the sea covered by the MARPOL Annexes. The SSP Directive and PRF Directive are instruments that work together and are designed to address the prevention of discharges from ships into sea.

At the same time, the Commission is undergoing a review of existing EU maritime safety directives:

1) **Flag State Control Directive**³¹, 2) **Port State Control Directive**³² and 3) **Accident**

²⁵ Directive 2008/99/EC of the European Parliament and of the Council of 19 November 2008 on the protection of the environment through criminal law (OJ L 328, 6.12.2008, p. 28–37)

²⁶ European Commission proposal for a revised Environmental Crime Directive
https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12779-Environmental-crime-improving-EU-rules-on-environmental-protection-through-criminal-law_en

²⁷ Article 83(2) TFEU: If the approximation of criminal laws and regulations of the Member States proves essential to ensure the effective implementation of a Union policy in an area which has been subject to harmonisation measures, directives may establish minimum rules with regard to the definition of criminal offences and sanctions in the area concerned. Such directives shall be adopted by the same ordinary or special legislative procedure as was followed for the adoption of the harmonisation measures in question, without prejudice to Article 76.

²⁸ Directive (EU) 2019/883 of the European Parliament and of the Council of 17 April 2019 on port reception facilities for the delivery of waste from ships, amending Directive 2010/65/EU and repealing Directive 2000/59/EC (OJ L 151, 7.6.2019, p. 116–142)

²⁹ THETIS EU is an EU digital tool for recording and managing data on inspections of ships other than Port State Control and has a module on waste delivery from ships.

³⁰ Annex III is not covered because packaged goods are not waste.

³¹ Directive 2009/21/EC of the European Parliament and of the Council of 23 April 2009 on compliance with flag State requirements (OJ L 131, 28.5.2009, p. 132–135)

Investigation Directive³³. There are links with the SSP Directive in the context of 1) the responsibilities of the flag State to impose penalties for illegal discharge from its own flagged ships, 2) the responsibilities of the port State to inspect related cases and 3) accidents involving pollution incidents. The SSP Directive complements the three directives by provisions on the imposition of penalties to cases of related ship-source pollution.

There are also synergies between the satellite surveillance services used for the SSP Directive (CleanSeaNet) and the targeting and reporting system for port State control (THETIS). For example, through THETIS, Member State authorities have access to past port State control inspection findings for ships and can use this information to assess whether a ship is suspected of an illegal discharge. Member States can also use THETIS to request another Member States authority (e.g. next port of call) to inspect the suspect ship.³⁴

The **Vessel Traffic Monitoring and Information System Directive**³⁵ (VTMIS) together with its SafeSeaNet tool is essential to have information on ships suspected of an illegal discharge. For example, SafeSeaNet records ships' identifiers and geographical position. This information can be extracted for a certain geographical area where a possible pollution incident took place and is transferred to CleanSeaNet. This provides information to the Member States to support them in identifying the offender.

In addition, the **Whistleblowing Directive**³⁶ lays down standards for reporting channels and the protection of persons reporting the breaches of Union law. SSP Directive is part of the scope of application of the Whistleblowing Directive and there are synergies between the two as whistleblowers can be a relevant source of information on ship-source pollution.

The **Waste Framework Directive**³⁷ lays down the main waste management principles and includes a common EU definition of waste. Any substance or object, which the holder discards (or intends or is required to discard) is considered as waste. 'Polluting substances' as defined in the SSP Directive are regulated by international standards set in the MARPOL Convention. Operational discharges of waste generated on board ships and that contain such substances are permitted within the strict discharge standards of MARPOL. The obligations under the Waste Framework Directive apply to the management of waste from ships covered by the Port Reception Facilities Directive.

The **Marine Strategy Framework Directive**³⁸ (MSFD) has as its main objective to protect the marine environment and to achieve Good Environmental Status of EU Marine Waters which is

³² Directive 2009/16/EC of the European Parliament and of the Council of 23 April 2009 on port State control (OJ L 131 28.5.2009, p. 57)

³³ Directive 2009/18/EC of the European Parliament and of the Council of 23 April 2009 establishing the fundamental principles governing the investigation of accidents in the maritime transport sector and amending Council Directive 1999/35/EC and Directive 2002/59/EC of the European Parliament and of the Council (OJ L 131, 28.5.2009, p. 114–127)

³⁴ In case an illegal discharge is considered a serious factor and a ship is suspected of pollution, the Member State can use THETIS to trigger a mandatory inspection at the next port of call.

³⁵ Directive 2002/59/EC of the European Parliament and of the Council of 27 June 2002 establishing a Community vessel traffic monitoring and information system and repealing Council Directive 93/75/EEC (OJ L 208 5.8.2002, p. 10)

³⁶ Directive (EU) 2019/1937 of the European Parliament and of the Council of 23 October 2019 on the protection of persons who report breaches of Union law

³⁷ Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (OJ L 312 22.11.2008, p. 3)

³⁸ Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (OJ L 164 25.6.2008, p. 19)

measured by means of so-called ‘descriptors’. Descriptor 8 on contaminants and descriptor 10 on marine litter are both relevant for the SSP Directive. The MSFD is the main European legal instrument for conserving the marine environment and ecosystems. The Directive enshrines in its rules the ecosystem approach to the management of human activities having an impact on the marine environment, integrating the concepts of environmental protection and sustainable use. The SSP Directive contributes to reaching the objectives of the MSFD by introducing dissuasive penalties for illegal discharge of polluting substances to the sea by ships.

There is no interaction between the SSP Directive and the EU air emission legislation and no regulatory gap has been identified in the context of this impact assessment. The current SSP Directive and the Port Reception Facilities Directive work together to cover pollution into sea. The revision of the SSP Directive aims at maintaining the same legal logic of prosecuting discharges of substances under MARPOL Annexes into sea.

The Directive does not cover air emissions because they traditionally follow a different regulatory approach (further detailed in Annex 5). Reducing the continuous emitting of polluting substances or greenhouse gasses into the atmosphere when en route is regulated differently than discouraging one-off illegal spills/offences by ships. Therefore, different structures for enforcement have been adopted. However, synergies may exist and be reinforced, e.g. through the use of IT tools such as THETIS-EU, with respect to exchange of and access to information concerning ship inspections of ships and enforcement actions across Member States and on the basis of various legal texts.

The current and proposed initiatives at EU level for air emissions are:

- administrative penalties under the Sulphur Directive³⁹ to discourage sulphur oxide (SO_x) emissions triggered by use of non-compliant fuel;
- obligation for shipping companies to monitor, report and verify their annual greenhouse gas (GHG) emissions in accordance with the revised EU MRV Regulation (Regulation (EU) 2015/757);
- obligation for shipping companies to surrender emission allowances for the carbon dioxide (CO₂) – as well as from nitrous oxide (N₂O) and methane (CH₄) as of 2026 – they emit, following the inclusion of shipping under the EU Emission Trading System (ETS); and
- obligation for shipping companies to reduce the average annual greenhouse gas (GHG) intensity of energy used by ships below the maximum limit set under the FuelEU Maritime legislative proposal.

Nitrogen oxide (NO_x) emissions by the shipping sector, although addressed at IMO level⁴⁰, are not regulated by dedicated EU legislation⁴¹. In EU, currently efforts are made to collect data and enhance monitoring of NO_x emissions from shipping, with substantial contribution from EMSA.

³⁹ Directive (EU) 2016/802 of the European Parliament and of the Council of 11 May 2016 relating to a reduction in the sulphur content of certain liquid fuels (OJ L 132, 21.5.2016, p. 58–78)

⁴⁰ An international certification regime for NO_x exists and applies to all EU Member States as parties to MARPOL [https://www.imo.org/en/OurWork/Environment/Pages/Nitrogen-oxides-\(NOx\)-%E2%80%93-Regulation-13.aspx](https://www.imo.org/en/OurWork/Environment/Pages/Nitrogen-oxides-(NOx)-%E2%80%93-Regulation-13.aspx)

⁴¹ Directive 2008/50/EC on Ambient Air Quality sets limit values for NO₂

Elements falling outside the proposed revision are:

- air pollutants to the atmosphere covered by MARPOL Annex VI; and
- pollutants not covered by standards set in MARPOL.

See the discarded measures in section 5.3 and Annex 5 for a description of these elements.

Evaluation of the Directive

The Commission has carried out an evaluation of the SSP Directive in a so-called ‘back-to-back’ manner (i.e. the evaluation and impact assessment have been launched at the same time). The links between the conclusions of the ex-post evaluation and the impact assessment are summarised in Table 2. The evaluation of the SSP Directive is annexed to this impact assessment report.

The data available for the evaluation was not sufficiently robust to make a complete ex-post assessment for all Member States. There was no representative data available on the indicators to measure the success of the Directive. Despite the limitations, the evaluation gave a snapshot of the existing information on the implementation of the Directive.

The evaluation concluded that the objectives of the Directive were not fully achieved and the scope of the Directive is limited. The Directive defined a common legal framework for ship-source pollution offences in the EU but its effectiveness was limited. There were two cases of nonconformity investigated by the Commission - in 2009 (infringement against Greece⁴²) and in 2010 (infringement against Ireland⁴³). Both cases were closed in 2011. The Directive brought the MARPOL rules into the realm of EU law and ensured that the legislation of the Member States is aligned but it is unclear if pollution was discouraged in practice.

Table 2. Links between conclusions of the ex-post evaluation and the impact assessment

Main ex-post evaluation conclusions	Impact Assessment
Conclusions on effectiveness	
The success of the Directive in achieving its intended objectives has been limited. Although it incorporated international rules for ship-source pollution into EU law and Member States prosecute SSP offenders, there is limited data to show how effective the system is. The Directive resulted in the implementation of a successful tool for satellite surveillance (CleanSeaNet). This however does not solve the problem entirely because satellite surveillance accuracy is limited (to around 40%). Some aspects relating to verification could have been managed more effectively e.g. Member States could have been voluntarily logging more feedback data in CleanSeaNet. The Directive has not achieved the anticipated outcome to its full when it comes to the prosecution of offenders.	Policy measures are defined to maintain the philosophy and architecture of the current Directive while tapping into modern digital solutions and keep the Directive up to date with developments at international and EU level as to effectively reach the objective ensuring that persons responsible for discharges of polluting substances into sea are subject to dissuasive, proportionate and effective penalties.
Conclusions on efficiency	
The data on costs is scarce and no quantitative information on benefits is available. The benefits seem to outweigh the costs of the Directive, although they could not be quantified and thus the uncertainty associated to them is acknowledged. The EMSA tools proved to be efficient and beneficial for Member States in the context of achieving the objectives of	Policy measures are defined to support Member States in discharging their enforcement responsibilities efficiently (identify the polluter and prosecute the

⁴² In 2009, Greece’s legislation conformity with the SSP Directive was challenged with regard to Article 3 (insufficient definition of infringement outside Greek territorial waters) and Article 6 (inspection of suspect ships). The case was closed in 2011.

⁴³ In 2010, Ireland’s legislation application with respect to the SSP Directive was challenged with regard to Article 8 (liable persons other than the owner and master of ship) and was closed in 2011.

Main ex-post evaluation conclusions	Impact Assessment
the Directive. Increased satellite surveillance contributes to enhanced illegal discharge detection and indirectly to the prevention of ship-source pollution of the marine environment.	offender) and to reduce the burden on the Member States with the support of common, integrated, cost-efficient EMSA tools.
Conclusions on coherence	
No major inconsistencies have been identified between the Directive and other interventions in place at EU level, however there is a need to update the Directive, in particular due to the revision of the Port Reception Facilities Directive, in the context of the extended scope of the directive (to add the remaining MARPOL Annexes) and due to the revision of the Environmental Crime Directive in the context of removing criminal penalties. As for coherence with the international regime, a Directive covering all MARPOL Annexes would have been a better fit to meet the international objectives and expand the enforcement regime at EU level to penalise illicit conducts other than those covered under Annexes I and II of MARPOL. Such approach would be coherent with the objectives of the wider policy framework as reflected in the European Green Deal.	Policy measures are defined to keep the Directive coherent with developments at international and EU level. The revision must also align with the new Environmental Crime Directive by removing provisions on criminal penalties from the SSP Directive.
Conclusions on EU added value	
The Directive, as an EU-level intervention, brought benefits, which would have not been possible at national or international level alone. The Directive was more efficient and effective in addressing ship-source pollution than MARPOL requirements and its implementing measures alone. The Directive offers added value by the additional elements to support the prevention of ship-source pollution. Specifically, the Directive introduced the regime for pollution penalties (i.e. EU liability regime) and introduced a common tool to all Member States to inform on possible spills (CleanSeaNet). The difference the SSP Directive made is minimising both the discrepancies in the EU as well as the enforcement gap for the implementation of the MARPOL Convention.	EU action continues to be needed to deliver on the policy objectives.
Conclusions on relevance	
The overall problem addressed by the Directive and related objectives are still adequate. In addition, the policy context has evolved and adjustments are needed to adapt to the more ambitious agenda on pollution prevention. The substances covered by MARPOL Annex III-VI discharged into the sea are harmful to the environment and need attention as to deliver on EU policy objectives. The objective of the EU citizens and Member States “to combat [...] ocean pollution, including through [...] promoting of environmentally friendly shipping by using best available technologies [...]” has been underlined in the outcomes of the Conference on the Future of Europe. The needs and objectives of the wider policy framework and the EU goal towards zero pollution, as reflected in the European Green Deal must be considered in this context.	Policy measures are defined to keep the Directive relevant and up to date, particularly by extending the scope of the Directive (substances covered by MARPOL Annex III-VI).

2. PROBLEM DEFINITION

2.1. What is the problem?

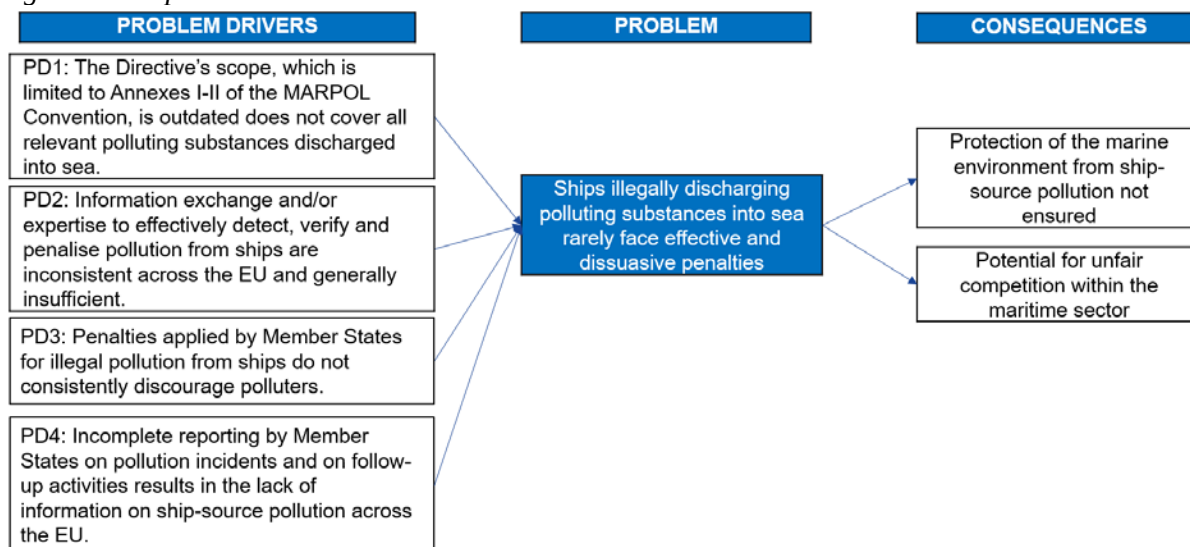
Problem – Ships illegally discharging polluting substances into sea rarely face effective and dissuasive penalties.

The first line of defence for the maritime safety and pollution prevention is provided through flag State (Flag State Control Directive) and the second line of defence through port State control legislation (Port State Control Directive), however, ships may still cause pollution of the sea through accidents and/or (intentional) operational discharges. Hence there is a need for another line of defence which is prosecuting the offenders. Drawing on the conclusions of the evaluation, the problem identified when Directive 2005/35/EC was adopted is still relevant. Illegal discharges

occur in European waters i.e. ships which discharge polluting substances do not always follow MARPOL standards. This is an issue of concern because illegal discharges from the maritime transport sector contribute to the damage of the marine environment and its ecosystems. The problem and the underlying problem drivers are presented in Figure 2.

The success of the Directive would mean that the person (legal or natural) responsible for the pollution of the sea is adequately penalised to produce a deterrent effect and this way prevent pollution in the future. SSP penalties can be seen as the last line of defence for pollution prevention of the marine environment. The measure of success of the Directive would therefore be an increased proportion of confirmed illegal discharges from ships that are subject to penalties.

Figure 2. The problem tree



Due to serious limitations of data underpinning the evaluative work, there is only fragmented data to confirm that ships which discharge pollutants into sea illegally face effective and dissuasive penalties for such offence. Therefore, only an indicative and qualitative summary of the implementation of the current Directive by Member States is available.

Some scarce information is available on pollutants which ships discharge illegally into sea. Regarding volumes of Annex I discharges, around 31,000 m³ of oily waste (2.5% of the total for oily waste from ships) was likely illegally discharged in European waters over the 2011-2015 period.⁴⁴ Regarding volumes of Annex II discharges, the quantities of substances transported yet spilled are not available. Reported data shows that hazardous and noxious substance spills happen in European seas (e.g. HELCOM data of 2017⁴⁵; OSPAR data of 2020⁴⁶; REMPEC data of 2021⁴⁷) but there is little information on the extent and frequency of those spills at sea.

⁴⁴ European Commission (2018). Commission staff working document, [Impact Assessment on port reception facilities for the delivery of waste from ships](#).

The information of 2018 is still considered as up-to-date and reflecting the current situation (year 2023).

⁴⁵ HELCOM (2017) Annual report on discharges observed during aerial surveillance in the Baltic Sea

⁴⁶ OSPAR (2020) Assessment of the OSPAR Report on Discharges, Spills and Emissions from Offshore Installations 2009 – 2018

⁴⁷ REMPEC (2021) Study on trends and outlook on marine pollution, maritime traffic and offshore activities in the Mediterranean. REMPEC/WG.51/INF.3

There is no complete dataset on the number of prosecutions and the penalties imposed. The information reported to the Commission by Member States on the implementation of the SSP Directive (Article 12 reporting) shows that up to 51 offenders are identified per year by a Member State and up to 12 offenders are prosecuted (see Table 3). These numbers however are not representative for the situation across the EU because not all Member States report⁴⁸. Nevertheless, based on this data, it can be considered that penalties and prosecution are rare.

Table 3. Summary of data reported by Member States in the period 2015-2020

Member State which submitted a report	Average number of offenders/ships identified annually	Average number of offenders/ships prosecuted annually
FR	5.8	No data
PL	18.0	12.1
LV	2.7	2.7
FI	16.2	3.2
RO	1.7	1.7
CY	1.3 (data for 2020, 2018, 2015)	2 (only data for 2020)
DE	50.8	No data
NL	30	No data

Source: Reports submitted to the European Commission by Member States in 2015-2020.

One of the reasons for penalties being rare can be attributed to the weaknesses in the SSP enforcement chain i.e. detection, verification, prosecution. Member State public authorities are responsible for enforcement yet have limited capacity to verify the potential spills (see Figure 5 in section 2.2). The decision and responsibility to undertake a check remains the prerogative of the respective Member State.

The actors responsible for and contributing to the pollution of the sea are the EU and non-EU maritime legal and natural persons i.e. ship operators, managers, owners, masters, crew etc. who illegally discharge polluting substances from their ships into sea deliberately. These legal persons are usually large enterprises and less so micro, small and medium-sized enterprises (SMEs). These actors cover all types of ships, irrespective of their flag, calling at EU ports or in transit through European seas.

The problem has a cross-border dimension because pollution is by nature cross-boundary and the detection and verification of ship-source pollution relies on efficient collaboration between Member States, as well as on the harmonised information exchange tools and aligned legal frameworks amongst Member States.

Ship-source pollution is not the only (nor is it even the main) pollution source affecting the marine environment and the European citizens that live along the sea; however, it is a contributing factor and therefore a problem to be addressed. Around 35% of oil that enters the sea comes from regular shipping operations.⁴⁹ Around 45% of oil is input from land-based sources with municipal/industrial effluents and from routine oil rig operations, 10% from accidents of oil tankers, 5% natural sources, 5% undefined sources.

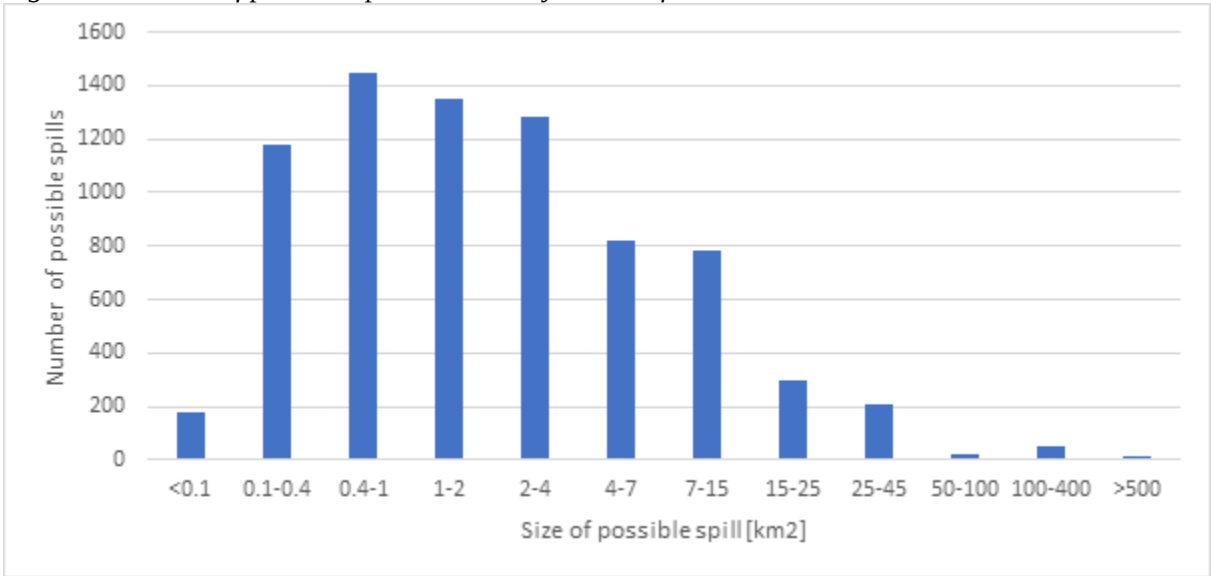
The size of possible spills has changed over the years since the adoption of the Directive in 2005. Large accidental spills have not occurred in European seas since the accident of Prestige in 2002 (63,000 tonnes of oil which impacted more than 200 kilometres of the coast). As shown in Figure 3, small operational discharges are currently more likely to happen. The estimation is based on

⁴⁸ The number of prosecutions and penalties imposed would largely depend on the size of the territorial waters and Exclusive Economic Zone (EEZ).

⁴⁹ World Ocean Review (2014) [WOR 3 Marine Resources – Opportunities and Risks. Oiling the Oceans](#)

information from CleanSeaNet on possible spills. It shows that spills in European waters are of smaller size (mostly below 4 km²).

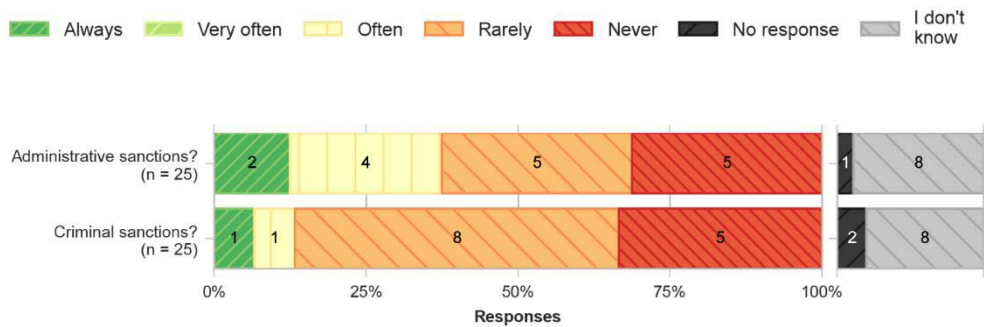
Figure 3. Number of possible spills detected by means of CleanSeaNet in 2020



Source: CleanSeaNet statistics 2020

Stakeholders, when consulted on the frequency of imposing penalties, confirmed that penalties are rare. 18 out 28 stakeholders interviewed agreed with the overall definition of the problem.⁵⁰ For illegal discharge incidents by natural persons, 10 of the 25 respondents to the targeted survey (see Figure 4 and note the ‘I don’t know’ replies) indicated that administrative penalties imposed when prosecuting ship-source pollution are rarely or never imposed, while 13 of the 25 respondents stated that criminal penalties are rarely or never imposed. For illegal discharge incidents by legal persons, 8 of the 25 respondents indicated that administrative penalties are rarely or never imposed, while 11 of the 25 respondents answered that criminal penalties are rarely or never imposed.

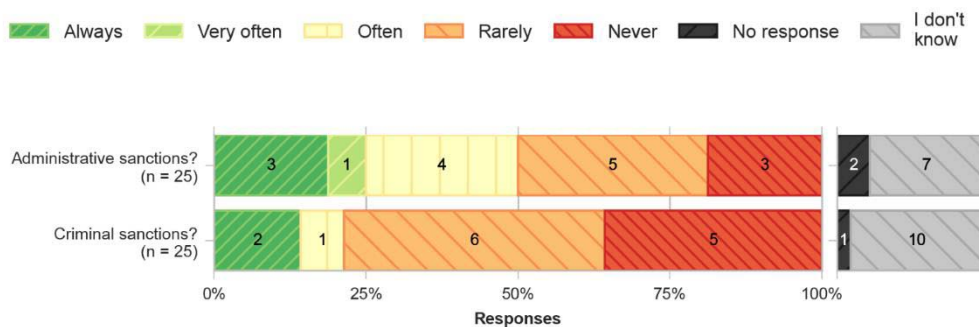
Figure 4. Stakeholder answers to survey questions on problem definition
 Question: Are penalties imposed in the case of identified incidents of illegal discharges from ships **for natural persons** (ship crew, ship masters)?



Source: Targeted stakeholders’ survey

⁵⁰ This includes eight out of 12 of the Member State authorities taking part in the Impact Assessment targeted interviews.

Question: Are penalties imposed in the case of identified incidents of illegal discharges from ships for legal persons (non-human, juridical person as enterprises and entities with legal personhood)?



Source: Targeted stakeholders' survey

Although there is a significant data gap and limited evidence available that ships actually face penalties for illegal discharges, the indicative data presented in this section shows that spills occur (Figure 3) and even in those cases where the polluting ship is identified, the offender is not always penalised (Table 3). The evaluation concluded that the success of the Directive in achieving its intended objectives has been limited.

2.2. What are the problem drivers?

Problem Driver 1: The Directive's scope, which is limited to Annexes I-II of the MARPOL Convention, is outdated and does not cover all relevant polluting substances discharged into sea

The Directive's scope is currently Annexes I and II of the MARPOL Convention (i.e. oil and noxious liquid substances in bulk) and does not cover Annex III for harmful substances carried by sea in packaged form, Annex IV for sewage, Annex V for garbage and Annex VI for discharge water from scrubbers. Drawing on the conclusions of the evaluation on relevance and coherence, the Directive is only partially relevant and aligned with the objectives of the European Green Deal due to its limited scope in terms of substances covered.

During the stakeholder consultation process, 18 out of 28 stakeholders interviewed⁵¹ agreed that the current scope of the Directive is a limitation hindering the achievement of the Directive's objectives. In a stakeholder workshop organised on 22 September 2022, 29 out of 51 participants that voted were of the opinion that the scope of the revised Directive must be extended.

The Port Reception Facilities Directive is by design complementary to the SSP Directive (see section 1). The PRF Directive, in its scope, covers all MARPOL Annexes with the exception of Annex III on substances carried in packaged form⁵² and the air component of Annex VI⁵³. There was a call by the co-legislators⁵⁴ to review the SSP Directive because the EU Port Reception Facilities cannot work properly without a good legal instrument to discourage illegal discharge of polluting substances at sea for all relevant MARPOL Annexes. This was the main trigger for the revision of the Directive.

⁵¹ Including 11 Member State authorities (BE, HR, CY, FI, DE, NL, RO, ES, LV, SE and one anonymous representative of Member State authorities).

⁵² This is because packaged goods are not categorised as waste.

⁵³ For Annex VI, the PRF Directive covers the waste categories delivered to ports, including discharge water from scrubbers. It does not cover SO_x, NO_x, particulate matter (PM) and CO₂ emissions released into atmosphere by ships.

⁵⁴ The PRF Directive included a recital 13 on the need for the review of the SSP Directive, in particular through an extension of its scope to cover more polluting substances.

The size of the discharges from ships of each type of polluting substances is not known due to a significant data gap but can be put in perspective by analysing quantities collected in Port Reception Facilities. Table 4 shows what substances are collected in ports - most of the waste collected in ports is oil followed by garbage. This does not mean that more oil is discharged illegally into the sea than garbage but it shows the relative quantities that are generated by ships when in the EU and collected in ports.

Table 4. Types of waste collected in 2019 in the EU Port Reception Facilities per MARPOL Annex type of polluting substance.

Waste	Oil (Annex I)	Noxious liquid in bulk (Annex II)	Substances in packages (Annex III)	Sewage (Annex IV)	Garbage (Annex V)	Discharge water from closed-loop scrubbers (Annex VI)
Amount [tonnes]	1,470,322	62,245	570	88,563	279,748	4,096
Percentage of total	77%	3.2%	0.3%	4.6%	14.7%	0.2%

Source: Reported by Euroshore members in 2021 and presented in EMSA and EEA report [EMTER](#) (2021)

Table 4 and the following description on the quantity of polluting substances discharged into sea provide details on the magnitude of the problem driver.

With reference to MARPOL Annex III on **harmful substances carried by sea in packaged form** there is limited data available on how much packaged harmful goods are lost at sea. Small volumes of such substances in packages are collected in Port Reception Facilities i.e. 0.3% of all waste collected as shown in Table 4. This does not exclude the possibility that goods containing harmful substances in packaged form are accidentally lost at sea and pollute the marine environment. Packaged goods by definition are not discharged intentionally because they are the product which is being transported and not the waste which is being generated by the ship.

Regarding MARPOL Annex IV on **sewage**, most of the ship-source sewage discharge into sea is legal, in line with MARPOL discharge norms. The Baltic Sea is an exception as the IMO designate it as a Special area under MARPOL Annex IV, meaning that discharge of sewage from passenger ships (including cruise ships) is prohibited. Based on the PRF Impact Assessment, the possible waste gap for sewage is estimated at 136,000 m³, i.e. approximately 10% of the sewage that should be delivered on land is not received by Port Reception Facilities and might be therefore discharged illegally⁵⁵. Limited volumes of sewage are collected in Port Reception Facilities i.e. below 5% of all waste collected as shown in Table 4.

MARPOL Annex V (**garbage**) regulates the discharge into the marine environment of plastic, domestic wastes, cooking oil, incinerator ashes, operational waste, fishing gear and animal carcasses generated during the normal operation of the ship and liable to be disposed of continuously or periodically. As shown in Table 4, volumes of garbage collected in Port Reception Facilities are approximately 15% of the total waste collected. Certain geographic areas and countries have been identified as being more vulnerable to the impacts of this type of ship-source pollution, owing to their proximity to shipping routes. For instance, in the North Sea or Aegean Sea, it is estimated that up to 25% of litter found on beaches, originates from ships, while in the Baltic Sea, this percentage

⁵⁵ European Commission (2018). Commission staff working document, [Impact Assessment on port reception facilities for the delivery of waste from ships](#).

The information of 2018 is still considered as up-to-date and reflecting the current situation (year 2023).

accounts for up to 10% of litter found.⁵⁶ Approximately 60,000 to 300,000 tonnes, i.e. 7% to 34% of the total garbage was estimated not to be delivered annually to the EU ports⁵⁷. This data could indicate that some of the garbage waste from ships not delivered for disposal at EU ports may have been illegally discharged at sea and contribute to the marine pollution.

Regarding MARPOL Annex VI, the substances relevant for the SSP Directive are not those emitted to the air (e.g. SO_x, NO_x) but those discharged into sea (i.e. **discharge water from scrubbers**⁵⁸). Most ships use open-loop scrubbers and discharge the scrubber residue into sea⁵⁹. Fewer ships use closed-loop scrubbers and deliver bleed-off water to the port⁶⁰. Therefore, small volumes of scrubber discharge waters are collected in Port Reception Facilities i.e. 0.2% of all waste collected (see Table 4.) Most of the scrubber discharge into sea is legal, in line with MARPOL discharge norms. However, the relative volumes involved for this category are large. The volume of acidic water discharges from open-loop scrubbers was estimated at 77% of the total volumes discharged from ships⁶¹. As large quantities are involved, which might affect the marine environment, the international framework is prone to develop for discharge water from scrubbers under Annex VI and this category is relevant for the revision of the SSP Directive.

As long as discharges of polluting substances into sea under MARPOL Annexes III-V and Annex VI discharge water from scrubbers, are not included in the scope of the Directive, Member States cannot count on systematic information from EMSA-managed tools (e.g. CleanSeaNet) when carrying out their duties of verifying the pollution. Information exchange between Member States is therefore also hindered for the remaining MARPOL Annexes. Member States cannot prosecute in a coordinated way the offenders benefiting from the clarity offered by a common EU liability regime. This is particularly important for discharges into sea because no other EU legislation covers penalties for discharging Annex III-VI substances into sea or gives rules that make the actual act of pollution into sea illegal under EU law.

⁵⁶ Joint Group of Experts on the Scientific Aspects of Marine Environment Protection (GESAMP), 2021. Sea-based sources of marine litter, s.l.: GESAMP.

⁵⁷ European Commission (2018). Commission staff working document, [Impact Assessment on port reception facilities for the delivery of waste from ships](#)

⁵⁸ Emissions to air are reduced by the use of scrubbers, which use liquids to clean the exhaust gases from a ship's engine. The scrubber residue contains sulphur compounds, including sulphuric acids, aromatic hydrocarbons PM, nitrates, nitrites and heavy metals.

⁵⁹ While there were 255 vessels fitted with scrubbing systems worldwide in 2015, it is estimated by Statista that their number surpassed 4,000 units in 2020. <https://www.statista.com/statistics/1099286/number-of-scrubbers-in-vessels/>

⁶⁰ Scrubbers can be either open or closed loop or alternate between open and close loop modes (hybrid). Open-loop scrubbers usually take up water from the sea, use it to clean the gases, and discharge the scrubber residue back overboard. The scrubber residue can be treated before discharge, but this is not mandatory, and the water is often discharged without being filtered. Closed-loop scrubbers recirculate the wash water and add chemicals to it, such as caustic soda, to adjust the pH. The system is not waste free: the water is filtered, and sludge is produced. The closed-loop scrubber sludge is stored on board the ship for disposal on-land, at Port Reception Facilities. Additionally, a small amount of the wash water is bleed-off water from the process tank to a water treatment unit. This so-called bleed-off water is a scrubber residue and can be either stored and disposed on-land or discharged overboard after treatment.

⁶¹ European Maritime Safety Agency and European Environment Agency, 2021, [European Maritime Transport Environmental Report](#) (EMTER)

Problem Driver 2: Information exchange and/or expertise to effectively detect, verify and penalise pollution from ships are inconsistent across the EU and generally insufficient

Effective detection of illegal discharges, their verification and prosecution (i.e. the enforcement chain) are essential for the Directive and its penalty system to be operative in practice. The evaluation found that Member States face challenges when carrying out their duties of enforcement. The lack of specialised knowledge, experience, financial/human resources along with political prioritisation and the existence of other priorities is a common weakness identified.⁶² Moreover, Member State enforcement authorities do not always have the necessary training and specialisation.

Based on information collected during the stakeholders' interviews, the main challenges faced by national authorities in relation to this problem driver are:

- Limited availability of adequate resources, in terms of trained personnel, laboratory capacity and adequate equipment to perform the follow-up activities on-scene;
- Technical challenges related to the verification and evidence collection activities, such as the time and cost required to complete the sampling of the substance associated to the incident, accessibility during night hours/darkness or stormy seas. Furthermore, these challenges are exacerbated when the incident is located in an area far from the coast.

With respect to deficiencies in prosecution, judges sometimes lack specialised knowledge and awareness of the harmful effects leading to dismissed cases or low penalties. In general, stakeholders also view training and specialisation of judges as important for successful enforcement in the field of environmental proceedings.⁶³

Member States do not always make use of the information supplied by EMSA-managed tools and do not always record their verification results in these tools. Information exchange between Member States is therefore incomplete and not consistent across the Member States. Stakeholders' interviews indicated the need for more EU support in exchanging experience and information about the potential polluters, identifying the pollution incidents and strengthening cooperation between Member States (training, exchanging lessons learned, guidance and real-time information from satellite surveillance or whistle-blowers). Ten national authorities interviewed⁶⁴ agreed that resources and/or expertise are insufficient to effectively identify, verify and prosecute ship-source pollution. Two Member State authorities identified the need for better availability of digital technology and equipment to facilitate evidence collection and prosecution for these discharges. Another authority emphasised the importance of introducing innovative technologies and using such information collected as evidence in ship-source pollution cases. Effective verification of pollution incidents requires adequate resources for a continuous level of readiness. Member States must take targeted and timely decisions on whether and how to follow up an alert on a possible spill (notified by national or satellite surveillance or a whistle-blower, or as a result of inspecting a vessel under a different control regime).

Member States deploy their resources to follow-up on-scene and provide feedback to CleanSeaNet alerts to a limited degree. As shown in Figure 5, only 40% of possible oil spills detected by means of the CleanSeaNet are typically checked by the Member State and only 37% of the checked cases result in the confirmation of the pollution. This does not mean that the remaining 63% of the cases

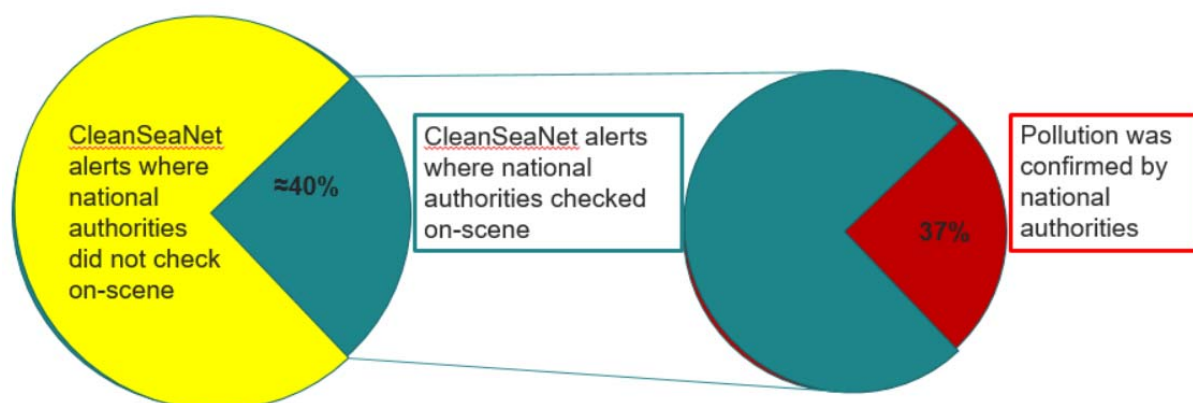
⁶² Report on Eurojust's Casework on Environmental Crime, January 2021, p. 13.

⁶³ European Commission (2021). Commission staff working document, [Impact Assessment on the protection of the environment through criminal law](#).

⁶⁴ BG, BE, HR, CY, DE, NL, RO, ES, LV and one anonymous representative of Member State authorities

detected were legal discharges but it means that for the rest of the alerts nothing was observed on the surface of the sea or it was a natural phenomenon e.g. algae bloom.

Figure 5. Follow-up action by Member States for CleanSeaNet alerts on a possible pollution detection in 2021



Source: CleanSeaNet data for 2021. Alert reports for EU Member States, Norway and Iceland.

The analysis of CleanSeaNet data shows the following trends concerning verification:

- All Member States log feedback in CleanSeaNet, however only 6 Member States (out of 23) are responsible for 60% of feedback data logged in CleanSeaNet (based on 2020 data).
- A high verification rate usually does not lead to better results in the confirmation of the pollution. Based on data recorded by Member States on how they follow-up CleanSeaNet alerts, the higher number of follow-up activities per Member State does not lead to more confirmation of the pollution incidents.⁶⁵
- The chances of confirming the pollution depend on how quickly the Member State aircraft or patrol vessel gets to the scene of the incident (the interval between the time of the satellite image acquisition and the Member State verification). The longer this interval, the more likely it is that no pollution is found on the spot. For example, in 2019, 5% of the checks were performed within 3 hours of the satellite observation. This resulted in 42% of confirmations of pollution.⁶⁶

Data collected by Integrated Maritime Services in SafeSeaNet, CleanSeaNet, THETIS and THETIS EU can facilitate the decision on whether to verify the incident or not. An example is that, through THETIS, Member State authorities have access to past port State control inspection findings for a particular ship and can use this information to take a decision. They can also use THETIS EU to see if the particular ship left the waste in question in the Port Reception Facility of the previous port of call.

Problem Driver 3: Penalties applied by Member States for illegal pollution from ships do not consistently discourage polluters

In order for the national enforcement to be effective, the administrative and criminal enforcement regimes must be seen as interlinked parts of one system and ought to coexist. Drawing on evaluation findings, the effectiveness of the Directive has been limited by the lack of consistency and a common understanding among Member States on when to apply which type of penalty (i.e. what

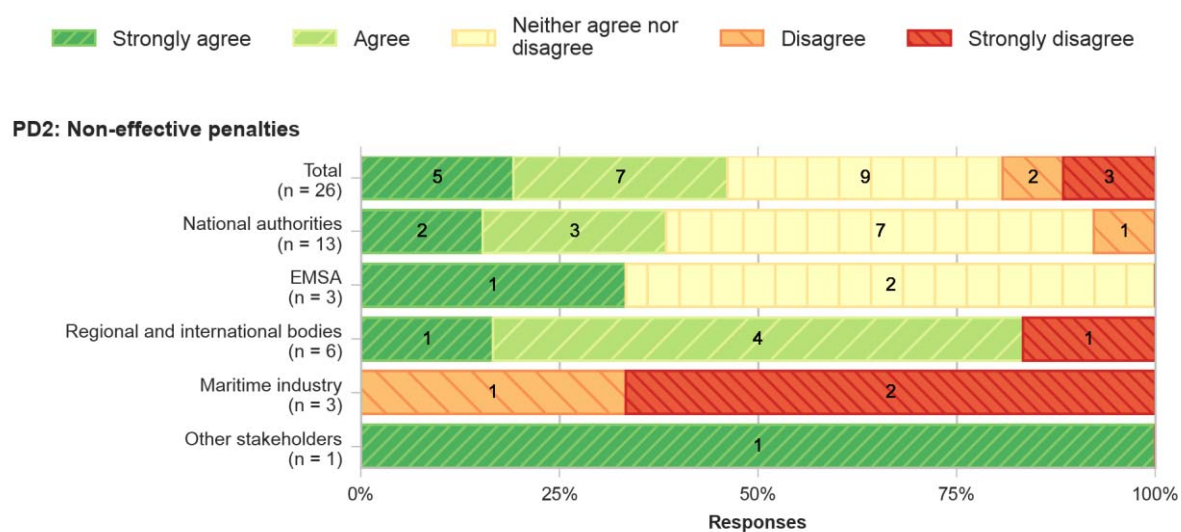
⁶⁵ See Figure 19 in Annex 4

⁶⁶ European Maritime Safety Agency and European Environment Agency, 2021, [European Maritime Transport Environmental Report](#) (EMTER)

constitutes a ‘minor’ discharge). The information relating to penalties applied by courts in Member States is not available or fragmented. This is because the information is not systematically reported by Member States and is often decentralised (i.e. individual courts within a Member State). Furthermore, Member States rarely report on the number of prosecutions to the Commission (Table 3 in section 2.1) since there is no explicit requirement to provide such figures. The stakeholder feedback to consultations during the impact assessment was also limited. The response rate has been low and information received very limited⁶⁷.

Twelve out of 26 stakeholders consulted agreed or strongly agreed with this problem driver⁶⁸ (Figure 6), whereas industry generally disagreed (considering that international rules are sufficient for discouraging illegal discharges from ships).

Figure 6. Stakeholder answers in interviews on problem driver 3



Specifically on the levels of penalties, based on the information obtained from stakeholder consultation activities and the data of the Network of Prosecutors in the Baltic Sea (ENPRO) and in the North Sea (NSN), all Member States foresee in their national legislation a minimum and maximum value for penalties as summarised in Table 5. The higher vulnerability of some regions and diverging capacity of Member States to prosecute cases of ship-source pollution makes this problem driver key. The minimum and maximum levels of penalties diverge substantially between Member States, however it must be recalled that the Directive was not meant to harmonise the levels of penalties but aimed to harmonise the principles applicable to penalties i.e. penalties must be proportionate. As such, Member States currently have the flexibility to define the penalties’ level, method of calculation and criteria.

Table 5. Minimum and maximum levels of penalties foreseen for infringements for natural and legal persons (prices in EUR)

	Who?	Lowest	Highest
Minimum penalty	Natural person	10 (EE)	150,000 (PT)
	Legal person	32 (EE)	500,000 (DE)
Maximum penalty	Natural person	14,220 (SE)	5,000,000 (IE)

⁶⁷ There were only 30 replies to the open public consultation and 3 replies in the form of the response to the evaluation survey. 26 interviews took place although the timeline was extended and multiple rounds of interview requests were sent.

⁶⁸ Stakeholders that agreed or strongly agreed that penalties are not effective include five MS authorities (NL, RO, LV, SE), five regional/international organisations and one environmental NGO.

	Who?	Lowest	Highest
	Legal person	10,000 (PT)	247,000,000 (SE) Unlimited cap (DK)

Source: Ricardo (2023), Evaluation support study compiled from stakeholder consultation activities and data of Network of Prosecutors in the Baltic Sea (ENPRO) and in the North Sea (NSN).

HELCOM⁶⁹ tried to address the issue of diverging penalties by adopting recommendations on a harmonised system of fines for the Baltic Sea for ship-source pollution⁷⁰. The recommendation criteria for a common minimum level of fines in a case when a ship violates regulations were agreed and minimum amounts for fines were adopted. However, this recommendation has not been applied by HELCOM member States and the flexibility remains also for Baltic Sea countries.

Based on information collected in the evaluation and from Member States during the consultation on this impact assessment, the types and levels of penalties are different amongst Member States. Given that the Directive was not meant to harmonise levels of penalties, the logical link between the non-harmonised levels of penalties across Member States and the problem that offenders rarely face effective, proportional and dissuasive penalties is the proportionality of penalties. If penalties are too small to discourage pollution then the problem driver will continue to persist. Adding to the latter the stakeholders' view that penalties are rarely imposed (see Figure 4), one can infer that the dissuasive effect of penalties in the EU is not fully achieved.

Problem Driver 4 – Incomplete reporting by Member States on pollution incidents and on follow-up activities results in the lack of information on ship-source pollution across the EU.

The reporting streams related to ship-source pollution are described under the subheadings below. There is no systematic reporting on pollution incidents and on follow-up activities neither at European nor at international level under the IMO. The limited reporting by Member States on incidents, their verification and prosecution results in the lack of information on ship-source pollution across the EU. This hindered the evaluative analysis (see Annex 8).

European Commission

Article 12 of the SSP Directive requires Member States authorities to report to the Commission simply on the *application* of the Directive and cannot therefore offer the granularity needed for evaluating the effectiveness of the Directive. The reporting provision does not have any deadlines (requires reporting every three years), no requirements on what type of information is to be reported, no concrete obligations for reporting on enforcement and consequently weak basis to open infringements. This provision is not detailed enough to oblige Member States to report on the number of offenders identified and penalties imposed. For this reason, Member States have not systematically reported to the Commission (only 8 Members States submitted a report in the period 2015-2020 as shown in Table 3., in section 2.1).

Member State can report to EMSA-operated systems. This includes information related to ship-source pollution: 1) CleanSeaNet service feedback forms on the potential pollution identified; 2) pollution incident reports (POLREP) exchanged as part of SafeSeaNet; and 3) inspection requests related to suspected MARPOL infringements submitted via THETIS. There are no obligations in the SSP Directive for Member States to report to EMSA and these tools are only being used to a

⁶⁹ HELCOM is an intergovernmental organisation for the environment of the Baltic Sea. HELCOM consists of ten members – the nine Baltic Sea countries Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden, plus the European Union.

⁷⁰ HELCOM recommendation 19/14, 1998, [A Harmonized System Of Fines In Case A Ship Violates Anti-Pollution Regulations](#)

limited extent by Member State authorities. For example, Member States submit on average only approximately 200 SafeSeaNet pollution incident reports and 120 inspection requests via THETIS annually⁷¹. Feedback to CleanSeaNet alerts is higher, with Member States submitting on average 1400 feedback forms annually.⁷²

International Maritime Organisation

Reporting to IMO on marine incidents, including marine safety investigations, has been low and with significant gaps for European parties of IMO. Similarly as at EU level, there is no representative information on the number of incidents nor penalties imposed. Contracting Parties of MARPOL should submit their reports using the Global Integrated Shipping Information System⁷³. According to recent reporting examples, only 7 Member States reported to IMO in 2018, and only 5 Member States in 2019. The report in the format as set in the MARPOL Circular MEPC.1/Circ.318, could be of use for tracking the success of the SSP Directive. Especially relevant are Part 1 of the reporting format (Annual summary report of incidental spillages under Article II of Protocol I and Article 12), which aim to provide IMO with a summary of discharges not permitted under the MARPOL provisions and pollution due to ship casualties, as well as Part 2 (Annual enforcement report on alleged discharge violations), which aims to summarise the violation cases referred by coastal States to other administrations for prosecution or other action. However, only limited information is available under the international reporting stream and the granularity needed to assess the penalties is therefore also missing at international level.

Regional Sea Conventions

Reporting by relevant parties to Regional Sea Conventions is more advanced in some regions e.g. Baltic and North Sea (where reports on aerial surveillance activities are published annually), and less advanced in others e.g. Black Sea. In 2018-2019, 14 Member States reported to HELCOM⁷⁴ and the Bonn Agreement⁷⁵ on oil spills. The regional reporting commitments are however limited to a regional sea which means a narrow geographical scope.

In conclusion, Member States do not systematically report to the European Commission, IMO or to all Regional Sea Conventions, nor do they systematically record their enforcement activities via EMSA tools. For this reason, transparency on Member States' action is weak and results in large gaps in information on ship-source pollution across the EU. In all Member States, there is a lack of statistical data on verification and prosecution. The lack of data results in limited information on the entire flow of cases over the law enforcement chain, from detection, through verification to prosecution. Against this backdrop, Member States' performance cannot be compared nor evaluated properly. Such lack of data makes it difficult to monitor the effectiveness of the Directive, to identify obstacles in the law enforcement chain and to take targeted and informed decisions⁷⁶. This leads to the lack of information to the public and the co-legislators, the general public's lack of

⁷¹ Compilation of data for period 2012-2021

⁷² Compilation of data for period 2012-2020

⁷³ International Maritime Organisation <https://gis.imo.org/Public/Default.aspx>

⁷⁴ HELCOM is an intergovernmental organisation for the environment of the Baltic Sea. HELCOM consists of ten members – the nine Baltic Sea countries Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden, plus the European Union.

⁷⁵ Bonn Agreement is an intergovernmental environmental agreement for the North Sea. Members of the Bonn Agreement are Belgium, Denmark, the European Community, France, Germany, Ireland, the Netherlands, Norway, Sweden, United Kingdom and Spain.

⁷⁶ European Commission (2021). Commission staff working document, [Impact Assessment on the protection of the environment through criminal law](#).

awareness of the scale and impacts of ship-source pollution infringements, the lack of political prioritisation and consequently the lack of the necessary resources for law enforcement authorities.

Other problem drivers considered in the impact assessment and discarded

A problem driver on air pollutants was considered during the impact assessment and discarded at an early stage:

- The Directive's scope does not cover air pollutants released into the atmosphere regulated by MARPOL Annex VI.

Due to the different nature of air pollution compared to pollution into sea, the IMO and the EU have opted for different regulatory frameworks to address air emissions from international shipping, namely, certification schemes, tax schemes, engine design requirements, ship design parameters (further detailed in Annex 5).

2.3. How likely is the problem to persist?

In the absence of EU action and changes to the legal framework, illegal discharges from ships into sea will continue not being addressed by effective and dissuasive penalties. As long as MARPOL Annexes III-VI are not included in the scope of the Directive, Member States will continue to be only bound by their international obligations to ensure enforcement of MARPOL. However, as explained above, there is very little reporting back to IMO on the enforcement of MARPOL provisions by Member States. Therefore, it is likely that Member States will continue to prosecute the offenders in a non-harmonised manner.

At the same time, the use of EMSA tools for information collection and exchange will remain limited for the substances in the scope of MARPOL Annexes III-VI. Nevertheless, future technological innovations may facilitate, to some extent, the work of enforcement authorities. According to the 2022 Strategic Foresight Report⁷⁷, “enabling a greener transport sector with digital technologies” is one of the areas where the twinning of the green and digital transitions is expected to have a major effect. Member States exploiting new technologies, such as the use of innovative detection tools to better monitor the environmental performance of ships is one of the key relevant factors identified. Despite the benefits of digitalisation, EMSA tools are expected not to be used at their full potential without further EU action.

The new Environmental Crime Directive will ensure some improvement in the field with a likely impact on the number of SSP prosecutions, thanks to the introduction of a harmonised treatment of criminal sanctions. However, the identified problem will still persist because the provisions of the SSP Directive will not change and therefore will not be specific enough to make the penalties for ship-source pollution more effective and dissuasive. Moreover, the ECD will not cover MARPOL Annexes III-VI pollutants in the absence of EU action.

The stronger rules under the Port Reception Facilities Directive ensure that adequate Port Reception Facilities are ready to accept waste at European ports. However, without further EU intervention for strengthening prevention - the detection of pollution, supporting the identification of the offenders and the dissuasive effect of penalties, the illegal discharges by ships are likely to persist with the resulting effect of less waste delivered to Port Reception Facilities.

⁷⁷ COM(2022) 289 final.

3. WHY SHOULD THE EU ACT?

3.1. Legal basis

Title VI (Articles 90-100) of the Treaty on the Functioning of the Union (TFEU) establishes the EU's prerogative to make provisions for the Common Transport Policy and therefore the EU has the right to act under the Treaty on ship-source pollution. Pursuant to Article 100(2) TFEU, the Union legislator may lay down appropriate provisions for sea transport. Article 91(1)(a) of the TFEU provides that the Union has competence in the field of transport to lay down common rules applicable to international transport. In view of this, the revised SSP Directive would be based on Article 100(2) TFEU⁷⁸.

3.2. Subsidiarity: Necessity of EU action

Ship-source pollution typically leads to damage with cross-border dimensions as an SSP illegal discharge can impact the coastline of several countries or have cross-border effects. Due to the frequent transboundary impact of marine pollution and the fact that perpetrators act across borders, action by Member States alone would not be suited to tackle this problem. Therefore, it is essential that Member States have the same understanding of which discharges constitute offences and should be addressed by dissuasive penalties. Diverging national approaches in this regard hinder efficient cooperation of Member States and allow offenders to escape penalties. Cross-border cooperation between law enforcement and judicial authorities is necessary. The EU action of facilitating cooperation and information exchange is an effective approach towards ship-source pollution confirmed by the findings of the evaluation (see Annex 8). However, the findings also show that despite the progress made on a common framework for SSP offences and despite the support for cooperation and information exchange, the EU and its Member States have not been able to achieve the objective of the Directive and the problem identified is still relevant.

Certain geographic areas and countries have been identified as being more vulnerable to the impacts of ship-source pollution, owing to their proximity to shipping routes⁷⁹. The East Atlantic and Black Sea regions are likely to be more sensitive to oily waste than the Mediterranean and the Baltic Sea, whereas the Mediterranean region is the most vulnerable in relation to sewage from ships. Garbage poses a risk to the marine environment with no regional differences among them⁸⁰. Furthermore, the evaluation shows that the verification capacity of the Member States of the North Sea and Baltic Sea are higher than those for the Mediterranean or Black Sea areas. The higher vulnerability of some regions and diverging capacity of Member States to verify and prosecute cases of ship-source pollution makes EU action necessary, especially with accompanying measures of support by common EMSA digital tools.

In brief, given the international nature of maritime transport, there is a “Union relevance” of revising the Directive, to expand the scope of the Directive and further address the identified problem. There is a clear need to have a cross-border framework that would ensure equal treatment for ship operators regardless of where the pollution incident occurred.

⁷⁸ Article 100(2) TFEU is ex Article 80(2) TEC, which was the legal basis for Directive 2005/35/EC on ship-source pollution

⁷⁹ Science article by Yanzhu Dong (2022), [Chronic oiling in global oceans](#), Vol 376, Issue 6599, pp. 1300-1304

⁸⁰ European Commission (2018). Commission staff working document, [Impact Assessment on port reception facilities for the delivery of waste from ships](#).

3.3. Subsidiarity: Added value of EU action

Action at Union level would be more effective than action at national level because it can offer a strong deterrent effect on perpetrators that act across borders. Shipping is an international sector, operating in different EU and international waters and regulated at the global as well as regional and national instances.

Member States would be able to address the problem and incorporate the international standards for ships on their own because all Member States ratified the MARPOL Convention. However, they would not be as effective and efficient. The current Directive already complements the MARPOL standards by supporting the Member States in identifying the offenders through information from EMSA digital tools e.g. satellite surveillance. The added value of a revised Directive would be further clarification of the exceptions from liability, as part of the EU liability regime, and improved satellite surveillance covering more types of pollutants thanks to the extended scope of the Directive in line with MARPOL. The revision also aims to introduce new measures beyond MARPOL on types and levels of penalties imposed⁸¹ as well as integrated digital solutions for data collection and exchange. The latter cannot be achieved without an aligned legal framework and common digital tools. Action at Union level would therefore bring added value as compared to action at national level.

For example, satellite surveillance capabilities offered by the CleanSeaNet service constitute significant value due to economies of scale. CleanSeaNet is generally perceived by stakeholders as a significant added value of the Directive⁸². The evaluation showed that the detection of potential discharges from ships is up to 7 times less costly when done at EU level.

In brief, a revised Directive could ensure a level playing field and facilitate national verification, and prosecution as well as cross-border enforcement leading to more dissuasive penalties. EU action will provide for clear added value on countering ship-source pollution which typically has a transnational dimension compared to what Member States acting alone can achieve.

4. OBJECTIVES: WHAT IS TO BE ACHIEVED?

4.1. General objectives

One of the aims of the European Union within its borders is to protect and improve the quality of the environment. The revised SSP Directive is to contribute to the overall goals set out in the Sustainable and Smart Mobility Strategy and the European Green Deal. In view of the problem identified in section 2.1, the review of the SSP Directive should ensure that persons responsible for discharges of polluting substances into the sea are subject to adequate penalties, in order to improve maritime safety and to enhance the protection of the marine environment from pollution by ships. This means preventing pollution from ships by aligning with MARPOL standards and consequently improving maritime safety. Therefore, the general objective is:

“In line with the European Green Deal, the aim is to incorporate into EU law international standards for ship-source pollution into sea and to ensure that persons responsible for

⁸¹ Without prejudice to the revised Environmental Crime Directive.

⁸² 10 out of 14 Member State authorities interviewed agreed that CleanSeaNet service has increased the efficiency of the process. Out of the 28 respondents who in the public consultation answered the question on efficiency, 13 (47%) viewed CleanSeaNet as an efficient tool (the other half responded ‘I don’t know’ including all industry representatives).

discharges of polluting substances into sea are subject to effective, proportionate and dissuasive penalties, in order to improve maritime safety and to enhance protection of the marine environment from pollution by ships”.

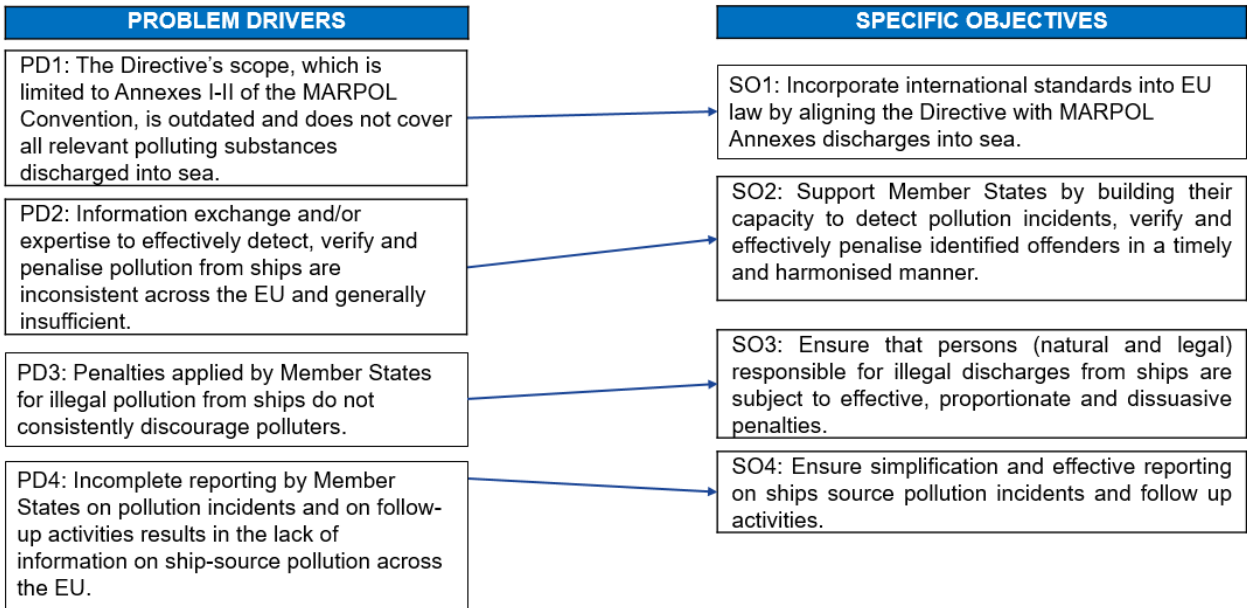
The success of the revised Directive can be measured by the increased proportion of illegal discharges for which more effective, dissuasive and proportionate penalties are imposed. This should ultimately contribute to the reduction of illegal discharges because effective law enforcement increases the likelihood of detection and penalisation and reduces the chance that the offending ship gets away. Less illegal discharges in return will help to preserve the marine environment.

The revision should contribute towards Sustainable Development Goal (SDG) 14 (“Conserve and sustainably use the oceans, seas and marine resources for sustainable development”) and SDG 3 (“Ensure healthy lives and promote well-being for all at all ages”), and with its provisions on prosecution to SDG 16 (“Peace justice and strong institutions”).

4.2. Specific objectives

This initiative is primarily designed to complement the Port Reception Facilities Directive and to effectively address pollution coming from waste generated by ships as well as to address the identified problem. The specific objectives (SOs) and their correspondence with the problem drivers are presented in the Figure 7. They can be achieved through the implementation of the Directive that fosters effective detection, verification and prosecution of illegal discharges at sea. Progress towards these objectives would be measured through appropriate indicators. However, the values of these indicators in the baseline are not provided due to serious data limitations, as also shown by the ex-post evaluation.

Figure 7. Correspondence between the specific objectives and the problem drivers



SO1: Incorporate international standards into EU law by aligning the Directive with MARPOL Annexes on discharges into sea. Member States should be able to implement the international rules established by all MARPOL Annexes on discharges into sea in a harmonised manner given the cross-border nature of sea pollution and the international nature of the shipping industry. With the raising concerns on marine environment protection, the objective is to extend the scope for the Directive (together with its satellite surveillance support) to more types of substances. The

interviewed stakeholders were generally in favour of SO1.⁸³ Progress towards this objective could be measured through the expected increase in the detection capacity and detection levels for oil, noxious substances, packaged goods, sewage, garbage and scrubber discharge water, and, subsequently through the expected decrease in the overall number of illegal discharges due to the deterrent effect of the increased detection capacity.

SO2: Support Member States by building their capacity to detect pollution incidents, verify, collect evidence and effectively penalise identified offenders in a timely and harmonised manner. While enforcement falls under the responsibility and budgets of the Member States (also as parties to MARPOL), EU-wide information exchange tools, training and guidance can offer to the Member States cost-efficient and cross-border support for detecting pollution incidents and the collection of evidence. The integrated and enhanced information delivered to national authorities by EMSA tools will support their decision on whether to verify the incident and will make verification more targeted. The interviewed stakeholder were generally in favour of SO2.⁸⁴ This objective aims to help Member States in prioritising and streamlining their action so that they make the best use of their resources for verification (e.g. personnel, aircraft, patrol vessels) and prosecution. Progress towards this objective could be measured through the expected increase in the level of verification. In addition, the proportion of identified offenders as a result of verification could mark progress.

SO3: Ensure that persons (natural & legal) responsible for illegal discharges from ships are subject to effective, proportionate & dissuasive penalties. This objective will ensure that similar pollution incidents will be subject to similar treatment. If penalties are proportionate and effective for all illegal discharges in all European seas, they are expected to become more dissuasive. SO3 is coherent with the Environmental Crime Directive, to the extent that once a Member State, as a result of the verification carried out under the SSP Directive, determines that criminal penalties are required, the ECD would apply. However, if they decide that administrative penalties are more appropriate, the provisions of the SSP Directive would apply. The interviewed stakeholder were generally in favour of SO3.⁸⁵ Progress towards this specific objective could be measured by checking if the level and type of penalties is effective, proportionate and dissuasive. The data on the level of penalties in each Member State would allow checking if penalties are proportionate i.e. the level of penalties increases in those Member States where they are very low and hence there is more converge across Member States on the levels of penalties imposed. In addition, the data on the type of penalties in each Member State would allow checking if penalties are effective. Combined, this data would allow assessing if penalties are dissuasive.

SO4: Ensure simplification and effective reporting on ship-source pollution incidents and follow-up activities. Information on the implementation of the Directive (e.g. number of illegal discharges verified and prosecuted as well as penalties imposed) will ensure transparency, evidence-based decision making and is expected to support enforcement by Member States. The evaluation has shown that data on the numbers of cases and penalties needed as indicators to evaluate and monitor

⁸³ 11 MS authorities (BE, HR, CY, DK, FI, DE, RO, ES, SE, LV and 1 anonymous representative of Member State authorities), five regional/international bodies, two maritime industry stakeholders and one environmental NGO. However two industry organisations disagreed which reflects the position of industry questioning the added value of the Directive as compared to ratification of MARPOL by all MS.

⁸⁴ 11 MS authorities (BE, HR, CY, FI, DE, NL, RO, ES, LV, SE and 1 anonymous representative of Member State authorities), five regional/international bodies, two maritime industry stakeholders and one environmental NGO.

⁸⁵ 13 MS authorities (BG, BE, HR, CY, FI, FR, DE, NL, RO, ES, LV, SE and 1 anonymous representative of Member State authorities), five regional/international bodies, two maritime industry stakeholders and one environmental NGO. However two industry organisations disagreed, which reflects the position of industry questioning the added value of the Directive as compared to ratification of MARPOL by all MS.

the success of the Directive either does not currently exist or is fragmented. Improving data collection would therefore be an important specific objective of the future Directive. The simplification and effective digital reporting will contribute to the general objective by accurate data collection according to uniform standards. Additionally, access to information for decision-makers and the public is expected to have a deterrent effect, due to the risk of corporate reputation damage. The interviewed stakeholder were generally in favour of SO4.⁸⁶ Progress towards this specific objective could be measured by the improved reporting on the Directive implementation. Success would mean that Member States systematically report the pollution incidents they verified and penalised so that the policy-makers and the public are aware of the progress made.

5. WHAT ARE THE AVAILABLE POLICY OPTIONS?

5.1. What is the baseline from which options are assessed?

The EU Reference scenario 2020 (REF2020) is the starting point for the impact assessment of this initiative. The REF2020 takes into account the impacts of the COVID-19 pandemic that had a significant effect on the transport sector. More detailed information about the preparation process, assumptions and results are included in the Reference scenario publication⁸⁷. Building on REF2020, the baseline has been designed to include the initiatives of the 'Fit for 55' package proposed by the Commission in July 2021. A common baseline was developed for this impact assessment, as well as other impacts assessments in the area of maritime safety (Port State Control, Flag State and Maritime Accident Investigation directives impact assessments), to ensure consistency. More details on the baseline scenario are provided in Annex 4.

The baseline scenario assumes no further EU level intervention beyond the legal framework set by the current SSP Directive (MARPOL Annex I-II discharges etc.), but takes into consideration relevant initiatives at EU or international level, notably the effects of the recent entry into force of the revised Port Reception Facilities Directive and the revised Environmental Crime Directive (ECD). The new Environmental Crime Directive makes parts of the current SSP Directive obsolete because the provisions on criminal proceeding were taken over by the ECD.

The COVID-19 pandemic had a major impact on global shipping, affecting all market segments. In the baseline scenario, international maritime freight transport activity (intra and extra-EU) is projected to be 21% lower in 2020 relative to 2015. From 2021 onwards, however it is projected to start recovering and grow strongly by 2025 and beyond (i.e. 19% growth for 2015-2030 and 48% for 2015-2050), due to the rising demand for primary resources and container shipping. Relative to 2019, this is equivalent to an 8% increase in transport activity by 2030 and 33% growth by 2050. The number of port calls for 2025-2050 is projected to grow at lower rate than transport activity, following similar evolution as over the historical period.

There is high uncertainty regarding the impacts of the recent geo-political events related to the Russian aggression on Ukraine for the long-term. However, these events are not expected to have a significant impact on the baseline relevant for this impact assessment. While the local impact in certain areas (northern Black Sea, Azov Sea) has been significant and trade flows to/from both Russia and Ukraine have been impacted either through sanctions or military action, the overall impact on maritime traffic in the Union is expected to be relatively limited, despite the uncertainty.

⁸⁶ 13 MS authorities (BG, BE, HR, CY, DK, FI, FR, NL, RO, ES, LV, SE and 1 anonymous representative of Member State authorities), five regional/international bodies, one maritime industry stakeholder and one environmental NGO.

⁸⁷ [EU Reference Scenario 2020 \(europa.eu\)](https://ec.europa.eu/economy_finance/eu-reference-scenario-2020)

The baseline incorporates foresight megatrends⁸⁸ and developments captured in the 2022 Strategic Foresight Report⁸⁹. Among others, it captures the trend of increasing demand for transport as population and living standards grow. Furthermore, the cruise fleet will more than triple globally in 2050.⁹⁰ The increasing demand for transport and cruise tourism will lead to a higher number of ships addressed by the SSP Directive. The 2022 Strategic Foresight Report also reconfirms the existing megatrends identified in the 2021 Strategic Foresight Report⁹¹ and more specifically, the megatrends of “Climate change and environmental degradation” and that of “Accelerating technological change and hyperconnectivity” that relate to the ongoing twin green and digital transitions. The ability of the EU to achieve these twin transitions very closely relates to the deployment of existing and new technologies in scale and their appropriate framing with relevant policies to achieve their maximum effectiveness. “Enabling a greener transport sector with digital technologies” is one of the areas where the twinning of the green and digital transitions is expected to have a major effect. Relevant to the SSP Directive revision, exploiting new technologies, such as the use of satellite surveillance tools to better monitor illegal discharges of ships is one of the key issues identified. The ongoing technological developments would positively influence the baseline because the technological drive would make more digital solutions available on the market for detection and verification. It is however uncertain if Member States would prioritise and allocate resources to new tools for MARPOL Annex III-VI discharges into sea. In addition, without further EU level action EMSA tools are expected not to be used at their full potential and would continue to cover only the MARPOL Annex I-II discharges. Improvements in the surveillance capabilities supported by CleanSeaNet for MARPOL Annex I-II discharges are however expected in the future in the baseline scenario.

National verification assets (aircraft, patrol boat deployment) are outside the scope as Member States have verification obligations directly stemming from their ratification of MARPOL. The amount of aerial resources committed by Member States to maritime environmental surveillance is expected to keep declining as observed over the past 15 years, but this is likely to be offset by improvements in the effectiveness of using these resources, resulting in a stable increase of effective surveillance in the future. The baseline considers the improvements in the effectiveness of using resources due to technological developments, drawing on the foresight megatrends described above.

The share of illegal discharges being detected is affected by the availability of surveillance tools and specialised resources, and improvements in their efficiency. New technological developments on surveillance tools at national and EMSA level (only covering MARPOL Annex I-II discharges in the baseline) are envisaged. National aerial surveillance activity in some Member States will systematically improve e.g. new remote sensing equipment will be purchased for aircrafts due to market developments and product availability. However, this will only be the case for some Member States and will not result in a significant deterrent effect across the EU. EMSA tools covering MARPOL Annex I-II discharges will also further develop and it is likely that in the coming years the Dynamic Overview of National Authorities (DONA) and the Integrated Maritime Services would be adapted gradually to meet the objectives of the SSP Directive. It is therefore likely that there would be some limited new opportunities for data collection and exchange on ship-source pollution in the future but this will not result in significant changes in detection levels. A small increase in the number of offences identified would also result in an indirect limited increase in prosecutions, thanks to the introduction of harmonised treatment of criminal sanctions for serious

⁸⁸ https://knowledge4policy.ec.europa.eu/foresight/tool/megatrends-hub_en#explore

⁸⁹ COM(2022) 289 final.

⁹⁰ DNV Group Research and Development (2022) Ocean’s Future to 2050, a sectorial and regional forecast of the Blue Economy

⁹¹ [2021 Strategic Foresight Report | European Commission \(europa.eu\)](#)

environmental offences due to the proposed revision of the Environmental Crime Directive. This could lead to improved clarity and facilitate the prosecution of cases. The stronger prosecution framework, triggered by the revision of the ECD is likely to improve the efficiency of prosecutions. Illegal discharges from ships are expected to also be affected by market developments. The increasing environmental awareness and reputation concerns⁹² is expected to drive the uptake of more sustainable practices by ship operators/owners.

A distinction needs to be made between substances that are currently in the scope of the SSP Directive and those that are not in the scope. For the MARPOL Annexes that are currently in the scope of the SSP Directive (oil and noxious liquid substances in bulk) the baseline scenario foresees a relative stabilisation over time, despite the increase in maritime traffic. This is mostly due to the maritime environmental surveillance supported by the CleanSeaNet and the small increase in the number of infringements identified, and to more limited extent due to the increasing environmental awareness of the shipping sector. The shipping industry acknowledged the improved surveillance capabilities brought by satellite surveillance services and the potential for future technological improvements. Seven of the 12 Member State authorities interviewed⁹³ agreed that technological developments are expected to have a moderate to a significant positive impact on the level of discharges of polluting substances that are in the scope of the SSP Directive. Thus, the baseline takes into account the ongoing twin green and digital transition.

More specifically, in the absence of further EU level intervention and despite the growth in maritime traffic, the baseline scenario projects a relative stabilisation in the total quantity of illegal oil discharges (MARPOL Annex I) by 2050. Changes in the fuel mix and a global cap on sulphur contents in Heavy Fuel Oil are likely to lead to less oily sludge production with an increased use of Liquefied Natural Gas and Marine Gas Oil as opposed to Heavy Fuel Oil and the environmental risk posed by maritime oil spills can be expected to decline further.⁹⁴

Noxious liquid substances in bulk (MARPOL Annex II) are less frequent than oil spills⁹⁵ and, due to their infrequent nature, there is little quantitative data available. It is however expected that these noxious substance spills will remain limited in the future.

For harmful substances carried by sea in packaged form (MARPOL Annex III), are not in the scope of the SSP Directive in the baseline and no data is available for illegal discharges. However, discharges are likely to happen almost exclusively due to accidents, as commercial packaged goods are not intentionally released.

Garbage and sewage (MARPOL Annex IV-V) are not in the scope of the SSP Directive in the baseline and they are thus not currently supported by the CleanSeaNet; albeit already detected in some CleanSeaNet images used for oil spill monitoring (and subsequently verified by Member States). Despite technological developments, which may reduce the costs of satellite monitoring services over time, very few Member States are expected to pursue such additional satellite monitoring services on their own. As shown by the evaluation report, the costs for Member States

⁹² Representatives of the shipping industry (European Community Shipowners' Association, Protection and Indemnity Club, International Chamber of Shipping and Baltic and International Maritime Council) consulted in the context of the evaluation and impact assessment support studies reflected this point as a factor for improving the performance of ship operations.

⁹³ HR, CY, MT, NL, ES and 2 anonymous representative of Member State authorities

⁹⁴ DNV Group Research and Development (2022) Ocean's Future to 2050, a sectorial and regional forecast of the Blue Economy

⁹⁵ European Maritime Safety Agency and European Environment Agency, 2021, [European Maritime Transport Environmental Report](#) (EMTER)

for procuring satellite images are estimated to be up to 7 times higher than the costs for EMSA. Thus, the technological developments are not expected to have a significant impact on garbage and sewage discharges, which are projected to grow in line with the maritime traffic in the baseline. Increasing environmental awareness is also expected to have limited impact. More specifically, pollution from sewage from ships (MARPOL Annex IV) is likely to increase in line with the maritime traffic, notably for RO-PAX ships⁹⁶ and cruise fleet. The transport activity for these categories of ships is projected to increase steadily as tourist levels return to pre-pandemic levels (i.e. 25% increase for 2015-2030 and 56% for 2015-2050). Garbage from ships (MARPOL Annex V) contribute to the marine litter problem with an estimated EU average of 32% and values up to 50% for some European sea basins. It is likely that discharges will increase over time due to the trend in maritime traffic, even if an increasing share of the garbage is delivered in ports and behavioural changes reduce garbage generation, notably for cruise fleet (e.g. reduction of single use plastics).

For air pollution from ships (MARPOL Annex VI), legislation in place is expected to lead to a clear decoupling from shipping volumes and a reduction of the SO_x emissions released to the atmosphere by 32% by 2030 and 56% by 2050 compared with 2015. Air emissions released to the atmosphere can be reduced to compliant levels through the installation of emission abating scrubbers or the use of fuel-compliant options. The majority of scrubbers are systems operating in open loop, and their discharge waters are released into the sea, while closed loop systems generate sludge and bleed-off water delivered to Port Reception Facilities. Increases in the release of scrubber discharge waters into sea are to be expected in the future, following new restrictions on high sulphur fuels in non-Sulphur Emission Control Areas⁹⁷. For more details on scrubber discharge waters see Problem Driver 1 in section 2.2.

In the baseline scenario, the most significant costs generated by the Directive are related to the CleanSeaNet that are based on a state-of-art system for satellite surveillance. The costs for CleanSeaNet are estimated at EUR 5.17 million in 2020 and are projected to remain stable over time (in 2020 prices) in the baseline scenario.

Member States administrations are estimated to need 80 hours per year for reporting on the application of the SSP Directive to the European Commission⁹⁸ in the baseline scenario. The total reporting costs per Member State are estimated at EUR 3,144 and at the EU level at EUR 70,048.⁹⁹ In addition, the costs for verifying the CleanSeaNet pollution alerts are estimated at EUR 105,470 for 2020 and are projected to remain stable over time. Finally, the costs for submitting pollution incident reports (POLREPs) in SafeSeaNet and inspection requests issued through THETIS¹⁰⁰ are estimated at EUR 13,000 per year from 2020 onwards in the baseline scenario. Thus, at EU level, total costs for Member States administrations are projected at EUR 188,518 per year by 2050 (in 2020 prices) in the baseline scenario.

⁹⁶ RO-PAX acronym refers to passenger roll-on/roll-off ships.

⁹⁷ European Commission (2018). Commission staff working document, [Impact Assessment on port reception facilities for the delivery of waste from ships](#)

⁹⁸ The reporting on the application of the SSP Directive to the Commission takes place every three years. For the purpose of the analysis, these costs are transformed into annual costs. This is because the main effort is related to the collection, preparation and adjustment to fulfil the reporting requirements.

⁹⁹ Assuming an average hourly labour cost of 39.8 EUR for professional, technical and scientific services at EU level (in 2020 prices) Source: Eurostat [LC_LCI_LEV]

¹⁰⁰ Member State authorities submit an inspection request related to a suspected illegal discharge (MARPOL infringement) via THETIS, the EMSA inspection database.

5.2. Description of the policy measures and policy options

As a first step, a comprehensive list of possible policy measures was established after extensive legal analysis of the Directive's design boundaries, consultations with stakeholders, expert meetings, and independent research in the context of the impact assessment support study and the Commission's own analysis. This list was subsequently screened based on the likely effectiveness, efficiency and proportionality of the proposed measures in relation to the given objectives, as well as their legal, political and technical feasibility.

Retained policy measures and policy options overview

The retained regulatory and non-regulatory policy measures have been grouped in three policy options (PO A, PO B and PO C) as presented below. The tables below present the links of the retained policy measures with the specific policy objectives, problem drivers as well as policy options. The policy measures that are common to all policy options (such as PMc1 on the extension of the scope of the Directive) are presented in Table 6. Next, Table 7 presents the measures that are different between policy options, to allow focusing the impact assessment on the differences between the policy options. A detailed description of the policy measures is provided in Annex 6.

Table 6. Policy measures common for all three policy options.

Policy Driver (PD) & Specific Objective (SO)	Policy Measure (PM)	Policy Option (PO)		
		PO A	PO B	PO C
PD1 SO1	PMc1 – Extend the scope of the Directive to polluting substances under MARPOL Annex III-V and to discharge water from scrubbers under MARPOL Annex VI and include a review clause to encompass future developments of the MARPOL Convention.	√	√	√
PD2 SO2	PMc2 - EMSA provides training and guidance to authorities responsible for detection, verification and evidence collection.	√	√	√
	PMc3 - The Commission establishes a dedicated expert group facilitating cooperation between Member States, including through the adoption of guidelines.	√	√	√
	PMc4 – Inclusion of a provision on whistle-blowers , their protection and means of passing the relevant information .	√	√	√
	PMc5 – EMSA further enhances the data exchange tools and automated links in the Integrated Maritime Services based on CleanSeaNet, THETIS, THETIS EU and SafeSeaNet.	√	√	√
PD3 SO3	PMc6 – The exception from liability for polluters, including crew members, will be further clarified in the Directive.	√	√	√
PD4 SO4	PMc7 - Obligation for Member States to log their feedback data in CleanSeaNet and document if and how CleanSeaNet alerts have been verified .	√	√	√

The common measure for all policy options to address the first specific objective (SO1) refers to the extension of the scope of the Directive by covering illegal discharges of MARPOL Annex III-V substances and discharge water from scrubbers of MARPOL Annex VI (PMc1). Four common measures would contribute to achieving SO2, namely the provision of more training and guidance to the Member States (PMc2), the establishment of an expert group (PMc3), the information from whistle-blowers (PMc4) and the enhancement of Integrated Maritime Services (PMc5).

Furthermore, to address SO3, all policy options provide further clarifications on the liability regime (PMc6). Finally, and importantly, to make best use of the information from CleanSeaNet and to address SO4, each Member State will be obliged to log if and how CleanSeaNet alerts have been verified (PMc7).

In particular:

- PMc2 (training and guidance) is linked to problem driver 2 and specific objective 2. With the national authorities acquiring more training on ship-source pollution and sharing their experience with others, it is expected that enforcement is enhanced leading to a dissuasive effect. Stakeholders were generally in favour of this policy measure.¹⁰¹
- PMc5 (enhancement of Integrated Maritime Services) is linked to problem driver 2 and specific objective 2 and promotes exchanges of information between different EMSA systems (CleanSeaNet, THETIS, THETIS EU and SafeSeaNet). Stakeholders were also in favour of this policy measure.¹⁰² They emphasised the value of EMSA tools and the potential advantages of further integration.
- PMc6 (liability regime clarifications) is linked to problem driver 3 and specific objective 3 and provides clarification of the existing legal framework. It clarifies a key legal element of the EU liability regime for the rare cases when damage to the ship or its equipment happens. This measure spells out a legal exception of MARPOL. Stakeholders did not have a good understanding of the complex legal issue and, therefore, no set opinion, however there was no opposition.¹⁰³
- PMc7 (obligation to log if and how CleanSeaNet alerts have been verified) aims at monitoring how the surveillance mechanism of CleanSeaNet is used by Member States in practice. PMc7 is feasible under a directive because it provides a general obligation which Member States can transpose into their national legislation and decide on the details of application. There was rather low support of stakeholders for this measure due to additional work required, and some stakeholders expressed opposition.¹⁰⁴

¹⁰¹ 13 out of 26 stakeholders who provided a response to a question on this measure in the survey (including 11 Member State authorities, EMSA and four regional/international bodies) identified guidance and training as a relevant and suitable policy measure.

¹⁰² In the stakeholder workshop 23 out of 41 participants that voted were of the opinion that this measure would make the biggest difference in increasing cooperation between Member States and information exchange. In addition seven out of the 17 stakeholders (including six Member State authorities and one regional body) that responded to this question in the interviews supported this measure.

¹⁰³ Generally, there was a lack of sufficient knowledge on the EU liability regime. Only 8 out of the 21 stakeholders consulted) provided their views on this measure in the interviews. Two of them (two MS authorities, BG and CY) agreed with this measure, as they considered that the proposed additional text clarifies the principles stated by international conventions. Two industry representatives (ECSA/ICS) stated that the adoption of this measure would be only a partial improvement.

¹⁰⁴ Five out of the 12 stakeholders (including four MS authorities and one regional body) who provided a response in the interview identify challenges associated with the implementation of this measure. One MS authority (BG) disagreed with this measure, as they considered that it could be difficult to implement from an operational perspective. Two MS authorities (MT, ES) also highlighted the challenges and additional administrative burden that this policy measure could impose on national authorities if implemented. Furthermore, another MS authority (RO) indicated that there will probably be issues implementing this measure, although they are not expected to be significant.

All policy options achieve improved alignment with the MARPOL Convention. The ambition level for all options is similar; providing the Member States with accurate and timely information and keeping the digital tools in line with the increased pace of digital transition.

Table 7. Policy measures that are different between policy options.

Policy driver and specific objective	Policy measure	PO A	PO B	PO C
	PM1 – Inclusion of a provision on minimum requirements for verification by means of a national target of 60% verification rate for CleanSeaNet alerts .			√
PD3 SO3	PM2a – Each Member State defines in their national legal order the components of infringements , either on the basis of ‘ <i>minor cases</i> ’ and ‘ <i>deterioration of the quality of water</i> ’, or on any other basis prescribed by the Directive, and applies administrative or criminal penalties accordingly.	√		
	PM2b – The Directive provides definitions of the components of infringements , either on the basis of ‘ <i>minor cases</i> ’ and ‘ <i>deterioration of the quality of water</i> ’ or on any other basis prescribed by the Directive.		√	√
	PM3a – The Directive provides principles for setting the level of administrative penalties . The Commission will develop an implementing act on the criteria to be applied (e.g. depending on type of polluting substances).		√	
	PM3b – The Directive provides principles for setting the level of administrative penalties , the criteria to be applied (e.g. depending on type of polluting substances) as well as values for the maximum and minimum levels for administrative penalties.			√
PD4 SO4	PM4 – Obligation for Member States to report their data in an EMSA-managed tool on each ship-source pollution incident.		√	√
	PM5a – Member States inform the public about ship-source pollution incidents through a national website . Member States may also report this data to the Commission.	√		
	PM5b – EMSA publishes online key EU information reported by Member States about ship-source pollution incidents.		√	√

Overall, the policy options present alternative ways of meeting the specific objectives to differing degrees. All options propose solutions to the identified problem, but vary in terms of approach, level of harmonisation and amount of discretion left to the Member States.

Policy option A - Emphasis on the implementation at a national level

PO A leaves most discretion to Member States on implementing MARPOL standards, whilst keeping the level of EMSA support sufficiently high (training, guidance, enhanced EMSA tools). PO A makes the Member States responsible for keeping the public informed about pollution incidents, through national websites (PM5a)¹⁰⁵. PO A also leaves more flexibility as compared to the other options in terms of types and levels of penalties. This option follows a national approach

¹⁰⁵ Stakeholders, especially Member States, were generally not supportive on holding their own websites as they consider it not efficient. 4 out of the 12 MS authorities consulted expressed their disagreement with this measure. One MS authority indicated that they do not see the need for a website to be developed at national level, as they believe it would be enough to provide the information through the reporting portal DONA.

towards determining the type of penalty and does not regulate the level of penalty. In PO A, there is thus more flexibility left to Member States with a minimum of EU intervention.

In policy option A, specific objective 1 is addressed by means of the common measure PMc1 (extension of the scope of the Directive) and specific objective 2 is addressed by four common measures: PMc2 (training and guidance), PMc3 (expert group), PMc4 (information from whistle-blowers) and PMc5 (enhancement of Integrated Maritime Services). Specific objective 3 is addressed by PMc6 (clarifications on liability regime) and PM2a (type of penalty), while specific objective 4 by PMc7 (obligation to log if and how CleanSeaNet alerts have been verified) and PM5a (information to the public on national websites). This policy option assumes that the MARPOL international standards, ratified by individual Member States are in principle sufficient to tackle the identified problem for the extended scope. The additional elements in this policy option beyond the baseline scenario are limited to the common measures (e.g. enhanced EMSA tools) and a basic national reporting measure.

Policy option B – Strengthened cooperation between EU Member States

PO B focuses on Member States working together on a common setting for penalties. PO B provides that the levels of penalties will be agreed in an implementing act which will be prepared with the cooperation and support of the newly established Expert Group. Member States will also use a common reporting tool which can further enhance cooperation by information exchange within the existing Integrated Maritime Services. PO B is expected to provide a better structure for cross-border cooperation to strengthen Member State enforcement without introducing major regulatory measures and costs for Member States.

In policy option B, specific objective 1 is also addressed by means of the common measure PMc1 (extension of the scope of the Directive) and specific objective 2 is addressed by the four common measures as above. In order to ensure that offenders are appropriately penalised (SO3), this policy option aims at cooperating and agreeing on common criteria on levels of penalties (PM3a). It also provides clear principles for the components of infringements (PM2b). With regard to reporting obligations (SO4), EMSA would develop a new reporting tool to simplify data reporting and information sharing (PM4) and will keep the public informed about ship-source pollution incidents through an online portal (PM5b). This option would strengthen the capacity of Member States to interact with each other, while minimising the burden on Member State administrations. In this policy option, flexibility for Member State administrations is balanced with increased cooperation in key areas of penalties, reporting and information to the public.

Information published at EU level (PM5b – information to the public on EU website) reinforces national enforcement efforts by offering transparency to promote Member State accountability towards citizens. PM5b offers to the public the direct result of more effective reporting, linked to the specific objective 4 and problem driver 4.¹⁰⁶

Policy option C - Emphasis on EU harmonisation

PO C focuses on stronger EU harmonisation and cooperation between Member States. It obliges Member States to verify at least 60% of their CleanSeaNet alerts. PO C is expected to generate higher verification costs but, as PO B, it is expected to provide a structure for cooperation between

¹⁰⁶ There is public demand for such environmental information and the measure is supported by stakeholders. 4 out of the 12 MS authorities consulted agreed with the measure related to the European Commission providing public information based on the information reported by Member States on the enforcement of the SSP Directive.

Member States and strengthened enforcement. On the levels of penalties, PO C further strengthens harmonisation across the EU as compared to PO B.

For policy option C, specific objective 1 is addressed by means of the common measure PMc1 (extension of the scope of the Directive). Specific objective 2 is addressed by the four common measures as above, as well as by PM1 (60% verification rate for CleanSeaNet alerts). Specific objective 3 is addressed by PMc6 (clarifications on the liability regime), PM2b (type of penalty) and PM3b (level of penalties), while specific objective 4 by PMc7 (obligation to log if and how CleanSeaNet alerts were verified), PM4 (reporting) and PM5b (information to the public on EU website).

PM1 (60% verification rate for CleanSeaNet alerts) would make it compulsory that, upon receiving a CleanSeaNet alert, the national authority has to respond to at least 60% of the alerts. This measure is designed to lead to a higher verification rate in the EU. Six Member States (DK, FI, DE, IT, LT, SI) verified more than 60% of alerts in 2020 and this was the starting point for defining the target. The other Member States would need to increase their verification levels to meet this target. Other (lower) targets were considered based on the latest CleanSeaNet data. However, for the purpose of this impact assessment, an ambitious target has been retained to ensure alignment with the front-running Member States. Stakeholders that responded to consultation activities are mostly against this measure as they do not regard it as efficient.¹⁰⁷

All policy options achieve alignment with the MARPOL Convention by extending the scope of the Directive to cover all substances discharged illegally into sea of all MARPOL Annexes (PMc1). All policy options introduce new elements over and above Member States obligations to enforce the MARPOL Convention by means of the EU liability regime (further clarified by PMc6), the satellite surveillance tool (further strengthened by PMc1 and PMc7 and access to timely information by PMc5), requirements on types of penalties (PM2a and PM2b), as well as knowledge exchange and capacity building for Member States (PMc2 and PMc3).

In relation to the differences between policy options, PM2 (type of penalty) is included in PO A in the form of PM2a, minimising EU intervention by giving Member States the flexibility to define the type of penalties in their national legislation. In contrast, PM2b and PM3 provides for a harmonised EU approach towards types and levels of penalties and is included in PO B and PO C (PM3a in PO B and PM3b in PO C) which have a broader European angle. More specifically, PM3a included in PO B provides for principles and criteria for levels of administrative penalties, whereas PM3b foresees additionally concrete provisions on values of penalties. PM4 (reporting) is only included in PO B and PO C because this measure works together with PM5b (information to the public on EU website) and it is mutually exclusive with PM5a (information to the public on national websites) which assumes lighter reporting requirements to the Commission but stronger national reporting tools.

5.3. Policy measures and options discarded at an early stage

The following **policy measures** were discarded and not covered in the impact assessment process:

¹⁰⁷ In the stakeholder workshop only 6 out of 41 participants that voted supported this measure. 15 out of 30 participants that voted were of the opinion that the verification of CleanSeaNet alerts should be voluntary. The main issue identified in interviews was the additional resources that would be needed to follow up on such a high proportion of possible pollution incidents detected by CSN service.

- Extend the list of polluting substances covered by the Directive to include air emissions covered by MARPOL Annex VI (e.g. SO_x, NO_x, VOC, PM);
- Include a provision on minimum requirements on the verification by Member States of possible illegal emission levels (SO_x, NO_x): national target of 20% verification level per Member State with reference to the number of possible illegal emission levels (SO_x, NO_x), detected in territorial waters and EEZ for which a THETIS EU/sulphur module alert was generated.
- Extend the list of polluting substances covered by the Directive beyond MARPOL covering pollution of emerging concern (e.g. underwater noise, plastic pellets, more strict than Annex V on animal carcasses or more strict than Annex III on lost containers);
- Limit the extension of the scope of the Directive to align it with the scope of the waste categories of the PRF Directive; and
- Align the SSP Directive's legal regime with MARPOL Article 4(4).

In addition, one policy option was discarded in the impact assessment process - more specifically the **repeal of the Directive**.

Details on the reasoning for discarding these policy measures and the policy option are provided in Annex 5.

6. WHAT ARE THE IMPACTS OF THE POLICY OPTIONS?

This section summarises the main expected economic, social and environmental impacts of each policy option.¹⁰⁸ The proposed measures which involve the amendment of the Directive are assumed to be implemented from 2025 onwards, so that the assessment has been undertaken for the 2025-2050 period and refers to EU27 and in particular the 23 coastal Member States. Costs and benefits are expressed as present value over the 2025-2050 period, using a 3% discount rate. Further details on the methodological approach are provided in Annex 4.

The revision aims at improving how ship-source pollution is penalised in the EU. Some measures aim at increasing efficiency and harmonisation of penalties through better definitions, some at enhancing resources for EMSA tools and others at the alignment with other pieces of legislation. Better detection of ship-source pollution is expected to lead to an increased number of identified illegal discharges and penalties for the offenders that would ultimately result in a deterrent effect decreasing illegal discharges from ships because of the long-term dissuasive effect of the penalties and the general awareness of the public and shipping industry that such penalties are imposed. As a result, better protection of the marine environment is expected to be achieved.

MARPOL allows some discharges into sea of waste generated on board a ship, depending on their type, quantity and other conditions. As such, the Directive is not stopping ship-source pollution because it does not set the environmental standards nor prohibit discharges. Against this background, the cost benefit analysis of the MARPOL environmental standards falls outside the scope of this impact assessment.

¹⁰⁸ The analysis in this section is based on *Ricardo (2023), Impact Assessment support study*, and on the analysis of stakeholders' feedback.

6.1. Economic impacts

This section provides the economic impacts of the policy options on the public authorities (Member States administrations, EMSA and the European Commission) and ship operators. It also includes an assessment of impacts on small and medium enterprises (SMEs), the functioning of the internal market, competition and competitiveness.

6.1.1. Impacts on public authorities

Impact on Member States administrations. All three policy options lead to an increase in enforcement costs for the Member States administrations relative to the baseline because they will have to deal with more incidents with the increased scope of the Directive, while they would also result in enforcement costs savings because of the enhancement of the EMSA tools. PO A would additionally result in adjustment costs for the Member States administrations relative to the baseline for the deployment of national websites. Finally, both PO B and PO C are estimated to generate administrative costs savings (see Table 8). More explanations on each category of costs by policy option are provided below, while the detailed costs and costs savings by policy measure and by Member State (where relevant i.e. PM1), including the assumptions used to derive them, are provided in Annex 4. It should be noted that only the additional costs or costs savings related to the measures included in the policy options are covered in the assessment. The costs due to the MARPOL relevant requirements are not covered here as these stem directly from the ratification of the MARPOL Convention by Member States.

Enforcement costs for Member States administrations. The increase in enforcement costs relative to the baseline are driven by: (i) the extension of the scope of the Directive (PMc1), included in all policy options; (ii) the obligation to log if and how CleanSeaNet alerts have been verified (PMc7), included in all policy options; and (iii) the 60% verification rate for CleanSeaNet alerts (PM1), included only in PO C.

The additional satellite monitoring services by EMSA linked to the extension of the scope of the Directive (PMc1) are expected to result in an increase in the number of CleanSeaNet alerts issued in all policy options. The number of alerts would increase by 8% in 2025 and 58% from 2030 onwards, relative to the baseline, or 209 additional verified alerts in 2025 and 1,530 additional verified alerts from 2030 onwards. The time needed to administer each alert is estimated at one hour¹⁰⁹, and an average hourly labour cost of 39.8 EUR has been assumed for professional, technical and scientific services at EU level (in 2020 prices)¹¹⁰ to estimate the costs. The costs for Member States administrations for processing the additional alerts are estimated at EUR 8,323 in 2025 and EUR 60,894 from 2030 onwards, relative to the baseline.¹¹¹ This is also expected to lead to additional costs for submitting pollution incident reports (POLREPs) in SafeSeaNet and inspection requests in THETIS¹¹² relating to ship-source pollution, estimated at EUR 1,026 in 2025 and EUR 7,597 from 2030 onwards, relative to the baseline. Thus, the total costs due to PMc1 are estimated at EUR 9,349 in 2025 and EUR 68,491 from 2030 onwards, relative to the baseline (see Table 8). Expressed as present value over the 2025-2050 period, enforcement costs for Member States administrations are estimated at EUR 1.1 million for PMc1 in PO A, PO B and PO C, relative

¹⁰⁹ The median value was used of the estimations provided by BG, CY, FR, PL and RO.

¹¹⁰ Source: Eurostat [LC_LCI_LEV]

¹¹¹ These costs also include those related to the collection and the preparation of the relevant data for CleanSeaNet. They do not include surveillance activities (aerial or by other means) as these requirements are derived from international (i.e. MARPOL) and national legislation pre-existing the SSP Directive.

¹¹² Member State authorities submit an inspection request related to a suspected illegal discharge (MARPOL infringement) via THETIS (i.e. the EMSA inspection database).

to the baseline. This comprises the cost of collecting and recording the data, but not the cost of verifying the incident on the spot. As explained in section 5.1, national verification assets (aircraft, patrol boat deployment) are outside the scope as Member States have verification obligations directly stemming from their ratification of MARPOL.

The obligation for Member State authorities to log feedback data for all CleanSeaNet alerts, even for those alerts that are not followed-up (PMc7) would result in an additional 5,449 feedback reports being compiled in 2025 and 8,020 feedback reports from 2030 onwards, also considering the extension of the scope in PMc1. The time for completing a feedback report is estimated at 15 minutes. The enforcement costs for Member States authorities are thus estimated at EUR 54,213 in 2025 and EUR 79,799 from 2030 onwards relative to the baseline (see Table 8). Expressed as present value over the 2025-2050 period, the enforcement costs for Member States administrations are estimated at EUR 1.4 million for PMc7 in PO A, PO B and PO C. Similarly to PMc1, this comprises the cost of recording the data and not the cost of verifying the incident on-scene.

The provision on the minimum requirements on the verification by Member States of at least 60% of the CleanSeaNet alerts (PM1) would significantly increase the effort put into verification activities. It would increase efforts of all coastal Member States, except for those six Member States which already verify more than 60% of the alerts in the baseline. The increase in the number of verified CleanSeaNet alerts at EU level is estimated at 528 for 2025 and 775 from 2030 onwards relative to the baseline. The costs were estimated under the assumption that aerial means are used for this purpose as a check of the potential spill by aircraft is most effective. Data collected from three Member States¹¹³ during the stakeholders' consultation, pointed to an average cost of approximately EUR 5,000 per hour for aircraft. On average, an aerial verification is estimated to take 3 hours. The additional enforcement costs for Member States administrations, relative to the baseline, are thus estimated at EUR 7.9 million in 2025 and EUR 11.6 million from 2030 onwards (see Table 8). Expressed as present value over the 2025-2050 period, the enforcement costs for Member States administrations are estimated at EUR 202.7 million for PM1 in PO C. The additional costs by Member State are provided in Annex 4 (section 3)¹¹⁴.

Total enforcement costs for Member State authorities are the highest in PO C, estimated at EUR 205.2 million expressed as present value over the 2025-2050 period, followed by PO A and PO B with costs estimated at EUR 2.5 million for each relative to the baseline.

Table 8. Costs for Member States administrations by policy option and measure relative to the baseline (in thousand EUR), in 2020 prices

	Difference to the baseline								
	PO A			PO B			PO C		
	2025	2030	2050	2025	2030	2050	2025	2030	2050
Enforcement costs									
PMc1	9.3	68.5	68.5	9.3	68.5	68.5	9.3	68.5	68.5
PMc7	54.2	79.8	79.8	54.2	79.8	79.8	54.2	79.8	79.8
Enforcement costs savings									
PMc5	70.9	103.8	103.8	70.9	103.8	103.8	70.9	103.8	103.8

¹¹³ Average cost per aerial verification based on data provided by Poland, Germany and Finland.

¹¹⁴ Each Member State will be affected in a different way depending on the size of their coastline, territorial waters and EEZ. Annex 4 provides the impacts on enforcement costs broken down by individual Member State.

	Difference to the baseline								
	PO A			PO B			PO C		
	2025	2030	2050	2025	2030	2050	2025	2030	2050
Enforcement costs									
PM1							7,920.0	11,625.0	11,625.0
Adjustment costs									
PM5a	2,300.0	575.0	575.0						
Administrative costs savings									
PM4				46.7	46.7	46.7	46.7	46.7	46.7

Source: Ricardo (2023), Impact Assessment support study

Adjustment costs for Member States administrations. The adjustments costs relative to the baseline in PO A are driven by the requirement to hold a national website with their identified incidents (PM5a). The cost for developing a website for a Member State is estimated at EUR 100,000 in 2025 (one-off adjustment costs), while the maintenance costs are estimated at EUR 25,000 from 2026 onwards relative to the baseline. At the EU level, the adjustment costs are estimated at EUR 2.3 million in 2025 for developing the 23 national websites¹¹⁵ plus EUR 0.58 million recurrent annual costs to maintain them (see Table 8). Expressed as present value over 2025-2050 the adjustment costs for Member States administrations relative to the baseline are estimated at EUR 12.3 million (of which EUR 2.3 million one-off costs) in PO A.

Enforcement costs savings for Member States administrations. Enforcement costs savings relative to the baseline for all policy options are driven by the enhanced Integrated Maritime Services (PMc5). The measure is expected to lead to a reduction in the time spent for processing CleanSeaNet alerts, estimated at 30 minutes, instead of one hour per alert. Thus, this is estimated to result in enforcement costs savings for Member States administrations for verifying the CleanSeaNet alerts of EUR 56,897 in 2025 and EUR 83,182 from 2030 onwards. PMc5 would also result in the near elimination of the costs for submitting pollution incident reports (POLREPs) in SafeSeaNet and inspection requests in THETIS relating to ship-source pollution, leading to costs savings of EUR 14,026 in 2025 and EUR 20,597 from 2030 onwards. Thus, the total enforcement costs savings are estimated at EUR 70,923 in 2025 and EUR 103,779 from 2030 onwards (see Table 8). Expressed as present value over the 2025-2050 period, enforcement costs savings for Member States administrations are estimated at EUR 1.8 million.

Administrative costs savings for Member States administrations. The development of a dedicated reporting tool (PM4) in PO B and PO C would lead to significant time savings for reporting to the European Commission under the SSP Directive, which are estimated to be reduced by a factor of three. Thus, the administrative costs savings for Member States administrations are estimated at EUR 46,699 per year (see Table 8). Expressed as present value over the 2025-2050 period, the administrative costs savings for Member States administrations are estimated at EUR 0.9 million for PM4 in PO B and PO C.

Total costs for Member States administrations (enforcement and adjustment costs) are estimated at EUR 205.2 million in PO C, EUR 14.8 million in PO A and EUR 2.5 million in PO B, expressed as present value over the 2025-2050 period. In PO B, the costs are driven by the common policy measures included in all options, while in PO C the largest share of the costs is linked to the 60%

¹¹⁵ All Member States would need to develop such website, except for AT, CZ, HU and SK that currently do not have flagged vessels nor a coastline.

verification rate for CleanSeaNet alerts (PM1). In PO A, the largest share of the costs is due to the requirement of holding national websites (PM5a).

Total costs savings for Member States administrations (enforcement and administrative costs) are estimated at EUR 2.7 million in PO B and PO C and at EUR 1.8 million in PO A, expressed as present value over the 2025-2050 period. The cost savings are driven by the reduced time for verifying the CleanSeaNet alerts thanks to the enhanced Integrated Maritime Services (PMc5) included in all policy options and also by the dedicated reporting tool (PM4) in PO B and PO C. Overall, PO B results in net costs savings for Member States administrations of EUR 0.2 million, expressed as present value over the 2025-2050 period relative to the baseline, while PO A in net costs of EUR 13 million and PO C in net costs of EUR 202.5 million.

Impact on EMSA. All policy options lead to *adjustment costs for EMSA* relative to the baseline (see Table 9). The adjustment costs relative to the baseline are driven by four policy measures included in all options: (i) the extension of the scope of the Directive (PMc1); (ii) training and guidance (PMc2); (iii) information from whistle-blowers (PMc4); and (iv) the enhanced Integrated Maritime Services (PMc5). In addition, the new reporting tool (PM4) and the information to the public on EU website (PM5b) would result in adjustment costs relative to the baseline for both PO B and PO C.

The alignment of the Directive to MARPOL, by extending the scope of the Directive (PMc1), requires the establishment of additional satellite monitoring services by EMSA to Member State authorities. The adjustment costs are estimated by EMSA at EUR 1.9 to 2.4 million for Annex III (annual recurrent costs), relative to the baseline, for the deployment of high and very high resolution radar and optical imagery (VHR), to follow relevant incidents¹¹⁶. Annex IV and V pollutants would already be detectable through the CleanSeaNet. However, the detection accuracy would benefit from additional medium resolution optical Sentinel-2 type monitoring and from increasing the monitoring volume. EMSA estimates that these upgrades to the CleanSeaNet would require an additional EUR 2.6 million annually from 2025 onwards, relative to the baseline. These upgrades could also benefit the detection of substances under the current scope of the SSP Directive. The costs encompass related IT development and operation. In addition, nine full time equivalents would be needed by EMSA to support the provision of the additional satellite monitoring services, estimated at EUR 1 million per year from 2025 onwards. Additional technical support from EMSA to Member States, to support verification activities, could also take the form of remotely piloted aircraft systems (RPAS) operations. The number of operations performed annually would however depend on Member States interest in such type of system. As such type of support is not explicitly required by the SSP Directive and the interest by the Member States in such type of operations is not known at this stage, the RPAS operations are not included in the costs. Thus, the total adjustment costs for EMSA in PMc1 are estimated at EUR 5.5 to 6 million per year relative to the baseline from 2025 onwards (see Table 9). Expressed as present value over 2025-2050, they amount to EUR 101.6 to 110.5 million for PO A, PO B and PO C.

PMc2 foresees training to national authorities. The adjustment costs for EMSA are estimated at one-off costs of EUR 100,000 in 2025 for developing the training session, and annual costs of EUR 50,000 for the reimbursement of participants from 2025 onwards, relative to the baseline. These costs estimates, provided by EMSA, are based on past similar projects and training sessions and they include costs related to human resources. The adjustment costs for the development of

¹¹⁶ The estimation of costs is based on the assumed need to survey 80 incidents annually at a cost of EUR 24,000 to 30,000 per incident.

guidance documents¹¹⁷ (PMc2) are estimated at EUR 400,000 in total relative to the baseline in 2025 (one-off costs). In addition, costs of EUR 80,000 per year are foreseen from 2026 onwards for providing regular updates to the guidance documents, in consultation with Member State authorities. Thus, the total adjustment costs for EMSA in PMc2 are estimated at EUR 500,000 one-off costs in 2025 and EUR 130,000 annual costs from 2026 onwards. Expressed as present value over 2025-2050, the adjustment costs for EMSA due to PMc2, relative to the baseline, are estimated at EUR 2.8 million (of which EUR 0.5 million one-off costs in 2025) in PO A, PO B and PO C.

The provision on whistle-blowers (PMc4) concerns the development of an external reporting channel for whistle-blowers, to submit information in an anonymised way. The adjustment costs are estimated by EMSA at EUR 50,000 for the development of a module to the EMSA tool (one-off costs in 2025) plus EUR 10,000 per year from 2026 onwards for its maintenance (see Table 9). Expressed as present value over 2025-2050, the adjustment costs for EMSA relative to the baseline are estimated at EUR 0.2 million in PMc4 for all policy options.

The enhanced Integrated Maritime Services (PMc5) is expected to result in development costs estimated by EMSA at EUR 2 million (one-off costs in 2025) plus maintenance costs of EUR 300,000 per year from 2026 onwards, relative to the baseline. In addition, three full time equivalents would be needed by EMSA to support the development of the Integrated Maritime Services, estimated at EUR 330,000 per year from 2025 onwards. Expressed as present value over 2025-2050, the adjustment costs for EMSA for this measure are estimated at EUR 13.3 million (of which EUR 2 million one-off costs) in PO A, PO B and PO C.

The development and maintenance of a new reporting tool (PM4) is estimated to add costs of EUR 250,000 (one-off costs in 2025) for the development of the tool and EUR 180,000 recurrent annual costs for the maintenance of the tool from 2026 onwards in PO B and PO C (see Table 9). Expressed as present value over 2025-2050 the adjustment costs relative to the baseline are estimated at EUR 3.4 million (of which EUR 0.3 million one-off costs) in PO B and PO C.

Finally, the online tool by EMSA for keeping the public informed about ship-source pollution (PM5b) is estimated to cost EUR 100,000 (one-off costs in 2025) for developing the website and EUR 65,000 (recurrent annual costs) from 2026 onwards for maintenance¹¹⁸, based on similar projects by EMSA (see Table 9). The website would draw inputs from the EMSA tools as well as collect Member States inputs. Expressed as present value over 2025-2050 the adjustment costs for EMSA due to PM5b relative to the baseline are estimated at EUR 1.2 million (of which EUR 0.1 million one-off costs) in PO B and PO C.

Total adjustment costs for EMSA are estimated at EUR 122.6 to 131.4 million in PO B and PO C and at EUR 118 to 126.8 million relative to the baseline, expressed as present value over 2025-2050. The common measures included in all policy options account for EUR 118 to 126.8 million of these total costs, thus for 100% of the total costs in PO A and for 96% of the costs in PO B and PO C.

Table 9. Adjustment costs for EMSA by policy option and measure relative to the baseline (in thousand EUR), in 2020 prices

	Difference to the baseline								
	PO A			PO B			PO C		
	2025	2030	2050	2025	2030	2050	2025	2030	2050
Adjustment costs									

¹¹⁷ One focusing on “Tools for gathering evidence and types of evidence used” and the other on “Monitoring and detection tools”.

¹¹⁸ Including for human resources.

	Difference to the baseline								
	PO A			PO B			PO C		
	2025	2030	2050	2025	2030	2050	2025	2030	2050
PMc1									
Low	5,520.0	5,520.0	5,520.0	5,520.0	5,520.0	5,520.0	5,520.0	5,520.0	5,520.0
High	6,000.0	6,000.0	6,000.0	6,000.0	6,000.0	6,000.0	6,000.0	6,000.0	6,000.0
PMc2	550.0	130.0	130.0	550.0	130.0	130.0	550.0	130.0	130.0
PMc4	50.0	10.0	10.0	50.0	10.0	10.0	50.0	10.0	10.0
PMc5	2,330.0	630.0	630.0	2,330.0	630.0	630.0	2,330.0	630.0	630.0
Adjustment costs									
PM4				250.0	180.0	180.0	250.0	180.0	180.0
PM5b				100.0	65.0	65.0	100.0	65.0	65.0

Source: Ricardo (2023), Impact assessment support study

Impact on the European Commission. The adjustment costs for the European Commission are driven by two policy measures: (i) the expert group (PMc3), that is common to all policy options; (ii) the development of an implementing act on the criteria for levels of administrative penalties (PM3a), that is included only in PO B.

In PMc3, one meeting per year is assumed to be organised by the Commission in person, to exchange lessons learned and enable cooperation between Member States. The costs are estimated at EUR 30,000 per year on average for the reimbursement of participants, from 2025 onwards relative to the baseline. Expressed as present value over 2025-2050, the adjustment costs for the Commission relative to the baseline are estimated at EUR 0.6 million for PMc3 in all policy options. The adjustment costs for developing the implementing act on penalties (PM3a) by the Commission are estimated at EUR 200,000 (one-off costs in 2025) in PO B. Thus, the *total adjustment costs for the European Commission*, expressed as present value over 2025-2050, are estimated at EUR 0.8 million in PO B and EUR 0.6 million in PO A and PO C.

6.1.2. Impact on ship operators

The SSP Directive does not currently impose any action on businesses. None of the policy options include requirements for ship operators. The costs of preventing illegal discharges on board of ships have already occurred for ship operators, to ensure compliance with the MARPOL international regulations through pollution prevention procedures implemented by their fleets. However, more effective detection and penalising, may lead to more fines for non-compliant ship operators in the first years of its implementation. This is eventually expected to have a deterrent effect on non-compliant ship operators in the long-term. The core of the Directive is thus to ensure an effective support to national enforcement of the international regulations (MARPOL standards). No costs are expected for the compliant ship operators. At the same time, the indirect environmental benefits due to less illegal discharges are expected to benefit all ship operators.

6.1.3. Impact on SMEs

The proposed policy options do not include requirements for ship operators and are thus not expected to have an impact on SMEs. The extension of the Directive's scope to cover additional substances under MARPOL (and notably Annex IV and V) may be relevant for recreational craft and fishing vessels, sector segments with high SME participation. However, the fact that this extension is focused on the enforcement of international regulations means that no impact on costs is expected for the compliant SMEs and the costs for managing polluting substances generated on board have already been present. The initiative can therefore be considered non-relevant for SMEs.

6.1.4. Functioning of the internal market and competition

Improving the detection (surveillance) and penalising (deterrence by means of penalties) is expected to contribute to a level playing field, with a positive impact on the functioning of the internal market and competition. A more harmonised regulatory framework across the Member States should ensure that shipping companies do not face different requirements and levels of penalties in each Member State for violating MARPOL rules. This decreases the risk of regulatory arbitrage when some Member States have less stringent penalties or lower likelihood of applying penalties than others in the region. The most relevant measure for the functioning of the internal market and competition are those that are expected to contribute to the improved detection of potential pollution (PMc1), included in all policy options. In all policy options, keeping the public informed about ship-source pollution incidents (PM5) may reduce information asymmetries and have a dissuasive effect through reputational damage of ship operators involved in pollution incidents. Data integration and EMSA support (PMc5) may allow to synthesise information on ships that are suspected of non-compliance and to produce valuable analytical insights, including on their past behaviour, thus leading to improved effectiveness of the identification of potential polluters.

6.1.5. Impact on competitiveness

The policy options aim to enhance the detection of pollutants discharged, by improved surveillance and support for Member State enforcement. The SSP Directive and the proposed policy options do not distinguish between EU and non-EU offenders. They cover all ships, irrespective of their flag, with the exception of warships, naval auxiliary and ships for government non-commercial use. The Directive also includes the requirement to comply with UNCLOS Article 230, where it is specified that penalties for infringements of foreign vessels beyond the territorial waters of Member States shall involve monetary penalties provided that specific conditions are met. Thus, there is no competitive distortion in favour of or against EU or non-EU entities. As explained in section 6.1.2, no additional costs are expected for the compliant ship operators in the three policy options. Ports and port reception facilities may be affected by an increased collection of waste at ports. This is however not expected to impact the competitiveness of the sector. The Port Reception Facilities (PRF) Directive has been revised in 2019 and recently brought into force. Thanks to the new rules, the facilities in ports and their infrastructure have recently been improved to allow for an increased collection of waste. Therefore, no additional costs for improved facilities and infrastructure are expected compared to those bared by the Member States for the implementation of the revised PRF Directive, which are part of the baseline. Therefore, it can be concluded that neither of the three policy options would affect the competitiveness of the maritime sector.

6.2. Social impacts

Social impacts are mainly assessed in terms of impacts on working conditions, fundamental rights, and public health.

6.2.1. Impacts on working conditions and skills

The impact of the policy options on working conditions is expected to be positive, although it has not been possible to quantify it. By improving pollution prevention, the policy options could potentially result in indirect health benefits for seafarers who are expected to be less exposed to the harmful substances. This may also improve the attractiveness of employment in the sector to some limited extent. Increased knowledge sharing and enhanced exchange of best practices are expected to reduce illegal discharges of polluting substances under all policy options. This could have a positive impact on working conditions, since seafarers will be better equipped to manage ship generated waste and understand their respective obligations. Further, under all policy options,

seafarers will potentially be more accustomed with whistle-blower protection guaranteed in the EU. This will contribute to the development of a responsible work ethic, by fostering a safe environment for seafarers and other natural persons who acquired information on breaches in the context of their work-related activities to report on potential illegal practices and possibly improve the attractiveness of the seafarer profession in general. In addition, more clarity with regards to the exception from liability for crew, masters and companies under all policy options will delineate more clearly the obligations of seamen in general, to the benefit of everyday working conditions, where (intentional) operational discharges are a reality. With regards to crew in particular, it could safeguard that seafarers are not unjustifiably blamed for behaviours that they could not control or which were not within the remit of their attributed duties as members of the crew. Thus, with respect to the working conditions all policy options are expected to have a moderate positive impact.

6.2.2. Impacts on fundamental rights

The Charter of Fundamental Rights of the European Union (the Charter), as an instrument of primary EU law, enshrines the fundamental rights people enjoy in the EU. Overall, the three policy options are expected to lead to better performance towards fundamental rights protection and an individual's freedoms especially with regards to justice, fair trials, non-discrimination, equal treatment of perpetrators and the principle of legality, the right to proportionate and effective penalties. The clarification on the exception from liability, as part of the EU liability regime,¹¹⁹ under all policy options will specifically cover the exception concerning the liability of crew and reinforce their protection through more integrated harmonisation of international rules in national laws and better observance of the rule of law and fair trial principles (See Annex 6, PMc6 for details). It further safeguards the principle of equality, contributing to non-discrimination and equal treatment of seafarers. The measures ensuring clearer delimitation between the infringements falling within the criminal and administrative procedure will facilitate fair trials, non-discrimination, equal treatment of perpetrators and the principle of legality. All three policy options will result in better observance of the right to justice and maintain full respect of human and fundamental rights.

6.2.3. Health of the public

Ship-source pollution has an impact on the marine environment and, therefore, on the water quality of bathing sites. Low quality of the water can be harmful to the human health. Human health may be negatively impacted by various types of pollution including ship pollution to sea in a variety of ways. For instance, sewage (e.g. from cruise ships) contains nutrients and may contribute to toxic algae blooms. Additionally, exposure to chemicals can harm the nervous system, interfere with endocrine signalling, or increase the risk of cancer. Vulnerable population is disproportionately affected by such health impacts.¹²⁰ Moreover, the health benefits from consuming fish products from European seas must be taken into consideration in this context. Some fish species contain contaminants such as methylmercury, dioxins and polychlorinated biphenyls.¹²¹

¹¹⁹ For the purpose of this report the 'EU liability regime' relates to persons (natural or legal) being held accountable for an illegal discharge - for example, the company or master of the ship is responsible for an illegal discharge if committed carelessly or with the intention to cause damage subject to the exceptions from liability provided by MARPOL.

¹²⁰ Landrigan, P. et al., 2020. Human health and ocean pollution, s.l.: Ann Glob Health

¹²¹ Overall, the health impact of fish consumption has been assessed to be beneficial despite the contamination concerns. Research shows that fish consumption does more benefit than harm. Source: Ni Li et al. 2020. Trends in Food & Technology. Fish consumption and multiple health outcomes: Umbrella review <https://www.sciencedirect.com/science/article/pii/S0924224419310532>

All policy options are expected to lead to positive indirect impacts on public health. The extension of the scope of the Directive to all MARPOL Annexes (PMc1), included in all policy options, is expected to have the largest positive impact on public health. Other measures with a potential impact on the marine environment are those related to improved surveillance and detection capacity as well as more transparent information for the public, included in all policy options. These are expected to discourage ships from intentional discharge of waste into sea and lead to an improvement in the quality of water. This in turn is likely to indirectly result in an improvement in the health status of individuals that use EU bathing sites or consume fish products from European seas. Geographical areas close to the coast are mostly affected by disruptions in the marine environment and therefore would be positively affected to a higher extent by this initiative.

6.3. Environmental impacts

This section provides an assessment of the environmental impacts of the policy options. All policy options are expected to have a positive yet indirect impact on the environment, driven by the reduction of illegal discharges through the deterrent effect of penalties, the awareness raising as well as reputation considerations. Due to serious data limitations concerning the volumes of potential illegal discharges of different polluting substances and the penalties applied, a quantitative assessment was only possible for PMc1 in relation to oil waste¹²². This is complemented by a qualitative assessment of the impacts of all policy measures included in the three policy options.

As explained in section 6.1.1, the upgrades to the CleanSeaNet in PMc1 (included in all options) is expected to also benefit the detection of substances under the current scope of the SSP Directive (i.e. oil). The amount of oil discharged in EU seas by 2015 was estimated at 31,000 m³/year¹²³, i.e. approximately 27,280 tonnes. In the baseline scenario the oil discharged in European seas is projected to remain stable over time (see section 5.1). According to a study commissioned by the European Parliament¹²⁴, the external cost of a discharge of a tonne of oil in the sea amounts to approximately EUR 290,000^{125,126}. For the purpose of the assessment, a conservative assumption has been used - namely, a reduction by 0.5% in the volume of oil illegally discharged relative to the baseline from 2030 onwards. The reduction is gradually phased-in between 2025 and 2030, taking into account the growth in the number of CleanSeaNet alerts in the policy options. The reduction is the same in all policy options due to the fact that PMc1 is included in all options. Over the 2025-2050 period, it is estimated that 3,411 tonnes of MARPOL Annex I, oil discharges would be prevented. The reduction in the external costs, expressed as present value over 2025-2050, is estimated at EUR 690.5 million relative to the baseline. More details are provided in Annex 4 (section 4).

There is high uncertainty related to these estimates due to the serious data limitations and the limited input from stakeholders received during the consultation activities. To acknowledge the high level

¹²² It should also be noted that there is significant uncertainty regarding the quantitative assessment of the impacts of PMc1 in relation to oil waste, due to serious limitations in the data availability and limited stakeholder input in the consultations. For this reason, the assessment of the impacts of PMc1 has been complemented by sensitivity analysis.

¹²³ European Commission (2018). Commission staff working document, [Impact Assessment on port reception facilities for the delivery of waste from ships](#)

¹²⁴ [https://www.europarl.europa.eu/RegData/etudes/note/join/2007/379227/IPOL-TRAN_NT\(2007\)379227_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/note/join/2007/379227/IPOL-TRAN_NT(2007)379227_EN.pdf)

¹²⁵ This value, expressed in 2020 prices, corresponds to the unit damage cost caused by one ton of oil discharged in the sea. The unit damage cost is independent of the evolution of the volume of oil discharges over the period 2007-2021 and over the assessment period of the policy options (2025-2050).

¹²⁶ The same report indicates that only 0.22% of all external costs of oil substances discharged can be attributed to permitted oil spills, suggesting that the majority of the external costs are a result of illegal discharges.

of uncertainty, sensitivity analysis has been additionally performed. Two additional cases have been considered, assuming 0.3% and 0.7% reduction in the volume of oil discharges relative to the baseline from 2030 onwards. As for the central case, the reduction is gradually phased-in between 2025 and 2030, taking into account the growth in the number of CleanSeaNet alerts. Thus, 1,501 to 5,320 tonnes of oil are estimated to be prevented over 2025-2050, that would result in a reduction of the external costs estimated at EUR 312.8 to 1,068.3 million, expressed as present value over 2025-2050 (see Table 10). It should however be acknowledged that even the 0.7% reduction could be considered as conservative, not least because it disregards the additional benefits brought by the prevention of other polluting substances (MARPOL Annex II-VI), which are introduced in the proposed extension of the scope of the Directive (PMc1). These could not be quantified due to the lack of data.

Table 10. Potential environmental benefits for the policy options relative to the baseline, including sensitivity analysis, over 2025-2050

	Volume reduction (in tonnes) ¹²⁷	External costs reduction (in million EUR) ¹²⁸
Benefits – 0.3% reduction	1,501	312.8
Benefits – 0.5% reduction (central case)	3,411	690.5
Benefits – 0.7% reduction	5,320	1,068.3

Source: Ricardo (2023), impact assessment support study

The estimated reduction in the level of oil discharges is an indicator of the indirect impact of the policy options covering one out of the six waste categories/ MARPOL Annexes. Due to the significant data gaps, estimating the indirect impacts on Annex II-VI pollutants was not possible. The estimated reduction in oil discharges indirectly links to the level of ambition of the Directive: the aim is to prevent the intentional illegal discharge in the future by penalising current illegal discharges. However, it should be noted that the aim is not to directly reduce the pollution from ships, as some substances can be legally discharged based on MARPOL rules. The envisaged ambition of the Directive is measured through the response rate of Member States to the identified pollution incidents, ultimately leading to penalising the identified offenders.

In the future, the intentional illegal discharges from ships are expected to be of smaller size and more difficult to detect.¹²⁹ With accelerating technological development and hyperconnectivity of all systems, as acknowledged by the 2021 Strategic Foresight Report¹³⁰, EMSA services are expected to change much faster in the coming decades and surveillance capacity to increase. Thus, the benefits due to the reduction in external costs may also be higher.

To complete the limited quantitative indication of benefits, a qualitative assessment of the environmental benefits by policy measure and policy option is further provided in Table 11 below.

Table 11. Qualitative assessment of environmental impacts by policy option and policy measure relative to the baseline

Policy measure	PO A	PO B	PO C	Comments
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¹²⁷ Cumulative over 2025-2050.

¹²⁸ Expressed as present value over 2025-2050.

¹²⁹ DNV Group Research and Development (2022) Ocean's Future to 2050, a sectorial and regional forecast of the Blue Economy

¹³⁰ [2021 Strategic Foresight Report | European Commission \(europa.eu\)](https://ec.europa.eu/strategic-foresight-report)

Policy measure	PO A	PO B	PO C	Comments
PMc1 – Extend the scope of the Directive to polluting substances under MARPOL Annex III-V and to discharge water from scrubbers under MARPOL Annex VI and include a review clause to encompass future developments of the MARPOL Convention.	++++	++++	++++	This is one of the measures that is expected to have the highest positive effect on the environment relative to the baseline because substances other than oil (e.g. sewage, garbage) will be brought in the legal scope of the Directive. This measure complements the Port Reception Facilities Directive, which already covers more MARPOL Annexes and encourages disposal of such waste at ports. The consequent deterrent effect is expected to be the highest among the measures because it covers penalties for a broader range of pollutants, while also benefiting the detection of oil through upgrades of the CleanSeaNet (i.e. 3,411 tonnes of oil discharges prevented over 2025-2050). The impact is expected to be the same in all policy options.
PMc2 - EMSA provides training and guidance to authorities responsible for detection, verification and evidence collection.	+	+	+	Specific training and guidance is expected to improve the expertise and therefore also the enforcement capabilities of national authorities, leading to more effective prosecution - hence a slight deterrent effect relative to the baseline. The dissuasive impact of training is limited due to the uncertainty in its link with the enforcement capabilities in Member States. The impact is expected to be the same in all policy options.
PMc3 - The Commission establishes a dedicated expert group facilitating cooperation between Member States, including through the adoption of guidelines.	+	+	+	The expert group (and the guidelines stemming from it) is expected to improve the expertise and the enforcement capabilities of national authorities, leading to more effective prosecution - hence a deterrent effect relative to the baseline. The impact of the measure is however expected to be limited because it is uncertain and indirect. The impact is expected to be the same in all policy options.
PMc4 – Inclusion of a provision on whistle-blowers, their protection and means of passing the relevant information.	+	+	+	This measure provides selected stakeholders (whistle-blowers) with the possibility to inform Member States' authorities about illegal discharges. It is however unclear how this possibility will be used in practice. Therefore, the impact is expected to be limited relative to the baseline, under a conservative assessment. The impact is expected to be the same in all policy options.
PMc5 – EMSA further enhances the data exchange tools and automated links in the Integrated Maritime Services based on CleanSeaNet, THETIS, THETIS EU and SafeSeaNet.	+++	+++	+++	Making use of the existing information more systematically and further enhancing automatic links to obtain targeted information is likely to result in positive impacts on the environment relative to the baseline. Integrated EU-wide tools providing better information to the Member States authorities, would lead to better enforcement and more effective penalties. The impact is assessed to be significant because of the relation between better information on possible detections and better enforcement. The impact is expected to be the same in all policy options.
PMc6 – The exception from liability for polluters, including crew members, will be further clarified in the Directive.	0	0	0	This measure provides clarification of the existing legal framework on exceptions from liability. Therefore, it is not expected to result in environmental benefits relative to the baseline. PMc6 has however a positive social impact on the legal protection of the crew. The impact is expected to be the same in all policy options.

Policy measure	PO A	PO B	PO C	Comments
PMc7 - Obligation for Member States to log their feedback data in CleanSeaNet and document if and how CleanSeaNet alerts have been verified.	++	++	++	PMc7 obliges Member State authorities to register their verification activity following a CleanSeaNet alert. The availability of information on Member States' verification activities (and methods used) would enable the assessment of their effectiveness. The measure is expected to have a positive environmental impact relative to the baseline thanks to gathering representative data more systematically and increased transparency on national verification decisions and their justification, resulting in peer pressure between the Member States. Similarly to PM4 and PM5a, it is expected to have a medium positive effect. The impact is expected to be the same in all policy options.
PM1 – Inclusion of a provision on minimum requirements for verification by means of a national target of 60% verification rate for CleanSeaNet alerts.			++++	There is a potential for an increased deterrent effect associated with PM1, obliging Member States to verify a high share of CleanSeaNet alerts. This measure will lead to more on-scene verifications by Member States relative to the baseline. This should discourage polluters because patrols (boats, aircraft) will be seen more often at sea in the EU. Furthermore, with increased verification activities, the probability of confirming a spill and taking further action against the polluter is likely to increase relative to the baseline. This high deterrent effect is expected for PO C only.
PM2a – Each Member State defines in their national legal order the components of infringements, either on the basis of 'minor cases' and 'deterioration of the quality of water', or on any other basis prescribed by the Directive, and applies administrative or criminal penalties accordingly.	0/+			This measure provides clarification of the existing legal framework on defining infringements for the purpose of applying administrative penalties under the Directive, without prejudice to the new rules under the Environmental Crime Directive foreseen in the baseline. PM2a is expected to result in very limited or no environmental benefits for PO A relative to the baseline because it does not change the existing legal regime.
PM2b – The Directive provides definitions of the components of infringements, either on the basis of 'minor cases' and 'deterioration of the quality of water' or on any other basis prescribed by the Directive.		+	+	PM2b offers a harmonised approach on defining infringements for the purpose of applying administrative penalties under the Directive, without prejudice to the new rules under the Environmental Crime Directive foreseen in the baseline. It would result in more consistent administrative regimes expected to raise the bar for some countries. This measure is expected to have a small positive effect on the environment relative to the baseline, resulting from the improved effectiveness of the penalties achieved by the harmonised definition. For this reason, it is expected to lead to higher environmental benefit than PM2a, which proposes an individual approach by Member States. Benefits on the marine environment are expected to be small and indirect also because the measure does not prescribe enforcement rules. The impact is expected to be the same in PO B and PO C.

Policy measure	PO A	PO B	PO C	Comments
PM3a – The Directive provides principles for setting the level of administrative penalties. The Commission will develop an implementing act on the criteria to be applied (e.g. depending on type of polluting substances).		+		PM3a defines rules on when to apply which level of penalty depending on the circumstance e.g. the substance involved or the size of the spill. The deterrent effect in PO B relative to the baseline comes from improved proportionality of the penalties, thanks to the clarity on the principles and criteria for setting the levels of penalties. The impact on the environment is expected to be small because it is indirect and of legalistic nature. The impact is expected to be in PO B only.
PM3b – The Directive provides principles for setting the level of administrative penalties, the criteria to be applied (e.g. depending on type of polluting substances) as well as values for the maximum and minimum levels for administrative penalties.			++	This measure provides for a harmonisation of minimum values of penalties at EU level. The deterrent effect in PO C results from improved dissuasiveness of the penalties thanks to the clarity on principles and criteria for setting the levels of penalties as well as on the minimum values of penalties. PM3b offers a stronger regulatory approach towards the levels of penalties than PM3a. The positive environmental impact relative to the baseline is expected to be slightly higher than that of PM3a because the underperforming Member States are expected to raise the values of their penalties coherently. The impact is expected to be in PO C only.
PM4 – Obligation for Member States to report their data in an EMSA-managed tool on each ship-source pollution incident.		++	++	PM4 is designed to facilitate the work of Member States in reporting to the Commission (and to their citizens in conjunction with PM5b). The measure is expected to improve the information on the effectiveness of verification and prosecution, allowing gathering more representative data systematically, enabling peer pressure between the Member States and an increased transparency on national verification decisions and their justification. Similarly to PMc7 and PM5a, it is expected to result in a deterrent effect relative to the baseline. The impact is expected to be the same in PO B and PO C.
PM5a – Member States inform the public about ship-source pollution incidents through a national website. Member States may also report this data to the Commission.	++			Increased availability of information to the public on ship-source pollution incidents is expected to increase transparency and public scrutiny in PO A. Public attention may indirectly provide better prioritisation of preventive measures, more peer pressure between the Member States and an increased transparency on national verification decisions and their justification. Similarly to PMc7, PM4, it is expected to result in a deterrent effect relative to the baseline. The impact is expected in PO A only.
PM5b – EMSA publishes online key EU information reported by Member States about ship-source pollution incidents.		+++	+++	Increased public scrutiny and reputational issues faced by polluters provide for an opportunity to improve the SSP Directive's effectiveness. PM5b is expected to lead to a somewhat higher positive impact on the environment than PM5a, thanks to the centralisation of the information available to the public. Public scrutiny is expected to be enhanced by avoiding that citizens have to navigate between different national websites to find the information and can compare countries. This results in a deterrent effect relative to the baseline for PO B and PO C.

Note: A scoring system is used to compare the options with the baseline scenario. From “0” (no difference from the baseline) to “++++” (significant positive impact compared to the baseline).

PO C is expected to lead to higher environmental benefits than PO B due to the 60% verification rate for CleanSeaNet alerts (PM1) and the stronger regulatory approach to the levels of penalties (PM3b) which together would increase the deterrent effect. Provisions on mandatory requirements for Member States on following up pollution incidents and penalising the offender are likely to result in higher environmental benefits than relying on voluntary cooperation and information

exchange between Member States and offering flexibility to the Member States as well as soft measures. On the other hand, the environmental benefits of PO A are expected to be lower than those of PO B because the cross-border nature of the problem would be less mitigated by means of cross-border cooperation and information exchange. It is expected that Member States will be more proactive in PO B and PO C, relative to PO A, due to the synergies coming from the common framework as opposed to individual national approaches e.g. in PM2a and PM5a.

Overall, PO C is expected to result in the highest environmental benefits with its regulatory measures, closely followed by PO B, whereas lowest environmental benefits are expected for PO A due to lost opportunities for cooperation, with a limited common framework.

In brief, it was not possible to quantify the environmental impacts from avoided ship-source pollution for all the measures included in the policy options, but as shown above, the impacts are expected to be positive in all policy options. All policy options contribute towards SDG 14 (“Conserve and sustainably use the oceans, seas and marine resources for sustainable development”).

No significant harm is expected on the environment in the three policy options, in particular in the area of sustainable use and protection of water and marine resources to which the initiative relates. On the contrary, as explain above, all three policy options are expected to have a positive impact on the marine environment. All policy options are consistent with the environmental objectives of the European Green Deal and the European Climate Law¹³¹. The focus of the SSP Directive on the deterrent effect of penalties reflects the pollution prevention angle of the Green Deal with respect to discharges from ships into sea. As for tackling climate change and emissions to air, the air related problem drivers and policy measures were discarded in the impact assessment because these have a separate approach to regulation and enforcement both at IMO and EU level. More detailed explanations are provided in Annex 5.

7. HOW DO THE OPTIONS COMPARE?

7.1. Effectiveness

The assessment of effectiveness looks at the extent to which the general and specific objectives (SO) of the intervention, as previously described, are met. Table 12 provides the link between policy objectives and assessment criteria. Annex 7 provides a more detailed overview on the effectiveness of the policy options in relation to the specific objectives.

Table 12. Link between objectives and assessment criteria

Objectives	Assessment criteria
General objective: In line with the European Green Deal, the aim is to incorporate international standards for ship-source pollution into the sea into EU law and to ensure that persons responsible for discharges of polluting substances into sea are subject to effective, proportionate and dissuasive penalties, in order to improve maritime safety and to enhance protection of the marine environment from pollution by ships	Expected deterrent effect on the level of illegal discharges into sea
SO1: Incorporate international standards into EU law by aligning the Directive with MARPOL Annexes on discharges into sea	Expected increase in the level of detection of illegal discharges (oil, noxious substances, packaged goods, sewage, garbage and scrubber discharge water) resulting in expected decrease in the number of infringements

¹³¹ Regulation(EU) 2021/1119

Objectives	Assessment criteria
SO2: Support Member States by building their capacity to detect pollution events, verify, collect evidence and effectively penalise identified offenders in a timely and harmonised manner	Expected increase in the level of verification of potential illegal discharges Proportion of identified offenders as a result of verification
SO3: Ensure that persons (natural & legal) responsible for illegal discharges from ships are subject to effective, proportionate & dissuasive penalties	Level and type of penalties is effective, proportionate and dissuasive
SO4: Ensure simplification and effective reporting on ship-source pollution events and follow-up activities	Expected improvement in the reporting on the implementation of the Directive

By design, each of the three policy options is developed in a way that addresses all four problem drivers and specific objectives. They achieve the objectives however at different degrees.

Concerning the **general objective**, the increased deterrent effect (consequently reduced level of illegal discharges) relative to the baseline benefits the marine environment to a different extent. PO C is expected to have a higher deterrent effect than PO B due to the provision on the 60% verification rate for CleanSeaNet alerts (PM1) and the stronger regulatory approach towards the levels of penalties (PM3b). The deterrent effect of PO A is expected to be lower than that of PO B given the fact that the cross-border nature of the problem is less mitigated by means of cooperation and information exchange (PM2a, PM5a). However, it should be noted that there is high uncertainty regarding the environmental benefits of the policy options in terms of the deterrence of illegal discharges into sea, especially because of the limited data available on the volumes of illegal discharges of the polluting substances and the penalties applied.

Concerning **SO1**, all policy options aim to extend the scope of the Directive (PMc1) as to align with the MARPOL scope of substances discharged into sea (Annexes I to VI). Progress towards this specific objective is assessed through the increase in the level of detection of illegal discharges (oil, noxious substances, packaged goods, sewage, garbage and scrubber discharge water) by ships and the long-term decrease in the number of infringements relative to the baseline (thanks to the deterrent effect). The additional number of illegal discharges detected relative to the baseline and the reduced number of infringements is expected to be the same in all policy options, driven by PMc1 and in particular by the provision of additional satellite surveillance (CleanSeaNet). In addition, all policy options future-proof the Directive by enabling to adjust to potential changes in the existing MARPOL Annexes, thanks to a review clause (also in PMc1). Thus, all policy options are equally effective in achieving SO1.

Concerning **SO2**, Member State capacity to detect, verify and prosecute infringements would improve in all policy options. Progress towards this specific objective is assessed through the increase in the level of verification of potential illegal discharges as well as the increased proportion of identified offenders as a result of verification. All three policy options contribute towards SO2 through the increased use of knowledge and data sharing (PMc2, PMc3 and PMc5) for the extended list of polluting substances as well as the potential information provided by whistle-blowers (PMc4). PO C is however more effective than PO A and PO B in achieving SO2 due to potentially higher verification levels relative to the baseline, driven by the introduction of the mandatory requirement in relation to the verification of CleanSeaNet alerts (PM1).

Concerning **SO3**, progress is measured by checking if the level and type of penalties is effective, proportionate and dissuasive. PO A has a limited impact on ensuring that offenders are subject to proportionate penalties because of keeping the status quo i.e. leaving it to the Member States to decide on the level of penalties. However, PO A offers improvements in the prosecution process by the clarification of exceptions at EU level (PMc6) and at national level (PM2a) which could consequently have a positive impact on the application of penalties. PO B and PO C are more

effective in achieving SO3 than PO A thanks to the rules on setting the level of administrative penalties (PM3a and PM3b, respectively) and the harmonisation of values of penalties at EU level in PO C (PM3b).

Concerning **SO4**, progress is measured by the improved reporting on the implementation of the Directive. All policy options are assessed to be effective in achieving SO4, thanks to the obligation to log if and how CleanSeaNet alerts have been verified (PMc7). However, PO B and PO C are more effective than PO A (with the national approach of PM5a) because of the economies of scale linked to the EU-wide tools provided by EMSA (PM4 and PM5b).

Overall, PO C is assessed to be the most effective in achieving the general and specific objectives, followed by PO B and PO A. The assessment of effectiveness is further detailed in Annex 7.

7.2. Efficiency

Efficiency concerns "the extent to which objectives can be achieved for a given level of resource/at least cost". The major costs of the policy options come in the form of adjustment costs for EMSA in all three policy options and enforcement costs for Member States administrations in PO C. They are summarised in Table 13.

PO C leads to the highest total costs among the three policy options, estimated at EUR 328.3 to 337.2 million relative to the baseline, expressed as present value over 2025-2050. The highest costs in PO C are the enforcement costs for Member States administrations for the 60% verification rate for CleanSeaNet alerts (PM1). The adjustment costs for EMSA, mainly related to the provision of additional satellite surveillance services to Member State authorities required by the extension of the scope of the Directive (PMc1), represent the second largest element of the total costs of PO C. PO A shows lower costs than PO C, estimated at EUR 133.3 to 142.2 million relative to the baseline, expressed as present value over 2025-2050. The highest cost categories are the adjustment costs for EMSA and the adjustment costs for Member States administrations, linked to information to the public on national websites (PM5a). Finally, PO B shows the lowest total costs among the policy options, estimated at EUR 125.8 to 134.7 million in addition to the baseline costs.

In terms of benefits, all policy options are expected to lead to enforcement costs savings for Member States administrations estimated at EUR 1.8 million, expressed as present value over 2025-2050 relative to the baseline. They are driven by the reduction in the time spent for verifying CleanSeaNet alerts due to the enhancement in data exchange tools in the Integrated Maritime Services. In addition, PO B and PO C would also result in administrative costs savings (EUR 0.9 million) driven by the time savings for reporting to the European Commission under the SSP Directive due to the development of a dedicated reporting tool (PM4).

There is high uncertainty regarding the benefits of the policy options in terms of deterrence of illegal discharges to the sea, especially because of the limited data available on the illegal discharges and penalties applied. As explained in section 6.3, as an illustration of the possible impacts on net costs, a conservative assumption of a 0.5% reduction in the oil illegal discharge relative to the baseline is provided linked to the upgrades to the CleanSeaNet in PMc1 (included in all options). Under this assumption, and when also considering the enforcement costs savings and administrative costs savings, all policy options result in substantial total benefits estimated at EUR 693.2 million in both PO B and PO C, and EUR 692.3 million in PO A. A qualitative assessment of the environmental benefits of the policy measures included in the policy options is further provided in Table 13, drawing on the detailed analysis included in Table 11 in section 6.3.

Table 13. Summary of costs and benefits of policy options – present value for 2025-2050 compared to the baseline (in million EUR), in 2020 prices

	Difference to the baseline		
	PO A	PO B	PO C
Member States administrations			
Enforcement costs	2.5	2.5	205.2
Adjustment costs	12.3	0.0	0.0
Enforcement costs savings	1.8	1.8	1.8
Administrative costs savings	0.0	0.9	0.9
EMSA			
Adjustment costs	118-126.8	122.6-131.4	122.6-131.4
European Commission			
Adjustment costs	0.6	0.8	0.6
Environmental benefits			
Reduction in the external costs of oil spills due to PMcI	690.5	690.5	690.5
Reduction in the external costs due to other measures	+	++	+++
Total costs	133.3-142.2	125.8-134.7	328.3-337.2
Total benefits	692.3	693.2	693.2
Net benefits	550.2-559	558.5-567.4	356-364.8
Benefits to costs ratio	4.9-5.2	5.1-5.5	2.1-2.1

Note: A scoring system is used to compare the options with the baseline scenario in relation to the reduction in the external costs due to other measures. From “0” (no difference from the baseline) to “+++” (significant positive impact compared to the baseline).

All policy options would result in net benefits. The net benefits would be the largest in PO B, estimated at EUR 558.5 to 567.4 million relative to the baseline, expressed as present value over 2025-2050, followed by PO A (EUR 550.2 to 559 million) and PO C (EUR 356 to 364.8 million). PO B and PO A also show higher benefits to costs ratios (respectively, 5.1 to 5.5 and 4.9 to 5.2) relative to PO C (2.1). It should however be noted that the estimation of the net benefits and of the benefits to costs ratio is only provided for illustration purposes, to show that even when achieving low reductions in the level of illegal discharges the policy options would result in net benefits. This is due to the high uncertainty related to the estimated environmental benefits.

All policy options are expected to result in additional environmental benefits relative to the baseline, that could however not be assessed quantitatively. These impacts are expected to be the highest in PO C, followed by PO B and PO A, based on results of the qualitative assessment. This is expected to reduce the gap between the benefit to costs ratio of PO B and PO C. On the other hand, as the benefits are expected to be higher in PO B relative to PO A, the difference in the benefit to cost ratio between PO A and PO B is expected to be larger than shown in Table 13.

Considering the sensitivity analysis on the impacts of the policy options on external costs of oil waste, provided in section 6.3, the net benefits/net costs have been calculated for each case and are provided in Table 14. The table shows that even with lower reduction in the oil waste discharges relative to the baseline, PO B and PO A would still result in net benefits while PO C would result in net costs. On the other hand, it should be noted that not all environmental benefits were quantified and reflected in this table. Thus, PO C may still result in net benefits under all cases assessed.

Table 14. Results of the sensitivity analysis on net benefits/net costs of policy options – present value for 2025-2050 compared to the baseline (in million EUR), in 2020 prices

	Difference to the baseline		
	PO A	PO B	PO C
Net benefits (in million EUR)			

	Difference to the baseline		
	PO A	PO B	PO C
0.5% reduction (central case)	550.2-559	558.5-567.4	356-364.8
0.3% reduction	172.4-181.3	180.8-189.6	(-21.7) – (-12.9)
0.7% reduction	927.9-936.7	936.3-945.1	733.7-742.6

7.3. Coherence

Internal coherence. The internal coherence concentrates on how the different elements within the Directive itself work together to achieve the objectives. Although all three POs address the identified problem, they do so in different ways. The updated scope of the Directive, which is the case for all policy options, can be implemented with the use of additional tools by EMSA to support the increased surveillance activities that will be required. In this respect all policy options perform equally on internal coherence.

External coherence. The external coherence concentrates on the compliance of the Directive with key EU policy objectives and international agreements. The extension of the scope of the Directive brings it in line with the scope and objectives of other EU initiatives (e.g. Port Reception Facilities Directive) and international obligations derived from MARPOL. All policy options foster coherence with the Environmental Crime Directive by clarifying definitions in the context of ship-source pollution and removing the provisions of criminal penalties. With the new Environmental Crime Directive, the SSP Directive must be revised to ensure external coherence in the context of criminal penalties. In this respect all policy options perform the same.

7.4. Subsidiarity and proportionality

Under the principle of subsidiarity, in areas which do not fall within its exclusive competence, the Union shall act only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the Member States.

The revision of the Directive is necessary because, in the absence of further EU level action, the problem identified would most likely persist. As highlighted in section 3, there is a clear need for EU action on the problem identified, and its drivers. The EU dimension of this problem is mostly related to the cross-border nature of the illegal discharges from ships. Due to the transboundary impact of marine pollution and the fact that perpetrators act across borders, action by Member States alone would not be suited to tackle this problem. Diverging national approaches in this regard hinder an EU-wide deterrent effect preventing pollution from ships.

All policy options address the identified problem and were designed to reach all specific objectives. PO A was designed to avoid diverging approaches at national level by means of platforms for training, guidance and experience exchange as well as digital tools for collection and exchange of information. However if Member States have the flexibility in defining the components of infringements, this may still lead to diverse outcomes.

On the other hand, PO C is regarded as less proportionate because of the proposed strict regulatory approach on levels of penalties and verification obligations. Although it is likely to result in higher levels of verification this does not necessarily translate to a higher level of prosecution or follow up by means of administrative penalties. Given the fact that not all alerted possible pollution incidents can give rise to verification (in that it may not be possible to verify whether pollution has been caused, particularly at night or in bad weather) as well as the difficulties in establishing a direct and causal link between detection, verification, and the necessary follow up action (identification, prosecution and conviction) it is far from clear that PM1 will in fact lead to an increase in penalties

being imposed on polluters and on the desired deterrent effect. The majority of stakeholders are of the view that it is not proportionate to apply such strict measure given the resource implications.

Furthermore, the imposition of such a strict regulatory approach in PO C is seen disproportionate on the basis of very uncertain data and weak evaluation of the initiative (due to scarce data). A justification for this choice cannot be backed up with solid data e.g. for PM1 on the 60% verification rate. Most important in this respect is the fact that, the current limited Member State feedback to CleanSeaNet alerts does not show that a higher verification rate leads to higher levels of confirmed cases and thereafter to a higher level of administrative or judicial follow up.¹³² Therefore, at this stage and on the basis of the currently available information it is difficult to justify the high cost that the Member States would need to bear without more robust information on the effectiveness of such a measure. To improve the data, the revised Directive provides for the collection of better statistics on how Member States verify CleanSeaNet alerts and how many cases are confirmed to be spills. Therefore, there will also be more information on the environmental benefits of imposing SSP penalties and an opportunity to reassess such a policy option.

To sum up, PO B is most proportionate and in line with the rules of subsidiarity. It encourages a proactive approach of the Member States placing key importance on the common measures and digital transition, without obliging the Member States to engage in costly verification activities (the results of which in terms of improvement in the enforcement statistics are unproven). The option supports tackling the problem in a proportionate way i.e. not going beyond what is necessary to achieve the objectives. The option relies on the Member States to fulfil their responsibilities effectively thanks to the technical support and capacity building offered. It also relies on their harmonised legislation and genuine, proactive cooperation between all Member States for successful penalising of polluters. Overall, PO B is expected to be the most proportionate, with its synergies coming from the common framework, as opposed to individual national approaches (PO A) and strong regulatory approach (PO C).

8. PREFERRED POLICY OPTION

8.1. Identification of the preferred policy option and stakeholders views

8.1.1. Preferred policy option

Although each of the options addresses the problem identified, their drivers and the specific objectives, the three options take different approaches. An overview of the assessment of the policy options in terms of effectiveness, efficiency, coherence, subsidiarity and proportionality is provided in Table 15. Based on the assessment done, PO B is considered as the most efficient and proportionate of the policy options. On the other hand, PO C scores better than PO B and PO A on effectiveness. Concerning internal and external coherence, all three policy options perform the same.

Table 15. Overview of the assessment of policy options relative to the baseline

	PO A	PO B	PO C	Comments
Effectiveness	+	++	+++	PO C is considered to have a higher deterrent effect due to an obligatory verification rate.
Efficiency	++	+++	+	PO B shows the highest benefits to costs ratio. It should however be noted that there

¹³² See Figure 19 in Annex 4.

				is high uncertainty related to the environmental benefits, and not all of them were possible to quantify. The environmental benefits might be higher.
Coherence	+++	+++	+++	All policy options are coherent with key EU legislation, with international agreements and within the Directive.
Subsidiarity and proportionality	++	+++	++	PO B encourages a proactive approach of the Member States placing key importance on the common measures and digital transition.

Note: A scoring system is used to compare the options with the baseline scenario. From “0” (no difference from the baseline) to “+++” (significant positive impact compared to the baseline).

The Directive is part of a broader framework of measures aiming to tackle together the identified problem of ship-source pollution in European waters. The maritime safety acquis is based on the rules and standards established by the IMO at the international level. More specifically, the accelerated phasing-in of double-hull tankers (Regulation (EU) No 530/2012) reduced the probability of accidental oil spills in European seas. The flag State Directive (Directive 2009/21/EC) provides rules for ship inspections and fleet oversight for Union flag State administrations which is relevant for preventing pollution of the marine environment in and outside of the Union. When stronger environmental rules become effective under the international conventions, the flag State responsibility to enforce them is automatically extended. The port State control Directive (2009/16/EC) is also relevant in this context because it supports the detection and correction of lack of compliance not only with safety but also with pollution prevention rules and standards, through inspections. Maritime accidents do not only cause casualties and economic losses but can have a direct impact on the environment e.g. oil pollution. Lessons learned from accident investigations (Directive 2009/18/EC) may prevent accidental pollution of the marine environment in the future. Last but not least, the Port Reception Facilities Directive (Directive 2019/EC/883) provides the solution for waste collection in ports and is a key part of the broader framework of measures aiming to tackle the ship-source pollution problem. Thus, this initiative should be seen in the broader context of the framework of measures aiming to tackle together the identified problem of ship-source pollution in European waters.

PO B is the preferred option because it is expected to be the most cost efficient and proportionate option. In terms of efficiency, the benefit to cost ratio is estimated to be the highest in PO B (5.1-5.5), with net benefits estimated at EUR 558.5 to 567.4 million relative to the baseline, expressed as present value over 2025-2050. Furthermore, PO B shows the lowest total costs among the policy options, estimated at EUR 125.8 to 134.7 million in addition to the baseline costs. In terms of subsidiarity and proportionality, PO B relies most on Member States being proactive and fulfilling their responsibilities effectively thanks to the technical support and capacity building offered. It is assessed to be the most proportionate thanks to a harmonised framework, exchange of information and cooperation between all Member States for successful penalising of polluters.

It should be noted that there is high uncertainty related to the estimated environmental benefits due to the illegal discharges prevented. The environmental benefits might be higher, especially due to the increased scope. Nevertheless, PO B is still expected to result in net benefits even when lower environmental benefits are considered.

The following legal and non-legal instruments may be needed for the implementation of the preferred option:

- legal instruments: implementing act(s) e.g. on the criteria for levels of administrative penalties and on reporting requirements and their format/modalities;

- non-legal instruments: EMSA guidance documents on detection and evidence collection for ship-source pollution under the extended scope of the Directive, guidelines produced by Commission based on the work of the expert group, CleanSeaNet digital tool, online portal with key non-confidential information on ship-source pollution.

8.1.2. Overview of stakeholders' opinions

Stakeholders largely agreed that pollution prevention was still an issue and improvements were needed in this area, particularly by making the Directive more effective. Most stakeholders considered the information systems provided by EMSA had improved pollution detection, although there was in this respect margin to improve their effectiveness. However, the consultation activities suffered from the absence of data both on cost and benefits, but also on the enforcement activities.

The main difference between stakeholders' groups could be found between NGOs and the industry, the former strongly support to extend the scope of the Directive, including even beyond MARPOL, while the industry contested the rationale for the extension and requested to align the liability regime with MARPOL, i.e. remove the serious negligence provision.

Member States authorities were concerned with the administrative burden while supporting measures to improve exchange of information and cooperation assisted by EMSA.

In relation to the measures proposed, those common to the 3 policy options received a positive opinion from stakeholders, namely the extension of the scope of the Directive (PMc1), EMSA training and guidance (PMc2), the setting of an expert group (PMc3) and the enhancement of Integrated Maritime Services (PMc5).

For some measures, stakeholders considered they lacked sufficient knowledge to have an opinion. This was the case of gathering information from whistle-blowers (PMc4), clarifications on the liability regime (PMc6) and on the type of penalties (PM2 a & b). In the relation to the obligation to register if and how CleanSeaNet alerts had been verified (PMc7), stakeholders' support was low.

The specific measures included in PO A faced stakeholder opposition: four out of the twelve MS authorities consulted expressed their disagreement with the request for MS to inform the public about ship-source pollution incidents through a national website (PM5a), as they believe it would be enough to provide the information through the reporting portal DONA; they considered this measure would not have a significant impact to the objectives of the SSP Directive.

The specific measures included in PO B: setting criteria for the level of penalties (PM3a), the obligation for Member States to report their data in an EMSA-managed tool on each ship-source pollution incident (PM4) and the publication online by EMSA of key EU information reported by Member States about ship-source pollution incidents (PM5b), encountered low to medium stakeholder support, but no opposition.

The specific measures included in PO C encountered on the one hand opposition, as for the mandatory verification of 60% of CleanSeaNet alerts (PM1), which Member States argued would require significant additional resources, whereas low to medium stakeholder support with no opposition was shown for the measure defining both criteria and maximum and minimum values for penalties (PM3b) or for the obligation for Member States to report their data in an EMSA-managed tool on each ship-source pollution incident (PM4).

To sum up in relation to the preferred policy option (PO B), most of the measures envisaged under this option are in principle supported by stakeholders that responded to the consultation activities. During a stakeholder workshop on 22 September 2022, when asked about the three options, 20 out

of 27 voting participants selected strengthened Member State cooperation and EMSA support. However, there are also divergent opinions among stakeholders. Some industry stakeholders are of the opinion that the Directive is not needed at all as international MARPOL rules are sufficient. Four responses to the public consultation from the industry (out of 6) indicate that they consider that the same result in terms of enforcement could have been achieved largely without the Directive, through international rules. However, this was not a prevailing view. Stakeholders are in favour of having EU support for increasing the capacity of Member States and see the need for an EU initiative to support transparency, prioritisation and harmonisation in the area of ship-source pollution. In this context, it should also be noted that the transposition of MARPOL rules into the EU legal system makes these provisions actionable before the European Court of Justice.

Detailed information on the stakeholder consultation is included in Annex 2

8.2. REFIT (simplification and improved efficiency)

The revision has a REFIT dimension in terms of alignment and simplification. Better aligning the scope with MARPOL brings the benefits of fully incorporating into the Directive penalties for a broader range of polluting substances under a harmonised approach towards infringements. Simplification aspects include enhancing the existing and developing new modern digital tool for data collection and exchange on ship-source pollution and further develop the relevant automated links in the Integrated Maritime Services. This will improve the use of interoperable digital solutions and make the Directive digital-ready as well as provide opportunities to avoid duplication of reporting at international level (IMO Global Integrated Shipping Information System) and regional level (Regional Sea Agreements).

Member States will face higher costs due to the scope extension as they will receive more CleanSeaNet alerts (coupled with a new requirement to log feedback data) but this has to be seen against the simplification brought about by the new digital tools. The enforcement cost savings for Member States authorities are estimated at EUR 1.8 million¹³³, while the administrative cost savings at EUR 0.9 million¹³⁴, expressed as present value over 2025-2050 relative to the baseline (in 2020 prices).

PO B leaves a considerable margin of discretion to Member States, specifically on carrying out their duty of verifying possible spills as to identify the offender. The decision on whether or not to verify a CleanSeaNet alert is left to the Member States and all relevant and available information will be provided to the Member State to support this decision.

In addition, the preferred policy option includes the following elements of simplification:

- The provisions of assistance to national authorities with training, guidance and a dedicated expert group to support capacity building and cooperation between Member States will improve the operational effectiveness of their surveillance and enforcement tools and resources, as well as the efficient use of such resources.

¹³³ Driven by the reduction in the time spent for verifying CleanSeaNet alerts due to the enhancement in data exchange tools in the Integrated Maritime Services.

¹³⁴ Driven by the time savings for reporting to the European Commission under the SSP Directive due to the development of a dedicated reporting tool.

- It will clarify the liability regime i.e. the exception from liability which will improve the understanding of the EU liability regime.
- The EMSA assistance to Member States in the form of analytical tools and hi-tech solutions will increase harmonisation and standardisation across the EU in the context of ship-source pollution.

8.3. Application of the ‘one in, one out’ approach

As explained in section 6.1.2, the preferred policy option is not expected to result in additional administrative costs or adjustments costs for the private sector, or for the citizens. More penalties may be expected for ships not meeting MARPOL requirements. The level playing field should bring benefits for the compliant ship operators. In addition, both citizens and business would benefit from the reduction in the ship-source pollution with the benefits expected to be larger for citizens.

9. HOW WILL ACTUAL IMPACTS BE MONITORED AND EVALUATED?

The success of the Directive is the effective response of the Member States. It would ultimately mean that the person (legal or natural) responsible for the pollution of the sea is adequately penalised to produce a deterrent effect and this way prevent pollution in the future. SSP penalties can be seen as the end result and last line of defence for pollution prevention and the protection of marine environment.

The Commission services will monitor the implementation and effectiveness of this initiative through a number of actions and a set of core indicators that will measure progress towards achieving the specific objectives. Five years after transposition of the legislation, the Commission services should carry out an evaluation to verify to what extent the objectives of the initiative have been reached.

Table 16. Summary of how impacts will be monitored

Specific objective	Indicator
SO1: Incorporate international standards into EU law by aligning the Directive with MARPOL Annexes on discharges into sea	Number of: - infringements - detections for oil, noxious substances, packaged goods, sewage, garbage and scrubber discharge water discharged by ships
SO2: Support Member States by building their capacity to detect pollution events, verify, collect evidence and effectively penalise identified offenders in a timely and harmonised manner	Number of: - verifications per Member State (verification level) - identified offenders as a result of verification (identified polluters) - notifications by whistle-blowers - EMSA training workshops
SO3: Ensure that persons (natural & legal) responsible for illegal discharges from ships are subject to effective, proportionate & dissuasive sanctions	- levels of monetary fines imposed - types of penalties imposed
SO4: Ensure simplification and effective reporting on ship-source pollution events and follow-up activities	Number of: - updates per Member State in reporting platform - ship discharges recorded in the reporting platform per Member State - views/visits at the public website

Actions foreseen for verifying implementation include:

- Commission/EMSA verifying that feedback to CleanSeaNet alerts is being provided by the Member States in a timely and effective manner and that information on evidence collection and prosecution is uploaded to the reporting tool regularly.
- Commission/EMSA develops an EU website with core indicators on the implementation rate and the key non-confidential information updated regularly with data from the reporting tool to keep the public informed on the implementation and on pollution incidents.
- Visits to Member States to verify operations on the ground, carried out by EMSA on behalf of the Commission, as part of EMSA's support role to the Commission. These visits will be integrated, where possible, with the visits targeting Port Reception Facilities and should be summarised in visits reports identifying shortcomings in a coherent manner.¹³⁵
 - Upon request, horizontal analysis and technical assistance to be provided by EMSA¹³⁶ (indicating how the legislation is functioning and identifying gaps and solutions thereof) and to be reported to the Commission and Member States.

¹³⁵ EMSA carries out such visits under Article 3 of Regulation (EC) No 1406/2002 establishing a European Maritime Safety Agency as part of its core tasks. As such, no additional costs are expected to incur.

¹³⁶ Article 3(5) Regulation (EC) No 1406/2002 establishing a European Maritime Safety Agency

Annex 1 - Procedural information

Lead DG, Decide Planning/CWP references

The lead DG is Directorate General for Mobility and Transport (MOVE), Unit D2: Maritime Safety

DECIDE reference number: PLAN/2019/5432

This initiative was announced under item Action 14 in Action Plan to the Sustainable and Smart Mobility Strategy.

Organisation and timing

The impact assessment and the ex-post evaluation of the Ship-Source Pollution Directive were performed in a back-to-back manner (i.e. the evaluation and impact assessment have been launched at the same time) in 2021-2022.

The impact assessment and evaluation started in 2021, with a combined evaluation roadmap/inception impact assessment published on 19 May 2021¹³⁷.

The impact assessment on a possible review of the Ship-Source Pollution Directive and the ex-post evaluation were coordinated by an Inter-Service Steering Group (ISG). The Commission Services participating in the ISG were: Secretariat-General, Legal Service, DG Environment, DG Climate Action, DG for Justice and Consumers, DG Maritime Affairs and Fisheries, DG for European Civil Protection and Humanitarian Aid Operations, the European External Action Service and the European Maritime Safety Agency (EMSA).

The Inter-Service Steering Group met 6 times: on 12 March 2021, 10 November 2021, 29 April 2022 and 21 June 2022, 14 September 2022 and 27 October 2022. It was consulted throughout the different steps of the evaluation and impact assessment process: notably on stakeholder consultation questionnaire and deliverables and on the draft Staff Working Documents. When necessary bilateral discussions were organised with the concerned services.

The revised draft Staff Working Documents, following the first opinion of the RSB, were consulted with the group during 17-28 February 2023 and comments from DG ENV and EMSA were received and taken into consideration when possible.

Consultation of the RSB

The draft impact assessment and evaluation reports were submitted to the RSB on 3 November 2022. They were discussed by the Board on 30 November 2022. Following a negative opinion of the RSB on 1 December 2022, a revised version of the two reports was submitted to the Board on 3 March 2023.

The table below presents an overview of the RSB's comments and how these have been addressed.

¹³⁷ European Commission (2021) [Combined Evaluation Roadmap/Inception Impact Assessment. Revision of the Directive on ship-source pollution](#)

RSB Comment – first opinion	How the comment has been addressed
1) The report should draw more on the evaluation findings to: (i) critically discuss how effective the SPP has been in reaching its objectives, (ii) explain what the key problems are, (iii) state which of those this initiative aims to tackle, and (iv) how they interact with each other (e.g. overall problem of ship source pollution versus specific implementation, enforcement and capacity problems). It should provide a clearer idea of the scale of these problems and the underlying problem drivers. On this basis, it should define more precisely its specific objectives, including by explaining upfront what the initiative aims to achieve over and above the MARPOL Convention and by indicating what success would look like. It should then identify the sets of measures that can effectively deliver on the objectives, thereby presenting a clearer intervention logic and overall revised narrative. Being clear on the expected level of ambition and on what success would look like, would help to manage expectations of this initiative.	a) More information on the effectiveness of the Directive, the problem definition and problem drivers has been added in sections 2.1 and 2.2 of the revised report, drawing also on the evaluation report. b) The specific objectives were reworded in section 4.2 (in particular specific objective 2 on supporting the Member States in their enforcement) and the narrative revised accordingly throughout the report. c) The context was reinforced in sections 1, 3.3 and 5.2 by clarifying what the proposal achieves over and above MARPOL (i.e. EU liability regime, satellite surveillance, types and levels of penalties). d) To clarify the expected level of ambition and what success would look like, sections 1, 2.1, 3.3, 4.2 were revised. Success is defined as an increased proportion of illegal discharges from ships subject to penalties.
2) The report should present a credible and dynamic baseline. It should include the effects of existing and upcoming relevant legislation, ongoing technological developments, recent geo-political events and insights from foresight. It should be clear how verification and prosecution costs associated with complying with the MARPOL Convention are reflected in the modelling.	a) Section 5.1 has been revised. It better explains that all possible efforts have been made to build a dynamic baseline. It also further explains how relevant legislation, technology etc. influences the baseline. b) Section 1, 3.2, 5.1 and 5.2 have been improved to better explain that costs of verification and prosecution of the incidents are not considered as costs of the SSP Directive (i.e. there were verification and prosecution costs prior to the adoption of the Directive and costs accounted for in this report do not create a duplication with costs occurring under MARPOL implementation).
3) The report should better explain the rationale behind the option design. It should present alternative sets of measures that can effectively tackle the problems. It should better justify why the policy measure on	a) Section 5.2 has been improved to better explain the design of the three policy options and how the proposed measures can tackle the problem in three ways/ options (national enforcement focus,

RSB Comment – first opinion	How the comment has been addressed
further data integration and exchanges does not feature in the set of common policy measures. It should clarify whether a slightly different option design would affect outcomes, and if yes, how this has been reflected in the analysis.	cooperation focus, EU harmonisation focus). b) The policy measure on the enhanced Integrated Maritime Services is now included in the set of common policy measures. This required adapting the numbering of the policy measures and the estimation of the costs and benefits. The description of policy options in section 5.2 was also revised.
4) The report should reflect the significant data limitations in assessing effectiveness, efficiency and EU added value, both in the evaluation conclusions and in the assessment and comparison of the options.	The evaluation and impact assessment reports were adapted to reflect the significant data limitations in particular, the description of the context in section 1 and 7 as well as in the conclusions of the evaluation.
5) The report should improve the analysis of the environmental impacts. The report should more clearly explain (and quantify to the extent possible) the environmental benefits of all measures. If further quantification is not possible, the report should provide a much more developed qualitative assessment of the environmental benefits, fully informed by the views of different stakeholder groups and independent expert judgement. This revised effectiveness assessment of the options in delivering the environmental benefits should then be reflected in the revised comparison of costs and benefits.	a) A qualitative assessment of the environmental impacts of all policy measures, by policy option, has been added in section 6.3. b) A summary of the views of different stakeholder groups has been added in Annex 2 for all proposed measures and in the main text of the report in footnotes. c) The comparison of costs and benefits in section 7 has been improved based on the above.
6) Options should be compared against the dynamic baseline scenario. The report should include a comparative table that ranks effectiveness, efficiency and coherence for each of policy options. The comparison of options should include the results of any additional analysis of the environmental benefits. Where adequate quantitative estimates are missing, a qualitative scoring should be done.	A comparative table that ranks effectiveness, efficiency, coherence, subsidiarity and proportionality was added in section 8.1. The qualitative assessment of the environmental benefits has also been reflected in the comparison of options.
7) The report should better justify the choice of the preferred option. The current analysis shows that the preferred option does not have the best Benefit Cost Ratio. However, the effectiveness and efficiency analysis does not adequately reflect the likely different environmental impact of each option. For the	Section 8.1 has been improved to better explain the choice of the preferred option. By including the policy measure on the enhanced Integrated Maritime Services in the set of common policy measures, the preferred policy option shows now the best benefit to cost ratio. The environmental impacts have

RSB Comment – first opinion	How the comment has been addressed
report to conclude on the preferred option, the justification should provide the key elements leading to this conclusion, acknowledge the limitation of the analysis and the fact that the choice of the preferred option is sensitive, even to small changes in policy options' design. In the absence of clear evidence on some proposed measures' effectiveness, in particular with respect to the scale of environmental impacts, the report should demonstrate why the preferred option is expected to deliver the expected positive results.	been better reflected in the effectiveness and efficiency assessment. Better justification of the choice in this section is based on the comparative table that ranks effectiveness, efficiency, coherence and subsidiarity/proportionality. The description of the environmental impacts of each option was improved, by adding an assessment of the impacts by policy measure and by option.
8) Stakeholder and independent expert views and arguments should be presented more prominently and systematically throughout the main report. Notable disagreements between different categories of stakeholders on option design and the impact of some measures should be highlighted. In this regard, Annex II should be structured, summarised and feed into the main report.	More details are provided on stakeholders' views based on the consultation process. There were no notable disagreements between different categories of stakeholders on option design and the proposed measures.

RSB Comment – second opinion	How the comment has been addressed
(1) The report should summarise, upfront, the main problems, and the main aim of the revision in order to frame the overall narrative and intervention logic early in the analysis. It should explain clearly what its level of ambition is so that the effectiveness of the options on delivering on this ambition and tackling the problem can be clearly assessed.	A summary of the problem tackled by the Directive, the aim and the level of ambition of the initiative has been added in section 1 of the revised report. The remaining sections were revised punctually to link with this change.
(2) The discussion on the choice of the preferred option should make clear that this initiative is part of a broader framework of measures aiming to tackle the problem of ship source pollution in EU waters in working together. The report should explain whether the expected contribution of 0.5% reduction of oil waste discharge under the preferred option is in line with the envisaged ambition of the initiative.	Section 8.1 has been revised to explain that a number of initiatives address together the problem of ship-source pollution in European waters. The reduction in the level of oil discharges is only indirectly linked to the envisaged ambition of the initiative. Section 6.3 was revised to better explain this, and the limitations of the quantitative data to estimate the impacts on Annex II-VI pollutants.

The impact assessment and evaluation are based on several sources, using both quantitative and qualitative data. This includes:

- Stakeholder consultation activities (see Annex 2);
- External support studies carried out by an independent consortium (lead by Ricardo). The external support studies will be published alongside this report.
- Commission experience in monitoring and implementing the Directive;
- Reports and information sourced by databases managed by EMSA.

The baseline scenario builds on the EU Reference scenario 2020 developed by E3Modelling with the PRIMES-TREMOVE transport model but also reflects the 'Fit for 55' package. This report also draws on the activities of the European Sustainable Shipping Forum, Waste from Ships subgroup, a temporary Commission's expert groups with Member States representation and industry stakeholders, which was established for the purpose of the revision of the Port Reception Facilities and SSP Directives.

Annex 2 - Stakeholder consultation

This annex provides a summary of the outcomes of the consultation activities, which have been carried out for the evaluation and Impact Assessment of the Ship-Source Pollution Directive, including in the context of the external support study. The impact assessment and the ex-post evaluation of the Ship-Source Pollution Directive were performed in a back-to-back manner (i.e. the evaluation and impact assessment have been launched at the same time) in 2021-2022.

This annex provides the range of stakeholders consulted, describes the main consultation activities and also provides a succinct analysis of their views and the main issues they raised.

The aim of the consultation activities was to collect information and opinions from stakeholders on the achievements of the Directive, its added-value, key problems and associated drivers, definition of relevant policy objectives linked to those problem areas and the identification, definition and screening of policy measures that could eventually be incorporated into policy options for the Impact Assessment, as well as gather information and opinions on their likely impacts.

1. Overview of consultation activities

A consultation strategy, covering all stakeholder consultation activities, including those carried out as part of the support study, was developed early in the process. The consultation activities were aimed at a range of stakeholders dealing with the identification, verification and prosecution of ship-source pollution in EU and industry representatives (including relevant associations of ship-owners and port operators), as well as non-EU players (e.g. flag States). The objective of the consultation activities was to collect information and opinions on the current implementation and enforcement of rules on illegal discharges from ships as well as gather evidence on expected costs and benefits of draft policy measures.

Consultation activities have taken place since the publication of the combined evaluation roadmap/ inception impact assessment published in May 2021 and continued until the stakeholder validation workshop in September 2022.

As part of the initial feedback mechanism, stakeholders had the opportunity to provide feedback on the combined evaluation roadmap/ inception impact assessment¹³⁸ via the relevant website. The Commission received eight responses, during June 2021. Six responses were provided by NGOs and two by business representatives.

Afterwards, the following consultation activities were carried out:

- An Open Public Consultation (OPC), organised by the European Commission, which ran from 9 December 2021 to 3 March 2022. The OPC put forward questions on both the Impact Assessment and the evaluation of this Directive.
- Three rounds of interviews with EU level representatives of key stakeholders organised by the consultant in charge of the external support study, running intermittently from

¹³⁸ European Commission (2021) [Combined Evaluation Roadmap/Inception Impact Assessment. Revision of the Directive on ship-source pollution](#)

November 2021 to September 2022, to fill specific information requests, in support of the evaluation and to refine the overall problem definition and possible policy options.

- Two targeted stakeholder surveys to gather specific information, one for the evaluation and one for the Impact Assessment, organised by the consultant in charge of the external support study, running, respectively, from December 2021 until February 2022 and June until July 2022.
- Additional targeted consultation activities organised by DG MOVE in order to consult the Member States and key stakeholders on the different policy measures and to validate the emerging and final results of the support study to the Impact Assessment in terms of the quantification of impacts. These activities took place in the context of a meeting of the EU Committee on Safe Seas and the Prevention of Pollution from Ships (2 June 2022), meetings of the European Sustainable Shipping Forum (18 May 2022) and its subgroup: Waste from Ships (22 March 2022 and 4 June 2022), the EU/EEA Maritime Transport Directors (3 October 2022), the North Sea Network of Investigators and Prosecutors (25 April 2022), HELCOM (8 June 2022) and BONN Agreement meetings (21 September 2022), an informal meeting with the Regional Sea Conventions (29 June 2022) and an informal meeting with ECSA (21 September 2022). A final workshop to validate the conclusions of the support study attended by Member State, NGOs and industry representatives was also organised (22 September 2022).

The information collected from stakeholders was key in allowing the Commission to evaluate the Directive, define the policy options and assess and compare their economic, social and environmental impacts. As result, the consultations informed on which policy option is likely to maximize the benefits/costs ratio for the society and achieve a more effective and efficient mechanism to discourage ship-source pollution in the EU. Findings from those processes complemented the desk research carried out in the context of the external support study.

Methods have been adapted to take account of the development of the COVID-19 pandemic. For this reason, interviews and meetings were held by videoconference.

Table 17. Overview of responses to different stakeholder consultation activities

	Number of invitees	Number of responses	Topics covered
Open public consultation	Open	30	Implementation of the Directive – successes and problems
Exploratory interviews	9	6	Problem assessment
Targeted Evaluation interviews	42	31	Implementation of the Directive – successes and problems
Targeted Impact Assessment interviews	50	26	Policy measures / options / impacts
Targeted Evaluation survey	58	25	Implementation of the Directive – successes and problems
Targeted Impact Assessment survey	53	3	Policy measures / options / impacts
Stakeholder workshop	Open	86	Policy measures / options / impacts

The full list of stakeholders who participated in the various consultation activities is included in the external support study. There were no campaigns¹³⁹ identified in the responses neither

¹³⁹ ‘Campaign’ – e.g. NGO based in a Member State may call on members to respond in the same way to a consultation for all questions.

to the targeted nor the public consultation. The information and views received in the context of the public consultation were taken into consideration for the elaboration of the Evaluation and Impact Assessment report, but they cannot be regarded as the official opinion of the Commission and its services (and thus does not bind the Commission) and the contributions cannot be considered as a representative sample of the EU population.

2. Limitations of the Stakeholder consultation

Stakeholders were not very responsive to the various consultation activities. There were only **30 responses** to the open public consultation and the input to each of the remaining consultation activities did not exceed 31 participants. Often the responses were delayed or answers were incomplete. The most attended consultation activity was a 1-day online stakeholder workshop organised at the time of the draft final report to discuss preliminary findings of the evaluation and Impact Assessment of the SSPD with 86 participants. Invitations for the workshop were targeted at experts from all relevant stakeholder groups. Since all relevant stakeholder groups have provided their views and positions to the various consultations, a comparison and analysis of opinions gathered from all consultation activities was possible. Nevertheless, it was difficult to identify trends from the feedback in the consultation due to the low response rate.

It was particularly difficult to gather input from stakeholders on possible expected **costs and benefits** of implementing the proposed measures, as well as estimations on the **number of prosecutions** because of the scarcity and incompleteness of existing data.

The data available from the interviews and surveys on the evaluation and Impact Assessment was not sufficiently robust to make a complete analysis for all Member States. In certain instances, the responses of the Member States were not very consistent. The level and quality of evidence gathered varies. For some evaluation criteria, in particular relevance and coherence, the evidence gathered was satisfactory. Availability and quality of data was a challenge affecting in particular the assessment of the effectiveness and efficiency criteria.

Where quantitative data was available, it was used to make estimations and was complemented by stakeholder opinions and positions. Whenever possible, information gathered from different sources, including input from stakeholders were compared and triangulated. Where available data and literature was limited, consultation responses were relied upon to answer the evaluation questions and are indicated throughout this report.

3. Analysis of the key results of the stakeholder consultation

The remainder of this annex presents key findings from the analysis of stakeholder contributions to the consultation process. They are structured around the main elements of the intervention logic, including the problem areas and their drivers, the policy objectives as well as the key aspects of the design of possible policy measures. The technical support study for this evaluation and Impact Assessment contains the detailed presentation of findings from the targeted consultation activities. Furthermore, the factual summary of public consultation contains concise information in the form of graphs and figures.

3.1. Current scope and implementation

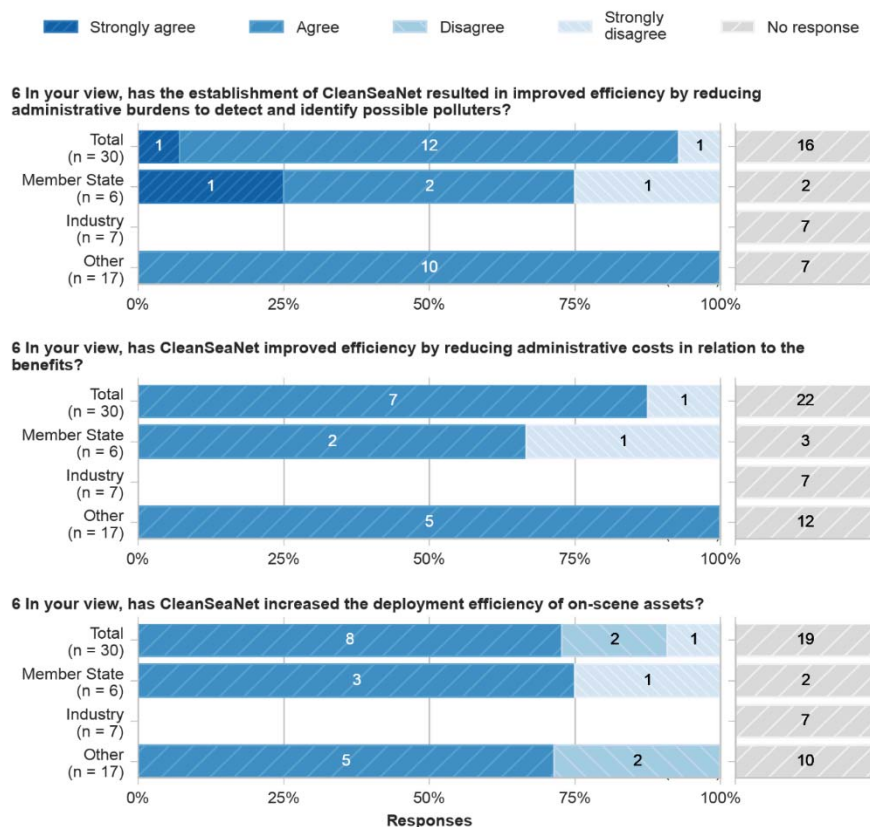
- Need for improved maritime transport safety and ship-source pollution prevention (protection of the marine environment)

Stakeholders consulted for the evaluation largely agreed that this issue is still relevant, supported by 24 (out of 31) stakeholders interviewed and 23 (out of 25) responses to the evaluation survey. It was acknowledged by stakeholders interviewed, including Member State authorities, international bodies and the maritime industry, that whilst shipping is considerably safer than prior to the Directive and there are fewer oil spill incidents partially due to improvements in safety, technology and training standards, ship-source pollution is still occurring, and additional improvements are still required. In this respect, 18 respondents (out of 30) to the public consultation stated that they do not find the Directive effective in terms of protecting the marine environment from illegal discharges from ships.

- Surveillance and monitoring

Generally, stakeholders are of the opinion that EMSA systems and information exchange between Member States have improved pollution detection in the EU over the years. Ten Member State authorities interviewed (out of 14) agreed that the CleanSeaNet service has increased the efficiency of the implementation of the Directive. Out of the 28 replies on the question on surveillance in the public consultation, 13 viewed CleanSeaNet as an efficient tool (the other half responded ‘I don’t know’ including all industry representatives). More public input on CleanSeaNet is shown in the figure below.

Figure 8. Open public consultation on CleanSeaNet and efficiency



On the other hand, discharges are not always detected on time. Eleven Member State respondents to the evaluation survey (out of 19) stated that their authorities are not using EMSA tools (e.g. CleanSeaNet alerts) to their full extent. Only eight of the authorities interviewed (out of 19 Member States) agreed that EMSA tools are used effectively in their country.

- Cooperation between Member States, information exchange and enforcement

There is consensus among Member State authorities interviewed that cooperation and information exchange activities led to improved capacity towards detection of illegal discharges. Also, seven industry responses to the public consultation (out of 13) indicated that the Directive has contributed to some extent to increased cross-border cooperation between Member States law enforcement and judicial authorities. Moreover, cross-border cooperation between Member States was perceived by the participants of the stakeholder workshop as the largest benefit of the current Directive, as shown in the figure below.

Figure 9. Stakeholder views from the stakeholder workshop on benefits of the Directive



The main issues hindering the detection of illegal discharges and identification of polluter, as identified by stakeholders consulted, are listed below:

- insufficient resources or unavailability of aerial means for oil spill detection;
- limitations to provide near real-time identification;
- limited resources (e.g. patrol ships) for sample collection, especially in areas distant from the coast;
- heavy ship traffic areas and short duration of operation discharges; and
- technical challenges due to the size of the area covered (particularly for EEZ and high seas).

There is a difference in opinion between the industry and the remaining stakeholders on enforcement. Four responses to the public consultation from the industry (out of 6) indicate that they consider that the same results of enforcement could have been achieved largely without the Directive and through international legislation. In the stakeholder workshop, only 11 participants voting (out of 51) indicated that MARPOL is enough and the Directive is not needed. Industry and ‘other stakeholders to the OPC’ largely agree that the same result would not have been reached without the Directive (8 indicated ‘not at all’ and 8 ‘to a small extent, out 16 responses).

- Discrepancies in penalties related to ship-source pollution among EU Member States

The majority of the stakeholders interviewed (including Member State authorities, the maritime industry and regional/international bodies) agreed that penalties are not harmonised in the EU. Thirteen respondents to the survey (out of 25) agreed that discrepancies in penalties for infringements related to ship-source pollution among EU Member States have an uneven dissuasive effect. This effect was also confirmed by five Member State authorities and three stakeholders from the maritime industry interviewed. In response to these inconsistencies, stakeholders see the need for more harmonisation.

- Effectiveness, proportionality and dissuasiveness of penalty procedures

There are contradicting opinions on whether the intervention was successful to achieve its objective to ensure that persons responsible for discharges of polluting substances are subject to effective, proportionate and dissuasive penalties. Eight Member State authorities interviewed (out of 16) considered criminal penalties proportionate and dissuasive as a measure. Similar results were provided to the evaluation survey, where ten stakeholders responding agreed with criminal penalties were proportional and dissuasive (out of 25). Still, one Member State authority stated that criminal procedures are usually impractical and rarely produce the desired outcome. Other stakeholders, who provided input to the interviews and/or the survey, including industry, workers' representatives and NGOs, suggested that criminal penalties are not considered proportionate in any case and have no dissuasive effect in preventing cases of ship-source pollution. The industry representatives made this point also during the stakeholder workshop. Regarding penalties, including criminal penalties, as an effective way to ensure compliance with international standards for ship-source pollution, 19 respondents to the public consultation (out of 28) agreed that penalties are an effective way to ensure compliance. Contradictory, only two stakeholders (out of 30 who responded to the public consultation) indicated that the introduction of penalties in national legislation led to operators taking measures to comply with legislation to protect the marine environment. Based on the results of the consultation it is not possible to conclude whether penalties are effective, proportionate and dissuasive, or not.

- Costs of the current Directive

Stakeholders were asked whether they considered that, the Directive and the associated changes to the national legislation have led to an increase in the time and costs associated with maritime pollution surveillance and enforcement activities. Eight Member State authorities (out of 14) interviewed indicated that there is no change associated with these costs. Six Member State authorities (out of 25 responses to the evaluation survey) indicated a slight increase in the costs associated with maritime pollution surveillance and enforcement activities. Two interviewed Member States indicated that the implementation of the Directive through national legislation did not require any additional cost as provisions (or most of them) were already in place before the implementation of the Directive in their country. Three Member State authorities (out of 25 responses to the survey) indicated that there has been a significant increase and pointed to the costs of on-site verification of CleanSeaNet alerts linked to the increase in the frequency of verification activities.

Ten Member State authorities interviewed (out of 14) agreed that CleanSeaNet service has increased the efficiency of the process; four of which indicated that this has not led to a reduction in costs because of increased frequency of verification activities. Seven of the respondents to the public consultation (out of 28) agreed that the establishment of CleanSeaNet service has resulted in improved efficiency by reducing administrative burden.

3.2. Problem areas and policy objectives

This section provides an overall view of stakeholder's inputs on the proposed definition of problem, its underlying drivers, and on the objectives of the policy intervention under consideration.

- Problem definition: ships illegally discharging polluting substances to the sea rarely face effective and dissuasive penalties

Eighteen of the stakeholders interviewed (out of 28) agreed with the overall definition of the problem¹⁴⁰ that ships rarely face adequate penalties. Two Member State authorities disagreed with the identified problem. These authorities indicated that, for MARPOL Annexes I and II, the implemented regimes have been sufficient and effective so far.

The representatives of the maritime industry, ECSA and ICS, disagreed with the identified problem, referring to no evidence available on an increase in ship-source pollution in EU waters in the recent years. This has been reemphasized by them in the interviews and in the stakeholder workshop. They stated that there is effective international legislation in place to prevent and control illegal pollution from ships. The MARPOL Convention, as per their statement, allows parties to establish sanctions “of adequate severity” (Article 4 of MARPOL) to discourage violations of the Convention, and draws a fundamental distinction between accidental and deliberate pollution. ECSA and ICS also pointed to UNCLOS (Art. 230) with regards to supporting MARPOL in the context of monetary penalties as the most common sanction for pollution in areas beyond the territorial seas. IPTA (International Parcel Tankers Association) also disagreed with the identified problem, as they consider it to be unlikely for ships to illegally discharge polluting substances into EU seas noting that effective and dissuasive penalties are already in place, as well as the risk of reputational damage for a shipping company as a result of a ship-source pollution incident, which is likely to have a preventive effect.

In brief, industry disagrees with the problem definition but most of the remaining stakeholders agree that ships illegally discharging pollutants at sea rarely face effective and dissuasive penalties.

- PD1: *The Directive's scope, which is limited to Annexes I-II of the MARPOL Convention, does not cover all relevant polluting substances.*

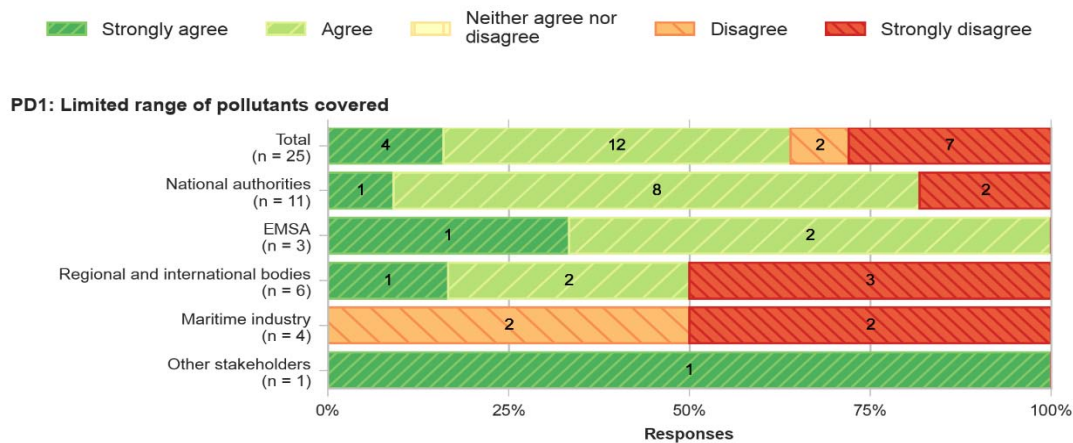
Eighteen stakeholders interviewed (out of 28) agreed or strongly agreed with problem driver 1 on the limited range of pollutants covered¹⁴¹. On the other hand, 9 stakeholders disagreed or strongly disagreed with the fact that the limited range of pollutants covered is a problem driver¹⁴².

Figure 10. Stakeholder views from the IA interviews on PD1: Limited range of pollutants covered

¹⁴⁰ This includes eight out of 12 of the MS authorities interviewed.

¹⁴¹ Stakeholders that agreed or strongly agreed include nine MS authorities, three European Commission bodies, three regional/international organisations and one environmental NGO.

¹⁴² These include two MS authorities, three regional/international organisations and four maritime industry stakeholders.

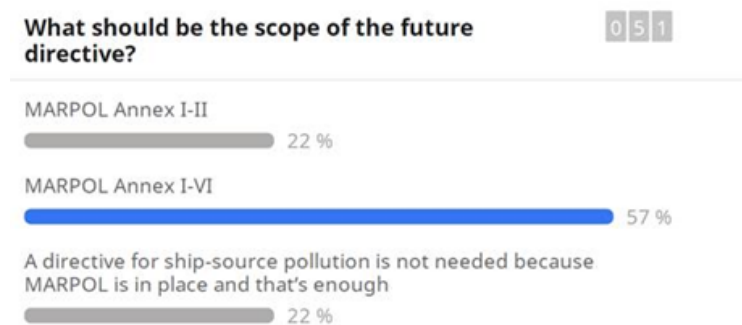


Furthermore, 23 out of 28 respondents to the OPC selected the option ‘Update the Directive to include amendments to the MARPOL Convention putting in place stricter rules for discharges of waste from ships at sea’ as a relevant aspect that should be addressed by a revised Directive.

On the other hand, maritime industry stakeholders – such as ECSA, ICS or BIMCO – disagreed, as, according to them, all relevant polluting substances are already covered under the MARPOL Convention. Therefore, expanding the range may have a limited effect in terms of polluting substances that are subject to penalties if illegally discharged into EU waters. Also, they pointed to the difficulties of the practical implementation of this extended scope.

In the stakeholder workshop, the majority of participants 29 (out of 51 respondents) voted for extending the scope of the Directive to include all MARPOL Annexes as shown in the figure below.

Figure 11. Stakeholder views from the workshop on PD1: Limited range of pollutants covered



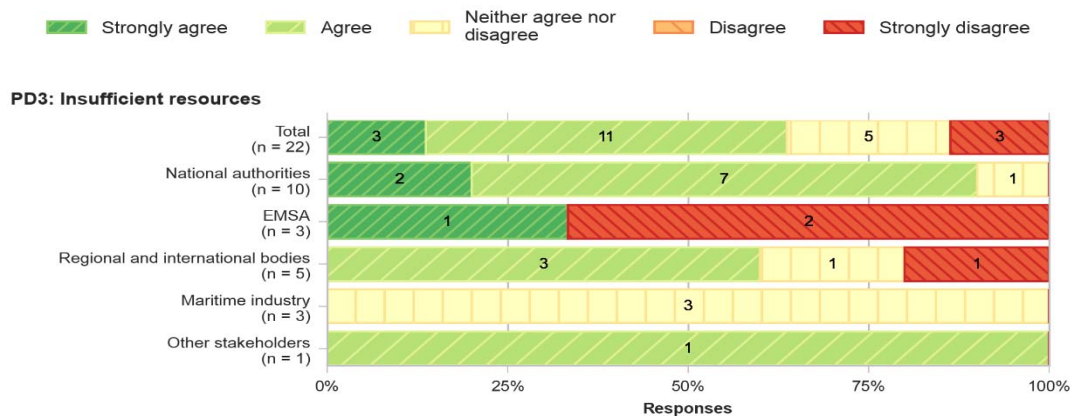
- PD2: Resources and/or expertise to effectively identify, verify and prosecute pollution from ships are inconsistent across the EU and generally insufficient.

Fifteen stakeholders interviewed (out of 28) agreed or strongly agreed with problem driver 2 on insufficient resources¹⁴³. In addition, three stakeholders strongly disagreed with the

¹⁴³ Those who agreed with problem driver 2 included nine MS authorities.

insufficient resources being a problem driver, and six stakeholders¹⁴⁴ indicated that they neither agree nor disagree with problem driver 2.

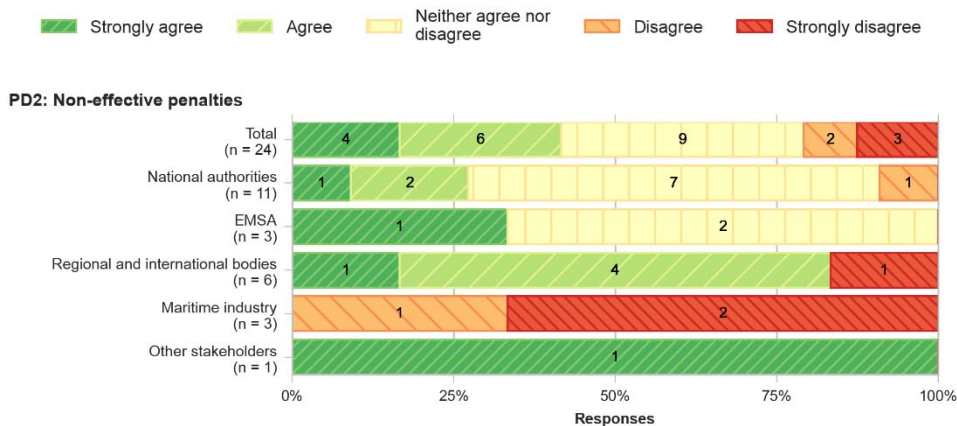
Figure 12. Stakeholder views on PD2: insufficient resources and expertise across Member States



- PD3: Penalties applied by Member States for illegal pollution from ships do not consistently discourage polluters.

As presented above, there is contradicting opinions on the dissuasive effect of the penalties. Twelve out of 28 stakeholders interviewed agreed or strongly agreed with problem driver 3 on penalties not being effective¹⁴⁵. However, the views on PD3 were quite diverse, as shown in the figure below.

Figure 13. Stakeholder views on PD2: non-effective penalties



Three Member State authorities interviewed indicated that penalties imposed in their respective countries are considered effective and proportionate to the nature of the pollution. Additionally, one Member State authority disagreed with non-effective penalties being an issue and instead pointed to the limited ability to identify ships as the polluter as a relevant issue hindering the enforcement of the Directive.

¹⁴⁴ Those who neither agreed nor disagreed with problem driver 3 included one MS authority, one regional/international body and three maritime industry stakeholders.

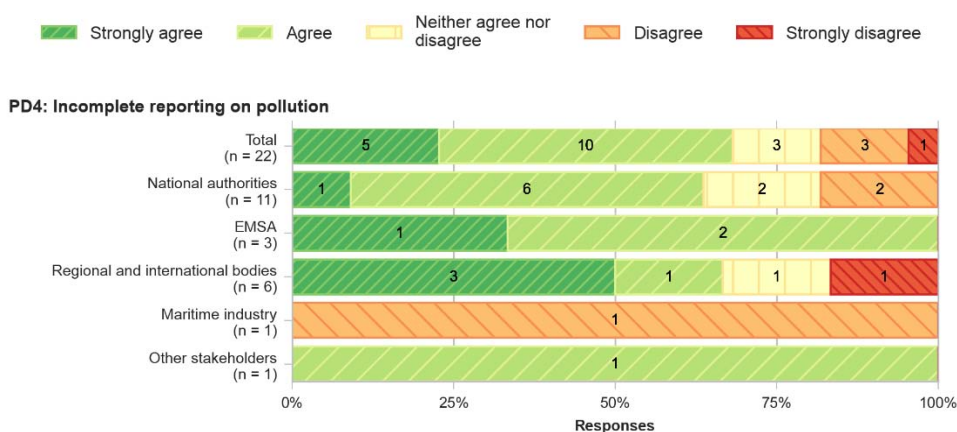
¹⁴⁵ Stakeholders that agreed or strongly agreed include three MS authorities, five regional/international organisations and one environmental NGO.

Furthermore, 23 (out of 28) respondents to the OPC selected the option ‘Improve the effectiveness of law enforcement within Member State’ as a relevant aspect that should be addressed by a revised Directive.

- PD4: *Incomplete reporting by Member States on pollution events and on follow-up activities results in the lack of information on ship-source pollution across the EU.*

Fifteen stakeholders interviewed (out of 28) agreed or strongly agreed with problem driver 4 on incomplete reporting on pollution. Four stakeholders disagreed or strongly disagreed with the incomplete reporting on pollution being a problem driver, and three stakeholders indicated that they neither agree nor disagree with problem driver 4.

Figure 14. Stakeholder views on PD4: incomplete reporting by Member States results in the lack of information on ship-source pollution



Furthermore, 24 (out of 28) respondents to the OPC selected the option ‘Improve the use and coordination of maritime surveillance and digital reporting systems’ as a relevant aspect that should be addressed by a revised Directive.

3.3. Policy measures

The table below summarises stakeholder opinions on each of the policy options and the subsequent subsections give more details on key areas of interest.

Table 18. Stakeholder opinions on policy measures

Policy measure	Stakeholder views	Summary
PMc1 - extension of the scope of the Directive	In the stakeholder workshop 29 out of 51 participants that voted were of the opinion that the scope of the revised Directive must be extended. Twelve Member State (MS authorities) were interviewed and had positive opinions.	Stakeholders in favour
PMc2 - EMSA training and guidance	Thirteen out of 26 stakeholders interviewed identified guidance and training as a relevant and suitable policy measure.	Stakeholders in favour
PMc3 - expert group	Twelve of the 18 stakeholders who provided a response to a question on this measure in the interviews (including nine out of 12 MS (BG, BE, HR, FI, FR, DE, MT, NL and ES), EMSA and three regional/international bodies) supported holding regular meetings of a dedicated platform. In an ESSF subgroup meeting on waste from ships, 9 out of 25 participants that voted were of the opinion that issuing	Stakeholders in favour

Policy measure	Stakeholder views	Summary
	guidelines by the Commission on collection of statistical data would foster the collection of information about illegal discharges from ships.	
PMc4 - information from whistle-blowers	Two stakeholders identified the measure relating whistle-blower provisions suitable for the objective of the Directive. However, other stakeholders endorsed the combination of PM5, PM6, PM7, and PM8, albeit not specifically naming this measure. Generally, stakeholders stated that they lacked sufficient knowledge of the whistle-blower provision to provide an answer on this question.	Stakeholders lack sufficient knowledge to have an opinion.
PMc5 - enhancement of Integrated Maritime Services	In the stakeholder workshop 23 out of 41 participants that voted were of the opinion that this measure would make the biggest difference in increasing cooperation between Member States and information exchange. In addition seven out of the 17 stakeholders (including six MS authorities and one regional body) that responded to this question in the interviews supported this measure. These stakeholders emphasised the value of EMSA tools and the potential advantages of further integration.	Stakeholders in favour
PMc6 - clarifications on liability regime	Generally, there was a lack of sufficient knowledge on the EU liability regime. Only six out of the 21 stakeholders consulted (five MS, one regional body and two industry stakeholders) provided their views on this measure in the interviews. Two of them (two MS authorities, BG and CY) agreed with this measure, as they considered that the proposed additional text clarifies the principles stated by international conventions. On the other hand, two industry representatives (ECSA/ICS) stated that the adoption of this measure would be only a partial improvement.	Low stakeholder support, low knowledge and no opposition
PMc7 - obligation to log if and how CleanSeaNet alerts have been verified	Five out of the 12 stakeholders (including four MS authorities and one regional body) who provided a response in the interview identify challenges associated with the implementation of this measure. One MS authority (BG) disagreed with this measure, as they considered that it could be difficult to implement from an operational perspective. Two MS authorities (MT, ES) also highlighted the challenges and additional administrative burden that this policy measure could impose on national authorities if implemented. Furthermore, another MS authority (RO) indicated that there will probably issues implementing these measures, although they are not expected to be significant.	Low stakeholder support and some minor opposition
PM1 - 60% verification rate for CleanSeaNet alerts	In the stakeholder workshop only 6 out of 41 participants that voted supported this measure. 15 out of 30 participants that voted were of the opinion that the verification of CleanSeaNet alerts should remain voluntary and not mandatory as foreseen in this measure. The main issue identified in interviews was the additional resources that would be needed to follow up on every possible pollution incident detected by CSN service.	Stakeholders mainly against
PM2 a & b – type of penalties	No information was provided by stakeholders regarding this measure.	Stakeholders lack sufficient knowledge to have an opinion.
PM3a – level of penalties containing criteria	Nine out of the 16 stakeholders interviewed (including four MS authorities (DK, FI, MT, RO) and two regional bodies) supported this measure. Three of these stakeholders underlined that this measure would act in favour of the harmonisation of the level of penalties and strengthen the coordination between MS.	Low stakeholder support but no opposition
PM3b – level of penalties containing values	Four out of the 16 stakeholders (including two MS authorities (MT, RO), two regional bodies) who provided a response in the interviews supported this measure. However, three MS authorities (BE, NL, ES) stated that this measure would be challenging to implement in practice.	Low stakeholder support but no opposition
PM4 - reporting	In the stakeholder workshop 16 out of 41 participants that voted were of the opinion that this measure would make the biggest difference in increasing cooperation between Member States and information exchange. In addition, in an ESSF subgroup meeting on waste from ships	Stakeholders in favour

Policy measure	Stakeholder views	Summary
	13 out of 25 participants that voted were of the opinion that a regular update of an online platform using a format harmonised with regional and IMO reporting requirements would foster the collection of information about illegal discharges from ships.	
PM5a – information to the public on national websites	Four out of the 12 MS authorities consulted expressed their disagreement with this measure. One MS authority indicated that they do not see the need for a website to be developed at national level, as they believe it would be enough to provide the information through the reporting portal DONA. One MS authority (CY) indicated that the measure is not considered as a measure that could have a significant impact to the objectives of the SSP Directive.	Stakeholders against
PM5b – information to the public on EU website	Four out of the 12 MS authorities consulted agreed with the measure related to the EMSA/European Commission providing public information based on the information reported by Member States on the enforcement of the SSP Directive.	Low stakeholder support but no opposition

– Scope of the future Directive

The stakeholders consulted during the public and targeted consultations, with the exception of industry, were in favour of broadening the scope by including MARPOL Annexes III, IV, V and VI discharge water from scrubbers discharged at sea. A revised Directive would be better adapted to the pace of international developments in the of field pollution prevention if it covers MARPOL Annex I to V substances and Annex VI discharge water from scrubbers into sea. This would also help align with the ambition of the European Green Deal. This was supported by 8 (out of 10) stakeholders during the inception interviews; 15 (out of 31) stakeholders interviewed (including 8 Member State authorities, and 4 regional/international bodies and 3 stakeholders from the maritime sector) as well as 8 (out of 11) responses to the evaluation survey (including input from 8 Member States, 2 NGOs and 2 business organisations/associations). 29 respondents (out of 51) in the stakeholder workshop voted for the extension of the scope to cover Annex I-V and Annex VI discharge water from scrubbers to water with strong support in interventions from 3 NGOs (EIA, Surfrider and IFAW) and the support of one representing industry (Euroshore). The same message came from the public consultation where 23 (out of 28) respondents saw the need to expand the list of pollutants covered by the Directive (including 4 Member State authorities, 8 citizens, 7 NGOs, 2 academia and 2 industry stakeholders), while 5 respondents (all but one representing maritime industry) disagreed. The industry questions the added value in extending the scope of the SSP Directive to further annexes of MARPOL. Their argument is that the MARPOL Convention is already ratified by all Member States who are parties to MARPOL.

The voice of environmental NGOs is consistent in the message that the Directive offers effective tools to prevent pollution and therefore should be extended to polluting substances of concern that are currently not covered by MARPOL. This was supported by IFAW and Surfrider and reemphasised in the stakeholder workshop.

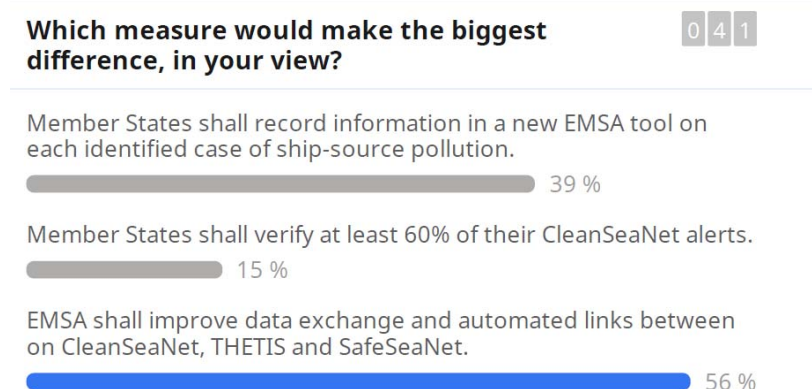
Out of the 28 stakeholders whose input was summarised, six Member State authorities noted a preference towards extending the scope of the Directive to Annex III-V substances and Annex VI residues from scrubbers discharged to the sea. Four Member State authorities were in favour of supporting the alignment of the Directive with all MARPOL Annexes and including air emissions of Annex VI (sulphur and nitrogen oxides).

In brief, Member States generally are in favour of broadening the scope of the Directive to more polluting substances in line with MARPOL, however there is not consensus on the matter. Also, see *PD1* above for complementary information.

- EMSA providing highly specialised support

As per conclusions of the evaluation, Member States see EMSA's support and dedicated EU-wide tools as a great added value of the Directive. When asked during the stakeholder workshop on which EMSA-specific measure could make the biggest difference in the future, the participants chose first the optimised interactions of CleanSeaNet, SafeSeaNet and THETIS (23 out of 41 respondents) and second a new dedicated EMSA platform for information collection and exchange (16 out of 41 respondents). See figure below.

Figure 15. Stakeholder views from the stakeholder workshop on EMSA support tools



One interviewed Member State authority welcomed new features that could help the integration between systems to avoid the duplication of data/information/reporting. These systems are currently isolated, so it would be helpful to be able to access the data from a single source. The Romanian authorities added that all useful information should be integrated and/or automated. French authorities agreed that more links are needed for Annex VI between THETIS, THETIS EU and SafeSeaNet, but confidentiality of data and possibility of alerts being wrong (false positives) must be addressed.

Regarding potential issues or challenges that may arise from the implementation of EMSA specific measures, the Finnish authorities identified potential issues related to restricted access depending on the position/responsibility of the Member State authority. For instance, not being able to access THETIS information if not directly involved in port inspections, although involved in other aspects of ship-source pollution incidents. Also, EUROSHORE pointed to a potential overlapping with other already ongoing expert groups on maritime issues.

Two Member State authorities interviewed recognised the importance of introducing mandatory requirements for Member States to follow up on possible pollution incidents detected by CleanSeaNet service.

Three Member State interviewed indicated they support the idea of EMSA providing public information based on the information reported by Member States on the enforcement of the SSP Directive. The Cypriot authorities stated that this would be most suitable, although a combination of all measures, except the measure on Member States developing national websites with information on pollution incidents and follow-up activities, would be preferable.

On the other hand, one Member State considered that these measures would not have a relevant impact on reducing the level of illegal discharges at sea. Also, ENPRO indicated that all policy measures proposed to address PD4 on incomplete reporting are relevant, although those related to the availability of public information might not have a significant impact on the objectives of the SSP Directive.

- More guidance at EU level

Thirteen stakeholders interviewed (13 out of 26)¹⁴⁶ supported policy measures on guidance and training activities on detection to facilitate evidence gathering for ship-source pollution offences to authorities responsible for verification and prosecution. The Spanish authorities also considered training relevant, as the limited resources and expertise in the national administration is not because of the lack of personnel, but due to the lack of know-how in ship-source pollution matters and procedures. They consider that training should be aligned and coordinated with homogenised principles and procedures.

In terms of identifying the most suitable policy measures to address Problem Driver 2, stakeholders consulted mainly pointed to the potential usefulness and effectiveness of a combination of all the measures proposed¹⁴⁷. It was mentioned that Expert Groups had been recognised as an efficient way to move forward with new ideas related to a specific topic.

With regards to the priority topics that should be the focus of the expert group, stakeholders identified the following:

- **Sharing of best practices:** Five stakeholders who responded to this question (out of 10) identified this as a relevant topic to be covered by the Expert Group.¹⁴⁸
- **Enhance harmonisation of the implementation of the Directive:** The Bulgarian authorities indicated that a work group could steer the development of guidance documents and ensure that the experts are available for developing guidance, presenting at incidents and experience sharing. EUROSHORE also supported this as a relevant topic to be covered by the Expert Group.
- **Coordination with other relevant regulations:** EMSA indicated that the Expert Group should work in coordination with the established regional networks to harmonise the enforcement of relevant regulations addressing ship-source pollution.
- **Exchange of information and strengthen coordination between MS authorities:** These topics were identified by OSPAR/Bonn Agreement and EUROSHORE representatives.
- **Case studies:** The Finnish authorities indicated that, based on their experience, the most valuable meetings are those where real experiences are shared. This could be done by presenting case studies or explaining something they have tested.
- **Monitoring reporting compliance:** OSPAR/Bonn agreement representative sees the focus of the group on reporting to monitor if and why it is not done and ensure information exchanged/updated either through annual meetings or with participation of a representative of the Bonn Agreement to the SSP directive expert group meetings.

¹⁴⁶ These include nine MS authorities, EMSA and two regional/international bodies

¹⁴⁷ These include views from nine MS authorities, EMSA and two regional/international bodies

¹⁴⁸ These include 4 MS authorities and one regional/international body.

However, French authorities shared a concern that a lot of committees of expert groups already exist and that their usefulness usually depends on the scope and planning of the new group. They stated that, if the meeting is held annually, it could be an interesting opportunity to improve coordination and harmonisation between Member State authorities. One authority mentioned that Member States are already part of the ESSF and the mandate and scope of work of the new group should be carefully considered.

– Penalties

Stakeholders were asked to identify the most suitable policy measures to address Problem Driver 3. Four stakeholders¹⁴⁹ identified the measure of non-regulatory nature for establishing the level of penalties as the most suitable or among the most suitable measures to address PD3. Concerning the impact of this measure on the level of penalties applied, three stakeholders¹⁵⁰ agreed that the measure would have a significant impact. Furthermore, two MS authorities considered the measure would result in an increase in the level of the penalties applied to a moderate extent, and one MS authority to a limited extent. However, Spanish authorities consider that the ability to impose penalties is contingent on the ability to gather sufficient evidence to support the case, but the level of penalties is not likely to change as a result of this measure. Furthermore, Cypriot authorities believe that the outcome will vary case by case.

Five out of 20 stakeholders agreed with the principle regarding serious negligence and four stakeholders¹⁵¹ disagreed with this principle, as they consider that intent should always be proved. The majority of the stakeholders neither agreed nor disagreed with the proposed principle or indicated that they did not know the answer.

Seven out of 20 stakeholders¹⁵² agreed with the principle regarding penalties being imposed on a pre-defined legal person that should indicate who the correct legal person is to assume liability for the violation. On the other hand, three maritime industry stakeholders¹⁵³ disagreed with this principle, as they consider that pre-defining a legal person to indicate responsibility is far reaching and excessive. The majority of the stakeholders neither agreed nor disagreed with the proposed principle or indicated that they did not know the answer.

Five out of 20 stakeholders¹⁵⁴ agreed with the principle regarding estimation of the level of the penalty being based on an estimate of the size and quality of the discharge. According to the Bulgarian authorities, it is considered easier to set the penalty first taking into consideration the quantity and size of the spill. However, the Cypriot authorities indicated that determining the level of the penalty based on the size of the discharge is challenging. On the other hand, one Member State authority disagreed with this principle, as they consider that this criterion can only be applied to certain substances (e.g. oil) but not to all polluting substances involved in ship-source pollution. The majority of the stakeholders neither agreed nor disagreed with the proposed principle or indicated that they did not know the answer.

¹⁴⁹ These include two MS authorities and two regional/international bodies.

¹⁵⁰ These include one MS authority, one regional/international body and one environmental NGO.

¹⁵¹ These include one MS authority and three maritime industry stakeholders.

¹⁵² These include six MS authorities and one NGO.

¹⁵³ These include three maritime industry stakeholders.

¹⁵⁴ These include four MS authorities and one NGO.

Seven out of 20 stakeholders¹⁵⁵ agreed with the principle regarding possibility to appeal against administrative sanction in a court of law. The Bulgarian authorities and BIMCO indicated that it should always be possible for everyone to appeal against a sanction that could be unfair. However, Spanish authorities reported that the principle is already included as such in the Spanish law. Furthermore, OSPAR/Bonn Agreement representative considers that it depends on the Member States applying the penalty, and that it is also convenient to know what is done in the actual practice and what is more efficient in different Member States. IPTA considers that increasing penalties or liabilities will not decrease the level of illegal discharges.

With regards to the regulatory approach of including criteria for setting the level of administrative penalties in the Directive, there was a general agreement over harmonisation of penalties at EU level. However, specific support to this measure was only provided by five Member State authorities and four international/regional bodies¹⁵⁶. In this context, Belgian and Dutch authorities regard the harmonisation of monetary penalties to be very difficult in practice because of the variety of legal frameworks. Furthermore, Belgian authorities consider existing administrative penalties are already effective and dissuasive. The Spanish authority representative believes that the size and quantity of the discharge should be the most important factors to consider. Other factors, such as the intentionality or impact of the discharge, could also be considered, but only as secondary factors influencing the monetary penalty imposed. With regards to the criteria proposed for setting monetary penalties, stakeholders consulted provided mixed views.

It is also worth mentioning that the harmonisation of penalties, as well as raising penalties to be significant were selected in the OPC as a measure to be considered for the review of the SSP Directive, where seven out of 16 of the respondents indicated that they consider this measure useful or very useful.

– Differences among stakeholder groups

The main two points of disagreement throughout the consultations were the following:

- (1) Environmental NGOs advocate for increasing the scope of polluting substances to go beyond MARPOL Annexes and cover other types of polluting substances regulated under the MARPOL Convention. Whilst Member States have divergent views on this issue and the industry strongly disagrees with extending the scope of the Directive in principle and even more so disagrees with going beyond MARPOL.
- (2) Industry advocates to align the liability threshold (i.e. remove the provision on serious negligence) and geographical scope of the Directive with MARPOL, whereas most of the remaining stakeholders disagree. Industry perceives this factor and referring to serious negligence as one limiting legal certainty. Other stakeholders (e.g. EIA intervention at stakeholder workshop) would like to see the liability threshold maintained at the same level as currently as to not make it more difficult to prosecute the offenders. No court case has been identified since 2005 where there was unfair treatment of crew members in a ship-source pollution incident.

¹⁵⁵ These include five MS authorities, one industry stakeholder and one NGO.

¹⁵⁶ REMPEC supported this measure to be applicable only for administrative penalties.

In the context of the second point, stakeholders consulted provided mixed views on the policy measure for clarifying the exception concerning infringement for crew members, as well as conditional support in some cases (e.g., if some conditions were satisfied). Two Member State authorities and one regional/international body agreed with the measure, as they considered that the proposed additional text is similar to the principle stated by other international conventions. However, three other stakeholders (including two maritime industry stakeholders, ECSA and ICS, as well as one Member State authority) have expressed their opposition to this measure. Representatives from ECSA and ICS considered that this measure would only be a partial improvement over the current Directive and could only be supported if a similar provision was developed for ship-owners.

Also, stakeholders consulted provided limited views regarding the measure on a provision being included in the Directive on whistle-blowers, as they referred to their limited expertise on the implications of this policy measure. In this regard, one Member State authority agreed with this measure, although they pointed to the different procedures that already in place in different Member States regarding whistle-blowers and indicated that flexibility would be needed in each Member State to implement this measure accordingly. One NGO supported this measure during their intervention at the stakeholder workshop.

– Costs of the future directive

Member State authorities were asked to provide an estimate of the expected costs associated with a potential extension of the scope of the Directive. However, limited information was provided, as several authorities stated that providing this estimate is significantly challenging. Some of the authorities stated that this is because it is difficult to separate the costs as they are part of their daily job. Additional costs were cited by the Finnish authorities as a result of the need for new/improved sensors. The cost could account for several million EUR. On the other hand, German authorities suggested that in terms of costs of expanding the scope to include additional annexes to MARPOL, there are no numbers on this, but that it would not be considered significant. ECSA outlined that they have no specific information on costs, but that they believe that additional costs for the shipping industry resulting from the proposed policy measures would most likely arise through defending ships and seafarers from unwarranted criminalisation in the prosecution under the Environmental Crime Directive.

Information on costs associated with measures on EMSA highly specialised support was mainly provided by EMSA. Additionally, REMPEC provided an estimate of the cost associated with the development and delivery of training sessions at regional and/or national level. The cost was estimated at the level of approximately USD 50,000 if organised at regional level, and USD 10,000 if done at national level.

Spanish authorities estimated 0.5 additional FTE required annually to perform tasks related to uploading data to a new dedicated EMSA platform. It was specified that most of this time would be spent gathering the information on ship-source pollution incidents. French and German authorities indicated that systems to collect this information are already in place at national level. Therefore, only links to the new platform to transfer this information would be needed. As a result, they expect minimum additional costs due to the implementation of this measure. On the other hand, the Maltese authorities expected additional costs would arise from the new dedicated EMSA platform.

Six Member State authorities interviewed (out of 12) estimated that the time needed for Member State authorities to collect and submit information about prosecution for pollution from ships and penalties imposed would be more than two days annually. In addition, two

Member State authorities indicated that the expected time would be between one to two hours. The Spanish and Romanian authorities emphasised that the time would depend on the characteristics of each procedure (e.g. administrative or criminal). In that sense, the Croatian authorities also clarified that the estimation provided is only referred to administrative proceedings – and related to the time needed to upload the information once it is gathered. The most challenging and time-consuming activities would still be related to collecting and summarising the information related to the case, which are not included in the estimation of 2h.

3.4 Position papers

Seven position papers were submitted when providing feedback on the Inception Impact Assessment (IIA), mostly from NGOs (six out of seven). The majority of position papers submitted touched on the following areas of revisions: the scope of the future Directive (Annex I-V substances and Annex VI discharge water from scrubbers) (n=6), mechanisms for monitoring compliance (n=3) and one NGO commented on the importance of harmonise legislation on sea pollution at EU level.

Also, five position papers were submitted by OPC respondents. However, two of these position papers had already been received during the IIA. The other three papers were submitted by a business, academia and a local authority. Most of them touched on the extension of the scope of the Directive (Annex I-VI).

Four position papers were received by the survey respondents in the Evaluation phase (two from NGOs, one from an industry stakeholder and one from academia), although all of them were updates of those already been submitted to previous phases of the study, including the IIA and/or the OPC.

Annex 3 - Who is affected and how?

1. PRACTICAL IMPLICATIONS OF THE INITIATIVE

The revision of the Ship-Source Pollution Directive aims at improving the level of pollution prevention by discouraging ships operating in European seas from illegal discharges of polluting substances. The impacts of the preferred policy option are expected to fall on different stakeholder groups: national competent authorities, EMSA, industry (i.e. ship owners/operators including the crews of the ships) and citizens. It is not expected to affect SMEs significantly. The preferred policy option B, provides for strengthened cooperation between Member States in their enforcement activities, supported by the technical and technological assistance of EMSA and using the same definition of infringement by all Member States.

Administrations

Member State competent authorities would be the key beneficiary of the initiative. More training, guidance and means for cooperation would be offered to Member States in order to increase the know-how of all relevant national authorities in the EU. Member States will also benefit from a dedicated expert group, the improved EMSA digital tools and a new dedicated reporting tool. These technological developments are specifically tailored to increase the availability and user-friendliness of information on potential illegal discharges for the Member States. Although Member States will be obliged to provide more feedback on CleanSeaNet alerts, such reporting will be simplified through the new user-friendly platform.

EMSA is already providing significant support, with costs estimated at around EUR 5.37 million annually in the baseline scenario for CleanSeaNet satellite surveillance and ship-source pollution training. With the broadened scope of the Directive, EMSA will have to tailor its instruments to detect and collect information on more potential discharges and enhance the data exchange tools and automated links. EMSA will have to develop and maintain a new reporting tool dedicated to the collection of information on ship-source pollution, including a possibility for whistle-blowers to alert on a potential incident. Other key obligations under the initiative will be providing training to the national authorities and a website to share relevant information on ship-source pollution with the public. Thus, the costs for EMSA are expected to increase relative to the baseline.

The European Commission would provide more support by establishing a permanent expert group as forum for the exchange of lessons learned, for discussing guidelines or the implementing act(s). Thus, the costs for the Commission are expected to increase relative to the baseline.

Businesses

The preferred policy option does not include requirements for ship operators. However, more effective enforcement and prosecution, may lead to more penalties in the first years of its implementation. This is eventually expected to have a deterrent effect on non-compliant ship operators. No costs are expected for the compliant ship operators. At the same time, the environmental benefits are expected to benefit all.

The initiative can be considered non-relevant for SMEs. The extension of the Directive's scope to cover additional substances under MARPOL may be relevant for recreational craft and fishing vessels, sector segments with high SME participation. However, the fact that this extension is focused on the enforcement of international regulations means that no impact on costs is expected for the compliant SMEs. Improving the identification of offenders and prosecution (deterrence by means of penalties) is expected to contribute to a level playing field, with a positive impact on the functioning of the internal market and competition.

The initiative will result in better observance of the right to justice by improving enforcement via the introduction of more effective and proportionate remedies, ensure fair trial by clarifying the limits of liability for ISM companies, masters and crew members and by improving definition of infringements.

Citizens

Society as a whole is affected by the environmental and health impacts of discharges of pollutants from ship operations. Despite recent progress, maritime transport continues to pose pressure on the marine environment. The initiative will act on discouraging illegal discharge from ships and hence contribute to a cleaner marine environment, coastline and beaches. Citizens will benefit from clean bathing water, improved environmental status of the marine waters as well as preserved marine ecosystems. The initiative will also ensure better access to information on ship-source pollution incidents, through a regularly updated EU-wide website.

2. SUMMARY OF COSTS AND BENEFITS

I. Overview of Benefits (total for all provisions) – Preferred Option (Policy option B)		
Description	Amount	Comments
Direct benefits		
Enforcement costs savings for Member States administrations, expressed as present value over 2025-2050 relative to the baseline	EUR 1.8 million	Enforcement costs savings for the Member States administrations are driven by the further integration and enhancements in the data exchange tools and automated links in the Integrated Maritime Services based on CleanSeaNet, THETIS, THETIS EU and SafeSeaNet by EMSA that is expected to lead to a reduction in the time spent for verifying CleanSeaNet alerts.
Administrative costs savings for Member States administrations, expressed as present value over 2025-2050 relative to the baseline	EUR 0.9 million	The development of a dedicated reporting tool for data collection would lead to significant time savings for reporting to the European Commission under the SSP Directive.
Enhanced surveillance capabilities of Member States administrations	Significant improvement in surveillance capabilities	Improvement of the surveillance and enforcement capabilities of Member States with the introduction of new technical support tools by EMSA, linked to the scope extension, and the enhanced knowledge sharing activities and data collection tools and their integration.
Improvement in enforcement of identified infringements by Member States administrations	Improvement in enforcement capabilities of Member States administrations	

I. Overview of Benefits (total for all provisions) – Preferred Option (Policy option B)		
<i>Description</i>	<i>Amount</i>	<i>Comments</i>
Infringements will be more effectively subject to penalties	Higher probability of being subject to penalties	Higher probability of identifying infringements and imposing penalties, due to enhanced support in enforcement activities.
Improvement in dissuasiveness of penalties	Improvement in the effectiveness and eventually dissuasiveness of penalties	
Awareness raising	Improved awareness raising and visibility to the public	Improved awareness rising as a result of increased reporting by Member States and public information sharing through a website.
<i>Indirect benefits</i>		
Functioning of the internal market	Positive impact on the functioning of the internal market and competition	Improving the identification of offenders and prosecution (deterrence by means of penalties) is expected to contribute to a level playing field.
Technological development	Accelerated deployment of innovation	Accelerated deployment of innovative technologies is expected due to the deployment of new technical solutions to meet the requirements of the revised Directive, specifically on surveillance and evidence collection.
Governance, participation and good administration	Improved information exchange and opportunities for enhanced Member State governance	Improvement in information availability, exchange and Member State collaboration in marine protection. In addition, public participation is encouraged by improved transparency and dedicated portal with information on ship-source pollution.
Reduction in external costs from oil spills, expressed as present value over 2025-2050 relative to the baseline	EUR 690.5 million	The reduction in external costs comes from improved environmental conditions as an indirect impact of the dissuasive effect of the improved enforcement and environmental awareness, leading to a shift in industry behaviour.
<i>Administrative cost savings related to the ‘one in, one out’ approach*</i>		
-	-	-

II. Overview of costs – Preferred option (Policy option B)							
		Citizens/Consumers		Businesses		Administrations	
		One-off	Recurrent	One-off	Recurrent	One-off	Recurrent
Direct adjustment costs relative to the baseline (i.e. present value over 2025-2050)		-	-	-	-	For EMSA: additional costs of EUR 2.9 million For European Commission: additional costs of EUR 0.2 million	For EMSA: additional costs of EUR 119.7 to 128.5 million For European Commission: additional costs of EUR 0.6 million
Direct enforcement costs relative to the baseline (i.e. present value over 2025-2050)		-	-	-	-	-	For Member States: additional costs of EUR 2.5 million
Costs related to the 'one in, one out' approach							
Total	Direct adjustment costs	-	-	-	-		
	Indirect adjustment costs	-	-	-	-		
	Administrative costs (for offsetting) relative to the baseline (i.e. present value over 2025-2050)	-	-	-	-		

3. RELEVANT SUSTAINABLE DEVELOPMENT GOALS

III. Overview of relevant Sustainable Development Goals – Preferred Option (Policy option B)		
Relevant SDG	Expected progress towards the Goal	Comments
SDG no. 3 – good health and well-being	Reduced illnesses (e.g. human exposure at bathing sites, contaminated fish for human consumption) by targeting the illegal release into sea of hazardous polluting substances from ships and preventing contamination from ships into sea.	The initiative, through the reinforcement of the MARPOL standards and more substances covered by the Directive, directly contributes to SDG Target 3.9 (<i>“By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.”</i>).
SDG no. 14 - life below water	Discouraging the shipping industry from discharging waste into sea will reduce pollutants, including hazardous contaminants, plastics and nutrients going into sea.	The initiative, through the dissuasive effect of penalties, directly contributes to SDG Target 14.1 (<i>“By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.”</i>).
SDG no. 16 - peace, justice and strong institutions	The initiative will promote the widespread application and use of international MARPOL standards by ensuring legal clarity in defining infringements. It will also support cooperation between Member States to deal with related infringements effectively and efficiently.	The initiative directly contributes to SDG Target 16.a (<i>“Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime.”</i>).

Annex 4 - Analytical methods

1. DESCRIPTION OF THE ANALYTICAL METHODS USED

For the assessment of the baseline and of the impacts of the policy options, a conceptual framework has been developed in the context of the impact assessment support study¹⁵⁷ that links specific influencing factors to indicators relevant for the performance of the Directive. In addition, an Excel-based tool has been developed that draws on the Standard Cost Model for the assessment of the administrative costs and also includes an assessment of the possible environmental benefits. The Excel-based tool builds extensively on data provided by EMSA, including from CleanSeaNet, and the analysis of stakeholders' feedback. The proposed measures which involve the amendment of the Directive are assumed to be implemented from 2025 onwards, so that the assessment has been undertaken for the 2025-2050 period and refers to EU27. Costs and benefits are expressed as present value over the 2022-2050 period, using a 3% discount rate.

The baseline scenario for this initiative draws on the results of the PRIMES-Maritime transport model by E3Modelling, a specific sub-module of the PRIMES and PRIMES-TREMOVE models, and the conceptual framework mentioned above. The model has a successful record of use in the Commission's energy, transport and climate policy assessments. In particular, it has been used for the impact assessments underpinning the “Fit for 55” package¹⁵⁸, the impact assessments accompanying the 2030 Climate Target Plan¹⁵⁹ and the Staff Working Document accompanying the Sustainable and Smart Mobility Strategy¹⁶⁰, the Commission’s proposal for a Long Term Strategy¹⁶¹ as well as for the 2020 and 2030 EU’s climate and energy policy framework.

Conceptual framework

The assessment of the baseline scenario and of the policy options is based on the identification and to the extent possible quantification of several relevant factors (contextual or internal to the Directive’s scope), whose current and/or expected developments are expected to affect the probability of ships generating illegal discharges and the potential of their identification, prosecution and application of penalties. A process flow diagram that links specific influencing factors to indicators relevant for the performance of the Directive has been developed (see Figure 16).

¹⁵⁷ Ricardo (2023), Impact Assessment of Directive 2005/35/EC on ship-source pollution

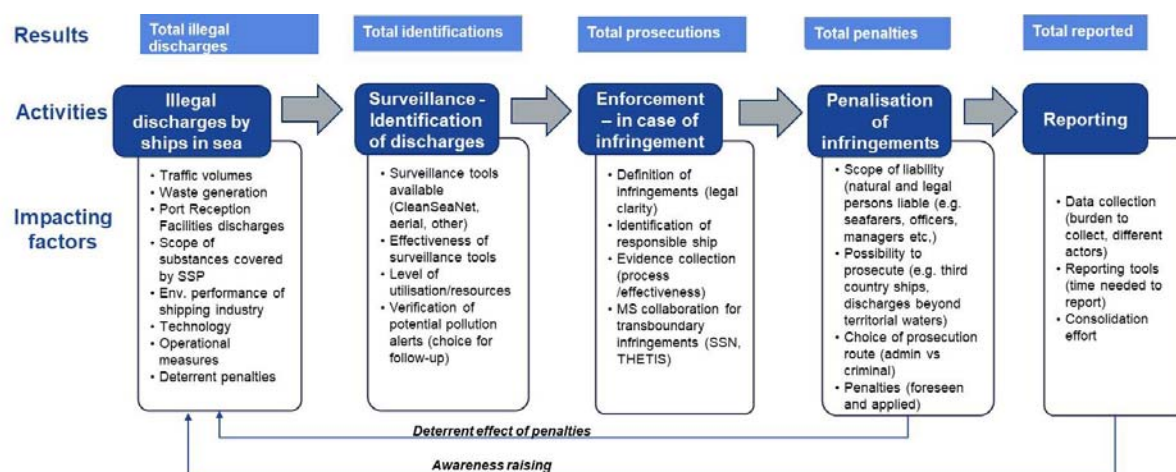
¹⁵⁸ [Delivering the European Green Deal | European Commission \(europa.eu\)](#)

¹⁵⁹ SWD(2020)176 final.

¹⁶⁰ [EUR-Lex - 52020SC0331 - EN - EUR-Lex \(europa.eu\)](#)

¹⁶¹ Source: [2050 long-term strategy \(europa.eu\)](#)

Figure 16. Process flow from discharges to identification, prosecution, penalisation and reporting



Source: Ricardo (2023), Impact assessment support study

As can be seen in Figure 16, the process leading from an illegal discharge, all the way to its reporting, contains a number of specific activities which the SSP Directive or other external factors directly or indirectly affect. These activities include the following:

- (1) The act of illegally discharging substances in the sea. The total amount of illegal discharges under the SSP Directive, depends, first and foremost on the scope of the substances under the Directive. It is also affected by a number of contextual factors, such as the volume of maritime traffic, the amount of waste generated by ships and the use of Port Reception Facilities. It is further affected by the application of technological and operational advancements by the shipping industry to improve its environmental performance, actions driven by increasing environmental awareness as well as by the deterrent effect of enforcement measures.
- (2) Identification/detection of discharges by surveillance activities and on-site verification undertaken. The total portion of the illegal discharges actually identified is dependent, beyond the total number of illegal discharges, on the availability, effectiveness and deployment of surveillance tools and on-site verification assets and resources.
- (3) Enforcement actions of relevant national authorities resulting in the prosecution of identified polluters. How identified discharges (elaborated in point 2 above) result in prosecution cases depends on the definition (and clarity) of an infringement, the potential to identify the polluter responsible for the pollution (either through direct observation, use of analytical tools or follow-up inspections), the evidence required to enact a prosecution, and the effectiveness of Member State collaboration in cases of incidents of cross-border nature.
- (4) Penalisation of offenders. How the prosecution process results in penalties will depend on the scope of liability (natural or legal persons responsible for the infringements). Also, for specific cases, it will depend on the legal basis to process a prosecution, the choice of route (administrative or criminal) and the level of penalties foreseen for each type of infringement by Member States.
- (5) Reporting of the results of the surveillance, verification and prosecution process (law enforcement chain), in order to understand the effectiveness of the Directive's application and supply relevant data across the EU to interested parties. This will depend not only on

the results of the previous activities, but also on how well data collection and reporting tools are applied.

Developments affecting one area of the process are not standalone and are likely to have an effect on the rest of the process as well. A knock-on effect is delivered either to activities standing downstream in the process (e.g. an improved detection of (illegal) discharges as a result of improvements in surveillance activities, is likely to lead to an increase in the total number of penalties imposed), or as a result of the feedback effects identified in the form of the deterrent effects of the penalties (i.e. an increase in the frequency in which illegal discharges are identified and penalised, is likely to deter future infringements), or due to awareness raised as a result of reputation risks (i.e. reporting the incidents and making this information available to the public). This framework is used, where possible, for the assessment of the environmental benefits of the different policy options.

Modelling framework

The PRIMES-Maritime transport model is a specific sub-module of the PRIMES and PRIMES-TREMOVE models and aims to enhance the representation of the maritime sector within the energy-economy-environment modelling nexus. The model, which can run in stand-alone and/ or linked mode with PRIMES and PRIMES-TREMOVE, produces long-term transport activity, energy and emission projections, until 2070, separately for each EU Member State. The coverage of the model includes the European intra-EU maritime sector as well as the extra-EU maritime shipping. The model covers both freight and passenger international maritime. PRIMES-Maritime focuses only on the EU Member States, therefore trade activity between non-EU countries is outside the scope of the model. The model considers the transactions (bilateral trade by product type) of the EU-Member States with non-EU countries and aggregates these countries in regions. Several types and sizes of vessels are considered.

PRIMES-Maritime features a modular approach based on the demand and the supply modules. The demand module projects maritime activity for each EU Member State by type of cargo and by corresponding partner. Econometric functions correlate demand for maritime transport services with economic indicators considered as demand drivers, including GDP, trade of energy commodities (oil, coal, LNG), trade of non-energy commodities, international fuel prices, etc. The supply module simulates a representative operator controlling the EU fleet, who offers the requested maritime transport services. The operator of the fleet decides the allocation of the vessels activity to the various markets (representing the different EU MS) where different regulatory regimes may apply (e.g. environmental zones). The fleet of vessels is disaggregated into several categories. PRIMES-Maritime utilises a stock-flow relationship to simulate the evolution of the fleet of vessels throughout the projection period and the purchasing of new vessels.

PRIMES-Maritime solves a virtual market equilibrium problem, where demand and supply interact dynamically in each consecutive time period, influenced by a variety of exogenous policy variables, notably fuel standards, pricing signals (e.g. Emission Trading Scheme), environmental and efficiency/operational regulations and others. The PRIMES-Maritime model projects energy consumption by fuel type and purpose as well as CO₂, methane and N₂O and other pollutant emissions. The model includes projections of costs, such as capital, fuel, operation costs, projections of investment expenditures in new vessels and negative externalities from air pollution.

The model serves to quantify policy scenarios supporting the transition towards carbon neutrality. It considers the handling of a variety of fuels such as fossil fuels, biofuels, synthetic fuels produced from renewable electricity, hydrogen produced from renewable electricity (for direct use and for use in fuel cell vessels) and electricity for electric vessels. Well-To-Wake emissions are calculated thanks to the linkage with the PRIMES energy systems model which derives ways of producing such fuels. The model also allows to explore synergies with Onshore Power Supply systems. Environmental regulation, fuel blending mandates, greenhouse gas emissions reduction targets, pricing signals and policies increasing the availability of fuel supply and supporting the alternative fuel infrastructure are identified as drivers, along fuel costs, for the penetration of new fuels. As the model is dynamic and handles vessel vintages, capital turnover is explicit in the model, influencing the pace of fuel and vessel substitution.

The main data sources for inputs to the PRIMES-Maritime model, such as for activity and energy consumption, comes from EUROSTAT database and from the Statistical Pocketbook "EU transport in figures"¹⁶². Other data comes from different sources such as research projects (e.g. TRACCS project) and reports. PRIMES-Maritime being part of the overall PRIMES and PRIMES-TREMOVE transport model is calibrated to the EUROSTAT energy balances and transport activity; hence the associated CO2 emissions are assumed to derive from the combustion of these fuel quantities. The model has been adapted to reflect allocation of CO2 emissions into intra-EU, extra-EU and berth, in line with data from the MRV database¹⁶³. For air pollutants, the model draws on the EEA database. In the context of this exercise, the PRIMES-Maritime model is calibrated to 2005, 2010 and 2015 historical data.

Additional source used

The quantification of the waste discharged at sea is based on the Impact Assessment supporting the revision of the Port Reception Facilities Directive¹⁶⁴. To provide for an estimate of what is (potentially) discharged at sea, the approach developed for this Impact Assessment consisted in estimating a “**waste gap**” for various waste types, which is defined as the gap between the waste expected to be generated on board of the ship and the waste actually delivered in ports, based on waste delivery data available. This estimations were based on:

- The **MARWAS model**¹⁶⁵, which is focused on *merchant and passenger ships*, and provided calculations of the waste gap for **oily waste and sewage**;
- Existing reports and literature¹⁶⁶, which allowed for the calculation of the waste gap for **garbage** from *all types of ships*, including fishing vessels and recreational craft.

¹⁶² https://transport.ec.europa.eu/media-corner/publications/statistical-pocketbook-2021_en

¹⁶³ <https://mrv.emsa.europa.eu/#public/eumrv>

¹⁶⁴ European Commission (2018). Commission staff working document, [Impact Assessment on port reception facilities for the delivery of waste from ships](#)

¹⁶⁵ The MARWAS model, which was developed and applied in the context of the impact assessment support study by Ecorys (2016) has calculated volumes of waste generation on board of vessels, and estimates of expected waste delivery volumes for a list of 29 ports, which together represent 35% of the throughput of all EU merchant ports, and are located across the EU. These volumes were compared to waste delivery data obtained from the same ports included in the list.

¹⁶⁶ In particular the study commissioned by the European Commission (DG ENV) “to support the development of measures to combat a range of marine litter resources” to Eunomia (2016), which has analysed the issue of marine litter from sea-based sources.

A detailed **analysis of waste volumes** is provided in Annex 5 of the impact assessment accompanying the PRF¹⁶⁷.

An additional source of quantitative information used is EMSA CleanSeaNet (CSN) - Detections and Feedback data (2015-2021)¹⁶⁸. The database indicates for each CSN detection its sequential number, the coordinates, the length and area of the detection, the satellite and sensor used to acquire the image, and information on the feedback: (i) whether feedback is available for this alert and the type of feedback report; (ii) the method used to perform the verification.

2. BASELINE SCENARIO

In order to reflect the fundamental socio-economic, technological and policy developments, the Commission prepares periodically an EU Reference Scenario on energy, transport and GHG emissions. The socio-economic and technological developments used for developing the baseline scenario for this impact assessment build on the latest “EU Reference 2020 scenario” (REF2020)¹⁶⁹. The same assumptions have been used in the policy scenarios underpinning the impact assessments accompanying the “Fit for 55” package¹⁷⁰.

Main assumptions of the Baseline scenario

The main assumptions related to economic development, international energy prices and technologies are described below.

Economic assumptions

The modelling work is based on socio-economic assumptions describing the expected evolution of the European society. Long-term projections on population dynamics and economic activity form part of the input to the model and are used to estimate transport activity, also relevant for this impact assessment.

Population projections from Eurostat¹⁷¹ are used to estimate the evolution of the European population, which is expected to change little in total number in the coming decades. The GDP growth projections are from the Ageing Report 2021¹⁷² by the Directorate General for Economic and Financial Affairs, which are based on the same population growth assumptions.

Table 19. Projected population and GDP growth per Member State

	Population			GDP growth	
	2020	2025	2030	2020-‘25	2026-‘30
EU27	447.7	449.3	449.1	0.9%	1.1%
Austria	8.90	9.03	9.15	0.9%	1.2%
Belgium	11.51	11.66	11.76	0.8%	0.8%

¹⁶⁷ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=SWD%3A2018%3A0021%3AFIN>

¹⁶⁸ <https://www.emsa.europa.eu/publications/item/4645-cleanseanet-detections-and-feedback-data-2020.html>

¹⁶⁹ [EU Reference Scenario 2020 \(europa.eu\)](#)

¹⁷⁰ [Policy scenarios for delivering the European Green Deal \(europa.eu\)](#)

¹⁷¹ EUROPOP2019 population projections: [Eurostat - Data Explorer \(europa.eu\)](#)

¹⁷² The 2021 Ageing Report : Underlying assumptions and projection methodologies [The 2021 Ageing Report: Underlying Assumptions and Projection Methodologies | European Commission \(europa.eu\)](#)

	Population			GDP growth	
	2020	2025	2030	2020-‘25	2026-‘30
Bulgaria	6.95	6.69	6.45	0.7%	1.3%
Croatia	4.06	3.94	3.83	0.2%	0.6%
Cyprus	0.89	0.93	0.96	0.7%	1.7%
Czechia	10.69	10.79	10.76	1.6%	2.0%
Denmark	5.81	5.88	5.96	2.0%	1.7%
Estonia	1.33	1.32	1.31	2.2%	2.6%
Finland	5.53	5.54	5.52	0.6%	1.2%
France	67.20	68.04	68.75	0.7%	1.0%
Germany	83.14	83.48	83.45	0.8%	0.7%
Greece	10.70	10.51	10.30	0.7%	0.6%
Hungary	9.77	9.70	9.62	1.8%	2.6%
Ireland	4.97	5.27	5.50	2.0%	1.7%
Italy	60.29	60.09	59.94	0.3%	0.3%
Latvia	1.91	1.82	1.71	1.4%	1.9%
Lithuania	2.79	2.71	2.58	1.7%	1.5%
Luxembourg	0.63	0.66	0.69	1.7%	2.0%
Malta	0.51	0.56	0.59	2.7%	4.1%
Netherlands	17.40	17.75	17.97	0.7%	0.7%
Poland	37.94	37.57	37.02	2.1%	2.4%
Portugal	10.29	10.22	10.09	0.8%	0.8%
Romania	19.28	18.51	17.81	2.7%	3.0%
Slovakia	5.46	5.47	5.44	1.1%	1.7%
Slovenia	2.10	2.11	2.11	2.1%	2.4%
Spain	47.32	48.31	48.75	0.9%	1.6%
Sweden	10.32	10.75	11.10	1.4%	2.2%

Beyond the update of the population and growth assumptions, an update of the projections on the sectoral composition of GDP was also carried out using the GEM-E3 computable general equilibrium model. These projections take into account the potential medium- to long-term impacts of the COVID-19 crisis on the structure of the economy, even though there are inherent uncertainties related to its eventual impacts. Overall, conservative assumptions were made regarding the medium-term impacts of the pandemic on the re-localisation of global value chains, teleworking and teleconferencing and global tourism.

International energy prices assumptions

Alongside socio-economic projections, transport modelling requires projections of international fuel prices. The projections of the POLES-JRC model – elaborated by the Joint Research Centre and derived from the Global Energy and Climate Outlook (GECO¹⁷³) – are used to obtain long-term estimates of the international fuel prices. The table below shows the oil prices assumptions of the baseline and policy options of this impact assessment.

Table 20. Oil prices assumptions

in \$'15 per boe	2015	2020	2030	2040	2050
Oil	52.3	39.8	80.1	97.4	117.9

¹⁷³ <https://ec.europa.eu/jrc/en/geco>

in €'15 per boe	2015	2020	2030	2040	2050
Oil	47.2	35.8	72.2	87.8	106.3

Source: Derived from JRC, POLES-JRC model, Global Energy and Climate Outlook (GECO)

Technology assumptions

Modelling scenarios is highly dependent on the assumptions on the development of technologies - both in terms of performance and costs. For the purpose of the impact assessments related to the “Climate Target Plan” and the “Fit for 55” policy package, these assumptions have been updated based on a rigorous literature review carried out by external consultants in collaboration with the JRC. Continuing the approach adopted in the long-term strategy in 2018, the Commission consulted on the technology assumption with stakeholders in 2019. In particular, the technology database of the PRIMES and PRIMES-TREMOVE models (together with GAINS, GLOBIOM, and CAPRI) benefited from a dedicated consultation workshop held on 11th November 2019. EU Member States representatives also had the opportunity to comment on the costs elements during a workshop held on 25th November 2019. The updated technology assumptions are published together with the EU Reference Scenario 2020¹⁷⁴. The same assumptions have been used in the context of this impact assessment.

Key global trends and megatrends

The baseline also incorporates foresight megatrends¹⁷⁵ and developments captured in the 2022 Strategic Foresight Report¹⁷⁶. Among others, it captures the trend of increasing demand for transport as population and living standards grow. The 2022 Strategic Foresight Report also reconfirms the existing megatrends identified in the 2021 Strategic Foresight Report¹⁷⁷ and more specifically, the megatrends of “Climate change and environmental degradation” and that of “Accelerating technological change and hyperconnectivity” that relate to the ongoing twin green and digital transitions. The ability of the EU to achieve these twin transitions very closely relates to the deployment of existing and new technologies in scale and their appropriate framing with relevant policies to achieve their maximum effectiveness. “Enabling a greener transport sector with digital technologies” is one of the areas where the twinning of the green and digital transitions is expected to have a major effect. Relevant to the SSP Directive revision, exploiting new technologies, such as the use of sensors to better monitor environmental performance is one of the key relevant challenges identified. The ongoing technological developments would positively influence the baseline because the technological drive would make more digital solutions available on the market for detection and verification. It is however uncertain if Member States would prioritise and allocate resources to the new tools. In addition, without further EU level action EMSA tools are expected not to be used at their full potential and would continue to cover only the MARPOL Annex I-II discharges.

¹⁷⁴ [EU Reference Scenario 2020 \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&plugin=1)

¹⁷⁵ https://knowledge4policy.ec.europa.eu/foresight/tool/megatrends-hub_en#explore

¹⁷⁶ COM(2022) 289 final.

¹⁷⁷ [2021 Strategic Foresight Report | European Commission \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&plugin=1)

EU policy developments

Building on the EU Reference scenario 2020, the baseline scenario for this impact assessment has been designed to include the initiatives of the ‘Fit for 55’ package¹⁷⁸.

The Baseline scenario assumes no further EU level intervention on ship-source pollution discharged to the sea beyond the current SSP Directive. It accounts for the effects of the recent entry into force of the revised Port Reception Facilities Directive (PRF)¹⁷⁹ and the proposal for the revision of the Environmental Crime Directive (ECD) that is in the process of being discussed by the European Parliament and the Council.

The revised PRF Directive had to be transposed by Member States by June 2021¹⁸⁰. This means that its effects may be expected to manifest gradually in the early years of the baseline. The Directive foresees the development and improvement of new and existing Port Reception Facilities across EU ports aiming to provide sufficient infrastructure for ships to deliver their waste instead of discharging it in the sea. The incentive to deliver waste to port reception facilities is provided by the obligatory indirect payment of a fee by ships regardless of the amount of waste the ship intends to dispose of and giving them the right to leave their waste in PRFs. This scheme of indirect fees is expected to take away, at least part of, the financial incentive of ship operators to illegally discharge waste at sea. This would likely result in a reduction of illegal discharges at sea, somewhat closing the gap of deliveries of waste to PRFs compared to the totally generated waste¹⁸¹.

The 2021 proposal for a new Environmental Crime Directive (ECD) includes, inter alia, provisions on the definition of criminal offences, more effective sanctions for both natural and legal persons and strengthening the enforcement chain to facilitate work on investigation, prosecution and adjudication. In view of Article 83 (2) TFEU being the new legal basis for criminal law measures at EU level and for reasons of consistency, the ECD proposal transfers the description of the criminal offence from the SSPD to the ECD. This will ensure that tackling illegal ship-source pollution benefits from a stronger legal framework on combating environmental crime.

The baseline assumes no change in the EMSA founding regulation and its role in the area of maritime surveillance, notably the operation of the CleanSeaNet service and the issuing of alerts to Member States on possible illegal discharges for Annex I and II, which the authorities may choose to follow up by inspecting a ship in port or on-site verification. No change is either foreseen in other relevant activities performed by EMSA, such as the organisation of trainings and the preparation of guidance documents.

Furthermore, the current Dynamic Overview of National Authorities (DONA) and the Integrated Maritime Services are progressively giving new opportunities for data collection and exchange on ship-source pollution, which should also contribute to enhancing enforcement capabilities of Member States.

In the baseline scenario, the scope of the Directive will remain limited to **MARPOL** Annex I and Annex II. Furthermore, it is expected that there will be no change to the scope of

¹⁷⁸ [Delivering the European Green Deal | European Commission \(europa.eu\)](https://european-council.europa.eu/media/en/press-communications/infographic/infographic-122021-01-01-01.pdf)

¹⁷⁹ Directive (EU) 2019/883

¹⁸⁰ All EU Member States, with the exception of Hungary (a landlocked country), had by that date transposed relevant legislation.

¹⁸¹ As identified in the problem definition section.

MARPOL in terms of the substances it regulates within Annex I and II and there will be no major change to any international provisions related to limit values or additional reporting activities in the future. Consequently, the scope of the Directive, in the context of substances it regulates, can be expected to remain the same. Nevertheless, it is likely that other pollutant substances that are currently drawing more attention, such as plastic pellets, might be added in the future in other (relevant) MARPOL Annexes such as Annex III or V. However, this development does not affect the baseline in which the scope of the SSP Directive remains limited to Annex I and II.

Baseline scenario results

Maritime traffic projections

The COVID-19 pandemic had a major impact on global shipping, affecting all its segments from passenger ships to container ships and oil tankers. In the baseline scenario, international maritime freight transport activity (intra and extra-EU) is projected to be 21% lower in 2020 relative to 2015. From 2021 onwards however it is projected to start recovering and grow strongly by 2025 and beyond (i.e. 19% growth for 2015-2030 and 48% for 2015-2050), due to the rising demand for primary resources and container shipping. Relative to 2019, this is equivalent to 8% increase in transport activity by 2030 and 33% growth by 2050.

The number of port calls for 2025-2050 is projected to grow at a lower rate than transport activity, following similar evolution over the historical period¹⁸². This reflects the fact that transport activity is also driven by other factors such as the increase in the size of vessels over time, and of the distance travelled. In the baseline scenario the number of port calls is projected to go up by 14% by 2030 relative to 2015 and by 36% by 2050 (equivalent to 6% growth by 2030 relative to 2019 and 26% increase by 2050), following the recovery from the COVID-19 pandemic.

Illegal discharge of ship-source pollution

Table 21 summarises the factors affecting the total number of illegal discharges in the baseline providing a qualitative assessment of their relevance.

Table 21. Factors affecting the expected development of illegal discharges in the baseline scenario

	Factor	Future development
1	Development of maritime traffic	A steady increase in maritime traffic is expected to lead to an increased number of illegal discharges in the long term.
2	EU policies	The revised PRF Directive will induce a reduction in the total number of illegal discharges over time by offering infrastructure and incentive for ships delivering waste to Port Reception Facilities. The ECD revision could also contribute to developing an enhanced enforcement approach by Member States for environmental crime.
3	Market developments (environmental awareness)	The increasing importance of tackling environmental degradation is expected to drive the steady uptake in the use of more sustainable practices by the shipping sector due to reputation damage risks.
4	Technological developments (surveillance capabilities)	Improved surveillance tools (including satellite surveillance) for MARPOL Annex I and II substances will increase the deterrent effect to potential offenders for Annex I and II substances. No impact is expected for Annex III to VI substances as no surveillance tools by EMSA are

¹⁸² The same ratio between the growth in the number of port calls and the transport activity as for the historical period (2014-2019) has been assumed for the projection period.

	Factor	Future development
		foreseen in the baseline scenario.

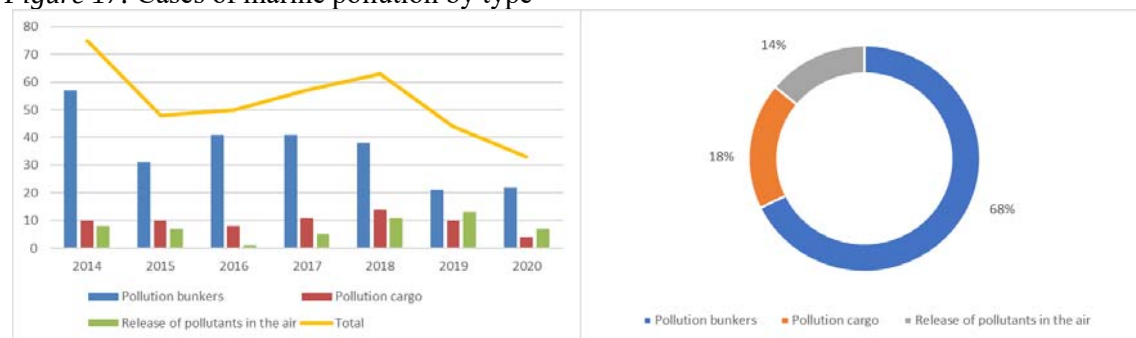
The combination of the above factors leads to different developments across the different categories of illegal ship-source pollution substances. In particular, a distinction needs to be made between substances that are currently in the scope of the SSP Directive (Annex I and II) and those that are not in the scope (Annexes III-VI). This is because the surveillance capabilities are expected to affect these two groups differently. More details are provided below.

- Oil (MARPOL Annex I)

The current Directive addresses oil (Annex I) which is the main pollution identified in statistics on marine casualties and incidents.

A total of 370 cases of marine pollution have been reported during 2014-2020, showing a decreasing trend over time. Marine pollution in the form of ship bunkers (fuel) and other pollutants (e.g. cargo residues) represented 68% and 18%, respectively, of the total number of cases of pollution (Figure 17)¹⁸³.

Figure 17. Cases of marine pollution by type



Source: European Maritime Safety Agency (2021)

However, accidental oil discharges represent a small part of the total illegal discharges covered in the SSP Directive. Most discharges are intentional/operational and not resulting from major accidents. The impact assessment accompanying the PRF Directive¹⁸⁴ provided an estimate of the total volume of illegal discharges, based on the estimation of the gap between the volumes of waste legally delivered to port reception facilities (PRF) and the estimation of the total waste generated by shipping activities. For Annex I oil waste, it showed a delivery gap - in absolute volume, of 31,000 m³/year (approximately 27,280 tonnes), corresponding to 2.5% of total estimated waste generation. In this context, operational pollution is reported to represent the main source of oil pollution, despite the relatively small size of these spills (less than seven tonnes).

A relative stabilisation in the total number of illegal discharges is projected in the baseline scenario by 2050, despite the significant increase in maritime traffic. This is the result of a combination of factors, including in particular improvements in surveillance capabilities

¹⁸³ European Maritime Safety Agency (2021), Annual overview of marine casualties and incidents 2021.

¹⁸⁴ https://eur-lex.europa.eu/resource.html?uri=cellar:727908e7-fac7-11e7-b8f5-01aa75ed71a1.0001.02/DOC_1&format=PDF

(supported by the CleanSeaNet) due to technological developments, a small increase in the number of infringements identified, technological developments allowing for the treatment of waste on-board ships (such as more efficient oil-water separators), operational improvements (such as the increased use of PRFs to collect waste/polluting substances), policies in place (PRF Directive and EDC) and increased environmental awareness.

The shipping industry acknowledges the improved surveillance capabilities brought by satellite surveillance services and further potential future technological improvements. Seven of the 12 Member State authorities interviewed¹⁸⁵ agreed that technological developments, in particular those related to pollution detection, are expected to have a moderate to a significant positive impact on the level of discharges of polluting substances. For example, the Belgian authorities indicated that innovative detection technologies are already being deployed in EU Member States and should these technologies be introduced in other Member States, the improvement would be higher. Still, the French authorities consider that more research and development in technological means for the detection of polluting substances are needed. The resulting perceived risk of getting identified as a polluter can be seen as another motivating factor for the long-term improvement in the industry performance.

Increased environmental awareness leads shipping companies to gradually adopt improvements aiming to enhance their environmental performance also in order to fulfil social corporate responsibility goals. Representatives of the shipping industry¹⁸⁶ consulted in the context of the evaluation and impact assessment support studies reflected this point as a factor for improving the performance of ship operations. Moreover, segments of the shipping industry directly dealing with consumers (such as the ferry and cruise companies) would be further motivated by the risk of negative publicity, more directly affecting their business.

The view that the above-mentioned factors would lead to a potentially small decrease in the level of illegal discharges is supported by 12 out of the 26 stakeholders that responded to the relevant interview question¹⁸⁷. On the other hand, the representatives of REMPEC stated that in the absence of intervention at EU level there would not be a drive for major changes such as market developments or technological development, but “it is the presence of EU action that will drive change”. The IMO voiced concerns that “illegal discharge will get worse based on the assumption that there will be more maritime traffic”, a point which was echoed in the position provided by Seas At Risk “if the market continues to grow then you can expect the problems to keep growing”. Overall, six out of 26 stakeholders interviewed believed the situation would deteriorate¹⁸⁸.

- Noxious liquid substances (HNS) in bulk (MARPOL Annex II)

Marine chemical, hazardous and noxious substances spills (HNS) can be particularly harmful to the marine environment. International accident preparedness and response instruments have already been developed to monitor and control these types of accidents, such as the Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and

¹⁸⁵ HR, CY, MT, NL, ES and 2 anonymous representative of Member State authorities

¹⁸⁶ ECSA (European Community Shipowners' Associations), I&P Clubs (Protection and Indemnity Clubs), ICS (International Chamber of Shipping) and BIMCO (Baltic and International Maritime Council)

¹⁸⁷ HR, CY, MT, NL, ES, 2 anonymous representative of Member State authorities, NSN, ECSA, ICS, BIMCO, IPTA

¹⁸⁸ FR, DE, REMPEC, IMO, Bonn Agreement, Seas At Risk

Noxious Substances (OPRC-HNS Protocol) that entered into force in 2007¹⁸⁹. However, these spills are less frequent than oil spills¹⁹⁰ and, due to their infrequent nature, there is little quantitative data available to discuss emerging trends. While no instrument can guarantee the complete elimination of such pollution incidents, it is anticipated that these spills will remain limited in the baseline scenario.

- Harmful substances carried by sea in packaged form (MARPOL Annex III)

As for Annex III spills, illegal discharges of harmful substances in packaged form have an infrequent nature, and for this reason there is little quantitative data available to discuss emerging trends. The PRF Directive does not cover Annex III, as packaged goods are not categorised as waste and are usually not delivered in Port Reception Facilities. It is anticipated that these spills will remain limited in the baseline scenario.

- Sewage from ships (MARPOL Annex IV)

The impact assessment accompanying the PRF Directive¹⁹¹ provided an estimate of the total volume of illegal discharges, based on the estimation of the gap between the volumes of waste legally delivered to Port Reception Facilities (PRF) and the estimation of the total waste generated by shipping activities. For Annex IV – sewage, it pointed to a delivery gap - in absolute volume, of 136,000 tonnes/year, corresponding to 10% of total estimated waste generation.

The impact assessment accompanying the PRF Directive indicates that, for merchant shipping, of the sewage that is to be delivered to ports, approximately 7-17% is not received by port reception facilities and potentially discharged illegally, affecting the marine environment. For the recreational and fisheries sector, while volumes of sewage generated are similar to those of the merchant sector, no data on delivery are available to assess whether the gap for these sectors is similar or, possibly, higher.

Projections have also shown an increase in the volume of vessels built for freight vehicle transport with passenger accommodation generating significant discharges of sewage. Estimates have shown that RO-PAX ships produce over 1,500 tonnes of nitrogen through sewage discharges. These figures rise during summer periods which is consistent with the increase in seaborne passengers over this period¹⁹². Pollution from sewage from ships (MARPOL Annex IV) is likely to increase proportionately to the maritime traffic, notably for RO-PAX ships¹⁹³ and cruise ships. The transport activity for these categories of ships is projected to increase steadily as tourist levels return to pre-pandemic levels (i.e. 25% increase for 2015-2030 and 56% for 2015-2050).

It should be noted that sewage is not in the scope of the SSP Directive in the baseline and therefore specific monitoring of sewage is not implemented by CleanSeaNet; albeit can be detected by CleanSeaNet. The potential extension of the scope of the Directive would deploy

¹⁸⁹ Protocol on Preparedness, Response and Co-operation to pollution Incidents by Hazardous and Noxious Substances, 2000 (OPRC-HNS Protocol), see <https://www.imo.org/en/About/Conventions/Pages/ListOfConventions.aspx>

¹⁹⁰ EMSA and EEA Report, 2021

¹⁹¹ https://eur-lex.europa.eu/resource.html?uri=cellar:727908e7-fac7-11e7-b8f5-01aa75ed71a1.0001.02/DOC_1&format=PDF

¹⁹² EMSA and EEA (2021), European Maritime Transport Environmental Report 2021, Luxembourg: s.n.

¹⁹³ RO-PAX acronym refers to passenger roll-on/roll-off ships.

additional satellite resources in order to improve the detectability of substances other than those under Annexes I&II. Despite technological developments, which may reduce the costs of satellite monitoring services over time, very few Member States are expected to pursue such additional satellite monitoring services on their own. As shown by the evaluation report, the costs for Member States for procuring satellite images are estimated to be up to 7 times higher than the costs for EMSA. Thus, the technological developments are not expected to have a significant impact on sewage discharges, which are projected to grow in line with the maritime traffic in the baseline. Increasing environmental awareness is also expected to have limited impact.

- Garbage from ships (MARPOL Annex V)

The impact assessment accompanying the PRF Directive¹⁹⁴ provided an estimate of the total volume of illegal discharges, based on the estimation of the gap between the volumes of waste legally delivered to port reception facilities (PRF) and the estimation of the total waste generated by shipping activities. For Annex V garbage, showed a delivery gap - in absolute volume, between 61,000 and 301,000 tonnes/year, corresponding to 7% - 34% of total estimated waste generation.

Although land-based sources are dominant in generating marine litter, sea-based sources actively contribute to the problem with an estimated EU average 32% and values up to 50% for some sea basins. It is estimated that the fishing and recreational sectors are relatively large sea-based sources contributors, with shares of 30% and 19% respectively according to Eunomia (2016)¹⁹⁵. Although garbage delivered in ports has increased since the introduction of the PRF Directive, a significant delivery gap thus remains.

It is likely that discharges of garbage will increase over time due to the trend in maritime traffic, even if an increasing share of the garbage is delivered in ports and behavioural changes reduce the garbage generation notably for cruise (e.g. reduction of single use plastics). Similarly to sewage, garbage is not in the scope of the SSP Directive in the baseline and therefore specific monitoring of garbage is not implemented by CleanSeaNet; albeit can be detected by CleanSeaNet. The potential extension of the scope of the Directive would deploy additional satellite resources in order to improve the detectability of substances other than those under Annexes I&II. The technological developments are not expected to have a significant impact on sewage discharges, which are projected to grow in line with the maritime traffic in the baseline. Increasing environmental awareness is also expected to have limited impact.

- Discharge water from scrubbers (MARPOL Annex VI)

For air pollution from ships (MARPOL Annex VI), legislation in place is expected to lead to a clear decoupling from shipping volumes and a reduction of the SO_x emissions released to the atmosphere by 32% by 2030 and 56% by 2050 compared with 2015¹⁹⁶. Air emissions released to the atmosphere can be reduced to compliant levels through the installation of emission abating scrubbers.

¹⁹⁴ https://eur-lex.europa.eu/resource.html?uri=cellar:727908e7-fac7-11e7-b8f5-01aa75ed71a1.0001.02/DOC_1&format=PDF

¹⁹⁵ Eunomia (2016), Study to support the development of measures to combat a range of marine litter resources, s.l.: s.n.

¹⁹⁶ PRIMES-TREMOVE baseline scenario projections.

Discharges to water of residues from **scrubbers** installed on ships, or discharge water, containing polycyclic aromatic hydrocarbons (PAHs), particulate matter, nitrates, nitrites, and heavy metals including nickel, lead, copper, and mercury is expected to increase because the majority of scrubbers sold are systems operating in open loop which discharge wash waters and do not generate sludge. Estimates of volumes are, however, uncertain. Open-loop scrubber water discharges were estimated at 170 million m³ by 2019.¹⁹⁷ The discharge of waters from open-loop scrubbers installed on ships increased significantly after 2015 as a result of the new standards on the use of low-sulphur fuels (0.10 % m/m) in Sulphur Emission Control Areas (SECAs). In general, for Ro-pax ships and vehicle carriers, the increase was quite substantial. More increases may again be expected from 1 January 2020, after the introduction of further reductions in the sulphur limits in fuels used in non SECAs (0.50 % m/m).¹⁹⁸

Projections of the rate of illegal discharges identified by surveillance activities

The main factor impacting the number of detected cases is the availability of relevant surveillance tools and specialised resources. In the baseline scenario it is projected that the ratio of potential illegal discharges identified would remain relatively stable over time following the full roll-out of the Sentinel-1 satellites in the 2015-2019 period and the exploitation of the effectiveness gains from the introduction of the CSN service. It is considered unlikely that Member States would try to replicate surveillance tools such as the CSN service¹⁹⁹.

Further, with regards to the deployment of aerial or other surveillance resources by Member States, Figure 18 presents the pre-existing trend indicating a slight decline in the amount of aerial resources committed by Member States to maritime environmental surveillance. However, it is uncertain whether this negative trend will continue especially considering the increasing environmental awareness, resulting in pressure for Member States to enforce environmental regulation. Thus, the reduction in the amount of aerial resources committed by Member States is likely to be offset by improvements in the effectiveness of using these resources, resulting in a stable level of effective surveillance in the future. The baseline considers the improvements in the effectiveness of using resources due to technological developments, drawing on foresight megatrends. This has also been observed with the exploitation of the effectiveness gains from the introduction of the CSN service.

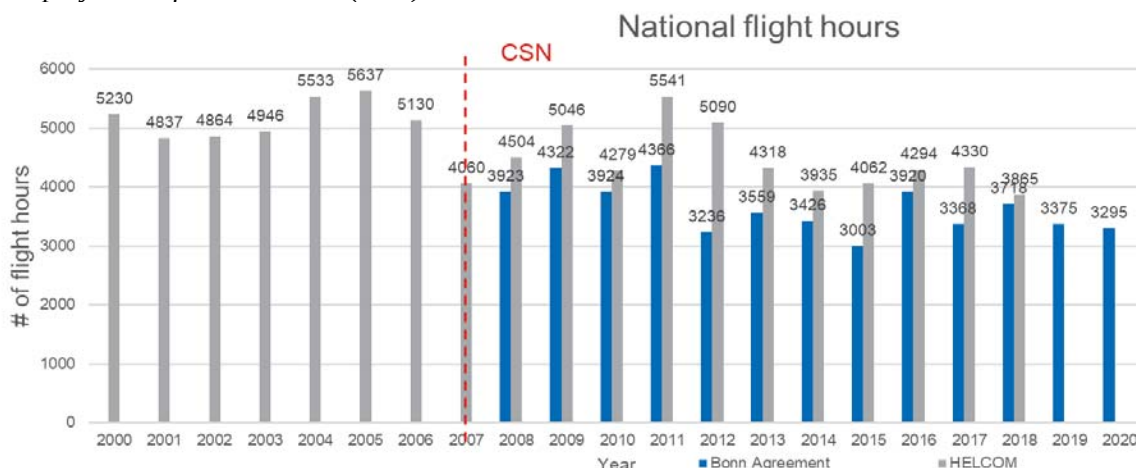
Such effectiveness gains would be grasped as a result of existing training and guidance activities provided by EMSA to Member States, and by their own potential initiatives to improve the effectiveness of the verification activities performed (e.g. verify pollution alerts within a certain time period). In the absence of further EU level action there is no indication that Member States would perform more verification activities than they currently do.

¹⁹⁷ STEAM (2021) 'Ship Traffic Emission Assessment Model', Finnish Meteorological Institute <https://en.ilmatieteenlaitos.fi>

¹⁹⁸ European Maritime Safety Agency and European Environment Agency, 2021, [European Maritime Transport Environmental Report](#) (EMTER)

¹⁹⁹ As identified in the Ricardo (2023), Evaluation support study, see Annex 7

Figure 18. Aerial surveillance activity in the North Sea and the Baltic Sea. The red dotted line marks the deployment of CleanSeaNet (CSN).



Source: Ricardo analysis based on HELCOM and Bonn Agreement annual reporting on aerial surveillance activities between 2000 and 2020

Prosecution of identified cases

A critical element necessary for the prosecution of a case, is the identification of the polluter (ship illegally discharging). This activity is currently supported by EMSA-developed tools, including vessel trajectories in SSN and backtracking tools. No change in the tools used for this is foreseen in the future in the absence of further EU level action.

The proportion of identified cases resulting in prosecution of the persons liable is also dependent on a number of factors. First, it is affected by the number of infringements identified. Only a small increase is expected in this area, which could also result in an indirect small increase in prosecutions. The rate of conversion of identified cases into prosecution cases cannot be easily estimated and would likely point to smaller proportional increase in this parameter compared to the expected increase in the number of illegal discharges identified.

An important factor affecting the capacity to prosecute a case is the clarity of the definition of infringements. Although no change is foreseen in the SSP Directive or the relevant national legal frameworks, the introduction of harmonised treatment of criminal sanctions for serious environmental offences by the proposed revision of the ECD may have a minor positive effect, improving clarity and facilitating the prosecution of cases.

Member State collaboration is crucial in achieving the prosecution of cases of cross-border relevance. The systems put in place by EMSA facilitates this collaboration. Although no change is foreseen to the EMSA systems used, Member States may continue developing cooperation also at a regional level through the already established Regional Sea Conventions.

Table 22 summarises the discussion regarding the expected development of the number of prosecutions of illegal discharges.

Table 22. Expected development of illegal discharges prosecuted in the baseline scenario

	Factor	Future development	Effect on the number of prosecutions of illegal discharges
1	Identified illegal discharges	Small increase in the number of identified discharges expected.	+/-
2	Clarity of definitions	The ECD-introduced harmonisation of criminal sanctions may help increase the prosecution of identified cases.	+
3	Identification of polluter	No change to existing capabilities expected.	no change
4	Member State collaboration	Collaboration to be continued through existing EU framework and Regional Sea Conventions.	+
5	Evidence collection process	Collaboration to be continued through existing EU framework and Regional Sea Conventions.	+

Source: Ricardo (2023), Impact Assessment support study; Note: “+” represents an increase and “-“ represents a decrease.

Amount/level of penalties

No significant impact on the penalties applied by Member States for illegal pollution from ships is expected in the baseline scenario relative to the status quo. In lack of EU level action no change is foreseen in the scope of the persons liable for infringements and the level of penalties applied.

A range of views were expressed during the stakeholders’ consultation, when asked to what extent they expect that ships illegally discharging polluting substances into the sea will face effective and dissuasive penalties in the future. 13 out of the 26 respondents indicated that they expect this to happen at a moderate, significant or large extent, and 8 out of the 26 respondents indicated that they expect this to happen ‘to a moderate extent’. This is linked to the strive for continuous improvement of enforcement activities by Member States. The international PRF organisation EUROSHORE was amongst the stakeholders expressing the opposite view, stating that ships polluting will not face dissuasive penalties at all “if no further action is taken to improve harmonisation and coordination between Member States, the issues raised by the Directive will persist”.

A change is however expected in the following years due to the proposed revision of the ECD. The resulting development in the prosecution framework is likely to improve the efficiency of prosecutions, resulting in a slightly more effective system. However, bearing in mind that there is already considerable diversity between Member States in their preferred approach, the impact might be rather small.

Table 23. Expected development of total cases subject to penalties in the baseline scenario

	Factor	Future development	Effect on the number of penalised illegal discharges
1	Total prosecuted illegal discharges	Small increase expected in the number of prosecutions.	+
2	Legal basis, liability scope and level of penalties	No change expected.	no change

	Factor	Future development	Effect on the number of penalised illegal discharges
3	Choice of prosecution route	Improvements in the process brought by the ECD revision.	+

Source: Ricardo (2023), *Impact Assessment support study*; Note: “+” represents an increase and “–” represents a decrease.

Reporting on pollution incidents

Currently, reporting on pollution incidents takes place to a very limited extent with only a handful of Member States submitting relevant reports. In the baseline scenario, it is unlikely that systems will be put in place across the EU to facilitate data collection and reporting to the Commission without further EU level action. However, it is probable that specific Member States upgrade their capabilities in this respect, aiming to reduce the total effort needed to report on pollution incidents. This would also mitigate the implications, in terms of administrative burden, from multiple overlapping reporting requirements. Thus a small increase in reporting tools may be expected.

Table 24. Expected development of total number of pollution incidents reported in the baseline scenario

	Factor	Future development	Effect on the number of pollution incidents reported
1	Total penalised illegal discharges	Small increase expected in the number of illegal discharges subject to penalties.	+
2	Availability of reporting tools	Only expected to be developed by some Member States to reduce their administrative burden.	+
3	Administrative burden of data collection	Mitigate the implications, in terms of administrative burden, from multiple overlapping reporting requirements.	no change
4	Administrative burden of consolidating reports from Member States	No change foreseen	no change

Costs for Member States administrations and EMSA

In the baseline scenario, the most significant costs generated by the Directive are related to the CleanSeaNet (CSN) services that are based on a state-of-art system for satellite surveillance. The costs for the CSN services are estimated at EUR 5.17 million per year by EMSA and projected to remain stable over time (in 2020 prices) in the baseline scenario.

Member States administrations are estimated to spend 80 hours per year for reporting on the implementation of the SSP Directive to the European Commission²⁰⁰ in the baseline scenario. Assuming an average hourly labour cost of 39.8 EUR for professional, technical and scientific

²⁰⁰ The reporting on the implementation of the SSP Directive to EC takes place every three years. For the purpose of the analysis, these costs are transformed into annual costs. This is because the main effort is related to the collection, preparation, adjustment and filling in the data in the right format to fulfil the reporting requirements. These efforts are mostly needed at the time of dealing with the CSN pollution alerts.

services at EU level (in 2020 prices)²⁰¹, the total reporting costs per Member State are estimated at EUR 3,144 and at the EU level at EUR 70,048. In addition, the costs for verifying the CSN service pollution alerts are estimated at EUR 105,470 for 2020 and are projected to remain stable over time²⁰². Finally, the costs for submitting pollution incident reports (POLREPs) in SafeSeaNet and inspection requests issued through THETIS are estimated at EUR 13,000 per year from 2020 onwards in the baseline scenario. Thus, at EU level, total costs for Member States administrations are projected at EUR 188,518 per year by 2050 (in 2020 prices) in the baseline scenario.

3. IMPACTS ON COSTS BY POLICY MEASURE

This section explains the inputs used and provides the assessment on costs of the policy measures included in the policy options. The synergies between the measures included in the options are already captured in this section.

The estimation of the costs draws on the impact assessment support study²⁰³, including input collected through desk research and stakeholder interviews during the impact assessment process, as well as on the CleanSeaNet database of EMSA. The presentation distinguishes between different stakeholders groups (national authorities, EMSA and the European Commission) and between one-off and recurrent (annual) costs, and provides the present value for 2025-2050 assuming a discount rate of 3%. The policy measures included in the policy options do not create new obligations for businesses and are thus not expected to have an impact on their costs.

PMc1 – Extend the scope of the Directive to polluting substances under MARPOL Annex III-V and to discharge water from scrubbers under MARPOL Annex VI and include a review clause to encompass future developments of the MARPOL Convention.

Adjustment costs for EMSA

The alignment of the Directive to MARPOL, by including in the scope illegal discharges to water of polluting substances of MARPOL Annex III-V and Annex VI residues from scrubbers, requires the provision of additional satellite monitoring services by EMSA to Member State authorities. The adjustment costs are estimated by EMSA at EUR 1.9 to 2.4 million for Annex III (annual recurrent costs), relative to the baseline, for the deployment of high and very high resolution radar and optical imagery (VHR), to follow relevant incidents. The estimation of costs is based on the assumed need to survey 80 incidents annually at a cost of EUR 24,000 to 30,000 per event.

Annex IV and V pollutants would already be detectable through the CleanSeaNet (CSN) service. However, the detection accuracy would benefit from additional medium resolution optical Sentinel-2 type monitoring and from increasing the monitoring volume. EMSA estimates that these upgrades to the CleanSeaNet and technological tools, namely operation of EMSA's Earth Observation Data Center would require an additional EUR 2.6 million

²⁰¹ Source: Eurostat [LC_LCI_LEV]

²⁰² These costs also include those related to the collection and the preparation of the relevant data for CleanSeaNet. They do not include surveillance activities (aerial or by other means) as these requirements are derived from international (i.e. MARPOL) and national legislation pre-existing the SSP Directive.

²⁰³ Ricardo (2023), Impact Assessment of Directive 2005/35/EC on ship-source pollution

annually from 2025 onwards, relative to the baseline. These upgrades could also benefit the detection of substances under the current scope of the SSP Directive. In addition, nine full time equivalents would be needed by EMSA to support the provision of the additional satellite monitoring services, estimated at EUR 1 million per year from 2025 onwards. Additional technical support from EMSA to Member States, to support verification activities, could also take the form of remotely piloted aircraft systems (RPAS) operations. The number of operations performed annually would however depend on Member States interest in such type of system. As such type of support is not explicitly required by the SSP Directive and the interest by the Member States in such type of operations is not known at this stage, the RPAS operations are not included in the costs. Thus, the total adjustment costs for EMSA are estimated at EUR 5.5 to 6 million per year relative to the baseline from 2025 onwards. Expressed as present value over 2025-2050, they amount to EUR 101.6 to 110.5 million.

Enforcement costs for Member States administrations

The costs for verifying the CSN service pollution alerts are estimated at EUR 105,470 for 2020 and they are projected to remain stable over time in the baseline scenario. In addition, the costs for submitting pollution incident reports (POLREPs) in SSN and inspection requests issued through THETIS are estimated at EUR 13,000 per year from 2020 onwards in the baseline scenario.

In PMc1, the additional satellite monitoring services by EMSA are expected to result in an increase in the number of CSN service pollution alerts issued. When introducing the Sentinel-1 images, the number of pollution alerts generated by the CSN service increased by approximately 30% per year between 2015 and 2020, although the growth rate flatten out towards the end of the period. The increase in the CSN service pollution alerts due to PMc1 is however expected to be lower. This is because the substances of MARPOL Annexes VI and V are already identified to significant extent via the CSN service^{204,205}.

Assuming an annual average growth rate of around 8% for 2025-2030, following the implementation of PMc1, the total number of CSN alerts is projected to reach around 12,200 by 2030. This represents 58% increase in the CSN alerts in 2030 relative to the baseline, or 1,530 additional verified alerts. Post-2030, the increase in the number of pollution alerts is projected to remain stable relative to the baseline, based on the past experience of introducing the Sentinel-1 images. The share of verified CSN alerts in the total number of CSN alerts is assumed to remain unchanged over time, relative to 2020. Finally, the number of pollution incident reports submitted in SafeSeaNet (SSN) and the inspection requests issued through THETIS is assumed to increase in the same proportion with the CSN alerts, relative to the baseline.

The time needed to verify each CSN pollution alert is estimated at one hour²⁰⁶ in the baseline scenario and it is assumed to be the same in the policy options. To estimate the costs for verifying the additional CSN pollution alerts, an average hourly labour cost of 39.8 EUR has been assumed for professional, technical and scientific services at EU level (in 2020 prices)²⁰⁷. Thus, the additional costs for Member States administrations for verifying the

²⁰⁴ Sewage and garbage are included in a broader cluster (together with fish, vegetable oils and other) that represent 31% of total CSN service potential detections.

²⁰⁵ European Maritime Safety Agency and European Environment Agency, 2021, [European Maritime Transport Environmental Report](#) (EMTER)

²⁰⁶ The median value was used of the estimations provided by BG, CY, FR, PL and RO.

²⁰⁷ Source: Eurostat [LC_LCI_LEV]

additional CSN pollution alerts are estimated at EUR 8,323 in 2025 and EUR 60,894 from 2030 onwards, relative to the baseline²⁰⁸. The additional costs for submitting pollution incident reports in SSN and inspection requests issued through THETIS would amount at EUR 1,026 in 2025 and EUR 7,597 from 2030 onwards, relative to the baseline. Expressed as present value over the 2025-2050 period, enforcement costs for Member States administrations are estimated at EUR 1.1 million for PMc1 in all policy options, relative to the baseline.

The enforcement costs savings for verifying the CSN pollution alerts and the pollution incident reports and inspection requests issued through THETIS, due to the integration of data exchange tools (as foreseen in PMc5), are discussed under PMc5.

Table 25. Enforcement costs for Member States authorities (in million EUR) for PMc1, expressed as present value over 2025-2050, relative to the baseline

	Difference to the baseline		
	PO A	PO B	PO C
CSN feedback reports	1.0	1.0	1.0
Extension of obligation to issue pollution incident reports (POLREPs) and THETIS inspection requests	0.1	0.1	0.1
Total enforcement costs	1.1	1.1	1.1

Source: Ricardo (2023), Impact assessment support study

PMc2 - EMSA provides training and guidance to authorities responsible for detection, verification and evidence collection.

Adjustment costs for EMSA

In PMc2, the costs for the development of two guidance documents²⁰⁹ are estimated at EUR 200,000 per guidance document, or EUR 400,000 in total relative to the baseline in 2025 (one-off costs). In addition, costs of EUR 80,000 per year are foreseen from 2026 onwards for providing regular updates to the two guidance documents, in consultation with Member State authorities. PMc2 also foresees training on detection to facilitate evidence gathering for ship-source offences to authorities responsible for verification and prosecution. The adjustment costs for EMSA are estimated at EUR 100,000 one-off costs for preparing the training session in 2025, and EUR 50,000 recurrent annual costs for the reimbursement of participants from 2025 onwards, relative to the baseline. These costs estimates, provided by EMSA, are based on past similar projects and training sessions. Expressed as present value over 2025-2050, the adjustment costs for EMSA relative to the baseline are estimated at EUR 2.8 million for PMc2 (of which EUR 0.5 million one-off costs in 2025). The costs associated to PMc2 are the same in all policy options.

²⁰⁸ These costs also include those related to the collection and the preparation of the relevant data for CleanSeaNet. They do not include surveillance activities (aerial or by other means) as these requirements are derived from international (i.e. MARPOL) and national legislation pre-existing the SSP Directive.

²⁰⁹ One focusing on “Tools for gathering evidence and types of evidence used” and the other on “Monitoring and detection tools”.

Table 26. Adjustment costs for EMSA (in million EUR) for PMc2, expressed as present value over 2025-2050, relative to the baseline

	Difference to the baseline		
	PO A	PO B	PO C
Development and update of guidance documents	1.8	1.8	1.8
<i>Development of guidance documents (one-off costs)</i>	0.4	0.4	0.4
<i>Update of guidance documents (recurrent costs)</i>	1.4	1.4	1.4
Development and organisation of annual training sessions	1.0	1.0	1.0
<i>Development of a training session (one-off costs)</i>	0.1	0.1	0.1
<i>Organisation of training sessions (recurrent costs)</i>	0.9	0.9	0.9
Total adjustment costs for EMSA	2.8	2.8	2.8

Source: Ricardo (2023), Impact Assessment support study

PMc3 - The Commission establishes a dedicated expert group facilitating cooperation between Member States, including through the adoption of guidelines.

Adjustment costs for the European Commission

In PMc3, one meeting per year is assumed to be organised by the Commission in person, to exchange lessons learned and enable cooperation between Member States. The costs are estimated at EUR 30,000 per year on average for the reimbursement of participants, from 2025 onwards relative to the baseline. Expressed as present value over 2025-2050, the adjustment costs for the Commission relative to the baseline are estimated at EUR 0.6 million for PMc3. The costs are the same in all policy options.

PMc4 – Inclusion of a provision on whistle-blowers, their protection and means of passing the relevant information.

Adjustment costs for EMSA

This measure concerns the development of a public communication channel for whistle-blowers, to submit information in an anonymised way. The adjustment costs are estimated by EMSA at EUR 50,000 for the development of the module to the new analytical platform (one-off costs in 2025) plus EUR 10,000 per year from 2026 onwards, for its maintenance. Expressed as present value over 2025-2050, the adjustment costs for EMSA relative to the baseline are estimated at EUR 0.2 million in PMc4. The costs are the same in all policy options.

PMc5 – EMSA further enhances the data exchange tools and automated links in the Integrated Maritime Services based on CleanSeaNet, THETIS, THETIS EU and SafeSeaNet.

Adjustment costs for EMSA

In PMc5, included in all policy options, the integration and enhancement of the data exchange tools and the development of automated links in the Integrated Maritime Services based on CleanSeaNet, THETIS, THETIS EU and SafeSeaNet is expected to result in adjustment costs for EMSA. The costs for the integration of the data exchange tools are estimated by EMSA at EUR 2 million (one-off costs in 2025) and the maintenance costs at EUR 300,000 per year

from 2026 onwards, relative to the baseline. In addition, three full time equivalents would be needed by EMSA to support the development of the Integrated Maritime Services, estimated at EUR 330,000 per year from 2025 onwards. Expressed as present value over 2025-2050, the adjustment costs for EMSA relative to the baseline are estimated at EUR 13.3 million in PMc5 (of which EUR 2 million one-off costs) for all policy options.

Enforcement costs savings for Member States administrations

The integration of data exchange tools (as foreseen in PMc5) is expected to lead to a reduction in the time spent for verifying CSN pollution alerts, estimated at 30 minutes in all policy options, instead of one hour per alert in the baseline. Thus, PMc5 is estimated to result in enforcement costs savings for Member States administrations for verifying the CSN pollution alerts of EUR 56,897 in 2025 and EUR 83,182 from 2030 onwards. An average hourly labour cost of 39.8 EUR has been assumed for professional, technical and scientific services at EU level (in 2020 prices)²¹⁰.

PMc5 would also result in the near elimination of the costs for submitting pollution incident reports (POLREPs) in SSN and inspection requests issued through THETIS, leading to costs savings of EUR 14,026 in 2025 and EUR 20,597 from 2030 onwards relative to PMc1. Expressed as present value over the 2025-2050 period, enforcement costs savings for Member States administrations are estimated at EUR 1.8 million for PMc5 in all policy options.

PMc6 - The exception from liability for polluters, including crew members, will be further clarified in the Directive.

This measure, included in all three policy options, provides a clarification to the text of the Directive. It has no cost implications.

PMc7 - Obligation for Member States to log their feedback data in CleanSeaNet and document if and how CleanSeaNet alerts have been verified.

Enforcement costs for Member States administrations

This measure introduces the obligation for Member State authorities to provide feedback even for CSN alerts that are not followed-up. This could consist of a simple registration of the reason the CSN service pollution alert is not followed up. Such a requirement would result in an additional 5,449 feedback reports being compiled in 2025 and 8,020 feedback reports from 2030 onwards, also considering the extension of the scope in PMc1. The time for filling in a feedback report is estimated at 15 minutes. Assuming an average hourly labour cost of 39.8 EUR (in 2020 prices)²¹¹, the enforcement costs for Member States authorities are estimated at EUR 54,213 in 2025 and EUR 79,799 from 2030 onwards relative to the baseline. Expressed as present value over the 2025-2050 period, the enforcement costs for Member States administrations are estimated at EUR 1.4 million for PMc7 in PO A, PO B and PO C.

²¹⁰ Source: Eurostat [LC_LCI_LEV]

²¹¹ Source: Eurostat [LC_LCI_LEV]

PM1 – Inclusion of a provision on minimum requirements for verification by means of a national target of 60% verification rate for CleanSeaNet alerts.

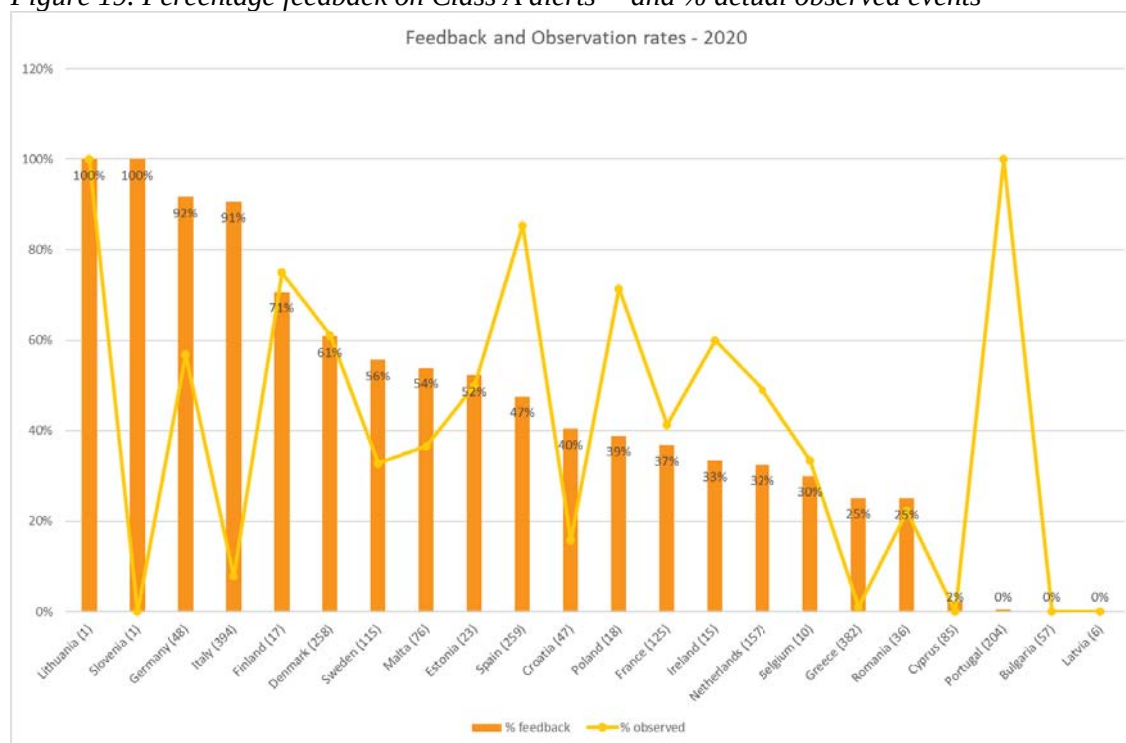
Enforcement costs for Member States administrations

When a Member State authority gets a CleanSeaNet alert, a decision is made whether to verify the alert (e.g. send an aircraft to the location indicated in the alert) or not. At EU level, the share of CleanSeaNet alerts verified on site was 45% in 2020. There are however significant differences between Member States²¹². In the baseline scenario, the shares at Member States level are assumed to remain constant over time relative to the 2020 levels.

At the same time, the number of CleanSeaNet alerts are projected to increase over time at the same rate as the overall detections, also considering the extension of the scope due to PMc1. Thus the number of detections is projected to go up by 58% by 2030 relative to 2020 and to stabilise post-2030.

In PM1, included in PO C, the provision on the minimum requirements on the verification by Member States of at least 60% of CleanSeaNet alerts would increase the effort put into verification activities. This is the case of all Member States, except for DE, DK, FI, IT, LT and SI, which already verify more than 60% of the detections in the baseline (see Figure 19 below). The increase in the number of verified CleanSeaNet alerts due to PM1, relative to the baseline, is provided in Table 27. At EU level, the increase is estimated at 528 for 2025 and 775 from 2030 onwards.

Figure 19. Percentage feedback on Class A alerts²¹³ and % actual observed events



²¹² [Latest News - Detections & Feedback data - EMSA - European Maritime Safety Agency \(europa.eu\)](#)

²¹³ Class A alerts are CleanSeaNet alerts of higher confidence level based on a semi-automated check of satellite images by the service provider. The confidence level is set based on AIS (Automatic Identification System) data, shape and contrast of the detection, wind and sea state information and other ancillary information like bathymetry, platforms and wrecks layers.

Table 27. Increase in the number of verified CleanSeaNet alerts due to PM1, relative to the baseline

	2025	2030	2050
Belgium	4	5	5
Bulgaria	37	54	54
Croatia	10	15	15
Cyprus	53	77	77
Denmark	0	0	0
Estonia	2	3	3
Finland	0	0	0
France	31	46	46
Germany	0	0	0
Greece	143	212	212
Ireland	5	6	6
Italy	0	0	0
Latvia	4	4	4
Lithuania	0	0	0
Malta	5	7	7
Netherlands	46	68	68
Poland	4	6	6
Portugal	131	192	192
Romania	13	20	20
Slovenia	0	0	0
Spain	35	52	52
Sweden	5	8	8
EU	528	775	775

Source: Ricardo (2023), Impact Assessment support study

Data collected from three Member States²¹⁴ during the stakeholders' consultation, pointed to an average cost of approximately EUR 5,000 per hour for an aerial verification. On average, an aerial verification is estimated to take 3 hours.

The additional enforcement costs for Member States administrations, relative to the baseline, are estimated at EUR 7.9 million in 2025 and EUR 11.6 million from 2030 onwards. The additional costs by Member State are provided in Table 28. Expressed as present value over the 2025-2050 period, the enforcement costs for Member States administrations are estimated at EUR 202.7 million for PM1 in PO C.

Table 28. Enforcement costs for Member States administrations due to PM1, relative to the baseline (in thousand EUR)

	2025	2030	2050
Belgium	60	75	75
Bulgaria	555	810	810
Croatia	150	225	225
Cyprus	795	1,155	1,155
Denmark	0	0	0
Estonia	30	45	45
Finland	0	0	0
France	465	690	690
Germany	0	0	0
Greece	2,145	3,180	3,180

²¹⁴ Average cost per aerial verification (sending aircraft to the location indicated in the alert) based on data provided by Poland, Germany and Finland.

	2025	2030	2050
Ireland	75	90	90
Italy	0	0	0
Latvia	60	60	60
Lithuania	0	0	0
Malta	75	105	105
Netherlands	690	1,020	1,020
Poland	60	90	90
Portugal	1,965	2,880	2,880
Romania	195	300	300
Slovenia	0	0	0
Spain	525	780	780
Sweden	75	120	120
EU	7,920	11,625	11,625

Source: Ricardo (2023), Impact Assessment support study

PM2a - Each Member State defines in their national legal order the components of infringements, either on the basis of ‘minor cases’ and ‘deterioration of the quality of water’, or on any other basis prescribed by the Directive, and applies administrative or criminal penalties accordingly.

This measure, included in PO A, does not entail an impact on costs.

PM2b – The Directive provides definitions of the components of infringements, either on the basis of ‘minor cases’ and ‘deterioration of the quality of water’ or on any other basis prescribed by the Directive.

This measure, included in PO B and PO C, does not entail an impact on costs.

PM3a – The principles for setting the level of administrative penalties will be included in the Directive and the Commission will develop an implementing act on the criteria for and the minimum levels of administrative penalties in order for the Member States as to apply proportionate penalties.

PM3a requires developing an implementing act on the criteria for administrative penalties for Member States as to apply proportionate penalties. The adjustment costs relative to the baseline for the Commission are estimated at EUR 200,000 (one-off costs in 2025), including the development of an implementing act for penalties setting and consultation of the Member States. The cost assumption is based on guidance documents developed by EMSA in this area.

PM3b – The Directive provides principles for setting the level of administrative penalties. The Commission will develop an implementing act on the criteria to be applied (e.g. depending on type of polluting substances).

In PM3b, the principles, criteria as well as values for ensuring that an identified violation is subject to proportionate penalties are set. This measure is not expected to entail an impact on costs.

PM4 – Obligation for Member States to report their data in an EMSA-managed tool on each ship-source pollution incident.

Adjustment costs for EMSA

This measure concerns the development and maintenance of a new reporting tool. The adjustment costs for EMSA relative to the baseline, drawing on similar projects, are estimated at EUR 250,000 one-off costs in 2025 for the development of the tool and EUR 180,000 recurrent annual costs for the maintenance of the tool from 2026 onwards. Expressed as present value over 2025-2050 the adjustment costs relative to the baseline are estimated at EUR 3.4 million (of which EUR 0.3 million one-off costs) in PO B and PO C.

Administrative costs savings for Member States administrations

In the baseline scenario, Member States authorities are estimated to spend 80 hours per year for reporting on the implementation of the SSP Directive to EC²¹⁵. Assuming an average hourly labour cost of 39.8 EUR (in 2020 prices)²¹⁶, the total reporting costs per Member State are estimated at EUR 3,144 and at the EU level at EUR 70,048.

In PM4, the development of the dedicated EMSA analytical tool for data collection and exchange would lead to significant time savings for reporting, which are estimated to be reduced by a factor of three. Thus, the administrative costs savings for Member States administrations are estimated at EUR 46,699 per year. Expressed as present value over the 2025-2050 period, the administrative costs savings for Member States administrations are estimated at EUR 0.9 million for PM4 in PO B and PO C.

PM5a - Member States inform the public about ship-source pollution incidents through a national website. Member States may also report this data to the Commission.

Adjustment costs for Member States administrations

In PM5a, the cost for developing a website for a Member State (to present information on ship-source pollution events to the public) is estimated at EUR 100,000 in 2025 (one-off adjustment costs), while the maintenance costs are estimated at EUR 25,000 from 2026 onwards relative to the baseline. At the EU level, the adjustment costs are estimated at EUR 2.3 million in 2025 for developing the 23 national websites²¹⁷ plus EUR 0.58 million recurrent annual costs to maintain them. Expressed as present value over 2025-2050 the adjustment costs for Member States administrations relative to the baseline are estimated at EUR 12.3 million (of which EUR 2.3 million one-off costs) in PO A.

²¹⁵ The reporting on the implementation of the SSP Directive to EC takes place every three years. For the purpose of the analysis, these costs are transformed into annual costs. This is because the main effort is related to the collection, preparation, adjustment and filling in the data in the right format to fulfil the reporting requirements. These effort are mostly needed at the time of dealing with the CSN pollution alerts.

²¹⁶ Source: Eurostat [LC_LCI_LEV]

²¹⁷ All Member States would have need to develop such website, except for AT, CZ, HU and SK that currently do not have flagged vessels.

PM5b – EMSA publishes online key EU information reported by Member States about ship-source pollution incidents.

Adjustment costs for EMSA

The adjustment costs relative to the baseline are estimated by EMSA, based on similar projects, at EUR 100,000 (one-off costs) in 2025 for developing the website and EUR 65,000 (recurrent annual costs) from 2026 onwards for maintenance. The website would draw inputs from the new analytical tools developed to collect Member States inputs. Expressed as present value over 2025-2050 the adjustment costs for EMSA relative to the baseline are estimated at EUR 1.2 million (of which EUR 0.1 million one-off costs).

4. BENEFITS IN TERMS OF AVOIDED ILLEGAL SHIP-SOURCE POLLUTION

Due to serious data limitations a quantitative assessment was only possible for PMc1 (the extension of the scope of the Directive) in relation to oil discharges. This is complemented by a qualitative assessment of the impacts of the other measures, included in section 6.3. It should also be noted that there is significant uncertainty regarding the quantitative assessment of the impacts of PMc1, due to serious limitations in the data availability and limited stakeholder input received during the consultation activities. For this reason, the assessment of the impacts of PMc1 in relation to oil discharges has been complemented by sensitivity analysis. This section provides more details on the assessment of the environmental benefits for PMc1.

The estimation of potential benefits is based on the assumed potential of the volume of oil illegally discharged prevented. In order to monetise the benefits, the potential volume of oil illegally discharged prevented is multiplied with the unit value of the external costs of such polluting substances.

The upgrades to CleanSeaNet in PMc1 is expected to also benefit the detection of substances under the current scope of the SSP Directive (i.e. oil). The amount of oil discharged in European seas by 2015 was estimated at 31,000 m³/year²¹⁸, i.e. approximately 27,280 tonnes. In the baseline scenario, the oil discharged in European seas is projected to remain stable over time. According to a study commissioned by the European Parliament²¹⁹, the external cost of a discharge of a tonne of oil in the sea amounts to approximately EUR 290,000²²⁰. The same report indicates that only 0.22% of all external costs of oil substances discharged can be attributed to permitted oil spills, suggesting that the majority of the external costs are a result of illegal discharges²²¹.

²¹⁸ European Commission (2018). Commission staff working document, [Impact Assessment on port reception facilities for the delivery of waste from ships](#)

²¹⁹ [https://www.europarl.europa.eu/RegData/etudes/note/join/2007/379227/IPOL-TRAN_NT\(2007\)379227_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/note/join/2007/379227/IPOL-TRAN_NT(2007)379227_EN.pdf)

²²⁰ This value, expressed in 2020 prices, corresponds to the unit damage cost caused by one ton of oil discharged in the sea. The unit damage cost is independent of the evolution of the volume of oil discharges over the period 2007-2021 and over the assessment period of the policy options (2025-2050).

²²¹ It should be however highlighted that this estimation of external unit costs is based on limited data. The European Parliament study does not clarify what methodology has been followed and what are the exact external costs covered. Still the estimation of external costs related to human health and marine life can be highly dependent on the local context. Using a flat unit value does not account for the location of spills, which can essentially impact the total cost estimation.

PMc1 has an indirect impact on the reduction of illegal discharges. This is delivered through the dissuasive effect of improved surveillance and enforcement activities, more deterrent penalties and improved awareness of the environmental performance of the shipping industry, all eventually contributing to less pollutants being illegally discharged at sea. It is not straightforward to estimate the anticipated reduction of discharges of substances to the sea as a result of its implementation. However, a certain reduction can be expected as expressed in the stakeholder feedback during the stakeholders' consultation.

For the purpose of the assessment, a conservative central assumption has been used - namely, a reduction by 0.5% in the volume of oil waste discharges relative to the baseline from 2030 onwards. The reduction is gradually phased-in between 2025 and 2030, taking into account the growth in the number of CSN alerts verified in the policy options. PMc1 is included in all policy options and its impacts are expected to be the same in all options.

Sensitivity analysis has been additionally performed, to acknowledge the high level of uncertainty. Two additional cases have been considered, assuming 0.3% and 0.7% reduction in the volume of oil waste discharges relative to the baseline from 2030 onwards. As for the central case, the reduction is gradually phased-in between 2025 and 2030, taking into account the growth in the number of CleanSeaNet alerts followed up in the policy options. The estimated benefits upon the full roll-out of the CSN services in 2030, are provided in Table 29.

In the central case, assuming 0.5% reduction, 136 tonnes of oil waste discharges are expected to be prevented in 2030 leading to a reduction in the external costs of EUR 39.6 million in 2030 relative to the baseline.

Table 29. Potential environmental benefits for the policy options relative to the baseline, including sensitivity analysis, in 2030

	Volume reduction (in tonnes)	External costs reduction (in million EUR)
Benefits – 0.3% reduction	82	23.7
Benefits – 0.5% reduction (central case)	136	39.6
Benefits – 0.7% reduction	191	55.4

Source: Ricardo (2023), Impact Assessment support study

The 0.3% reduction case is expected to yield EUR 23.7 million benefits due to the reduction in the external costs in 2030 relative to the baseline. The 0.7% reduction case would lead to 191 tonnes of oil waste discharges prevented in 2030 and thus EUR 55.4 million benefits.

Over the 2025-2050 period, 3,411 tonnes of oil waste discharges would be prevented in the central case, 1,501 tonnes in the 0.3% reduction case and 5,320 tonnes in the 0.7% reduction case. The reduction in the external costs, expressed as present value over 2025-2050, is estimated at EUR 690.5 million in the central case, EUR 312.8 million in the 0.3% reduction case and EUR 1,068.3 million in the 0.7% reduction case.

Table 30. Potential environmental benefits for the policy options relative to the baseline, including sensitivity analysis, over 2025-2050

	Volume reduction (in tonnes)	External costs reduction (in million EUR)
Benefits – 0.3% reduction	1,501	312.8
Benefits – 0.5% reduction (central case)	3,411	690.5

	Volume reduction (in tonnes)	External costs reduction (in million EUR)
Benefits – 0.7% reduction	5,320	1,068.3

It should be noted that all estimates presented in this section can be regarded as very conservative, not least because the reduction in the external costs due to the discharges of other substances (MARPOL Annex II-VI) was not possible to quantify due to the lack of data. Since the surveillance activities for these substances have, up to now, not used dedicated surveillance tools (such as the CSN service used for Annex I substances) it can be expected that the deterrent effect of improved surveillance will be larger. This could translate into a potentially higher reduction of the total discharges of these substances compared to Annex I.

Annex 5 - Discarded policy options, policy measures and problem drivers

Annex 5 discusses the discarded problem drivers, policy measures and policy options and explains the reasons why they have been discarded.

Discarded problem driver

The Directive's scope does not cover air pollutants released into the atmosphere regulated by MARPOL Annex VI.

Background

In general, air pollution and water pollution require materially different approaches with regards to the regulatory framework suitable for their enforcement, mainly due to the different nature of these two types of pollution. As such, different enforcement mechanisms are in place in order to provide an implementable and dissuasive regime. This Directive is therefore not the right instrument to address the issue of air pollution from international shipping.

i. Different regulatory approaches when regulating continuous air pollution offences and one-off discharges into the sea

Waste from ships i.e. polluting substances are not discharged into the sea continuously, as is the case for air emissions. They do not need to be released to put the ship into motion and can be collected on board and delivered to ports. For this reason regulating and penalising illegal discharges into sea and emissions into air has always been different.

Air pollutants are emitted during ship operation at all times, through the normal operations of the vessels and engines as per their specifications. This “continuous nature” of air pollution distinguishes it from the “one-off” offences of water pollution. On the other hand, with water pollution, the effects of an illegal discharge to the marine environment are localised in terms of quantity and repercussions to the marine environment. The imminent and longer effects of illegal water pollution can be more accurately monitored, measured and sampled. As such, they can be attributed to a single polluter.

In light of the above, legislative efforts to date in order to combat air pollution have utilised different mechanisms other than penalising operational behaviour (i.e. the act of emitting). Under MARPOL, the act of emitting is not illegal or sanctionable per se. Air emissions are regulated through different means; 1) fuel standards (Regulation 14 – SO_x), 2) engine standards (Regulation 13 – NO_x) and operational indicators and 3) ship design parameters (Chapter 4 –Carbon Intensity), in order to regulate air emissions in the most efficient, effective and proportionate way. To implement these standards, a number of instruments are already in place, including 1) certification schemes, 2) surveys and 3) testing and sampling of fuels. These instruments are being enforced by flag States and are subject to Port State Control inspections. In light of the global nature of shipping, enforcement, based on documentation which always accompanies the ship, is more effective for targeted actors, as well as creates a level playing field.

Under EU legislation, the differentiation between air and water pollution is unequivocally accepted by promoting, e.g. fuel standards (Sulphur Directive), annual operational GHG intensity regulations (FuelEU maritime proposal), certification schemes (Renewable Energy Directive), monitoring and reporting of greenhouse gas emissions (EU MRV Regulation), and soon the surrendering of EU allowances for emissions from shipping companies (EU ETS proposal) and many other regulations. This way, the ‘fair share’ of responsibility to each operator is attributed, while also facilitating the setting of reduction goals for air pollution on a sectoral or cross-sectoral basis. Wherever air emissions can be tackled “at source”, this avenue is preferred as cost-effective.

ii. Implementation of a penalty regime on operational behaviour as an effective way forward for regulating air emissions from international shipping

Penalties for illegal concentrations of pollutants in air due to emissions from ships are imposed based on a different regime than for pollution to the water. Fuel standards and engine standards provide evidence for non-compliance in a cost-efficient way. Such regime and administrative evidence is not effective for identifying a ship that intentionally discharged waste into the sea.

The continuous nature of air pollution perplexes the successful implementation of a system based on direct measurement of emissions. During a journey, a ship may switch between different fuels, change speed (which would affect the emissions emitted), enter and exit different emission control areas and State jurisdictions. Remote sensing, although a helpful implementation tool, has limitations in attributing air pollution to a single ship, especially in congested marine traffic routes. On the other hand, water pollution is identifiable by satellite surveillance and other aerial imagery. Its polluting effect is localised, making establishment of jurisdiction a more straightforward exercise. Discharges are more easily attributable to a single ship through e.g. “DNA-testing” between the substance discharged and the residues remaining in the ship’s tanks during evidence collection.

Against this background, determining which penalties would be proportionate to be imposed to each polluter is not a straightforward exercise. Further, it cannot be guaranteed that these penalties will be dissuasive, since penalties would need to take into account the actual damage caused by each polluter, which might not reflect the gravity of the impact of the whole sector to the environment. The different mechanisms used for detecting air and water pollution, the jurisdictional limits imposed by UNCLOS and the different nature of pollution as such further demonstrate that this avenue would not be the most effective way forward to enforce the standards on air emissions established by MARPOL for the shipping sector.

It was therefore concluded that the SSP Directive could not be designed in a way that can facilitate its application for both air and water pollution in one instrument. The different nature of air and water pollution have led to different regulatory and enforcement mechanisms being adopted at international and EU level in order to effectively address these two diverse issues. UNCLOS constraints further hinder the design of a penalty regime for continuous offences based on operational behaviour.

Discarded policy measures

1. Extend the list of polluting substances covered by the Directive to include air emissions covered by MARPOL Annex VI (e.g. SO_x, NO_x, VOC, PM)

- ***Extend the list of polluting substances covered by the Directive to include air emissions of Sulphur Oxides (SOx) of MARPOL Annex VI***

Sulphur Oxides (SOx) emissions – MARPOL Annex VI Regulation 14

SOx emissions are regulated in the most cost-efficient way by fuel standards. For this reason, the EU has adopted the Directive (EU) 2016/802 and MARPOL has adopted Regulation 14. Extending the scope of the SSP to SOx air emissions would give overlaps and possible over-regulation or double punishment.

The approach adopted by MARPOL in Annex VI for the limitation of SOx air emissions is to limit the sulphur (S) content in fuel oil used or carried for use onboard a ship. Complying with the limits on S fuel content can be achieved either by using compliant fuel or through the use of SOx abatement technology (scrubbers), which reduce the content of SOx in the exhaust gases to a level equivalent to the level which would result when using compliant fuels.

The Sulphur Directive²²² (SD) transposes the fuel content standards in EU law and provides for penalties to non-compliant actors on the basis of sampling, analysis and inspection activities on the fuel carried on onboard (SD Article 13.2). These activities are usually undertaken by environmental or Port State Control inspectors when the ship is inspected in an EU port.

EMSA supports the enforcement of the SD by providing, amongst others, remotely piloted aircraft systems (RPAS) equipped with gas sensors (sniffers). RPAS can identify potentially non-compliant fuel by targeting a ship and flying over its funnel to measure SOx concentration in the exhaust gases.

The sanctionable act under the SD remains the carriage and use of non-compliant fuel, not the actual emissions emitted during the voyage. Whether a fuel is compliant or not is assessed at the time of sampling, not during engine combustion (where air pollution actually takes place).

The SD has an effective enforcement mechanism for sampling and reporting of SOx content in marine fuels, established under Implementing Decision 2015/253²²³. A dedicated database (THETIS-EU) has also been established for Member States to share information and findings on SOx inspections and alerts to potential non-compliance, as detected during RPAS operations. Compliance with applicable SOx standards in the EU has a very high compliance rate, with data from THETIS-EU providing for a 97% compliance rate of analysed fuel samples over the last five years. This compliance rate does not justify, from a subsidiarity and proportionality perspective, introducing additional penalties on a different basis in order to enforce the same standards and target the same actors.

Additional to the SD, a certification scheme for scrubbers and an obligation to monitor the discharged water from scrubbers already exists²²⁴. Regarding closed-loop scrubbers, the PRF Directive creates an obligation to discharge wash liquids; proceedings could take place if there is nothing to discharge. A fuel sample showing an abnormally high SOx level, could be the basis for starting proceedings (similar to Annex I cases on oil water separator).

²²² Directive (EU) 2016/802 of the European Parliament and of the Council of 11 May 2016 relating to a reduction in the sulphur content of certain liquid fuels (OJ L 132, 21.5.2016, p. 58–78)

²²³ Commission Implementing Decision (EU) 2015/253 of 16 February 2015 laying down the rules concerning the sampling and reporting under Council Directive 1999/32/EC as regards the sulphur content of marine fuels

²²⁴ Under the 2021 IMO ECGS Guidelines, approval for the use of scrubbers can be based on either Scheme A or Scheme B. Scheme A involves installing a product with certified parameters and emission checks whilst Scheme B requires continuous measurements of emissions to demonstrate compliance.

Extending the scope of the SSP to SOx air emissions would overlap with existing EU law provisions and enforcement mechanisms in place, contributing to over-regulation, which could result in incoherent regimes. Furthermore, the inclusion of SOx emissions within the SSP Directive would result in double punishment.

Inclusion of SOx emissions under the SSP Directive would imply direct measurement of emissions of individual ships. Given the continuous nature of air pollution, sniffers would have to follow the ship throughout her journey in order to determine the quantity of illegal emissions released into the atmosphere. In the end, SSP penalties would have to be imposed on this basis in addition to those which could be imposed under the SD.

Furthermore, no type of regulatory gap has been identified between the implementation of the SSP Directive, SD and Environmental Crime Directive. Such expansion would further not deliver the Union's policy objectives in the simplest and most efficient way possible, taking also into account also the difficulty of establishing jurisdiction in continuous offences taking place in multiple jurisdictions.

- ***Extend the list of polluting substances covered by the Directive to include air emissions of Nitrogen Oxides (NOx) of MARPOL Annex VI***

NOx emissions – MARPOL Annex VI Regulation 13

Nitrogen Oxides (NOx) emission limits for international shipping are not regulated by EU legislation. The limitation of NOx emissions is based on an international regime²²⁵ which applies to all Member States as parties to MARPOL and is based on engine standards.

MARPOL Annex VI sets a limit to air NOx emissions in terms of the mass (grams) of NOx emitted per unit of energy (kWh) delivered by the engine or engines on board. The limits apply to engine emission defined for standard test cycles.

Therefore, MARPOL established enforcement procedures based on the compliance with the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engine (NOx Technical Code)²²⁶. The code regulates engine testing, certification, and onboard verification procedures to demonstrate continuing compliance with the applicable NOx emissions limits. The engine certification process is normally conducted at test bed. The engine or engines can be fitted with complementary NOx abatement systems (mainly selective catalytic reduction (SCR) or exhaust gas recirculation (EGR)) to further reduce the NOx concentration.

This means that compliance with the emission limits at a particular moment in time cannot be ascertained on the basis measurements of NOx concentration in air i.e. in the exhaust gases only. The power being delivered by the engines at that moment would also be needed to determine if the standards are not being complied with. This would require real time simultaneous measurement of both the emissions and the power being delivered, something which is not feasible for enforcement purposes.

The enforcement of air NOx emissions is implemented through port state control inspections on the basis the engine certificate (EIAPP Certificate), the NOx Technical File and record

²²⁵ [https://www.imo.org/en/OurWork/Environment/Pages/Nitrogen-oxides-\(NOx\)-%E2%80%93-Regulation-13.aspx](https://www.imo.org/en/OurWork/Environment/Pages/Nitrogen-oxides-(NOx)-%E2%80%93-Regulation-13.aspx)

²²⁶ Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines (NOx Technical Code (2008)), as amended, Chapter 1, para 1.1.

books, showing maintenance records and changes to engines, including details of changeover when entering or exiting an emission control zone (ECA).

The inclusion of NO_x air emissions under the scope of the SSP Directive would overlap with the existing enforcement procedures under port state control legislation. These procedures are effective since they can lead to the detention of a ship. Creating additional requirements for Member States to include non-compliance with the requirement of Regulation 13 in Annex VI would not be proportionate as it could create unnecessary administrative burden.

Moreover, although infringing for non-respect of the NO_x technical code could be possible, it nevertheless falls outside the scope of ship-source pollution discharges. As such, it does not follow the logic of individual penalties for prohibited operational behaviour. It would imply the introduction of new standards applicable to individual behaviour, thereby departing from the logic of MARPOL Annex VI. This would not be in line with the Directive's legal purpose, enshrined in Article 1(1), which is to incorporate international standards for ship-source pollution into EU law.

Extend the list of polluting substances covered by the Directive to include air emissions covered by MARPOL Annex VI other than SO_x and NO_x (e.g. VOC, PM)

VOC emissions – MARPOL Annex VI Regulation 15

For VOC emissions, MARPOL prescribes the minimum safeguards that each Administration should incorporate if they decide to set up their own national VOCs regulations (e.g. not to unduly delay ships while in port, safety standards to be taken into account while adopting VOCs regulation). Therefore, MARPOL does not establish any substantive standards that could be transposed in or enforced by EU law in this regard. Introducing new standards for VOCs emissions under the Directive would not be in line with the Directive's purpose.

Particulate Matter – MARPOL Annex VI Regulation 14

With regards to emissions of particulate matter (PM), MARPOL Annex VI regulates PM in tandem with SO_x emissions under Regulation 14 of MARPOL Annex VI. There are no international standards set by MARPOL for the permitted concentration of PM during shipping operations. As such, inclusion of PM under the scope of the Directive would contravene its purpose, which is to transpose into EU law the already established international standards for ship-source pollution.

Carbon Intensity – MARPOL Annex VI Chapter 4

MARPOL Annex VI Chapter 4 provides for technical and operational measures to improve the energy efficiency of international shipping. Under Chapter 4, ships are attributed a rating based on their annual fuel oil consumption (Carbon Intensity Indicator) and must observe certain ship design parameters to improve their energy efficiency (Energy Efficiency Design Index and Energy Efficiency Existing Ship Index). These regulations are enforceable through survey and certification schemes, e.g. Energy Efficiency Certificate, Air Pollution Prevention Certificate, Statement of Compliance related to fuel oil consumption reporting and operational carbon intensity rating. The SSP Directive deals with the enforcement of international standards regulating polluting behaviour of operators, not the technical requirements of ships. Therefore, the SSP Directive is not the right tool to enforce Chapter 4 standards. The absence of certificates on board is already provided for by port State control.

2. Include a provision in the Directive on minimum requirements on the verification by Member States of possible illegal emission levels (SO_x, NO_x): national target of 20% verification level per Member State with reference to the number of possible illegal emission levels (SO_x, NO_x), detected in territorial waters and EEZ for which a THETIS EU/sulphur module alert was generated.

This measure would require Member States to validate alerts irrespective of whether the ship subsequently sails into their ports or not. The constraints imposed by UNCLOS regarding Coastal States enforcement powers on foreign flagged vessels navigating in the EEZ without subsequently entering their ports raises concerns regarding the added value of this measure. UNCLOS Art. 220(3) requires that investigation is permitted only where clear grounds exist that a violation took place and the investigation is limited to *‘giving information regarding its identity and port of registry, its last and next port of call and other relevant information’*. In order to physically inspect the vessel, clear grounds that *‘substantial discharge causing or threatening significant pollution of the marine environment’* must exist (Art. 220(5)). In view of the stringency of the wording of these provisions, jurisdiction for at-sea enforcement measures with respect to air emissions will generally be limited to certain basic information requests under UNCLOS Art. 220(3). Physical inspection, including on-board sampling of fuel would not be possible as the air emission by an individual ship is unlikely to meet the requirement of ‘substantial discharge’ and ‘significant pollution’ necessary under UNCLOS Art. 220(5). As such, there are doubts as to what the EU added value of such a measure would be in terms of achieving the EU political objective of combatting air pollution.

Additionally, there are doubts with regards to the effectiveness of the proposed measure. Some of the THETIS EU alerts are generated pursuant to RPAS/sniffers findings. For NO_x, RPAS measurements have not been subject to major validation campaigns, therefore their accuracy is not yet verified. For SO_x, RPAS measurements sometimes cannot be verified against the SO_x levels of the same fuel measured in a laboratory. On the effectiveness of sniffers stationed in fixed spots, they may pick up false-positives in congested maritime traffic areas, thereby making identification of the polluter difficult. RPAS may rarely detect fuel residues from fuel used previously and not at the time of measurement, leading to a false positive. In light of the above, it was concluded that additional assessment was necessary regarding the effectiveness of THETIS-EU alerts on this basis, seeing that the proposed measure would entail extensive use of resources by Member States, which would be required to deploy patrol/coastguard vessels on site to verify the alert. Furthermore, seeing that RPAS are deployed by Member States and not in an EU-centralised manner, there is no mechanism that would systematically trigger such alerts, meaning that enforcement efforts will not be equally distributed amongst Member States.

The SSP Directive defines illegal discharges and subjects them to penalties. The proposed measure would require SO_x and NO_x emissions to be considered illegal under the SSP Directive, but could not impose any penalties on them. This is because penalties for SO_x would be imposed under the SD while penalties for NO_x could not be imposed, in the absence of underlying legislation. However, the Directive is not designed to collect information on potential illegal air emissions which would nevertheless remain immune to penalties under its provisions. Introducing a verification measure without prescribing penalties is not in line with the Directive’s design and dilutes its purpose. By contrast, the SD already provides for penalties for illegal SO_x emissions, provides the basis for the THETIS

EU alert system and the framework upon which national targets for SO_x inspections are set²²⁷.

To sum up, the proposed measure was discarded due to technical and legal reasons and because it does not fit the design and purpose of the SSP Directive. Additionally, applicable UNCLOS provisions on State jurisdiction raise doubts as to the EU added value of such measure and its cost-efficiency.

3. Extend the list of polluting substances covered by the Directive beyond MARPOL covering pollution of emerging concern (e.g. underwater noise, plastic pellets, more strict than Annex V on animal carcasses or more strict than Annex III on lost containers)

Concerns of society about a variety of substances discharged into the sea affecting the marine environment are noted based on stakeholder input. There are stakeholder opinions that pollutants of emerging concern must be regulated in the EU in the first instance before regulated at international level. This way, the EU could be a front-runner and set high standards for pollutants not yet covered by international conventions. This policy measure has been discarded as it does not link to the Directive's purpose to incorporate international standards for ship-source pollution into EU law (Article 1(1) of the SSP Directive). Furthermore, including emerging polluting substances not yet regulated by MARPOL within the scope of the Directive was additionally determined to be premature.

If substances of emerging concern are added to MARPOL, it is proposed that a review clause is inserted in the Directive (PMc1), to the effect that the Commission should evaluate the need for extending the scope of the Directive to include more substances based on the future development of substantive standards by the IMO which fall under the remit of the Directive. This evaluation should at the same time consider the further strengthening of the relevant provisions of substances already covered by the Directive and make any appropriate legislative proposals to that effect.

Underwater radiated noise

Noise pollution is a by-product of shipping activities. Many commercial vessels emit low frequency noise that are damaging to marine environments and biodiversity. Noise pollution from ships has been an area of interest also for the IMO. In 2014, MEPC 66 approved guidelines on reducing underwater noise from commercial shipping to address negative effects on marine life²²⁸. The IMO work plan envisages that recommendations for the next steps could be submitted to MEPC 80 in 2023. This work includes identifying comparable and common means of measuring, analysing and reporting and revising the 2014 Guidelines. At EU level, threshold values are being developed in the framework of the MSFD, where underwater noise constitutes one of the descriptors for Good Environment Status. Nevertheless, underwater noise is not regulated by MARPOL and therefore does not fall in the scope of the SSP Directive. The inclusion of underwater radiated noise under the scope of

²²⁷ Commission Implementing Decision (EU) 2015/253 of 16 February 2015 laying down the rules concerning the sampling and reporting under Council Directive 1999/32/EC as regards the sulphur content of marine fuels, Article 3(1).

²²⁸ Guidelines for the Reduction of Underwater Noise from Commercial Shipping to Address Adverse Impacts on Marine Life, MEPC.1/Circ.833, 7 April 2014.

the Directive would contravene its purpose, which is to transpose into EU law the already established international standards for ship-source pollution.

Plastic pellets

Plastic pellets, also known as nurdles, are a type of plastic pollution and constitute the second largest source of primary microplastic emissions into the oceans. The IMO currently considers whether pre-production plastic pellets transported by sea should be classified as “harmful substances” under the International Maritime Dangerous Goods (IMDG) Code.²²⁹ PPR 9, held on April 2022, instructed the Correspondence Group on Marine Plastic Litter from Ships to further consider the options for reducing the environmental risk associated with the maritime transport of plastic pellets. Nevertheless, plastic pellets are not regulated by MARPOL and therefore do not fall in the scope of the SSP Directive. The inclusion of plastic pellets under the scope of the Directive would contravene its purpose, which is to transpose into EU law the already established international standards for ship-source pollution.

Marine litter

Concerning plastic marine litter, the IMO adopted its 2021 Strategy to Address Marine Plastic Litter from Ships²³⁰, setting the goal, amongst others, to reduce shipping’s contribution to marine plastic litter. Nevertheless, plastic marine litter is not regulated by MARPOL and therefore does not fall in the scope of the SSP Directive.

Black carbon

With regards to **black carbon** emissions, work is currently ongoing in the IMO to establish the most suitable measurement method(s) and related sampling, measurement, reporting and calibration procedures, as well as to identify how to develop and apply threshold values. Nevertheless, black carbon is not regulated by MARPOL and therefore does not fall under the scope of the SSP Directive. With regards to the prohibition of use and carriage for use of Heavy Fuel Oil in the Arctic, adopted by the IMO in its 76th session²³¹, the Directive does not extend to enforcing a fuel ban, unless it could result in prohibited oil discharges to the sea, falling under MARPOL Annex I.

Taking into account the lack of international standards on these substances, it was concluded that they cannot be regulated, for the first time and at this stage by the SSP Directive. Firstly, shipping is a global activity. As such, global standard-setting should be promoted to ensure a level-playing field and avoid distortion of global competition. Secondly, due to the lack of reliable on-scene detection instruments and common analysis and measuring systems to quantify the impact of each emitting activity on the environment, it was considered premature to include these substances under the scope of the Directive. Lastly, due to lack of data, mechanisms, standards and measuring instruments, it could not be confirmed that substantive standard-setting of these pollutants at this stage would constitute evidence-based policy-making. From a strategic foresight perspective, such policy choice would not be future-proof due to the anticipated development of standards at the international level, which, upon adoption, could cause re-structuring of the newly established framework, both from a

²²⁹ IMDG Code is an international code for the maritime transport of dangerous goods in packaged form

²³⁰ IMO Strategy to Address Marine Plastic Litter from Ships, Resolution MEPC 341(77), adopted on 26 November 2021.

²³¹ The IMO, in its 76th session adopted a prohibition of the use and carriage of oils, other than crude oils, having a density at 15°C higher than 900 kg/m³ or a kinematic viscosity at 50°C higher than 180 mm²/s, in Arctic waters.

substantive point and with regards to administrative organisation and resource allocation in the meantime.

4. Limit the extension of the scope of the Directive to align it with the scope of the waste categories of the PRF Directive

The reason for considering this measure was that the SSP Directive by design is complementary to the Port Reception Facilities (PRF) Directive. This measure implied full alignment in scope with the PRF Directive, which would mean not covering Annex III harmful substances carried by sea in packaged form. The PRF Directive does not cover Annex III because packaged goods are not categorised as waste and are usually not delivered in Port Reception Facilities. However, as they are transported by sea, it cannot be ruled that they could be illegally discharged to the sea. The alignment with the PRF Directive in terms of scope, thereby excluding from the scope of the SSP Directive jettisoning of Annex III packaged goods, is seen as insufficient and has been discarded. All substances illegally discharged into sea of MARPOL Annex I-VI are therefore taken into consideration for the purpose of this revision and included in all policy options.

5. Align the SSP Directive's legal regime with MARPOL Article 4(4)

There was a concern expressed by industry stakeholders that the co-existence of the international framework (UNCLOS and MARPOL) and the EU initiative (SSP Directive) brings legal uncertainty.

The legal coherence in light of MARPOL and UNCLOS was adjudicated in the European Court of Justice (ECJ) in the *Intertanko case*²³². The Court ruled that the EU was not bound by MARPOL as it is not party to it and UNCLOS does not establish rules applicable directly to individuals. Therefore, the nature and the logic of UNCLOS prevented the Court from assessing the validity of the Directive against its provisions. The ECJ confirmed that serious negligence should be interpreted as '*an unintentional act or omission by which the person responsible commits a patent breach of the duty of care which he should have and could have complied with in view of his attributes, knowledge, abilities and individual situation*'. It ruled that Article 4 and 8 of the Directive do not infringe the principle of legal certainty, even though 'serious negligence' is left to Member States to define as a matter of national competence.

Even if the EU was bound by MARPOL thresholds, it is highlighted that MARPOL does not prescribe a general liability regime with regards to illegal discharges. It rather provides for a limited exception from liability only for discharges that have taken place due to damage to the ship or its equipment. The Directive transposes the relevant standards that make a discharge illegal and, with respect to the specific exemptions from liability, the Directive transposes the relevant MARPOL provisions through direct reference. This revision, together with the revision of the Environmental Crime Directive, allows EU to regulate in a more targeted manner the different legal regimes (administrative and criminal) existing in national legal orders, while maintaining the general liability regime first introduced by the SSP Directive for the attribution of polluting behaviour to the responsible offender for the purpose of imposing effective, proportionate and dissuasive penalties, either administrative or criminal.

²³² Judgment of 3 June 2008, *Intertanko*, C-308/06, ECLI:EU:C:2008:312, 2008, paragraph 15

Consequently, choosing to have a less strict liability regime for ship-source pollution prevention by prescribing solely that the penalties introduced pursuant to the Directive should only be ‘adequate in severity to discourage violations’ of MARPOL ‘irrespective of where the violations occur’ would lead to the weakening of marine environmental protection by not ensuring that penalties provided by the Member States should also be proportionate and effective, while taking into account the culpability of the responsible polluter .

To sum up, the approach adopted first by the Directive with regards to setting the liability scope at the threshold of serious negligence was ruled by the ECJ as neither infringing the principle of legal certainty nor MARPOL or UNCLOS provisions as such. Therefore, restricting the scope of liability first introduced by the Directive was deemed unjustified and it was concluded that such liability scope should be maintained in the EU legal order. For the foresaid reasons, this policy measure has been discarded as not being in line with the ambitions of the European Green Deal, its zero pollution target and its Sustainable and Smart Mobility Strategy and the political will for legal action in relation to ship-source pollution.

Discarded policy option

Policy Option to repeal the Ship-Source Pollution Directive

A policy option of repealing the Directive has been analysed and put forward as it has been raised during stakeholder consultations. Some stakeholders see the notion of serious negligence in the Directive and the related criminalisation of natural persons (criminal liability aspects under Article 4 of the SSP Directive) as unfair treatment of crew. In this respect, it is argued that “serious negligence” is a lower threshold than in MARPOL, which (according to the argument) provides that, if there is not at least recklessness and knowledge that damage would probably result, there is no MARPOL violation. Secondly, the geographical scope of the Directive is, according to one stakeholder group, incompatible with MARPOL and UNCLOS rules, by extending jurisdiction to the high seas. It was indicated that this conflicts with Article 230 of UNCLOS, which provides only for monetary penalties to foreign vessels. Additionally, this policy option offers a scenario where IMO rules are sufficient to have effective enforcement and pollution prevention in the EU. As oil pollution is decreasing over the last decades with no large oil spill in Europe since 2002, some stakeholders argue that the job has already been done and the Directive is not needed.

With regards to the liability scope, MARPOL lays down detailed standards and conditions for the discharge of waste and residues at sea. According to MARPOL, operational discharges are permitted within strict discharge standards. Outside of these standards and based on international rules, ship-source discharges of polluting substances should be regarded as infringements. Accidental spills that result from damage to the ship or its equipment fall in this category by default. However, there are no implications in relation to those discharges provided that there is a proper response to the incident and that there was no intentional or reckless misconduct by the owner or master with the additional qualification that ‘*knowledge that the damage would probably result*’ from such behaviour must be evidenced. MARPOL does not provide a general liability regime with regards to discharges that do not result from damage to the ship or the equipment. The EU legal order, by virtue of the SSP Directive in its current form, provisioned penalties to operators that surpass the MARPOL standards if they acted with intent, recklessly or with serious negligence to breach the MARPOL standards. Such liability threshold as part of the EU acquis should be maintained in the EU legal order. However, if standards were breached as a result of damage to the ship or its equipment, the MARPOL scope of liability is incorporated in the Directive and it is mirrored in the

Environmental Crime Directive. Accordingly, the EU legal order does not provide for a stricter liability scheme than MARPOL. Where a liability regime has been provisioned under MARPOL, the EU legal order transposes it in EU law.

Regarding the broader geographical scope, the SSP Directive regulates the territorial sea, the EEZ and the high seas. The reasons for limiting the enforcement and EMSA tools that Member States have at their disposal to the narrower geographical scope of only the territorial waters has been analysed and no justification has been found for not monitoring and identifying potential polluters (hence discouraging pollution) in all waters. This is also status quo since 2005 and there is no legal basis that prevents the European Union from establishing a broad jurisdictional standard. In any case, Member States should apply the provisions of the Directive in accordance with applicable international law, including UNCLOS division of jurisdictional powers, as provided in Article 9 of the SSP Directive.

With regards to the alleged contradiction with UNCLOS Article 230, the Directive does not contradict Article 230, since criminal penalties may also be of a monetary nature. Furthermore, Article 230 of UNCLOS, provides only for monetary penalties to foreign vessels in and beyond the territorial sea, however with the additional exception that if the vessel sails within the territorial sea and it concerns a case of wilful and serious act pollution, penalties of a different nature can be applied as well. Whether this is indeed the case, will be evidenced on a case-by-case basis. The later has to be seen in the context of the revision of the Environmental Crime Directive and the fact that criminal penalties will no longer be regulated under the SSP Directive.

Regarding the sufficiency of MARPOL rules to ensure effective pollution prevention in the EU, it is underlined that MARPOL outlines the rules to follow but does not offer tools for dealing with non-complying States or ships. In contrast, the current SSP Directive offers tools for dealing with non-complying ships but does not set the standards for concentrations of polluting substances. The SSP Directive is the EU's response to make sure that the international rules on the prevention of ship-source pollution are followed. As such, MARPOL and SSP Directive complement each other in the case of European seas.

To sum up, this policy option has been discarded for a number of reasons. Firstly, without the Directive, it would be more difficult for prosecutors in the EU to penalise the offenders with regards to ship-source pollution. This is status quo since 2009 and there is no legal basis that prevents the European Union from establishing a standard that is higher than the one provided in international law, as long as it complies with international law provisions. Furthermore, the alleged criminalisation of seafarers will not be relevant for the future SSP Directive and is covered by a different instrument - the new Environmental Crime Directive.

Secondly, without the Directive covering all European waters including high sea, prosecutors would not have the freedom to prosecute offenders irrespective of where the pollution occurs. In other words, ships would be discouraged to discharge illegally only in a limited geographical scope, limiting the ambition of pollution prevention as well as creating market distortions, by allowing operators to avoid sailing in territorial waters where enforcement would be more stringently pursued. Such approach is not in line with the objectives of the Marine Framework Strategy Directive, where the marine environment is addressed as a whole and not limited to territorial waters.

Thirdly, without the Directive, ship-source pollution would be less likely to be detected (no satellite surveillance). Repealing the Directive would be against the prevailing opinion of stakeholders consulted. Additionally, this policy option is not in line with the ambitions of the European Green Deal, its zero pollution target and its Sustainable and Smart Mobility

Strategy. Lastly, in 2019, there was a call from the legislator (European Parliament and the Council) in recital 13 of the PRF Directive to consider reviewing the Directive. The call for review was deemed appropriate because the EU Port Reception Facilities cannot work properly without a good legal instrument to discourage illegal discharge of polluting substances at sea of all MARPOL Annexes. In this respect, stronger rules under the PRF Directive ensure that there are enough and adequate Port Reception Facilities in ports so that no illegal discharge is incentivised at sea. As such, the penalties for such illegal discharges under the SSP Directive should be sufficiently dissuasive to discourage any ship from illegally discharging at sea instead of delivering its waste in ports.

For all the foresaid reasons, the non-regulatory policy option was ruled out and there is political will for legal action.

Annex 6 - Retained policy measures

This annex provides a more detailed description of the retained policy measures and their links to the specific objectives.

Policy measure	Short description of the measure	Link to the specific objective
PMc1 - Extend the scope of the Directive to polluting substances under MARPOL Annex III-V and to discharge water from scrubbers under MARPOL Annex VI and include a review clause to encompass future developments of the MARPOL Convention.	MARPOL is the relevant international instrument to address ship-source pollution. Currently, the Directive has in its scope polluting substances of MARPOL Annex I-II only (oil and noxious liquid substances in bulk). The extension of the scope of the Directive would lead to an increase in the total number of discharges in water considered as an offence under the SSP Directive. Firstly, this measure would expand the scope of the Directive to the following polluting substances: • harmful substances carried by sea in packaged form (MARPOL Annex III) • sewage from ships (MARPOL Annex IV) • garbage from ships (MARPOL Annex V) • discharge water from scrubbers (one of the items under MARPOL Annex VI) The pollution offence definition would cover the polluting substances and introduce harmonised penalties for such cases. Secondly, this measure would give the possibility to expand the scope of the Directive in the future. The Directive would include a review clause to encompass future developments in MARPOL. If MARPOL is amended by elements that further restrain illegal discharges by adding new substances (e.g. plastic pallets, underwater noise) then there will be a possibility to amend the Directive and include the new elements. In this case, the Commission should evaluate the need for extending the scope of the Directive and make any appropriate legislative proposals to that effect.	SO1: Incorporate international standards into EU law by aligning the Directive with MARPOL Annexes on discharges into sea.
PMc2 - EMSA provides training and guidance to authorities responsible for detection, verification and evidence collection.	EMSA would take a leading role in raising awareness on recent SSP developments, disseminating information, organising discussions and workshops on detection, evidence collection and verification for substances in the extended scope of the Directive and new digital technologies. These would assist Member State authorities to improve the operational effectiveness of their enforcement. This measure would allow for further guidance and training for national law enforcement authorities with regards to illegal discharges from ships and on detection of pollution from ships. This would give grounds for the authorities responsible for verification to conduct their duties more effectively. EMSA would prepare the relevant guidance documents and workshop material drawing inputs from Member State authorities and their experience with relevant operations, in collaboration with the Commission.	SO2: Support Member States by building their capacity to detect pollution incidents, verify, collect evidence and effectively penalise identified offenders in a timely and harmonised manner.

Policy measure	Short description of the measure	Link to the specific objective
PMc3 - The Commission establishes a dedicated expert group facilitating cooperation between Member States, including through the adoption of guidelines.	A recital would be added in the Directive on the establishment of an Expert Group on the Ship-Source Pollution Directive chaired by the Commission to support the implementation of the Directive, best practice sharing and strengthened coordination. This measure would provide for establishing the group as a regular meeting forum to develop common guidelines and interpretation. It would allow Member States to increase their capacity to implement the Directive. Interpretative guidelines would provide competent authorities with practical understanding of the Directive's provisions. Member States and other relevant organisations would share their insights on implementation and their recommendations for improvements. The group would be a vehicle to support the enforcement activities undertaken by Member States.	SO2: Support Member States by building their capacity to detect pollution incidents, verify, collect evidence and effectively penalise identified offenders in a timely and harmonised manner.
PMc4 - Inclusion of a provision on whistleblowers, their protection and means of passing the relevant information.	Without prejudice to Directive (EU) 2019/1937 of the European Parliament and of the Council of 23 October 2019 on the protection of persons who report breaches of Union law (Whistleblowing Directive), a provision would be added in the SSP Directive on the possibility for reporting persons under the EU Whistleblowing Directive, to alert potential illegal discharges. The information on a potential illegal discharge from a ship can come from sources other than surveillance, e.g. observed by seafarers. This measure would offer a digital tool for passing information via an EMSA online gateway to the competent authority of the Member State(s) concerned and the protection of those who pass the information electronically. To this end, the Commission, in collaboration with EMSA, would put in place an external reporting channel which would protect the persons who report ship-source pollution breaches in line with Directive (EU) 2019/1937. Therefore, more first-hand knowledge on offences would be available.	SO2: Support Member States by building their capacity to detect pollution incidents, verify, collect evidence and effectively penalise identified offenders in a timely and harmonised manner.
PMc5 - EMSA further enhances the data exchange tools and automated links in the Integrated Maritime Services based on CleanSeaNet, THETIS, THETIS EU and SafeSeaNet.	EMSA develops the Integrated Maritime Services which put together relevant information and make it available in a timely manner to the Member State authorities. Integrated Maritime Services are a set of digital tools to enhance the implementation of maritime safety and pollution prevention directives. These tools include CleanSeaNet, THETIS, THETIS EU and SafeSeaNet. They were developed to different extent in order to meet a number of varied objectives of many directives. This measure would further enhance the Integrated Maritime Services platform, as to support data accessibility and information exchange. It would cover the extended scope of the Directive. This measure would promote digital solution and the reduction of administrative burden. It would create synergies between existing functions and the cross-validation of information coming from different sources. It would also enable an interoperability framework for data sharing. The integration of these	SO2: Support Member States by building their capacity to detect pollution incidents, verify, collect evidence and effectively penalise identified offenders in a timely and harmonised manner.

Policy measure	Short description of the measure	Link to the specific objective
	elements on one-stop-shop system would give access to information to relevant authorities and facilitate higher levels of exchange and access to shared information.	
PMc6 - The exception from liability for polluters, including crew members, will be further clarified in the Directive.	The measure spells out that a discharge of polluting substances resulting from damage to the ship or its equipment will not be regarded as an infringement unless the actor (e.g. crew member) acted either with intent to cause damage or recklessly and with knowledge that damage would probably result, provided that the actor took all reasonable precautions after the occurrence of the damage or discovery of the discharge in order to prevent or minimise the discharge. The measure would involve clarifying the existing exception from liability of polluting actors, including crew members to ensure legal certainty. Accordingly, for masters, companies and crew members, the discharge of polluting substances is not regarded as an infringement unless they acted either with intent to cause damage or recklessly and with knowledge that damage would probably result, in the case that the discharge was a result of damage to the ship or its equipment. With this measure, Member State authorities might need to clarify their liability provisions in national legislation. The measure would not change the exceptions as currently defined in Article 5 and the reference to crew, to conditions set out in Annex I, Regulation 4.2 of MARPOL or in Annex II, Regulation 3.1.2 of MARPOL will be spelled out in the Directive. The measure will expand the reference to the relevant regulations of the remaining MARPOL Annexes which provide for such exceptions. The notion of ‘owner’ used in MARPOL would be clarified by using instead the notion of ‘company’ as it may represent different entities that manage a ship. This exception applies therefore to any organisation which has assumed the operation of the ship, in alignment with the International Safety Management Code (ISM Code).	SO3: Ensure that persons (natural & legal) responsible for illegal discharges from ships are subject to effective, proportionate & dissuasive penalties.
PMc7 - Obligation for Member States to log their feedback data in CleanSeaNet and document if and how CleanSeaNet alerts have been verified.	When a possible oil spill is detected, an alert message is sent from CleanSeaNet to the relevant coastal State(s). This measure would make it mandatory for each Member State to record in CleanSeaNet the results of their verifications or provide the reason on why an alert was not verified. Competent authorities will need to document if and how a CleanSeaNet alert was verified. This measure is <u>not</u> an obligation to verify all CleanSeaNet alerts, but rather to provide feedback on the way Member States have (or have not) followed up on all alerts. Currently, approximately 40% of the CleanSeaNet alerts are recorded in CleanSeaNet as verified by Member States. It is possible that the Member State authority sends a vessel or aircraft to verify the alert but does not record this information in CleanSeaNet.	SO4: Ensure simplification and effective reporting on ship-source pollution incidents and follow-up activities.

Policy measure	Short description of the measure	Link to the specific objective
PM1 - Inclusion of a provision on minimum requirements for verification by means of a national target of 60% verification rate for CleanSeaNet alerts.	When a possible oil spill is detected, an alert message is sent from CleanSeaNet to the relevant coastal State(s). This measure would make it mandatory that the national authority responds to at least 60% of alerts. The response could be sending an aircraft or patrol vessel to verify the possible incident. Consequently, the verification could lead to obtaining a confirmation that an illegal discharge took place as well as obtaining relevant evidence for the purposes of prosecution. Six Member States verified more than 60% of CleanSeaNet alerts in 2020 and this was the starting point for defining the target. The underperforming Member States would need to increase their verifications to meet this target. As it is unlikely that Member States over-performing the target would adjust (reduce) their verification activities, it can be expected that the overall number of verifications would increase. This measure would provide incentives for a larger deployment of on-site assets required for verification and cooperation between Member States.	SO2: Support Member States by building their capacity to detect pollution incidents, verify, collect evidence and effectively penalise identified offenders in a timely and harmonised manner.
PM2a - Each Member State defines in their national legal order the components of infringements, either on the basis of ‘minor cases’ and ‘deterioration of the quality of water’, or on any other basis prescribed by the Directive, and applies administrative or criminal penalties accordingly.	By means of this measure, Member States would, in accordance with their national law, provide for competent authorities to have the power to impose appropriate penalties. Each Member State would define ‘minor cases’ and ‘deterioration of the quality of water’, or any other basis prescribed by the Directive, without prejudice to the Environmental Crime Directive (ECD), and apply administrative or criminal penalties to ship-source pollution offences accordingly. With the flexibility to define when they follow the administrative or criminal route, Member States could be expected to align the definition so as to treat infringements according to their legal tradition. Administrative penalties and other administrative measures in relation to ship-source pollution infringements are covered by the Directive, whereas criminal penalties are expected not to be included under the scope of the Directive, as they would be addressed by the ECD. Nevertheless, the definition of criminal offence for ship-source pollution discharges under the new ECD mirrors the infringement definition under the SSP Directive, thereby ensuring that administrative and criminal enforcement regimes remain coordinated.	SO3: Ensure that persons (natural & legal) responsible for illegal discharges from ships are subject to effective, proportionate & dissuasive penalties.
PM2b - The Directive provides definitions of the components of infringements, either on the basis of ‘minor cases’ and ‘deterioration of the quality of water’ or on	By means of this measure, Member States would transpose from the Directive the definition of ‘minor cases’ and ‘deterioration in the quality of water’, or any other basis agreed in order to define an SSP infringement and prescribed by the Directive, without prejudice to the Environmental Crime Directive (ECD). All Member States would need to follow this definition in deciding whether to pursue an illegal discharge as an infringement, criminal or administrative. A common definition would lead to a level playing field between Member States since similar infringements would need to be dealt with in a similar way across different jurisdictions. Administrative penalties and other	SO3: Ensure that persons (natural & legal) responsible for illegal discharges from ships are subject to effective, proportionate &

Policy measure	Short description of the measure	Link to the specific objective
any other basis prescribed by the Directive.	administrative measures in relation to ship-source pollution infringements are covered by the Directive, whereas criminal penalties are expected not to be included under the scope of the Directive in the future, as they are addressed by the ECD. Nevertheless, the definition of criminal offence for ship-source pollution discharges under the new ECD mirrors the infringement definition under the SSP Directive, thereby ensuring that administrative and criminal enforcement regimes remain coordinated.	dissuasive penalties.
PM3a - The Directive provides principles for setting the level of administrative penalties. The Commission will develop an implementing act on the criteria to be applied (e.g. depending on type of polluting substances).	The principles for setting the level of administrative penalties would be included in the Directive. This measure would also prescribe, with the support from a relevant Expert Group (see PMc3), the development of an implementing act defining the criteria for administrative penalties that would be applied across the EU. Member States would update their approach and their calculation methodology based on this implementing act. This measure would lead to the approximation of penalties across the EU, mainly, by rising potential penalty levels in cases they are considered too low.	SO3: Ensure that persons (natural & legal) responsible for illegal discharges from ships are subject to effective, proportionate & dissuasive penalties.
PM3b - The Directive provides principles for setting the level of administrative penalties, the criteria to be applied (e.g. depending on type of polluting substances) as well as values for the maximum and minimum levels for administrative penalties.	A provision with principles, criteria and values would be added to the Directive to ensure that adequate penalties are applied in order to dissuade potential offenders. Member State authorities would be required to review their penalty provisions in their national legislation to align them with the principles and values developed. Member States would update their approach and their calculation methodology by transposing the Directive. With this measure, a stricter regulatory approach is provisioned to ensure harmonisation of penalties across the EU. With the provision of additional administrative penalties in the Directive, a more rigid response to illegal discharges is provided to Member States.	SO3: Ensure that persons (natural & legal) responsible for illegal discharges from ships are subject to effective, proportionate & dissuasive penalties.
PM4 - Obligation for Member States to report their data in an EMSA-	This measure would involve the creation of a new, dedicated reporting platform. The tool would be a single-window, multi-purpose software for law enforcement authorities for the collection and exchange of data on ship-source pollution. This measure would make it mandatory for Member States	SO4: Ensure simplification and effective reporting on

Policy measure	Short description of the measure	Link to the specific objective
managed tool on each ship-source pollution incident.	to update the database regularly (at least annually) according to a harmonised format with: • Pollution incident and type of pollution, • Estimated volume or quantity, • Polluter details, ship type, • Penalty type, amount, • (...) e.g. geographical position of discharge The Commission, in cooperation with Member States, would develop a report template. This format would be aligned with other international and regional reporting requirements. With this measure, the Commission may adopt an implementing act specifying the type and format for reporting the information. The key non-confidential information from the reporting platform would be made available to the public online (PM5b). This measure would replace the Article 12 reporting to the Commission requirement.	ship-source pollution incidents and follow-up activities.
PM5a - Member States inform the public about ship-source pollution incidents through a national website. Member States may also report this data to the Commission.	This measure relates to the specific interest of the public in ship-source pollution. Ship accidents and intentional discharges from ships receives much public attention. With this measure, Member States would develop and operate national websites with information on pollution incidents, follow-up activities, identified violations and update them regularly in order to give information to the public. Member States also could report this information to the Commission and the Commission would publish a report on pollution events and follow-up activities based on this voluntary input. The specification of the obligation for Member States to develop a national website would apply in cases where there is no website already developed and to countries that have a coastline and/or sea going vessels flying its flag. In cases where Member States have already developed national websites, these would need to be adapted to the requirements of these provisions, in particular in terms of the information to be uploaded and presented to the public, and in the frequency of these updates.	SO4: Ensure simplification and effective reporting on ship-source pollution incidents and follow-up activities.
PM5b - EMSA publishes online key reported, non-confidential information about all ship-source pollution incidents at sea.	This measure relates to the specific interest of the public in ship-source pollution. Ship accidents and intentional discharges from ships receives much public attention. The information would be presented about all ship-source pollution incidents in the EU in a user-friendly format and ensure cross-border coverage. It would comprise maps and items with history of the incidents. The information displayed on the website would be non-confidential, key information. The information presented online would be extracted from the reporting tool (PM4). This measure would enhance the awareness of the public	SO4: Ensure simplification and effective reporting on ship-source pollution incidents and follow-up

Policy measure	Short description of the measure	Link to the specific objective
	and the shipping industry. Furthermore, establishing a website with information on pollution incidents in the EU and follow-up activities would improve consolidation at EU level, as well as increase the transparency for EU citizens and the public on ship-source pollution.	activities.

Annex 7 - Effectiveness of the different policy options

The table below provides a detailed assessment on the effectiveness of the policy options in relation to the specific objectives and related assessment criteria, complementing the overview provided in section 7.1.

Key: Impacts expected					
xx	x	O	✓	✓✓	
Strongly negative	Negative	No or negligible impact	Positive	Strongly positive	Unclear
	PO A		PO B	PO C	
General objective: In line with the European Green Deal, the aim is to incorporate into EU law international standards for ship-source pollution into sea and to ensure that persons responsible for discharges of polluting substances into sea are subject to effective, proportionate and dissuasive penalties, in order to improve maritime safety and to enhance protection of the marine environment from pollution by ships					
Expected deterrent effect on the level of illegal discharges into the sea	A deterrent effect common to all POs comes from PMc1, because this measure triggers additional surveillance and penalties for a broader range of pollutants, while also increasing the detection of oil through upgrades of CleanSeaNet. There is a positive deterrent effect specific to PO A, coming from the improved information available to the public (PM5b) leading to reputational considerations of the shipping sector. PO A has lower rating as compared to PO C and PO B because the cross-border nature of the problem is less mitigated by means of cooperation and information exchange.		A deterrent effect common to all POs comes from PMc1, because this measure triggers additional surveillance and penalties for a broader range of pollutants, while also increasing the detection of oil through upgrades of CleanSeaNet. The deterrent effect in PO B relative to the baseline comes from PM3a, which improves the proportionality of the penalties, thanks to the clarity on the principles and criteria for setting the levels of penalties. The impact is expected to be smaller than PO C because it does not concern values of penalties. The deterrent effect of PO B also comes from PM2b with improved effectiveness of the penalties achieved by the harmonised definition and from the improved information available to the public (PM5b) leading to reputational considerations of the shipping sector.		A deterrent effect common to all POs comes from PMc1, because this measure triggers additional surveillance and penalties for a broader range of pollutants, while also increasing the detection of oil through upgrades of CleanSeaNet. PO C has a high deterrent effect associated with PM1 that obliges some Member States to verify on-scene a higher share of CleanSeaNet alerts, and with PM3b, which offers a strong regulatory approach towards the levels of penalties. The deterrent effect relative to the baseline is expected to be slightly higher than that of POB because the underperforming Member States are expected to raise their penalties. The deterrent effect of PO B also comes from PM2b with improved effectiveness of the penalties achieved by the harmonised definition and from the improved information available to the public (PM5b) leading to reputational considerations of the shipping sector.

Key: Impacts expected					
xx	x	O	✓	✓✓	
Strongly negative	Negative	No or negligible impact	Positive	Strongly positive	Unclear
	PO A		PO B	PO C	
Specific policy objective 1 – Incorporate international standards into EU law by aligning the Directive with MARPOL Annexes on discharges into sea.					
Expected increase in the level of detection of illegal discharges (oil, noxious substances, packaged goods, sewage, garbage and scrubber residues discharged) resulting in expected decrease in the number of infringements	PO A aligns with the MARPOL scope of substances discharged to water (Annexes I to V and residues from scrubbers under Annex VI). Common policy measure PMc1 was considered the most appropriate to align the SSP Directive with international commitments and other EU initiatives relevant to water pollution and as such alternative measures were not considered in the development of the policy options. PO A fully addresses SO1 with the deployment of technical tools to cover the increased scope of the Directive in the context of detection and infringement. It also future-proofs the Directive by enabling it to adjust with a review clause to potential changes of the existing MARPOL Annexes.		PO B aligns with the MARPOL scope of substances discharged to water (Annexes I to V and residues from scrubbers under Annex VI). Common policy measure PMc1 was considered the most appropriate to align the SSP Directive with international commitments and other EU initiatives relevant to water pollution and as such alternative measures were not considered in the development of the policy options. PO B fully addresses SO1 with the deployment of technical tools to cover the increased scope of the Directive in the context of detection and infringement. It also future-proofs the Directive by enabling it to adjust with a review clause to potential changes of the existing MARPOL Annexes.		PO C aligns with the MARPOL scope of substances discharged to water (Annexes I to V and residues from scrubbers under Annex VI). Common policy measure PMc1 was considered the most appropriate to align the SSP Directive with international commitments and other EU initiatives relevant to water pollution and as such alternative measures were not considered in the development of the policy options. PO C fully addresses SO1 with the deployment of technical tools to cover the increased scope of the Directive in the context of detection and infringement. It also future-proofs the Directive by enabling it to adjust with a review clause to potential changes of the existing MARPOL Annexes.
Specific policy objective 2 – Support Member States by building their capacity to detect pollution incidents, verify, collect evidence and effectively penalise identified offenders in a timely and harmonised manner.					
Expected increase in the level of verification of potential illegal discharges	In PO A, the use of the existing available EMSA tools and new knowledge sharing (PMc2 and PMc3) for the extended list of polluting substances as well as the additional information on potential pollution events provided by whistle-blowers (PMc4) increases the capacity of the Member States to verify potential illegal discharges. In addition, further integrating data collection and exchange tools (PMc5) provides for a more effective use of information relevant for performing enforcement activities, and thus further improves verification		In PO B, the use of the existing available EMSA tools and new knowledge sharing (PMc2 and PMc3) for the extended list of polluting substances as well as the timely additional information on potential pollution events provided by whistle-blowers (PMc4) increases the capacity of the Member States to verify potential illegal discharges. In addition, further integrating data collection and exchange tools (PMc5) provides for a more effective use of information relevant for performing enforcement activities, and thus further improves verification		In PO C, the use of the existing available EMSA tools and new knowledge sharing (PMc2 and PMc3) for the extended list of polluting substances as well as the additional information on potential pollution events provided by whistle-blowers (PMc4) increases the capacity of the Member States to verify potential of illegal discharges. In addition, further integrating data collection and exchange tools (PMc5) provides for a more effective use of information relevant for performing enforcement activities, and thus further improves verification

Key: Impacts expected					
xx	x	O	✓	✓✓	
Strongly negative	Negative	No or negligible impact	Positive	Strongly positive	Unclear
	PO A		PO B		PO C
	capacity for all Member States.		capacity for all Member States.		capacity for all Member States. In addition, PO C introduces a minimum verification rate for Member States on CleanSeaNet alerts (PM1). This obligation is likely to increase the incentive for Member States to follow up CleanSeaNet alerts and verify them on-scene.
Proportion of identified offenders as a result of verification	In PO A, with better capacity of the Member States for verification of the potential illegal discharges falling under the extended scope of the Directive, it is expected to provide a wider basis for identifying the offenders based on information and knowledge gained by authorities as a result of PMc2, PMc3, PMc4. The integration of the data exchange tools (PMc5) will further improve the availability of data needed to identify an offender. This is expected to lead to an overall improvement in the effectiveness of verification of Member State authorities and thus increase the proportion of identified offenders.		In PO B, with better capacity of the Member States for verification of the potential illegal discharges falling under the extended scope of the Directive, it is expected to provide a wider basis for identifying the offenders based on information and knowledge gained by authorities as a result of PMc2, PMc3, PMc4. The integration of the data exchange tools (PMc5) will further improve the availability of data needed to identify an offender. This is expected to lead to an overall improvement in the effectiveness of verification of Member State authorities and thus increase the proportion of identified offenders.		In PO C, with better capacity of the Member States for verification of the potential illegal discharges falling under the extended scope of the Directive, it is expected to provide a wider basis for identifying the offenders based on information and knowledge gained by authorities as a result of PMc2, PMc3, PMc4. The integration of the data exchange tools (PMc5) will further improve the availability of data needed to identify an offender. This is expected to lead to an overall improvement in the effectiveness of verification of Member State authorities and thus increase the proportion of identified offenders. The introduction of the minimum verification rate for on CleanSeaNet alerts (PM1) most likely will not affect the proportion of identified offenders significantly. The measure's effectiveness is low based on past data recorded by Member States on how they follow-up CleanSeaNet alerts. The finding was that the higher number of verification activities does not necessarily lead to more identification of the actual spills or the actual offenders. Additionally, there are relatively high costs associated to the measure and the measure is not

Key: Impacts expected					
xx	x	O	✓	✓✓	
Strongly negative	Negative	No or negligible impact	Positive	Strongly positive	Unclear
	PO A		PO B	PO C	
				supported by the stakeholders.	
Specific policy objective 3 – Ensure that persons (natural & legal) responsible for illegal discharges from ships are subject to effective, proportionate & dissuasive penalties.					
Level and type of penalties is effective, proportionate and dissuasive	In PO A, the clarification of exceptions and definitions at EU level (PMc6) and on national level (PM2a) will facilitate the prosecution process in principle, consequently positively affecting penalisation. Member States will have the flexibility to define the level of penalties as in baseline. This is classified as ‘no impact’ compared to baseline. The evaluation showed that the Member States view the current arrangement appropriate and effective. In PO A, it is assumed that the current levels are proportionate and that in the future we will have more evidence to assess the effectiveness based on improved reporting.		In PO B, the clarification of exceptions and definitions at EU level (PMc6) and harmonisation of definitions at EU level (PM2b) will facilitate the prosecution process in principle, consequently positively affecting penalisation. In addition, the introduction of principles for setting levels of penalties and an implementing act on the minimum levels of administrative penalties (PM3a) is expected to lead to an increase in the level of the penalties imposed and harmonisation of penalties across the EU. PM3a is expected to have an impact in particular on Member States with lower penalties levels as the implementing regulation will apply directly. Thus, some of these Member States are expected to review and increase their penalty levels. It is expected that the harmonised and proportionate penalties lead to a level playing field and the levels of penalties will be high enough to discourage illegal discharge.		In PO C, the clarification of exceptions and definitions at EU level (PMc6) and harmonisation of definitions at EU level (PM2b) will facilitate the prosecution process in principle, consequently positively affecting penalisation. Although in PO C, PM3b offers a stricter regulatory approach and a more robust response to illegal discharges than PO B. PO C is expected to be as effective as PO B in this respect due to the fact that the same objective of harmonised and proportionate penalty levels is achieved. Further, the inclusion of concrete values for fines under PM4b vis-à-vis setting the criteria for calculation of such penalties under PM4a is not expected to lead to differentiated penalty levels.
Specific policy objective 4 – Ensure simplification and effective reporting on ship-source pollution incidents and follow-up activities.					
Expected improvement in the reporting on the implementation of the Directive	In PO A, the introduction of the requirement for Member States to log their feedback data on CleanSeaNet alerts (PMc7) is expected to simplify and improve the reporting on the implementation of the		In PO B, the introduction of the requirement for Member States to log their feedback data on CleanSeaNet alerts (PMc7) is expected to simplify and improve the reporting on the implementation of the		In PO C, the introduction of the requirement for Member States to log their feedback data on CleanSeaNet alerts (PMc7) is expected to simplify and improve the reporting on the implementation of the

Key: Impacts expected					
xx	x	O	✓	✓✓	
Strongly negative	Negative	No or negligible impact	Positive	Strongly positive	Unclear
	PO A		PO B	PO C	
	Directive. In addition, PO A with the requirement for each Member State to hold a website with ship-source pollution information (PM5a) will make the information on incidents more readily available to the public. However, the creation of a separate website by each Member State could lead to ineffectiveness and a multiplication of the costs related to developing and maintaining the IT infrastructure.		Directive. In addition, PO B with an online ship-source pollution information (PM5b) will make the non-confidential information readily available to the public in a cost-effective way. The new reporting tool (PM4) is expected to further facilitate reporting on the implementation of the Directive.	Directive. In addition, PO C with an EU-wide online portal with ship-source pollution information (PM5b) will make the non-confidential information readily available to the public in a cost-effective way. The new reporting tool (PM4) is expected to further facilitate reporting on the implementation of the Directive.	

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PART 2/2

This document corrects document SWD(2023) 159 final of 01.06.2023
Removal of formatting issues, correction of number of stakeholders consulted and penalty level for Denmark.
The text shall read as follows:

COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Accompanying the document

PROPOSAL FOR A DIRECTIVE OF THE EUROPEAN PARLIAMENT AND THE COUNCIL

amending Directive 2005/35/EC on ship-source pollution and on the introduction of penalties, including criminal penalties, for pollution offences

{COM(2023) 273 final} - {SEC(2023) 209 final} - {SWD(2023) 164 final}

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Glossary

<i>Term or acronym</i>	<i>Meaning or definition</i>
CSN	CleanSeaNet service - EMSA European satellite-based oil spill monitoring and vessel detection service
Detection	Any activity undertaken by national authorities or EMSA to notify on a possible illegal discharge into sea e.g. by satellite surveillance (CleanSeaNet), monitoring of the sea area by aerial and coastal surveillance (aircrafts and coastguard patrol boats).
Discharge	Discharge, jettisoning or disposal of polluting substances into sea.
ECD	Environmental Crime Directive
ECJ	European Court of Justice
EEZ	Exclusive Economic Zone
EMSA	European Maritime Safety Agency
Enforcement	Any activity undertaken by national authorities for the purpose of detection, verification or prosecution.
European seas	All maritime zones in the EU in accordance with the 1982 United Nations Convention on the Law of the Sea (UNCLOS Convention)
EU	European Union
IMO	International Maritime Organisation
MARPOL	The International Convention for the Prevention of Pollution from Ships of 1973 and the Protocol of 1978 as subsequently amended
PRF	Port Reception Facilities
Prosecution	Any activity undertaken by national authorities, under administrative or criminal law, deciding that the offender should be penalised by imposing a fine or other penalty or otherwise related court proceedings with regards to ship-source pollution offences, based on the evidence collected under the investigation of the incident and any additional evidence that will be brought in the relevant proceedings by the parties.
Scrubbers	Exhaust Gas Cleaning Systems, both open-loop and closed-loop. The discharge water from scrubbers, treated by the 2021 IMO Guidelines for Exhaust Gas Cleaning Systems as 'EGCS residues', are prohibited to be discharged overboard into sea.
SPP	Ship-Source Pollution
SSN	SafeSeaNet, the EU maritime information exchange system - vessel traffic monitoring and information as defined in Directive 2002/59/EC. It comprises a network of national SafeSeaNet systems in Member States and a central SafeSeaNet system acting as a nodal point managed by EMSA.

THETIS	EU Port State Control vessel inspection database
THETIS EU	EU Inspection Database to support inspections carried out under EU maritime safety and environmental legislation (other than Port State Control) e.g. Port Reception Facilities Directive 2019/883/EU
UNCLOS	United Nations Convention on the Law of the Sea
Verification	Any activity undertaken to check if a discharge took place at sea e.g. coastguard dispatch to the site. The definition of verification for the purpose of this report excludes inspections at ports.

EVALUATION

1. INTRODUCTION

This report presents the findings of the first evaluation of “*Directive 2005/35/EC on ship-source pollution and on the introduction of penalties, including criminal penalties, for pollution offences as amended by Directive 2009/123/EC*” (hereinafter “the SSP Directive” or “the Directive”). The evaluation is performed “back-to-back” with an Impact Assessment for the review of the Directive. The Directive is one of EU’s initiatives aiming at less pollution to the sea from maritime transport.

Context

Directive 2005/35/EC on ship-source pollution and on the introduction of penalties for pollution offences (amended by Directive 2009/123/EC to include criminal penalties) deals with **penalties for illegal discharges** of oil and noxious substances from ships into the sea. In this context, *illegal* means anything that does not meet the relevant International Maritime Organization (IMO) International Convention for the Prevention of Pollution from Ships (MARPOL) standards¹.

As with other maritime legislation, incorporating such international obligations into an EU directive made the provisions actionable before the Court of Justice of the European Union (EU) and provided the conditions for better enforcement within the EU and for European seas. The text of the Directive stipulates that any discharges above the thresholds set in MARPOL Annexes I and II (the political priority in the wake of the **Erika** accident) are *infringements* under the SSP Directive leading to penalties. Prosecution and penalising of the offender rests with the EU Member States and is carried out in accordance with their judicial system.

The imposition of penalties for pollution offences from ships finds its origin in international law. The United Nations Convention on the Law of the Sea (UNCLOS²) specifies that a State can impose penalties for pollution committed by a foreign vessel in case of major damage to the coastal state or if the flag state in question has repeatedly disregarded its obligations of enforcement.

The SSP Directive has a requirement that penalties must be “effective, proportionate, and dissuasive”. Such requirement is often set in EU legislation. It also provides for a clearer liability regime than the one laid down at international level as it specifies when a person can be convicted – for example, the master of the ship responsible for an illegal discharge committed carelessly.

The SSP Directive was the impetus behind the creation of the CleanSeaNet service (CleanSeaNet), which is the Earth observation, satellite oil spill detection service hosted by the European Maritime Safety Agency (EMSA). Combined with the EMSA vessel

¹ MARPOL lays down detailed standards for the discharge of waste and residues at sea. According to MARPOL, (intentional) operational discharges are permitted within strict discharge standards. For example for MARPOL Annex I, it is illegal if a ship discharges oil with content above 15 ppm (parts per million). For MARPOL Annex II, it is illegal if a ship discharges noxious liquid substances at a rate exceeding the maximum rate for which the underwater discharge outlets were designed.

² [United Nations Convention on the Law of the Sea](#) (UNCLOS) is an international (IMO) Convention agreement that establishes a legal framework for all marine and maritime activities.

traffic monitoring capability, it helps Member States carry out their duty of identifying ship-source pollution at sea. CleanSeaNet sends an alert to a Member State when a possible spill is detected by satellite surveillance. Member States are responsible for confirming if the spill actually took place and for identifying the polluter. Approximately, 5% of possible spills alerted by CleanSeaNet were subsequently confirmed to be mineral oil spills when verified by Member States.³ CleanSeaNet has also offered effective assistance to Member States for the monitoring of accidental pollution during emergencies, such as when spills occur during a rescue operation in bad weather.

Illegal discharges from ships however are only one of the sources of pollution to the marine environment. Globally, around 35% of oil that enters the sea comes from regular shipping operations. Around 45% of oil is input from land-based sources with municipal/industrial effluents and from routine oil rig operations, 10% from accidents of oil tankers, 5% natural sources, 5% undefined sources.⁴

In line with the SSP Directive, illegal discharges committed with intent, recklessly or serious negligence which lead to the deterioration of the quality of the seawater are classified as criminal offences. The Directive does not require that all infringements must follow the criminal regime. Administrative penalties are used more often for cases of ship-source pollution. Member States apply administrative penalties in most (approximately 80%) of their cases.⁵

The SSP Directive was the first piece of EU legislation regulating criminal penalties for environmental offences. Later in 2008, the EU adopted a horizontal instrument, the Environmental Crime Directive⁶ which did not cover ship-source pollution. A new Environmental Crime Directive has been proposed by the European Commission in 2021 that is currently being discussed by the co-legislators.⁷ The revision includes – for the first time – ship-source pollution as a criminal offence. This is a legal requirement stemming from specific provisions on the harmonisation of criminal law in the Treaty on the Functioning of the EU. Consequently, ship-source pollution administrative penalties will remain within the scope of the SSP Directive but criminal penalties will be covered by the new Environmental Crime Directive.

The SSP Directive is closely linked with the Directive on Port Reception Facilities⁸ for ship waste. When the directive on Port Reception Facilities was revised in 2019 with stronger rules and better monitoring of ships' waste delivery at ports, there was a call by the co-legislators to review the SSP Directive, to avoid a situation whereby more illegal discharges would be found at sea if nothing was done to expand the scope of the SSP Directive to match the scope of the Port Reception Facilities Directive and make the penalties proportionate in this context.

³ An approximation based on CleanSeaNet data from 2021. See Figure 14

⁴ World Ocean Review (2014) [WOR 3 Marine Resources – Opportunities and Risks. Oiling the Oceans](#)

⁵ An approximation based on the findings of this evaluation exercise. See Figure 12

⁶ Directive 2008/99/EC of the European Parliament and of the Council of 19 November 2008 on the protection of the environment through criminal law (OJ L 328, 6.12.2008, p. 28–37)

⁷ European Commission proposal for a revised Environmental Crime Directive https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12779-Environmental-crime-improving-EU-rules-on-environmental-protection-through-criminal-law_en

⁸ Directive (EU) 2019/883 of the European Parliament and of the Council of 17 April 2019 on port reception facilities for the delivery of waste from ships, amending Directive 2010/65/EU and repealing Directive 2000/59/EC (OJ L 151, 7.6.2019, p. 116–142)

The SSP Directive incorporates international standards for ship-source pollution stipulating that any discharges above standards set out in MARPOL Annexes I and II are infringements. The SSP Directive also supplements the international framework with elements that complement the MARPOL regime. More specifically:

- It established EU competence in criminal matters for ship-source pollution as international law does not specify the type of penalties to be applied (UNCLOS Art 230).
- It offers an EU liability regime⁹ for ship-source pollution penalties across the EU.
- It was the impetus behind the creation of an EU tool for satellite surveillance (CleanSeaNet).

Purpose and scope of the evaluation

The purpose of the evaluation is an assessment of the performance of all substantive provisions of the SSP Directive across the European Union. There is no legal requirement to evaluate the legislation included in the Directive. However, there was an explicit call by the co-legislators¹⁰ to review the SSP Directive in the Port Reception Facilities Directive. This is the first evaluation performed for this Directive.

The Sustainable and Smart Mobility Strategy¹¹ underlined the importance of a sustainable maritime transport sector. The Communication on the **European Green Deal**¹², followed by the 2021 Communication on the Zero Pollution Action Plan¹³, stressed the need for preventing pollution. The revision of the SSP Directive is included in the Sustainable and Smart Mobility Strategy (action 14).

As mentioned in the roadmap combined evaluation /Inception Impact Assessment¹⁴, the evaluation work examines the effect that the SSP Directive has had in terms of reducing illegal discharges from ships and how it contributed to the number of convictions or the level of imposed penalties in the Member States. The focus is on potential problems encountered with the implementation and application of the Directive and whether illegal discharges/pollution offences related to polluting substances covered by this Directive have been subject to effective, proportionate and dissuasive penalties in Member States, and what the effect has been on overall ship-source pollution in the EU.

Against this background, the Commission has carried out an evaluation of the SSP Directive, in a back-to-back manner with the Impact Assessment for the review of this

⁹ For the purpose of this report the ‘EU liability regime’ relates to persons (natural or legal) being held accountable for an illegal discharge - for example, the company or master of the ship is responsible for an illegal discharge if committed carelessly or with the intention to cause damage, subject to the exceptions from liability provided by MARPOL.

¹⁰ Recital 13 of the Port Reception Facilities Directive: “In order to align Directive 2005/35/EC of the European Parliament and of the Council to the relevant MARPOL Convention provisions on discharge norms, the Commission should assess the desirability of a review of that Directive, in particular through an extension of its scope.”

¹¹ COM(2020) 789 final - Sustainable and Smart Mobility Strategy – putting European transport on track for the future; FLAGSHIP 2 –Creating zero-emission airports and ports, point 27. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0789>

¹² https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en#documents

¹³ <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52021DC0400>

¹⁴ European Commission (2021) [Combined Evaluation Roadmap/Inception Impact Assessment. Revision of the Directive on ship-source pollution](#)

Directive. More specifically and in line with the Better Regulation Guidelines, this evaluation analyses:

- effectiveness, to assess the actual changes the Directive has triggered, particularly in view of its original objectives;
- efficiency, to assess the actual costs relative to the actual benefits of the implementation, and whether there is potential for simplification and increasing cost-efficiency;
- relevance, to assess whether the overall problem analysis and related objectives are still adequate and how the policy context has evolved;
- added value to the EU, its impact beyond what reasonably could have been achieved by national and regional policies; and
- coherence of the regulatory framework, regarding both the internal coherence and the coherence with other key legislation and policy initiatives at EU level.

The methodology used to carry out the evaluation was developed with the support of an external study and in line with the Better Regulation Guidelines and Toolbox¹⁵. The methodology is detailed in Annex II of this report. An evaluation matrix (provided in Annex III of this report) was elaborated to answer the evaluation questions. It identified relevant operational questions, indicators, research tools and data sources. Figure 1 provides a summary of the scope of the evaluation and of the Directive.

Figure 1. Scope of the evaluation of the SSP Directive

Evaluation period	From 2007 (deadline for national transposition in line with Article 16) until 2021 (year of most recent data analysed)
Legislative acts	SSP Directive: Directive 2005/35/EC and amendment to the Directive adopted in 2009 (Directive 2009/123/EC). The Commission did not adopt any implementing or delegated acts under this Directive.
Geographical scope	1) internal waters, including ports, of a Member State; 2) territorial sea of a Member State; 3) straits used for international navigation; 4) exclusive economic zone (EEZ) or equivalent zone of a Member State; 5) high seas i.e. sea areas beyond the jurisdiction on any State
Ship type	All ships, irrespective of their flag, with the exception of warships, naval auxiliary and ships for government non-commercial use which are outside the scope of the Directive
Pollutant type	MARPOL Annex I (Regulations for the Prevention of Pollution by Oil) and MARPOL Annex II (Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk)
Illegal discharge type	The Directive covers both accidental and (intentional) operational illegal discharges. However, an accidental spill would not lead to a penalty under the SSP Directive if all precautions had been taken e.g. accident caused by stormy weather with precautions taken.

¹⁵ https://commission.europa.eu/law/law-making-process/planning-and-proposing-law/better-regulation/better-regulation-guidelines-and-toolbox_en

The following sources of information were used for this evaluation:

- Information from stakeholder consultation activities. These included an online public consultation, targeted surveys, interviews, stakeholder meetings and a dedicated stakeholder workshop;
- A review of existing literature including relevant EMSA reports and datasets; and
- Member States implementation reports i.e. reporting under Article 12 of the Directive.

The limitations inherent to the methodology were:

- serious data gaps on the verification and prosecution of ship-source pollution incidents;
- no centrally collected data concerning the number of infringements and penalties imposed at national level. When available, the data is fragmented, not collected according to uniform standards or inaccurate. It presents several gaps and some conflicting information;
- lack of consistently reported data concerning the period prior to the introduction of the Directive;
- lack of consistently reported data on the implementation of the Directive i.e. reporting under Article 12 of the Directive;
- low rate of feedback logged by Member States in CleanSeaNet;
- scarce data on costs and no quantitative information on benefits; and
- little stakeholder feedback on the implementation of the Directive. The response rate has been low and information received very limited¹⁶.

The Commission chose a “back-to-back” approach (i.e. the evaluation and impact assessment have been launched at the same time) in order to: (i) provide an overview on the existing poor evidence-base, (ii) signal the limitations caused by the data gap and, in parallel, to (iii) provide the basis for more robust reporting arrangements in the future as well as (iv) pragmatic measures to address the existing and still relevant problem addressed by the Directive.

The data available for this evaluation was not sufficiently robust to make a complete ex-post assessment for all Member States. There is no representative data available on the indicators to measure the success of the Directive (e.g. the increased proportion of identified pollution incidents of Annex I and II type subject to penalties). However, despite the limitations, this evaluation gives a comprehensive snapshot of the existing information and provides a consistent analysis of the implementation of the Directive. For some evaluation criteria, in particular relevance and coherence, the evidence gathered was satisfactory. Availability and quality of data was a challenge affecting in particular

¹⁶ There were only 30 replies to the open public consultation and 25 replies in the form of the response to the evaluation survey. 31 interviews took place although the timeline was extended and multiple rounds of interview requests were sent.

the assessment of the effectiveness and efficiency criteria. Where quantitative data was available, it was used to make estimations and was complemented by stakeholder opinions and positions, although stakeholders were not very responsive to the various consultation activities. Information gathered from different sources, including input from stakeholders were compared and triangulated whenever possible. In the case when available data and literature was limited (e.g. linked to the assessment of efficiency and efficiency criteria), consultation responses were relied upon to answer the evaluation questions and are indicated throughout this report.

2. WHAT WAS THE EXPECTED OUTCOME OF THE INTERVENTION?

2.1. Description of the intervention and its objectives

The purpose and general objective of the Directive was to incorporate international standards for ship-source pollution into Community law and to ensure that **persons responsible for discharges of polluting substances to sea are subject to penalties**, including criminal penalties. Addressing oil spills from ships was the main environmental priority in the wider policy framework in the 80-90s and continued in years 2000-2005. The underlying reason for the Directive was the public concern caused by two significant accidents involving the tankers Erika (1999) and Prestige (2002), shown in Figure 2 as well as the frequent occurrence of tarballs on the EU's beaches in the 1990s.

Figure 2. The trigger of the intervention

Ship name	Year	Location	Oil lost [tonnes]
tanker MV Erika	1999	Off Brittany, France	20,000
tanker MV Prestige	2002	Off Cape Finisterre, Spain	63,000

Source: EMSA and EEA. [The European Maritime Transport Environmental Report \(EMTER\)](#) (2021)

The main **problem** mentioned in the Explanatory Memorandum of the proposal¹⁷ was that ships of dubious quality loaded with polluting cargoes continue to sail in European waters and continue to cause pollution of the sea through accidents and (intentional) operational discharge, without the responsible parties being **adequately penalised** for it.

The root causes of the problem listed at the time of preparing the Directive were:

- the occurrence of illegal discharges to the sea due to a lack of adequate port reception facilities for waste¹⁸;
- discharges not always detected in time;
- the enforcement of the MARPOL rules is not consistent within and between EU

¹⁷ European Commission (2003) [Explanatory Memorandum in Proposal for a Directive of the European Parliament and of the Council on ship-source pollution and on the introduction of sanctions, including criminal sanctions, for pollution offences](#), COM/2003/0092 final - COD 2003/0037

¹⁸ The problem of the lack of adequate port reception facilities for waste from ships was addressed by the [Directive on Port Reception Facilities](#).

Member States;

- even if a discharge was detected and traced to a particular ship, the offence was rarely brought to justice and if it was, there was frequently lack of sufficient evidence to secure a conviction.
- even where an offender was convicted, many States implemented rather light penalties for this kind of offence, sometimes only imposed on the master of the ship, rather than the ship-owning company, whose instructions the master may follow.

There was a **need to prevent marine pollution** caused by ships especially to prevent oil spills. The key problem that the intervention was intended to solve was that many ships discharging pollutants illegally did not face penalties. Such situation, therefore, did not discourage other ships from polluting EU waters. One of the reasons why polluters were rarely penalised was that Member States had limited capacity to effectively detect and verify cases of ship-source pollution.

The objectives of the intervention are in line with Sustainable Development Goal (SDG) 14 which covers safeguarding marine and coastal ecosystems by preventing and reducing marine pollution. SDG 14.1 includes the goal of preventing and significantly reducing marine pollution of all kinds. The Directive also contributes towards SDG 3 (“Ensure healthy lives and promote well-being for all at all ages”) and SDG 16 (“Peace justice and strong institutions”).

The Directive was designed to address the missing link between the cause of the pollution into the sea and the accountability of the persons responsible for it. To address the needs and solve the problem, the following specific **objectives** were pursued:

- harmonise among Member States the enforcement of the international rules i.e. the MARPOL Convention;
- ensure that Member States effectively prosecute persons responsible for illegal discharges to the sea and apply effective, proportionate and dissuasive penalties;
- ensure cooperation and exchange of relevant information in the context of the detection, verification and prosecution of ship-source pollution.

To achieve the objectives, actions were needed across the law enforcement chain as depicted in Figure 4.

Figure 3. Law enforcement chain for the SSP Directive



The **expected achievements** of the Directive were the improvements in the response of Member States:

- detection of the illegal discharges from ships;
- identification of offenders; and
- prosecution leading to penalties.

The success of the Directive was seen as developing a harmonised approach in all Member States towards the infringement definition and penalties. This could bring increased coordination and cooperation of Member States by exchange of information on the verification of incidents and better support for collecting the necessary evidence. The intention was also to provide the legal basis for the European Maritime Safety Agency (EMSA) to engage in monitoring/surveillance activities for ship-source pollution.

In practice, the above-mentioned actions were ultimately expected to ensure that Member States:

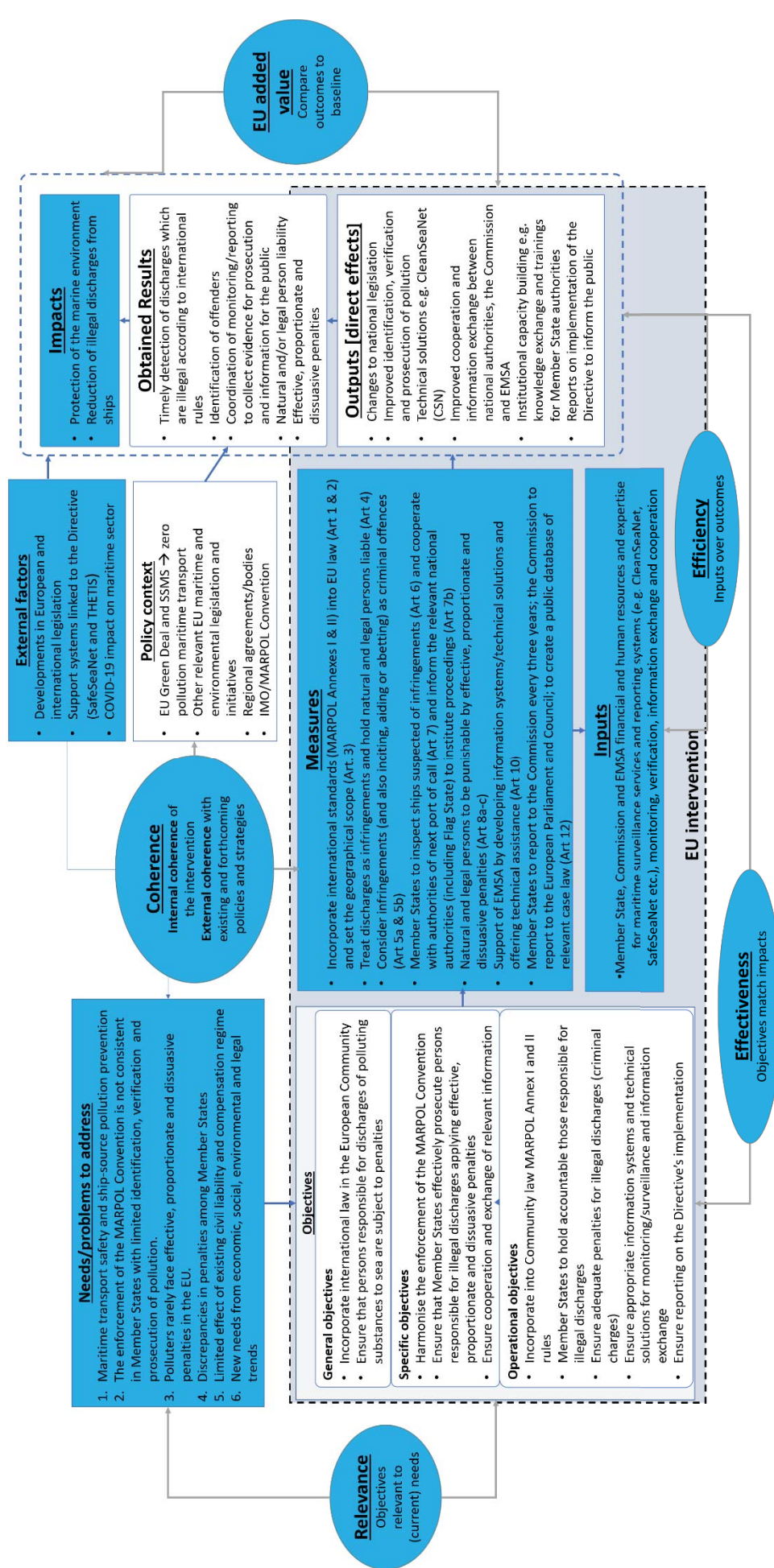
- treat illegal discharges as infringements in a harmonised way (i.e. imposing effective, proportionate and dissuasive penalties);
- have in place strong surveillance processes with modern technical solutions and information exchange mechanisms supported by EMSA.

The expected outputs were changes to the national legislations i.e. harmonising natural or legal person liability and penalty provisions and improved response i.e. law enforcement activities in Member States (detection, verification and prosecution of polluter). It was also intended to increase the cooperation between Member States by institutional capacity building (e.g. knowledge exchange and training for authorities) and by offering EU-wide technical solutions and the support of EMSA. Those outputs should be achieved on a consistent basis across the EU while taking into account the specific characteristics of the judicial systems of the Member States.

The intervention logic is presented in Figure 4. The implementation of the Directive (measures) should lead to specific outputs as well as impacts, reflecting the objectives of the Directive. The identified outputs represent the expected direct outcomes of the measures and obligations of Member States as defined in the Directive. The results and their impacts should be in line with the specific and general objectives of the Directive.

To sum up, the actions taken as a result of this intervention should support Member States in timely detection of illegal discharges and identification of polluters. It should foster verification (e.g. evidence collection) and principally increase effective prosecution and penalising.

Figure 4: Intervention Logic of Directive 2005/35/EC



Source: Ricardo (2023), Evaluation support study

2.2. Points of comparison

The counter-factual scenario estimates the likely developments in absence of this Directive over the evaluation period (2007-2021) and takes into account the methodological limitations mentioned in Annex III and section 1, including no centrally collected key data concerning the number of prosecutions.

When proposed, the Directive was not accompanied by an Impact Assessment. Therefore, the definition of the relevant points of comparison and the counter-factual scenario cannot be based on an Impact Assessment baseline. The definitions are consequently based on multiple sources (described in Annex II) that provide an assessment of the situation at the time of the adoption of the Directive and the expected outcomes.

The **counter-factual scenario** estimates the following developments:

- Member States would continue implementing the international rules for Annex I and II of the MARPOL Convention to varying extent with regional and national differences. Some Member States would have taken less action within their legal frameworks. See more details under the point of comparison on *‘Provisions on infringement and penalties in national legislation’*.
- There would have been less technical means for surveillance as well as less electronic tools available for Member States to use. Cross-border communication, information collection and sharing would have been limited. See more details below under the point of comparison on *‘Detection’*.
- In the absence of the Directive that mandates Member States to ensure that an appropriate inspection is undertaken in port¹⁹ in case of suspicion that illegal discharge took place (Article 6), the usage of the existing EMSA-managed tools: [SafeSeaNet](#) (maritime surveillance) and [THETIS](#) (vessel inspection) would have been more limited. See more details below under the point of comparison *‘Verification’*.
- The types of penalties imposed by Member States would have been similar to the current situation. See more details below under the point of comparison on *‘Penalties’*.

Prior to the adoption of the Directive, the situation could be described as follows.

Provisions on infringement and penalties in national legislation: Prior to the adoption of the Directive, Member States defined infringements differently in each country even if all were parties to MARPOL.

The situation was characterised as follows:

- There was less emphasis on criminal penalties, as international law does not specify the type of penalties to be applied (UNCLOS²⁰ Art 230);

¹⁹ Port State Control Directive (2009/16/EC)

²⁰ [United Nations Convention on the Law of the Sea](#) (UNCLOS) is an international (IMO) Convention agreement that establishes a legal framework for all marine and maritime activities.

- The focus was on illegal discharges in territorial waters, as international law supports non-monetary penalties for foreign vessels if wilful and serious pollution was committed in territorial waters (UNCLOS Art 230);
- Limited efforts were made on prosecuting foreign vessels as international rules stipulate that the flag State of the polluting ship shall be given priority in the investigation and penalty process (UNCLOS Art 228);
- Unintentional discharges committed with serious negligence were not explicitly included as being subject to administrative nor criminal offences.

Detection: Member States mostly used aerial and coastal surveillance (e.g. surveillance aircrafts and Coast Guard patrol boats) to monitor pollution at sea because satellite surveillance was not well developed, costly and provided limited data. Prior to the adoption of the Directive in 2005, there were limited satellite services to support surveillance of the sea. In the Baltic and North Sea, partial satellite surveillance was performed and in the Mediterranean Sea, there were research pilot projects with limited timeframes.²¹

Verification: At the time the Directive was adopted, Member States already cooperated to help each other in ship-source pollution verification. Member States used the existing maritime safety legislation and related tools: SafeSeaNet (maritime surveillance) and THETIS (vessel inspection) information exchange services developed by EMSA (see Figure 9). However, in the absence of the Directive, there was less coordinated pollution detection and less information exchange between Member States on pollution incidents leading, most likely, to less verification activities:

- the number of pollution incident reports (POLREPs) notified through SafeSeaNet would have most likely been smaller;
- the number of inspection requests submitted through THETIS related to suspected MARPOL infringements would have most likely been fewer.

Penalties: In the EU, there is a strong legal tradition to use administrative penalties for cases of ship-source pollution. Therefore, it is assumed that most convictions prior to 2005 were of administrative nature. There is insufficient data available, including from Member State interviews, on the proportion of administrative and criminal penalties imposed before the adoption of the Directive. Working under the assumption that the legal framework for the majority of Member States did not have the possibility to accommodate both administrative and criminal convictions, the share of criminal convictions most likely was lower across the Member States before the adoption of the Directive.

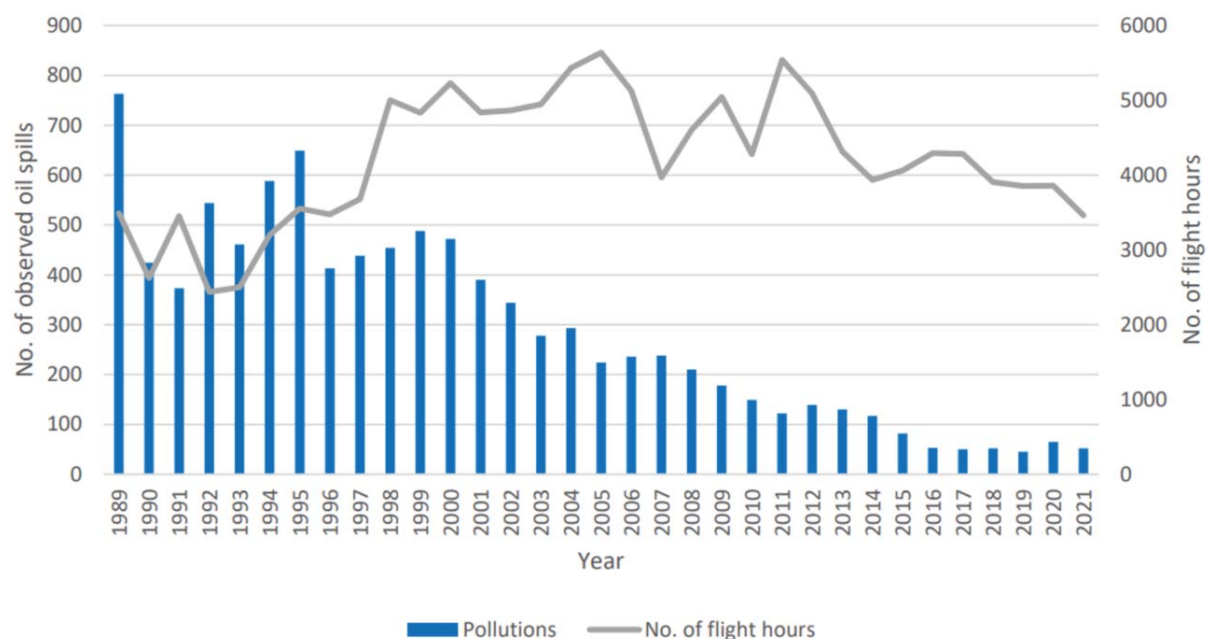
²¹ Historic information from interviews with 3 Member States

3. HOW HAS THE SITUATION EVOLVED OVER THE EVALUATION PERIOD?

3.1. Current state of play

The black lumps of oil, often washed up on beaches in the 1980s, are rarely seen in Europe nowadays. Oil pollution of European seas has decreased over the years as presented in the example in Figure 5.

Figure 5. The number of confirmed oil spills in the Baltic Sea during aerial surveillance by Member States (Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Sweden).



Source: HELCOM “Annual report on discharges observed during aerial surveillance in the Baltic Sea 2021”

NB. The MARPOL Convention brought the number of oil tanker disasters down worldwide in the 1980s. MARPOL paved the way for the introduction of double hull tankers. It is now mandatory for all new tankers to be fitted with a double hull, so that once a vessel is involved in a collision which penetrates the outer hull, the tanks inside generally remain intact and oil does not spill. Globally, the number of oil spills from tanker incidents or caused by technical failures or explosions on tankers has fallen in recent decades, despite a steady growth in the seaborne oil trade²². Other factors that contributed to the downward trend are improved safety procedures, increased awareness of ship operators and reputational risk that can occur to the ship owners when a ship is caught for illegal discharge.

The facts above on the reduction of oil pollution at sea sets the scene for the state of play in implementing the Directive. The evaluation could not answer the question on how the decrease of oil spills is related to the dissuasive effect of penalties for ship-source pollution. This could not be quantified due to serious data limitations and is not discussed in this evaluation report. However, it is expected that the Directive contributed to the reduction of oil spills in European seas to some extent by increasing the chances of a ship being caught when discharging illegally in European seas because of (i) satellite surveillance and (ii) other tools available to all Member States supporting cooperation between the Member States, (iii) by strengthening the national legislation – all leading to the end result of (iv) penalties being imposed and their dissuasive effect.

²² World Ocean Review (2014) [WOR 3 Marine Resources – Opportunities and Risks. Oiling the Oceans](#)

Provisions on infringement and penalties in national legislation

The current state of play in implementing the Directive's legal provisions across the EU has been analysed with view to highlight the differences between Member States. With the Directive in place, all Member States transposed the provisions on infringements and penalties to their national legislation. All Member States adopted procedures for holding natural and legal persons responsible for illegal discharges. There were two cases of nonconformity investigated by the Commission - in 2009 (infringement against Greece²³) and in 2010 (infringement against Ireland²⁴). Both cases were closed in 2011. An overview on how each Member State transposed the provisions on infringement and penalties is presented in Figure 6. Due to different legal systems, some Member States do not provide for criminal liability for legal persons in their legislation e.g. in Belgium, Cyprus, Romania²⁵.

Figure 6. Implementation of the SSP Directive by the Member States - differences in penalty procedures foreseen for ship-source pollution in the European Union.

Member State	Approach towards infringement	Administrative penalties		Criminal penalties		
		Minimum	Maximum	Minimum	Maximum	Max imprisonment (years)
Austria	Landlocked country with no major sea-going fleet, hence horizontal national penalty provisions apply.					
Belgium	Both are applied - administrative penalties considered faster to apply but criminal penalties provide more options to execute.	€ 200	€ 16,000,000	€ 12,000	€ 16,000,000	10
Bulgaria	Cannot apply criminal penalties to legal persons. No criminal cases have been applied in the last 10 years.	€ 75,000	€ 250,000	€ 5,000	€ 25,000	20
Cyprus	Administrative prevail. No criminal case applied in the last 10 years	Not specified	€ 85,430	Not specified	€ 855,000	5
Denmark	Criminal fines and imprisonment	€ -	€ -	€ 3,350	unlimited	6
Germany	Apply criminal penalties to natural persons	€ 200	€ 50,000	Not specified	Not specified	10
Estonia	Both options are possible but administrative procedures are usually	€ 10	€ 16,000,000	€ 10	500 times offender's daily income	5

²³ In 2009, Greece's legislation conformity with the SSP Directive was challenged with regard to Article 3 (insufficient definition of infringement outside Greek territorial waters) and Article 6 (inspection of suspect ships). The case was closed in 2011.

²⁴ In 2010, Ireland's legislation application with respect to the SSP Directive was challenged with regard to Article 8 (liable persons other than the owner and master of ship) and was closed in 2011.

²⁵ EMSA (2011) Study on the Implementation of Ship Source Pollution Directive 2005/35 in the EU Member States, not available online

Member State	Approach towards infringement	Administrative penalties		Criminal penalties		
		Minimum	Maximum	Minimum	Maximum	Max imprisonment (years)
	applied. There has been no criminal case until now.					
Ireland	Natural persons are not penalised.	€ 3.000	€ 15,000,000	€ 3,000	€ 15,000,000	5
Greece	Administrative or criminal fines and imprisonment. Both procedures are in use.	€ -	€ 2,000,000	€ -	€ 300,000	10
Spain	Both administrative and criminal approaches in use.	€ -	€ 5,400,000	€ -	€ 5,400,000	12
Finland	Both are applicable but in practice administrative procedures are typically used due to the difficulties of applying criminal procedures.	€ 4,278	€ 850,000	€ 4,6	linked to offender's income	6
France	Both options are used but administrative prevail and only a small number of cases result in criminal procedures.	€ -	€ -	€ -	€ 15,000,000	10
Croatia	Both administrative and criminal approaches in use.	€ 660	€ 40,000	€ -	linked to offender's income	15
Czechia	Landlocked country with no major sea-going fleet, hence horizontal national penalty provisions apply.					
Hungary	Landlocked country with no sea-going fleet, hence penalty provisions are not applicable.					
Italy	Both administrative and criminal approaches in use.	€ 10,000	€ 1,239,300	€ 10,000	€ 1,239,300	10
Latvia	Administrative penalties prevail.	€ 140	€ 140,000	€ 140	€ 140,000	10
Lithuania	Legal persons can liable for administrative and criminal penalties.	€ 2,500	€ 3,900,000	€ 2,500	€ 3,900,000	10
Luxembourg	Landlocked country with a sea-going fleet - horizontal national penalty provisions apply.	n/a	€ 1,500,000	n/a	€ 1,500,000	5
Malta	Administrative and/or criminal charges possible, but mostly administrative charges applied.	€ 12,000	€ 100,000	€ 12,000	€ 1,500,000	30
Netherlands	Only criminal charges applied. No possibility for administrative penalties in Dutch	€ 3	€ 900,000	€ 20,500	€ 870,000	6

Member State	Approach towards infringement	Administrative penalties		Criminal penalties		
		Minimum	Maximum	Minimum	Maximum	Max imprisonment (years)
	Law.					
Poland	Administrative and/or criminal charges possible, but only administrative charges have been applied.	€ 25	€ 1,240,000	n/a	€ 1,240,000	5
Portugal	Administrative and/or criminal charges possible, but only administrative charges have been applied.	€ -	€ -	€ -	€ -	-
Romania	Administrative and/or criminal charges possible, but only administrative charges have been applied in the last 10 years	€ 2,000	€ 10,000	n/a	€ 750,000	20
Slovenia	Administrative and/or criminal charges against both natural and/or legal persons liable.	€ 417	€ 750,000	€ 417	€ 750,000	6
Slovakia	Landlocked country with no major sea-going fleet, hence horizontal national penalty provisions apply.					
Sweden	Administrative or criminal fines and imprisonment.	n/a	€ 247,400,000	n/a	€ 247,400,000	2

Source: Ricardo (2023) Evaluation support study

The levels of penalties are an approximation summarised for the purpose of providing an overview on the scale.

Detection – state of play

The Directive (Article 10) was the legal basis for the creation of the CleanSeaNet service - the European satellite-based oil spill monitoring and vessel detection service, as summarised in Figure 7. It allowed Member States to perform pollution detection activities using a combination of satellite and aerial surveillance.

Figure 7. CleanSeaNet service developed for the purpose of the SSP Directive

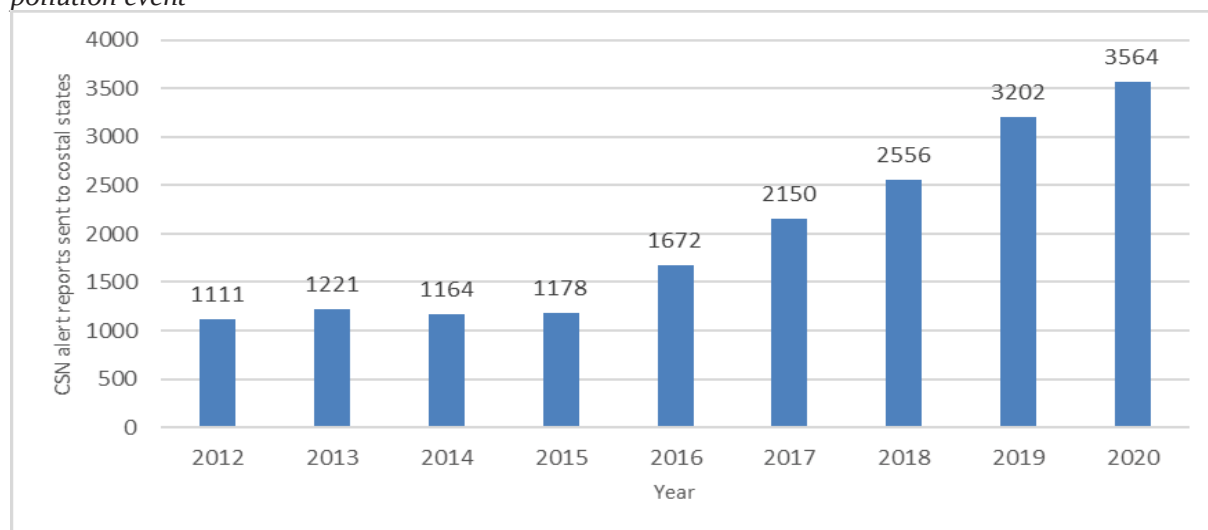
	CleanSeaNet is the European satellite-based oil spill and vessel detection service which offers assistance to participating States for: - identifying and tracing oil pollution on the sea surface; - monitoring accidental pollution during emergencies; - contributing to the identification of polluters.
When a possible oil spill is detected, an alert report is sent to national authority users in “Quasi Real Time” (QRT) (e.g. 20 minutes for images up to 150 000 km²). The user may visualise the satellite image together with vessel traffic information in EMSA's portal. In 2021, the CleanSeaNet service delivered over 7 000 images from	

different SAR satellites, with over 1.4 million km² monitored and detected over 7 000 possible spills.

Source: [EMSA CleanSeaNet service portal](#)

CleanSeaNet provides information when a potential spill is detected, although it cannot confirm the spill, nor identify the polluter. The steady increase in the quality and quantity of satellite images has resulted in an increased number of spill alerts. Figure 8 shows that the number of CleanSeaNet alerts reported to Member States tripled over the last decade. This does not mean, however, that the pollution tripled.

Figure 8. The increase in CleanSeaNet alerts notifying the Member State authorities of a possible pollution event



Source: Ricardo (2023) Evaluation support study, based on EMSA CleanSeaNet services data. Alert reports sent to Member States and Norway and Iceland.

The accuracy of the CleanSeaNet service has improved thanks to semi-automatic data quality checks and better algorithms, so smaller spills can now be detected. With more information on potential spills, Member States can better target their verification activities. Upon receiving a CleanSeaNet alert, the national authority decides how to respond to a possible spill (e.g. whether to send an aircraft or patrol vessel to verify it and confirm that it was in fact a pollution incident).

Verification – state of play

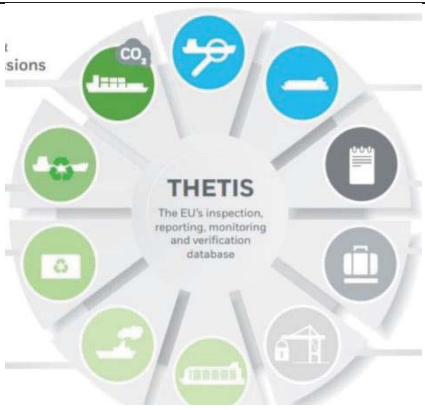
National enforcement practices for verification vary across EU Member States depending on resources allocated to the sector. Aerial surveillance capacity (helicopters and sensor aircraft - manned or unmanned) differs - some Member States record high numbers of flight hours e.g. France, while others do not have aerial surveillance means e.g. Romania. Specialised national bodies perform aerial surveillance activities e.g. the Maritime Police, the coastguard, the Military/Armed Forces. Surveillance activities reported by Member States include deployment of military or coastguard patrol boats for coastal and port surveillance and use of multi-purpose monitoring flights. Also, merchant vessels or commercial airlines report to the authorities on potential incidents e.g. in Italy, France and Cyprus, supplementing national verification.²⁶ Data from the North Sea²⁷ and Baltic Sea²⁸ show that a high number of flight

²⁶ Information collected during evaluation interviews with the above-mentioned Member States.

hours and verification activities result in more information on whether an oil spill occurred. As presented in Figure 5 based on the example of the Baltic Sea, verification activities are carried out systematically by Member States. This data does not go as far as providing information on the offender, however it shows the number of pollution incidents detected and confirmed. The verification capacity of the Member States of the North Sea and Baltic Sea are higher than those for the Mediterranean or Black Sea areas. There is no relevant data available for the latter and the verification efforts presented above are not representative for the whole of the EU. Nevertheless, the supporting evidence shows that verification activities are being undertaken and national assets are being deployed for this purpose.

The data shown in the figures below (Figure 10 and Figure 11) indicates that Member States exchange information between each other, with the use of THETIS and SafeSeaNet. More information on the two tools is provided in Figure 9. This supports the verification process and facilitates collecting the evidence to identify the polluter as to ultimately impose a dissuasive penalty. Thanks to combining information from CleanSeaNet on the location of the possible pollution and SafeSeaNet on the vessels that were in the vicinity, the Member State obtains information on possible polluters.

Figure 9. EMSA-managed tools relevant to ship-source pollution incidents

	SafeSeaNet is a vessel traffic monitoring and information system, established under the Directive establishing vessel traffic monitoring and information system (2002/59/EC) in order to enhance, • maritime safety; • port and maritime security; • marine environment protection • efficiency of maritime traffic and maritime transport. Member States can notify pollution incident reports (POLREPS) by this EMSA tool.
	THETIS is a vessel inspection database established under the Port State Control Directive (2009/16/EC) consulted by Port State Control authorities to: • assist in selecting the right vessels for inspection with Ship Risk Profiles and Priority; • provide statistics on inspection results and performance. Member States can request an inspection in the next port of call by introducing an inspection request (overriding factor message in THETIS).

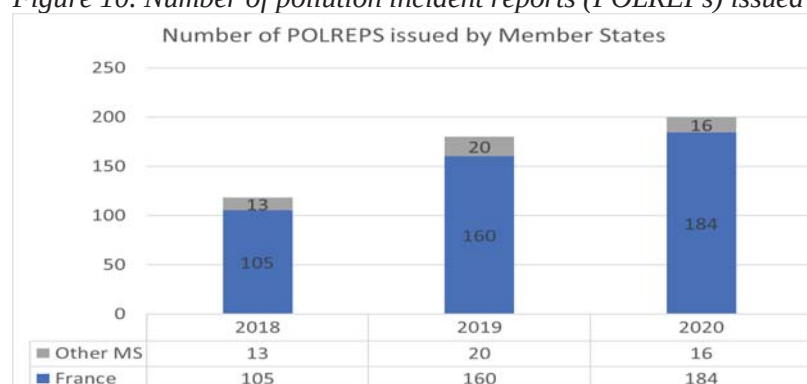
Source: [EMSA THETIS](#) and [EMSA SafeSeaNet](#)

²⁷ Bonn Agreement (2021) [Annual Report on Aerial Surveillance 2020](#)

²⁸ HELCOM (2022) [Annual report on discharges observed during aerial surveillance in the Baltic Sea 2021](#)

The use of pollution incident reports (POLREPs) to communicate pollution events of common interest is not fully exploited by Member States. As seen in Figure 10, the majority of pollution incident reports submitted in SafeSeaNet comes from one Member State.

Figure 10. Number of pollution incident reports (POLREPs) issued in SafeSeaNet by Member States



Source: Ricardo (2023) Evaluation support study

Next, despite the increased number of CleanSeaNet alerts, the number of inspection requests in ports was relatively constant over time, in case of suspicion that a discharge of Annex I or II pollutants took place (Figure 11).

Figure 11. Number of inspection requests registered in THETIS by Member States with regard to MARPOL Annex I and II incidents



Source: Ricardo (2023) Evaluation support study

NB. Priority 1 triggers in THETIS the request for an inspection at the next port of call for the suspected ship. Priority 2 means that the ship is targeted for an inspection but not necessarily at the next port of call. It will be inspected within a certain time window depending on the ship's profile.

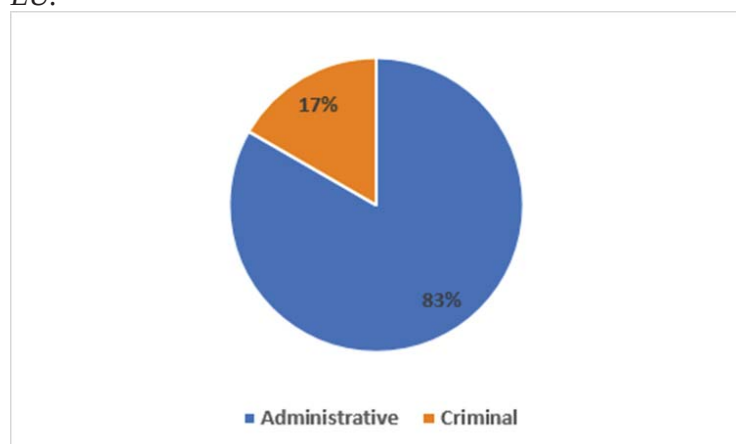
National verification activities (e.g. port state control inspections or checks on spot by means of aircraft) and their achievements in identifying the offenders is not evaluated in this report because such activities of Member States fall outside of the scope of the evaluation (i.e. were already carried out before the Directive was adopted). The evaluation thus focuses on the EU

angle of cooperation and data exchange by presenting the activity of Member States in using SafeSeaNet and THETIS for ship-source pollution incidents.

Penalties – state of play

Infringements which lead to the deterioration of the quality of the seawater are classified as criminal offences if committed with intent, recklessness, or serious negligence (Article 5a and 5b). The Directive however does not specify that all infringements must follow the criminal regime. Administrative penalties are also possible under the SSP Directive. There are no centrally collected data concerning the type of procedures followed when imposing penalties, however, based on the interviews with Member States conducted as part of the evaluation, it was estimated that the majority of penalties imposed are administrative, as presented in Figure 12.

Figure 12. Estimated share of administrative and criminal penalties for ship-source pollution in the EU.



Source: Ricardo (2023) Evaluation support study; NB. Estimation based on data and qualitative input on the frequency of administrative and criminal penalties applied over the period 2012-2021 from 8 Member States (PL, NL, IT, RO, EL, LV, FI, CY, DE) and Norway. This figure is indicative and points to the facts that the requirement of the Directive to impose criminal penalties is not fulfilled in the EU.

Currently, most Member States rarely take the criminal route.

- Criminal cases are frequently considered burdensome as they usually involve lengthy and resource-consuming processes, which Member State authorities cannot always undertake due to a lack of resources and expertise.
- Administrative penalties are often considered by Member States authorities to provide timely outcomes with reduced resource allocation.

Although the Directive includes provisions on criminal penalties, the practices in Member States did not change as compared to prior the adoption of the Directive. Administrative penalties were and are used more often than criminal penalties.

4. EVALUATION FINDINGS

This chapter presents the assessment of the five criteria (effectiveness, efficiency, coherence, EU added value and relevance) as to understand if the SSP Directive met the expectations of 2005, achieving EU-wide benefits.

4.1. To what extent was the intervention successful and why?

In this section, the success of the Directive over the evaluation period is assessed in terms of the extent to which it achieved its objectives effectively, efficiently, and in coherent way. The evidence provided is based on the detailed analysis by criterion in the evaluation matrix and answers to the evaluation questions documented in Annex III.

As concerns **effectiveness**, we investigated if the SSP Directive has been successful in achieving its intended objectives and present it under three headings following the law enforcement chain (detection, verification and prosecution).

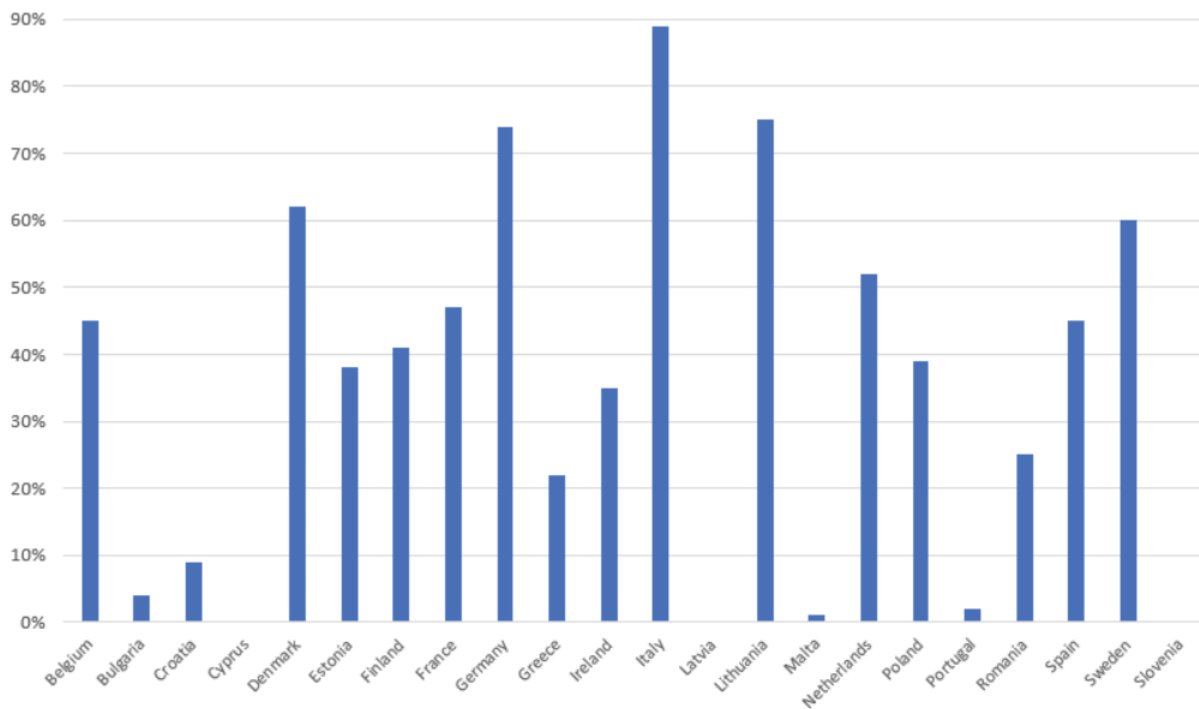
Detection - findings

The starting point (to reach the objective of ensuring that persons responsible for illegal discharges are subject to penalties) is an effective system to support Member States in detecting the polluting substances at sea.

Satellite surveillance provides information on possible spills and is available to all Member States thanks to the EU-wide CleanSeaNet service. CleanSeaNet does not inform the Member State that a spill occurred nor does it indicate which ship is the offender. Member States identify the pollution, collect the evidence on the incident and confirm the offender. The satellite surveillance tool offers timely, yet limited information on the possibility of a spill based on which national authorities make a decision on the need for verification.

Member States do not always verify the CleanSeaNet alerts. An authority may decide that it is not operationally relevant to follow up the alert or does not have the means to perform the verification. The feedback of national authorities to information provided in CleanSeaNet is limited. It is uncertain whether Member States do not verify the possible spill or verify it and do not log the result of their verification in CleanSeaNet. As shown in Figure 13, only a few Member States log their feedback data in CleanSeaNet for most of the alerts they receive.

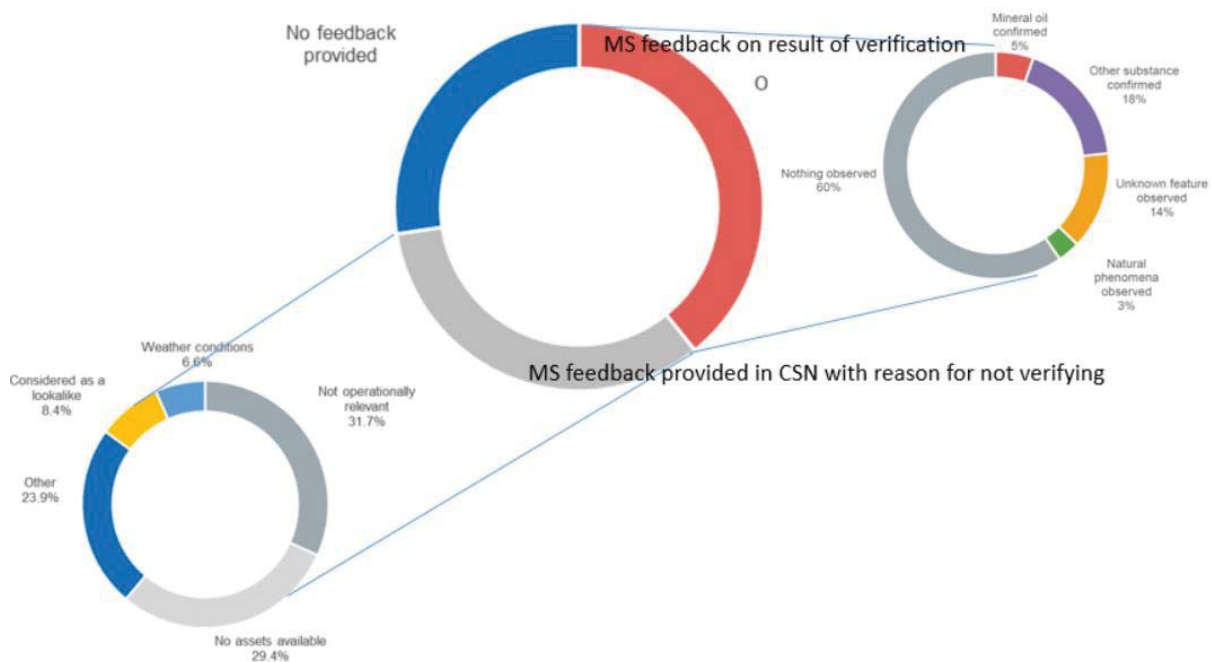
Figure 13. Percentage of verification feedback for CleanSeaNet alerts 2021



Source: CleanSeaNet data <https://emsa.europa.eu/csn-menu/detections-feedback-data.html>

The confirmation of an oil spill based on an alert received (or rate of logging feedback in CleanSeaNet) is limited. Figure 14 shows that Member States log feedback data in CleanSeaNet for approximately 40% of all alerts (1/3 of all cases is a record that verification did not take place providing the reason why there was no verification). Out of all cases verified, a mineral oil spill was confirmed for 5% of the cases and in 37% of cases, actual polluting substances have been confirmed on-scene when checked by Member States. This shows that although satellite surveillance is an effective tool informing about a possible pollution incident, it leads to only some confirmed cases.

Figure 14. Feedback to CleanSeaNet alerts in 2021



Source: Based on data from CleanSeaNet service

Summing up, if more Member States verified of their CleanSeaNet alerts then most likely the deterrent effect would be higher. The limited Member States feedback in CleanSeaNet makes it difficult to analyse the reliability of the tool.

Verification- findings

This section focuses on the EU angle of cooperation and data exchange on verification by presenting the achievements of Member States in using SafeSeaNet and THETIS for ship-source pollution incidents. It also explores the processes and practices related to national verification including the inspection and control regimes. The national approaches to verification are (i) analysis of ship-based information to identify the suspected offenders (SafeSeaNet), (ii) checks on spot by means of aircraft or patrol boats (national assets), (iii) inspecting ships in port to obtain evidence on non-compliance with the MARPOL (THETIS and THETIS EU).

Inspections of ships in ports happen within the regime of the Port State Control Directive (2009/16/EC) (reported in THETIS) and Port Reception Facilities Directive (2019/883/EU) (reported in THETIS EU). The tools developed by EMSA i.e. CleanSeaNet, SafeSeaNet²⁹, THETIS³⁰ and THETIS EU have worked together to support Member State collaboration and to improve their capability to follow up possible pollution events and attribute them to specific ships/offenders. Thanks to the SSP Directive and the use of CleanSeaNet, there is

²⁹ Example: through SafeSeaNet, the ship geographical position in the area of the pollution event in the time might provide the identification of possible polluters to the Member State authorities. This information is provided automatically in the CleanSeaNet report to Member States.

³⁰ Example: through THETIS, Member State authorities have access to past port State control inspection findings for a particular ship and can use this information to assess the risk. They can also use THETIS EU to see if the particular ship left the waste in question in the previous port's of call, Port Reception Facility. Member States can use THETIS to request another Member States authority e.g. next port of call to inspect the suspect ship.

more information available for the Member States and more opportunities to use SafeSeaNet and THETIS systems for following up pollution events. In the period 2011-2021, on average over 100 inspection requests were logged annually in THETIS arising from suspicions of possible illegal discharges of MARPOL Annex I and II substances, pointing to the cooperation of Member States in inspections of pollution incidents (Figure 11).

There is a general consensus among Member State authorities interviewed (12 respondents) that cooperation and information exchange activities led to improved capacity towards the identification of the pollution. Also, seven of the industry responses (out of 13) to the public consultation indicated that the Directive has contributed to some extent to increased cross-border cooperation between Member States law enforcement and judicial authorities. On the other hand, it was noted during the interviews that Member State authorities do not use the existing EMSA tools to their full extent. Not all Member States record their activities in CleanSeaNet, SafeSeaNet and THETIS. If more Member States provided their records then most likely the effectiveness of discouraging ship-source pollution would be higher.

Penalties- findings

The Directive regulates penalties hence the core measure of success for this Directive is captured based on Article 8 - Member States ensuring that an infringement/ pollution offence is punishable by effective, proportionate and dissuasive penalties. This section concentrates on the trends and extent to which the objectives of the Directive were achieved from the perspective of penalties issued by Member States for illegal discharges at sea. The increased proportion of illegal discharges subject to penalties should be analysed to report the success of the Directive. Such analysis is however restricted as there is a serious information gap relating to penalties applied by courts in Member States and no tangible evidence nor centralised statistics on the number and type of penalties imposed. This information is not always collected by Member States, and is often decentralised especially with regards to criminal penalties (i.e. individual courts within a Member State). Furthermore, although Member States have a general reporting obligation (Article 12), they rarely report on penalties to the Commission.

The data available to the Commission is not representative. Only eight Member States reported within the past five years to the Commission (Figure 15). The limited data shows that not more than 50 cases of ship-source pollution are identified annually per Member State and not more than 12 are prosecuted. It can be therefore assumed that the requirement of the Directive to impose penalties is rarely met. Most of the Member State authorities interviewed agreed that pollution incidents rarely or never result in penalties³¹. This suggests deficiencies in the effectiveness of the penalty procedures in place.

Figure 15. Summary of data reported by Member States in the period 2015-2020

Member State which submitted a report	Average number of offenders/ships identified annually	Average number of offenders/ships prosecuted annually
France	5.8	No data
Poland	18.0	12.1
Latvia	2.7	2.7

³¹ For administrative penalties: Member State authorities interviewed (6 out 11 MS authorities and 8 out 12 MS authorities who provided input for natural persons and legal persons, respectively) agreed that pollution incidents do not frequently or never result in penalties. For criminal penalties: Member State authorities interviewed (8 out 9 MS authorities and 9 out 10 MS authorities who provided input for natural persons and legal persons, respectively) agreed that pollution incidents do not frequently or never result in penalties.

Finland	16.2	3.2
Romania	1.7	1.7
Cyprus	1.3 (only data for 2020, 2018, 2015)	2 (only data for 2020)
Germany	50.8	No data
The Netherlands	30	No data

Source: Reports submitted to the European Commission under Article 12 reporting obligation by Member States in 2015-2020.

The reason for the limited information on the number of prosecutions is not a result of the lack of a common definition of infringement. On contrary, one of the successes of the Directive is providing a common legal framework for infringements.

Ten (out of 16) Member State representatives, who took part in the interviews and surveys, indicated that the definition of infringement in the Directive is appropriate. It leaves flexibility for national authorities. The assessment on the type of offence (criminal or administrative) is usually done on a case-by-case basis in accordance with national rules, as each case has different circumstances of offence to consider. In practice, both regimes (criminal or administrative) work together to complement each other.

Although the definition of infringement is perceived as non-problematic, deficiencies in effectiveness may originate from the lack of the definition of “deterioration of the quality of water” in the Directive which marks when criminal prosecution applies and when to trigger the administrative procedure. Based on literature analysis and interviews with the Member States, concepts of “minor cases” (Art 4(1) and 5a(2)) and the “deterioration in the quality of water” (Art 5a(2-3)) are not interpreted in the same way by all Member States.

To conclude on penalties, there are divergent approaches among Member States in the types of penalties applied and not enough data on the number of prosecutions and penalties imposed. There is limited information on whether the penalties applied are effective, proportionate and dissuasive.

Conclusion on effectiveness. The success of the Directive in achieving its intended objectives has been limited. Although it incorporated international rules for ship-source pollution into EU law and Member States prosecute SSP offenders, there is limited data to show how effective the system is. The Directive resulted in the implementation of a successful tool for satellite surveillance (CleanSeaNet). This however does not solve the problem entirely because satellite surveillance accuracy is limited (to around 40%). Some aspects relating to verification could have been managed more effectively e.g. Member States could have been logging more feedback data in CleanSeaNet. The Directive has not achieved the anticipated outcome to its full when it comes to the prosecution of offenders.

Efficiency

Costs

As concerns **efficiency**, the costs produced by the Directive can be divided into the following categories³²:

- **Adjustment costs:** costs incurred to adjust stakeholder activities to the requirements of the Directive.

³² as defined in the Better Regulation Toolbox: Tool #56 Typology of costs and benefits

- **Administrative costs:** costs borne as a result of administrative activities performed to comply with administrative obligations included in legal rules.
- **Enforcement costs:** costs of activities linked to the implementation of an initiative such as monitoring, verification and prosecution.

Figure 16 below summarises these costs.

Figure 16. Summary of costs of the Ship-Source Pollution Directive

Cost categories	Who	Elaboration	Costs
Adjustment costs	EMSA	Resources required for EU training and knowledge sharing activities	EUR 200,000 annually
		Costs of operating CleanSeaNet and sharing alerts with Member States	EUR 5.17 million annually
Administrative costs	Member State maritime authorities	Administrative costs related to reporting on the Directive application (Article 12)	EUR 70,048 annually
Enforcement costs	Member State maritime authorities	Costs related to Member States logging feedback data on CleanSeaNet alerts	EUR 105,470 annually
		Costs related to information exchange procedures – Member States uploading pollution incident reports (POLREPs) in SafeSeaNet and THETIS inspection requests	EUR 13,000 annually
	Member State maritime authorities for national surveillance/ coast guard / port state authorities*	Costs for national aerial surveillance and other national pollution surveillance activities (patrol boats)	N/A*
		Resources devoted to ship inspections at ports	N/A*
		Costs of analysing and transmitting the collected evidence to the prosecutor	N/A*
		Costs related to prosecution	N/A*

Source: Ricardo (2023) Evaluation support study.

* The assumption for the purpose of the efficiency analysis is that costs of national verification and prosecution are not attributed to the Directive. The justification for this assumption is: 1) these costs existed before the adoption of the Directive, 2) to focus the evaluation on the added value of the Directive and 3) in order not to create a duplication with costs occurring for Member States as parties to MARPOL. For reference, Member States' annual verification costs are estimated at around EUR 10 million. Ship inspection annual costs by Member States are estimated at around EUR 4.5 million³³.

The initiative did not impose administrative burden on citizens. For businesses (ship owners and operators), the administrative burden remained the same since it concerns the enforcement of existing rules set out at international level (by the MARPOL Convention) and the obligations of parties in this respect.

The implementation of the SSP Directive represents extra workload for the Member States. However, the costs for authorities and the level of administrative burden arising from the

³³ Cowi (2023) Impact assessment support study concerning possible revision of Directive 2009/16/EC on port State Control

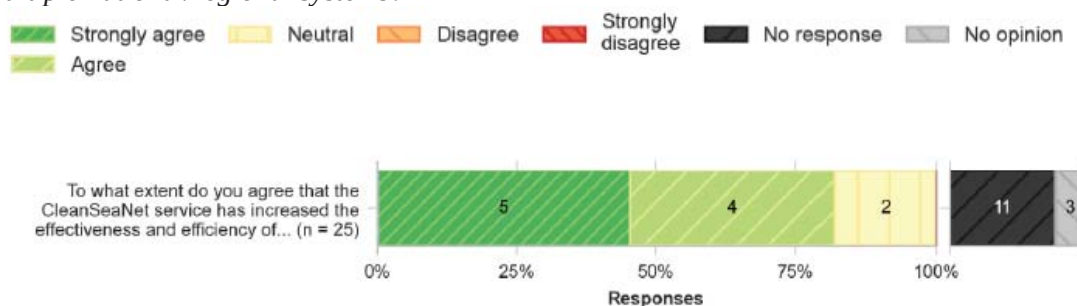
Directive are rather limited and appear to be justified by the benefits yielded in improved information exchange and cooperation between Member States. Eight Member State authorities (out of 14 interviewed) indicated that no change associated with costs have been observed. There has been no evidence of significant inefficiencies found in this evaluation.

The delivery of the CleanSeaNet service performed by EMSA is the main cost of the Directive. It would however be difficult to deliver the same results with lower costs of satellite surveillance services. Estimates show that market prices for similar satellite images can be between 2.7 and 7 times³⁴ more expensive than what EMSA is paying for them, considering:

- economies of scale - procurement of a system with common technical specifications for all EU Member States is less costly as EMSA, acting on behalf of the EU, has a strong negotiating power with commercial providers and the total cost of managing the service at EU level is lower than for national operators;
- no additional costs for the exchange of information between national databases to adapt to the transboundary nature of pollution monitoring;
- sharing of satellite imaging with all Member States via one system reduces the number of images needed and avoids duplications, therefore reduces costs.

Nine survey respondents (out of 11 as shown in Figure 17) have indicated efficiency gains in surveillance activities through the information obtained from the CleanSeaNet service and the use of the other EMSA information tools.

Figure 17. Targeted survey answer to question: To what extent do you agree that the CleanSeaNet service has increased effectiveness and efficiency of oil spill monitoring compared to the use of multiple national/regional systems?

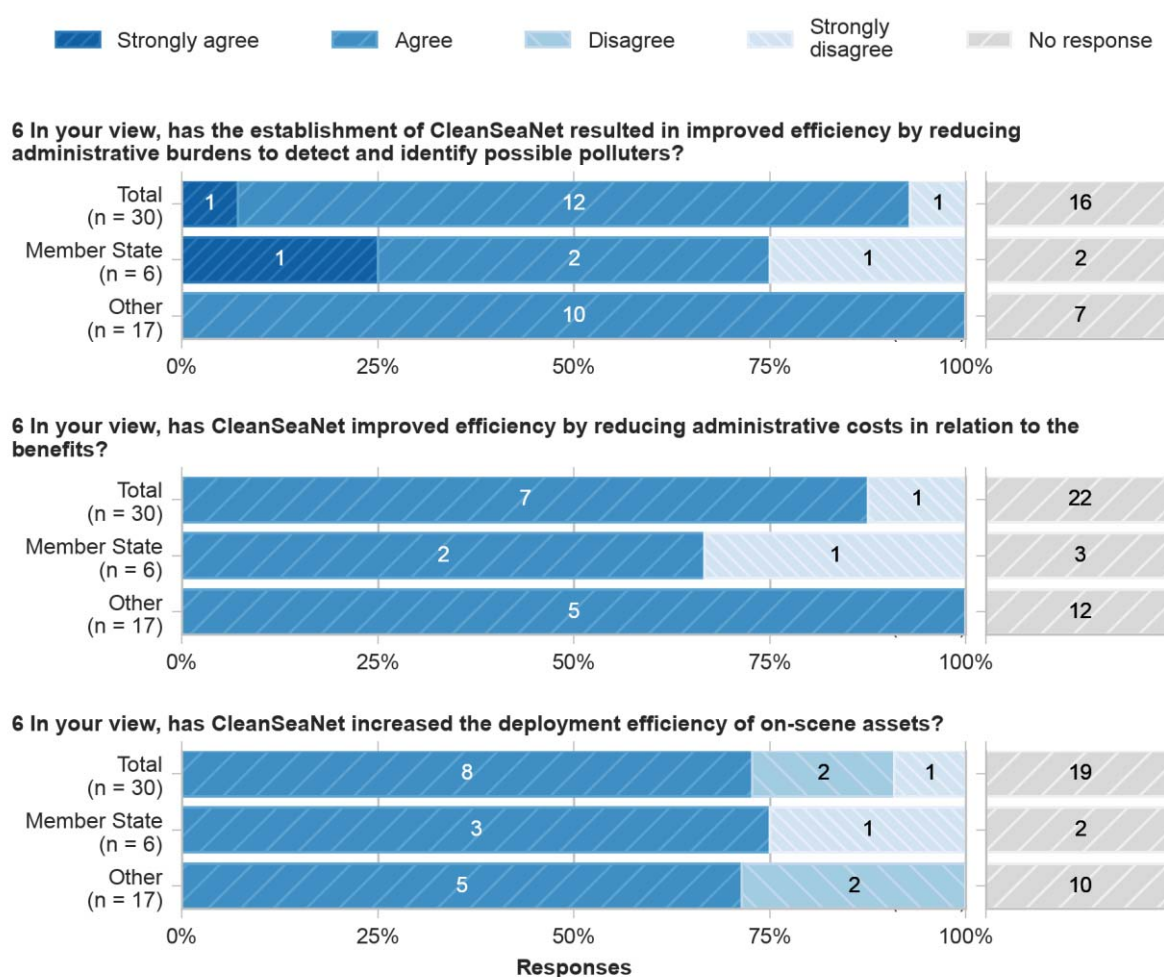


Source: Ricardo (2023) Evaluation support study, based on the evaluation targeted survey.

Ten Member State authorities interviewed (out of 14) agreed that CleanSeaNet has increased the efficiency of the process. Moreover, 13 out of the 30 respondents who in the public consultation answered this question, viewed CleanSeaNet as an efficient tool (most remaining respondents, including all industry representatives responded 'I don't know') as shown in Figure 18.

³⁴ See answer to question EQ10 in Annex III for calculations of the range between 2.7 and 7 times more expensive images without CleanSeaNet

Figure 18. Open public consultation on CleanSeaNet



Source: Ricardo (2023) Evaluation support study, based on open public consultation results

Based on input from Member States in the interviews, resources saved are however reported to be redirected to more targeted surveillance and enforcement activities, leading thus to increased benefits rather than reduced costs.

Benefits

The benefits of the Directive include an indirect impact on the improvement in marine environment protection from ship-source pollution as shown in Figure 19. This is achieved thanks to the deterrent effect of the penalties imposed and the surveillance activities which lead to enhanced detection of possible pollution incidents.

Figure 19. Summary of benefits of the Ship-Source Pollution Directive

Benefit categories	Stakeholders affected	Impact	Benefit
Environmental benefits	Society	Potential decrease in the volume and number of illegal discharges of MARPOL Annex I substances from	Not quantified

Benefit categories	Stakeholders affected	Impact	Benefit
		ships in European seas Potential decrease in the volume and number of illegal discharges of MARPOL Annex II substances from ships in European seas	
Social benefits (health & maritime safety, public health)	Society	- Unclear effect on the number of accidents and incidents with discharges of MARPOL Annex I and II substances - Potential indirect impact on the reduction of beach/ bathing site pollution by MARPOL Annex I and II substances - Potential indirect health benefits as a result of reduced pollution into the sea e.g. the consumption of fish products from European seas, quality of bathing sites	Not quantified

Source: Ricardo (2022) Evaluation support study

The benefits could not be quantified due to the lack of data on the extent to which the Directive provided for the dissuasive effect which in turn prevented ship-source pollution. With the lack of data on the proportion of identified pollution incidents of Annex I and II type subject to penalties and lack of data on the level of illegal discharges, the benefits were evaluated qualitatively.

An example of a potential, indirect benefit might be increased bathing water quality in the EU with an increase of bathing sites classified as excellent quality³⁵. It is, however, not possible to estimate the impact of the Directive to this improvement due to the complex dynamics of pollutants and the various other existing sources of pollution.

In the absence of statistical data, the evaluation relies on consultation responses. Member States that took part in the interviews indicated that the Directive has prompted a reduction in the number of incidents of illegal discharges of substances regulated by MARPOL (11 out of 16 respondents interviewed). This confirms the qualitative conclusion that the Directive brought environmental benefits.

Conclusion on efficiency. The data on costs is scarce and no quantitative information on benefits is available. The benefits seem to outweigh the costs of the Directive, although they could not be quantified and thus the uncertainty associated to them is acknowledged. The EMSA tools proved to be efficient and beneficial for Member States in the context of achieving the objectives of the Directive. Increased satellite surveillance contributes to enhanced illegal discharge detection and indirectly to the prevention of ship-source pollution of the marine environment.

Coherence with EU pollution prevention legislation

³⁵ EEA reports for the Bathing Water Directive 2006/7/EC
<https://www.eea.europa.eu/themes/water/interactive/bathing/state-of-bathing-waters>

As concerns **coherence**, the Directive is internally coherent and, in principle, coherent with other pieces of EU pollution prevention legislation.³⁶ A number of directives relate to prevention of ship-source pollution at seas. The details are presented in Annex III and an overview in Figure 20 **Error! Reference source not found..**

Figure 20. The framework of the existing legislation and initiatives relevant to ship-source pollution

WHO?		WHAT?	
International Maritime Organisation (IMO)		United Nations Convention on the Law of the Sea (UNCLOS)	
		Convention for the Prevention of Pollution from Ships (MARPOL)	
European Union (EU)		Ship-Source Pollution Directive 2005/35/EC (SSP)	
		Port Reception Facilities Directive (EU) 2019/883 (PRF)	
		Port State Control Directive 2009/16/EC	
		Vessel Traffic Monitoring and Information System Directive 2002/59/EC (VTMIS)	
		Sulphur Directive (EU) 2016/802	
		Environmental Crime Directive 2008/99/EC (ECD)	
		Marine Strategy Framework Directive 2008/56/EC (MSFD)	
Regional Sea Conventions		OSPAR Convention	
		Bonn Agreement	
		Helsinki Convention - HELCOM	
		Barcelona Convention – REMPEC	
		Lisbon Agreement	
		Bucharest Convention	
Other initiatives of the transport sector and non-governmental organisations (NGOs)		Extended Producer Responsibility	
		Clean-up and monitoring initiatives	
		Awareness raising campaigns	

- The SSP Directive is linked with the **Marine Strategy Framework Directive**³⁷ (MSFD) as it facilitates reaching the objective of Good Environmental Status of EU Marine Waters which is measured by descriptors. Ship-source pollution links to the descriptor 8 on contaminants. The MSFD is the main European legal instrument for protecting and conserving the marine environment and ecosystems. The MSFD enshrines in its rules the ecosystem approach to the management of human activities having an impact on the marine environment, integrating the concepts of environmental protection and sustainable use. Discharge of polluting substances from ships is one of the sources of pollution to the marine environment and there is a need to prevent it. The SSP Directive contributes to reaching the objectives of the MSFD by introducing dissuasive penalties for illegal discharge of polluting substances to sea.

³⁶ See answer to question EQ13 in Annex III

³⁷ Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (OJ L 164 25.6.2008, p. 19)

- The SSP Directive works in synergy with the **Directive on Port Reception Facilities**³⁸ (PRF) for the delivery of waste from ships. Port reception facilities cannot work properly without a good instrument to discourage illegal discharge. When the PRF directive was revised in 2019 with stronger rules and higher monitoring of ships' waste delivery at ports, there was a call by the co-legislators to review the SSP Directive³⁹, which underlines the need for the extension of the SSP Directive's scope. In other words, an incoherence has been identified between the SSP Directive and the PRF Directive. The PRF Directive covers MARPOL Annex I-II and IV-VI waste and cannot be fully effective in the case that the SSP Directive covers only MARPOL Annex I-II, consequently an incoherence has been identified.
- The **Environmental Crime Directive**⁴⁰ (ECD), aims to protect the environment through criminal law and appropriate sanctioning providing for harmonisation of environmental offences in the case when Member States impose criminal sanctions. The ECD ensures that serious offences for pollution are addressed in a coherent way. The proposed new ECD will include for the first time in its scope ship-source pollution (i.e. it will cover those offences of ships that lead to the deterioration of the quality of water) and therefore coherence between the two is key. The SSP Directive will still remain relevant because it will cover administrative penalties for those offences that do not lead to the serious case of the deterioration of the quality of water and it will continue to provide the sectorial provisions on MARPOL. In parallel, criminal law enforcement and criminal penalties will apply through the ECD to most serious cases of ship-source pollution. For enforcement to be effective, the administrative and criminal enforcement regimes must be seen as interlinked parts of one system, which would consequently result in proportionate and dissuasive criminal and administrative penalties. The ECD and the SSP Directive would therefore be complementary. In other words, an incoherence has been identified between the SSP Directive and the new ECD Directive because the criminal provisions in the SSP Directive cease to be applicable and must be removed from the legal text.
- The **Environmental Liability Directive**⁴¹ (ELD) is not relevant for items covered under the SSP Directive. The ELD covers obligations to prevent ex ante or remedy environmental damage caused, whereas the SSP Directive deals with ex post imposition of penalties to the person responsible for an illegal discharge. The SSP Directive does not deal with environmental compensation costs. The ELD does not deal with penalisation of behaviour. As such, the two instruments work separately from each other.
- The **Port State Control Directive**⁴² (PSC) sets out common criteria for control of ships by the port State. The EMSA database for recording inspections (THETIS) is based on this directive. Ships that are suspected of safety or pollution infringement can be inspected

³⁸ Directive (EU) 2019/883 of the European Parliament and of the Council of 17 April 2019 on port reception facilities for the delivery of waste from ships, amending Directive 2010/65/EU and repealing Directive 2000/59/EC (OJ L 151, 7.6.2019, p. 116–142)

³⁹ Recital 13 of the PRF Directive: *"In order to align Directive 2005/35/EC of the European Parliament and of the Council to the relevant MARPOL Convention provisions on discharge norms, the Commission should assess the desirability of a review of that Directive, in particular through an extension of its scope."*

⁴⁰ Directive 2008/99/EC of the European Parliament and of the Council of 19 November 2008 on the protection of the environment through criminal law (OJ L 328, 6.12.2008, p. 28–37)

⁴¹ Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage

⁴² Directive 2009/16/EC of the European Parliament and of the Council of 23 April 2009 on port State control (OJ L 131 28.5.2009, p. 57)

based on the rules set in the PSC Directive. Therefore, the PSC Directive is a necessary element for the SSP Directive to be effective and for the inspections in ports to take place.

- The **Flag State Control Directive**⁴³ provides rules for ship inspections and fleet oversight for Union flag State administrations which is relevant for preventing pollution of the marine environment in and outside of the Union. When stronger environmental rules become effective under the international conventions, the flag State responsibility to enforce them is automatically extended.
- The **Accident Investigation Directive**⁴⁴ provides rules on procedures to follow when investigating an accident of a vessel. With reference to maritime accidents, they do not only cause casualties and economic losses but can have a direct impact on the environment e.g. oil pollution hence link to the SSP Directive because such pollution is addressed through the SSP Directive.
- The **Vessel Traffic Monitoring and Information System Directive**⁴⁵'s (VTMIS) purpose was to establish SafeSeaNet, the vessel traffic monitoring and information system with a view of enhancing the safety of maritime traffic and to contribute to a better prevention and detection of pollution by ships. Information from SafeSeaNet feeds into CleanSeaNet and therefore, the VTMIS Directive is a necessary element for the SSP Directive to work properly and for potential polluters to be identified effectively.
- The **Whistleblowing Directive**⁴⁶ lays down standards for reporting channels and the protection of persons reporting the breaches of Union law, including breaches on protection of the environment. There are synergies with the SSP Directive as whistle-blowers can be a relevant source of information on ship-source pollution.

With respect to the international regime, the scope of the SSP Directive relating to the groups of polluting substances covered is narrower than the scope of the MARPOL Convention. In other words, an incoherence has been identified between the SSP Directive and the MARPOL Convention in the evaluation. The SSP Directive covers only two out of six MARPOL Annexes.

Conclusion on coherence. No major inconsistencies have been identified between the Directive and other interventions in place at EU level, however there is a need to update the Directive, in particular due to the revision of the Port Reception Facilities Directive, in the context of the extended scope of the directive (to add the remaining MARPOL Annexes) and due to the revision of the Environmental Crime Directive in the context of removing criminal penalties. As for coherence with the international regime, a Directive covering all MARPOL

⁴³ Directive 2009/21/EC of the European Parliament and of the Council of 23 April 2009 on compliance with flag State requirements (OJ L 131, 28.5.2009, p. 132–135)

⁴⁴ Directive 2009/18/EC of the European Parliament and of the Council of 23 April 2009 establishing the fundamental principles governing the investigation of accidents in the maritime transport sector and amending Council Directive 1999/35/EC and Directive 2002/59/EC of the European Parliament and of the Council (OJ L 131, 28.5.2009, p. 114–127)

⁴⁵ Directive 2002/59/EC of the European Parliament and of the Council of 27 June 2002 establishing a Community vessel traffic monitoring and information system and repealing Council Directive 93/75/EEC (OJ L 208 5.8.2002, p. 10)

⁴⁶ Directive (EU) 2019/1937 of the European Parliament and of the Council of 23 October 2019 on the protection of persons who report breaches of Union law

Annexes would have been a better fit to meet the international objectives and expand the enforcement regime at EU level to penalise illicit conducts other than those covered under Annexes I and II of MARPOL. Such approach would be coherent with the objectives of the wider policy framework as reflected in the European Green Deal.

4.2. How did the EU intervention make a difference?

The key findings presented in this section are based on the detailed analysis of criterion “EU added value” documented in Annex III. Although international standards are in place, there are not enough mechanisms to enforce the MARPOL Convention. MARPOL outlines the rules to follow but enforcement responsibilities and the development of tools for dealing with non-complying ships is left to the IMO parties. If masters or ship-owners choose to ignore MARPOL provisions, the international community as such has few enforcement measures and heavily relies on national or regional enforcement. Hence, there is a need for the EU intervention. All respondents to the public consultation (22 respondents) agreed that EU action is important to have a framework for effective cross-border cooperation with regard to ship-source pollution. The serious data limitations of the evaluative work did not allow to quantify the added value of the SSP Directive because the data on the number of infringements and penalties imposed for ship-source pollution is limited.

The shipping industry questions the added-value of the Directive, given that the MARPOL Convention has already been ratified by all Member States. They raise concerns about the possibility to apply criminal offences to ships (e.g. criminal prosecution for accidental pollution caused by natural persons with serious negligence). In their opinion, it is sufficient that illegal discharges are subject to MARPOL rules. To analyse this stakeholder opinion, we searched for evidence concerning criminalisation and did not identify any case of unfair treatment of seafarers due to the implementation of the SSP Directive.

The SSP Directive was the political priority in the wake of the Erika and Prestige accidents. Such accidents and black lumps of oil, often washed up on beaches in the 1980s, are rarely seen in Europe since the adoption of the Directive. Therefore, the Directive has contributed to the improved situation to some extent.

In principle, Member States would be able to achieve the objective of incorporating the international standards for ships on their own because all of them have ratified the MARPOL Convention. However, the Directive offers more than MARPOL standards by (i) setting an EU liability regime to facilitate penalising the polluters and (ii) supporting the Member States in identifying the offenders through supplying information on possible spills (CleanSeaNet satellite surveillance). It also (iii) established EU competence in criminal matters for ship-source pollution as international law does not specify the type of penalties to be applied (UNCLOS Art 230).

For the purpose of this report the ‘EU liability regime’ relates to persons (natural or legal) being held accountable for an illegal discharge - for example, the company or master of the ship is responsible for an illegal discharge, if committed carelessly or with intention to cause damage, subject to the exceptions from liability provided by MARPOL. The Directive made a difference because it made it easier to prosecute an identified polluter in the EU.

CleanSeaNet made a difference because satellite surveillance capabilities would not have developed to the same extent without it. There would have most likely been more expensive versions of satellite surveillance in some Member States or regions and no satellite surveillance in other Member States, leading to discrepancies and enforcement gaps in the

EU. Moreover, cooperation between Member States would be more difficult without the common legal framework and systems offered by EMSA, facilitating the effective exchange and common visualisation of data. The EU law allows to create such entities and systems (SafeSeaNet, CleanSeaNet and THETIS). In particular, benefits are present for those Member States that have less surveillance tools for pollution prevention as well as weaker enforcement responses.

The opinions gathered during the open public consultation suggest some added value of the Directive: 9 respondents (out of 19) are of the opinion that, to some extent, compliance with MARPOL in the EU is higher thanks to the Directive; 7 respondents (out of 13) are of the opinion that, to some extent, cross-border cooperation in their country is higher thanks to the Directive.

Conclusion on EU added-value. The Directive, as an EU-level intervention, brought benefits, which would have not been possible at national or international level alone. The Directive was more efficient and effective in addressing ship-source pollution than MARPOL requirements and its implementing measures alone. The Directive offers added value by the additional elements to support the prevention of ship-source pollution. Specifically, the Directive clarified the regime for pollution penalties (i.e. EU liability regime) and introduced a common tool to all Member States to inform on possible spills (CleanSeaNet). The difference the SSP Directive made is minimising both the discrepancies in the EU as well as the enforcement gap for the implementation of the MARPOL Convention.

4.3. Is the intervention still relevant?

The findings presented in this section are based on the analysis of criterion “relevance” documented in Annex III (Evaluation matrix and answers to the evaluation questions). The consideration of the needs identified at the time of the adoption of the Directive and the assessment of its objectives has revealed that the problems still exist and the objectives of the Directive are still relevant. The objective of ensuring that persons responsible for discharges of polluting substances to the sea are subject to adequate penalties is still relevant. The consulted stakeholders agreed that the need for improved maritime transport safety and ship-source pollution prevention is still relevant, supported by 24 (out of 31) stakeholders interviewed and 23 (out of 25) responses to the survey. The Directive provides more consistency in the regulatory framework across Member States and the enforceable application of international standards in a more uniform and harmonised way.

As shown in section 4.1, the SSP Directive has achieved its intended objectives to a limited extent. The Directive has not achieved the anticipated outcome when it comes to the prosecution of offenders. Ships illegally discharging polluting substances to the sea still rarely face effective and dissuasive penalties. This conclusion has been made based on weak evidence mostly relying on stakeholder views obtained during the consultation exercise for this evaluation as well as scarce data reported by Member States to the Commission on the number of prosecutions.

This conclusion can be also supported to a certain extent by modelling results on waste delivered by ships to Port Reception Facilities. Regarding volumes of Annex I discharges, around 31,000 m³ of oily waste (2.5% of the total for oily waste from ships) was likely

illegally discharged in EU waters over 2011-2015 period.⁴⁷ Regarding volumes of Annex II discharges, the quantities of substances transported and spilled are not available. Reported data shows that hazardous and noxious substance spills happen in European seas (e.g. HELCOM data of 2017⁴⁸; OSPAR data of 2020⁴⁹; REMPEC data of 2021⁵⁰) but there is little overview on the extent and frequency of those spills at sea.

Moreover, there is a range of substances discharged by ships and not covered by the SSP Directive, which impact the Directive's relevance. These were discussed in the analysis of coherence (section 4.1) and include the remaining MARPOL Annexes for polluting substances discharged into sea as shown in Figure 21.

Figure 21. List of MARPOL Annexes

Annex	Substance	Entry into force	Within the scope of SSP Directive?
Annex I	Oil	1983	Y
Annex II	noxious liquid substances (HNS) in bulk	1983	Y
Annex III	harmful substances carried by sea in packaged form	1992	N
Annex IV	sewage from ships	2003	N
Annex V	garbage from ships	1988	N
Annex VI	air pollution from ships	2010	N

Source: [IMO](#).

The relevant substances which are currently not covered by the Directive are:

- Annex III for harmful substances carried by sea in package form,
- Annex IV for sewage,
- Annex V for garbage and
- Annex VI discharge water from scrubbers to the sea.

Annex IV-VI substances have been identified as a rising concern in recent years. Figure 22 gives insight on the amounts of polluting substances associated with the shipping sector per group by showing how much is collected in Port Reception Facilities in the EU. The percentages in the figure show that the SSP Directive already covers the largest stream of

⁴⁷ This was estimated by calculating the gap between the level of oily waste delivered to EU Port Reception Facilities and the expectation for the generation of oil by ships (i.e. the gap between ships' delivered and expected volumes of oily waste). Based on the analysis of the volumes delivered to the port reception facilities of 29 EU ports carried out in the Port Reception Facilities Directive Impact Assessment support study by Ecorys (2017).

⁴⁸ HELCOM (2017) Annual report on discharges observed during aerial surveillance in the Baltic Sea

⁴⁹ OSPAR (2020) Assessment of the OSPAR Report on Discharges, Spills and Emissions from Offshore Installations 2009 – 2018

⁵⁰ REMPEC (2021) Study on trends and outlook on marine pollution, maritime traffic and offshore activities in the Mediterranean. REMPEC/WG.51/INF.3

polluting substances/waste (i.e. Annex I), however, the remaining types of waste (e.g. Annex V) are generated by ships in considerable amounts.

Figure 22. Types of waste collected in the EU port reception facilities in 2019

Waste	Oil (Annex I)	Noxious liquid in bulk (Annex II)	Substances in packages (Annex III)	Sewage (Annex IV)	Garbage (Annex V)	Discharge water from closed-loop scrubbers (Annex VI)
Amount [tonnes]	1,470,322	62,245	570	88,563	279,748	4,096
Percentage of total	77%	3.2%	0.3%	4.6%	14.7%	0.2%

Source: Reported by Euroshore members in 2021 and presented in EMSA and EEA report [EMTER](#) (2021)

The Directive is largely in line with the increasing prioritisation by EU citizens of protection of marine environment. The stakeholders consulted during the public and targeted consultations were generally in favour of broadening the scope of the Directive. In addition, 26 respondents (out of 51) in a stakeholder workshop organised on 22 September 2022 voted for the extension of the scope to cover Annex I-VI discharges into sea. In the public consultation, 23 (out of 28) respondents saw the need to expand the list of pollutants covered by the Directive (including 4 Member State authorities, 8 citizens, 7 NGOs, 2 academia and 2 industry stakeholder), while 5 respondents (all but one representing maritime industry) disagreed. The lack of Annex VI air emissions in the Directive has not been raised in any intervention at the stakeholder workshop organised as part of this evaluation. In contrast, one NGO emphasised in their position paper that discharge water from scrubbers is the major concern related to MARPOL Annex VI.

Conclusion on relevance. The overall problem addressed by the Directive and related objectives are still adequate. In addition, the policy context has evolved and adjustments are needed to adapt to the more ambitious agenda on pollution prevention. The substances covered by MARPOL Annex III-VI discharged into the sea are harmful to the environment and need attention as to deliver on EU policy objectives. The objective of the EU citizens and Member States “to combat [...] ocean pollution, including through [...] promoting of environmentally friendly shipping by using best available technologies [...]” has been underlined in the outcomes of the Conference on the Future of Europe. The needs and objectives of the wider policy framework and the EU goal towards zero pollution, as reflected in the European Green Deal must be considered in this context.

5. WHAT ARE THE CONCLUSIONS AND LESSONS LEARNED?

5.1. Conclusions

The Commission has carried out an evaluation of the SSP Directive and has at the same time launched the impact assessment. The evaluation acknowledges that the data available was not sufficiently robust to make a complete ex-post assessment. It also acknowledges that the availability and quality of data was a challenge affecting, in particular, the assessment of the effectiveness and efficiency criteria. Stakeholders were also not very responsive to the various consultation activities. However, despite these limitations, the evaluation is a

comprehensive snapshot of the existing information and provides a consistent analysis of the implementation of the Directive.

The evaluation identified a number of issues as problematic:

- The current scope of the SPP Directive (i.e. MARPOL Annex I-II) does not cover all relevant polluting substances of the international regime e.g. garbage (Annex V) or sewage (Annex IV). The SSP Directive's scope is also not coherent with the scope of its sister directive - the Port Reception Facilities Directive.
- Member States do not always make use of the available EU tools (CleanSeaNet, SafeSeaNet, THETIS, THETIS EU) when carrying out their duties of verifying the pollution. They do not always use the information supplied by the digital tools or do not record their results in these tools. Information exchange between Member States is therefore incomplete.
- There is an unbalanced dissuasive effect of the penalties currently applied across the EU for ship-source pollution and the Directive's provisions on criminal penalties have become obsolete (due to the new Environmental Crime Directive).
- The reporting requirements are too general to allow for the collection of robust data on the implementation of the SSP Directive and to allow sharing them with a wider audience. The reporting provision is not adapted to the possibilities offered by digitalisation.

Figure 23 provides a summary of the conclusions per evaluation criterion.

Figure 23. Conclusions of the ex-post evaluation per criterion

Effectiveness	The success of the Directive in achieving its intended objectives has been limited. Although it incorporated international rules for ship-source pollution into EU law and Member States prosecute SSP offenders, there is limited data to show how effective the system is. The Directive resulted in the implementation of a successful tool for satellite surveillance (CleanSeaNet). This however does not solve the problem entirely because satellite surveillance accuracy is limited (to around 40%). Some aspects relating to verification could have been managed more effectively e.g. Member States could have been logging more feedback data in CleanSeaNet. The Directive has not achieved the anticipated outcome to its full when it comes to the prosecution of offenders
Efficiency	The data on costs is scarce and no quantitative information on benefits is available. The benefits seem to outweigh the costs of the Directive, although they could not be quantified and thus the uncertainty associated to them is acknowledged. The EMSA tools proved to be efficient and beneficial for Member States in the context of achieving the objectives of the Directive. Increased satellite surveillance contributes to enhanced illegal discharge detection and indirectly to the prevention of ship-source pollution of the marine environment.
Coherence	No major inconsistencies have been identified between the Directive and other interventions in place at EU level, however there is a need to update the Directive, in particular due to the revision of the Port Reception Facilities Directive, in the context of the extended scope of the directive (to add the remaining MARPOL Annexes) and due to the revision of the Environmental Crime Directive in the context of removing criminal penalties. As for coherence with the international regime, a Directive covering all MARPOL Annexes would have been a better fit to meet the international objectives and expand the enforcement regime at EU level to penalise illicit conducts other than those covered under Annexes I and II of MARPOL. Such approach would be coherent with the objectives of the wider policy framework as reflected in the European Green Deal.
EU-added value	The Directive, as an EU-level intervention, brought benefits, which would have not been possible at national or international level alone. The Directive was more efficient and effective in addressing ship-source pollution than MARPOL requirements and its implementing measures alone. The Directive offers added value by the additional elements to support the prevention of ship-source pollution. Specifically, the Directive introduced the regime for

	pollution penalties (i.e. EU liability regime) and introduced a common tool to all Member States to inform on possible spills (CleanSeaNet). The difference the SSP Directive made is minimising both the discrepancies in the EU as well as the enforcement gap for the implementation of the MARPOL Convention.
Relevance	The overall problem addressed by the Directive and related objectives are still adequate. In addition, the policy context has evolved and adjustments are needed to adapt to the more ambitious agenda on pollution prevention. The substances covered by MARPOL Annex III-VI discharged into the sea are harmful to the environment and need attention as to deliver on EU policy objectives. The objective of the EU citizens and Member States “ <i>to combat [...] ocean pollution, including through [...] promoting of environmentally friendly shipping by using best available technologies [...]</i> ” has been underlined in the outcomes of the Conference on the Future of Europe. The needs and objectives of the wider policy framework and the EU goal towards zero pollution, as reflected in the European Green Deal must be considered in this context.

This first evaluation of the SSP Directive indicates that the same problem still exists in the EU. Ships illegally discharging polluting substances to the sea rarely face penalties. There is therefore the same need (as before the adoption of the Directive) to prevent illegal discharges of polluting substances from ships. Shipping is an international sector, operating in national, EU and international waters and regulated at the international as well as regional and national instances. Therefore, it has by nature a strong cross-border dimension. Further EU action could bring more cooperation between Member States on incidents of ship-source pollution as well as more modern digital solutions to support the detection of the pollution. Consequently, there could be more information at EU level to share with the public and policy makers as well as for the next evaluation of the SSP Directive.

5.2. Lessons learned

The key lessons learned of this evaluation support the need for strengthening of the policy framework at EU level by:

- Strengthening the common approach towards **penalising** the polluter for ship-source pollution;
- Accurate and timely support to the Member States by means of platforms for cooperation, digital tools and by providing reliable information on the **detection** of possible pollution - all for the purpose to support the **verification** by Member States and their identification of the offender;
- The **continuous improvement** in collection and exchange of data to inform the public, assess the effectiveness of this Directive and ultimately encourage ships to deliver waste to Port Reception Facilities and discourage ships from discharging pollutants to European seas.

ANNEX I: PROCEDURAL INFORMATION

Lead DG, Decide Planning/CWP references

The lead DG is Directorate General for Mobility and Transport (MOVE), Unit D2: Maritime Safety

DECIDE reference number: PLAN/2019/5432

This initiative was announced under item Action 14 in Action Plan to the Sustainable and Smart Mobility Strategy.

Organisation and timing

The impact assessment and the ex-post evaluation of the Ship-Source Pollution Directive were performed in a back-to-back manner (i.e. the evaluation and impact assessment have been launched at the same time) in 2021-2022.

The impact assessment and evaluation started in 2021, with a combined evaluation roadmap/inception impact assessment published on 19 May 2021⁵¹.

The impact assessment on a possible review of the Ship-Source Pollution Directive and the ex-post evaluation were coordinated by an Inter-Service Steering Group (ISG). The Commission Services participating in the ISG were: Secretariat-General, Legal Service, DG Environment, DG Climate Action, DG for Justice and Consumers, DG Maritime Affairs and Fisheries, DG for European Civil Protection and Humanitarian Aid Operations, the European External Action Service and the European Maritime Safety Agency (EMSA).

The Inter-Service Steering Group met 6 times: on 12 March 2021, 10 November 2021, 29 April 2022 and 21 June 2022, 14 September 2022 and 27 October 2022. It was consulted throughout the different steps of the evaluation and impact assessment process: notably on stakeholder consultation questionnaire and deliverables and on the draft Staff Working Documents. When necessary bilateral discussions were organised with the concerned services.

The revised draft Staff Working Documents, following the first opinion of the RSB, were consulted with the group during 17-28 February 2023 and comments from DG ENV and EMSA were received and taken into consideration when possible.

Consultation of the RSB

The draft impact assessment and evaluation reports were submitted to the RSB on 3 November 2022. They were discussed by the Board on 30 November 2022. Following a negative opinion of the RSB on 1 December 2022, a revised version of the two reports was submitted to the Board on 3 March 2023, followed by a positive opinion (with reservations) on 27 March 2023.

⁵¹ European Commission (2021) [Combined Evaluation Roadmap/Inception Impact Assessment. Revision of the Directive on ship-source pollution](#)

The table below presents an overview of the RSB's comments and how these have been addressed.

RSB Comment – first opinion	How the comment has been addressed
1) The report should draw more on the evaluation findings to: (i) critically discuss how effective the SPP has been in reaching its objectives, (ii) explain what the key problems are, (iii) state which of those this initiative aims to tackle, and (iv) how they interact with each other (e.g. overall problem of ship source pollution versus specific implementation, enforcement and capacity problems). It should provide a clearer idea of the scale of these problems and the underlying problem drivers. On this basis, it should define more precisely its specific objectives, including by explaining upfront what the initiative aims to achieve over and above the MARPOL Convention and by indicating what success would look like. It should then identify the sets of measures that can effectively deliver on the objectives, thereby presenting a clearer intervention logic and overall revised narrative. Being clear on the expected level of ambition and on what success would look like, would help to manage expectations of this initiative.	a) More information on the effectiveness of the Directive, the problem definition and problem drivers has been added in sections 2.1 and 2.2 of the revised report, drawing also on the evaluation report. b) The specific objectives were reworded in section 4.2 (in particular specific objective 2 on supporting the Member States in their enforcement) and the narrative revised accordingly throughout the report. c) The context was reinforced in sections 1, 3.3 and 5.2 by clarifying what the proposal achieves over and above MARPOL (i.e. EU liability regime, satellite surveillance, types and levels of penalties). d) To clarify the expected level of ambition and what success would look like, sections 1, 2.1, 3.3, 4.2 were revised. Success is defined as an increased proportion of illegal discharges from ships subject to penalties.
2) The report should present a credible and dynamic baseline. It should include the effects of existing and upcoming relevant legislation, ongoing technological developments, recent geo-political events and insights from foresight. It should be clear how verification and prosecution costs associated with complying with the MARPOL Convention are reflected in the modelling.	a) Section 5.1 has been revised. It better explains that all possible efforts have been made to build a dynamic baseline. It also further explains how relevant legislation, technology etc. influences the baseline. b) Section 1, 3.2, 5.1 and 5.2 have been improved to better explain that costs of verification and prosecution of the incidents are not considered as costs of the SSP Directive (i.e. there were verification and prosecution costs prior to the adoption of the Directive and costs accounted for in this report do not create a duplication with costs occurring under MARPOL implementation).
3) The report should better explain the	a) Section 5.2 has been improved to better

RSB Comment – first opinion	How the comment has been addressed
rationale behind the option design. It should present alternative sets of measures that can effectively tackle the problems. It should better justify why the policy measure on further data integration and exchanges does not feature in the set of common policy measures. It should clarify whether a slightly different option design would affect outcomes, and if yes, how this has been reflected in the analysis.	explain the design of the three policy options and how the proposed measures can tackle the problem in three ways/ options (national enforcement focus, cooperation focus, EU harmonisation focus). b) The policy measure on the enhanced Integrated Maritime Services is now included in the set of common policy measures. This required adapting the numbering of the policy measures and the estimation of the costs and benefits. The description of policy options in section 5.2 was also revised.
4) The report should reflect the significant data limitations in assessing effectiveness, efficiency and EU added value, both in the evaluation conclusions and in the assessment and comparison of the options.	The evaluation and impact assessment reports were adapted to reflect the significant data limitations in particular, the description of the context in section 1 and 7 as well as in the conclusions of the evaluation.
5) The report should improve the analysis of the environmental impacts. The report should more clearly explain (and quantify to the extent possible) the environmental benefits of all measures. If further quantification is not possible, the report should provide a much more developed qualitative assessment of the environmental benefits, fully informed by the views of different stakeholder groups and independent expert judgement. This revised effectiveness assessment of the options in delivering the environmental benefits should then be reflected in the revised comparison of costs and benefits.	a) A qualitative assessment of the environmental impacts of all policy measures, by policy option, has been added in section 6.3. b) A summary of the views of different stakeholder groups has been added in Annex 2 for all proposed measures and in the main text of the report in footnotes. c) The comparison of costs and benefits in section 7 has been improved based on the above.
6) Options should be compared against the dynamic baseline scenario. The report should include a comparative table that ranks effectiveness, efficiency and coherence for each of policy options. The comparison of options should include the results of any additional analysis of the environmental benefits. Where adequate quantitative estimates are missing, a qualitative scoring should be done.	A comparative table that ranks effectiveness, efficiency, coherence, subsidiarity and proportionality was added in section 8.1. The qualitative assessment of the environmental benefits has also been reflected in the comparison of options.
7) The report should better justify the choice of the preferred option. The current analysis	Section 8.1 has been improved to better explain the choice of the preferred option. By

RSB Comment – first opinion	How the comment has been addressed
shows that the preferred option does not have the best Benefit Cost Ratio. However, the effectiveness and efficiency analysis does not adequately reflect the likely different environmental impact of each option. For the report to conclude on the preferred option, the justification should provide the key elements leading to this conclusion, acknowledge the limitation of the analysis and the fact that the choice of the preferred option is sensitive, even to small changes in policy options' design. In the absence of clear evidence on some proposed measures' effectiveness, in particular with respect to the scale of environmental impacts, the report should demonstrate why the preferred option is expected to deliver the expected positive results.	including the policy measure on the enhanced Integrated Maritime Services in the set of common policy measures, the preferred policy option shows now the best benefit to cost ratio. The environmental impacts have been better reflected in the effectiveness and efficiency assessment. Better justification of the choice in this section is based on the comparative table that ranks effectiveness, efficiency, coherence and subsidiarity/ proportionality. The description of the environmental impacts of each option was improved, by adding an assessment of the impacts by policy measure and by option.
8) Stakeholder and independent expert views and arguments should be presented more prominently and systematically throughout the main report. Notable disagreements between different categories of stakeholders on option design and the impact of some measures should be highlighted. In this regard, Annex II should be structured, summarised and feed into the main report.	More details are provided on stakeholders' views based on the consultation process. There were no notable disagreements between different categories of stakeholders on option design and the proposed measures.

RSB Comment – second opinion	How the comment has been addressed
(1) The report should summarise, upfront, the main problems, and the main aim of the revision in order to frame the overall narrative and intervention logic early in the analysis. It should explain clearly what its level of ambition is so that the effectiveness of the options on delivering on this ambition and tackling the problem can be clearly assessed.	A summary of the problem tackled by the Directive, the aim and the level of ambition of the initiative has been added in section 1 of the revised report. The remaining sections were revised punctually to link with this change.
(2) The discussion on the choice of the preferred option should make clear that this initiative is part of a broader framework of measures aiming to tackle the problem of ship source pollution in EU waters in working together. The report should explain whether the expected contribution of 0.5% reduction of	Section 8.1 has been revised to explain that a number of initiatives address together the problem of ship-source pollution in European waters. The reduction in the level of oil discharges is only indirectly linked to the envisaged ambition of the initiative. Section 6.3 was

RSB Comment – second opinion	How the comment has been addressed
oil waste discharge under the preferred option is in line with the envisaged ambition of the initiative.	revised to better explain this, and the limitations of the quantitative data to estimate the impacts on Annex II-VI pollutants.

Evidence, sources and quality

The impact assessment and evaluation are based on several sources, using both quantitative and qualitative data. This includes:

- Stakeholder consultation activities (see Annex 2);
- External support studies carried out by an independent consortium (lead by Ricardo). The external support studies will be published alongside this report.
- Commission experience in monitoring and implementing the Directive;
- Reports and information sourced by databases managed by EMSA.

The baseline scenario builds on the EU Reference scenario 2020 developed by E3Modelling with the PRIMES-TREMOVE transport model but also reflects the ‘Fit for 55’ package. This report also draws on the activities of the European Sustainable Shipping Forum, Waste from Ships subgroup, a temporary Commission’s expert groups with Member States representation and industry stakeholders, which was established for the purpose of the revision of the Port Reception Facilities and SSP Directives.

Process

This evaluation was performed back-to-back with an impact assessment for the revision of the Ship Source Pollution Directive and was based on a methodology consistent with the Better Regulation Guidelines and Toolbox, with the support of an external study⁵². Further to publication of the combined evaluation roadmap/inception impact assessment⁵³ in May 2021, the Commission launched the process for contracting the external study. The terms of reference provided a draft intervention logic and draft evaluation questions to address the five evaluation criteria: relevance, effectiveness, efficiency, and coherence and European added value, developing the approach proposed in the evaluation roadmap.

This annex describes the methodology applied for the evaluation.

Methodological framework

The external study further developed the initial **intervention logic** following feedback received by the Commission in the inception phase of the study. The final intervention logic diagram (see Figure 4) helps capture the logic of the Directive and the causal chain linking objectives, activities, inputs and expected outcomes. It provides the basis for the development of the evaluation matrix and the specific criteria, indicators and data identified as relevant for each evaluation question.

An **evaluation matrix** (see Annex 3) was developed that sets out the following aspects for each evaluation question:

- Operational sub-questions: These break down the evaluation questions into smaller, measurable aspects.
- Indicators: Identifies the measures/metrics that correspond to each operational sub-question. These may be qualitative or quantitative.
- Evaluation approach and success/judgement criteria: Outlines the methodology used to answer the evaluation questions and form the conclusions. The success criteria indicate how the indicators were used to assess the performance of the Directive positively or negatively. These were used to answer the evaluation questions and form the conclusions.
- Potential data sources: Sources of data and information used to inform the indicators. As far as data was available, information was triangulated from several sources for each indicator aiming to have at least input from two different sources for cross-checking.

⁵² Ricardo (2023), Evaluation support study

⁵³ European Commission (2021) [Combined Evaluation Roadmap/Inception Impact Assessment. Revision of the Directive on ship-source pollution](#)

The evaluation matrix was reviewed several times during the study, taking into account Commission inputs as well as evidence collection activities (desk research, interview programme, survey responses and data requests), to reflect the identification and review of data sources, as well as updated evidence needs and gaps and the improved understanding of the mechanisms and structures leading to better targeted questions.

Following the conclusion of the evidence collection activities (i.e. interview programme, targeted survey, open public consultation, case studies and desk research) and the analysis of the findings the intervention logic was updated. Further, the evaluation matrix was expanded to produce a final version of the matrix integrating with the updated understanding of evidence sources and gaps. These was used to inform the selection success criteria and indicators used for each evaluation question.

Evidence collection

Desk research was used throughout the course of the evaluation to address the following objectives:

- Identify and collect qualitative and quantitative evidence to support the analysis of the evaluation questions.
- Identify any information gaps and propose how to manage these gaps through targeted consultation activities.
- Identify and collect data used as input to the evidence analysis, and for the other indicators identified in the evaluation matrix that are used to support the analysis.

The **field research** has been structured within the context of a stakeholder consultation strategy, which relies on a combination of stakeholder engagement tools, including targeted surveys and interviews, direct information requests and an analysis of other Commission-led consultation activities (Open Public Consultation - OPC). The approach to the targeted surveys and interviews was refined following the undertaking of exploratory interviews which took place during the inception phase of the evaluation. More details on the stakeholders' consultation are provided in Annex V.

Evidence analysis

The data collected was analysed with the aim to respond to the evaluation questions, using with the following approach.

Description of the implementation of the Directive

The evaluation study⁵⁴ provides a comprehensive description of the evolution and current status of the implementation of the Directive that allows to assess whether the Directive has been fully and properly implemented as intended or whether there are limitations in its

⁵⁴ Ricardo (2023) Evaluation support study for the Directive 2005/35/EC on ship-source pollution

implementation that can also limit its effectiveness. It provides a reference point for answering the evaluation questions.

Development of the points of comparison for the evaluation

In the absence of an impact assessment on the initial proposal of the Directive – that typically provides the starting point for the development of such points of comparison – the evaluation relies on other sources and inputs from stakeholders (primarily national authorities and regional bodies) to describe what was the situation at the time of the adoption of the Directive in 2005 and at the time of its revision in 2009 and how it should be expected to evolve in the absence of the Directive in terms of:

- Legal framework across Member States in terms of implementation of MARPOL convention including of the procedures adopted for holding those responsible for illegal discharges liable (i.e. the option for criminal charges and for holding legal persons liable), the type and level of penalties applicable (i.e. in the context of the implementation of MARPOL).
- Approach towards surveillance and enforcement (at national, regional and EU level) and cooperation at regional and international level, with the purpose to identify how such activities would have been performed in the absence of the Directive e.g. the satellite surveillance activities via the CSN, and whether alternative satellite-based surveillance solutions might have been adopted at a national or regional (sea basin) level.
- Level (number and volume) of detected spills at sea for the substances covered by MARPOL Annex I and II and effectiveness of enforcement activities in identifying the attributing illegal discharges to specific perpetrators. In developing the points of comparison for this aspect, it was acknowledged that although some datasets are available from global or regional monitoring of spills (such as the aerial surveillance data from specific regional or national sources), these datasets are not covering the whole of the EU and are usually not coherent in the type of spills included. Moreover, such datasets rarely extent to the period before the adoption of the Directive, making it difficult to clearly identify pre-existing trends. Therefore, in concluding on what would have been the expected development for this, it was taken into account not only the quantitative data available, but also the qualitative inputs from the stakeholders.
- Number (share) of administrative penalties and criminal convictions imposed at the time of the adoption of the Directive and expected evolution over time (this relies heavily on the availability of such data by national authorities in sufficient time series and depth and on stakeholders' consultation activities).

The evaluation also takes into consideration the developments in the relevant EU legal framework (based on the findings of the coherence analysis) since the adoption of the Directive as well as in terms of the evolution of level and type marine traffic to develop a combination of qualitative and quantitative elements that provides the relevant points of comparison.

It is not always possible to tell with certainty whether Member States would have taken additional action and how enforcement or the eventual level of discharges would evolve. Thus, a series of assumptions were used also based on feedback from stakeholders (including authorities, regional bodies, environmental NGOs and the maritime sector) to develop the points of comparison.

Analysis of evidence – evaluation questions

The evaluation brought together the evidence collected in the desk and field research, the description of the implementation of the Directive and the development of the points of comparison to develop the answers to the evaluation questions included in the evaluation matrix. It checked that the answers refer back to the intervention logic and the points of comparison, and then summarised the level of confidence of the findings, based on the robustness of available evidence and providing clear identification of where they have stemmed from (e.g. combination of desk research, field research and other evidence analysis) and what assumptions have been made.

ANNEX III. EVALUATION MATRIX AND, WHERE RELEVANT, DETAILS ON ANSWERS TO THE EVALUATION QUESTIONS (BY CRITERION)

3.1 Effectiveness

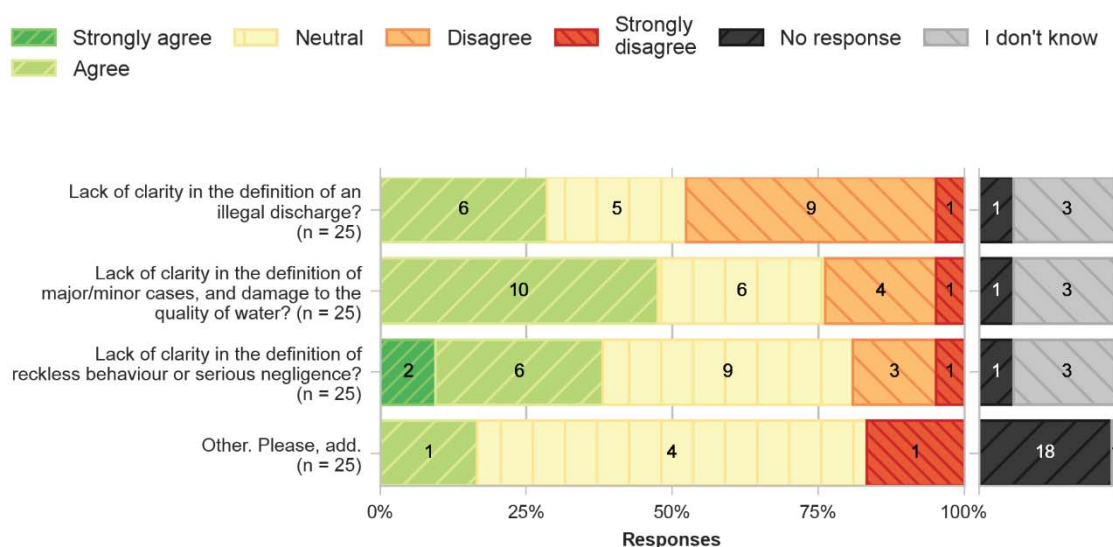
1. What implementation measures have been introduced by Member States in order to ensure the effectiveness of the Directive? Are there any significant differences in implementation measures and effectiveness across the Member States? Is national transposition law sufficiently clear and enforceable to work in practice? (EQ3)

Member States introduced implementation measures in the following key areas:

- a) provisions to ensure that illegal discharges are **treated as infringements** (Articles 4 and 5)
- b) provisions establishing that infringements are **treated as criminal offences** (Articles 5a and 5b)
- c) provisions to ensure that natural and legal persons are held liable and the **penalties** for them are **effective, proportionate and dissuasive** (Article 8, 8a, 8b, and 8c)
- d) **Enforcement** provisions (Articles 6, 7 and 10) including information exchange and cooperation between Member States.

There are many differences in the types and effectiveness of implementation measures across the Member States. However, the national law is seen as sufficiently clear to be enforceable in the Member States (based on prevailing opinion of stakeholders as seen in Figure 24 below) and on the analysis of the Commission when checking the transposition and conformity with the SSP Directive. Measures are perceived to be effective, but the evaluation results show that they are not the same in all Member States.

Figure 24. Stakeholder views on the clarity of the implementation measure on treating illegal discharge as infringements introduced by Member States to comply in the SSP Directive.



There are some differences in the definition of infringement

Infringements covered by the Directive are punishable by penalties but the approach of Member States to defining infringement slightly varies. Member States have put in place part of the provisions to define infringements already prior to the adoption of the Directive to meet MARPOL requirements. Three approaches to establishing the definition of infringements were identified amongst the Member States consulted in targeted evaluation interviews or from other sources of information and are presented in Figure 25.

Figure 25: Different definitions of infringements used by Member States

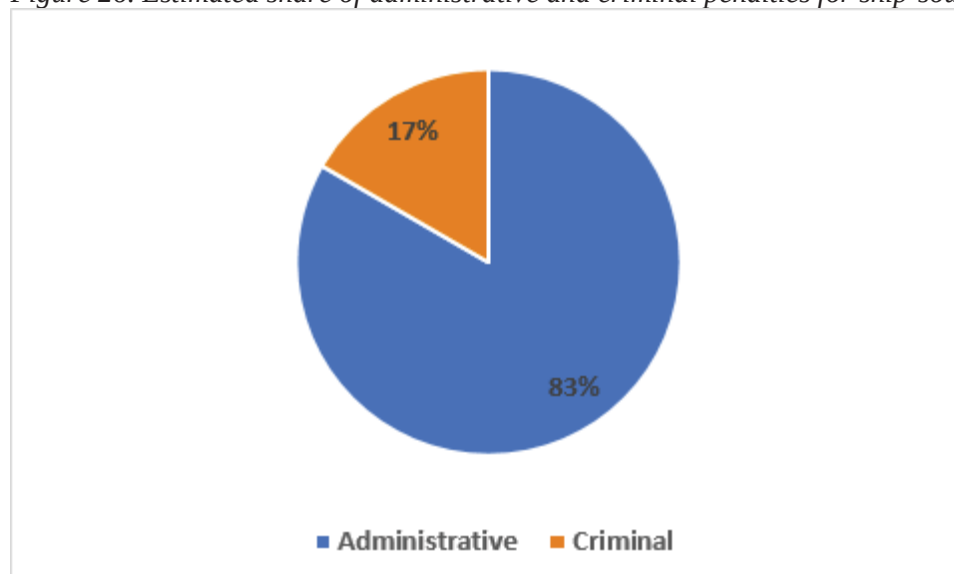
	Approaches to definition of infringement used in the EU	Member States
1	Member States explicitly specify and prohibit discharges of polluting substances from ships carried out with intent, recklessly or with serious negligence	BE, CY, EE, EL, IE, IT, LT, MT, NL, PT, RO, SE and SI
2	General ban of discharge , disposal and dumping of harmful substances from ships into the sea. These are subject to specific exceptions e.g. if permitted by MARPOL by way of derogation or in specific circumstances allowed by Helsinki Convention 1992 (Article 10-11, 15-16)	BG, FI and PL
3	All illegal discharges , including such outside indicated zones and permitted quantities (based on a permission regime), are to be penalised, without referring to intent, recklessness or serious negligence.	DK, FR and ES

In brief, the transposition of the Directive was generally successful and brought a considerable level of harmonisation to the definition of the conditions under which the discharge of pollutants by ships constitutes an infringement, although it did not lead to one common interpretation across the EU - this is the nature of a directive, as compared to a regulation.

There are divergences on when criminal offences are applied

In line with Article 8 of the Directive, all Member States have introduced in their national legislation penalties applicable to the various types of infringements. These include minimum and maximum levels of penalties that can be imposed for administrative and criminal proceedings as well as, maximum levels of imprisonment sentences for criminal proceedings. Most Member States impose administrative penalties to ship-source pollution incidents (as seen in Figure 26). Although this figure is not representative for the situation across the EU, it points to the fact that administrative penalties prevail.

Figure 26. Estimated share of administrative and criminal penalties for ship-source pollution



NB. Estimation based on data and qualitative input on the frequency of administrative and criminal penalties applied over the period 2012-2021 from 8 Member States and Norway (PL, NL, IT, RO, EL, LV, FI, CY, DE, NO). Although this figure is not representative for the situation across the EU, it indicates the trend.

Based on stakeholder views from interviews, the administrative procedure is usually activated in the first instance, as it is more efficient in terms of time, resources and results achieved. Only a few Member States⁵⁵ launch a criminal investigation. One Member State authority⁵⁶ indicated that if the illegal discharge does not meet certain criteria, it does not qualify as a criminal offence and the procedure is transferred to the administrative authorities.

The overall preference of Member States for administrative penalties supports the conclusion that administrative penalties are used in the majority of cases.

There are differences in the level of penalties applied to the liable natural and legal persons

The Directive, through its amendment in 2009, extends the scope of liability to cover both natural and legal persons. There are differences in the scope of liability foreseen in Member States. Relevant provisions have been introduced across the EU in national legislation to ensure that natural and legal persons are held liable (transposition of Article 8). A natural person or a company (legal entity) can be held liable for a violation of MARPOL rules in all the Member States and can be charged with penalties. Furthermore, in all Member States natural persons are liable under the criminal code. However, certain Member States⁵⁷ do not have provisions for criminal liability for legal persons, since their legal systems and legal traditions do not foresee this option.

⁵⁵ Input from interviews with BE, DE, NL and IT

⁵⁶ Interview with DE

⁵⁷ SE, DE, BG, BE, CY, FR, LT, RO

Member States have established minimum and maximum level of penalties for natural and legal persons and for administrative and criminal penalties. The levels of penalties differ between Member States. The effectiveness of these measures and the level of harmonisation of penalties are further elaborated in the response to Evaluation Question 5 (EQ5) below.

There are differences in the approach towards enforcement

The means used for the verification of polluting substances by Member States are aerial and coastal surveillance activities. The resources devoted to surveillance activities differs between Member States. The measures applied for the identification of the offenders and collecting evidence for their prosecution varies among Member States. These differences in approaches are further elaborated in the response to Evaluation Question 6 (EQ6).

To sum up on EQ3, there are differences in implementation measures applied by Member States. Some national provisions in place, were already introduced prior to the adoption of the Directive, to meet MARPOL requirements. The introduction of the SSP Directive brought a more convergent approach, yet there are gaps in the harmonisation of implementing measures (i.e. differences in definitions, types and levels of penalties) that make the rules less enforceable. Regardless of the marked differences, Member States tend to perceive the measures applied nationally as effective.

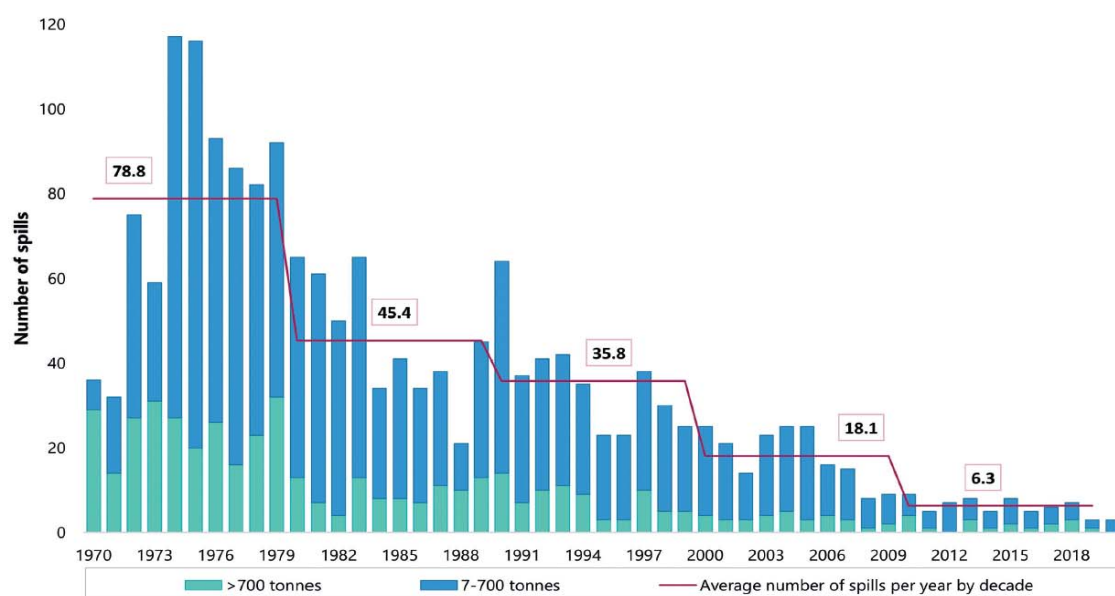
2. To what extent has the Directive had a dissuasive effect as regards reducing the number of incidents of discharges of substances covered by MARPOL Annexes I and II and thus contributed to the overall objectives of improving maritime safety and enhancing protection of the marine environment from pollution by ships? (EQ4)

There is insufficient evidence to confirm the extent to which the Directive (penalties applied for ship-source pollution) had a dissuasive effect i.e. how much did these penalties discourage ships from illegal intentional discharge. More information is provided in EQ5.

There is no data, at global nor EU level, on the number of incidents of discharges of substances covered by MARPOL Annex II.

As for the number of incidents of discharges of substances covered by MARPOL Annex I, the data is scarce for the EU. Globally, as shown in Figure 27, there has been a decrease of oil spills over time. The global downward trend in oil spills means that the decrease is not directly a result of the EU SSP Directive.

Figure 27. The global trend in accident-generated medium and large spills (more than 7 tonnes) from 1970-2020.



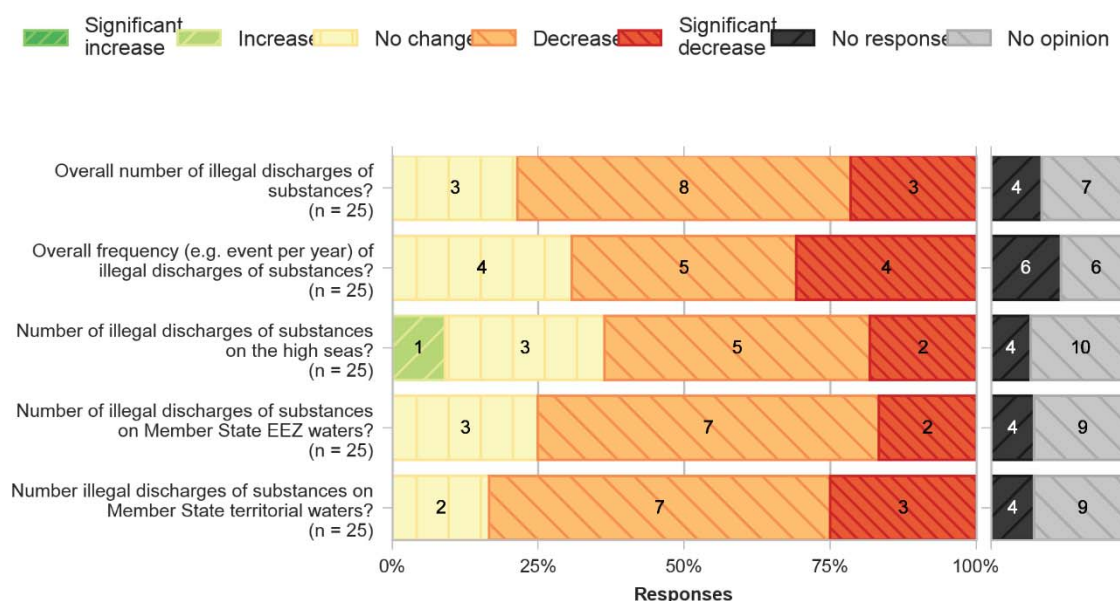
Source: Report on Global trends in oil spills from tankers (ITOPF, 2021)

Analysing data on oils spills from aerial surveillance activities reported by HELCOM and the Bonn Agreement for the Baltic and North Sea respectively, a long-term decrease in the number of spills was confirmed for these European seas. Additionally, the average size of discharges has reduced based on the data gathered by the CleanSeaNet service showing an increased share of small and medium-sized potential spills in Europe.

The results of the evaluation survey confirm that there is insufficient knowledge on the extent to which the Directive had a dissuasive effect. The stakeholders mostly responded in the evaluation survey that the Directive did not impact the number of illegal discharges or that they do not know about the impact (see Figure 28). On the other hand, stakeholders participating in the targeted interviews largely acknowledged that the Directive contributed to reducing illegal discharges from ships (11 out of 16 respondents)⁵⁸.

⁵⁸ Interviews with 7 Member States, NSN, HELCOM and EMSA

Figure 28. Stakeholder views from evaluation survey on the impact of the measures introduced by the Directive increase (green) or decrease (red) illegal discharges from ships. The predominant view is that there was no change (orange) and no opinion (grey).



To sum up EQ4, it was not possible in this evaluation to extrapolate to what extent the Directive contributed to protecting the marine environment and improving maritime safety as a result of reducing the number of incidents of illegal discharges. This is because stakeholder views are divided, the number of incidents for EU waters is not known and because the impacts on the marine environment are indirect and have complex dynamics with various sources of pollution (e.g. direct discharges from land, run-off, atmospheric deposition or other activities at sea, such as the exploration and exploitation of hydrocarbons offshore or deep-sea mining). Beyond the stakeholder views on the effectiveness of the Directive (presented above), it was not possible to collect evidence on how far the reduction in oil spills can be attributed to the Directive and to what extent other factors played a role e.g. the safety requirement of a double-hull for ships or improvements in port state control processes.

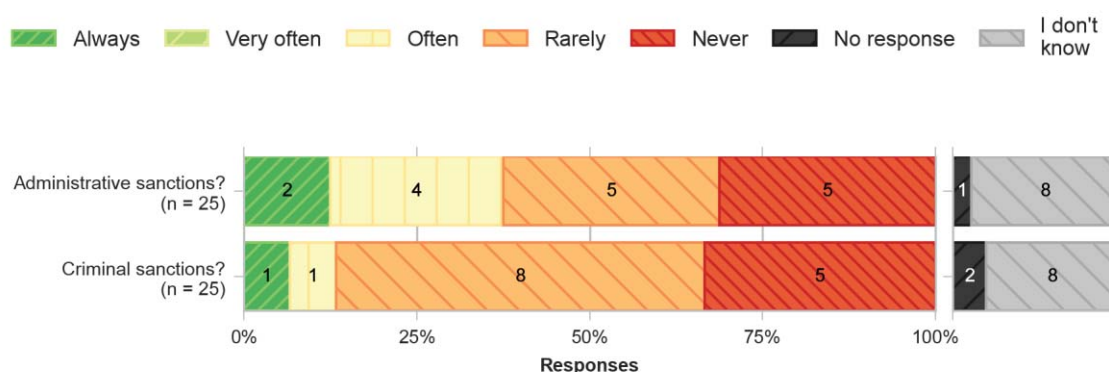
3. To what extent has the Directive been effective in terms of ensuring that infringements covered by the Directive have been made punishable by effective, proportionate and dissuasive penalties? To what extent has the Directive been conducive to a harmonisation at EU level of penalties for such infringements? (EQ5)

Effectiveness of penalties

Based on stakeholder input, incidents of illegal discharges rarely result in penalties to either natural or legal persons identified as offenders. Figure 29 and Figure 30 indicate the results of the survey in this respect. Thirteen respondents answered that criminal penalties are rarely or never applied to natural persons (out of 25) or legal persons (11 out of 25 respondents) when the incident is confirmed, linked to a specific ship and proved to be illegal. Furthermore, ten respondents answered that administrative penalties are rarely or never applied both to natural persons (out of 25 respondents) and legal persons (8 out of 25 respondents).

Figure 29. Stakeholder answers to survey questions

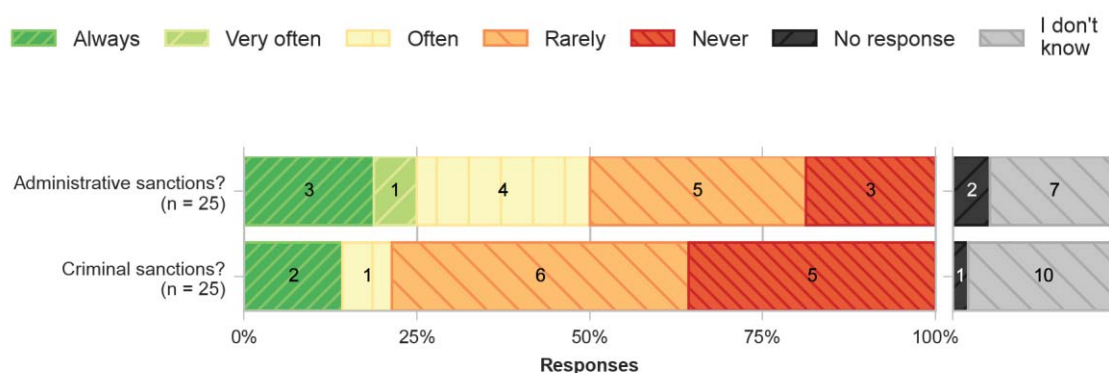
Question: How often incidents of discharges (linked to specific ships) result in administrative or criminal penalties for natural persons



Source: Survey analytical summary

Figure 30. Stakeholder answers to survey questions

Question: How often incidents of discharges (linked to specific ships) result in administrative or criminal penalties for legal persons



Source: Survey analytical summary

This suggests that the reduced (rare) likelihood of penalties for ship-source pollution, reduces the effectiveness of such penalties, however, not enough data (no statistics for the EU on the number of penalties imposed) is available to draw conclusive statements in this respect.

Proportionality of the penalties (harmonising the levels of penalties)

The analysis of minimum and maximum penalty levels shows considerable differences between Member States. As the Directive provides flexibility to the Member States to define the size, methods of calculation and applicability of penalties, the minimum and maximum thresholds for administrative penalties identified vary substantially between Member States. As seen in Figure 31, the minimum level of fines applicable to natural persons can range from 10 EUR (Estonia) to 150,000 EUR (Portugal) while minimum penalties for legal persons may range from 32 EUR (Estonia) to 500,000 (Germany). Similarly, large deviations can be seen in the levels of maximum penalties. Additionally, significant variations also exist in the mechanisms for the allocation and methods of calculation of penalties. An attempt to promote the use of harmonised penalties for the Baltic Sea countries did not deliver the

expected results as can be seen by the deviations in penalty levels adopted by Baltic Sea Member States.⁵⁹

Figure 31: Minimum and maximum levels of penalties foreseen for infringements for natural and legal persons (in EUR) – and indication of the Member State applying them.

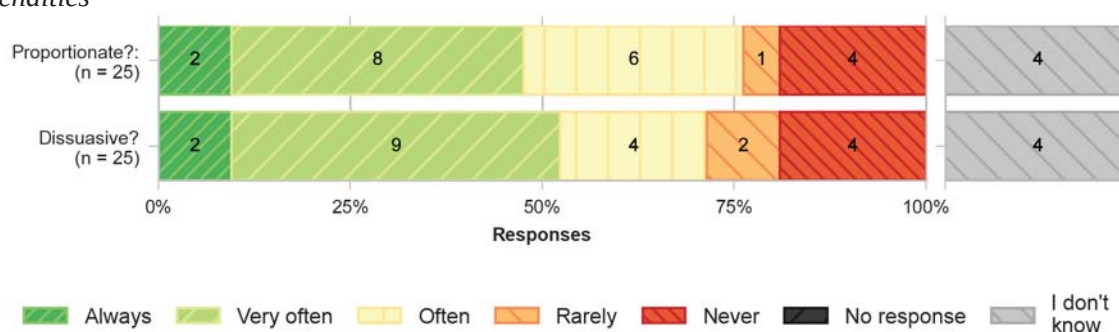
	Who?	Lowest	Highest
Minimum penalty	Natural person	10 (EE)	150,000 (PT)
	Legal person	32 (EE)	500,000 (DE)
Maximum penalty	Natural person	14,220 (SE)	5,000,000 (IE)
	Legal person	10,000 (PT)	247,000,000 (SE) Unlimited cap (DK)

Dissuasiveness of the penalties

Based on information from the targeted interviews, in some Member States, penalties can be considered high enough to have a dissuasive effect on the ship operator when coupled with effective enforcement and increased probability of being caught (mostly the Baltic Sea and North Sea Member States). However, in other Member States (mostly ones located in the Black Sea and to certain extent in the Mediterranean Sea) penalties are too low to be proportionate and thus when coupled with the low probability of being imposed, they may not be sufficiently dissuasive.

The results of the stakeholder consultations confirm that there is insufficient knowledge on the extent to which the penalties had a dissuasive effect. Eight of the Member States authorities interviewed⁶⁰ (out of 16) and half of the stakeholders participating in the survey (as seen in Figure 32) considered criminal penalties proportionate and dissuasive whereas the other half not.

Figure 32. Survey results on stakeholder views on the proportionality and dissuasiveness of criminal penalties



⁵⁹ HELCOM recommendation 19/14 (1998) [A Harmonized System Of Fines In Case A Ship Violates Anti-Pollution Regulations](#)

⁶⁰ BE, BG, HR, DE, EL, MT, RO, SE

As seen in Figure 32, criminal penalties are not the preferred regime for most Member States. As for administrative penalties, on one hand, 11 Member State authorities interviewed⁶¹ (out of 16) agree that current administrative penalties are proportionate and act as a deterrent. On the other hand, 12 of the responses to the survey (out of 22) indicated that administrative penalties are proportionate and dissuasive whereas the other half not (see Figure 33).

Figure 33. Survey results on the proportionality and dissuasiveness of administrative penalties



To conclude, the data collected suggests that the Directive has not been effective in harmonising the level of penalties for infringements across the EU. While the levels of penalties differ significantly amongst Member States, stakeholders seem to be divided, with half considering current penalty levels proportionate and dissuasive and the other half considering them not to be sufficiently proportionate and dissuasive. Stakeholders consider the probability of penalties being imposed low (rare) and this impacts the actual deterrent potential of these penalties. Overall, there are no statistics for the EU on the number of penalties imposed and divergent views of stakeholders on the proportionality of the penalties and therefore, insufficient evidence to confirm the extent to which the penalties applied for ship-source pollution are effective, proportionate and dissuasive.

4. To what extent has the Directive improved the cooperation between Member States in matters of: a. improving Member State capability to timely detect discharges? B. improving Member State capacity to attribute discharges to specific ships? (EQ6)

The EU legislative framework, including this Directive has largely improved the cooperation between Member States thanks to a number of dedicated functionalities for EU surveillance, monitoring and reporting systems, such as SafeSeaNet, THETIS and CleanSeaNet.

The enhanced surveillance capacity brought by the CleanSeaNet service is viewed by many Member State authorities⁶² as effective in discouraging illegal discharges as there is a higher probability of getting caught⁶³.

⁶¹ BE, BG, CY, DE, ES, EE, FI, FR, IT, MT, RO

⁶² Input from interviews with 7 Member States

⁶³ Interview with a Member State authority from the Mediterranean Sea: “With the CSN service, the monitoring of sea areas has improved and the inspections of ships has been made more targeted since slicks are correlated to specific ships through the CSN service...”.

This has led to an improved capacity of Member States to identify illegal discharges as manifested by the increased identification of possible polluters reported in the feedback provided to the CleanSeaNet alerts as can be seen in the two figures below (Figure 34 and Figure 36). Percentage of verification feedback for CleanSeaNet alerts 2015-2020

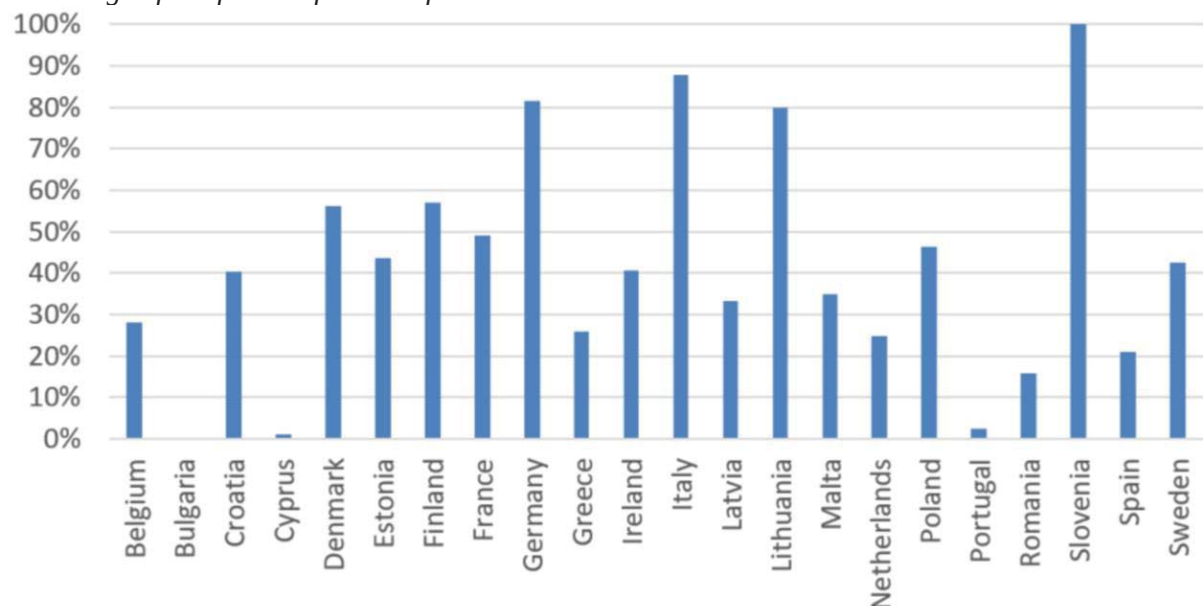


Figure 36). This increase largely follows the increase in CleanSeaNet alerts recorded over the same period. It is unclear from this evidence basis whether the increase in the identification of polluters originates from the increase in the total number of possible oil spills that have been followed up and feedback has been collected or whether this is indicative of increased capabilities of Member States in identifying potential polluters, potentially boosted by improved cooperation. Data from the Baltic Sea⁶⁴ seem to suggest that the increase in the number of identified polluters is less steep than the increase in the number of potential pollution incidents.

Figure 34. Member State verification and possible pollution detection in the Baltic Sea (for HELCOM Contracting Parties: Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Sweden)

⁶⁴ Collected from HELCOM

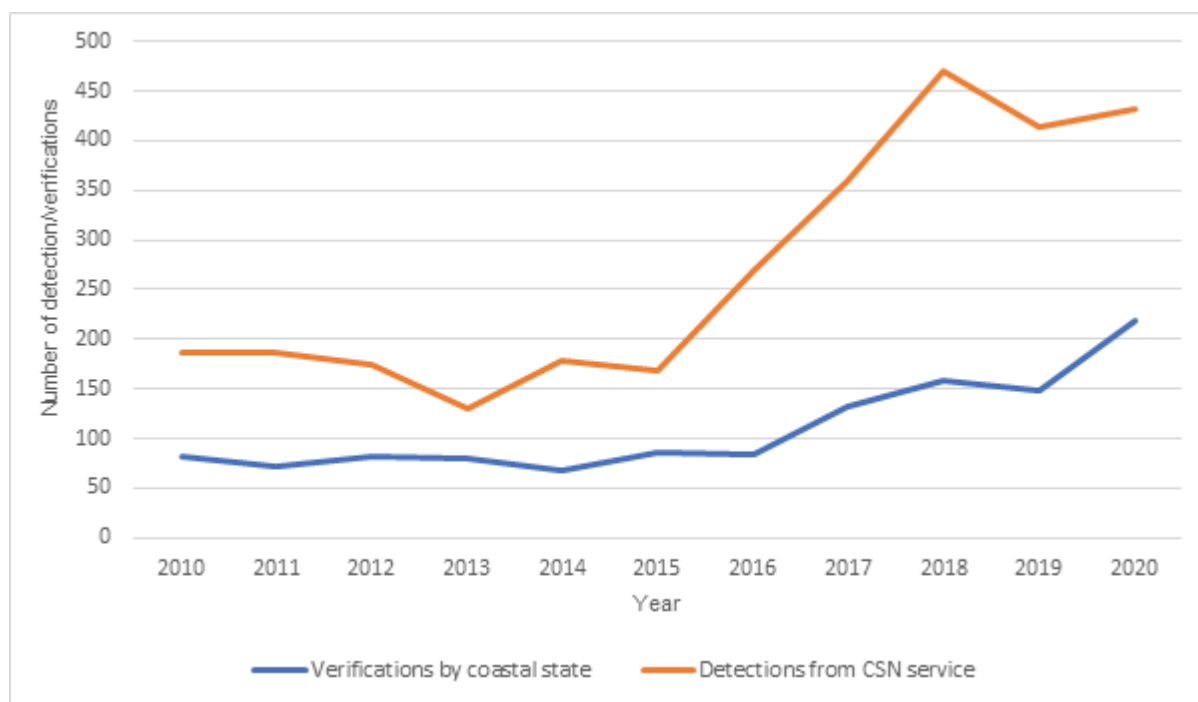


Figure 35. Percentage of verification feedback for CleanSeaNet alerts 2015-2020

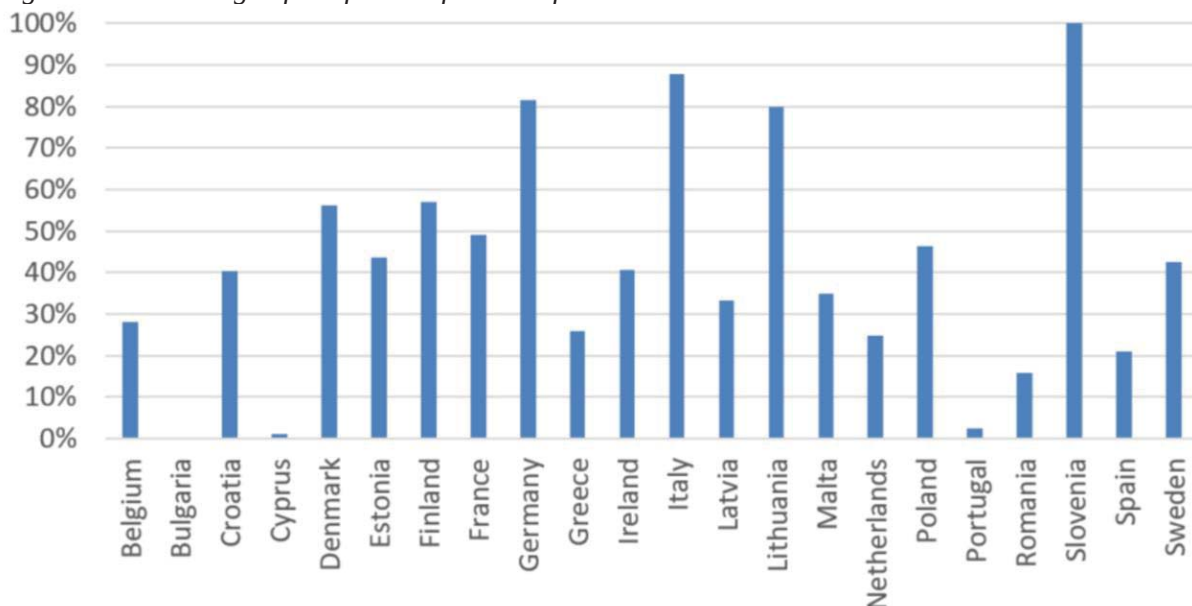
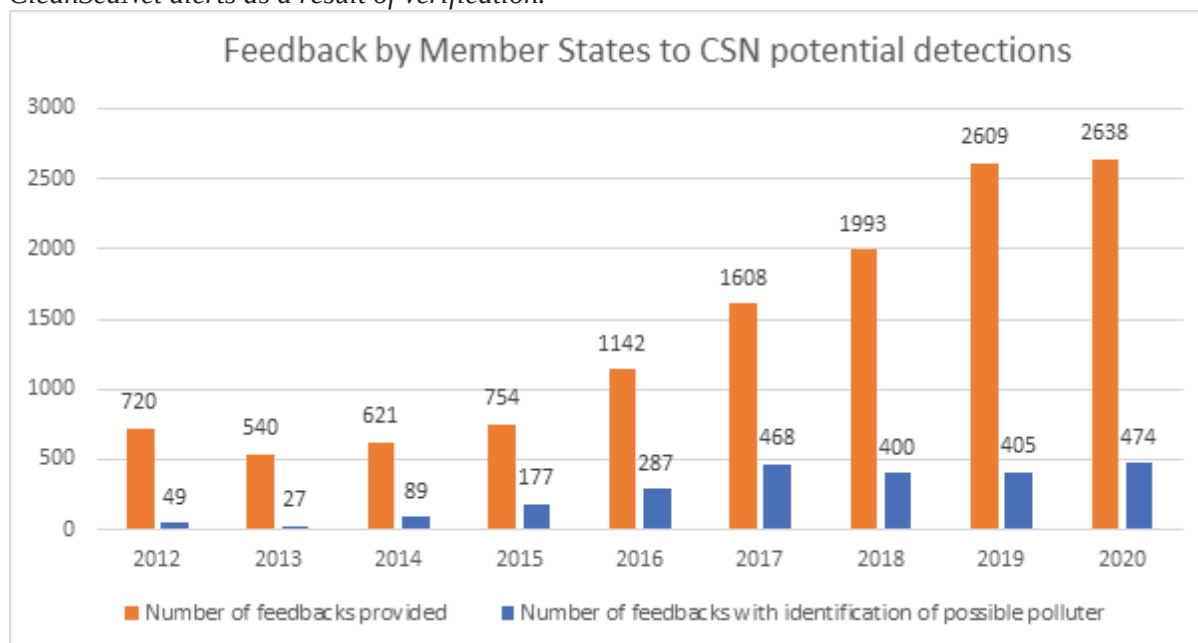


Figure 36. Identification of possible polluters as reported by Member States in feedback to CleanSeaNet alerts as a result of verification.



NB. The number of “feedbacks provided” corresponds to the verification results of in-situ observation carried out by the Member States. This number does not include the possible oil spills for which a reason for no verification was included in the CleanSeaNet feedback form.

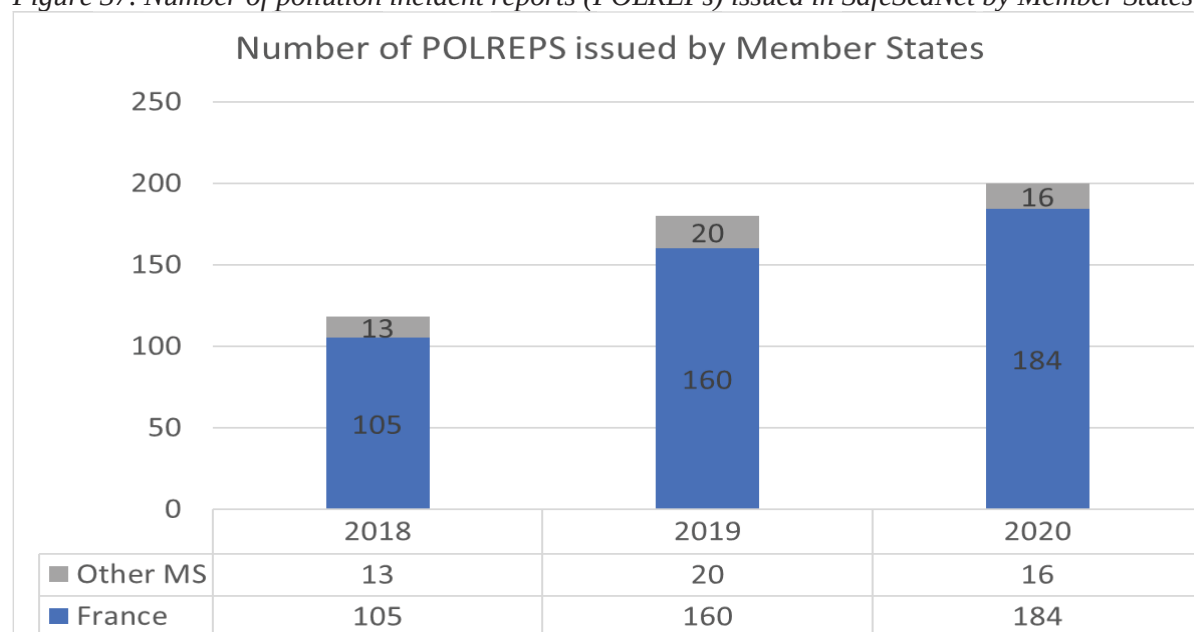
Member States adopt different approaches in order to identify potential offenders and have different evidence collection mechanisms and requirements in order to prosecute a potential offender. Authorities of different Member States may require physical or scientific evidence, including pollution samples, and visual evidence (e.g. surveillance footage, photographs, etc.) along this process. Other requirements may include ships inspection findings, witnesses’

statements, and identification of irregularities through the inspection of statutory and other ship documentation (e.g. oil logbook).

Through ship inspections, authorities often aim to match the substances identified in confirmed discharges with the cargo or fuel carried by the specific ship. The trigger for ship inspections to check compliance with MARPOL may differ between Member States. While some Member States do not require ship inspections to build up the necessary evidence for a case (such is the case of the Netherlands), others consistently perform ship inspections in response to the identification of potential pollution incidents⁶⁵.

Looking at the level of use of the EMSA cooperation tools by Member States, one can see that the use of pollution incident reports (POLREPs) to communicate pollution events of common interest is potentially not fully exploited by Member States. As seen in Figure 37, despite the steady increase in recent years, the majority of pollution incident reports submitted comes from a single Member State⁶⁶. At the same time, and despite the increased detection of potential illegal discharges and the identification of polluters, the level of cooperation with regard to inspection requests submitted in THETIS seems to remain relatively constant, or even decline in recent years (see Figure 38).

Figure 37. Number of pollution incident reports (POLREPs) issued in SafeSeaNet by Member States



⁶⁵ As reported in the interviews with 5 Member States.

⁶⁶ France

Figure 38. Number of inspection requests registered in THETIS by Member States (with regard to MARPOL Annex I and II incidents) - overriding factor messages (priority 1) and unexpected factor messages (priority 2)



Priority 1 alerts trigger for the ship the request for an inspection at the next port of call. Priority 2 alerts trigger that the ship is targeted for an inspection but not necessarily at the next port of call. It will be inspected within a certain time window depending on the ship's profile. Thus, both types of alerts will trigger an inspection request in one way or another, within a shorter or longer time frame.

Overall, the data shown in the figures above and the development of these parameters indicate that there is cross-border cooperation and information exchange between Member States (e.g. by THETIS and SafeSeaNet).

5. To what extent has the geographical scope of the Directive contributed to its effectiveness? (EQ7)

According to Article 3, the geographical scope of the Directive covers internal waters, the territorial seas, straits used for international navigation (subject to the regime of transit passage), the EEZ or equivalent zone of a Member State, and the high seas. An initial study on the implementation of the Directive conducted by EMSA⁶⁷ identified that there are some potential disparities across Member States in the implementation of the geographical scope

⁶⁷ EMSA (2011) Study on the Implementation of Ship Source Pollution Directive 2005/35 in the EU Member States, not available online

as not all of the Member States have defined the high seas as being within the scope of their transposing legislation⁶⁸.

The Directive provisions can be applied in all areas where ship-source pollution may be found providing a comprehensive coverage and a tool that can potentially be used by Member States in all relevant cases. This allows Member States to investigate infringements across different territories and ensure, subject to international law, that regardless of the location of the illegal discharge, there is a legal basis for it to be detectable.

The Directive introduces criminal penalties for infringements in all sea territories. In the transposition of the Directive, Member States have defined both monetary as well as imprisonment penalties in case of criminal penalties. The United Nations Convention on the Law of the Sea (UNCLOS, Article 230) defines that States can impose only monetary penalties to foreign vessels in their territorial sea and beyond. This limitation does not apply within the territorial sea only if it concerns a case of wilful and serious act pollution. The Directive is not contradicting UNCLOS Art. 230 in this respect, as criminal penalties may also be of monetary nature.

Stakeholder consultation suggests that the wide geographical scope of the Directive is supported by six Member State authorities interviewed (out of 14) and respondents to the survey (12 out of 20). There are incidents identified in which Member State authorities have imposed penalties for infringements occurring on the high seas⁶⁹.

Nevertheless, according to the views of certain stakeholders⁷⁰ there have also been legal challenges related to implementing the Directive beyond territorial waters in accordance with international law, as can be seen also by the cases presented in Box 1.

Box 1. Summary of legal challenges

Intertanko case (C-308/06, n 15).

The validity of the serious negligence concept in light of MARPOL and UNCLOS was adjudicated in the European Court of Justice in the *Intertanko case* (C-308/06, n 15). The claimants maintained that the provisions of the directive establish a stricter liability regime for accidental discharges than that laid down at international level. With respect to MARPOL, the Court ruled that the Community was not bound by the convention as it is not party to it, rather only the Member States are. With regard to the UNCLOS, the Court held that the Convention does not establish rules intended to apply directly to individuals and to confer upon them rights or freedoms capable of being relied upon against States. Therefore, the nature and the logic of UNCLOS were ruled to prevent the Court from being able to assess the validity of the Directive.

The same case examined whether the concept of serious negligence infringes the principle of legal certainty. In the judgement, the ECJ confirmed that serious negligence should be interpreted as "entailing an unintentional act or omission by which the person responsible commits a patent breach of the duty of care which he should have and could have complied with in view of his attributes, knowledge, abilities and individual situation". The Court ruled that Article 4 of Directive 2005/35, read in conjunction with Article 8, does not infringe the general principle of legal certainty in so far as it requires the Member States to punish

⁶⁸ Poland and Portugal are identified as examples of unclear provisions regarding implementation in the high seas.

⁶⁹ Relevant cases have been reported by Romania, Belgium, France and Spain

⁷⁰ Interview findings from REMPEC, ENPRO, NSN and Finland

ship-source discharges of polluting substances committed by ‘serious negligence’, without defining that concept and leaving its definition as a matter of national competence.

Bosphorus Queen case (C-15/17, n 16)

The European Court of Justice has considered the interactions between the provision on penalties of the SSP Directive and UNCLOS in the *Bosphorus Queen* case (C-15/17) which concerned an oil spill in the Finish EEZ approximately 25 to 30 km (about 15 nautical miles) from the Finnish coast by a ship flying a Panamanian flag. The Finnish Border Protection Agency stopped the ship (that was released upon payment of a financial security) in the EEZ and imposed an administrative penalty to the company operating the ship, which was appealed on several grounds. The Court was asked to interpret a number of aspects arising from the parallel application Article 220(6) of UNCLOS and Article 7(2) of the Directive 2005/35. The Court held that Article 7(5) of Directive 2005/35 must be interpreted in accordance with Article 220(6) UNCLOS. Consequently and additionally, the Court clarified the meaning of the following concepts under both foresaid provisions:

- “clear objective evidence” needs to encompass both evidence on the commission of the violation and on the consequences thereof.
- Assessment of the consequences of the violation to the resources and related interests of the coastal State must conclude on both the establishment and the evaluation of the extent of the damage or the threat thereof, taking into account the nature of the damage and the foreseeable harmful consequences of the discharge, on the basis of scientific data, the nature of the discharged substance and the discharge’s volume, direction, speed and period of time over which it spreads.
- The geographical and ecological characteristics and sensitivity of the Baltic Sea affect the classification of the violation and the assessment of the extent of the damage caused by the discharge.
- “coastline or related interest” has the definition in Article 2(4) of the Intervention Convention, thereby including non-living resources in the territorial sea and any resource in the EEZ.
- “resources” includes both harvested species and species which depend or associate with them.

The Court further opined that ‘significant pollution’ under Article 220(5) UNCLOS should not, in principle be taken into account when applying Article 220(6) UNCLOS and that Article 1(2) of Directive 2005/35/EC precludes coastal Member States from adopting more stringent measures than those included in Article 7(2) of the same Directive, but not from adopting other measures equivalent to the scope of those measures provisioned in Article 220(6) UNCLOS.

It is noteworthy that, amongst other things, the judgement in this case confirmed the approach adopted by the Court in *Intertanko* with respect to the interaction between the Directive and MARPOL and UNCLOS.

According to some Member State authorities interviewed⁷¹ there are limitations to the enforcement of the Directive in areas distant from the coast. The challenges are mainly related to the level of resources required to reach and investigate potential discharges in such areas, including those required for evidence collection (aerial surveillance, patrol boats etc.), as well as other operational and technical limitations, such as not enough time to reach the site and verify the potential detection before it disperses. The response to Evaluation Question 13 provides further information on the bottlenecks related to identifying, verifying and following up on incidents.

⁷¹ BG, CY, PL and one anonymous

In conclusion, the broad geographical scope of the Directive is appropriate to ensure that, at least in principle, all infringements are detectable and can provide an effective deterrent. However, there are practical challenges identified when enforcing the Directive in the event of a ship-source pollution incident in areas outside a Member State's territorial waters and, particularly, in the high seas. These mostly relate to verification capacity constraints for Member States to confirm a potential pollution in areas far from the coast, and to the resources required to identify the polluter in a timely and effective manner. Further, legal challenges have been identified in enforcing the Directive outside territorial waters, due to the fact that, amongst others, the jurisdictional clauses enshrined in the Directive apply in parallel with those enshrined in UNCLOS, which has primacy over secondary EU legislation, since the Union is itself a party to UNCLOS⁷².

3.2 Efficiency

1. To what extent has the Directive generated costs and benefits for the relevant national authorities? (EQ9a)

This section provides an overview on the costs and benefits of the Directive and specifies which costs are borne by the relevant national authorities. The benefits produced by the Directive for the authorities are increased satellite surveillance and enforcement capacity offered to national authorities, as described in EQ6.

The key benefit of the Directive is an indirect improvement in the protection of the marine environment from ship-source pollution. While there is a gradual reduction in the number of accidents resulting in oil spills, this trend was pre-existing the Directive's adoption and is global so it is difficult to indicate what part of the benefit can be attributed to the Directive as compared to other initiatives. With regards to benefits at EU level, as reported by the European Environment Agency, in the 2006-2021 period, bathing water quality in the EU has improved, as there is an increase in the number of sites classified as being of excellent quality.⁷³ Still, as elaborated in EQ4, it is not possible to extrapolate the exact contribution of the Directive to this improvement of water quality due to the complex dynamics of pollutants and the various other existing sources of pollution and the fact that the impact of other initiatives is interwoven in reaching improvements at bathing sites.

Examining the costs produced by the Directive, these can be divided in the following categories⁷⁴:

- **Adjustment costs:** These include the costs incurred to adjust stakeholder activities to the requirements of the legislation.

⁷² Intertanko case (C-308/06), at 42 and 53; Bosphorus Queen case (C-15/17) at 44.

⁷³ EEA reports for the Bathing Water Directive 2006/7/EC
<https://www.eea.europa.eu/themes/water/interactive/bathing/state-of-bathing-waters>

⁷⁴ As defined in the Better Regulation Toolbox: Tool #56 Typology of costs and benefits

- **Administrative costs:** These are costs borne as a result of administrative activities performed to comply with administrative obligations included in legal rules.
- **Enforcement costs:** These are costs of activities linked to the implementation of an initiative such as monitoring, inspections and prosecution.

Enforcement costs

An area where the Directive is considered to generate enforcement costs, is the requirement of Article 10 for Member State authorities *“to closely collaborate with the European Maritime Safety Agency to respond to the accidental or deliberate marine pollution...in order to develop the necessary information systems required for the effective implementation of this Directive.*

The submission of feedback in CleanSeaNet on the verification of potential pollution detections as a result of a CleanSeaNet alert generates recurrent enforcement costs for maritime authorities. The time required to insert feedback for each pollution incident has been estimated by five Member States authorities⁷⁵ to be between 10 minutes and 6 person-hours per alert. The difference in the estimations can be attributed to differences in the understanding of what activities are included in this activity. The consideration of the efforts of the authorities for the collection and preparing of the relevant data could have been included in the higher estimates. The lower estimate of 10 minutes is likely to include only the time needed to log the data in the CleanSeaNet system for each alert. For this assessment, the median value of one hour per alert has been used. To estimate the costs for verifying the additional CSN pollution alerts, an average hourly labour cost of 39.8 EUR has been assumed for professional, technical and scientific services at EU level (in 2020 prices)⁷⁶. This means that for the approximately 2,650 CleanSeaNet alerts submitted in 2020, the enforcement costs can be estimated to be roughly EUR 105,470 annually⁷⁷.

Additionally, costs related to information exchange between Member States through the SafeSeaNet and THETIS platform are also considered to contribute to the total enforcement costs. Regarding sharing a pollution incident report (POLREP) through SafeSeaNet, feedback received by three Member States⁷⁸ point to approximately of half an hour per report. Accounting for the approximately 200 pollution incident reports submitted annually⁷⁹, this results in an approximate cost of EUR 8,000 annually. Following the same logic, the time needed to log a ship-source pollution inspection request in THETIS would also qualify as enforcement costs. In the absence of data on the time needed to log a THETIS inspection request, a similar assumption as that for the pollution incident reports (POLREPs) was made. For the 120 THETIS requests submitted in 2020 this would amount to approximately EUR

⁷⁵ Estimations provided by BG, CY, FR, PL and RO.

⁷⁶ Source: Eurostat [LC_LCI_LEV]

⁷⁷ These costs also include those related to the collection and the preparation of the relevant data for CleanSeaNet. They do not include surveillance activities (aerial or by other means) as these requirements are derived from international (i.e. MARPOL) and national legislation pre-existing the SSP Directive.

⁷⁸ Estimations provided by EL, MT and IT

⁷⁹ Source: EMSA.

5,000 annually⁸⁰. Thus, the total costs for submitting pollution incident reports (POLREPs) in SafeSeaNet and inspection requests issued through THETIS are estimated at EUR 13,000 per year.

Competent authorities responsible for surveillance and enforcement activities are also required to devote resources and undertake costs relevant to surveillance activities (aerial or patrol boats). These requirements are derived from international (i.e. MARPOL) and national legislation pre-existing the Directive and thus no additional costs can be attributed to the Directive.

Survey and interview respondents have indicated the efficiency gains in national surveillance activities through the information obtained from the CleanSeaNet service (and the use of the other EMSA information tools), however any resources saved are reported to be redirected to more targeted national surveillance and enforcement activities, leading thus to increased benefits rather than reduced costs.

Furthermore, although the Directive establishes the obligation of Member States to inspect/verify ships suspected of illegal discharge (Article 6) or to collaborate for the inspection of ships in transit suspect for potential infringements (Article 7), these are not new requirements as they are foreseen already in the MARPOL Convention and other EU legislation⁸¹.

Administrative costs

In relation to administrative costs of the Directive, Article 12 introduces reporting requirements to the Commission relevant to pollution detection as each Member State is required to report on this once every three years. The assessment of this cost element is detailed in the response to EQ9b and amounts roughly EUR 70,048 annually⁸².

Adjustment costs

This category includes costs incurred by EMSA, in line with Article 10, to “*work with the Member States in developing technical solutions and providing technical assistance in relation to the implementation of this Directive, in actions such as tracing discharges by satellite monitoring and surveillance*”.

The most significant adjustment costs generated by the Directive are related to the development and maintenance of a state-of-art system for satellite surveillance in the CleanSeaNet service. The costs associated to this are further elaborated in EQ10. The average

⁸⁰ Same assumptions for hourly labour costs as above have been used.

⁸¹ Such as the Port Reception Facilities Directive and the Port State Control Directives.

⁸² The reporting on the implementation of the SSP Directive to EC takes place every three years. For the purpose of the analysis, these costs are transformed into annual costs. This is because the main effort is related to the collection, preparation, adjustment and filling in the data in the right format to fulfil the reporting requirements. These efforts are mostly needed at the time of dealing with the CSN pollution alerts.

annual cost of operating the CleanSeaNet service (2009-2020) were estimated at the level of EUR 5.17 million.

Training and knowledge sharing activities performed by EMSA for the Member States authorities in order to improve the surveillance and enforcement capabilities across the EU are estimated as being roughly EUR 200,000 per year.⁸³

Figure 39: Cost of EMSA organised activities

Activity	Number of events	Total participants	Cost per participant	Annual costs
SSP Workshops (2007-2019)	14	631	€ 2,000	€ 1,262,000
CSN User Group meetings (2007-2021)	19	544	€ 2,000	€ 1,088,000
CSN trainings (2014-2021)	10	303	€ 2,000	€ 606,000
TOTAL				€ 2,956,000
Average annual costs (over 15 years)				€ 200,000

Source: Ricardo (2023) Evaluation support study

An overview of the costs and benefits identified in this evaluation exercise is presented in Figure 40 and Figure 41 below, indicating the types of costs and benefits, and the stakeholders affected.

Figure 40. Costs of the Directive

Cost categories	Who	Elaboration	Costs
Adjustment costs	EMSA	Resources required for EU training and knowledge sharing activities	EUR 200,000 annually
		Costs of operating CleanSeaNet and sharing pollution alerts with Member States	EUR 5.17 million annually
Administrative costs	Maritime authorities	Administrative costs related to reporting on the Directive implementation	EUR 70,048 annually
Enforcement costs	Maritime authorities	Costs related to Member States feedback in CleanSeaNet service	EUR 105,470 annually
	Maritime authorities	Costs related to information exchange procedures – Member States uploading pollution incident reports (POLREPs) in SafeSeaNet, THETIS inspection requests	EUR 13,000 annually
	Maritime authorities for national surveillance/ coast	Costs for aerial surveillance (per hour of flight) and other national pollution surveillance activities (patrol boats)	No new costs due to operational efficiency gains

⁸³ Such activities take place regularly but as not all activities have a standard number of meetings annually, we estimated the total costs of participation for Member State authorities for the duration of the Directive's implementation period on the basis of data available on the number of events organised - assuming EUR 2,000 per participant in each event to cover human resources, travel and subsistence costs (estimate provided by one of the Member State authorities).

Cost categories	Who	Elaboration	Costs
	guard / port state authorities		
		Resources devoted to ship inspections	No new costs - activities provided by other legislation (PRF Directive, Port State Control Directive)
		cost of verifying the potential pollution by collecting evidence and transmitting to prosecutor	No new costs - no change existing procedures
		Administrative burden costs related to infringement procedures	No new costs - no change existing juridical procedures

Source: Ricardo (2023) Evaluation support study

Figure 41: Benefits of the Directive

Benefit categories	Stakeholders affected	Impact	Benefit
Environmental benefits	Society	• Potential decrease in the volume and number of illegal discharges of MARPOL Annex I substances from ships at EU seas • Potential decrease in the volume and number of illegal discharges of MARPOL Annex II substances from ships at EU seas	Not quantified
Social benefits (maritime health & safety, public health)	Society	• Unclear effect on the number of accidents and incidents with discharges of MARPOL Annex I and II substances • Potential reduction of beach/ bathing site pollution by MARPOL Annex I and II substances • Potential indirect health benefits as a result of reduced pollution into the sea e.g. the consumption of fish products from European seas, quality of bathing sites	Not quantified

Source: Ricardo (2023) Evaluation support study

Summing up, the adoption of the Directive reinforced some provisions that were already part of pre-existing requirements for Member States and as such relevant costs are not attributed to the Directive. Such provisions could include requirement for Member States already existent from the MARPOL Convention or their participation in regional cooperation agreements. The main cost is EMSA satellite surveillance services, roughly EUR 5.17 million annually, plus training and knowledge sharing activities estimated at EUR 200,000 annually.

The costs generated by the Directive for relevant national authorities are rather limited (as seen in Figure 40) and sum up to EUR 188,518 annually. The Directive is also seen as having generated benefits in terms improved surveillance and enforcement capabilities although the exact extent of these benefits is difficult to qualify.

Overall, the total costs can be justified by the benefits yielded in terms of improved environmental protection due to the enhancement of the satellite surveillance capacity.

2. What is the administrative burden generated by the Directive (EQ9b)

The administrative costs of the Directive affect the relevant national authorities. Article 12 introduces reporting requirements on pollution incidents. Member States are required to report to the Commission once every three years. This reporting requirement is very general and although broadly aligned with the requirements put forward by regional sea agreements and the IMO, is a duplication of effort. Depending on the level of data availability, digitalisation and automation of the data collection methods used, this may result in significantly different costs for national authorities, with more sophisticated approaches (potentially requiring more investment in IT infrastructure) minimising the effort needed⁸⁴. Only a small number of Member States (5 out of 27) have partially complied with the Article 12 reporting requirements. The resulting cost is of a recurring nature as it needs to take place every three years. Participants to an ESSF Waste from Ships subgroup meeting discussing this issue in May 2022 were asked about the cost of the reporting requirement. 15 out of 18 participants indicated this would require up to or more than 10 days while the other three indicated this would require less than 5 days. For this assessment, we assume the median cost of 10 person-days annually for reporting to the Commission under Article 12. Accounting for 22 EU coastal Member States this amounts to approximately EUR 70,048 annually⁸⁵.

3. Could the same results have been achieved with less funding/lower cost? (EQ10)

The category of costs examined in the context of the same result with lower costs is CleanSeaNet service (development and operation).

CleanSeaNet service could not have achieved the same results with lower costs. For satellite surveillance, EMSA in 2020 purchased 8,267 images at a cost of EUR 4.58 million⁸⁶, which is around EUR 550 per image. The average market prices for SAR stripmap images of very high resolution can range from EUR 1,475 to EUR 3,875⁸⁷ depending on the SAR sensors used⁸⁸. This means that the market price for similar images can be between **2.7 and 7 times more expensive** than what EMSA is paying for them. Economies of scale are achieved with an EU-level wide service due to the larger scale of procurement and the improved negotiating power for delivering the service centrally by EMSA.

⁸⁴ France reported about 20 minutes required to report each identified spill. Other Member States argue it can be much higher.

⁸⁵ The reporting on the implementation of the SSP Directive to EC takes place every three years. For the purpose of the analysis, these costs are transformed into annual costs. This is because the main effort is related to the collection, preparation, adjustment and filling in the data in the right format to fulfil the reporting requirements. These efforts are mostly needed at the time of dealing with the CSN pollution alerts.

⁸⁶ The cost estimate includes supporting services related to image processing, data visualisation, quality checking and ICT support infrastructure.

⁸⁷ Cost assessments regard SAR images from TerraSAR-X Tandem-XPaz, RADARSAT-2 and ALOS-2 satellites.

⁸⁸ No information was available on the Sentinel-1 satellite that would have been more comparable.

Next, it has been assessed if the same results could have been achieved by 22 independent services of the coastal Member State. There is no national service to compare with as to understand this cost. On average, Member States may have been procuring images at the lower band of the market price i.e. EUR 1,475 per image which is 2.7 times the cost achieved by EMSA. With this assumption, as seen in Figure 42, the approach of having a one EU-level service resulted in lower annual costs of approximately EUR 7.7 million⁸⁹.

Figure 42: Annual costs savings of having one satellite surveillance service compared to 22 Member State services

Type of satellite surveillance service	Number of images	Cost per image	Total image cost
CleanSeaNet service	8,267	EUR 550	EUR 4.58 million
22 Member State services at (market price)	8,267 ⁹⁰	EUR 1,475	EUR 12.28 million
Potential cost savings if 1 system and not 22 systems		EUR 925	EUR 7.7 million⁹¹

Source: Ricardo (2023) Evaluation support study

The costs of 22 individual systems could have been higher than presented in the table above because of the overlap of images on areas of common interest for different Member States. Such approach would also entail more information exchange costs to deal with detections of transboundary relevance. Even if Member States could procure images at a price lower than market prices⁹², this would still not include the additional services included in the CleanSeaNet service. The service uses modern satellite technology, to provide a broad level of coverage, image frequency, quality and an array of services supporting the identification of potential pollution incidents. It also covers transboundary areas delivering information to all Member States in a systematic and common format. Further savings are achieved by the centralised processing of data by 6 dedicated EMSA staff, as compared to staffing 22 individual coastal services.

4. To what extent have the accompanying measures listed in Article 10 of the Directive been relevant to the overall objectives of improving maritime safety and enhancing protection of the marine environment from pollution by ships? (EQ11)

Article 10 of the Directive states that “*Member States and the Commission shall cooperate, where appropriate, in close collaboration with the European Maritime Safety Agency and*

⁸⁹ Considering the 2020 levels of activity and market prices for SAR images.

⁹⁰ Potentially higher due to overlapping images.

⁹¹ Additional savings can be expected in the amount of personnel required by Member State authorities to support the relevant services.

⁹² Especially for Member States purchasing larger number of images due to the need to survey relatively larger areas of interest.

taking account of the action programme to respond to accidental or deliberate marine pollution”.

In Article 10, two accompanying measures are introduced:

- a) develop the necessary **information systems** required for the effective implementation of this Directive;*
- b) establish **common practices and guidelines** on the basis of those existing at international level, in particular for:*
 - The monitoring and early identification of ships discharging polluting substances in violation of this Directive, including, where appropriate, on-board monitoring equipment,*
 - Reliable methods of tracing polluting substances in the sea to a particular ship, and*
 - The effective enforcement of this Directive.*

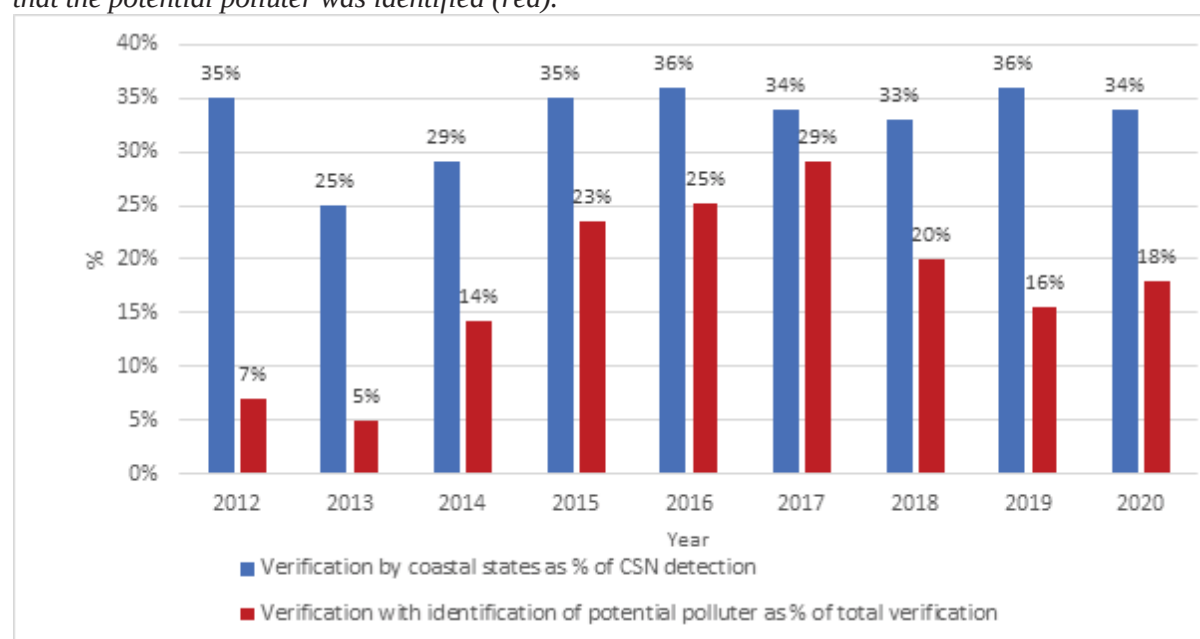
The introduction and use of EMSA **information systems**, including the CleanSeaNet service, has had an important role in achieving the overall objectives of improving maritime safety and enhancing protection of the marine environment from pollution by ships because it enhanced surveillance capacity and improved the likelihood of identifying ships discharging polluting substances in violation of this Directive.

The CleanSeaNet alert system is a source of information valued by Member States authorities and used by them to identify potential illegal discharges and polluters⁹³. As shown in EQ6, more than 7,000 pollution alerts are sent to Member States annually (2019-2020). On average, almost 18% of the alerts (sent and for which feedback as a result of verification has been logged by Member States) have resulted in the identification of a potential polluter⁹⁴, as shown in Figure 43.

⁹³ The use of the CleanSeaNet service does not always translate into verified spills for the following reasons: limitations in resources and expertise to perform the verification, severe weather conditions, small spill volume, long time between satellite detection and verification, and the type of substance (the presence of mix of oils and other substances may impose an additional barrier to the identification).

⁹⁴ As per the information inserted in CleanSeaNet feedback form. It cannot be excluded that more CleanSeaNet alert reports (for which feedback has not been obtained) may have led to the identification of potential polluters.

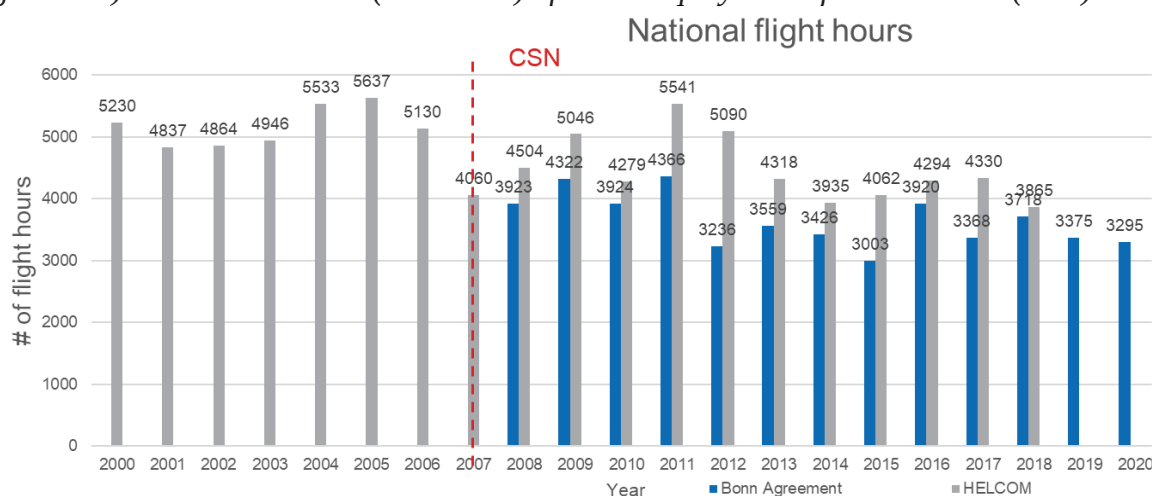
Figure 43. CleanSeaNet alerts verified by Member States (blue) for which Member States recorded that the potential polluter was identified (red).



Sources: Compiled from EMSA CSN services data

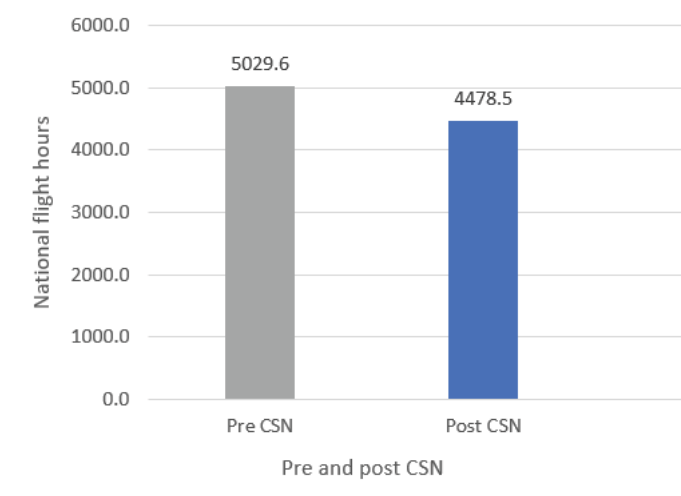
The CleanSeaNet service is valued especially by Member States where less resources are deployed for aerial surveillance because, by utilising CleanSeaNet alerts, they can perform more targeted follow-up activities. As seen in Figure 44, the increase in the number of verification activities performed by Member States might be a result of greater capacity and resource to perform verification or the improved detection capabilities of CleanSeaNet. Figure 45, based on the example of the North Sea (Bonn Agreement) and the Baltic Sea (HELCOM), Member State authorities have been deploying less aerial surveillance resources since the introduction of CleanSeaNet in 2007.

Figure 44. Aerial surveillance activity by competent authorities in the North Sea (Bonn Agreement) and the Baltic Sea (HELCOM) after the deployment of CleanSeaNet (CSN).



Source: Ricardo evaluation support study; NB. In 2007, CleanSeaNet started operation. In 2016, the CleanSeaNet service began gradually acquiring more images from the European Space Agency Sentinel-1 mission. This improved satellite surveillance capacity. The S-1B mission improved the level of satellite coverage over European waters, the number of satellite overpasses and enlargement of the monitored area.

Figure 45. Average number of surveillance flight hours in the Baltic Sea (HELCOM: Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Sweden) before and after the deployment of CleanSeaNet (CSN)



It is worth noting that such services were not available to all Member States before the introduction of CleanSeaNet and it is not expected that all Member States would have had similar capacity in the absence of the Directive. As described in EQ10, CleanSeaNet has provided a cost-efficient way for the detection of potential illegal discharges and polluters.

The other strand of actions foreseen within Article 10 is the development of **common practices and guidance**. Trainings and workshops of EMSA enhanced knowledge exchange, as well as improved the surveillance and enforcement capacity of Member States. Based on stakeholder consultations⁹⁵, Member State authorities value EMSA workshops, in particular the workshops for exchange of experience on ‘the use of surveillance systems for marine pollution detection and assessment’ regularly held under the work programme of the Consultative Technical Group for Marine Pollution Preparedness and Response (CTG MPPR). Specifically, what these workshops are appreciated for:

- the evaluation of case studies;
- experience sharing;
- knowledge exchange on state-of-the art tools for pollution monitoring; and
- knowledge exchange on work done for the improvement of the legal basis for data sharing.

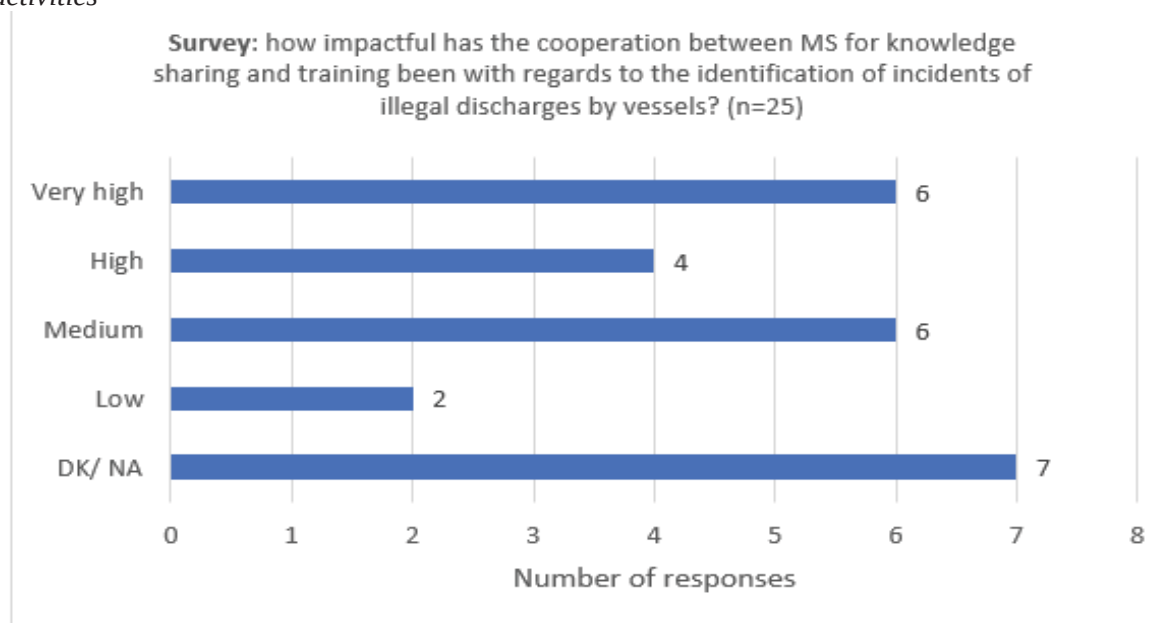
There was also positive feedback provided during stakeholder consultations⁹⁶ on meetings of the CleanSeaNet User Group and the SafeSeaNet Users Training. These were valued for experience and good practice sharing on the use of the satellite-monitoring service. The majority of stakeholders responding to the survey (10 out of 18) have confirmed that

⁹⁵ Information from interviews with 8 Member States

⁹⁶ Information from interviews with 2 Member States

knowledge sharing and EMSA training activities increased Member State capacity to identify incidents of illegal discharges (see Figure 46).

Figure 46. Survey results on stakeholder views on impact of knowledge sharing and EMSA training activities



Source: based on survey and targeted interviews. DK/NA means that the respondent did not know or the question was not applicable.

To sum up, Article 10 activities are relevant to the achievement of the objectives of the Directive. Both the introduction of the CleanSeaNet service and activities promoting EU-wide exchange of experience have been particularly relevant when it comes to strengthening and targeting surveillance and enforcement activities, particularly for Member States with limited resources. Given the cross-border nature of maritime shipping, the information and experience exchange as well as cooperation activities with the support of EMSA are considered as a cost-effective way of action and a clear benefit of the Directive.

5. To what extent has the information and support provided by EMSA's maritime surveillance and reporting systems (CSN service, SSN and THETIS) been used to achieve the objective of the Directive and proved beneficial for Member States and what have been the benefits of the CleanSeaNet service compared to having multiple national systems for oil spill monitoring? (EQ12a, b and c)

The information and support provided by EMSA's maritime surveillance and reporting systems have been used to a large extent to support the objective of the Directive of enhancing maritime environment protection. They do so by assisting Member State authorities in identifying potential polluters. CleanSeaNet, SafeSeaNet and THETIS have proved to be beneficial for Member States with a view of enhancing their surveillance and enforcement capabilities although they have not been optimally used.

CleanSeaNet has led to an improvement and better targeting of the surveillance capabilities of Member State authorities. See EQ6 and EQ11. Nevertheless, the following bottlenecks are considered to reduce the efficient identification, verification and follow up on potential incidents of illegal discharges alerted by CleanSeaNet:

- There is a **time lag in between the actual discharge and the verification of a discharge**. This often jeopardizes the identification of the polluter. The likelihood of identifying the polluter depends on the time passed between the potential discharge (and the satellite image acquisition) and the verification activities taking place. The longer this interval, the higher the likelihood of 'nothing observed'. Aerial surveillance or sampling may take place several hours after the CleanSeaNet alert was sent e.g. because of limited surveillance resources available to Member States⁹⁷. Moreover, the level of resources needed to collect information on an incident occurring far from the territorial seas⁹⁸ of a Member State can be a limitation to enforcing the Directive in its full geographical scope and especially on the high seas.
- **Spills in high traffic intensity areas** may make AIS backtracking and the identification of the polluting ship challenging despite modern replay tools and the contribution of Integrated Maritime Services e.g. automated ship behaviour monitoring tools⁹⁹.
- There is a **time lag in between the actual discharge and the detection by CleanSeaNet**. The fact that certain areas of interest are scanned up to 20 times a month, increases the probability of detection, but it is still likely that when the image is taken, a potential discharge may have already been in the water for many hours.

SafeSeaNet and **THETIS** also contribute towards the achievement of objectives of the Directive and were perceived as useful by the majority of respondents in the stakeholder survey (11 out of 17 respondents).

SafeSeaNet is used to exchange information when pollution of the sea has occurred or when a threat of such is present and communication between Member States is needed. However, only few Member States are submitting pollution incident reports (POLREPs) to alert other Member States on possible pollution cases. Whilst there is an increasing number of reports submitted in SafeSeaNet (118 reports in 2018 and 210 in 2020), 87% of them came from one single Member State.

The THETIS system improved the cooperation of Member States in pollution verification. There were on average (in 2011-2021) over 100 inspection requests (i.e. overriding or unexpected factor messages) logged annually in THETIS arising from suspicions of possible illegal discharges of MARPOL Annex I and II substances .

⁹⁷ Interview input from Sweden and REMPEC

⁹⁸ Or more specifically, the distance from the operational bases at which surveillance resources are stationed

⁹⁹ Interview input from HELCOM and France

The use of all three EMSA tools can have a further possible deterrent effect, by increasing awareness of their existence. If seafarers are aware of these tools and the increased risk of illegal discharges being identified, then they could be discouraged from intentional disposal the illegal polluting substances at sea.

Finally, as seen in the response to EQ11, the benefits of the CSN service use at an EU level come at a cost advantage compared to the establishment and operation of parallel systems by the 22 coastal Member States. Under the assumption that the same level of service would be pursued, an annual cost saving of EUR 7.7 million annually is estimated.

3.3 Coherence

1. How does the Directive contribute to the objectives of relevant EU maritime and environmental legislation, in particular: Directive on Port Reception Facilities (EU) 2019/883, the Marine Strategy Framework Directive (Directive 2008/56/EC), the Directive on the sulphur content of marine fuels (Directive 2016/802/EU), the Waste Framework Directive (Directive 2008/98/EC) and other relevant EU waste legislation, as well as the Commission initiative on marine litter (SWD(2012) 365 final)? (EQ13)

To answer this question, we examined if and how the SSP Directive objectives and provisions are consistent with the key EU maritime and environmental legislation and policy initiatives mentioned in the question.

The Directive contributes to the objectives of the **Marine Strategy Framework Directive** (MSFD) (Directive 2008/56/EC) to ‘protect and preserve the marine environment [and] prevent its deterioration’ and ‘prevent and reduce inputs in the marine environment’. The SSP Directive contributes by addressing the disposal at sea of oil and noxious substances. However, the contribution is partial due to differences in scope of the two instruments. The MSFD defines pollution as the “*direct or indirect introduction into the marine environment, as a result of human activity, of substances or energy, including human-induced marine underwater noise, which results or is likely to result in deleterious effects such as harm to living resources and marine ecosystems, including loss of biodiversity, hazards to human health, the hindering of marine activities, including fishing, tourism and recreation and other legitimate uses of the sea, impairment of the quality for use of sea water and reduction of amenities or, in general, impairment of the sustainable use of marine goods and services*” (Article 3(8)). This definition is much broader than the scope of the Directive (that includes only substances identified in MARPOL Annexes I & II). It includes all hazardous substances, marine litter, energy and underwater noise. In brief, the SSP Directive only partly contributes to the Marine Strategy Framework Directive objectives.

The Directive also contributes to the objectives of the **Port Reception Facilities Directive** (PRF) (Directive (EU) 2019/883) to ‘*protect the marine environment against the negative effects from discharges of waste from ships that use ports located in the Union, while ensuring the smooth operation of maritime traffic*’, by addressing the disposal at sea of oil and noxious substances (Annexes I and II of MARPOL). With this regard, both Directives are complementary in targeting waste generated by ships. However, the complementarity is only

partial due to the narrower scope of the SSP Directive with regards to polluting substances. The PRF addresses, also, MARPOL Annexes IV (sewage), V (garbage) and VI (waste including discharge water from scrubbers). This means that the Directives do not fully complement each other since disposing at sea of the Annex IV, V and VI substances within the scope of the PRF is not considered as an offence under the SSP Directive. If a ship was to discharge polluting substances covered by Annex IV-VI at sea, the infringement would fall on international legislation, i.e. MARPOL as well as any relevant national laws. It is noteworthy that the preamble (recital 13) of the Port Reception Facilities Directive encourages an assessment of the desirability to extend the scope of the SSP Directive to align it with MARPOL.

The **Directive on the sulphur content of marine fuels** (Sulphur Directive) (Directive 2016/802/EU) sets as an objective the reduction in the sulphur content of certain liquid fuels. It introduced limits for the sulphur content of fuels used in the European seas, in alignment with Annex VI of MARPOL, to reduce SOx exhaust gases deriving from the ship engine combustion of the said fuels¹⁰⁰. Directive (EU) 2016/802 allows the use of exhaust gas cleaning systems (EGCSs) or scrubbers as an alternative compliance method with the low sulphur in fuel requirements under the directive. The scope of the SSP Directive does not cover SOx emissions to air, which are regulated under Annex VI of MARPOL, and so the two Directives work in parallel as they cover different aspects of the MARPOL Annexes. Due to the diverging scope, the SSP Directive does not contribute to the objectives of Directive (EU) 2016/802 as it does not cover air pollution.

Marine litter is addressed in several EU Directives. It is in scope of the **Waste Framework Directive** (WFD) (Directive 2008/98/EC) that applies to all wastes, with several exceptions, including emissions to air and sewage. The WFD outlines a framework for the prevention, recycling and disposal of waste, including marine litter while the SSP Directive aims to discourage the illegal discharge of waste into the sea. In this respect, the two instruments complement each other.

Furthermore, marine litter is addressed by the **Single-use Plastics Directive** (EU) 2019/904 which regulates the use, production, consumption and waste management of single use plastics and fishing gear and includes market restrictions for certain products and targets for collection and recycling. The Commission is also assessing possible measures for the reduction of microplastics intentionally added in products but unintentionally released to the environment during their life cycle¹⁰¹. In principle, these EU policies and initiatives aim to prevent and reduce the environmental impact of (micro-) plastics on the environment, and in particular, on marine environment and are thus aligned with the objective of the SSP Directive to enhance environmental protection. Nevertheless, they are not expected to act complementary to the SSP Directive due to the scope difference as plastic pollution is not covered by the SSP Directive.

¹⁰⁰ The operational discharge waters from EGCs are also under scrutiny at the IMO due to their negative impact on the sea water quality and on the marine environment.

¹⁰¹ https://ec.europa.eu/environment/news/microplastics-public-consultation-2022-02-22_en

2. Are there any inconsistencies/overlaps/gaps between the Directive and other interventions at EU/national/international level which have similar objectives? (EQ14)

Beyond the EU initiatives addressed in EQ13, the coherence of the Directive with other relevant EU legislations with similar objectives is further assessed.

The **Environmental Crime Directive** (ECD) (Directive 2008/99/EC) supports the protection of the maritime environment as its focus is on defining serious offences that harm the environment and requires Member States to introduce harmonised criminal penalties for these offences. The ECD currently does not cover ship-source pollution. However, based on the legislative proposal of the Commission of 2021 the scope of the ECD is to be extended to cover ship-source pollution. Once the new ECD is adopted, it will set the framework under which criminal offences will no longer be addressed in the SSP Directive. In such case, the SSP Directive will be a sectoral instrument for ship-source pollution complementary to the ECD.

The **Environmental Liability Directive** (ELD) (Directive 2004/35/EC) establishes a framework of environmental liability based on the 'polluter-pays' principle, to prevent and remedy environmental damage. Pursuant to the ELD, damage or imminent threat of such damage to protected species and natural habitats, as those are designated by relevant EU and national legislation, water damage to inland surface waters, transitional waters, coastal waters (at a distance of one nautical mile on the seaward side from the nearest point of the baseline from which the breadth of territorial waters is measured) and groundwater and land damage from, amongst others, transport activities by sea of dangerous goods or polluting goods as defined in Council Directive 93/75/EEC concerning minimum requirements for vessels bound for or leaving Community ports and carrying dangerous or polluting goods (repealed by Directive 2002/59/EC of the European Parliament and of the Council of 27 June 2002 establishing a Community vessel traffic monitoring and information system and repealing Council Directive 93/75/EEC) are subject to the provisions of the ELD. These provisions prescribe, amongst others, that, where there is an imminent threat of such damage occurring, the operator shall, without delay, take the necessary preventive measures. In this context, 'preventive measures' means any measures taken in response to an event, act or omission that has created an imminent threat of environmental damage, with a view to preventing or minimising that damage. The competent authority shall require that the preventive measures are taken by the operator. If the operator fails to comply, the competent authority may take these measures itself. Although the SSPD does not directly regulate ex ante ship-source pollution, but only deals with ex-post imposition of penalties, preventive measures may be relevant in determining whether a discharge is considered an infringement. As such, SSPD transposes Regulation 4.2 of MAPROL Annex I and Regulation 3.1.2 of MARPOL Annex II, which provide that, amongst other conditions, if all reasonable precautions have been taken after the occurrence of the damage or discovery of the discharge for the purpose of preventing or minimizing the discharge, then discharge may not be considered as an infringement. Nevertheless, seeing as the ELD delineates, amongst others, the powers of the competent authorities in such scenario of imminent threat to the environment, whereas the SSP Directive prescribes the conditions upon if penalties would be imposed when that

scenario has indeed materialised in a discharge, it is concluded that the ELD and SSP Directive are complementary to one another. With regards to 'remedial measures' prescribed by the ELD and the obligation of the polluter to pay the remediation costs, the ELD and SSPD do not coincide, since the SSP Directive imposes penalties to the responsible actor for a polluting event, whereas the ELD regulates the costs of restoration, rehabilitation or replacement of damage caused by a polluting event.

The **Port State Control Directive** (PSCD) (2009/16/EC) aims to reduce substandard shipping in the waters under the jurisdiction of Member States. This includes substandard performance in the area of the application of environmental legislation. It aims to align Member State compliance with international and relevant EU legislation, and it works in the same direction as the SSP Directive in view of targeting an improved enforcement of MARPOL. Nevertheless, the PSCD scope is broader than that of the SSP Directive as it covers also waste included in Annexes IV, V and VI from MARPOL which are outside the scope of the Directive.

The **European Mission, “Restore our Ocean and Waters by 2030”** launched within the Horizon Europe 2021-2027 programme sets, amongst others, the goal to “Prevent and eliminate pollution”. Through this Mission, research and innovation activities are funded through the Horizon Europe programme with the aim to prevent, minimise, eliminate and monitor and control pollution of EU waters. In this respect, this Mission’s objective aligns with that of the SSP Directive as it aims to improve environmental protection of the seas. Nevertheless, the Mission has a broader scope, dealing not only with ship-source pollution but also with other substances (including micro-plastic waste, chemical and nutrient pollution) that goes beyond what is targeted by the Directive. The Mission has launched 11 research projects under this objective, however the majority of them are targeting (micro-) plastic pollution and pollution from fishing gears while no direct reference is made to MARPOL Annex I and II substances. Thus, to date this initiative has little relevance to the SSP Directive. The Mission has launched two sets of calls, one in 2021 addressing in particular plastics and microplastics (relevant to MARPOL Annex V), for which projects have already been selected and a second one in 2022 addressing chemicals (relevant to MARPOL Annex II), for which projects are still under evaluation. Nutrients are expected to be covered in the future (relevant to MARPOL Annex IV).

With reference to regional level, inconsistencies were found between the SSP Directive and international or regional conventions related to differences in scope, whether this related to the range of discharges covered, the geographical scope and/or the types of ships/activities covered. Marine environmental protection is coordinated regionally through the EU’s engagement in the **Regional Sea Conventions**, through the strong links with the EU’s own implementation of the Marine Strategy Framework Directive, thereby ensuring that both EU Member States and third countries aspire to an equivalent ambition of protection of the seas and ocean. A number of regional sea conventions cover EU marine waters: the Helsinki Convention – HELCOM (Baltic Sea), Oslo-Paris Convention – OSPAR (North-east Atlantic), the Bonn Agreement (North Sea), the Barcelona Convention – UNEP-MAP (the Mediterranean) and the Bucharest Convention (Black Sea). The EU is a contracting party to

the first three. There are differences in the scope of substances covered. More specifically, the Helsinki convention applies to substances listed in Annex I-V of MARPOL, and the Bucharest convention applies to substances listed in Annex I-IV. The OSPAR convention applies to all wastes with narrow exceptions, and the Bonn Agreement and the Barcelona convention apply, on top, to emissions to air which are covered in Annex VI of MARPOL.

With reference to international level, a first key point relates to the narrow scope of the SSP Directive (Article 2) compared to the **MARPOL Convention** concerning the discharges covered, focusing only on the discharges covered by Annex I and Annex II of MARPOL but not including harmful substances in packaged form, sewage, garbage and emissions to air (Annexes III, IV, V and VI respectively).

In addition, plastic pellets are not classified as harmful substances in packaged form but discussions are ongoing in IMO to assess the best possible solution to tackle the environmental risks associated with the maritime transport of pellets, starting with their classification as harmful substances.

3.4 EU Added Value

1. What is the additional value of the Directive compared to what has been or what could have been achieved by Member States at national and/or regional and international level, for example with a view to the cross-border impacts of ship source pollution? (EQ15)

The adoption and implementation of the Directive has resulted in significantly improved spill detection capabilities (see EQ6 and EQ12) compared to what could have been achieved with actions at a national, regional or international level only. This has been achieved mainly with the enhanced satellite surveillance capabilities and the improved cooperation with the use of EMSA-developed systems and tools. The CleanSeaNet service has been a key driver to achieving economies of scale in implementing otherwise costly surveillance activities which have benefited mostly Member States with weaker pre-existing surveillance regimes and less resources in their disposal perform the required surveillance activities (see EQ10 and EQ11). Ultimately, the improved detection capabilities have supported a more effective deterrence of illegal discharges resulting in an improved environmental protection status (see EQ4).

The enhanced surveillance activities might be linked to a certain extent with the increase in the identification of potential polluters by Member States (See EQ6). While this may be attributed to the increased number of potential detections/ alerts, the improved identification capabilities introduced by the use of EMSA systems might have led to at least a certain level of improvement of Member State capabilities to identify potential polluters, although the results of this process depend also heavily on the verification activities undertaken and the resources devoted to them.

Nevertheless, despite leading to a more harmonised legal framework, the Directive has not been able to deliver a harmonised approach in the way Member States prosecute infringements and impose penalties on verified offenders. The approach followed is still

highly dependent on the legal tradition of each Member State and the Directive has brought little change to pre-existing practices (see EQ5).

2. Would it have been possible to achieve the same results without the Directive? (EQ16)

The introduction of the EMSA-developed systems and services has led to an enhanced and more targeted verification by Member States, which could have not been achieved in their absence. This has been particularly the case with the introduction and use of CleanSeaNet that has enhanced the targeting of Member State authorities (see EQ4, EQ10 and EQ11). Although SafeSeaNet and THETIS tools would have still been in place without the Directive, the Directive has, to a certain extent, prompted their use by Member State authorities. Although the current use levels appear to have room for improvement, it is considered likely that their use would have been even lower in the absence of the Directive (see EQ12).

As mentioned also in EQ3, the adoption of the Directive has led to some action towards harmonising the legal framework of Member States, however the Directive did not achieve a practical shift in the proportion of cases treated criminally as the prevalence of existing legal traditions in Member States has prevented relevant change (see EQ3 and EQ5). This means that the Directive has not been conducive in delivering results in this respect that would not be achieved in its absence.

3.5 Relevance

1. To what extent is the transposition into EU law of standards introduced by the International Convention for the Prevention of Pollution from Ships (MARPOL), related to the prohibition to discharge polluting substances into the sea and to the specification of the penalties to be imposed, still required and appropriate? (EQ1)

Two key **problems and needs** were identified by stakeholders (see Figure 1) which are considered in more detail below.

Issue 1 - *‘Maritime transport safety and ship-source pollution prevention’*: while the number of medium and large oil spills of over 7 tonnes has been in decline since the 1990s. As discussed in more detail in EQ4, ship-related pollution incidents continue to occur. Stakeholders (consulted in the survey and interviews) largely agree that this issue is still relevant (15 out of 23 agreed and 8 out of 23 strongly agreed). It was acknowledged by Member State authorities, international bodies and the maritime sector¹⁰² that whilst shipping is considerably safer and there are fewer spill incidents, in part due to improvements in technology and training standards, ship-source pollution is still occurring, and further improvements are still required. Member State authorities¹⁰³ and maritime sector stakeholders¹⁰⁴ also pointed to the recent adoption of more ambitious target at EU level to work towards ‘zero pollution’, including EU Action Plan: *‘Towards a Zero Pollution for Air,*

¹⁰² 3 Member State authorities; regional body HELCOM; 3 industry stakeholders

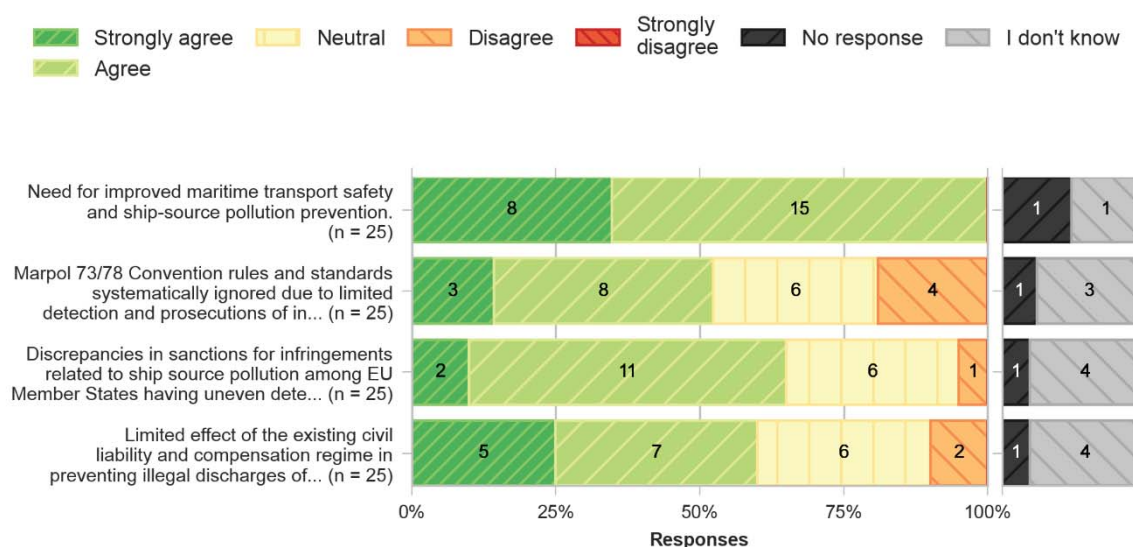
¹⁰³ CY

¹⁰⁴ ECSA, ICS

Water and Soil' (European Commission, 2021) pointing to the ongoing relevance of action in this area (see also EQ2). This indicated that the issue/problem still required action.

Issue 2 - '*MARPOL 73/78 Convention rules and standards systematically ignored due to limited detection and prosecution*': The effectiveness section revealed that although there has been increased satellite surveillance capacity (since 2015 via CleanSeaNet) allowing the identification of more/smaller spills and demonstrating increased detection, there is limited data/information available on prosecution activities. The majority of stakeholders interviewed agreed that the incorporation of international rules into EU law is still relevant (9 Member State authorities and a regional body). In conclusion, although detection has improved, prosecution of infringements is uncertain, and most stakeholders agree that the issue is relevant.

Figure 1. Considering the issues identified at the time of the Directive adoption, to what extent do you agree that these issues are still relevant in the current context?



Source: Stakeholder survey

Concluding, consideration of the issues/problems identified by stakeholders and assessment of the Directive's objectives reveal that despite progress made in pollution detection and enforcement, pollution still occurs – the transposition of MARPOL standards into EU law is therefore still required and relevant.

2. To what extent is the Directive still relevant for the EU wider policy goals and priorities and for EU citizens? (EQ2)

The extent to which objectives and provisions of the Directive are still relevant in view of EU wider policy goals and priorities and for EU citizens were reflected upon in order to answer EQ2.

Wider EU policy goals are set out in a number of key policy initiatives.

The **European Green Deal** and the EU Action Plan: '*Towards a Zero Pollution for Air, Water and Soil*' (European Commission, 2021) set out a target of zero pollution ambition by

2050 for ‘air, water and soil pollution to be reduced to levels no longer considered harmful to health and natural ecosystems, that respect the boundaries with which our planet can cope, thereby creating a toxic-free environment’. Under the Zero Pollution Action Plan (ZPZP), specific targets have been set for 2030 to speed up reducing pollution at source, including those aimed at water, which are: “improving water quality by reducing waste, plastic litter at sea (by 50%) and microplastics released into the environment (30%)”.

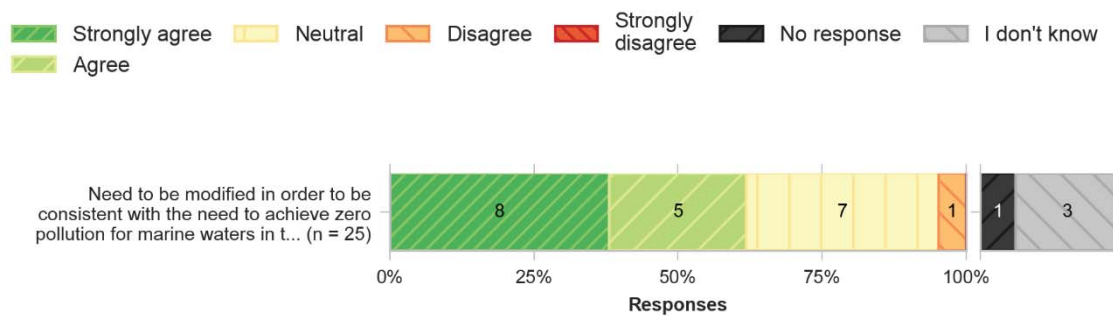
The **Sustainable and Smart Mobility Strategy** (SSMS) aims to significantly reduce emissions from the transport sector and to become more sustainable. Relevant flagships include ‘Flagship 1: Boosting uptake of zero-emission vehicles, renewable & low-carbon fuels and related infrastructure’ (including use of sustainable maritime fuels); ‘Flagship 2: Creating zero-emission airports and ports’; ‘Flagship 4: Greening freight Transport’ (including making European Maritime areas sustainable, smart and resilient); and ‘Flagship 1: Enhancing transport safety and security’.

The **UN’s Agenda for Sustainable Development** (adopted by all UN Member States in 2015) (United Nations, 2015) provides a shared blueprint for peace and prosperity for people and planet, now and in the future, and is supported by 17 Sustainable Development Goals (SDGs). SDG 14 focused on water, in particular to “Conserve and sustainably use the oceans, seas and marine resources for sustainable development”, and is supported by ten targets to achieve this goal. Of particular relevance is target 14.1: “by 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution”.

The Directive’s objectives are relevant in general terms, as they support and contribute towards the objectives of the EU’s wider policy goals. However, these goals tend to be more ambitious in relation to environmental protection, with EU political priorities focusing on addressing climate change and pollution prevention.

Stakeholder input also supports the conclusion that the Directives objectives only partially support the EU’s objectives and priorities of achieving zero pollution for marine waters in the context of the Green Deal, with just over half of stakeholders (of the survey) agreeing that objectives would need to be modified to remain consistent with the need to achieve zero pollution for marine waters in the context of the European Green Deal (13 out of 25 – see Figure 2).

Figure 2. To what extent do you agree that objectives need to be modified in order to be consistent with the need to achieve zero pollution for marine waters in the context of the European Green Deal?



Source: Stakeholder survey

In terms of **EU citizens' priorities**, marine pollution was identified as important by 40% of EU citizens in 2019 (ranked 4th, increased from 33% in 2017¹⁰⁵) in the latest Eurobarometer on environmental issues. While marine pollution does not only cover pollution resulting from ships, it can be argued that, in general, the Directive objectives reflect the EU citizen's environmental priorities.

On the basis of the analysis above, the Directive appears to be only partially relevant, with the needs and objectives of the EU wider policy goals being more ambitious in terms of environmental protection. However, it is largely in line with what appears to be an increasing prioritisation of EU citizens towards the protection of the marine environment.

The evaluation matrix is provided in the Figure 3 to Figure 7.

¹⁰⁵ Climate change (53% of respondents in 2019, 51% in 2017), air pollution (46% of respondents in 2019 and 2017) and the growing amount of waste (46% in 2019; 40% in 2017) were the three most important environmental issues on the basis of the responses.

Figure 3: Evaluation matrix - effectiveness

Question	Sub-question	Judgement criteria	Indicator	Data sources
EQ3 - What implementation measures have been introduced in the Member States to implement the Directive? Are there any significant differences in the effectiveness of implementation measures across the Member States? Is national transposition law sufficiently clear and enforceable to work in practice?	EQ3.1 What implementation measures have been introduced in the Member States to implement the Directive?	Member States have introduced specific measures (enacted or amended relevant legislation) to transpose the Directive 2005/35 and its amendments in 2009.	Number of MS which introduced transposition measures as a follow up to the adoption of the Directive and its amendment in 2009 Different types of definitions used by Member States regarding what constitutes an infringement and a minor/major case	North Sea Manual on Maritime Pollution Offences (North Sea Network of Investigators and Prosecutors) (NSNP, 2019) Manual on prosecuting environmental crime in the Baltic Sea region (ENPRO, 2020) EMSA study on the Implementation of Ship Source Pollution Directive 2005/35 in the EU Member States, 2011 Targeted questionnaire Data requests Interviews with Member States competent and enforcement authorities
	EQ3.2 Are there any significant differences in the effectiveness of implementation measures across the Member States?	Member States have adopted relevant procedures to hold natural and/or legal persons liable for illegal discharges (administrative and/or criminal charges)	Differences between Member States in the specific procedures introduced to bring administrative and/or criminal charges against natural and/or legal persons liable for illegal discharges as a result of the implementation of the Directive	North Sea Manual on Maritime Pollution Offences (North Sea Network of Investigators and Prosecutors) (NSNP, 2019) Manual on prosecuting environmental crime in the Baltic Sea region (ENPRO, 2020) Data Request Targeted questionnaire Interviews with Member States competent and enforcement authorities
	EQ3.3 Is national transposition law sufficiently clear and enforceable to work in practice?	Member States have introduced provisions on definition of infringements and penalties and definition of persons that can be held liable that are clear to enforcement authorities and	Differences between Member States in the definition of infringements is clear to enforcement authorities Differences between Member States in the definition of	Sanctions, penalties and fines issued by BONN AGREEMENT and HELCOM Contracting Parties for waste disposal offences at sea (BONN AGREEMENT, 2017)

Question	Sub-question	Judgement criteria	Indicator	Data sources
EQ4 To what extent has the Directive had a dissuasive effect as regards reducing the number of incidents of discharges of substances covered by MARPOL Annexes I and II and thus contributed to the overall objectives of improving maritime safety and enhancing protection of the marine environment from pollution by ships?	EQ4.1 To what extent has the Directive had a dissuasive effect as regards reducing the number of incidents of discharges of substances covered by MARPOL Annexes I and II?	other stakeholders. Evidence suggesting that the implementation of the Directive can be directly linked with a reduction in the number of incidents of discharges for MARPOL Annex I/II	persons that can be held liable is clear to enforcement authorities Change in the number of (verified) incidents of discharges of MARPOL Annex I and II substances since 2005 Views of the relevant stakeholders regarding the dissuasive effect of the introduction of criminal penalties for infringements. Views of the relevant stakeholders regarding the dissuasive effect of the enhancement.	Data Request Targeted questionnaire Interviews with Member States competent and enforcement authorities CSN data on potential spills and verification results. Data monitoring illegal discharges of MARPOL Annex I and II substances from regional cooperation mechanisms: -HELCOM Response Working Group / SeaTrackWeb -OSPAR Secretariat / OTSOPA Data from Member States on illegal discharges of MARPOL Annex I and II substances Targeted stakeholder survey, data requests and interviews on the impact of the Directive (and CSN) on reducing the number of illegal discharges EMSA (2021) EMTER Report ITOPF (2021) Global trends in oil spills from tankers
	EQ4.2 To what extent has the directive contributed to the overall objective of enhancing protection of the marine environment from pollution by ships and improvement of maritime safety?	Evidence suggesting the Directive has been effective reducing the number and size of (intentional) spills.	Change in the size of the spills and extent of the damage for each individual incident. Change in the identified shipping industry behaviour regarding intentional spills.	EMSA (2021) EMTER report CSN data of potential detections and (where applicable) verified illegal waste discharges database Data monitoring illegal discharges of MARPOL Annex I and II substances from regional and international cooperation mechanisms: -HELCOM Response Working Group / SeaTrackWeb

Question	Sub-question	Judgement criteria	Indicator	Data sources
				-OSPAR Secretariat / OTSOPA -IMO circulars Targeted stakeholder interviews regarding observed changes in the shipping industry's performance and behaviour towards intentional spills. Targeted stakeholder survey, data requests and interviews on the impact of the Directive on protecting the maritime environment
EQ5 To what extent has the Directive been effective in terms of ensuring that infringements covered by the Directive have been made punishable by effective, proportionate and dissuasive penalties? To what extent has the Directive been conducive to a harmonisation at EU level of penalties for such infringements?	EQ5.1 How do the penalties set vary among Member States?	Level of variation in the minimum and maximum penalties foreseen by legislation among Member States	Average level of penalties imposed for natural or legal persons for illegal waste discharges including minimum and maximum level (administrative and criminal).	Study on the Implementation of Ship Source Pollution Directive 2005/35 in the EU Member States (EC, 2011) Review of existing applicable sanctions at national level with regard to illicit ship pollution discharges (REMPEC) Sanctions, penalties and fines for waste disposal offences at sea (BONN AGREEMENT, 2017) COMMISSION STAFF WORKING DOCUMENT, EVALUATION of the DIRECTIVE 2008/99/EC on the protection of the environment through criminal law (EU 2020) Targeted survey Targeted interviews
	EQ5.2 Are the penalties effective, proportionate and dissuasive?	Available evidence suggests that penalties are proportionate to the severity of infringements Level of penalties imposed are dissuasive for future	Proportion of pollution detections for which the polluter is identified and sanctioned Type and level of penalties set	Study on the Implementation of Ship Source Pollution Directive 2005/35 in the EU Member States (EC, 2011) CSN data on potential spills

Question	Sub-question	Judgement criteria	Indicator	Data sources
		infringements	by Member States Extent that stakeholder agree (or not) that penalties applied in the case of infringement are effective proportionate and dissuasive?	and verification results. Evaluation Study on the Implementation of Directive 2008/99/EC on the Protection of the Environment through Criminal Law by Member States (Milieu, 2013) Targeted survey questions regarding the effectiveness, proportionality and dissuasiveness of sanctions Targeted interviews questions regarding the effectiveness, proportionality and dissuasiveness of sanctions Case studies on specific incidents of illegal discharges
EQ6. To what extent has the Directive improved the cooperation between Member States to ensure that discharges of polluting substances are detected in time and that the offenders are identified?	EQ6.1 Has the implementation of the Directive contributed to a cooperation after detection of discharges of polluting substances?	Cooperation in the context of the Directive, have improved the capability to verify discharges in a timely fashion.	Number of potential pollution detections reported and verified.	CSN data on potential spills and verification results. MS reporting on the implementation of the Directive and data requests responses (where available) regarding pollution detections. Specific case studies featuring the use of CSN satellite surveillance. MS authorities views on the effectiveness of CSN to support surveillance activities.

Question	Sub-question	Judgement criteria	Indicator	Data sources
EQ7. To what extent has the geographical scope of the Directive contributed to its effectiveness?	EQ6.2 To what extent has the implementation of the Directive led to improved exchange of information and evidence among Member States when it comes to attributing discharges to specific ships?	Cooperation activities in the context of the Directive have improved the capability to attribute discharges to specific ships.	Number of Port State Control (PSC) "unexpected or overriding factors" related to incident reports on MARPOL (Annex I and II).	EMSA THETIS database on PSC inspections. Specific case studies featuring cross-border cooperation. MS authorities views on the effectiveness of cross-border cooperation for the identification of potential offenders.
	EQ7.1 Has the definition of the geographical scope (as provided in article 3) ensured that all infringements are effectively punished?	How far the current scope ensures that all infringements are effectively punishable	Extent that stakeholders agree (or not) that the geographical scope of the Directive had a positive/negative impact on ensuring that all infringements are punished.	MS reporting on the implementation of the Directive and data requests responses (where available) regarding pollution detections. Input from enforcement authorities via interviews and survey responses.
	EQ7.2 What has been the impact of the inclusion in the scope of the Directive of the high seas in bringing charges against the responsible for illegal waste discharges?	Whether MS can effectively bring charges /sanctions against offenders for infringements occurring on the high seas	Extent that stakeholders agree (or not) agree that including the high seas to the scope of the Directive had a positive/negative impact in terms of bringing charges against infringements committed. Capacity of MS to survey the high seas. Capability of MS to bring charges/sanctions for infringements occurring in the high seas.	Input from enforcement authorities via interviews and survey responses. Input from certain case studies.

Figure 4: Evaluation matrix - efficiency

Question	Sub-question	Judgement criteria	Indicator	Data sources
EQ9. To what extent has the Directive generated costs and benefits for the relevant national authorities?	What, if any, have been the one-off and ongoing costs for national authorities associated with the implementation of the Directive?	There are limited additional costs produced by the Directive's implementation.	Additional costs for authorities caused by the Directive's implementation.	Survey inputs from Member State authorities Interview inputs from Member State authorities
	What, if any, have been the benefits (i.e. savings) for Member State authorities with regards to surveillance and enforcement changes?	The implementation of the Directive has led to more efficient surveillance and enforcement activities.	Surveillance and enforcement cost savings as a result of the Directive's implementation.	Survey inputs from Member State authorities Interview inputs from Member State authorities EMSA data on the cost of EMSA activities (i.e. CSN, knowledge sharing and training activities etc.)
EQ10. Could the same results have been achieved with less funding/lower cost?	What is the cost reduction potential for achieving the same results as currently for specific aspects of the implementation of the Directive?	No/limited scope for significant cost reductions without a negative impact on the achievement of the results in terms of monitoring/surveillance, collection of evidence and infringement procedures for offenders	Existence of cost reduction potential from alternative approaches to implement the Directive.	Interview inputs from Member State authorities
EQ11. To what extent have the accompanying measures listed in Article 10 of the Directive been relevant to the overall objectives of improving maritime safety and enhancing protection of the marine environment from pollution by ships?	To what extent have the information systems developed by EMSA been relevant to the Directive's objectives?	The introduction of information systems has improved surveillance and enforcement capacity of Member States.	Number of potential illegal discharges identified via CSN (also in which the potential polluter is identified)	CSN data on potential spills and verification results. Stakeholders' inputs through surveys and interviews with national authorities, regional bodies and the industry.
	To what extent have the training activities, common practices and guidelines developed by EMSA supported the achievement of the Directive's objectives?	The new training activities, common practices and guidelines developed have contributed to improving the surveillance and enforcement capacity of Member States. The increased cooperation and information exchange has	Number of knowledge exchange and training sessions delivered by EMSA. Number of guidelines developed delivered by EMSA. Views of the stakeholders on the relevance of the following tools of international	Stakeholders' inputs through surveys and interviews with national authorities, regional bodies and the industry.

Question	Sub-question	Judgement criteria	Indicator	Data sources
		improved the surveillance and enforcement capacity of Member States.	cooperation: -EMSA workshops -Meetings of the CleanSeaNet User Group and the SafeSeaNet Users Training -Regional agreements (such as Bonn Agreement, HELCOM, REMPEC etc.).	
EQ12a. To what extent has the information and support provided by EMSA's maritime surveillance and reporting systems been used to achieve the objective of the Directive?	To what extent have Member States used the EMSA information and support tools to enhance their surveillance and enforcement activities?	High level of use of EMSA information and support tools by Member States.	Number of occasions in which Member States use CSN to trace the responsible for potential maritime pollution Number of Member States using SSN to submit pollution incident reports (POLREPs) Number of Member States using THETIS to develop a risk-based approach to perform inspections in the context of the Directive	CSN data on potential spills and verification results. SafeSeaNet (SSN) data on the number of POLREPs submitted. THETIS data on ship inspection requests/ deficiencies reported. MS interviews regarding the use of CSN, SSN and THETIS
EQ12b. To what extent have the maritime surveillance services and reporting systems hosted by EMSA, such as CSN, SSN and THETIS, proved beneficial for Member States with a view to achieving the objective of the Directive?		The use of the EMSA maritime surveillance services and reporting systems has had a (strong) positive contribution towards the implementation of the Directive. The improvement of satellite technologies, the increase in coverage and precision, and the enhanced response and feedback to satellite alerts contribute to the success of the overall strategy.	Number of illegal waste discharges detected via the use of CSN Number of inspections showing deficiencies to MARPOL Annex I and II reported under Port State Control based on THETIS Number of pollution incident reports (POLREPs) reported by MS to the SafeSeaNetwork Views of Member State authorities regarding the usefulness of CSN, SSN and THETIS in enhancing surveillance and enforcement activities.	CSN data on potential spills and verification results. MS survey and interviews regarding the use of CSN to improve surveillance activities. MS survey and interviews regarding the use of SSN data on vessel positioning in order to identify potential polluters. MS survey and interviews regarding the use of THETIS to organise inspections in cooperation with other Port State authorities. Case studies findings regarding the use of EMSA-hosted systems in surveillance and enforcement activities.

Question	Sub-question	Judgement criteria	Indicator	Data sources
EQ12c. What are the benefits of the CSN service when compared to having multiple national systems for oil spill monitoring?	Has the use of CSN led to improved levels of oil spill detection?	Spill detection capabilities of Member States have improved as a result of the introduction of CSN.	Change in number of spills detected with the introduction of CSN.	THETIS data on ship inspection requests CSN data on potential spills and verification results. MS interviews regarding views of the surveillance improvements as a result of the use of CSN.
	Has the use of CSN led to cost savings for Member States?	CSN represents a cost saving compared to the operation of multiple national systems with similar capabilities of oil monitoring.	Cost reduction achieved with the operation of CSN compared to multiple national systems.	MS interviews regarding the cost of national satellite surveillance systems MS and EMSA data request regarding the cost of national satellite surveillance systems and CSN.

Figure 5: Evaluation matrix - Coherence

Question	Sub-question	Judgement criteria	Indicator	Data sources
EQ13. Are there any inconsistencies/overlaps/gaps between the provisions of the Directive and those of other EU instruments?	Are the scope, provisions and activities foreseen by the different Directive provisions in line (consistent) with one another?	There are no inconsistencies between the Directive's scope, provisions and foreseen activities (internal coherence)	Level of consistency (or not) of the different measures/actions foreseen by the Directive	Analysis of the Directive's provisions Interview inputs from Member State authorities and EMSA
	Are the scope, provisions and activities of the Directive in line (consistent) with those of the other EU legislation/policies?	The overall purpose, objectives, scope and relevant provision used in other EU legislation/policy are consistent with those of the Directive.	Level of consistency (or not) of the objectives, scope and measures/actions of the Directive with those of the other EU legislation/policy	Analysis of the EU legal framework Interview inputs from Member State authorities and EMSA
EQ14. Are there any inconsistencies/overlaps/gaps between the Directive and other interventions at international/regional level which have similar objectives?	Are there any of the objectives, scope and provisions of the Directive that are not in line/contradict/overlap with the provisions of other international conventions with similar objectives?	The overall purpose, objectives, scope and relevant provisions of international Conventions (i.e. MARPOL, UNCLOS) are not inconsistent with those of the Directive.	Level of consistency (or not) of the Directive's objectives, scope and provisions with the scope of the MARPOL and UNCLOS conventions.	MARPOL convention UNCLOS convention Relevant court cases (ex. Intertanko case (ECJ C-308/06) on the interpretation of the SSP Directive vis à vis MARPOL and UNCLOS Conventions) Interview inputs from Member State authorities, EMSA and IMO
	Are there any of the objectives, scope and provisions of the Directive that are not in line/contradict/overlap with the provisions of other regional initiatives/conventions with similar objectives?	The overall purpose, objectives, scope and relevant provisions of regional initiatives/conventions are not inconsistent with those of the Directive.	Level of consistency (or not) of the objectives, scope and provisions of the Directive with the objectives of the regional conventions aiming to protect the maritime environment	HELCOM OSPAR REMPEC Bucharest Commission Copenhagen Agreement Interviews with regional cooperation bodies

Figure 6: Evaluation matrix – EU added value

Question	Sub-question	Judgement criteria	Indicator	Data sources
EQ15. What is the additional value of the Directive compared to what has been or what could have been achieved by Member States at national and/or regional and international level, for example with a view to the cross-border impacts of ship source pollution?	Has the adoption of the Directive resulted in a more harmonised approach of Member States in implementing international regulation compared to what could have been achieved with actions at a national, regional or international level only?	The adoption of the Directive has resulted in a more harmonised approach of Member States in implementing international regulation compared to what could have been achieved with actions at a national, regional or international level only.	Difference in the level of harmonisation of Member State approaches in implementing international regulation with and without the introduction of the Directive.	Interview and survey inputs regarding the effectiveness of EU-level action in harmonising implementation of international regulation.
	Has the adoption of the Directive resulted in improved spill detection capabilities compared to what could have been achieved with actions at a national, regional or international level only?	The adoption of the Directive resulted in improved spill detection capabilities compared to what could have been achieved with actions at a national, regional or international level only.	Difference in the Member State spill detection capabilities with and without the introduction of the Directive.	Interview and survey inputs regarding the effectiveness of EU-level action in improving spill detection capabilities of Member States.
EQ16. Would it have been possible to achieve the same results without the Directive?	How harmonised could the Member States legal framework application be with actions taken at a national, regional and/or international level?	The Directive's introduction led to a more harmonised approach in Member States approach in implementing international regulation compared to what could be achieved without it.	Expected level of harmonisation of Member State approaches in implementing international regulation with actions at a national, regional or international level only.	Interview and survey inputs regarding the potential harmonised implementation of international regulation with national-, regional- or international-level actions only.
	What improvements to the Member States spill detection capabilities could be achieved with actions taken at a national, regional and/or international level?	The Directive's introduction led to improved Member State spill detection capabilities compared to what could be achieved without it.	Expected level of spill detection capabilities achievable with actions at a national, regional or international level only.	Interview and survey inputs regarding the potential spill detection capabilities improvement with national-, regional- or international-level actions only.

Figure 7: Evaluation matrix - Relevance

Question	Sub-question	Judgement criteria	Indicator	Data sources
EQ1. To what extent is the transposition into EU law of standards introduced by the International Convention for the Prevention of Pollution from Ships (MARPOL), related to the prohibition to discharge polluting substances into the sea and to the specification of the penalties to be imposed, still required and appropriate?	EQ1.1 To what extent is there an ongoing need for action to enforce the relevant standards and for ensuring the presence of effective enforcement and penalties?	Ship source pollution is still occurring Issues/problems identified at the time of transposition are still relevant and require action	Number of incidents / spills Data on number of cases to show extent that discharges has led to action or not The extent to which stakeholders agree that the existing objectives of the Directive are relevant for the existing/new problems The extent to which stakeholders agree that changes to the objectives of the Directive are needed	ITOPF (medium/large spills) (2021) CSN service / HELCOM / BONN Agreement MS Transposition of the Directive in MSs / MS fiches Stakeholder survey and interview responses on relevance Stakeholder survey and interview responses on the relevance
	EQ1.2 Are penalty levels considered enough to dissuade pollution?	Discharges/cases identified lead to action	Number of incidents / spills Proportion of incidents where administrative/criminal case has been charged Stakeholder views on the effectiveness and dissuasiveness of the existing penalties to prevent ship discharges of waste at sea (in different Member States and areas of jurisdiction)	Transposition of directive in MSs / MS fiches (penalties/infringements as set out in MS legislation), EMSA (2011), ENPRO (2020) and NSN (2019) Stakeholder survey and interview responses
EQ2. To what extent is the Directive still relevant for the EU wider policy goals and priorities and for EU citizens?	EQ2.1 To what extent is the Directive's objective to ensure illegal discharges are regarded as infringements/criminal offences, subject to effective, proportionate and dissuasive penalties still relevant in achieving zero pollution for water?	Regarding illegal discharges as infringements/criminal offences has led to an improvement in water quality.	Analysis of relevant policy documents to logically assess relevance of the Directive. Stakeholder views on the appropriateness of the objective of ensuring effective, proportionate and dissuasive penalties for illegal discharges across EU Member States with respect to achieving zero pollution for water	Analysis of EU policy documents: EU Green deal, Commission Communication Pathway to a Healthy Planet for All EU Action Plan: 'Towards Zero Pollution for Air, Water and Soil' Marine Strategy Framework Directive (MSFD) UN's Agenda for Sustainable Development
	EQ2.2 To what extent is the	Ensuring cooperation and	Stakeholder views on the	

	Directive's objective of ensuring exchange of information between actors/cross-border operation achieving zero pollution for water?	exchange of information between actors/cross-border cooperation has contributed to improvement in water quality	appropriateness of the objective of ensuring cooperation and exchange of relevant information with respect to achieving zero pollution for water	Eurobarometer 501 Stakeholder survey and interview responses
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ANNEX IV. OVERVIEW OF BENEFITS AND COSTS

Table 1: Overview of costs and benefits identified in the evaluation

		Citizens/Consumers		Businesses		Administrations	
		Quantitative	Comment	Quantitative	Comment	Quantitative	Comment
Benefits							
Direct benefit – environmental quality	One-off	-	-	-	-	-	-
	Recurrent	Not quantified	Environmental benefits due to reduced pollution discharges can be expected but they could not be quantified in lack of data on actual level of illegal discharges.	-	-	-	-
Indirect benefit –Health	One-off	-	-	-	-	-	-
	Recurrent	Not quantified	Health benefits as a result of reduced water pollution are expected but could not be quantified in lack of data on actual level of illegal discharges.	-	-	-	-
Costs							

Direct compliance cost – Adjustment costs	One-off	-	-	-	-	-	-
	Recurrent	-	-	-	-	EUR 200,000 annually	Costs for EMSA for training and knowledge sharing activities
	Recurrent	-	-	-	-	EUR 5.17 million annually	Costs for EMSA for operating CleanSeaNet and sharing alerts with Member States
Direct compliance cost – Administrative costs	One-off	-	-	-	-	-	-
	Recurrent	-	-	-	-	EUR 70,048 annually	Costs for maritime authorities related to reporting on the Directive's implementation to the European Commission
Enforcement costs	One-off	-	-	-	-	-	-
	Recurrent	-	-	-	-	EUR 13,000 annually	Costs for maritime authorities related to information exchange procedures (i.e. uploading pollution incident reports in (POLREPs) in SafeSeaNet and THETIS inspection requests)
	Recurrent	-	-	-	-	EUR 105,470 annually	Costs for maritime authorities related to logging feedback data on CleanSeaNet alerts

Indirect costs	One-off	-	-	-	-	-	-
	Recurrent	-	-	-	-	-	-

TABLE 2: Simplification and burden reduction (savings already achieved)							
	Citizens/Consumers/Workers		Businesses		Administrations		Comment
	Quantitative	Comment	Quantitative	Comment	Quantitative	Comment	
Direct compliance costs savings: adjustment costs savings - recurrent	-	-	-	-	EUR 7.7 million annually	Annual costs savings due to having one satellite surveillance service (CleanSeaNet) instead of numerous national services.	

This annex provides a summary of the outcomes of the consultation activities, which have been carried out for the evaluation and Impact Assessment of the Ship-Source Pollution Directive, including in the context of the external support study. The impact assessment and the ex-post evaluation of the Ship-Source Pollution Directive were performed in a back-to-back manner (i.e. the evaluation and impact assessment have been launched at the same time) in 2021-2022.

This annex provides the range of stakeholders consulted, describes the main consultation activities and also provides a succinct analysis of their views and the main issues they raised.

The aim of the consultation activities was to collect information and opinions from stakeholders on the achievements of the Directive, its added-value, key problems and associated drivers, definition of relevant policy objectives linked to those problem areas and the identification, definition and screening of policy measures that could eventually be incorporated into policy options for the Impact Assessment, as well as gather information and opinions on their likely impacts.

1. Overview of consultation activities

A consultation strategy, covering all stakeholder consultation activities, including those carried out as part of the support study, was developed early in the process. The consultation activities were aimed at a range of stakeholders dealing with the identification, verification and prosecution of ship-source pollution in EU and industry representatives (including relevant associations of ship-owners and port operators), as well as non-EU players (e.g. flag States). The objective of the consultation activities was to collect information and opinions on the current implementation and enforcement of rules on illegal discharges from ships as well as gather evidence on expected costs and benefits of draft policy measures.

Consultation activities have taken place since the publication of the combined evaluation roadmap/ inception impact assessment published in May 2021 and continued until the stakeholder validation workshop in September 2022.

As part of the initial feedback mechanism, stakeholders had the opportunity to provide feedback on the combined evaluation roadmap/ inception impact assessment¹⁰⁶ via the relevant website. The Commission received eight responses, during June 2021. Six responses were provided by NGOs and two by business representatives.

Afterwards, the following consultation activities were carried out:

- An Open Public Consultation (OPC), organised by the European Commission, which ran from 9 December 2021 to 3 March 2022. The OPC put forward questions on both the Impact Assessment and the evaluation of this Directive.

¹⁰⁶ European Commission (2021) [Combined Evaluation Roadmap/Inception Impact Assessment. Revision of the Directive on ship-source pollution](#)

- Three rounds of interviews with EU level representatives of key stakeholders organised by the consultant in charge of the external support study, running intermittently from November 2021 to September 2022, to fill specific information requests, in support of the evaluation and to refine the overall problem definition and possible policy options.
- Two targeted stakeholder surveys to gather specific information, one for the evaluation and one for the Impact Assessment, organised by the consultant in charge of the external support study, running, respectively, from December 2021 until February 2022 and June until July 2022.
- Additional targeted consultation activities organised by DG MOVE in order to consult the Member States and key stakeholders on the different policy measures and to validate the emerging and final results of the support study to the Impact Assessment in terms of the quantification of impacts. These activities took place in the context of a meeting of the EU Committee on Safe Seas and the Prevention of Pollution from Ships (2 June 2022), meetings of the European Sustainable Shipping Forum (18 May 2022) and its subgroup: Waste from Ships (22 March 2022 and 4 June 2022), the EU/EEA Maritime Transport Directors (3 October 2022), the North Sea Network of Investigators and Prosecutors (25 April 2022), HELCOM (8 June 2022) and BONN Agreement meetings (21 September 2022), an informal meeting with the Regional Sea Conventions (29 June 2022) and an informal meeting with ECSA (21 September 2022). A final workshop to validate the conclusions of the support study attended by Member State, NGOs and industry representatives was also organised (22 September 2022).

The information collected from stakeholders was key in allowing the Commission to evaluate the Directive, define the policy options and assess and compare their economic, social and environmental impacts. As result, the consultations informed on which policy option is likely to maximize the benefits/costs ratio for the society and achieve a more effective and efficient mechanism to discourage ship-source pollution in the EU. Findings from those processes complemented the desk research carried out in the context of the external support study.

Methods have been adapted to take account of the development of the COVID-19 pandemic. For this reason, interviews and meetings were held by videoconference.

Table 1. Overview of responses to different stakeholder consultation activities

	Number of invitees	Number of responses	Topics covered
Open public consultation	Open	30	Implementation of the Directive – successes and problems
Exploratory interviews	9	6	Problem assessment
Targeted Evaluation interviews	42	31	Implementation of the Directive – successes and problems
Targeted Impact Assessment interviews	50	26	Policy measures / options / impacts
Targeted Evaluation survey	58	25	Implementation of the Directive – successes and problems
Targeted Impact Assessment survey	53	3	Policy measures / options / impacts
Stakeholder workshop	Open	86	Policy measures / options / impacts

The full list of stakeholders who participated in the various consultation activities is included in the external support study. There were no campaigns¹⁰⁷ identified in the responses neither to the targeted nor the public consultation. The information and views received in the context of the public consultation were taken into consideration for the elaboration of the Evaluation and Impact Assessment report, but they cannot be regarded as the official opinion of the Commission and its services (and thus does not bind the Commission) and the contributions cannot be considered as a representative sample of the EU population.

2. Limitations of the Stakeholder consultation

Stakeholders were not very responsive to the various consultation activities. There were only **30 responses** to the open public consultation and the input to each of the remaining consultation activities did not exceed 31 participants. Often the responses were delayed or answers were incomplete. The most attended consultation activity was a 1-day online stakeholder workshop organised at the time of the draft final report to discuss preliminary findings of the evaluation and Impact Assessment of the SSPD with 86 participants. Invitations for the workshop were targeted at experts from all relevant stakeholder groups. Since all relevant stakeholder groups have provided their views and positions to the various consultations, a comparison and analysis of opinions gathered from all consultation activities was possible. Nevertheless, it was difficult to identify trends from the feedback in the consultation due to the low response rate.

It was particularly difficult to gather input from stakeholders on possible expected **costs and benefits** of implementing the proposed measures, as well as estimations on the **number of prosecutions** because of the scarcity and incompleteness of existing data.

The data available from the interviews and surveys on the evaluation and Impact Assessment was not sufficiently robust to make a complete analysis for all Member States. In certain instances, the responses of the Member States were not very consistent. The level and quality of evidence gathered varies. For some evaluation criteria, in particular relevance and coherence, the evidence gathered was satisfactory. Availability and quality of data was a challenge affecting in particular the assessment of the effectiveness and efficiency criteria.

Where quantitative data was available, it was used to make estimations and was complemented by stakeholder opinions and positions. Whenever possible, information gathered from different sources, including input from stakeholders were compared and triangulated. Where available data and literature was limited, consultation responses were relied upon to answer the evaluation questions and are indicated throughout this report.

3. Analysis of the key results of the stakeholder consultation

The remainder of this annex presents key findings from the analysis of stakeholder contributions to the consultation process. They are structured around the main elements of the intervention logic, including the problem areas and their drivers, the policy objectives as well as the key aspects of the design of possible policy measures. The technical support study for this evaluation and Impact Assessment contains the detailed

¹⁰⁷ ‘Campaign’ – e.g. NGO based in a Member State may call on members to respond in the same way to a consultation for all questions.

presentation of findings from the targeted consultation activities. Furthermore, the factual summary of public consultation contains concise information in the form of graphs and figures.

3.1. Current scope and implementation

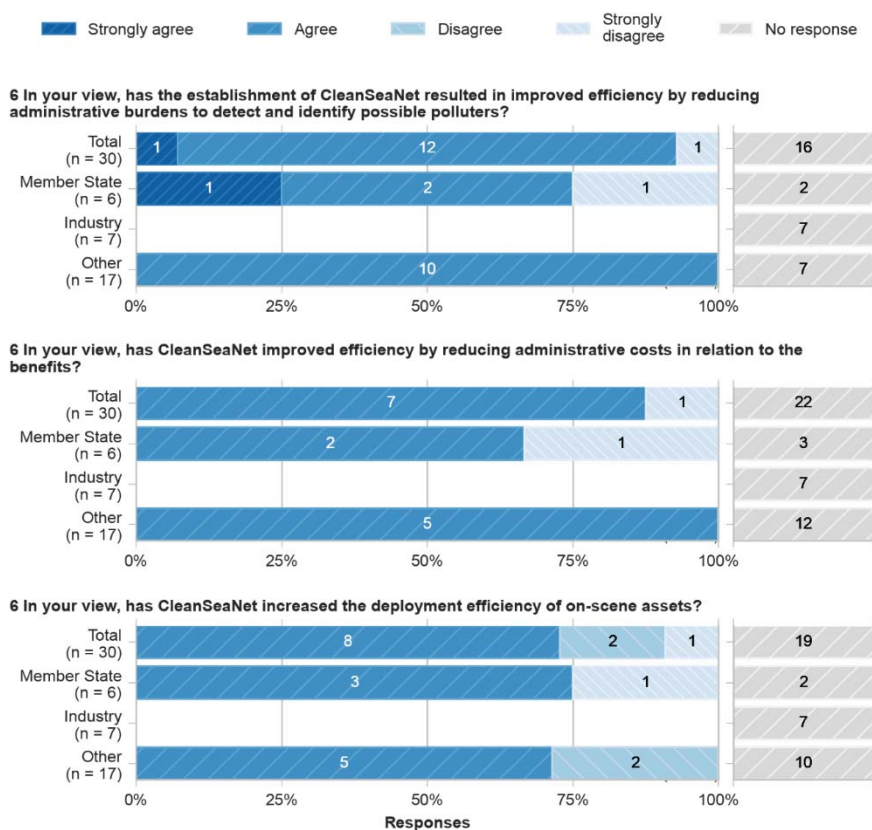
- Need for improved maritime transport safety and ship-source pollution prevention (protection of the marine environment)

Stakeholders consulted for the evaluation largely agreed that this issue is still relevant, supported by 24 (out of 31) stakeholders interviewed and 23 (out of 25) responses to the evaluation survey. It was acknowledged by stakeholders interviewed, including Member State authorities, international bodies and the maritime industry, that whilst shipping is considerably safer than prior to the Directive and there are fewer oil spill incidents partially due to improvements in safety, technology and training standards, ship-source pollution is still occurring, and additional improvements are still required. In this respect, 18 respondents (out of 30) to the public consultation stated that they do not find the Directive effective in terms of protecting the marine environment from illegal discharges from ships.

- Surveillance and monitoring

Generally, stakeholders are of the opinion that EMSA systems and information exchange between Member States have improved pollution detection in the EU over the years. Ten Member State authorities interviewed (out of 14) agreed that the CleanSeaNet service has increased the efficiency of the implementation of the Directive. Out of the 28 replies on the question on surveillance in the public consultation, 13 viewed CleanSeaNet as an efficient tool (the other half responded 'I don't know' including all industry representatives). More public input on CleanSeaNet is shown in the figure below.

Figure 8. Open public consultation on CleanSeaNet and efficiency



On the other hand, discharges are not always detected on time. Eleven Member State respondents to the evaluation survey (out of 19) stated that their authorities are not using EMSA tools (e.g. CleanSeaNet alerts) to their full extent. Only eight of the authorities interviewed (out of 19 Member States) agreed that EMSA tools are used effectively in their country.

- Cooperation between Member States, information exchange and enforcement

There is consensus among Member State authorities interviewed that cooperation and information exchange activities led to improved capacity towards detection of illegal discharges. Also, seven industry responses to the public consultation (out of 13) indicated that the Directive has contributed to some extent to increased cross-border cooperation between Member States law enforcement and judicial authorities. Moreover, cross-border cooperation between Member States was perceived by the participants of the stakeholder workshop as the largest benefit of the current Directive, as shown in the figure below.

Figure 9. Stakeholder views from the stakeholder workshop on benefits of the Directive

In your view, has the Directive contributed to:

0 4 9

more cross-border cooperation between EU countries



more resources (staff & tools) allocated to enforcement authorities



better training and specialisation for enforcement authorities



more deterrent penalties for illegal discharges from ships



The Directive has not contributed to any of the above.



The main issues hindering the detection of illegal discharges and identification of polluter, as identified by stakeholders consulted, are listed below:

- insufficient resources or unavailability of aerial means for oil spill detection;
- limitations to provide near real-time identification;
- limited resources (e.g. patrol ships) for sample collection, especially in areas distant from the coast;
- heavy ship traffic areas and short duration of operation discharges; and
- technical challenges due to the size of the area covered (particularly for EEZ and high seas).

There is a difference in opinion between the industry and the remaining stakeholders on enforcement. Four responses to the public consultation from the industry (out of 6) indicate that they consider that the same results of enforcement could have been achieved largely without the Directive and through international legislation. In the stakeholder workshop, only 11 participants voting (out of 51) indicated that MARPOL is enough and the Directive is not needed. Industry and ‘other stakeholders to the OPC’ largely agree that the same result would not have been reached without the Directive (8 indicated ‘not at all’ and 8 ‘to a small extent, out 16 responses).

- Discrepancies in penalties related to ship-source pollution among EU Member States

The majority of the stakeholders interviewed (including Member State authorities, the maritime industry and regional/international bodies) agreed that penalties are not harmonised in the EU. Thirteen respondents to the survey (out of 25) agreed that discrepancies in penalties for infringements related to ship-source pollution among EU Member States have an uneven dissuasive effect. This effect was also confirmed by five Member State authorities and three stakeholders from the maritime industry interviewed. In response to these inconsistencies, stakeholders see the need for more harmonisation.

- Effectiveness, proportionality and dissuasiveness of penalty procedures

There are contradicting opinions on whether the intervention was successful to achieve its objective to ensure that persons responsible for discharges of polluting substances are subject to effective, proportionate and dissuasive penalties. Eight Member State authorities interviewed (out of 16) considered criminal penalties proportionate and dissuasive as a measure. Similar results were provided to the evaluation survey, where ten stakeholders responding agreed with criminal penalties were proportional and dissuasive (out of 25). Still, one Member State authority stated that criminal procedures are usually impractical and rarely produce the desired outcome. Other stakeholders, who provided input to the interviews and/or the survey, including industry, workers' representatives and NGOs, suggested that criminal penalties are not considered proportionate in any case and have no dissuasive effect in preventing cases of ship-source pollution. The industry representatives made this point also during the stakeholder workshop. Regarding penalties, including criminal penalties, as an effective way to ensure compliance with international standards for ship-source pollution, 19 respondents to the public consultation (out of 28) agreed that penalties are an effective way to ensure compliance. Contradictory, only two stakeholders (out of 30 who responded to the public consultation) indicated that the introduction of penalties in national legislation led to operators taking measures to comply with legislation to protect the marine environment. Based on the results of the consultation it is not possible to conclude whether penalties are effective, proportionate and dissuasive, or not.

– Costs of the current Directive

Stakeholders were asked whether they considered that, the Directive and the associated changes to the national legislation have led to an increase in the time and costs associated with maritime pollution surveillance and enforcement activities. Eight Member State authorities (out of 14) interviewed indicated that there is no change associated with these costs. Six Member State authorities (out of 25 responses to the evaluation survey) indicated a slight increase in the costs associated with maritime pollution surveillance and enforcement activities. Two interviewed Member States indicated that the implementation of the Directive through national legislation did not require any additional cost as provisions (or most of them) were already in place before the implementation of the Directive in their country. Three Member State authorities (out of 25 responses to the survey) indicated that there has been a significant increase and pointed to the costs of on-site verification of CleanSeaNet alerts linked to the increase in the frequency of verification activities.

Ten Member State authorities interviewed (out of 14) agreed that CleanSeaNet service has increased the efficiency of the process; four of which indicated that this has not led to a reduction in costs because of increased frequency of verification activities. Seven of the respondents to the public consultation (out of 28) agreed that the establishment of CleanSeaNet service has resulted in improved efficiency by reducing administrative burden.

3.2. Problem areas and policy objectives

This section provides an overall view of stakeholder's inputs on the proposed definition of problem, its underlying drivers, and on the objectives of the policy intervention under consideration.

- Problem definition: ships illegally discharging polluting substances to the sea rarely face effective and dissuasive penalties

Eighteen of the stakeholders interviewed (out of 28) agreed with the overall definition of the problem¹⁰⁸ that ships rarely face adequate penalties. Two Member State authorities disagreed with the identified problem. These authorities indicated that, for MARPOL Annexes I and II, the implemented regimes have been sufficient and effective so far.

The representatives of the maritime industry, ECSA and ICS, disagreed with the identified problem, referring to no evidence available on an increase in ship-source pollution in EU waters in the recent years. This has been reemphasized by them in the interviews and in the stakeholder workshop. They stated that there is effective international legislation in place to prevent and control illegal pollution from ships. The MARPOL Convention, as per their statement, allows parties to establish sanctions “of adequate severity” (Article 4 of MARPOL) to discourage violations of the Convention, and draws a fundamental distinction between accidental and deliberate pollution. ECSA and ICS also pointed to UNCLOS (Art. 230) with regards to supporting MARPOL in the context of monetary penalties as the most common sanction for pollution in areas beyond the territorial seas. IPTA (International Parcel Tankers Association) also disagreed with the identified problem, as they consider it to be unlikely for ships to illegally discharge polluting substances into EU seas noting that effective and dissuasive penalties are already in place, as well as the risk of reputational damage for a shipping company as a result of a ship-source pollution incident, which is likely to have a preventive effect.

In brief, industry disagrees with the problem definition but most of the remaining stakeholders agree that ships illegally discharging pollutants at sea rarely face effective and dissuasive penalties.

- PD1: *The Directive’s scope, which is limited to Annexes I-II of the MARPOL Convention, does not cover all relevant polluting substances.*

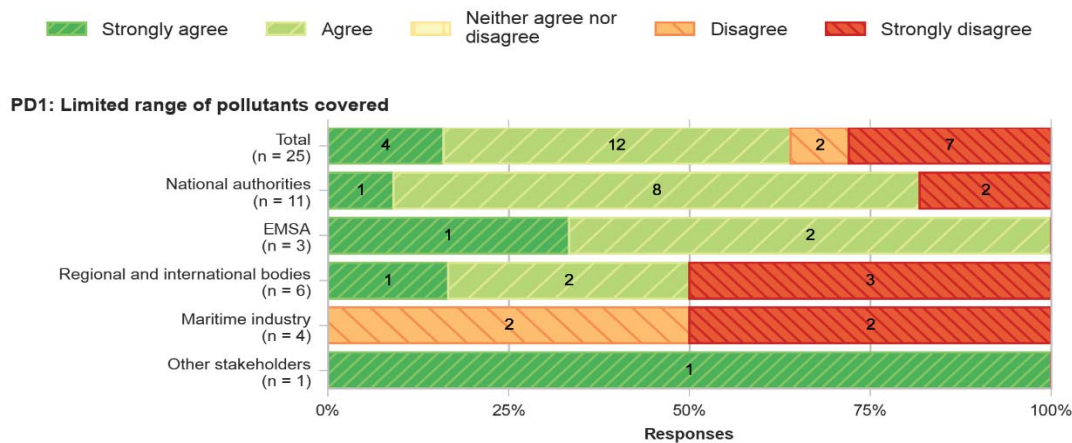
Eighteen stakeholders interviewed (out of 28) agreed or strongly agreed with problem driver 1 on the limited range of pollutants covered¹⁰⁹. On the other hand, 9 stakeholders disagreed or strongly disagreed with the fact that the limited range of pollutants covered is a problem driver¹¹⁰.

Figure 10. Stakeholder views from the IA interviews on PD1: Limited range of pollutants covered

¹⁰⁸ This includes eight out of 12 of the MS authorities interviewed.

¹⁰⁹ Stakeholders that agreed or strongly agreed include nine MS authorities, three European Commission bodies, three regional/international organisations and one environmental NGO.

¹¹⁰ These include two MS authorities, three regional/international organisations and four maritime industry stakeholders.

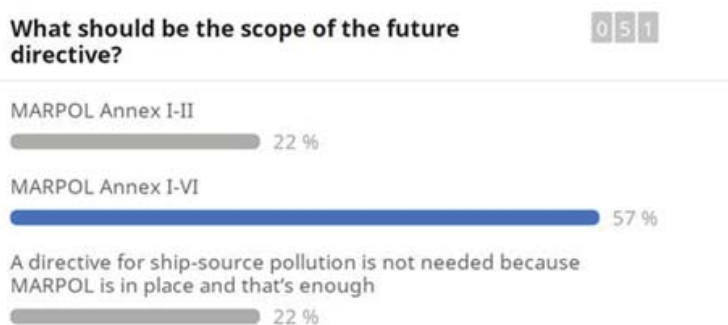


Furthermore, 23 out of 28 respondents to the OPC selected the option ‘Update the Directive to include amendments to the MARPOL Convention putting in place stricter rules for discharges of waste from ships at sea’ as a relevant aspect that should be addressed by a revised Directive.

On the other hand, maritime industry stakeholders – such as ECSA, ICS or BIMCO – disagreed, as, according to them, all relevant polluting substances are already covered under the MARPOL Convention. Therefore, expanding the range may have a limited effect in terms of polluting substances that are subject to penalties if illegally discharged into EU waters. Also, they pointed to the difficulties of the practical implementation of this extended scope.

In the stakeholder workshop, the majority of participants 29 (out of 51 respondents) voted for extending the scope of the Directive to include all MARPOL Annexes as shown in the figure below.

Figure 11. Stakeholder views from the workshop on PD1: Limited range of pollutants covered



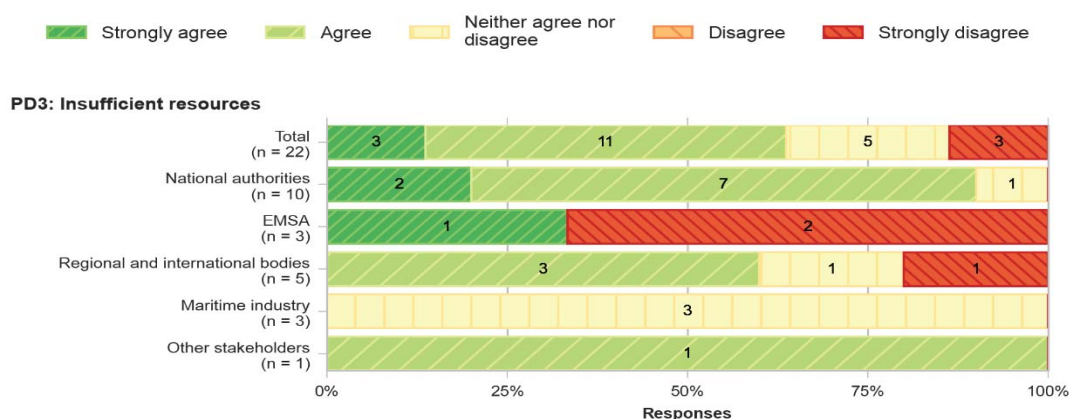
- PD2: Resources and/or expertise to effectively identify, verify and prosecute pollution from ships are inconsistent across the EU and generally insufficient.

Fifteen stakeholders interviewed (out of 28) agreed or strongly agreed with problem driver 2 on insufficient resources¹¹¹. In addition, three stakeholders strongly disagreed

¹¹¹ Those who agreed with problem driver 2 included nine MS authorities.

with the insufficient resources being a problem driver, and six stakeholders¹¹² indicated that they neither agree nor disagree with problem driver 2.

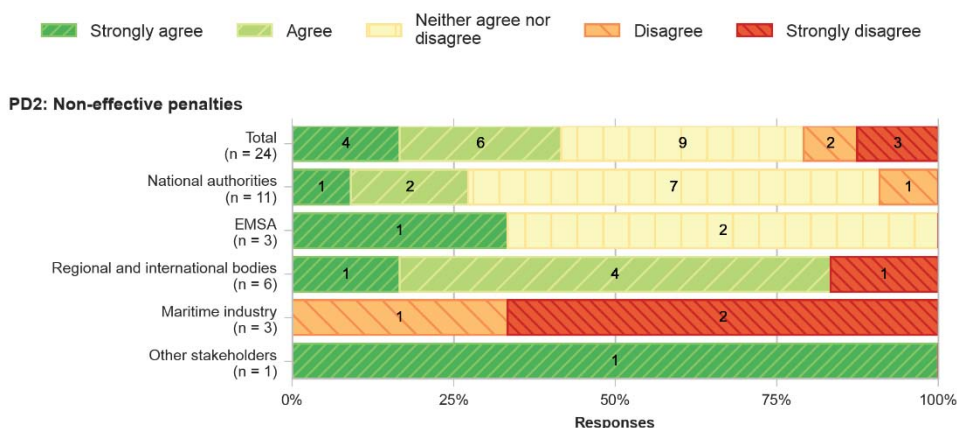
Figure 12. Stakeholder views on PD2: insufficient resources and expertise across Member States



- PD3: Penalties applied by Member States for illegal pollution from ships do not consistently discourage polluters.

As presented above, there is contradicting opinions on the dissuasive effect of the penalties. Twelve out of 28 stakeholders interviewed agreed or strongly agreed with problem driver 3 on penalties not being effective¹¹³. However, the views on PD3 were quite diverse, as shown in the figure below.

Figure 13. Stakeholder views on PD2: non-effective penalties



Three Member State authorities interviewed indicated that penalties imposed in their respective countries are considered effective and proportionate to the nature of the pollution. Additionally, one Member State authority disagreed with non-effective penalties being an issue and instead pointed to the limited ability to identify ships as the polluter as a relevant issue hindering the enforcement of the Directive.

¹¹² Those who neither agreed nor disagreed with problem driver 3 included one MS authority, one regional/international body and three maritime industry stakeholders.

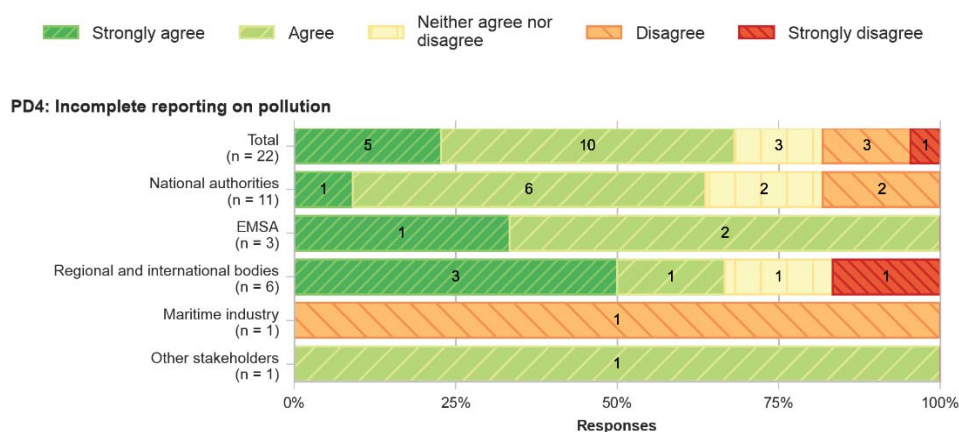
¹¹³ Stakeholders that agreed or strongly agreed include three MS authorities, five regional/international organisations and one environmental NGO.

Furthermore, 23 (out 28) respondents to the OPC selected the option ‘Improve the effectiveness of law enforcement within Member State’ as a relevant aspect that should be addressed by a revised Directive.

- PD4: *Incomplete reporting by Member States on pollution events and on follow-up activities results in the lack of information on ship-source pollution across the EU.*

Fifteen stakeholders interviewed (out of 28) agreed or strongly agreed with problem driver 4 on incomplete reporting on pollution. Four stakeholders disagreed or strongly disagreed with the incomplete reporting on pollution being a problem driver, and three stakeholders indicated that they neither agree nor disagree with problem driver 4.

Figure 14. Stakeholder views on PD4: incomplete reporting by Member States results in the lack of information on ship-source pollution



Furthermore, 24 (out 28) respondents to the OPC selected the option ‘Improve the use and coordination of maritime surveillance and digital reporting systems’ as a relevant aspect that should be addressed by a revised Directive.

3.3. Policy measures

The table below summarises stakeholder opinions on each of the policy options and the subsequent subsections give more details on key areas of interest.

Table 2. Stakeholder opinions on policy measures

Policy measure	Stakeholder views	Summary
PMc1 - extension of the scope of the Directive	In the stakeholder workshop 29 out of 51 participants that voted were of the opinion that the scope of the revised Directive must be extended. Twelve Member State (MS authorities) were interviewed and had positive opinions.	Stakeholders in favour
PMc2 - EMSA training and guidance	Thirteen out of 26 stakeholders interviewed identified guidance and training as a relevant and suitable policy measure.	Stakeholders in favour
PMc3 - expert group	Twelve of the 18 stakeholders who provided a response to a question on this measure in the interviews (including nine out of 12 MS (BG, BE, HR, FI, FR, DE, MT, NL and ES), EMSA and three regional/international bodies) supported holding regular meetings of a dedicated platform. In an ESSF subgroup meeting on waste from ships 9 out of 25 participants that voted were of the opinion that	Stakeholders in favour

Policy measure	Stakeholder views	Summary
	issuing guidelines by the Commission on collection of statistical data would foster the collection of information about illegal discharges from ships.	
PMc4 - information from whistle-blowers	Two stakeholders identified the measure relating whistle-blower provisions suitable for the objective of the Directive. However, other stakeholders endorsed the combination of PM5, PM6, PM7, and PM8, albeit not specifically naming this measure. Generally, stakeholders stated that they lacked sufficient knowledge of the whistle-blower provision to provide an answer on this question.	Stakeholders lack sufficient knowledge to have an opinion.
PMc5 - enhancement of Integrated Maritime Services	In the stakeholder workshop 23 out of 41 participants that voted were of the opinion that this measure would make the biggest difference in increasing cooperation between Member States and information exchange. In addition seven out of the 17 stakeholders (including six MS authorities and one regional body) that responded to this question in the interviews supported this measure. These stakeholders emphasised the value of EMSA tools and the potential advantages of further integration.	Stakeholders in favour
PMc6 - clarifications on liability regime	Generally, there was a lack of sufficient knowledge on the EU liability regime. Only eight out of the 21 stakeholders consulted (five MS, one regional body and two industry stakeholders) provided their views on this measure in the interviews. Two of them (two MS authorities, BG and CY) agreed with this measure, as they considered that the proposed additional text clarifies the principles stated by international conventions. On the other hand, two industry representatives (ECSA/ICS) stated that the adoption of this measure would be only a partial improvement.	Low stakeholder support, low knowledge and no opposition
PMc7 - obligation to log if and how CleanSeaNet alerts have been verified	Five out of the 12 stakeholders (including four MS authorities and one regional body) who provided a response in the interview identify challenges associated with the implementation of this measure. One MS authority (BG) disagreed with this measure, as they considered that it could be difficult to implement from an operational perspective. Two MS authorities (MT, ES) also highlighted the challenges and additional administrative burden that this policy measure could impose on national authorities if implemented. Furthermore, another MS authority (RO) indicated that there will probably issues implementing these measures, although they are not expected to be significant.	Low stakeholder support and some minor opposition
PM1 - 60% verification rate for CleanSeaNet alerts	In the stakeholder workshop only 6 out of 41 participants that voted supported this measure. 15 out of 30 participants that voted were of the opinion that the verification of CleanSeaNet alerts should remain voluntary and not mandatory as foreseen in this measure. The main issue identified in interviews was the additional resources that would be needed to follow up on every possible pollution incident detected by CSN service.	Stakeholders mainly against
PM2 a & b – type of penalties	No information was provided by stakeholders regarding this measure.	Stakeholders lack sufficient knowledge to have an opinion.
PM3a – level of penalties containing criteria	Nine out of the 16 stakeholders interviewed (including four MS authorities (DK, FI, MT, RO) and two regional bodies) supported this measure. Three of these stakeholders underlined that this measure would act in favour of the harmonisation of the level of penalties and strengthen the coordination between MS.	Low stakeholder support but no opposition
PM3b – level of penalties containing	Four out of the 16 stakeholders (including two MS authorities (MT, RO), two regional bodies) who provided a response in the interviews supported this measure. However, three MS authorities (BE, NL, ES) stated that this measure would be challenging to	Low stakeholder support but no opposition

Policy measure	Stakeholder views	Summary
values	implement in practice.	
PM4 reporting	In the stakeholder workshop 16 out of 41 participants that voted were of the opinion that this measure would make the biggest difference in increasing cooperation between Member States and information exchange. In addition, in an ESSF subgroup meeting on waste from ships 13 out of 25 participants that voted were of the opinion that a regular update of an online platform using a format harmonised with regional and IMO reporting requirements would foster the collection of information about illegal discharges from ships.	Stakeholders in favour
PM5a – information to the public on national websites	Four out of the 12 MS authorities consulted expressed their disagreement with this measure. One MS authority indicated that they do not see the need for a website to be developed at national level, as they believe it would be enough to provide the information through the reporting portal DONA. One MS authority (CY) indicated that the measure is not considered as a measure that could have a significant impact to the objectives of the SSP Directive.	Stakeholders against
PM5b – information to the public on EU website	Four out of the 12 MS authorities consulted agreed with the measure related to the EMSA/European Commission providing public information based on the information reported by Member States on the enforcement of the SSP Directive.	Low stakeholder support but no opposition

– Scope of the future Directive

The stakeholders consulted during the public and targeted consultations, with the exception of industry, were in favour of broadening the scope by including MARPOL Annexes III, IV, V and VI discharge water from scrubbers discharged at sea. A revised Directive would be better adapted to the pace of international developments in the field of pollution prevention if it covers MARPOL Annex I to V substances and Annex VI discharge water from scrubbers into sea. This would also help align with the ambition of the European Green Deal. This was supported by 8 (out of 10) stakeholders during the inception interviews; 15 (out of 31) stakeholders interviewed (including 8 Member State authorities, and 4 regional/international bodies and 3 stakeholders from the maritime sector) as well as 8 (out of 11) responses to the evaluation survey (including input from 8 Member States, 2 NGOs and 2 business organisations/associations). 29 respondents (out of 51) in the stakeholder workshop voted for the extension of the scope to cover Annex I-V and Annex VI discharge water from scrubbers to water with strong support in interventions from 3 NGOs (EIA, Surfrider and IFAW) and the support of one representing industry (Euroshore). The same message came from the public consultation where 23 (out of 28) respondents saw the need to expand the list of pollutants covered by the Directive (including 4 Member State authorities, 8 citizens, 7 NGOs, 2 academia and 2 industry stakeholders), while 5 respondents (all but one representing maritime industry) disagreed. The industry questions the added value in extending the scope of the SSP Directive to further annexes of MARPOL. Their argument is that the MARPOL Convention is already ratified by all Member States who are parties to MARPOL.

The voice of environmental NGOs is consistent in the message that the Directive offers effective tools to prevent pollution and therefore should be extended to polluting substances of concern that are currently not covered by MARPOL. This was supported by IFAW and Surfrider and emphasised in the stakeholder workshop.

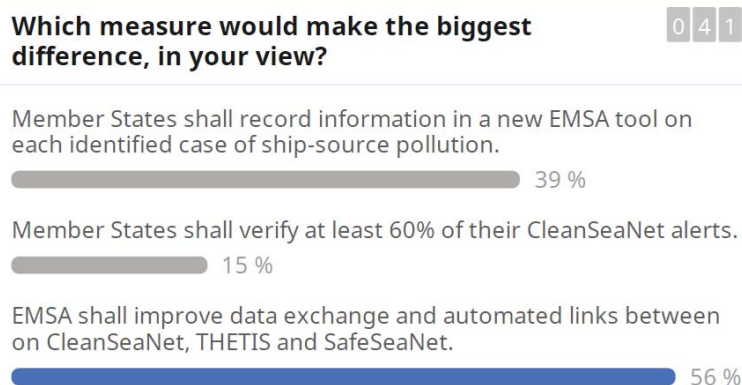
Out of the 28 stakeholders whose input was summarised, six Member State authorities noted a preference towards extending the scope of the Directive to Annex III-V substances and Annex VI residues from scrubbers discharged to the sea. Four Member State authorities were in favour of supporting the alignment of the Directive with all MARPOL Annexes and including air emissions of Annex VI (sulphur and nitrogen oxides).

In brief, Member States generally are in favour of broadening the scope of the Directive to more polluting substances in line with MARPOL, however there is not consensus on the matter. Also, see *PD1* above for complementary information.

– EMSA providing highly specialised support

As per conclusions of the evaluation, Member States see EMSA's support and dedicated EU-wide tools as a great added value of the Directive. When asked during the stakeholder workshop on which EMSA-specific measure could make the biggest difference in the future, the participants chose first the optimised interactions of CleanSeaNet, SafeSeaNet and THETIS (23 out of 41 respondents) and second a new dedicated EMSA platform for information collection and exchange (16 out of 41 respondents). See figure below.

Figure 15. Stakeholder views from the stakeholder workshop on EMSA support tools



One interviewed Member State authority welcomed new features that could help the integration between systems to avoid the duplication of data/information/reporting. These systems are currently isolated, so it would be helpful to be able to access the data from a single source. The Romanian authorities added that all useful information should be integrated and/or automated. French authorities agreed that more links are needed for Annex VI between THETIS, THETIS EU and SafeSeaNet, but confidentiality of data and possibility of alerts being wrong (false positives) must be addressed.

Regarding potential issues or challenges that may arise from the implementation of EMSA specific measures, the Finnish authorities identified potential issues related to restricted access depending on the position/responsibility of the Member State authority. For instance, not being able to access THETIS information if not directly involved in port inspections, although involved in other aspects of ship-source pollution incidents. Also, EUROSORE pointed to a potential overlapping with other already ongoing expert groups on maritime issues.

Two Member State authorities interviewed recognised the importance of introducing mandatory requirements for Member States to follow up on possible pollution incidents detected by CleanSeaNet service.

Three Member State interviewed indicated they support the idea of EMSA providing public information based on the information reported by Member States on the enforcement of the SSP Directive. The Cypriot authorities stated that this would be most suitable, although a combination of all measures, except the measure on Member States developing national websites with information on pollution incidents and follow-up activities, would be preferable.

On the other hand, one Member State considered that these measures would not have a relevant impact on reducing the level of illegal discharges at sea. Also, ENPRO indicated that all policy measures proposed to address PD4 on incomplete reporting are relevant, although those related to the availability of public information might not have a significant impact on the objectives of the SSP Directive.

- More guidance at EU level

Thirteen stakeholders interviewed (13 out of 26)¹¹⁴ supported policy measures on guidance and training activities on detection to facilitate evidence gathering for ship-source pollution offences to authorities responsible for verification and prosecution. The Spanish authorities also considered training relevant, as the limited resources and expertise in the national administration is not because of the lack of personnel, but due to the lack of know-how in ship-source pollution matters and procedures. They consider that training should be aligned and coordinated with homogenised principles and procedures.

In terms of identifying the most suitable policy measures to address Problem Driver 2, stakeholders consulted mainly pointed to the potential usefulness and effectiveness of a combination of all the measures proposed¹¹⁵. It was mentioned that Expert Groups had been recognised as an efficient way to move forward with new ideas related to a specific topic.

With regards to the priority topics that should be the focus of the expert group, stakeholders identified the following:

- **Sharing of best practices:** Five stakeholders who responded to this question (out of 10) identified this as a relevant topic to be covered by the Expert Group.¹¹⁶
- **Enhance harmonisation of the implementation of the Directive:** The Bulgarian authorities indicated that a work group could steer the development of guidance documents and ensure that the experts are available for developing guidance, presenting at incidents and experience sharing. EUROSHORE also supported this as a relevant topic to be covered by the Expert Group.
- **Coordination with other relevant regulations:** EMSA indicated that the Expert Group should work in coordination with the established regional networks to harmonise the enforcement of relevant regulations addressing ship-source pollution.

¹¹⁴ These include nine MS authorities, EMSA and two regional/international bodies

¹¹⁵ These include views from nine MS authorities, EMSA and two regional/international bodies

¹¹⁶ These include 4 MS authorities and one regional/international body.

- **Exchange of information and strengthen coordination between MS authorities:** These topics were identified by OSPAR/Bonn Agreement and EUROSHORE representatives.
- **Case studies:** The Finnish authorities indicated that, based on their experience, the most valuable meetings are those where real experiences are shared. This could be done by presenting case studies or explaining something they have tested.
- **Monitoring reporting compliance:** OSPAR/Bonn agreement representative sees the focus of the group on reporting to monitor if and why it is not done and ensure information exchanged/updated either through annual meetings or with participation of a representative of the Bonn Agreement to the SSP directive expert group meetings.

However, French authorities shared a concern that a lot of committees of expert groups already exist and that their usefulness usually depends on the scope and planning of the new group. They stated that, if the meeting is held annually, it could be an interesting opportunity to improve coordination and harmonisation between Member State authorities. One authority mentioned that Member States are already part of the ESSF and the mandate and scope of work of the new group should be carefully considered.

– Penalties

Stakeholders were asked to identify the most suitable policy measures to address Problem Driver 3. Four stakeholders¹¹⁷ identified the measure of non-regulatory nature for establishing the level of penalties as the most suitable or among the most suitable measures to address PD3. Concerning the impact of this measure on the level of penalties applied, three stakeholders¹¹⁸ agreed that the measure would have a significant impact. Furthermore, two MS authorities considered the measure would result in an increase in the level of the penalties applied to a moderate extent, and one MS authority to a limited extent. However, Spanish authorities consider that the ability to impose penalties is contingent on the ability to gather sufficient evidence to support the case, but the level of penalties is not likely to change as a result of this measure. Furthermore, Cypriot authorities believe that the outcome will vary case by case.

Five out of 20 stakeholders agreed with the principle regarding serious negligence and four stakeholders¹¹⁹ disagreed with this principle, as they consider that intent should always be proved. The majority of the stakeholders neither agreed nor disagreed with the proposed principle or indicated that they did not know the answer.

Seven out of 20 stakeholders¹²⁰ agreed with the principle regarding penalties being imposed on a pre-defined legal person that should indicate who the correct legal person is to assume liability for the violation. On the other hand, three maritime industry stakeholders¹²¹ disagreed with this principle, as they consider that pre-defining a legal person to indicate responsibility is far reaching and excessive. The majority of the stakeholders neither agreed nor disagreed with the proposed principle or indicated that they did not know the answer.

¹¹⁷ These include two MS authorities and two regional/international bodies.

¹¹⁸ These include one MS authority, one regional/international body and one environmental NGO.

¹¹⁹ These include one MS authority and three maritime industry stakeholders.

¹²⁰ These include six MS authorities and one NGO.

¹²¹ These include three maritime industry stakeholders.

Five out of 20 stakeholders¹²² agreed with the principle regarding estimation of the level of the penalty being based on an estimate of the size and quality of the discharge. According to the Bulgarian authorities, it is considered easier to set the penalty first taking into consideration the quantity and size of the spill. However, the Cypriot authorities indicated that determining the level of the penalty based on the size of the discharge is challenging. On the other hand, one Member State authority disagreed with this principle, as they consider that this criterion can only be applied to certain substances (e.g. oil) but not to all polluting substances involved in ship-source pollution. The majority of the stakeholders neither agreed nor disagreed with the proposed principle or indicated that they did not know the answer.

Seven out of 20 stakeholders¹²³ agreed with the principle regarding possibility to appeal against administrative sanction in a court of law. The Bulgarian authorities and BIMCO indicated that it should always be possible for everyone to appeal against a sanction that could be unfair. However, Spanish authorities reported that the principle is already included as such in the Spanish law. Furthermore, OSPAR/Bonn Agreement representative considers that it depends on the Member States applying the penalty, and that it is also convenient to know what is done in the actual practice and what is more efficient in different Member States. IPTA considers that increasing penalties or liabilities will not decrease the level of illegal discharges.

With regards to the regulatory approach of including criteria for setting the level of administrative penalties in the Directive, there was a general agreement over harmonisation of penalties at EU level. However, specific support to this measure was only provided by five Member State authorities and four international/regional bodies¹²⁴. In this context, Belgian and Dutch authorities regard the harmonisation of monetary penalties to be very difficult in practice because of the variety of legal frameworks. Furthermore, Belgian authorities consider existing administrative penalties are already effective and dissuasive. The Spanish authority representative believes that the size and quantity of the discharge should be the most important factors to consider. Other factors, such as the intentionality or impact of the discharge, could also be considered, but only as secondary factors influencing the monetary penalty imposed. With regards to the criteria proposed for setting monetary penalties, stakeholders consulted provided mixed views.

It is also worth mentioning that the harmonisation of penalties, as well as raising penalties to be significant were selected in the OPC as a measure to be considered for the review of the SSP Directive, where seven out of 16 of the respondents indicated that they consider this measure useful or very useful.

– Differences among stakeholder groups

The main two points of disagreement throughout the consultations were the following:

- (1) Environmental NGOs advocate for increasing the scope of polluting substances to go beyond MARPOL Annexes and cover other types of polluting substances regulated under the MARPOL Convention. Whilst Member States have divergent views on this issue and the industry strongly disagrees with extending the scope

¹²² These include four MS authorities and one NGO.

¹²³ These include five MS authorities, one industry stakeholder and one NGO.

¹²⁴ REMPEC supported this measure to be applicable only for administrative penalties.

of the Directive in principle and even more so disagrees with going beyond MARPOL.

- (2) Industry advocates to align the liability threshold (i.e. remove the provision on serious negligence) and geographical scope of the Directive with MARPOL, whereas most of the remaining stakeholders disagree. Industry perceives this factor and referring to serious negligence as one limiting legal certainty. Other stakeholders (e.g. EIA intervention at stakeholder workshop) would like to see the liability threshold maintained at the same level as currently as to not make it more difficult to prosecute the offenders. No court case has been identified since 2005 where there was unfair treatment of crew members in a ship-source pollution incident.

In the context of the second point, stakeholders consulted provided mixed views on the policy measure for clarifying the exception concerning infringement for crew members, as well as conditional support in some cases (e.g., if some conditions were satisfied). Two Member State authorities and one regional/international body agreed with the measure, as they considered that the proposed additional text is similar to the principle stated by other international conventions. However, three other stakeholders (including two maritime industry stakeholders, ECSA and ICS, as well as one Member State authority) have expressed their opposition to this measure. Representatives from ECSA and ICS considered that this measure would only be a partial improvement over the current Directive and could only be supported if a similar provision was developed for ship-owners.

Also, stakeholders consulted provided limited views regarding the measure on a provision being included in the Directive on whistle-blowers, as they referred to their limited expertise on the implications of this policy measure. In this regard, one Member State authority agreed with this measure, although they pointed to the different procedures that already in place in different Member States regarding whistle-blowers and indicated that flexibility would be needed in each Member State to implement this measure accordingly. One NGO supported this measure during their intervention at the stakeholder workshop.

– Costs of the future directive

Member State authorities were asked to provide an estimate of the expected costs associated with a potential extension of the scope of the Directive. However, limited information was provided, as several authorities stated that providing this estimate is significantly challenging. Some of the authorities stated that this is because it is difficult to separate the costs as they are part of their daily job. Additional costs were cited by the Finnish authorities as a result of the need for new/improved sensors. The cost could account for several million EUR. On the other hand, German authorities suggested that in terms of costs of expanding the scope to include additional annexes to MARPOL, there are no numbers on this, but that it would not be considered significant. ECSA outlined that they have no specific information on costs, but that they believe that additional costs for the shipping industry resulting from the proposed policy measures would most likely arise through defending ships and seafarers from unwarranted criminalisation in the prosecution under the Environmental Crime Directive.

Information on costs associated with measures on EMSA highly specialised support was mainly provided by EMSA. Additionally, REMPEC provided an estimate of the cost

associated with the development and delivery of training sessions at regional and/or national level. The cost was estimated at the level of approximately USD 50,000 if organised at regional level, and USD 10,000 if done at national level.

Spanish authorities estimated 0.5 additional FTE required annually to perform tasks related to uploading data to a new dedicated EMSA platform. It was specified that most of this time would be spent gathering the information on ship-source pollution incidents. French and German authorities indicated that systems to collect this information are already in place at national level. Therefore, only links to the new platform to transfer this information would be needed. As a result, they expect minimum additional costs due to the implementation of this measure. On the other hand, the Maltese authorities expected additional costs would arise from the new dedicated EMSA platform.

Six Member State authorities interviewed (out of 12) estimated that the time needed for Member State authorities to collect and submit information about prosecution for pollution from ships and penalties imposed would be more than two days annually. In addition, two Member State authorities indicated that the expected time would be between one to two hours. The Spanish and Romanian authorities emphasised that the time would depend on the characteristics of each procedure (e.g. administrative or criminal). In that sense, the Croatian authorities also clarified that the estimation provided is only referred to administrative proceedings – and related to the time needed to upload the information once it is gathered. The most challenging and time-consuming activities would still be related to collecting and summarising the information related to the case, which are not included in the estimation of 2h.

3.4 Position papers

Seven position papers were submitted when providing feedback on the Inception Impact Assessment (IIA), mostly from NGOs (six out of seven). The majority of position papers submitted touched on the following areas of revisions: the scope of the future Directive (Annex I-V substances and Annex VI discharge water from scrubbers) (n=6), mechanisms for monitoring compliance (n=3) and one NGO commented on the importance of harmonise legislation on sea pollution at EU level.

Also, five position papers were submitted by OPC respondents. However, two of these position papers had already been received during the IIA. The other three papers were submitted by a business, academia and a local authority. Most of them touched on the extension of the scope of the Directive (Annex I-VI).

Four position papers were received by the survey respondents in the Evaluation phase (two from NGOs, one from an industry stakeholder and one from academia), although all of them were updates of those already been submitted to previous phases of the study, including the IIA and/or the OPC.