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REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

on the implementation of the Marine Strategy Framework Directive (Directive 2008/56/EC)

{SWD(2020) 60 final} - {SWD(2020) 61 final} - {SWD(2020) 62 final}

Report on the implementation of the Marine Strategy Framework Directive

1. INTRODUCTION

Globally, the oceans represent 71% of the Earth's surface and, thanks to their volume, 99% of the habitable space on Earth. They provide habitats for rich (yet often unknown) marine biodiversity[1] and they are home to the largest known creatures. The oceans also support essential services for people, such as food provision, climate regulation and recreation. More than half of the oxygen we breathe comes from marine organisms, one quarter of the annual human-induced CO_2 emissions into the atmosphere is absorbed by marine waters, and the greatest reservoir of actively cycled carbon on Earth is the ocean (50 times larger than the atmosphere). Therefore, protecting the marine environment is not only crucial for the conservation of biodiversity but also for the wellbeing of humans and the planet. And it is also crucial for the economy. For example, the EU's blue economy, based on sectors directly or indirectly depending on the health of our seas, oceans and coasts, generated a turnover of €658 billion in 2017[2].

However, the marine environment and its ecosystems are still subject to multiple pressures and impacts from human activities, such as fishing, seabed disturbance, pollution or global warming. As a response, the EU designed the Marine Strategy Framework Directive[3] (MSFD) as a holistic policy to protect the marine environment of the seas around Europe while enabling the sustainable use of marine goods and services.

The EU is embarking on a European Green Deal[4], an ambitious strategy to protect and restore biodiversity and make Europe the world's first climate-neutral continent. Climate change, biodiversity, health and food security go together. That is why conserving Europe's natural environment, including our oceans and seas, is a crucial part of the Green Deal. Thus, the success of the MSFD is instrumental for the EU to reach its overarching objectives, such as halting the loss of marine biodiversity and moving towards a zero-pollution society.

[1] For example, the Census of Marine Life (http://www.coml.org/) found that one litre of ocean water can hold 38,000 kinds of microbial bacteria.

[2] The 2019 EU Blue Economy Report (https://dx.doi.org/10.2771/21854).

[3] 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 (Marine Strategy Framework Directive) (OJ L 164, 25.6.2008, p. 19).

[4] Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions - The European Green Deal (COM/2019/640 final).

With this document, the Commission is delivering on its legal requirement[5] to publish a report on the Directive's implementation, building upon previous reports[6] it has published throughout the first cycle of implementation.

The MSFD has been in force since 2008. It requires Member States to set up national marine strategies to achieve, or maintain where it exists, 'good environmental status' by 2020. The Directive is implemented in a six-year cycle with three major stages.

(1) In 2012 and in 2018, Member States had to report on the status of their marine waters and set targets to achieve good environmental status based on the 11 'descriptors' (objectives) set by the MSFD, which cover the health of ecosystems and the human pressures and impacts affecting them[7].

(2) In 2014, Member States had to set up monitoring programmes to collect data in order to assess progress in achieving good environmental status and reaching targets.

(3) In 2016, Member States had to set up programmes of measures that would help them to deliver their objectives, and in 2018 they had to report on their progress in implementing the programmes.

> ***'Good environmental status'*** *means the environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive within their intrinsic conditions, and the use of the marine environment is at a level that is sustainable, thus safeguarding the potential for uses and activities by current and future generations […]. Good environmental status shall be determined at the level of the marine region or subregion […] on the basis of the* [11] *qualitative descriptors in Annex I'* (extract from Article 3(5) of the MSFD).

The Commission has assessed each stage of the national strategies in regular reports and accompanying annexes (see footnote 6) identifying gaps in implementation and

[5] Article 20(1) and 20(3) of the MSFD.

[6] The 2014 report from the Commission to the Council and the European Parliament on the first phase of implementation of the Marine Strategy Framework Directive - The European Commission's assessment and guidance COM(2014) 97, together with the accompanying Commission Staff Working Document SWD(2014) 49.

The 2017 report from the Commission to the European Parliament and the Council assessing Member States' monitoring programmes under the Marine Strategy Framework Directive COM(2017) 3, together with the accompanying Commission Staff Working Document SWD(2017) 1.

The 2018 report from the Commission to the European Parliament and the Council assessing Member States' programmes of measures under the Marine Strategy Framework Directive COM(2018) 562, together with the accompanying Commission Staff Working Documents SWD(2018) 393 and SWD(2019) 510.

In addition, technical reports per Member State and per region are published in https://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/implementation/reports_en.htm.

[7] Biological diversity (D1), food-web structure (D4) and sea-floor integrity (D6) are maintained, while the impacts from non-indigenous species (D2), fishing (D3), excess nutrients (D5), changes in hydrographical conditions (D7), contaminants in the environment (D8) and in seafood (D9), marine litter (D10) and underwater noise (D11) do not adversely alter the marine ecosystems.

providing guidance to individual Member States. The second cycle of implementation formally started in October 2018 but is suffering from long delays in reporting[8].

The present report looks at the implementation of the MSFD during its first implementation cycle[9] and is accompanied by three staff working documents[10]. A more thorough review of this Directive, in line with better regulation requirements, will be developed as soon as possible, and no later than 2023[11]. This report is based on information produced under the MSFD by Member States, the Commission, external observers and experts. It focuses on the key policy messages and lessons learnt from the first cycle of implementation.

2. MAIN ACHIEVEMENTS ON THE IMPLEMENTATION OF THE MSFD

2.1. The holistic view

The ecosystem-based approach[12] aims to ensure that the cumulative pressures of human activities do not exceed levels that compromise the capacity of ecosystems to remain healthy, clean and productive. By virtue of the MSFD, the ecosystem-based approach became a legally-binding and operational principle for managing the EU's entire marine environment[13].

An **'ecosystem-based approach'** is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. The goal of ecosystem-based management is to maintain an ecosystem in a healthy, productive and resilient condition so that it can provide the goods and services humans want and need. Ecosystem-based management differs from current approaches that usually focus on a single species, sector, activity or concern; it considers the cumulative impacts of different sectors.

[8] By 15 October 2019, a year after the deadline, only 10 countries had submitted their reports in electronic format (Belgium, Denmark, Germany, Estonia, Spain, Latvia, Netherlands, Poland, Finland, and Sweden) and only 4 in text-based format (Greece, France, Italy and Romania). Nine Member States had not reported.

[9] In accordance with Article 20(1) and 20(3). An 'evaluation report' in a legal act that predates better regulation is interpreted as an 'implementation report'.

[10] SWD(2020) 60 presents the major steps and conclusions from the implementation of the MSFD; SWD(2020) 61 summarises what is known about the status of EU marine waters, covering the 11 MSFD 'descriptors'; and SWD(2020) 62 explains key concepts and provides guidance for an integrated assessment and determination of good environmental status.

[11] As required by Article 23.

[12] Defined in the box based on CBD COP5 (http://www.cbd.int/decision/cop/?id=7148) and a broad scientific consensus (https://www.compassscicomm.org/ebm-consensus-statement-download).

[13] After the MSFD's adoption, the General Affairs Council stated that cross-cutting policy tools were of utmost importance to enhance sustainable economic development, environmental monitoring, safety, security and law enforcement on Europe's oceans, seas and coastal regions. They acknowledged the MSFD, with the ecosystem based-approach to manage human activities, as a basis to develop more successfully and sustainably all maritime activities (2973rd General Affairs Council meeting, Brussels, 16 November 2009).

The MSFD is one of the most ambitious international marine protection legal frameworks, aligning the efforts of 23 coastal[14] and 5 landlocked States – in coordination with non-EU countries – to apply an ecosystem-based management and to achieve good environmental status in 5,720,000 km^2 of sea surface area across four sea regions, an area one fourth larger than the EU's land territory. The Directive stretches from the coastline to the deep sea, thus protecting the full range of marine biodiversity from unicellular algae to huge cetaceans, analysing all environmental aspects from ecosystem functions to chemical properties, and assessing the effects of all human activities, from tourism to commercial fisheries bottom trawling.

Implementing such a holistic view and assessing sustainability requires that the ecosystem properties and the human pressures (including pressures from land-based or atmospheric sources) are known and taken into account in management decisions. The MSFD therefore requires integrated planning (the marine strategies) to be developed based on 11 descriptors and a number of criteria and parameters[15] to be assessed by each of the Member States.

2.2. Exploring the unknown

When the MSFD was adopted, it was clear that the EU needed (a) a holistic, ecosystem-based management of the marine environment, and (b) a shift from the protection of only a limited number of priority habitats and species to the protection of the whole marine ecosystem. However, data and knowledge from the marine environment were (and still are) scarce for some topics and regions[16]. Thus, MSFD built a harmonised legal framework to secure constant improvements in data gathering. Notably, the MSFD fostered the design of comprehensive marine monitoring programmes within national marine strategies. Those monitoring programmes should measure the state of the marine environment, the achievement of environmental targets and the effectiveness of measures (SWD(2020) 60).

The MSFD triggered applied research initiatives that informed experts, managers and policy makers[17]. Some examples come from the assessment of marine litter and underwater noise, two topics that were very poorly understood before the MSFD. Based on the monitoring and knowledge generated on marine litter under the MSFD, the EU adopted new legislation to curb single-use plastics and lost fishing gear, which account for some 70% of all beach litter. The MSFD was an incentive to develop underwater noise monitoring surveys and to establish a number of registers for impulsive underwater

[14] Given that this report covers 2008-2019, the United Kingdom has been counted as an EU Member State for that period.

[15] Set in Commission Decision (EU) 2017/848 of 17 May 2017 laying down criteria and methodological standards on good environmental status of marine waters and specifications and standardised methods for monitoring and assessment, and repealing Decision 2010/477/EU (OJ L 125, 18.5.2017, p. 43).

[16] The European Economic and Social Committee voiced as a priority developing, integrating and coordinating European marine and maritime research. Opinion of the European Economic and Social Committee on the Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions — A European Strategy for Marine and Maritime Research — A coherent European Research Area framework in support of a sustainable use of oceans and seas COM(2008) 534 final (OJ C 306, 16.12.2009, p. 46).

[17] See for instance 'LIFE and the marine environment' (https://doi.org/10.2779/942085), projects funded by EU framework programmes for research and innovation such as https://cordis.europa.eu/article/id/400695-better-marine-stewardship-through-research-and-innovation, DEVOTES and STAGE projects (http://www.devotes-project.eu/, http://www.stagesproject.eu/) or the list of projects in SWD(2020) 60.

sound. In addition, analysing seabed integrity and analysing entire food webs are novel approaches that are largely driven by the requirements of the MSFD.

The MSFD assessments, monitoring networks and programmes of measures do not only channel efforts into new fields of research, but also into improving management and policy coherence. A wide range of existing legislation is already valid and relevant for the Directive; in the EU this particularly includes the Water Framework Directive[18], the Birds and Habitats Directives[19] and the common fisheries policy[20]. A key achievement in implementing each step of the MSFD has been the identification of knowledge gaps. It has helped Member States, EU institutions and stakeholders to point to key management and research needs. The Directive has notably improved the knowledge of the state of the Union's marine waters (SWD(2020) 61), although integrating and harmonising that knowledge at EU level remains a challenge.

2.3. Joint efforts

The MSFD requires an unprecedented and coordinated input from Member States. To facilitate this work, Member States and the Commission (together with regional sea conventions and other stakeholders) have set up an informal programme of coordination, the common implementation strategy. The strategy involves at least 280 experts from Member States, up to 70 participants from EU institutions and over 100 registered observers or stakeholders. The common implementation strategy is steered by the EU Marine Directors and organised by the Marine Strategy Coordination Group[21]. Three working groups focus on overarching issues: good environmental status; programmes of measures and socio-economic analysis; and data, information and knowledge exchange. Four technical subgroups focus on emerging areas of particular concern: underwater noise, marine litter, sea-floor integrity and marine data. All the groups develop and eventually agree on (usually by consensus) common approaches to implement the Directive. 15 guidance documents have been adopted to date[22]. The number of meetings (on average 18 common implementation strategy meetings annually), the progressing specialisation and the need for coordination to avoid thematic silos are big challenges for the implementation process.

The common implementation strategy is of great benefit to the Directive's implementation, making the process more efficient; and the structures of the strategy are considered valuable platforms to exchange information and build trust in the decision-making process[23]. A majority of the common implementation strategy members agree

[18] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (OJ L 327, 22.12.2000, p. 1).

[19] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (OJ L 20, 26.1.2010, p. 7) and Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (OJ L 206, 22.7.1992, p. 7).

[20] Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC (OJ L 354, 28.12.2013, p. 22).

[21] Commission Expert Group on Strategic Coordination for the Marine Strategy Framework Directive (2008/56/EC) (E02550).

[22] Available at https://circabc.europa.eu/w/browse/1dfbd5c7-5177-4828-9d60-ca1340879afc.

[23] Conclusions from the Marine Strategy Coordination Group and elaborated by Cavallo et al., 2017 (http://dx.doi.org/10.1016/j.marpol.2017.09.035).

that the structure and work programme of the strategy are fit for purpose, while there is some room for rationalising/simplifying existing procedures, so that more time can be devoted to discussing Commission assessments and the Directive can be better linked with other directives, in particular for reporting[24].

2.4. Public involvement and ocean literacy[25]

Access to environmental information, public participation in environmental decision-making and access to justice are general principles promoted at the international level in environmental commitments[26]. The MSFD includes explicit requirements[27] to help implement these commitments. The MSFD has set up a transparent mechanism to design and implement national marine strategies and to follow the process at European level (e.g. the implementation can be followed through open platforms to share information[28]). Member States are explicitly required to promote the active involvement of all interested parties. In addition, every implementation stage has a public consultation process organised by each of the 23 coastal Member States (SWD(2020) 60). Many of the MSFD programmes of measures also feature awareness-raising campaigns.

The MSFD has been instrumental in drawing attention to the health of marine ecosystems, for example to perceive the gross effect of land-based pollution, including plastics, on the sea. The public consultation process has engaged civic society and stakeholders across Europe in developing the national marine strategies. These consultation and engagement activities, as well as the flow of data generated, will continue to play a significant role in contributing to the ocean literacy of the European public, to raise awareness of the ocean's influence on human lives and the consequences of human activities and individuals' behaviour on marine ecosystems.

2.5. Regional cooperation

The transboundary nature of certain pressures and ecosystems makes them very difficult to manage at the Member State level alone[29]. The MSFD lists the regions and subregions around which the Directive is implemented, requires regional coordination among Member States and encourages cooperation with non-EU countries[30]. The Directive

[24] Results from a questionnaire sent to all members of the various groups under the common implementation strategy in April 2019 to critically review the strategy's functions and work programme.

[25] Ocean literacy is the understanding of the ocean and of mankind's relationship with it.

[26] Specifically by the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, of the United Nations Economic Commission for Europe, adopted in 1998.

[27] Article 19 and Annex VI (8) of the MSFD.

[28] E.g. CIRCABC (https://circabc.europa.eu/w/browse/326ae5ac-0419-4167-83ca-e3c210534a69) and WISE Marine (https://water.europa.eu/marine).

[29] The General Affairs Council emphasised that cooperation with and among Member States and regions sharing a sea basin - and with non-EU countries whenever relevant - was a crucial element of success for the MSFD. It also stressed the need for the closest possible cooperation between all countries sharing marine waters and transboundary water catchment areas (2973rd General Affairs Council meeting, Brussels, 16 November 2009 and 2988th Environment Council meeting, Brussels, 22 December 2009).

[30] Articles 4, 5 and 6 of the MSFD. The final agreed map of MSFD marine regions and subregions is available at https://www.eea.europa.eu/data-and-maps/data/europe-seas#tab-gis-data.

states that regional sea conventions[31] can constitute the vehicle for such cooperation. In general, during the last decade, the regional sea conventions (i) became, in most cases, good platforms for implementing the MSFD where contracting parties collaborated and shared approaches, in close collaboration with the MSFD common implementation strategy[32]; (ii) supported the cooperation and agreement on actions and objectives with non-EU countries; (iii) received significant EU technical and financial input to develop their work programmes.

The four regional sea conventions around Europe share the same overall aim (protection of the marine environment) and embrace the ecosystem-based approach, but they differ in terms of structure, scientific and operational capacity, governance (including compliance monitoring) and degree of facilitation they offer to participating EU Member States in implementing MSFD. The concept of 'good environmental status' and the environmental target-setting of the MSFD have been incorporated into some, but not all regional sea conventions. In some cases, there is a preference for describing trends (improving or deteriorating) rather than setting criteria to determine whether the status is good or not. In one form or another, regional sea conventions regularly produce reports on the state of the marine environment[33], seeking to align their timetables to the six-year cycle of the MSFD, adopt action plans and coordinate monitoring activities.

At the same time, the regional sea conventions benefit from the substantial human resources that the MSFD has mobilised and the knowledge it has generated since its adoption. EU funding has contributed to a considerable number of projects aimed at the coordinated implementation of MSFD and the development of regional sea convention action plans in all marine regions. The fight against marine litter offers a good example of how targeted and substantial EU funding from a number of sources[34] is used to implement regional action plans against marine litter, serving national, regional and EU, if not also global goals simultaneously.

2.6. The global commitments

The MSFD is a key pillar for the EU to deliver on its global commitments to protect the marine environment and develop a sustainable approach to ocean management, as

[31] Four regional sea conventions cover EU marine waters: the Convention for the Protection of the Marine Environment of the Baltic Sea (Helsinki Convention - HELCOM), the Convention for the Protection of the Marine Environment of the North-east Atlantic (Oslo-Paris Convention - OSPAR), the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention – UNEP-MAP) and the Convention for the Protection of the Black Sea against Pollution (Bucharest Convention, to which the EU is still trying to accede). However, OSPAR does not cover the entire European Macaronesia subregion, only the Azores archipelago.

[32] The common implementation strategy adopted by the Member States and the Commission to implement Directive 2008/56/EC, see Section 2.3 of this report.

[33] UNEP/MAP Mediterranean Quality Status Report (https://www.medqsr.org/), OSPAR Intermediate Assessment (https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/), HELCOM second Holistic Assessment (http://stateofthebalticsea.helcom.fi/), Black Sea State of Environment Report 2009-2014 (http://www.blacksea-commission.org/SoE2009-2014/SoE2009-2014.pdf).

[34] For example Life+, Horizon 2020, funding under the European Structural and Investment Funds including the European Maritime and Fisheries Fund and regional funding, neighbourhood policy funding, Partnership Instrument funding, and development funding.

recognised in the EU's international ocean governance initiative[35]. It also plays an important role in ensuring that actions across EU Member States are more coherent.

As confirmed most recently by Agenda 2030[36], but also building on decades of recognition by the global community[37], the ecosystem-based approach is vital to 'Conserve and sustainably use the oceans, seas and marine resources for sustainable development' (Sustainable Development Goal 14). The monitoring and assessment required by the MSFD help the EU to deliver on most of the SDG 14 targets, which cover sustainable management, protected areas, pollution from marine litter and eutrophication, acidification, impacts from unsustainable fishing practices, scientific knowledge and the implementation of international law. At the sea-basin level, close regional collaboration of Member States within relevant regional sea conventions helps coordinate the regional implementation and assessment of ocean-related SDGs[38] in tandem with the Directive.

The MSFD contains the specific regulatory objective that 'biological diversity is maintained' as the cornerstone for achieving good environmental status of oceans and seas. It evaluates the status of marine species groups (including birds, mammals and fish) and pelagic and seabed habitat types. It therefore provides a legal framework to contribute to the commitments of the Convention on Biological Diversity (CBD) and to the forthcoming EU biodiversity strategy to 2030. The MSFD also includes establishing marine protected areas and other spatial protection measures that form coherent and representative networks, in line with international commitments[39].

The Directive incorporates the UNCLOS[40] requirement to observe and measure the risks or effects of pollution on EU marine waters. It also implements various obligations requiring Member States to take measures to prevent, reduce and control pollution of the marine environment from land-based sources, to prevent pollution of the seabed and its subsoil and to prevent the introduction of non-indigenous species. The MSFD also incorporates UNCLOS provisions on sustainable fisheries and aquaculture, and innovation and investment in research. Finally, yet importantly, through its emphasis on regional cooperation, MSFD facilitates the obligation of States under UNCLOS to cooperate to protect the marine environment.

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[35] International ocean governance: an agenda for the future of our oceans, JOIN(2016) 49 final.

[36] 'Transforming our world: the 2030 Agenda for Sustainable Development' (A/RES/70/1), adopted in September 2015 as a plan of action for people, planet and prosperity. It consists of 17 Sustainable Development Goals and 169 targets.

[37] For example, the Rio Declaration on Environment and Development from the 1992 United Nations Conference on Environment and Development (UNCED), or the Rio+20 outcome document 'The future we want' (A/CONF.216/L.1).

[38] See, for example, the HELCOM Ministerial Declaration (http://www.helcom.fi/Documents/HELCOM%20at%20work/HELCOM%20Brussels%20Ministerial%20Declaration.pdf) adopted on 6 March 2018.

[39] Notably CBD Aichi Target 11: By 2020, at least 17 per cent of terrestrial and inland water areas and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascape.

[40] The United Nations Convention on the Law of the Sea (UNCLOS) sets out the responsibilities and rights of nations with regard to seas and oceans and includes a number of obligations in relation to protecting and preserving the marine environment.

The Paris Agreement[41] mentioned the ocean for the first time in a climate agreement and recognised its integral role in the global climate system. Today, most of the national pledges under the Paris Agreement involve marine ecosystems; the dominant concerns raised by governments are coastal impacts, ocean warming impacts and fisheries impacts[42]. The MSFD and its holistic marine strategies provide a good framework (still not used to its full potential) to monitor climate change impacts, explore climate change mitigation and apply the ecosystem-based approach to climate change adaptation in the marine environment. As part of the efforts to reach carbon neutrality by 2050, as stated in the Green Deal, Europe will probably experience an unprecedented increase in offshore renewable energy[43], which will inevitably affect marine species and habitats.

3. MAIN LINKS BETWEEN EU POLICIES AND THE MSFD[44]

The MSFD framework to safeguard biodiversity and ensure a sustainable use of EU marine resources is, to a large extent, supported by other EU legal instruments. This section reviews the nine EU policies most commonly reported by Member States to contribute to the MSFD programmes of measures, plus the recently developed policies to tackle plastic pollution. In general, the MSFD (i) integrates all the available (official) information from EU marine waters in the national marine strategies, and (ii) evaluates the situation to manage the marine environment effectively. New policy concepts such as threshold values to define good environmental status[45] are being developed to put the strategies into practice and to complement existing threshold values[46] from other policies.

3.1. The Water Framework Directive and Urban Waste Water Treatment Directive[47]

Many issues affecting the riverine and marine environment are generated on land. Therefore, the MSFD and the Water Framework Directive target a similar range of pressures and drivers (human uses and activities) and share a large number of measures. Measures under the MSFD for marine eutrophication, contaminants, hydrographical changes, and biodiversity draw on those submitted under the Water Framework Directive. Only one third of the river basin management plans examined in the 5th

[41] The first legally binding, universal agreement to avoid climate change by limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C, adopted in Paris in December 2015 (https://unfccc.int/documents/9097).

[42] Ocean commitments under the Paris Agreement (https://doi.org/10.1038/nclimate3422).

[43] According to the Commission Communication 'A Clean Planet for all A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy' (COM/2018/773 final) 80% of electricity will be coming from renewable energy sources increasingly located off-shore.

[44] Article 20(3)(g) of the MSFD requires a summary of the contribution of other relevant EU policies to attaining the objectives of this Directive. This summary does not replace the future policy coherence analysis to be developed under the evaluation of the MSFD.

[45] 'Threshold value' means a value or range of values that allows for an assessment of the quality level achieved for a particular criterion, thereby contributing to the assessment of the extent to which good environmental status is being achieved (Article 2(5) of Commission Decision (EU) 2017/848). Threshold values include an 'acceptable deviation' from the reference or pristine conditions. This allows for sustainable uses of the sea whereby some level of pressures can be accommodated, provided the overall quality of the environment is maintained (SWD(2020) 62).

[46] These may be called other terms, such as environmental quality standards.

[47] Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment (OJ L 135, 30.5.1991, p. 40).

implementation report of the Water Framework Directive[48] identified the need for additional measures in order to contribute to the MSFD. Some Member States voluntarily included measures tackling, for instance, riverine litter to support the MSFD's implementation.

In terms of spatial coverage, both Directives apply in coastal and territorial waters, with the MSFD explicitly covering only the aspects not addressed by the Water Framework Directive in coastal waters (e.g. underwater noise, marine litter) and with the Water Framework Directive applying in territorial waters only for chemical status. In 2017, the Commission updated the MSFD Decision for determining good environmental status. The 2017 Decision requires Member States to reuse Water Framework Directive assessments for marine eutrophication, contaminants and hydrographical alterations. However, as already reflected in the Water Framework Directive Fitness Check[49], this is still not always complied with, since the national assessments under both Directives can be slightly different (e.g. with varying quality elements or scales of assessment), and the definition of good ecological/chemical status in the Water Framework Directive is not always based on the same elements as the good environmental status of the MSFD. Nevertheless, according to the Fitness Check, the Water Framework Directive and the MSFD are coherent and have complementary objectives. In terms of results, around 40% of surface waters (rivers, lakes, transitional and coastal waters) are in good ecological status or potential, and 38% are in good chemical status[50]. This have direct consequences for the progress under the MFSD.

The Urban Waste Water Treatment Directive establishes targets and instruments to reduce mainly the input of organic matter and nutrients, via point sources. The link between the Urban Waste Water Treatment Directive and eutrophication is identified in most Member States' programmes of measures, whereas other topics directly relevant for MSFD (such as contaminants and marine litter) are usually not explicitly mentioned. The evaluation of the Urban Waste Water Treatment Directive confirmed that the Directive has been very effective in reducing pollution in treated waste water and that its implementation remains crucial to meeting the objectives of the MSFD[51]. The evaluation pointed to some limitations of the waste water treatment plants that can be relevant for the marine environment, such as not addressing contaminants of emerging concern (e.g. pharmaceuticals and micro-plastics), or not treating all storm water, urban runoff or small agglomerations. Nevertheless, the Urban Waste Water Treatment Directive has been one of the most effective instruments in limiting urban pollution, including nitrate and phosphorus in rivers and at sea.

[48] Commission Staff Working Document - Report on the progress in implementation of the Water Framework Directive Programmes of Measures, accompanying the Communication from the Commission to the European Parliament and the Council - The Water Framework Directive and the Floods Directive: Actions towards the 'good status' of EU water and to reduce flood risks (SWD/2015/50 final).

[49] Commission Staff Working Document – Fitness Check of the Water Framework Directive, Groundwater Directive, Environmental Quality Standards Directive and Floods Directive (SWD/2019/439).

[50] EEA 2018 water report (https://www.eea.europa.eu/publications/state-of-water#tab-data-references).

[51] See https://ec.europa.eu/environment/water/water-urbanwaste/evaluation/index_en.htm and documents on that site.



Figure 1: Loads of nitrogen (N) and phosphorous (P) to marine subregions by source (in tonnes per year). This analysis was part of the recent evaluation of the Urban Waste Water Treatment Directive[52].

3.2. Birds and Habitats Directives

As evidenced by the MSFD programmes of measures, the Birds and Habitats Directives are especially relevant for reaching good environmental status related to marine biodiversity, non-indigenous species and commercial fish and shellfish. Only a few programmes of measures link the Birds and Habitats Directives to the MSFD descriptors dealing with marine litter and underwater noise, even if they can be a threat to, for example, marine birds, mammals and reptiles.

The objectives of all three Directives are similar, although the scope of MSFD is broader. The main objective of the Habitats Directive – to achieve 'favourable conservation status' for the species and habitats covered, and similar objective of the Birds Directive for all wild birds – does not exactly correspond to 'good environmental status' in terms of definition, measures or timelines. However, both concepts are mutually supportive. Member States assess the status and trends of species and habitats protected under the Birds and Habitats Directives and report every six years. For the period 2007-2012, the percentage of species reported under the Habitats Directive in favourable conservation

[52] Data from Pistocchi et al., 2019 (https://doi.org/10.2760/303163).

status in the European marine regions ranges from zero in the Black Sea to 20% in the Baltic Sea[53]. The 2017 Decision envisages re-using the Birds and Habitats Directives' assessments of marine species and habitats where possible, but each Member State may do this differently[54]. In addition, the MSFD and Habitats Directive both assign geographical regions within which the Member States are expected to cooperate and have joint approaches. The regional borders within the two Directives have now been largely harmonised.

The spatial protection measures reported under the MSFD commonly refer to marine protected areas that were established under the Birds and Habitats Directives as part of the Natura 2000 network, which is still not complete in the marine environment. However, the MSFD brought a renewed view of spatial protection where, apart from the specific conservation objectives of individual marine protected areas, networks of marine protected areas should be ecologically coherent and representative at (sub)regional level. Hence, the networks of protected areas should be holistic tools to address all major pressures, be effective and cover a fair representation of all marine habitats and ecosystem features. Still, coherence and effectiveness have not been addressed regionally by Member States' MSFD programmes of measures.

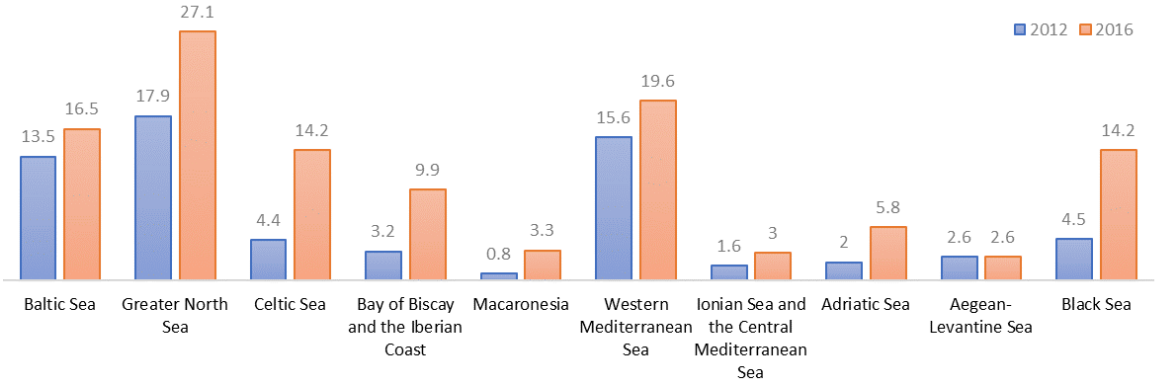


Figure 2: Recent evolution (2012-2016) of the percentage of area covered by marine protected areas in EU waters in the different marine subregions[55].

3.3. Common fisheries policy

One of the objectives of the common fisheries policy is to be coherent with the MSFD and with its objective of achieving good environmental status. By setting exploitation rates and establishing technical measures which define sustainable fishing practices, the common fisheries policy addresses fishing pressures that impact commercial fish and shellfish stocks (one of the MSFD descriptors). The policy also has the objective of ensuring that negative impacts of fishing activities on the marine ecosystem are minimised. This relates to impacts on the abundance and diversity of marine life, marine food webs and ecosystems, and seabed habitats (relevant in particular for three other MSFD descriptors). In addition, fisheries-generated litter, such as discarded or lost

[53] Species of European interest: https://www.eea.europa.eu/data-and-maps/indicators/species-of-european-interest-2/assessment.

[54] The Commission has launched a study to explore the alignment of reported data and policy objectives under the Birds, Habitats and Marine Directives with the assessment of marine species and habitats.

[55] Data from ETC/ICM, 2017 (https://www.eea.europa.eu/data-and-maps/data/external/spatial-analysis-of-marine-protected).

fishing nets and other gear, can cause habitat alteration. In relation to MSFD measures, most Member States link measures for marine biodiversity and commercial fish and shellfish to the common fisheries policy, though few did so for marine litter. Management measures proposed by the Commission under the policy have resulted in a decrease in fishing mortality rates for several commercially exploited fish and shellfish stocks in the North-east Atlantic Ocean and the Baltic Sea; although this progress is not enough to meet the relevant common fisheries policy objectives yet. The situation is worse in the Mediterranean Sea and the Black Sea where overfishing remains a common practice.

Annex I of the MSFD establishes that all commercially exploited fish and shellfish should be in safe biological limits. To measure that state, the MSFD makes use of the common fisheries policy concept of maximum sustainable yield. Hence, it promotes using stock assessments and relevant multiannual plans and consulting the appropriate scientific bodies. While the information about fish stocks is more or less available under the common fisheries policy and reported across Member States, other criteria such as the mortality/injury of species linked to incidental by-catch or the physical disturbance to the seabed by fishing activities are not systematically reported by Member States. Sometimes, regional information can help cover these gaps; for example, 86 % of the seabed assessed in the Greater North Sea and Celtic Seas shows evidence of physical disturbance by bottom-trawling gear[56]. Putting into practice the objectives of both the MSFD and common fisheries policy would improve the protection of commercial fish stocks, biodiversity and habitats. Also, establishing threshold values under the MSFD would make it easier to implement targeted measures, including measures under the common fisheries policy.

The common fisheries policy also promotes sustainable aquaculture to contribute to food security and supplies, growth and employment. It recommends using non-binding Union strategic guidelines, which were first adopted in 2013, for developing sustainable aquaculture activities. These guidelines served as a basis for Member States' multiannual national plans and their activities under the 2014-2020 European Maritime and Fisheries Fund. The 2013 guidelines are currently under revision and will inform on the updates of national plans to implement the post-2020 funding of aquaculture.

3.4. Maritime Spatial Planning Directive[57]

The Maritime Spatial Planning Directive requires Member States to develop maritime spatial plans with the aim of promoting the coexistence and sustainability of relevant activities and uses. It makes explicit reference to the MSFD within its legal text, stipulating that maritime spatial planning should apply an ecosystem-based approach and help to achieve the aims of good environmental status and coordinate timelines with the MSFD to the extent possible. Several studies have defined or put into practice the ecosystem-based approach or land-sea interactions for maritime spatial planning, but still there is no agreed methodology across Europe.

[56] OSPAR assessment portal, extent of physical damage to predominant and special habitats (https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/biodiversity-status/habitats/extent-physical-damagepredominant-and-special-habitats/)

[57] Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning (OJ L 257, 28.8.2014, p. 135).

In their MSFD programmes of measures, Member States mainly link marine biodiversity (through protected areas) and hydrographical changes (through the activities covered by maritime spatial plans) to the Maritime Spatial Planning Directive, while three countries[58] make a potential link to underwater noise. As the first round of maritime spatial planning reporting is not due until 2021, it remains to be seen to which extent MSFD objectives will be taken into account in the national implementation of the Directive as a tool with which to support the ecosystem-based approach. Since the Maritime Spatial Planning Directive process integrates all the blue economy sectors and activities, it should enforce management measures that help to achieve good environmental status.

3.5. The Strategic Environmental Assessment and Environmental Impact Assessment Directives [59]

These two directives aim to achieve a high level of protection of the environment by ensuring that the environmental impacts of certain plans/programmes (strategic environmental assessment) and projects (environmental impact assessment) are analysed early in the decision-making process. In the MSFD programmes of measures, the strategic environmental assessment and the environmental impact assessment were mostly linked to hydrographical changes, underwater noise, marine biodiversity, eutrophication and horizontal measures. Even though biodiversity aspects are not always assessed in the environmental impact assessment process, around half of the Member States refer to the Environmental Impact Assessment Directive for measures addressing biodiversity. In contrast, few Member States seem to recognise the environmental impact assessment's potential for assessing activities relevant to contaminants.

With their wide scope and strategic nature, the assessments prescribed by the Strategic Environmental Assessment and Environmental Impact Assessment Directives could be relevant for all MSFD descriptors, although the scale and level of detail may differ. For instance, projects that are likely to have significant effects on the environment are subject to an environmental impact assessment prior to their authorisation. These assessments could contribute to the status assessment under the MSFD. This can be equally relevant in the case of the Strategic Environmental Assessment Directive, which focuses on plans and programmes on a larger scale. There is still scope for obtaining better feedback with these three Directives on the pressures for achieving good environmental status, including sea and land activities.

[58] Bulgaria, Ireland, Poland.

[59] Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment (OJ L 197, 21.7.2001, p. 30) and Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (OJ L 124, 25.4.2014, p. 1).

3.6. Waste Framework Directive[60], the EU strategy for plastics[61] and the Single-Use Plastics Directive[62]

The Waste Framework Directive provides important mechanisms for the removal of litter and the improvement of water quality in line with the requirements of the MSFD. The recent revision of this Directive added direct references to impacts on the marine environment and, together with the MSFD, sets the aim of stopping marine litter from being generated and requires Member States to take practical steps to halt littering, including marine litter. The targets and measures fixed by the Waste Framework Directive are, therefore, directly relevant for addressing marine contaminants. Since some of its requirements are yet to be transposed by the Member States, it cannot yet be concluded how effective they will be in practice. Currently, the main challenge is to ensure full implementation of the Directive and prevent landfilling of (often non-treated) waste, which can be a problem especially in coastal areas.

The knowledge generated from the MSFD on marine litter, micro-litter and its impact on wildlife, although limited, supported the development of the EU strategy for plastics and, thus, contributed to the circular economy action plan. A concrete example of the MSFD's contribution to the follow-up of the strategy for plastics is the support it provided for the new Directive on single-use plastics and fishing gear. Through the MSFD's beach litter monitoring activities, the Commission collected enough data to present an impact assessment and a legislative proposal. The MSFD will also substantially help in assessing the effectiveness of this new Directive on plastics and in following up on other actions of the strategy, for example quantifying and mapping litter and microplastics. This support is expected to continue in the new circular economy action plan[63].

4. A SUMMARY OF THE STATUS OF THE EU'S MARINE ENVIRONMENT

The initial assessment of EU marine waters reported by Member States in 2012-2015 under MSFD did not provide a uniform knowledge base across Europe. This was mainly due to inconsistency on the indicators reported per criterion, high heterogeneity of methodological approaches, and gaps in the reported information. To improve the coherence and consistency in Member States' reports, the Commission adopted a revised Decision in 2017 for determining good environmental status (see footnote 15). An update of the initial assessment was due to be reported by October 2018. Still, by October 2019, only 14 Member States had submitted their reports, and 10 of which had reported in the agreed electronic format (SWD(2020) 60). This summary therefore relies on information compiled by the European Environmental Agency and the Joint Research Centre of the European Commission (presented in SWD(2020) 61) in addition to what has been reported by Member States.

[60] Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste (OJ L 150, 14.6.2018, p. 109).

[61] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - A European Strategy for Plastics in a Circular Economy (COM/2018/028 final).

[62] Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment (OJ L 155, 12.6.2019, p. 1).

[63] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - A new Circular Economy Action Plan For a cleaner and more competitive Europe (COM(2020) 98 final).

4.1. Marine ecosystems under threat

Biodiversity loss was not halted in Europe's seas during the first MSFD cycle[64]. The biodiversity of marine ecosystems is still vulnerable in Europe's seas and the good state of habitats and species is not secured. Some marine populations and groups of species are still under threat, including some seabirds (e.g. the abundance of more than 25% of marine bird species assessed in the North-east Atlantic has dropped considerably), elasmobranchs[65] (e.g. around 40% of Mediterranean species are declining and many are data deficient), or some cetaceans[66] (e.g. harbour porpoise in the Baltic Proper with a population of a few hundred individuals). In the Mediterranean and Black Seas, at least 87% of the commercially exploited fish and shellfish species are overfished[67]. In general, cetacean populations are either in unknown or not good status. Cephalopods and reptiles are too poorly monitored (e.g. 33% of the reports on marine turtles under the Habitats Directive were in unfavourable conservation status and 67% unknown).

On the other hand, existing management measures and joint regional programmes over the last couple of decades have managed to reduce selected pressures and helped to increase population size for some species (e.g. some populations of grey seal across Europe; commercially exploited fish in the North-east Atlantic Ocean). Currently, 41% of the assessed fish and shellfish stocks in the North-east Atlantic Ocean and Baltic Sea are within safe biological limits, and this percentage rises considerably when only one of the two criteria (fishing mortality or reproductive capacity) is taken into account. Other examples of stabilisation or recovery include white-tailed eagles in the Baltic Sea and monk seals in parts of the Mediterranean Sea.

Seabed habitats are under significant pressure across European seas from the cumulative impacts of demersal fishing, coastal developments and other activities. Preliminary results from a study presented in SWD(2020) 61 indicate that about 43% of Europe's shelf/slope area and 79% of the coastal seabed is considered to be physically disturbed, which is mainly caused by bottom trawling. A quarter of the EU's coastal area has probably lost its seabed habitats. The main activities reported under the MSFD causing physical loss of benthic[68] habitats were land claim and flood defence, port construction, solid waste disposal, renewable energy production and impacts from unsustainable practices of aquaculture. It is likely that the impaired status of benthic habitats will influence species depending directly or indirectly on them, including the abundance of commercially exploited species.

While the overall state of marine food webs across European seas cannot yet be fully assessed, there are many examples of trophic guilds[69] showing deteriorating trends over time. This especially concerns the reductions in abundance of several top predators, such

[64] Marine biodiversity decline across Europe's seas is evidenced in 'The European environment - state and outlook 2020' (https://www.eea.europa.eu/soer-2020/intro), 'The IPBES regional assessment report on biodiversity and ecosystem services for Europe and Central Asia' (https://ipbes.net/assessment-reports/eca), and further references and details are provided in SWD(2020) 61.

[65] Elasmobranchs cover sharks, skates and rays.

[66] Cetaceans include whales, dolphins and porpoises.

[67] This is based on an analysis of 47 stocks that can represent half of the total commercially exploited stocks in the area.

[68] Habitats found on the sea bottom.

[69] A trophic guild is a group of species that exploits the same kinds of resources in comparable ways.

as birds, sharks and marine mammals. There are examples of marine communities that do not occur at the proper abundance to retain their full productive capacity, as observed for many commercial fish and shellfish stocks in the Mediterranean and Black Seas. There are also signs of changes in the size structure and distribution of communities (indicative of a trophic level) like, for example, phytoplankton in the Baltic Sea and zooplankton (copepods) species in parts of the North-east Atlantic Ocean.

In terms of data availability, the data needed to assess status is inadequate for most assessed species. Several sources of information must be used which do not always provide a harmonised EU picture. Many species groups are under-sampled, and we can still not fully quantify the impact of different human activities on marine populations or the food web as a whole. There is an urgent need to improve data collection and, if possible, to complement it with modelling approaches. Wider and more regular fish stock assessments should be performed, in particular, in the Mediterranean Sea, Black Sea and Macaronesia.

4.2. Main pressures affecting marine ecosystems

4.2.1. Non-indigenous species

There are over 1,200 marine non-indigenous species in Europe's seas and their cumulative number is still increasing, although the rate of introduction seems to have decelerated during the last decade. The larger number of these species is occurring in the Mediterranean Sea. Roughly 7% of the marine non-indigenous species are potentially invasive; their impact on native communities, ecosystems and their services need to be further studied. The main pathways for the introductions of such species in Europe´s seas seem to be shipping (49%) and marine and inland corridors such as the Suez canal (33%). Measures are needed to better address these main pathways and minimise new introductions considering regional specificities. It is difficult to assess the proportion of native marine species and habitats that have been adversely affected by non-indigenous species. However, increasing the resilience of marine ecosystems could avoid the major impacts by minimising the conditions that can promote non-indigenous species to become invasive (e.g. the reduction of native species and creation of 'empty niches' in the food web, or climate change impacts).

4.2.2. Fishing

Since the early 2000s, better management of fish and shellfish stocks has contributed to a decrease in fishing pressure in the North-east Atlantic Ocean and the Baltic Sea, and there are signs of recovery in the reproductive capacity of several fish and shellfish stocks. Currently, 41% of the assessed fish and shellfish stocks in those two regions are within safe biological limits[70], meaning that the number of stocks within safe biological limits has almost doubled, from 15 in 2003 to 29 in 2017. Fishing mortality in these regions is on average near the levels producing maximum sustainable yield, but further improvement is needed for all stocks to reach maximum sustainable yield fishing mortality levels, in accordance with the common fisheries policy objectives.

In contrast, in the Mediterranean Sea and the Black Sea, the situation remains critical, with 87% of the assessed stocks overfished and a significant lack of knowledge about fishing pressure and reproductive capacity. There has been some progress, notably with

[70] Based on an assessment of around one third of the total commercial fish/shellfish stocks in the area.

the adoption of the first ever multiannual plan for the western Mediterranean Sea, which may lead to an effort reduction of up to 40%.

Further urgent action is needed, and success will depend on the availability and quality of marine information, the commitment to implement scientific advice and an adequate uptake of management measures. Many stocks remain overfished and/or outside safe biological limits. It is clear that efforts by all actors will need to be intensified to ensure that stocks are managed sustainably.

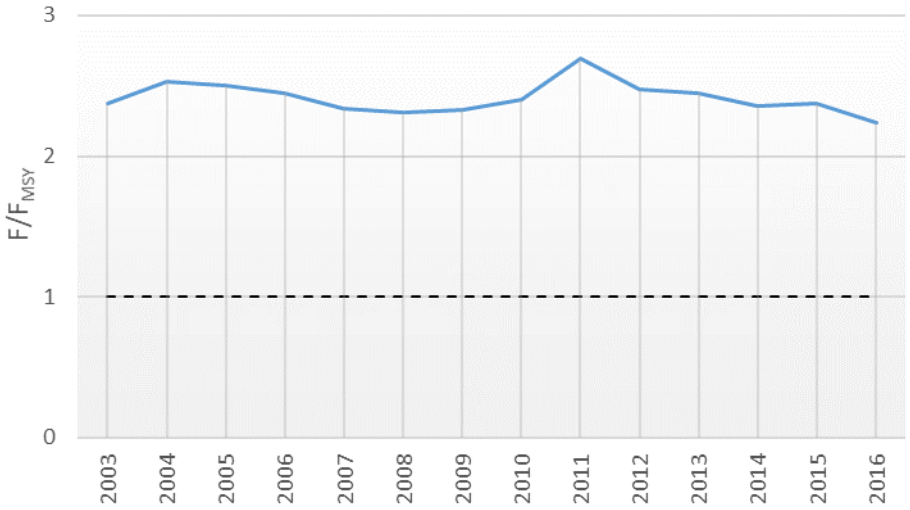


Figure 3: Trend of the median fishing pressure on the 47 assessed stocks in the Mediterranean and Black seas. The dash line represents the sustainability threshold or maximum sustainable yield. The fishing mortality in the Mediterranean and Black Sea regions remained extremely high and virtually unchanged since 2003, indicating that most of the stocks are severely overfished[71].

Additional action may need to be considered also to reach the objective to better protect and preserve seabed habitats and reduce by-catch from fishing activities. For example, by-catch is supposed to be the main pressure for all of the threatened species of sharks, rays and skates in Europe seas, where 32-53 % of all species are threatened[72].

4.2.3. Human-induced eutrophication

46% of the European coastal waters is failing to meet good ecological status[73]. However, the extent of the areas affected is decreasing in some countries. The Baltic Sea is the marine region with the highest proportion of coastal waters where nutrient conditions are a problem (58%), while the Black Sea is the region with the highest proportion of coastal waters where phytoplankton conditions are a problem (85%). Eutrophication also occurs in the southern North Sea, along the north-western coast of France and in the vicinity of riverine outflows within the Mediterranean Sea.

Widespread oxygen-depleted areas are observed in the Baltic Sea and the Black Sea as a result of eutrophication, natural conditions and climate change impacts. This has significant impacts on benthic habitats and food webs. Nutrient inputs from point sources

[71] Data from STECF, 2019 (http://dx.doi.org/10.2760/22641).

[72] Nieto et al., 2015 (https://www.iucn.org/ja/content/european-red-list-marine-fishes).

[73] https://www.eea.europa.eu/data-and-maps/data/wise-wfd-3

in the EU have significantly decreased, although inputs from diffuse sources, i.e. losses from agricultural activities, are still too high. Also, there is a long time lag between the actual reduction of nutrient inputs and the reduction of eutrophication effects.

Although eutrophication is a relatively well-studied process, the harmonisation of monitoring methods (across countries, between coastal and open sea areas, and between MSFD and Water Framework Directive approaches) remains an issue in many regions.

4.2.4. Permanent alteration of hydrographical conditions

About 28% of Europe's coastline is affected by permanent hydrographical changes, including from seawater movement, salinity and sea temperature changes, as a result of human activities such as dredging, infrastructural development, sand extraction or desalination. The MSFD information about trends and environmental status with respect to hydrographical conditions is, however, too scarce and scattered to allow for a suitable assessment on a large scale. The criteria and methods used are not harmonised. Direct and indirect changes in hydrographic variables caused by human actions, as well as their impacts on seabed and water column habitats, are not always well understood or reported under MSFD. As a large part of human activities directly responsible for hydrographical pressures take place in coastal waters, this issue is closely linked to the Water Framework Directive.

4.2.5. Contaminants

The ambition of striving towards zero pollution, notably by preventing the release of harmful substances at source, is a priority for the EU. The implementation of measures under the various EU and global legal instruments to combat chemical pollution has led to a reduction of concentrations and impacts of some hazardous substances in the marine environment, such as polychlorinated biphenyls (PCBs), certain organochlorine pesticides and tin-based antifouling compounds, as well as a reduction in the occurrence of oil spills[74]. Still, these substances are very persistent and therefore are still present in the marine environment.

In general, the Baltic Sea has a relatively high concentration of mercury, brominated flame retardants, and the radioactive isotope Cs-137. In the North-east Atlantic Ocean, there are still concerns in some areas about levels of some heavy metals (like mercury, cadmium and lead), PCB congeners and polycyclic aromatic hydrocarbons. In the Mediterranean Sea, there are some coastal hotspots with lead contamination in biota and mercury in sediments. The Black Sea seems to have pollution problems from organic pollutants, such as pesticides, PCBs and polycyclic aromatic hydrocarbons and some heavy metals. It is important to highlight that current assessments focus on a limited number of contaminants and many environmentally hazardous substances are not regularly monitored and assessed.

Regarding contaminants in seafood, the concentrations of heavy metals, polycyclic aromatic hydrocarbons, PCBs and dioxins should be below the maximum levels

[74] Further efforts are ongoing. For example, EU Member States and the Commission have recently proposed an amendment to the International Maritime Organization's (IMO) Convention for the Control of Harmful Anti-fouling Systems on Ships to include controls on the biocide cybutryne, which is highly toxic for algae, seagrass and corals.

established under EU food legislation[75]. However, certain fish and fishery products from the Baltic Sea region regularly exceed the maximum limits of dioxins and dioxin-like PCBs, which has led to prohibiting the sale of salmon in the area. In all EU waters, little information is available for non-regulated contaminants or substances with the potential for accumulating in fish and seafood used for human consumption. Nevertheless, recent data shows an accumulation of plastic chemical residues[76] in most of the marine species, including fish and shellfish products.

There is room for improving the monitoring of marine pollution through (i) more effective data mining and joint monitoring networks (especially in the Mediterranean and Black Seas), and (ii) harmonised methodological approaches at a regional scale.

4.2.6. Marine litter

Marine litter, directly linked to the occurrence of litter in the terrestrial and riverine environment, has received substantial attention and, based on assessments made through the MSFD and the regional sea conventions, has led to a swift preparation of legislative actions at EU level against single-use plastics and fishery-related litter, as well as a revision of the Directive on Port Reception Facilities for the delivery of waste from ships[77]. The presence of litter has been confirmed in all compartments of the marine environment (shoreline, water column and seafloor). Plastic items are the most abundant component of marine litter. For example, single-use plastics represent 50% of all European beach litter items by count, and fishing gear containing plastics accounts for another 27%. Ingestion of plastic by marine species is also widespread in the European seas. As an example, 93% of the fulmar birds assessed in the North-east Atlantic Ocean had ingested some plastic; and 85% of the turtles assessed in the Mediterranean Sea had ingested litter.

Although there is no regular regional monitoring, all scientific studies indicate the existence of considerable amounts of micro-litter in seawater. Under the new circular economy action plan, specific actions at EU level are planned to reduce intentionally added micro-plastics in products, micro-litter deriving from the degradation of macro-litter, and leakages of micro-plastics from products (such as tyres and textiles) during their use and from pre-production plastic pellets.

Regional action plans against marine litter and a large number of national actions are being implemented by Member States. Still, litter quantity assessments and understanding of pathways of introduction are under development, and there is a lack of focused measures to address major sources. In Europe, there are sizeable gaps in the data on litter on the seabed, in the surface layer and water column, micro-litter and effects on marine species (especially entanglement). The MSFD is tackling the urgent need to coordinate monitoring methodologies at national, regional and EU levels.

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[75] Commission Regulation (EC) No 1881/2006 of 19 December 2006 setting maximum levels for certain contaminants in foodstuffs (OJ L 364, 20.12.2006, p. 5).

[76] Chemical contaminants, especially plastic additives, may represent an ecotoxicological risk with effects on and transfers to marine organisms (e.g. Hermabessiere et al. 2017, http://dx.doi.org/10.1016/j.chemosphere.2017.05.096).

[77] 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.

4.2.7. Underwater noise

EU-level efforts have focused on identifying the spatial distribution and sources of underwater noise as a first step to infer the potential exposure of marine ecosystems to this pressure. While some underwater noise maps are available, status assessments are very scarce[78]. Research activities demonstrate that exposure to underwater noise can cause several types of adverse effects on marine animals, ranging from changes of behaviour to their death.

Maritime traffic is considered the main source of continuous underwater noise. Shipping intensity is highest along main shipping corridors and near ports. The Mediterranean Sea has the largest area of very high traffic (27% of the sea area), followed by the Baltic Sea (19% of the sea area). Impulsive underwater noise, usually coming from activities such as marine research, offshore energy platforms or construction operations, is spatially restricted (likely occurs in 8% of the EU's marine area) but is still likely present in large areas of the Baltic Sea, the Central Mediterranean and Levantine Sea, the North Sea, the Celtic Seas, the Balearic Sea and the Adriatic Sea. Two registers of impulsive noise sources have been established for northern and southern EU countries respectively. Still, there are large gaps in monitoring and knowledge.

Given that most human activities causing continuous and impulsive underwater noise are expected to increase in the future, it is probable that the pressure from underwater noise will also increase. In order to minimise the impact, limiting or offsetting underwater noise emissions should be considered at an early stage when planning to deploy the relevant technology or industrial activity (e.g. shipping corridors, wind farms). The development of spatial and temporal calendars is recommended by some experts.

Other energy forms, such as light or heat, should also be considered. Some Member States have indeed addressed this in their strategies, but more work needs to be carried out for a more strategic approach to such pressures.

5. MAIN CHALLENGES AND SUGGESTIONS FOR IMPROVING THE IMPLEMENTATION OF THE MSFD[79]

5.1. More coherent and ambitious determinations of 'good environmental status'

Good environmental status represents the overall goal of the MSFD. The Directive requires Member States to define it at the level of the region or subregion, and the 2017 Decision provides specifications for this per criterion. Only 8% of the first definitions of good environmental status reported by Member States were evaluated as adequate (SWD(2020) 61). The definitions tend to be qualitative failing to set clear goals and, thus, most lacked quantitative detail that would enable progress to be clearly measured. Overall, there was also a lack of coherence within the same marine region or subregion. The determinations of good environmental status have to be more measurable, regionally coherent and ambitious[80].

[78] One example is HELCOM, 2019 (http://www.helcom.fi/Lists/Publications/BSEP167.pdf).

[79] As required by Article 20(3)(c) of the MSFD.

[80] In line with this, the Committee of the Regions urged a political step-change when noting the lack of ambition and consistency of the targets set by the Member States, which make it very difficult to know

The revised Decision on good environmental status, if fully implemented, is a bold and important step to determine good environmental status using a common approach (e.g. establishing species lists, scales of assessment and threshold values). Some Member States have demonstrated increasing efforts and a higher level of ambition. Still, the projects funded to support MSFD implementation and some discussions at the regional sea conventions show that, with very few exceptions, there is still not a shared regional understanding of what constitutes good environmental status[81]. Although the Commission has not yet completed its formal assessment of the newly reported information, initial analysis indicates there is still considerable variation in the determinations of good environmental status reported in 2018; however, some regional sea conventions have made good progress in defining common indicators with some regionally agreed threshold values. While the common implementation strategy seeks consistency in the Directive's implementation, Member States have the flexibility to define long-term objectives and short-term targets that are suitable for their context and region. The 2017 Decision requires Member States to define certain threshold values at Union level rather than through regional structures. Work on these had started during the first implementation cycle. But even here, attempts so far to define threshold values have demonstrated that there is an ambiguity in the concept: whereas good environmental status has to be ambitious, as it should reflect a common definition of what we want to achieve for our seas, setting a deadline (2020 in the current Directive) prevents Member States from accepting an ambitious definition of good environmental status.

5.2. Ensuring the effectiveness of measures

Member States made significant efforts to develop their first MSFD programmes of measures by integrating different national, EU and international policies and covering the existing gaps with new cost-effective measures. They reported a total of 4653 measures. Overall, 79% of the reported measures were direct technical or regulatory measures (likely to have more immediate effects on pressures), while the rest were more indirect support actions. Nevertheless, not all pressures on the marine environment are covered adequately through the measures adopted, as just 53% of the programmes assessed (per descriptor and per Member State) seem appropriate to tackle the existing pressures (Table 12 and Fig. 8 in SWD(2020) 61).

Member States also found it difficult to assess what the effect of the different measures they have put in place will be on the marine environment. This is partly because it is difficult to predict the timing and full practical implication of any one measure, let alone the cumulative benefits of a whole set of them. Nevertheless, when there is a clear cause and effect between pressures and measures, it is possible to identify specific effects of the relevant EU policies (for instance the Urban Waste Water Treatment Directive, the Habitats and Birds Directives, the Industrial Emissions Directive), which have also been cited as measures in the context of the MSFD.

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how much still needs to be done to meet the objective (CoR 112th plenary session of 3-4 June 2015, Opinion 'Better protecting the marine environment' adopted by unanimity).

[81] Considering the framework nature of the Directive and given that data to evaluate whether the 2020 good environmental status deadline is achieved will only be reported in the next update of the assessments (by 2024), the Commission has so far not launched any infringement cases concerning the achievement of the objective or the lack of cooperation to produce regional or subregional definitions of good environmental status.

According to the ongoing reporting on the progress of implementation of MSFD-related measures so far submitted by 17 Member States[82], 16% of the new measures have been completed, while 56% are reported to be on track. Delays mainly seem to be due to financing, technical or national administrative issues.

Some open issues for the second cycle of implementation are: (i) to focus on providing adequate responses to the key pressures on each (sub)region that prevent Member States from reaching good environmental status, (ii) to agree on the level of detail/aggregation of the measures to be reported and to focus on their expected effects to reduce pressures and their impacts, (iii) to better evaluate the efficiency and effectiveness of the measures in meeting environmental targets and good environmental status[83], notably through integrated modelling or connection with monitoring programmes, and (iv) to improve the consistency between and across EU, regional and national measures, when possible working jointly across Member States to achieve more with less.

Key pressures put forward by Member States in the common implementation strategy from a (sub)regional perspective:

- Baltic Sea: eutrophication, sea-floor damage, incidental by-catch.
- North Sea: litter, fisheries (including sea-floor damage), eutrophication, cumulative impacts on highly mobile species.
  - ↳ Bay of Biscay and the Iberian Coast, Macaronesia and Celtic Seas: litter, non-indigenous species, (locally) fisheries.
- Mediterranean Sea: overfishing, non-indigenous species, litter, cumulative impacts on highly mobile species.
  - ↳ other locally relevant pressures, like eutrophication in the Adriatic Sea and impulsive noise in the Western Mediterranean.
- Black Sea: contaminants, underwater noise, sea-floor damage, overfishing.
- Climate change is of concern for all regions.

5.2.1. The relevance of spatial protection measures

Of the roughly 4,700 measures reported by Member States under the MSFD, 246 were spatial protection measures. These have doubled the space designated as marine protected areas in Europe since 2012, reaching more than 10% coverage of its waters and fulfilling global commitments. Despite this, these measures are unevenly distributed across regions and across depth zones (see SWD(2020) 61). The MSFD calls for a coherent and representative network of protected areas to halt biodiversity loss and to

[82] Reports under Article 18 of the MSFD are still missing for Bulgaria, Cyprus, Greece, Italy, Malta, and Portugal (as of end October 2019).

[83] Some Members of the European Parliament regretted that there was not more control from the European Commission on how the monitoring should take place (Meeting of 24 April 2017 of the European Parliament Committee on the Environment, Public Health and Food Safety, agenda item 5). Since 2014, the recommendations have been followed up and further efforts have been made to strengthen regional cooperation.

increase the resilience of the marine environment, particularly vis-à-vis climate change. Effective marine protected areas (i.e. sites effectively protected and managed) can actually avoid the loss and degradation of species and habitats, generate a spill-over effect that increases the biomass of commercially exploited species, sequester organic and inorganic carbon contributing to climate change mitigation, increase coastal protection as an important adaptation tool, increase ecosystem resilience in the face of invasive species or global warming, trap or dilute pollutants such as excess nutrients, boost sustainable touristic and recreational activities, and be invaluable refuges for research and technical innovation.

However, many of the European marine protected areas are still not properly managed and cannot be assessed in terms of coherence and effectiveness due to the lack of appropriate instruments and data flows. In the EU context[84], the main challenges to turn networks of marine protected areas into effective conservation tools are mainly to: (i) establish networks of protected sites that are ecologically significant at (sub)regional scale, which in some regions involves enlarging the coverage and enlarging the minimum size of the protected sites; (ii) raise the proportion of strictly protected or no-take zones, and enhance enforcement and control activities to prevent the existence of 'paper parks'; (iii) implement effective management plans with tailored measures and adequate resources in each protected area. The new biodiversity strategy to 2030[85], with its proposals to protect and restore marine ecosystems, is a major breakthrough in this direction.

5.3. Streamlining implementation

5.3.1. Complexity

The broad ambition and holistic view of the MSFD obviously mean that extensive knowledge, assessment and reporting are needed, and both Member States and the Commission services are committed to meet these needs. The first cycle of implementation was especially demanding for all the actors involved in the common implementation strategy, since each stage was discussed, defined, reported and evaluated for the first time. Most common implementation strategy members indicate that the main challenges are proper implementation of the directive, the lack of resources (mainly human resources and time), the slow recovery of marine ecosystems and the lack of political will. The repeated delays in Member States' reporting and related infringement cases[86] under the Directive demonstrate how difficult it has been for Member States to satisfy the requirements. Although this process is expected to improve in the next cycles, as reporting should be much lighter and clearer now, there are still some specific issues that could be tackled to streamline the implementation process.

The first cycle has shown that the resources devoted to implementing the MSFD do not seem to match the needs to adequately implement the Directive, even if a large part of the

[84] Designation and management of marine protected areas in the EU are required by the Birds and Habitats Directives and the MSFD, and are supported by the goals of the EU Biodiversity Strategy. Other policies, such as Maritime Spatial Planning Directive and the common fisheries policy contribute to their coherent management.

[85] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - EU Biodiversity Strategy for 2030 - Bringing nature back into our lives (COM/2020/380 final).

[86] Since 2012, a total of 52 pilots and infringements have been opened against Member States for delays in reporting.

implementation is supported by other policies. Some ideas to increase those resources are to involve certain sectors of industry in monitoring their impacts, link the maritime spatial planning process to ensure a right balance between the blue economy and sustainability, better harness the observation systems coordinated through research programmes (e.g. Horizon 2020) and products developed at EU level (e.g. Copernicus), and urge Member States to fully exploit the European Maritime and Fisheries Fund[87] to fund the development and implementation of national marine strategies.

The MSFD is undeniably a complex framework that will soon be reviewed (starting this year) in a legislative evaluation. The first implementation cycle required all actors involved to understand the links between the different elements of the strategies. This was not always clear-cut. For example, Member States often failed to distinguish between targets and determinations of good environmental status. They did not link their targets with their measures, so as to have a measurable record of how they are progressing towards achieving good environmental status. Monitoring programmes were likewise not always linked to the targets, and because they were set up before the measures, the connection between the two was also suboptimal. Progress in setting threshold values for determining good environmental status has so far been slow, and there seems to be a reluctance to set ambitious levels, as that would prevent Member States from reaching good environmental status within the deadline established in the Directive. In SWD(2020) 62, the Commission looks at these cross-cutting issues.

5.3.2. Timelines

The Directive provides uncertainty in the reporting deadlines, giving fixed deadlines for the submission of the different parts of the national marine strategies[88] but variable deadlines for consultation, publication or assessment of the progress in implementing[89]. This has been overcome by reaching an agreement with Member States in the common implementation strategy to use fixed deadlines. Also, the deadline for achieving good environmental status by 2020 under Article 1 is not specifically aligned with the reporting cycles, as the assessment of progress towards this goal, based on monitoring data up to and from 2020, will only be reported in 2024. Similarly, the date of publication of this implementation report set by the Directive did not offer realistic opportunities to fully acknowledge the information reported in 2018 about the assessment of the marine environment, good environmental status definitions and environmental targets, or about the progress in implementing the programmes of measures. There is also a need to take into account potential time lags, since implementation of specific measures cannot always immediately lead to recovery of the marine environment.

Although the EU has already synchronised the six-year cycle for management and reporting in water and marine policy, further synchronisation with the cycle for nature reporting – essentially a delay of 1 year – could benefit and make the assessments more efficient.

[87] The European Maritime and Fisheries Fund supports implementation of the common fisheries policy and the integrated maritime policy, including its environmental pillar, the MSFD. The Fund promotes sustainable and resource-efficient fisheries and aquaculture activities, by supporting, among other things, better integrated conservation measures, better control and enforcement, improved data collection, and enhanced marine knowledge.

[88] According to Articles 5(2) and 17(2) of the MSFD.

[89] Through the provisions of Articles 17(3), 18 and 19(3) of the MSFD.

5.3.3. Reporting

Reporting exercises are very demanding, due to the broad scope of the Directive and frequency of reporting (three main reports in the six-year cycle). The competent authorities and the Commission are pressed with successive commitments to report and evaluate respectively, without sufficient time or resources to adequately reflect on each stage and on strategic discussions before having to start the next stage. A significant number of Member States reporting late also slows down the process (see footnote 8 and SWD(2020) 60), with a knock-on effect on the Commission's completion of assessments. This means feedback to Member States is delayed, often arriving too late to be taken into account for the subsequent reports.

Member States invest heavily in text reports for their national processes and public consultations. However, electronic reporting is today crucial to gather comparable and timely information across the EU. The framework relies on reported information from national assessments, whereas new monitoring technologies may allow for a more accurate picture of the actual state of the seas and the progress towards achieving good environmental status. Moreover, during the first cycle of the MSFD, text-based and electronic reports were not always equivalent. Some Member States are able to make use of reports by the regional sea conventions, but the format of these is not fully aligned with e-reporting needs.

The Commission and the European Environment Agency are working to improve and digitalise reporting tools so that there is a smooth passage of information from the regional sea conventions, other EU policies or previously reported information to MSFD reporting. Inconsistencies between what is reported electronically and static text-based reports, which some Member States seem to have a preference for, should be eliminated as they hamper the overall process. The MSFD is moving towards an efficient and transparent publication of information in the WISE Marine web portal[90], with the publication of centralised dashboards and nationally reported data.

5.4. Greater policy integration

As already mentioned under the section on effectiveness, the MSFD integrates, but does not regulate specifically, all activities that affect marine ecosystems (e.g. fisheries, shipping, offshore oil and gas extraction, renewable energies). It is not surprising that about 75% of the MSFD measures stem from other legislative frameworks. Hence, streamlining and coordination with other sectoral policies is essential to attain the MSFD objectives, both at national and EU levels. The Blue Growth strategy[91], although sharing the key principle of sustainability with the MSFD, can potentially, if not implemented in a sustainable way, be somewhat in contradiction with the MSFD measures to achieve good environmental status, especially in view of the potential expansion of maritime activities such as offshore energy and aquaculture. To ensure that the expansion of traditional or the deployment of new economic activities do not pose additional pressures on the marine environment, the EU and its Member States need to build more solid bridges, informed by science, between the MSFD and policies that regulate maritime activities such as the Maritime Spatial Planning Directive, the common fisheries policy,

[90] https://water.europa.eu/marine

[91] Communication from the Commission: Innovation in the Blue Economy: realising the potential of our seas and oceans for jobs and growth, COM(2014) 254/2.

energy-related initiatives[92], maritime transport policy or any other activities (e.g. aquaculture, desalination, waste management). These activities have important roles to play in transforming our society and economy into a sustainable system and a carbon-free continent that the European Green Deal sets as objective[93]. Offshore wind parks are needed to put an end to fossil fuel dependency. Sustainable aquaculture ensures food security and a sustainable diet while avoiding more pressure from land use. The future offshore wind strategy and the revised Strategic Guidelines for a Sustainable EU Aquaculture, which are both to be adopted in 2020, will contribute to that end and should include all relevant environmental considerations. Such expansions cannot come at the cost of eroding marine ecosystem resilience, which would have a knock-on effect on the overall planetary resilience to climate change impacts.

Members of the MSFD common implementation strategy identified the need to work more across groups and sectors on cross-cutting issues, such as activities-pressure-status relationships and climate change, to achieve good environmental status.

The 2017 Decision specifies how the marine assessments should be linked with the standards and processes under other EU legislation. All Member States linked most of their monitoring programmes and programmes of measures to other legislation, mostly environmental (namely the Water Framework Directive, Habitats Directive and Birds Directive). However, the Commission assessments and scientific analyses show that policy integration is not yet done at the operational level (e.g. integration of data, planning of monitoring, determination of assessments), and more efforts are needed to exploit the synergies, align the processes and eventually save resources. Section 3 of this report points to potential topics that could be better linked or coordinated among EU policies.

A particularly important case is the link between MSFD and climate policy. The oceans are a major component of the climate system that store anthropogenic CO_2 and a much greater quantity of heat than the atmosphere; acting as major carbon sinks and governing the movement of heat around the Earth. Therefore, the oceans can have dramatic effects on the global climate, and vice versa. According to the recently published report by the Intergovernmental Panel on Climate Change (IPCC) on Ocean and Cryosphere in a Changing Climate[94]: (i) since 1993, the rate of ocean warming has more than doubled and already affects the entire water column; (ii) the ocean has taken up between 20-30% of total anthropogenic CO_2 emissions since the 1980s causing further ocean acidification; (iii) the ocean is losing oxygen and oxygen-depleted zones have expanded, and (iv) since 1982, marine heatwaves have doubled in frequency, and have become longer and more intense. These oceanographic changes can have dramatic consequences on marine biodiversity and ecosystem resilience. All the marine ecosystems assessed in the IPCC report have an elevated risk of being affected by climate trends.

Despite its relevance, the link between the MSFD and climate change, both at monitoring and policy development levels, is not obvious. Member States have highlighted the impacts caused by climate change and ocean acidification as important transboundary

[92] Among others, Directive 2013/30/EU on the safety of offshore oil and gas operations; Directive 2009/28/EC on the promotion of the use of energy from renewable sources; Regulation (EU) 2015/757 on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport.

[93] For example, the Commission proposed in the Green Deal Communication to extend European emissions trading to the maritime sector.

[94] IPCC, 2019 (https://www.ipcc.ch/srocc/home/)

issues that are directly or indirectly addressed through MSFD monitoring programmes. Still, key topics such as the monitoring of ocean acidification in European seas and the impacts of marine heatwaves on marine biodiversity are not well established.

5.5. Boosting regional cooperation

Regional cooperation has improved since the adoption of the MSFD, but more cooperation is needed to attain full regional coherence of the marine strategies (see SWD(2020) 60). Regarding the three main stages in the Directive's implementation: (a) the Commission recommended that Member States use more standards stemming from EU legislation or common regional indicators for assessing the status of their marine waters; (b) the regional coherence of the EU monitoring programmes was considered moderate to high, with the exception of the Mediterranean Sea, where it was lower; and (c) the overall coherence of the programmes of measures was moderate in all regions and high in the Black Sea. As a consequence, the efforts to reduce the main pressures affecting each (sub)region should be better coordinated.

A preliminary analysis of the information reported in 2018 shows that, still in the second cycle, there are large discrepancies between adjacent Member States in the elements used to assess the status of marine ecosystems. Member States could use the deliverables of regional sea conventions more extensively when they are compatible with MSFD requirements. Importantly, these conventions integrate the actions of neighbouring (non-EU) countries and help build capacity. However, when regional sea conventions are not able to cover the needs of the MSFD, Member States should develop their own strategies for cross-border and regional coordination in accordance with the Directive. The ultimate goal is that the EU progresses towards a more efficient, harmonised and cost-effective protection of the marine environment. Regional threshold values should be determined in accordance with the 2017 Commission Decision.

5.6. Ensuring data availability and comparability

In the MSFD initial assessment of 2012, the status of 80% of species and habitats as well as 40% of commercial fish stocks was categorised as 'unknown'[95]. The lack of data is in some cases due to a genuine knowledge gap (e.g. only one Member State could report data and define a baseline of underwater noise back in 2012), but in other cases it could be improved reusing existing information (e.g. to measure eutrophication, less than 40% of the Member States used the thresholds of chlorophyll-a concentration defined in the intercalibration exercise of the Water Framework Directive)[96]. In more recent years, the inputs from research projects to feed explicitly the MSFD and policy needs have been a major support (e.g. INDICIT[97] in developing common databases and monitoring protocols for litter ingestion by turtles and MISTIC SEAS II[98] in aligning the assessment of marine biodiversity in Macaronesia). Some experts[99] call for the use of innovative and

[95] https://water.europa.eu/marine/topics/state-of-marine-ecosystem

[96] Palialexis et al., 2014 (https://doi.org/10.2788/64014).

[97] https://indicit-europa.eu/

[98] http://mistic-seas.madeira.gov.pt/en/content/mistic-seas-2

[99] For example, Borja et al., 2016 (https://doi.org/10.3389/fmars.2016.00020), Danovaro et al., 2016 (https://doi.org/10.3389/fmars.2016.00213) or Lynam et al., 2016 (https://doi.org/10.3389/fmars.2016.00182).

cost-effective monitoring systems that would allow broad spatial and temporal coverage of the regional seas.

A second challenge is to get information that is comparable across Member States. To facilitate this, the expert groups and networks working under the common implementation strategy are trying to establish robust methodologies, like for example unified list of elements (e.g. contaminants, nutrients, species) or threshold values for determining and assessing good environmental status. These methodological aspects are crucial to ensure that the outcomes of assessments are comparable across Member States. The development of electronic reporting tools has improved comparability across borders, but there is still room for improvement in their design and in the variability of the information reported (e.g. not all Member States interpret one individual MSFD measure in the same way; the number of reported measures ranges between 17 in Latvia to 417 in Spain). To date, MSFD information at EU level is still fragmentary, to the extent that the review of the status of the marine environment presented in SWD(2020) 61 could not be based only on MSFD reporting. The 2017 Decision, if fully implemented, should address this. Its implementation in the context of the common implementation strategy will therefore remain a primary goal for the Commission to have common and comparable data and approaches across Member States.

6. KEY CONCLUSIONS

This report takes stock of the main achievements and major challenges of the first implementation cycle of the MSFD. All the conclusions presented here will be subject to a wide consultation process as part of the forthcoming evaluation of the MSFD.

With the MSFD, the EU has a holistic and comprehensive marine policy in place that puts into practice the ecosystem-based approach to manage human activities in Europe's seas. Importantly, it also helps in delivering key international commitments. The MSFD provided the structure for setting up the necessary marine strategies to pursue good environmental status in EU marine waters. The condition of different ecosystem components and the presence (and, when feasible, the effects) of key pressures are being monitored, and pertinent measures are being put in place to attain the main objective and environmental targets. Inter-departmental collaboration and cross-sectoral data sharing has started within Member States, and regional coordination has expanded in recent years with the support of regional sea conventions.

Still, while the push the Directive has provided should not be underestimated, Member States' marine strategies need to be fine-tuned in relation to the outcomes of management actions to reap the best possible benefits, while acknowledging that, in certain instances, the legal timeframe available to reach good environmental status is not sufficient.

It is, moreover, doubtful that both the measures taken and the knowledge available are sufficient. It is also true that the MSFD is not meant to regulate specific activities and needs that in some cases have to be complemented by more specific legislation when the current national, regional or EU legal framework has gaps. Hence, progress in reaching good environmental status has not been fast enough to cover all MSFD descriptors in all EU waters by 2020. This can be linked to a range of factors, such as the complexity of analysing and managing the marine environment and reporting on it, the lack of political will to adequately fund and enforce the necessary measures, or the lack of involvement of other economic and private sectors (apart from environmental public authorities). On this basis, and without prejudging a possible review of the Directive in accordance with better

regulation processes[100] to strengthen the implementation and results of the MSFD, the experience acquired so far in the common implementation strategy allowed a preliminary identification of critical areas for improvement where there is a need to:

(1) Step up the level of ambition and will. Member States and the Commission should do all that is necessary to boost the different steps of the MSFD implementation process to reach good environmental status and sustainable uses of their seas. Policy coherence should also be ensured at EU level, for instance when defining the operational objectives of key EU common policies (such as the common fisheries policy and common agricultural policy) and reviewing/updating some key EU instruments. The slow implementation of the 2017 Decision, moreover, calls into question the consistency of the determinations for good environmental status. Additional challenges come from prevailing natural conditions, climate change, and the time lag between implementing certain measures and the recovery of the marine environment.

(2) Ensure enough human and material resources to protect the marine environment and to apply the holistic ecosystem-based approach of the MSFD. Putting in place effective measures that target at least the most important pressures per marine (sub)region in a coordinated manner could be the most beneficial for improving the environmental status. It does not imply that some impacts on marine ecosystems are disregarded, but should ensure that the measures in place are effective enough to prevent the major causes of deterioration and, where practicable, to restore adversely affected marine ecosystems. Effective measures require integration with sectors such as fisheries, energy, transport, agriculture and climate. Some lack of quantification of the reported measures and uncertainty on how far they will go towards achieving good environmental status makes it unclear whether the measures adopted under existing EU policies as a whole are sufficient in terms of delivering the required reductions in marine pressures and impacts.

(3) Streamline and simplify implementation of the MSFD. Simplification of timelines and reporting processes can be pursued, but it requires more data availability and harmonisation. Streamlining would require more regional coordination, alignment of concepts and approaches (e.g. facilitated by the common implementation strategy), and coordination across policies at national, regional and EU level. With the experience of the first implementation cycle, and within the parameters set by the Directive, reductions in reporting efforts could free up resources to allow Member States and the Commission to focus on the substance of assessments and the implementation of measures.

As the second cycle of MSFD implementation is now in full gear, the Commission will consider these conclusions as part of its preparations, in line with Better Regulation Guidelines, for reviewing the Directive. This will directly contribute to the implementation of the European Green Deal and more specifically to its 2030 biodiversity strategy and zero pollution ambition.

[100] The principles of subsidiarity and proportionality: Strengthening their role in the EU's policymaking, COM(2018) 703 final.