

Draft Descriptor Fiche

D10 – Marine litter

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DRAFT

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INTRODUCTION

The Marine Strategy Framework Directive (MSFD) review will assess the state of play and progress on the different descriptors set out in Annex I to the Directive. The differences between descriptors are important when looking at the physical environment and different ecosystem components, and also when considering coherence with other legislation/policies, coordination mechanisms, and data collection. Describing the current situation of each descriptor as it relates to the strategic objectives of the MSFD review, in particular the evaluation, should result in a clear reference baseline. In addition, a dynamic baseline should be developed, showing how the situation is expected to evolve in respect of the policy framework, scientific developments linked to ongoing efforts, and wider trends such as climate change, markets, and future developments.

These descriptor fiches are the start of collecting that information. They will be used as working documents throughout the review and revised as the framework evolves and data are collected. Each fiche describes the general state of the descriptor, the marine strategy components, and looks forward at upcoming trends and developments.

1 GENERAL

1.1 What is the state of the environment regarding this Descriptor?

Marine litter comes from various land-based or sea-based sources, including urban areas, tourism, fisheries, shipping, aquaculture, and agriculture. Litter can enter the environment directly (e.g. lost fishing gear, cigarette butts) or by sewage systems and run-off outlets from urban areas. Rivers can also transport large quantities of litter into the sea¹. Given its longevity, plastic is considered the most damaging component of marine litter and its volume has increased tenfold since 1980².

Marine litter is a transboundary problem, globally 5 to 13 million tonnes of plastics — 1.5 to 4 % of global plastics production — end up in the oceans every year³. An estimated 80 % of marine litter consists of plastics⁴. Litter has been found in all marine environment compartments: shoreline, water column and seafloor⁵. Most plastic litter items are packaging, fishing nets and small pieces of unidentifiable plastic or polystyrene⁶. The total amount of micro-plastic litter in the environment is difficult to measure; however, monitoring results show considerable amounts of micro-plastic present in the sea water.

Information by **marine region** on marine litter is presented on WISE Marine⁷:

- Litter is abundant on beaches of the North-East Atlantic. Plastics comprise over 90 % of items in some areas, other litter includes fishing-related litter and packaging. Litter, in particular plastic, is widespread on the seafloor⁸.
- In the Baltic Sea, high concentrations of plastics were found on urban beaches, plastics being the most common litter material (in particular single use food and drink items, plastic and polystyrene). Plastic

¹ <https://wise-test.eionet.europa.eu/marine/state-of-europe-seas/pressures-impacts/marine-litter>

² Milieu, ACTeon, (forthcoming), Study supporting the Evaluation of the MSFD.

³ Jambeck, J. R., Geyer, R., Wilcox, C., Siegler, T. R., Perryman, M., Andrady, A., ... & Law, K. L., 2015. Plastic waste inputs from land into the ocean. *Science*, 347(6223), 768-771.

⁴ <https://www.eea.europa.eu/soer/publications/soer-2020>

⁵ European Environment Agency, 2019. The European Environment—State and Outlook 2020: Knowledge for Transition to a Sustainable Europe.

⁶ Pham, C. K., Ramirez-Llodra, E., Alt, C. H. S., Amaro, T., Bergmann, M., Canals, M., et al., 2014. Marine litter distribution and density in European Seas, from the shelves to deep basins. *PLoS ONE*, 9, e95839.

⁷ <https://wise-test.eionet.europa.eu/marine/state-of-europe-seas/pressures-impacts/marine-litter>

⁸ OSPAR Commission, 2017. OSPAR Intermediate Assessment 2017 Extent of Physical Damage to Predominant and Special Habitats <https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/biodiversity-status/habitats/extent-physical-damage-predominant-and-special-habitats/>.

was the most common litter material category on the seafloor, on average around 30 % of the number of items and 16 % of the weight⁹.

- Information in the Mediterranean is fragmented and generally concerns the northern part of the region; however, plastic pollution is higher during the summer due to tourism¹⁰. Plastic is the major marine litter component and is found throughout the continental shelf of the Mediterranean, making up to 90 % of the recorded marine litter items¹¹.
- Plastic litter is prolific in both the Black Sea's seafloor and coastal environments. The Black Sea is a micro-plastic hotspot, prone to micro-plastic accumulation, both in the pelagic and benthic habitats¹².

Regarding the outlook to 2030, the SOER¹³ states that marine litter will continue to impact marine ecosystems.

1.2 To what extent is the Descriptor well communicated to the public?

Public awareness around marine litter is very high. Overall, there is societal agreement on the need to reduce the amount of litter, especially plastic litter, in marine ecosystems. Compared to other descriptors, the public can understand at least some aspects of D10, and the effects are visible (e.g. beach users can see macro-litter). Furthermore, the sources of marine litter can clearly be traced, making it easier for advocates to assign blame. The key messages behind D10 can thus be made simple, making D10 ideal for awareness campaigns¹⁴ and other measures to raise public awareness (such as labelling of plastic products, as required by the SUP Directive), which has been done by various NGO (and other stakeholder) campaigns.

1.3 Which main EU policies regulate this Descriptor? Which ones have a strong influence?

EU legislation:

- The **Single Use Plastics (SUP) Directive** (Directive (EU) 2019/904) establishes targets and measures to reduce the impact of certain plastic products, including plastic fishing gear, on the marine environment (e.g. bans of specific SUPs, consumption reduction measures, extended producer responsibility schemes).
- The **Port Reception Facilities (PRF) Directive** (Directive (EU) 2019/883¹⁵ addresses marine litter from shipping/fishing by providing financial incentives to deliver waste to ports, improve monitoring/enforcement of the mandatory delivery obligation and better manage waste in EU ports in adequate port reception facilities.
- The **European Maritime and Fisheries Fund (EMFF)** may support the collection of waste by fishermen from the sea such as the removal of lost fishing gear and marine litter.
- The amended **Waste Framework Directive** (2018/851/EC amending Directive 2008/98/EC on waste)¹⁶ acknowledges that, since marine litter, in particular plastic, stems to a large extent from land-based activities, specific measures should be laid down in waste prevention programmes and waste management plans.

⁹ HELCOM, 2018. State of the Baltic Sea – Marine Litter <http://stateofthebalticsea.helcom.fi/pressures-and-their-status/marine-litter/>.

¹⁰ Tourism directly affects marine litter on beaches. Pollution has almost doubled during the summer in the coastal areas of the Mediterranean Sea – in some areas, the summer months correspond with 75 % of the annual waste production.

¹¹ United Nations Environment Programme – Mediterranean Action Plan (UNEP-MAP), 2018. Barcelona Convention – Mediterranean 2017 Quality Status Report <https://www.medqsr.org/>.

¹² BSC, 2019. State of the Environment of the Black Sea (2009-2014/5) <http://www.blacksea-commission.org/Inf.%20and%20Resources/Publications/SOE2014/>.

¹³ <https://www.eea.europa.eu/soer/2020>

¹⁴ This point was also raised in the JRC Report on TV: Vasilakopoulos, P., Palialexis, A., Boschetti, S.T., Cardoso, A.C., Druon, J.-N., Konrad, C., Kotta, M., Magliozzi, C., Palma, M., Piroddi, C., Ruiz-Orejón, L.F., Salas-Herrero, F., Stips, A., Tornero, V. and Hanke, G., *Marine Strategy Framework Directive, Thresholds for MSFD Criteria: state of play and next steps*, EUR 31131 EN, Publications Office of the European Union, Luxembourg, 2022, ISBN 978-92-76-53689-5, doi:10.2760/640026, JRC128344

¹⁵ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L0883&from=IT>

¹⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L0851&from=EN>

- The **Packaging and Packaging Waste Directive** (94/62/EC) and as its amendment the **Plastic Bags Directive** (Directive (EU) 2015/720) aim to reduce waste, and in particular plastic bags, that can lead to entanglement of marine species and break down into microplastics.

Other policies that are linked to D10 are: the **Water Framework Directive** (2000/60/EC), the **Landfill Directive** (1999/31/EC), the **Urban Waste Water Treatment Directive** (91/271/EEC), the **Eco-design Directive** (2005/32/EC), the **Drinking Water Directive** (98/83/EC) and the EU's **Water reuse and Food Protection/Safety policies**.

EU strategies/Action Plans:

- The **Zero Pollution Action plan** sets reduction targets to be reached by 2030: improving water quality by reducing plastic litter at sea (by 50 %) and microplastics released in the environment (by 30 %).
- The **European Strategy for Plastics in a Circular Economy** (COM(2018) 28 final) concerns the management of plastic and as such also addresses plastic marine litter. It provided the basis for the SUP and PRF Directives.
- The **Circular Economy Action Plan**¹⁷ commits to address unintentional releases of microplastics by developing labelling, standardisation, certification and regulatory measures.
- The **EU strategy for sustainable and circular textiles**¹⁸ aims to ensure textile products on the EU market are long-lived and recyclable, and produced in respect of the environment.

At international level:

- UN environment programmes/instruments:
 - UNEA global agreement.
 - Global Partnership on Marine Litter, led by the UN Environment Programme
 - United Nations Global Partnership on Marine Litter (2012)
- International Maritime Organisation:
 - MARPOL Convention, Annex V, which bans ships from discharging waste at sea
 - Marine plastic from ships Action Plan (2021)

1.4 How are data collected now? To what extent are data available in national/regional/EU databases?

Data harmonisation is generally poor as marine litter has only recently been the focus of attention compared to some other Descriptors. The current issues are associated with temporal and spatial coverage of monitoring, method availability and comparability, and data treatment and accessibility. An exception is beach litter. For example, beach area surveys, in collaboration with EMODNET, have had more success/harmonisation¹⁹. This is primarily due to evidence collecting and comparing amounts of beach litter being fairly straightforward.

Water column litter monitoring is challenging. Buoyant litter, for example, can float both on the surface or subsurface. Neutral-buoyant litter can occur in multiple heights in the water column. Ship and ariel observations are possible and have been undertaken in the Black and Mediterranean Seas, however, differences in methodologies (target size range, different sizes of the macro litter, descriptions of scope) leads to incomparable survey results. Sea floor litter is made up of the heavier items. This is currently measured by bottom trawling during fishery surveys with very few data available for areas where trawling cannot be done²⁰.

A recent JRC Report²¹ shows that a number of MSs do not sufficiently report data in different categories and the use of different methodologies leads to incomparability for reported litter and microliter. Only very few Member States reported on coastline and seabed litter.

The Zero Pollution Action Plan mentions explicitly MSFD monitoring to track progress towards achievement of the targets. The use of the [Joint List of litter categories](#) and of the monitoring guidelines (updated guidelines

¹⁷ https://ec.europa.eu/environment/circular-economy/pdf/new_circular_economy_action_plan.pdf

¹⁸ https://environment.ec.europa.eu/publications/textiles-strategy_en

¹⁹ See for example Hanke, G., Walvoort, D., van Loon, W. M. G. M., Addamo, A. M., Brosich, A., del Mar Chaves Montero, M., ... & Giorgetti, A. (2019). *EU marine beach litter baselines*. EU Science Hub. Luxembourg: Publications Office of the European Union.

²⁰ SWD(2020) 61 final.

²¹ Ruiz Orejon Sanchez Pastor, L., Tornero Alvarez, M.V., Boschetti, S. and Hanke, G., *Marine Strategy Framework Directive - Review and analysis of EU Member States' 2018 reports - Descriptor 10: Marine litter*, EUR 30665 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-34263-2, doi:10.2760/238367, JRC124701.

to be published in 2022), developed by MSFD TG Litter should ensure adequate harmonisation and comparability²².

At EU/regional level, various initiatives are in place to improve data availability and harmonisation:

- [EMODnet](#) created the first pan European Marine Litter Database (MLDB), following the advice of MSFD TG Marine Litter. The database contains data of beach and sea floor litter from a variety of sources, including existing International and Regional Sea Conventions, and data submitted by EU MSs, EMODnet partners and external research or monitoring projects.
- EEA has developed a Marine LitterWatch mobile app to collect information on marine litter and strengthen Europe's knowledge base and thus provide support to European policy making. Marine LitterWatch is a citizen science-based app that aims to help fill data gaps in beach litter monitoring.
- The European Atlas of the Seas²³ includes a specific section on litter, allowing users to select from a variety of layers which can be used to create a map of Europe's seas.
- WISE Marine is being used to visualise the information reported by MSs under their MSFD obligations.

An SWD on Digital Solutions from 2021²⁴ outlines several initiatives in place specifically to digitally track marine litter. They either work with citizen science to gather plastic from the shorelines²⁵ or use Geo-Information data to monitor marine litter in the North East Atlantic Ocean^{26,27}.

2 MARINE STRATEGY COMPONENTS

2.1 How is GES currently defined in relation to this descriptor? Have TVs been set and are they regionally coherent? (Article 9 MSFD)

D10 has been defined as "Properties and quantities of marine litter do not cause harm to the coastal and marine environment"²⁸. It is noted that more emphasis has been given to micro litter since the original 2010 definition (see for example the JRC review of the Commission Decision 2010/477/EU²⁹). D10 was first defined in the 2010 GES Decision, and refined in the 2017 GES decision.

The Commission assessments on the second cycle Article 9 reporting showed that D10 scored especially poorly compared to other descriptors in defining GES, specifically when reporting the elements and parameters used, as well as the objective expressed, in accordance with the requirements of the GES Decision. Out of 24 MSs, only 3 scored very good/good for D10, the lowest number of all descriptors³⁰.

According to the 2017 GES Decision, MSs are to establish threshold values (TVs) for D10 through cooperation at Union level for primary criteria, and through regional or subregional specificities for secondary criteria. The MSFD TG Litter was mandated through the 2016-2019 work programme of the CIS, to develop approaches for setting threshold values and to work towards agreed threshold values. The approach for setting TVs is set out in the "JCR technical report Threshold Values for Marine Litter"³¹.

²² Plastic litter/microplastics reduction targets set by the Zero Pollution Action Plan (ZPAP), presented in the 30th MSCG meeting 16 May 2022.

²³ https://ec.europa.eu/maritimeaffairs/atlas/maritime_atlas/#lang=EN;p=w;bkgd=1;theme=2:0.75;c=-2767332.9664379945.8496011.191511754;z=4

²⁴ SWD(2021) 140 final.

²⁵ <https://www.eea.europa.eu/themes/water/europes-seas-and-coasts/assessments/marine-litterwatch>

²⁶ <https://litter-tep.argans.eu>

²⁷ <https://fmltrack.rivagesprotech.frhttps://fmltrack.rivagesprotech.fr>

²⁸ According to Commission Decision (EU) 2017/848.

²⁹ https://mcc.jrc.ec.europa.eu/main/dev.py?N=41&O=435&titre_chap=TG%20Litter&titre_page=Review%20of%20the%20ComDec%202010/477/EU

³⁰ Data derived from the Article 12 Assessment EU Overview report: See graphs in Chapter 2.1 of that document.

³¹ Werner S., Fischer E., Fleet D., Galgani F., Hanke G., Kinsey S. and Mattidi M., *Threshold Values for Marine Litter*, EUR 30018 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-14179-2, doi:10.2760/192427, JRC114131.

For D10C1, the EU TV has been developed to be **20 litter items/100 m coastline**. However, the proposed TV is ambitious, and it may take several MSFD implementation cycles to reach; therefore, TG ML and RSCs are developing intermediate measurable targets that take into consideration the different (sub-) regional aspects³². **At regional level, UNEP/MAP proposed the TV-2021 (130 litter items/100 m coastline)**³³.

For D10C2 **operational TVs agreed at European or regional level for D10C2 are currently absent** and deriving TVs from micro-litter properties linked to impacts (e.g. toxicological effects) is currently challenging (Werner et al., 2020). Discussions in TG Litter, in close collaboration with the RSCs, on the approach towards the assessment methods to derive TVs at EU level have started, along with the collection of micro-litter data through the EMODnet platform³⁴.

For D10C3 Currently, **one TV has been defined at regional level, based on litter ingested by the Northern Fulmar seabird in the North Sea** (OSPAR RSC common indicator 'EcoQO'). Recently, TVs for litter ingestion in turtles have also been developed and proposed for the Mediterranean Sea region based (Matiddi et al., 2017; 2019).

For D10C4 **no TVs are currently available for this criterion**. Different approaches for quantification of entanglement events are under development but monitoring adverse effects on biota is still a challenge³⁵.

Regarding litter in the surface layer of the water column and seabed environmental compartments, some MSs reported quantitative TVs during the 2018 MSFD reporting cycle³⁶. Discussions on the development of threshold values for water surface and seabed, and TVs for environmental compartments other than coastlines are ongoing, depending to a large extent on the availability of monitoring programmes and data³⁷.

When including the secondary criteria, compared to other descriptors, D10 is performing poorly. D10 is one of 4 descriptors where fewer than 50 % of MSs reported adequate threshold values³⁸ for all criteria. The level of coherence in defining TVs is very poor: For the Baltic Sea it is 0 % (only 1 MS in the region uses defined threshold values, so it was determined that there was no coherence to the approach taken by MSs to set threshold values). For the NE Atlantic ocean 50 % of MSs in the region used TVs and in the Mediterranean Sea 13 %. For the Black Sea, no data are available³⁹.

2.2 What targets exist for this Descriptor? are those targets regionally coherent? (Article 10 MSFD)

The Commission's Article 12 assessment on the MS's reported information under Article 10 assumed that to be operational, an environmental target must specify the pressures and impacts addressed and quantify the amount of reduction needed to achieve GES. Targets that described an ideal environmental state and/or only set out quantifiable threshold value without specifying what needed to be done to reach that state or threshold were not considered operational⁴⁰. The JRC noted that most of the targets reported by MSs under Art. 10 are very general and refer to the reduction of releases, inputs or merely the impact. Targets are also rarely quantitative or associated with specific thresholds. Therefore, these targets are inconsistent with the objective

³² Vasilakopoulos, P., Palialexis, A., Boschetti, S.T., Cardoso, A.C., Druon, J.-N., Konrad, C., Kotta, M., Magliozzi, C., Palma, M., Piroddi, C., Ruiz-Orejón, L.F., Salas-Herrero, F., Stips, A., Tornero, V. and Hanke, G., *Marine Strategy Framework Directive, Thresholds for MSFD Criteria: state of play and next steps*, EUR 31131 EN, Publications Office of the European Union, Luxembourg, 2022, ISBN 978-92-76-53689-5, doi:10.2760/640026, JRC128344.

³³ Ibid.

³⁴ Ibid.

³⁵ Ibid.

³⁶ Ruiz-Orejón L.F., Tornero V., Boschetti S.T., Hanke G., *Marine Strategy Framework Directive - Review and analysis of EU Member States' 2018 reports - Descriptor 10: Marine litter*, EUR 30665 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-34263-2, doi:10.2760/238367, JRC124701.

³⁷ Ibid.

³⁸ Data derived from the Article 12 Assessment: EU Overview of the Commission assessment of the Member States' reported information to the Commission on the implementation of the MSFD, report forthcoming.

³⁹ Article 12 Assessment Coherence assessment.

⁴⁰ Article 12 Assessment EU Overview: EU Overview of the Commission assessment of the Member States' reported information to the Commission on the implementation of the MSFD, report forthcoming.

of the GES determination and could not measure the distance from GES⁴¹. TG ML⁴² notes that interim targets aiming to achieve the TV could be based on reduction trends for the six-year MSFD assessment cycle – the baseline can be calculated from existing data from beach litter surveys.

Reporting for environmental targets was assessed by the Commission as equally poor in all MSs⁴³. Most MSs did not specify or quantify the reduction needed in a pressure or impact. Only a few MSs were assessed as having ‘good’ reporting, none were assessed as ‘very good’ reporting.

Several targets exist for D10 outside the MSFD⁴⁴.

EU level:

- Improving water quality by reducing waste, plastic litter at sea (by 50 %) and microplastics released into the environment (by 30 %) (Zero Pollution Action Plan, p.3)

Regional level:

- Reduce marine litter on the beaches by at least 30 % by 2025 and by 50 % from the baseline by 2030 (HELCOM, BSAP, p32)⁴⁵
- By 2025 OSPAR will reduce by at least 50 % the prevalence of the most found single-use plastic items and of maritime-related plastic items on beaches in order to contribute to the achievement of relevant regional and EU threshold values building upon requirements for EU MSs in the EU Single Use Plastics Directive (Directive 2019/904), and by at least 75 % by 2030 (OSPAR, NEAES p. 10).

2.3 How are marine waters currently assessed? Is GES achieved/not achieved? (Article 8 MSFD)

As part of the Article 8 reporting, MSs reported whether GES is achieved for D10 in each marine reporting unit. Information from the second cycle (due in 2018)⁴⁶ shows that GES was reported as achieved for the feature ‘litter in the environment’ in 6 MSs though in 4 of those this was only valid for some marine reporting regions. The majority of the criteria have not been assessed, and where they have been, GES has not been achieved⁴⁷. GES was reported as “expected to be achieved later than 2020”, “Not assessed” or “Unknown” by most MSs due to the lack of agreed threshold values and the lack of enough data to perform robust assessments for D10C1. For D10C2, GES was reported as “unknown” and “not assessed” for the same reasons, nor did MSs consider criteria for D10C3 and D10C4 for assessing GES⁴⁸.

2.4 To what extent are measures appropriate? Are they regionally coherent? What is the status of the implementation of the Programmes of Measures (PoMs)? (Articles 13 and 18 MSFD)

The Commission’s assessment of the reporting for the first cycle⁴⁹ showed that existing measures for D10 focus on implementing existing measures under other EU regulatory frameworks, as well as international agreements. The majority of MSs assessed⁵⁰ also refer to efforts that relate to their respective RSCs.

Overall, existing measures target several land-based (e.g. tourism, urban and sewage) and sea-based (e.g. shipping, fisheries) sources of litter. Other measures focus, for example, on ensuring the eco-friendly

⁴¹ Ruiz-Orejón L.F., Tornero V., Boschetti S.T., Hanke G., *Marine Strategy Framework Directive - Review and analysis of EU Member States’ 2018 reports - Descriptor 10: Marine litter*, EUR 30665 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-34263-2, doi:10.2760/238367, JRC124701.

⁴²https://publications.jrc.ec.europa.eu/repository/bitstream/JRC114131/threshold_values_for_marine_litter_eur_30018_en_3_0_7_2020_pdf.pdf

⁴³ Article 12 Assessment EU Overview: EU Overview of the Commission assessment of the Member States’ reported information to the Commission on the implementation of the MSFD, report forthcoming.

⁴⁴ Taken from the target mapping exercise undertaken as a preliminary step for this descriptor fiche.

⁴⁵ Litter and microlitter are assessed together here, though it is mentioned that more research is needed for microlitter especially.

⁴⁶<https://water.europa.eu/marine/data-maps-and-tools/msfd-reporting-information-products/ges-assessment-dashboards/general-dashboards>

⁴⁷ 2018 reporting of MSFD Article 8 - Overall status per feature <https://water.europa.eu/marine/data-maps-and-tools/msfd-reporting-information-products/ges-assessment-dashboards/general-dashboards>.

⁴⁸ Ruiz-Orejón L.F., Tornero V., Boschetti S.T., Hanke G., *Marine Strategy Framework Directive - Review and analysis of EU Member States’ 2018 reports - Descriptor 10: Marine litter*, EUR 30665 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-34263-2, doi:10.2760/238367, JRC124701.

⁴⁹ Milieu et al., *Article 16 Technical Assessment of the MSFD 2015 reporting on Programmes of Measures: European Report*, 2019.

⁵⁰ Ibid.

management of ships, improving port reception facilities, avoiding the loss of fishing nets, developing 'fishing for litter' initiatives and clean-up efforts, improving waste management in the sectors of fisheries and aquaculture, and research on the impacts on marine litter on species and habitats (covering both macro- and micro-litter). 76 % of all targets were found to be direct (rather than indirect) measures. Coherence of pressures addressed by the PoMs for marine litter (D10) is assessed to be moderate across the EU.

Under Article 18, MSs report an update on the progress of measures. Data from WISE Marine concerning the first cycle⁵¹ shows most measures have started, although only a relatively small number have been implemented. Of the total of 235 measures⁵², 40 (17 %) have been implemented, for 152 (65 %) implementation has started and for 43 (18 %) implementation has not started yet. Obstacles for implementation varied, although most related to lack of financing and acceptance⁵³.

2.5 How well-established are the monitoring systems in place in Member States with regard to this Descriptor? What mechanisms are in place to monitor progress toward GES? (Article 11 MSFD)

Results from the JRC's assessment on the 2020 Article 11 reporting⁵⁴ show almost half of the reported monitoring programmes were modified from 2014, 21 % were new programmes, and 32 % were the same programme as in 2014. This distribution was typical for all second-cycle monitoring programmes across all descriptors. The report found Member States mainly reported the litter categories described in the GES Decision for D10C1, D10C2 and D10C3. The number of elements for D10C1 and D10C2 (litter categories and environmental compartments) did not differ widely across MS in the marine regions, although there were some exceptions. For the secondary criteria, the report found further coverage and harmonisation are needed to ensure comparability.

In general, monitoring is one of the main issues concerning D10. The current issues are associated with temporal and spatial coverage of monitoring, method availability and comparability, and data treatment and accessibility.

2.6 What is the current state of work of the CIS and RSCs in relation to the different components of the marine strategies?

Technical Group Marine Litter (TG Litter) is a technical group under the MSFD CIS, and reports through the GES group. It supports the D10 implementation and the EU external activities concerning marine litter⁵⁵.

The RSCs all take specific interest in marine litter. All RSCs produce assessments and have monitoring programmes in place, as well as Regional Action Plans. The Barcelona Convention has its own [Regional Plan on Marine Litter Management in the Mediterranean](#). The [Marine Litter MED II](#) (2020-2023), an EU-funded project, supports the implementation of the updated RPML. Helcom has its [Regional Marine Litter Action Plan](#), OSPAR has a [Regional Action Plan for Marine Litter](#) (2014-2021) and the Commission on the Protection of the Black Sea Against Pollution also has a [Regional Action Plan on marine litter](#), including certain measures targeting land- and sea-based sources. In 2022 OSPAR adopted a [new RAP-ML](#), which directly contributes to delivering the marine litter objectives of the [North-East Atlantic Environment Strategy 2030](#). An action overview table is [available](#).

3 LOOKING FORWARD

3.1 How do climate change and this Descriptor interact?

⁵¹ <https://water.europa.eu/marine/data-maps-and-tools/msfd-reporting-information-products/msfd-reporting-data-explorer/programmes-of-measures-progress-of-pom>

⁵² It is noted that the updating exercise does not require existing measures (1a and 1b) to be included.

⁵³ <https://water.europa.eu/marine/data-maps-and-tools/msfd-reporting-information-products/msfd-reporting-data-explorer/programmes-of-measures-progress-of-pom>

⁵⁴ Tornero V., Palma M., Boschetti S.T., Cardoso A.C., Druon J.-N., Kotta M., Louropoulou, E., Magliozzi C., Palialexis A., Piroddi C., Ruiz-Orejón L.F., Vasilakopoulos P., Vighi M., Hanke G., Marine Strategy Framework Directive Review and analysis of EU Member States' 2020 reports on Monitoring Programmes, (MSFD Article 11), EUR 31181 EN, Publications Office of the European Union, Luxembourg, 2022, ISBN 978-92-76-55778-4, doi:10.2760/8457, JRC129363.

⁵⁵ https://mcc.jrc.ec.europa.eu/main/dev.py?N=41&O=434&titre_chap=TG

Climate change and marine litter are often considered as two separate issues, although academics⁵⁶ point out that the causes of both are the same (overconsumption of finite resources). Climate change and marine litter may cumulatively stress ecosystems, eroding ecosystem resilience⁵⁷. Academics⁵⁸ note that plastic production directly contributes to climate change (when considering the energy and other resources involved, and emissions from industrial processes), as does plastic recycling/disposal. Reducing plastic consumption will positively impact both climate change and marine litter directly.

Extreme weather events caused by climate change may lead to increased surface run off, which will transport terrestrial litter and other litter in rivers to marine areas. Changes to ocean currents may result in increased third country waste ending up in the EU. Tourism during summer months generates a large amount of beach litter, and warmer climates may see tourism shift from current areas, potentially alleviating the pressure in some areas while exacerbating it in others. It remains to be seen whether the new areas will be better equipped to manage the additional pressure.

3.2 What are the upcoming policy trends?

An evaluation of the Single-Use Plastic Directive is planned for 2027, which may lead to a revision of the list of items to be banned⁵⁹.

A high-level scientific opinion was published recently by the European Commission⁶⁰. ECHA also published its restriction dossier⁶¹; which recommended wide-ranging restrictions on microplastics in products placed on the EU/EEA market to prevent the release of microplastics. The Commission is expected to prepare its proposal following ECHA's report to amend the list of substances restricted under Annex XVII of REACH. The European Commission has also launched an initiative on measures to reduce the impact of microplastic pollution on the environment⁶². The International Maritime Organization has also developed a Strategy to address marine plastic litter from ships⁶³.

In terms of textiles, the focus is on finding alternatives to microfibrils and reduce microplastic released during washing. A significant percentage of textiles discarded each year are non-biodegradable materials at risk of becoming marine litter. By reducing the amount of new clothing produced and bought, and improving the circular textiles ecosystem, less plastic should end up in the environment. This is a challenge for both the washing machine manufacturers and the textile industry.

Unintentional release of microplastics from tires, addressed in the Circular Economy package⁶⁴. New labelling rules under Regulation (EU) 2020/740 make it easier for consumers to make better informed decisions⁶⁵.

The revision of Directive 94/62/EC on Packaging and Packaging Waste is expected to reinforce the essential requirements for packaging and assess the feasibility of establishing EU level packaging waste prevention measures and targets. The EU will also address the source, labelling and use of bio-based plastics and the appliance of bio-based, biodegradable and compostable plastics in a new initiative⁶⁶.

3.3 How is progress towards GES expected to evolve within the current MSFD?

Marine litter, in particular plastic litter, will continue to affect marine environments in the future. Global production of plastics has increased more than 20 times in the past 50 years and is estimated to double again

⁵⁶ Ford, H. V., Jones, N. H., Davies, A. J., Godley, B. J., Jambeck, J. R., Napper, I. E., ... & Koldewey, H. J. (2022). The fundamental links between climate change and marine plastic pollution. *Science of The Total Environment*, 806, 150392.

⁵⁷ The extent to which climate change threats to corals, which contributes to many ecosystem services might be exacerbated by plastic pollution is currently unknown, although some studies have found plastic to be detrimental to coral health.

⁵⁸ Ford, H. V., Jones, N. H., Davies, A. J., Godley, B. J., Jambeck, J. R., Napper, I. E., ... & Koldewey, H. J. (2022). The fundamental links between climate change and marine plastic pollution. *Science of The Total Environment*, 806, 150392.

⁵⁹ https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_2709

⁶⁰ European Commission, Directorate-General for Research and Innovation, *Environmental and health risks of microplastic pollution*, Publications Office of the European Union, 2019, <https://data.europa.eu/doi/10.2777/65378>

⁶¹ <https://echa.europa.eu/hot-topics/microplastics>

⁶² https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12823-Microplastics-pollution-measures-to-reduce-its-impact-on-the-environment_en

⁶³ <https://wwwcdn.imo.org/localresources/en/MediaCentre/HotTopics/Documents/marine%20litter/STRATEGY%20TO%20ADDRESS%20MARINE%20PLASTIC%20LITTER%20FROM%20SHIPS.pdf>

⁶⁴ https://ec.europa.eu/environment/circular-economy/pdf/new_circular_economy_action_plan.pdf

⁶⁵ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020R0740>

⁶⁶ https://environment.ec.europa.eu/topics/plastics/bio-based-biodegradable-and-compostable-plastics_en

by 2035 and quadruple by 2050⁶⁷. Public interest in D10 is high, and marine (plastic) litter is currently a ‘hot topic’, suggesting that ongoing work will continue to address the challenges and problems of marine litter and require further action in terms of protecting the marine environment against the negative impact from marine litter.

The SUP Directive is also likely to play a role in progress towards GES, and it is expected that even the next reporting of Article 8 may show improvements to the physical environment, especially around beaches where such products are commonly found. However, there is concern⁶⁸ the Directive won’t be sufficient to mitigate marine litter, either due to the limited scope of the Directive or due to imperfect implementation by manufacturers. Other (in particular) international agreements will likely reduce the impacts from third countries on EU MSs although it is possible that implementing the obligations may take some time, and it may be some years before the impacts are evident in the EU.

The development of threshold values is ongoing, and such commonly agreed upon threshold values are likely to drive progress towards GES, not only by giving implementors/stakeholders a clear objective (and opportunity to measure progress) but also by improving enforcement potential. Similarly, strong targets, which are both measurable and time bound are likely to improve enforcement opportunities and ensure harmonised and quantified definition of GES.

Regional cooperation may increase in at least some marine regions. Marine litter is being tackled extensively at regional level in the Baltic and Atlantic, and it can be assumed that these marine regions will continue the cooperation in research and developing methodologies for setting thresholds and overall implementation. This will certainly drive progress towards GES. In the Mediterranean the issue has also been on the agenda for a long time already, and work will continue to intensify in the coming years. However, the number of third countries in the Mediterranean region may hamper progress, and the impacts that MS contracting parties have on the physical environment may be lower. The Commission on the Protection of the Black Sea Against Pollution is collecting scientific evidence on collection of marine litter and certain outcomes of the RAP are to be expected⁶⁹.

3.4 Are there any other developments expected in the next 30 years?

Data and knowledge regarding marine litter have increased exponentially in recent years and are expected to continue to increase. This could mean policy actions could be designed more effectively in the future, if based on improved scientific evidence. The SWD⁷⁰ notes that further EU-level initiatives are being developed (such as the digital twin of the ocean⁷¹) and/or could be adapted to include parameters relevant to zero pollution. The extent to which this will be relevant for D10 remains to be seen but should be considered in the future.

⁶⁷ Rethink Plastic Alliance (2022) How can EU legislation tackle microplastic pollution. Position Paper <https://rethinkplasticalliance.eu/wp-content/uploads/2022/07/RPa-Microplastics-Position-Paper-July-2022.pdf>.

⁶⁸ <https://www.plasticsoupfoundation.org/en/single-use-plastics-directive/>

⁶⁹ <http://www.blacksea-commission.org/>

⁷⁰ SWD(2021) 140 final.

⁷¹ https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/restore-our-ocean-and-waters/european-digital-twin-ocean-european-dto_en#:~:text=The%20Digital%20Twin%20Ocean%20is,Posidonia%20meadows%20and%20tuna%20migration.