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NSAC/NWWAC Advice on the MSFD Review **NSAC Advice Ref. 05-2122**

This advice was approved by the NSAC and the NWWAC Executive Committees with consensus via written procedure on 22 March 2022.

1 Executive Summary

The North Sea Advisory Council (NSAC) and the North Western Waters Advisory Council (NWWAC) thank the Commission for the opportunity to comment on this important and comprehensive legislative piece contributing to better understanding the pressures and impacts of human activities on the sea and their implications for marine biodiversity, their habitats, and the ecosystems. We are fully aware that the deadline for this public consultation has passed, however, the importance of consensus advice provided by the Advisory Councils on this very important consultation cannot be underestimated. In light of the assurances made at the Inter-AC meeting on 19 January 2022 regarding the format and timeline for Advisory Councils to respond to public consultations, we hope that you will include the details provided in this document in your considerations.

In this joint advice we aim to contribute to the MSFD review making use of the expertise and experience of our members and representatives of the scientific community, keeping in mind the ambitions of the EU Green Deal, in alignment with the provisions of the Common Fisheries Policy (CFP) and the objectives of the EU Biodiversity Strategy, as well as other relevant legislative acts, such as the Zero Pollution Action Plan and the Climate Adaptation Strategy.

We will advise the Commission on aspects in need of consideration in order to ensure that the MSFD descriptors are measurable and regionally coherent in their progress towards GES, that measures are effective and their impact quantified, reporting streamlined and comparable, and coordination within and across marine regions improved. This includes proper development, implementation and execution of the MSFD part 2 Monitoring Programme which enables Member States (MS) to effectively determine whether objectives have been reached



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and measures rendered effective. Links with regional conventions such as OSPAR are considered, not least in the context of Brexit and, concretely, fisheries Descriptor 3. ICES' work on MSFD is examined to strengthen and promote a scientific approach to the Directive's review. Finally, we fully assume our role as stakeholders to notify the Commission on potential discrepancies, misalignments, and missing links in order for the review to be as comprehensive as possible.

Overall, NSAC and NWWAC members agree that the current MSFD contains the necessary tools to achieve its main objective - Good Environmental Status - across its eleven descriptors by using the ecosystem-based approach. The inclusion of fisheries stakeholders in the management of marine resources is paramount as the commercial fishing sector plays an important role in achieving the objectives of the deliverable (GES) for several descriptors.

An important reconciliation needs to be made in terms of resource utilisation to satisfy the increasing need for protein-rich food and nature conservation. It is vital that Advisory Councils, though operating in the framework of the CFP, are able to reach those environmental policy actors and departments whose work affects the implementation of CFP and the state of fisher communities and fisheries resources.

2 NSAC and NWWAC Advice

2.1 General considerations

2.1.1 Strengthening the implementation of the MSFD

The members of the NSAC and the NWWAC agree that the MSFD remains an important crosscutting legislation to safeguard the marine environment in the EU. It is our general opinion that the current legislative act contains the necessary tools to achieve its main objective, which is that of reaching Good Environmental Status across its eleven descriptors by using the ecosystem-based approach.

We share conclusions of the European Court of Auditors special report from 2020¹ that the major challenges to achieve GES/FCS² are linked to implementation gaps stemming from the lack of ambition and resources, rather than deficiencies in the policy framework. In order to avoid risking delays in advancing the protection of marine ecosystems we suggest that the Commission firstly properly assesses and addresses those deficits in implementation by means of existing or planned legislative and non-legislative tools before a revision of the MSFD is undertaken.

2.1.2 GES deadline, definitions and regional cohesion

Even though, or precisely because the 2020 deadline for reaching GES has not been achieved, the NSAC and NWWAC members agree that its accomplishment should not be further postponed. On the contrary, the Commission and the MS should make maximum effort

¹ Marine environment: EU protection is wide but not deep; <https://op.europa.eu/webpub/eca/special-reports/marine-environment-26-2020/en/>

² Favourable Conservation Status according to Habitats Directive.

and take urgent measures to meet the target as soon as possible. The Commission should provide adequate guidance whilst MS should accelerate and take actions needed to achieve the objectives of the Directive. Where MS fail to take adequate measures, the Commission should be able to take the necessary legal actions to ensure a full and proper implementation of the Directive.

One of the key challenges is the development of a harmonised definition of GES at regional level. This has been identified by several evaluations, including the European Commission's own evaluations of Member States' performance, which concluded that 'only 8% of the first definitions of GES reported by MS were evaluated as adequate'³. In most cases the definitions lacked quantitative details to make them measurable and comparable and they were deficient in coherence within the same region or subregion. MS assessments have shown serious difficulties in operating a clear distinction between their definitions of GES and their targets. Often, they failed to align their targets with their programmes of measures and monitoring programmes, making it difficult to track their progress towards GES. This incoherence may, to some degree, be ascribed to the characteristics of legal bases, where regulations and directives imply different ways of legislation transposition/translation (binding vs. non-binding acts) into the national aquis, in addition to leaving more/less room for differing interpretations of provisions.

Certain MS have not succeeded in setting threshold values required to determine GES. Full implementation of the decision (EU) 2017/848⁴ could allow the creation of a shared regional approach and comprehension of GES. Furthermore, a revision of this decision towards less flexibility allocated to MS would ensure a better approximation of GES definition and better use of measures to reach it. Approximation of criteria and methodological standards is key to attain a more ambitious GES for our seas and oceans.

In this context coordination and collaboration with the UK must be prioritised, Without close collaboration with our neighbour with whom both the NSAC and NWWAC share parts of their remit areas, achievement of GES will not be possible.

2.2 Scientific data, reporting and monitoring

Due to its broad scope and comprehensive nature, MSFD reporting, monitoring and evaluation activities by the competent national authorities and the EU Commission are time-consuming and resource-demanding. The numerous delays in MS reporting and monitoring and the related infringement procedures against them could have been avoided if more financial and human resources were allocated by MS to the implementation of the MSFD.

During the first cycles of implementation, the MSFD posed a challenge for the MS. While regional administrations are experienced in the measurement and monitoring of some descriptors, notably D3 on commercial fisheries with a clear target of MSY and D5 - Eutrophication, for other descriptors, such as D10 - Marine Litter, D11 - Underwater Noise, and D2 - Non-Indigenous Species, the evidence base is still developing, and MS struggle with

³ COM (2020) 259 final.

⁴ 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.

assessments against the baselines due to lack of data. On a general level, information collection seems decentralised. For example, the Commission coordinates TG Seabed, developing thresholds for seafloor integrity, while some aspects are in Member States' remit. The Commission regularly takes advice from ICES and from the Joint Research Centre, as well as independent consultancies. The NSAC and NWWAC believe that the implementation of the Directive would benefit from a more centralised and harmonised approach to data collection.

Data gaps regarding marine habitats and species status are substantial compared to their terrestrial equivalents.⁵ Proper implementation of MSFD would require a drastic increase in knowledge acquisition to set baselines, report on and monitor the trends. EU research programmes have to be set up, backed by national initiatives, to step up the research and knowledge on the marine environment. That said, data gaps should not be considered a reason for inaction in achieving GES. There is a question on the level of completeness of the data needed prior to taking action. The NSAC/NWWAC are of the opinion that where data is lacking, proportionate measures should be taken, based on best available information. In addition, proper and regular assessment of the effectiveness of measures will ensure effective adaptive management. Furthermore, a holistic approach to scientific work should be considered. The advice requesters should focus on developing concrete and relevant requests and grouping these requests to form an ecosystem-based management approach producing multi-species, ecosystem scientific advice as opposed to single-aspect requests producing single-species advice.

Where scientific capacity is considerable, this does not automatically translate to timely measures. It is an observation of North Sea and North Western Waters stakeholders that science often does not catch up with the fast-changing ecosystem, which may cause management measures based on science to become obsolete and/or irrelevant by the time they come into force⁶. This has become more evident in the light of climate change, and there is a need for effective adaptive management. A cross-sectoral approach and a joint vision are needed in future research endeavours.

On MSFD, and specifically on the definition of GES, the NSAC and NWWAC members believe that ICES' work⁷ should be considered and taken as a reference. ICES is a leading scientific

⁵ The EEA report No 10/2020 shows that up to 26% of the marine habitats status are unknown (4% for terrestrial) and 59% of marine species (against 8% for terrestrial) <https://www.eea.europa.eu/publications/state-of-nature-in-the-eu-2020>

⁶ NWWAC Advice on climate change: <https://www.nwwac.org/publications/nwwac-advice-on-the-impact-of-climate-change-on-fisheries-in-the-north-western-waters.3404.html>

⁷ In addition to the direct MSFD advice, there are several ICES advice product that are indirectly related and support the MSFD. The core of the MSFD and achievement Good Environmental Status (GES) is related to sustainability -or "*protect the marine ecosystem and biodiversity upon which our health and marine-related economic and social activities depend*"

As such, the current ICES advice and management system for fish stocks is based on the ICES principles for Ecosystem-based Fisheries Management (EBFM) where scans and evaluations of new knowledge from inside and outside the ICES community are performed to assess if the knowledge can support state-of-the-art on meeting conservation, management and sustainability goals. The ecosystem approach is integrated into the reference points, which are based on the current state of the ecosystem and updated to reflect any effects of the ecosystem on stock dynamics. Where appropriate, such as with forage fish, estimates of age based and/or temporal variation of natural mortality are built into the stock assessments to consider the implications for fish for top predators or density effects on stock dynamics.

This annual advice and management system for >200 fish stocks is summarised in the annual [fisheries overview \(FOs\)](#) advice per ecoregion that also includes a section on MSFD D3 (*populations of all commercially-exploited fish and shellfish are within safe biological limits*). In

body under the CFP. In order to maintain consistency, we suggest that the Commission takes its definition of GES as the standard.

The digitalisation of reporting tools will help improve the collection and transfer of data, make information comparable across borders, upgrade the management of measures such as MPAs and contribute to social sustainability by creating new employment opportunities. The MS could streamline monitoring by establishing better regional cooperation, by making better utilisation of the existing marine web portal WISE⁸ and by requiring relevant existing and new industries to provide data on the impacts of their activities at seas where these are insufficient. Finally, the MS should set up an adequate governance system at regional and national levels by assigning clear responsibilities to competent authorities.

2.3 Improved coherence with other existing legislations and international commitments

Synergies between the MSFD and initiatives adopted or proposed by the Commission under the European Green Deal, including the Biodiversity Strategy, the Zero Pollution Action Plan, the Farm to Fork Strategy, the proposed Nature Restoration Law (NRL) and the Action Plan to conserve fisheries resources and protect marine ecosystems should be increased to integrate sustainability into prominent economic activities impacting the marine environment. Targets to protect and restore marine areas, notably those established under the NRL, would facilitate the achievement of GES in EU marine waters and the implementation of MSFD. The future restoration targets should secure 10% of all EU marine areas as strict protection zones. Well managed MPAs with well-defined objectives and enforced measures are an important component and should be part of the strategy. By restricting or regulating

addition, ICES also produce annual [ecosystem overview \(EOs\)](#) advice per ecoregion that summarize the main pressures and state within a region.

Other ICES products that are relevant to the MSFD include, advice on [bycatch](#) (also relevant for e.g. MSFD D1) and advice on [vulnerable marine ecosystems VMEs](#) (also relevant e.g. MSFD D6).

ICES MSFD Advice:

EU request on how management scenarios to reduce mobile bottom fishing disturbance on seafloor habitats affect fisheries landing and value DOI: <https://doi.org/10.17895/ices.advice.8191>

EU request for a Technical Service on MSFD Article 8 guidance on undertaking assessments for Descriptor 3 (commercially exploited fish and shellfish) and Descriptor 4 (marine food webs) DOI: <https://doi.org/10.17895/ices.advice.8817>

[EU - Developing appropriate lists for Descriptor 3, commercially exploited fish and shellfish, for reporting by EU Member States under MSFD Article 17 in 2024](#)

[EU - Seafloor assessment process for physical loss \(D6C1, D6C4\) and physical disturbance \(D6C2\) on benthic habitats](#)

[EU - Guidance on an appropriate method to integrate criteria, species, species group to higher groups of birds, mammals, reptiles, fish and cephalopods for a Good Environmental Status assessment](#)

[EU - Guidance on operational methods for the evaluation of the MSFD criterion D3C3 \(second stage\)](#)

[EU - Indicators of the pressure and impact of bottom-contacting fishing gear on the seabed, and of trade-offs in the catch and the value of landings](#)

[EU - Guidance on operational methods for the evaluation of the MSFD Criterion D3C3](#)

[EU - Guidance on the most appropriate method to aggregate species within species groups for the assessment of good environmental status for MSFD Descriptor 1](#)

[EU - Guidance on the practical methodology for delivering an MSFD GES assessment on D3 for an MSFD region/subregion](#)

[EU - Guidance on how pressure maps of fishing intensity contribute to an assessment of the state of seabed habitats](#)

[EU - Revisions to Marine Strategy Framework Directive manuals for Descriptors 3, 4, and 6](#)

[EU - Proposal on indicators for MSFD Descriptor 4 \(foodwebs\)](#)

[EU - Review of the Marine Strategy Framework Directive: Descriptor 3 – Commercially exploited fish and shellfish](#)

[EU - Review of the Marine Strategy Framework Directive: Descriptor 4 – Foodwebs](#)

[EU - Review of the Marine Strategy Framework Directive: Descriptor 6 – Seafloor integrity](#)

[EU - Review of the Marine Strategy Framework Directive: Descriptor 11 – Energy, including underwater noise](#)

⁸ <https://water.europa.eu/marine>

activities pressures can be reduced. Advisory Councils have relevant interest in the programme of measures, such as MPAs, and have throughout the years produced advice on specific MPAs⁹. It is crucial to ensure a coherent and well-managed network of MPAs. In addition, Other Effective Conservation Measures (OECMs) should be part of any national and regional Programme of Measures within a coherent network of MPAs. Furthermore, the Commission and MS should guarantee that the upcoming Action Plan to conserve fisheries resources and protect marine ecosystems supports strong fisheries management measures in line with the CFP to contribute to reaching GES¹⁰¹¹. Alignment should be attained also with the CFP provisions. This is particularly true for the evaluation of descriptor 3 regarding the sustainability goals for reaching GES. The CFP refers to the exploitation rate and the MSFD should embrace a similar approach.

It is important to highlight that strengthening of the level of international cooperation is key to protecting the marine environment and eliminating or mitigating diverse negative pressures from human activities at sea. Reaching GES in EU waters through a better implementation of the MSFD should be considered instrumental to the EU's respect of international commitments under several international instruments, such as the United Nations Convention on the Law of the Sea (UNCLOS), the Convention on Biological Diversity (CBD), the 2030 Agenda for sustainable development, the Paris Agreement and of international summits as the annual Convention of the Parties (COP) under the UNFCCC. While the EU is at the forefront in nature protection compared to other international parties, there is still room for improvement, particularly in the implementation phase.

Cooperation and coordination between actors and approaches to MSFD, particularly between environmental and maritime policies should be strengthened, and the silos between the different departments overcome. The MSFD addresses all activities having an impact on the marine environment, but it does not regulate them all in specific terms. To meet the MSFD goals, better integration, coordination and coherence between the MSFD and correlated existing or upcoming legislations and policies are fundamental. The Commission should strive for enhancing integration across sectors and fields connected to the marine ecosystem to promote sustainability.

In particular, the MSFD needs to be better aligned with the Birds and Habitats Directives (BHDs). The current non-coherence of the spatial, temporal and species/habitats reporting requirement is largely undermining the reporting duties of the MS and the overall comprehension and accomplishment of the MSFD implementation. Better alignment of reporting timelines would provide an incentive for increasing the reuse of data and assessments effectively. The Commission should give better guidance on how to integrate species and habitats assessments under the BHDs and the MSFD obligations and ensure consistency between them. The Commission should also require MS to improve monitoring and reduce the number of unknown variables reported.

Many inconsistencies remain between the Common Fisheries Policy (CFP) and the MSFD. To guarantee coherence between art. 13(4) of the MSFD on programmes of measures

⁹ See [link1](#); [link2](#); [link3](#)

¹⁰ NSAC Advice on EU Biodiversity Strategy: <https://www.nsrac.org/wp-content/uploads/2021/09/17-2021-NSAC-Advice-on-EU-Biodiversity-Strategy.pdf>

¹¹ NWWAC Advice on Action Plan to conserve fisheries resources: <https://www.nwwac.org/publications/nwwac-response-to-the-targeted-consultation-on-the-action-plan-to-conserve-fisheries-resources-and-protect-marine-ecosystems.3640.html>

envisaging spatial protection measures in marine protected areas established under the BHDs and articles 11 and 18 of the CFP, proper fisheries management measures should be established in Natura 2000 sites taking into account the necessity to deploy the key ecosystem conservation measures.

Fisheries data and monitoring is obtained under the Control regulation and the Data Collection Framework (DCF) regulation. The implementation of the DCF, regarding data to assess the impact of fisheries on the marine ecosystems, should be closely monitored by the Commission, in particular the MS' work plans following the EU multiannual programme, and their implementation annual report.

Article 15 of the MSFD allows MS to raise an issue at EU level regarding the impact of activities at sea on the environmental status of their marine waters, which they believe cannot be tackled appropriately by national measures. The procedure provides for a possibility for MS to make recommendations to the Commission and the Council for measures regarding the issue at stake, which can then be translated into legislative proposals. Unfortunately, as stated in the 2020 European Court of Auditors report, Article 15 of the MSFD on recommendations for Community action is not well implemented, leading to coordination gap between the MSFD and the CFP. The Commission should provide better guidance and encourage the MS to jointly take conservation measures under article 15 via MS groups such as the Scheveningen group of North Sea MS and follow up with appropriate actions.

Regarding the EU Strategy on offshore renewable energy, the Commission should ensure that the Marine Spatial Planning Directive (MSP) takes into adequate consideration the future infrastructural pressure at sea and actively supports the application of ecosystem-based approach to every human activity¹², in particular the deployment of offshore wind farms^{13,14}. MS with adjacent marine sea basins should step up collaboration on the impact of renewables on mobile marine species such as seabirds, migratory fish and invertebrate species. There is also a necessity for a wider coherence of the MSFD with policies regulating pressures on the marine environment originating on land (e.g., plastic, agriculture).

2.4 A move towards a regionalised MSFD

Regional cooperation across MS is essential to develop coherent marine strategies and programmes of measures able to tackle in a timely and efficient way the main pressures at seas at the regional or sub-regional level. The Commission should push for the assessment of the status of marine waters through the implementation of the 2017 decision and the utilization of regional threshold values. For most descriptors, the characteristics and the boundaries for the determination of GES would be better defined at regional level. A more regionalised approach could help avoid inconsistencies between MS sharing the same marine

¹² Multi-AC Advice on blue economy: <https://www.nwwac.org/publications/multi-ac-advice-on-the-%e2%80%9cmaritime-sector-%e2%80%93-a-green-post-covid-future%e2%80%9d-roadmap.3168.html>

¹³ NSAC Advice on Offshore Wind farms: <https://www.nsrac.org/wp-content/uploads/2020/12/08-2021-NSAC-Advice-on-Offshore-Wind-Farms.pdf>

¹⁴ NWWAC Advice on ocean energy: <https://www.nwwac.org/publications/nwwac-submission-in-reply-to-com-public-consultation-ocean-energy-%e2%80%94-evaluation-of-eu-renewable-power-generation-policy.3287.html>

basins and can permit them to address the most urgent threats at seas without burdensome duplications and without neglecting specific regional characteristics.

The North Sea is semi-enclosed and relatively shallow sea. Its waters are flushed on an annual basis¹⁵ and overall, the complex status of the sea is changing rather rapidly. Similarly, the levels and types of human activity differ between regions resulting in different challenges between regions. The North Sea is currently relatively intensely used by multiple spatially competing sectors (such as oil and gas, marine renewable energies, sand extraction, fisheries etc.) and co-governed by many nations with relatively small territorial waters, compared to the North East Atlantic where human activities are more spatially distributed, fewer sectors operate and few nations (Ireland, Portugal, France, Spain the U.K., and certain third countries) hold relatively large marine territorial waters. Most ecosystem concerns in the North Sea relate to at-sea threats for seabirds and other marine species, particularly the incidental catch of sensitive species through bycatch, underwater noise pollution, and the impact of energy production (i.e., offshore renewables) and overfishing. According to Commission's communication 99% of stocks in the Baltic, North Sea and the Atlantic managed exclusively by the EU were expected to come from sustainably managed fisheries¹⁶. However, the most recent STECF report shows that 57% of fish stocks are fished within FMSY limits, leaving 43% of the assessed North East Atlantic fish stocks overfished.¹⁷ The EU Biodiversity Strategy stresses the need for ecosystem-based approaches to sustainable activities at sea, including addressing the overexploitation of fishing stocks to or under, Maximum Sustainable Yield levels, eliminating bycatch and tackling practices that damage the seabed. Similarly region-specific is the impact of bottom trawling on biotic communities of seabed sedimentary habitats¹⁸. It is important to keep regional specificities and risk levels in mind when designing conservation measures.

The long-shared history of international marine management in the North Sea and the North Western Waters has resulted in considerable scientific capacity, systems which are data rich, and a well-established framework for management and conflict resolution. By contrast, in the North East Atlantic due to its vast areas there is less information and data on the ecology of the region and less well-developed environmental management capacity¹⁹. As a result of these differing management provisions have already been made within the Directive for the application of risk-based and adaptive management²⁰ recognising the regional differences in information and capacity and highlighting the need to focus on the anthropogenic pressures, particularly climate change, including its mitigation through building renewable energy technologies, posing the greatest risk to the marine environment. While there have been

¹⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0248&rid=3>

¹⁷ https://stecf.jrc.ec.europa.eu/reports/cfp-monitoring/-/asset_publisher/oz5O/document/id/2872524?inheritRedirect=false&redirect=https%3A%2F%2Fstecf.jrc.ec.europa.eu%2Freports%2Fcfp-monitoring%3Fp_id%3D101_INSTANCE_oz5O%26p_lifecycle%3D0%26p_state%3Dnormal%26p_mode%3Dview%26p_col_id%3Dcolumn-2%26p_col_pos%3D1%26p_col_count%3D2

¹⁸ The study shows that the impact of bottom trawling depends highly on the type of sediments (sand, mud or gravel) and notes that the North Sea has the smallest percentage of untrawled area but also the smallest percentage of depleted seabed among European regions except west of Scotland: <https://www.pnas.org/content/119/2/e2109449119>

¹⁹ O'Higgins, T., Verling, E. and Cronin, R., (2019). Analysis of national, regional and EU MSFD institutions and governance structures, challenges and opportunities for a Risk-Based-Approach in the North East Atlantic. RAGES Deliverable 2.2.

²⁰ ²⁰ Commission Decision 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 Off. J. Eur. Union L, 125 (2017), pp. 43-74

attempts to develop standardised techniques for the application of risk-based approaches²¹, these have not yet been fully coordinated at a regional scale.

While the Directive mandates that GES is achieved on a regional basis, the role of the Regional Seas Conventions (RSCs) within the Directive is not clear, which has led to “institutional ambiguity”²²²³ and a communication vacuum. Some regional activities relevant to the MSFD occur within RSCs (i.e., OSPAR) however this work does not constitute implementation of the Directive. It follows from this that the mechanisms for regional cooperation in MSFD are not clearly established. The Commission should promote the use of RSCs and organisations and MS’ strategies as means to reach higher regional coordination. At the same time RSCs should strengthen their cooperation in the form of cross-regional cooperation, where relevant and appropriate. Advisory Councils as de facto stakeholder representations should interact with and feed into RSC work²⁴.

2.5 Climate change and its implications for fisheries management and the achievement of GES

Challenges posed by climate change for the management of the marine environment in the coming decades can be divided into direct and indirect effects on the ecosystem. In terms of direct effects of climate on ecosystems it is established that variability in climate affects all aspects of marine ecosystems. Natural cyclical variability in the ecosystem occurs over decadal timescales driven by the North Atlantic Oscillation²⁵ and has effects on the physical, chemical and biological aspects of entire ecosystems, including fisheries. Effects from human induced climate change are superimposed on these natural cyclical patterns resulting in changes to ecosystems which are difficult to predict²⁶ and manage. For example, the changing patterns in stocks in the North East Atlantic have resulted in shifting distribution of stocks and the international nature of some fisheries has led to difficulties in maintaining fisheries at sustainable levels²⁷. Generally, species’ shifts and resulting management challenges are likely to become increasingly common. As suggested by Baudron et al. (2020)²⁸ distribution changes of commercial fish species have strong implications on the management with economic and political consequences. Quota allocations based on a historical distribution key (relative stability) instead of currently present biomass (zonal attachment) result in a mismatch between the allocated quotas and regional abundance, creating further pressure on the ecosystems.

²¹ Verling, E. Miralles, R., Bou-Cabo, M., Lara, G., Garagouni, M., Brignon, J-M and O’Higgins, T.G. 2021. Application of a risk-based approach to continuous underwater noise at local and subregional scale for the Marine Strategy Framework Directive. *Marine Policy* 134 104786

²² Van Leeuwen, J. van Hoof, L. and van Tatenhove, J. 2012. Institutional ambiguity in implementing the European Union Marine Strategy Framework Directive. *Marine Policy* 36, 636-643.

²³ Van Tatenhove, J.P.M. 2013. Turning the tide: developing legitimate marine governance arrangements at the level of the regional seas. *Ocean and Coastal Management* 71 296-304

²⁴ In 2021 the NSAC was granted OSPAR observer status.

²⁵ Báez, J.C., Gimeno, L., and Real, R. 2021. North Atlantic Oscillation and fisheries management during global climate change. *Reviews in Fish Biology and Fisheries* 31 319-336.

²⁶ McKenna, C.M. and Mauycock, A.C. 2021. Multi-Model Large Ensemble projections of the North Atlantic Oscillation during the 21st century. Submitted to *Geophysical Research Letters*. Prepub DOI <https://doi.org/10.1002/essoar.10506823.1>

²⁷ Baudron, A. R. et. al. 2020. Changing fish distributions challenge the effective management of European fisheries. Accessible at: <https://onlinelibrary.wiley.com/doi/10.1111/ecog.04864>

²⁸ Ibid

Indirect effects of climate on ecosystems result from changes in human adaptation and mitigation behaviours (i.e., renewable energy plans). In the NSAC and NWWAC we fully acknowledge the role of fisheries in achieving the objectives of the MSFD, however the cumulative effects of many different sectors also, if not to a greater extent, affect the achievement of MSFD objectives and impact the potential for commercial fisheries to achieve GES. Future developments in the marine environment will involve trade-offs between the different sectors. Effective mechanisms for integrating the interactions between descriptors and the emerging trade-offs between sectors will be critical in ensuring that the next cycles of the MSFD can integrate the connections between land, air, water and all living things, including humans, and their institutions apply ecosystem-based management in practice, contributing to the implementation of the Directive.

Ocean governance and climate change are interconnected, requiring engagement and dialogue between researchers, citizens, stakeholders and decision makers. The Directive must therefore take on board climate change and for measures there should be specific regulation, not solely guidance. Focus on regulation and implementation of measures is needed, as well as coordination and successful monitoring. A European Taskforce on climate change should be established. Blue Carbon should be taken into consideration due to its key role to address climate change. MPAs must remain a key component of any strategy and play a vital role. Finally, more attention should be given to the understanding of the role of fish in blue carbon in terms of how fish influence carbon absorption and sequestration in the ocean by contributing to the biological pump of marine life that moves carbon through the ocean cycle. In the context of the impact of climate change on fisheries management please review in detail the NWWAC advice on the impact of climate change on fisheries in the North Western Waters (13 May 2021, [link](#)).

2.6 MSFD descriptors

2.6.1 Interactions between marine activities and descriptors

The descriptors of the Directive are diverse and interlinked. As an example, Descriptor 3 prescribes that 'Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock'. While the Directive relates to populations of commercial fisheries, the activities related to fishing of commercial species have impacts on other descriptors, such as seabed integrity, marine noise, marine litter, food webs, biodiversity. It is therefore clear that the commercial fishing sector plays an important role in achieving the objectives of the deliverable (GES) for several descriptors.

Descriptor 1 (Biodiversity) is relevant to the Advisory Councils particularly through by-catch monitoring in which fisheries dependent data hold significant value. Both the NSAC and the NWWAC support the CIBBRiNA LIFE Bycatch project using the ecosystem approach to bycatch issues, as one of the many examples of ongoing research projects.

The fisheries sector is not the only human activity that can contribute (negatively or positively) towards the achievement of GES. The revised Annex III of the Directive²⁹ identifies 31 distinct marine activities which affect the marine environment under ten themes. These themes include physical restructuring (such as land claim, canalization, offshore structures); extraction of non-living resources (such as minerals, sand, gravel, oil and gas³⁰); production of energy (renewable³¹ and non-renewable energy generation), extraction of living resources, cultivation of living resources, transport, urban and industrial uses, tourism and leisure, security and defence, education and research.

Other marine sectors included in these themes can affect the fisheries sector's achievement of MSY (D3) and the other descriptors of MSFD in ways which are often difficult to predict. For example, the arrival of non-indigenous species (D2) may have ecological and economic implications. A total of 21% (256) of invasive species were recorded in the North-East Atlantic Ocean, 5 % (66) in the Baltic Sea and 3 % (32) in the Black Sea.³² *Crassostrea gigas* is an example of such an exotic species, which was deliberately introduced into the Zealand and northern German coastal waters for oyster farming, and which subsequently spread and competed with local flat oysters and brought the parasite *Mytilicola orientalis* with it. Maritime transport and aquaculture are often considered the major vectors for non-indigenous species, yet data on their relative roles in the transport and settlement of non-indigenous species is relatively scarce in the European context. Though some countries have made continual efforts in developing their databases and research on invasive species, e.g. Bord Iascaigh Mhara (www.bim.ie). Similarly, eutrophication (D5) may have initial positive effects on fish stock biomass in some cases³³ but can also cause changes in primary productivity and disturbances in food web dynamics and biodiversity (D4, D1). Contaminants may directly affect commercial species through oil spills and fish kills³⁴, or indirectly through for example mercury contamination caused by coal burning, mining and industrial processes³⁵. While impacts from some descriptors such as marine litter (D10) and energy and noise (D11) on commercial fisheries species may occur, these are not yet fully described or understood.

Seafloor integrity (Descriptor 6) includes indicators for physical loss (2 out of 5 indicators) and physical disturbance of the seabed. The Commission's report on the implementation of the MSFD suggests that the main activities reported under the MSFD causing physical loss of

²⁹ Commission Directive (EU) 2017/845 of 17 May 2017 amending Directive 2008/56/EC of the European Parliament and of the Council as regards the indicative lists of elements to be taken into account for the preparation of marine strategies (Text with EEA relevance.) C/2017/2842

³⁰ Joint LDAC/PELAC/NWWAC advice Deepsea Mining in International Waters
<https://www.nwwac.org/publications/joint-ldacpelacnwwac-advice-deepsea-mining-in-international-waters.3616.html>

³¹ NWWAC, PELAC and NSAC advice for a non-recurrent request to ICES on the impact of marine wind energy developments on commercial fish stocks:
<https://www.nwwac.org/publications/nwwacpelacnsac-advice-for-a-non-recurrent-request-to-ices-on-impacts-of-wind-energy-developments.3102.html>

³² Reise, K., Gollasch S. & Wolff W. J. 1998. Introduced marine species of the North Sea coasts. Accessible at:
<https://hmr.biomedcentral.com/articles/10.1007/BF02908898>

³³ Caddy, J.F. 2000. Marine catchment basin effects versus impacts of fisheries on semi-enclosed seas. ICES Journal of Marine Science 57 628-640.

³⁴ Gomez, C., & Green, D. R. (2013). *The impact of oil and gas drilling accidents on EU fisheries*. EU-Directorate General for Internal Policies. <https://doi.org/10.2861/49220>.

³⁵ Chen, Celia Y.; Driscoll, Charles T.; Lambert, Kathleen F.; Mason, Robert P.; Rardin, Laurie R.; Schmitt, Catherine V.; Serrell, N. S.; and Sunderland, Elsie M., "Sources to Seafood: Mercury Pollution in the Marine Environment" (2012). Maine Sea Grant Publications.64

benthic habitats were land claim and flood defence, port construction, solid waste disposal, renewable energy production³⁶ and impacts from unsustainable practices of aquaculture.³⁷

Despite this observation and due to difficulties in quantifying other pressures, the only disturbance currently quantified by ICES is bottom trawling. This seems one-sided, and to date no threshold has been set on how much of the habitat could be disturbed. The success of each competing sector depends highly on political priorities and that sectoral co-existence should be explored further. The ambitious targets for development of offshore Marine Renewable Energy development will mean increasing competition for space particularly in nearshore waters. Construction and operation of marine renewable energy will have implications for almost all descriptors (D1, D2, D3, D4, D6, D7, D8, D9, D10, D11). A multi-species, multi-sectoral approach should be considered to marine spatial planning (MSP).

2.6.2 Considerations in Descriptor 3 – age and size distribution

Descriptor 3 prescribes GES as ‘Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock.’ This translates to stocks that are (1) exploited sustainably consistent with high long-term yields, (2) have full reproductive capacity in order to maintain stock biomass, and (3) the proportion of older and larger fish/shellfish should be maintained (or increased) being an indicator of a healthy stock.

Scientists have in recent years worked on ideas to improve current stock assessments within the CFP in order to make them consistent with the requirements of the MSFD. In 2021 Probst et al. published a paper³⁸ delineating six steps in ICES data and assessment products that could lead towards improvements in current assessments and clarifies how these could be used to build a new product more tailored to the requirements of the MSFD.

The NSAC and NWWAC members would like to underline the fact that the CFP Landing Obligation prescribes that in cases where the catch cannot be landed due to lack of quota, selectivity needs to be improved³⁹. The MSFD in turn advises against the catch and landing of mature fish. This is particularly problematic for bottom contacting mixed fisheries when size selectivity is difficult to achieve. An important reconciliation needs to be made in terms of resource utilisation to satisfy the increasing need for protein-rich food and nature conservation. This trade-off needs to be carefully decided upon, keeping in mind economic, environmental and social sustainability.

³⁶ NWWAC/PELAC advice for non-recurrent request to ICES on seismic impacts

<https://www.nwwac.org/publications/nwwacpelac-advice-for-non-recurrent-request-to-ices-on-seismic-impacts.2928.html>

³⁷ https://ec.europa.eu/info/sites/default/files/com2020_259_final_en.pdf; page 16

³⁸ Probst, W.N., Kempf, A. et al. 2021. ICES Journal of Marine Science, Volume 78, Issue 4, August 2021, Pages 1229–1240. Accessible at: <https://academic.oup.com/icesjms/article/78/4/1229/6151700>

³⁹ NWWAC 2021 advice addressing choke risk in NWW after exemptions:

<https://www.nwwac.org/publications/nwwac-2021-advice-addressing-choke-risk-in-nww-after-exemptions.3638.html>

2.7 Cooperation, stakeholder and sectoral involvement

The NSAC and NWWAC members firmly believe in the benefits of stakeholder and sectoral involvement in MSFD implementation on a regional and local level. The role of regional and local authorities, where management and enforcement take place, is crucial. These should be involved in MSFD implementation from the first stages of identification of measures, planning etc. This may mean applying local specificities to measures so that local opportunities and constraints are foreseen and considered and responsibility for measures shared.

A multi-species, multi-sectoral approach should be applied to marine spatial planning (MSP) and sectoral co-existence should be explored further. Breaking the silos between maritime and environmental departments is imperative for a holistic MSP. Regional and cross-regional cooperation (between RSCs) should be strengthened, particularly in the setup of MPAs and OECMs. Regional MS groups, such as the Scheveningen Group and the NWW Member States Group, should consider MSFD implementation in relation to fisheries management.

Ocean governance and climate change are interconnected, requiring engagement and dialogue between researchers, citizens, stakeholders and decision makers. The commercial fishing sector plays an important role in achieving the objectives of the deliverable (GES) for several descriptors, which only strengthens the view of the importance of inclusion of fisheries stakeholders in the management of the marine environment.

It is imperative to strengthen collaborations between the industry and science in order to develop a full picture of the state of environment and to understand the underlying premises for important and necessary trade-offs between nature conservation and resource utilisation.

Advisory Councils, though operating in the framework of the CFP, should be able to reach those environmental policy actors and departments whose work affects the implementation of CFP and the state of fisher communities and fisheries resources. Advisory Councils by default represent both, nature conservation advocates and the fisheries sector and their role should be recognised as overarching.

2.8 Financing

Implementation of the MSFD is a responsibility of the Member States who task national Marine Directors with its management. Marine Directors are dependent on receiving data from different departments with sub-optimal communication levels. The number of individuals working as marine directors and/or directly related to implementation of MSFD is insufficient for an ambitious piece of legislation such as the MSFD. The NSAC and NWWAC believe that the MSFD would benefit from increased resources and capacity building after clear guidelines have been developed.

Financing may come from dedicated and sustainable resources from existing funds such as the EMFAF, where more resources could be directed towards improved implementation and various research programmes. It is essential that this organisational deficit is resolved by means of adequately allocated and enhanced resources. Any financial incentives need to be accompanied with enforcement measures for visible progress.

Increased funding of digitalisation of reporting tools would help improve the collection and transfer of data, make information comparable across borders, upgrade the management of measures such as MPAs and contribute to social sustainability by creating new employment opportunities. This would effectively mitigate delays in reporting and monitoring and help avoid related infringement procedures, which only further delay the process. The MS could share the costs of monitoring more efficiently by establishing better regional cooperation.

3 Conclusions and recommendations

Given the considerations above, the NSAC and NWWAC conclude the following:

1. The current MSFD contains the necessary tools to achieve its main objective - Good Environmental Status - across its eleven descriptors by using the ecosystem-based approach. The Commission should properly assess and address the deficits in implementation by means of existing or planned legislative and non-legislative tools before a revision of the MSFD is undertaken.
2. The Commission should develop a unified, harmonised approach (guidelines) for assessing the attainment of GES even when data is incomplete. Procedures and methodologies for assessments should be unambiguous and aligned throughout regions, and baselines clearly defined.
3. The implementation of the Directive would benefit from a more centralised and harmonised approach to data collection. Drastic increase in knowledge acquisition to set baselines, report on and monitor the trends is required. EU research programmes should be set up, backed by national initiatives, to step up the research and knowledge on the marine environment.
4. Where data is lacking, proportionate measures should be taken, based on best available information and taking into account all three sustainability pillars. In addition, proper and regular assessment of the effectiveness of measures will ensure effective adaptive management. The Commission should put pressure on MS to ensure proper monitoring and reporting.
5. Where scientific capacity is considerable, this does not always translate to timely measures. Particularly in the light of climate change there is a need for effective adaptive management. A cross-sectoral approach and a joint vision are needed in future research endeavour.
6. The Commission should develop concrete and relevant requests to ICES and group these requests to form an ecosystem-based management approach producing multi-species, ecosystem scientific advice as opposed to single-aspect requests producing single-species advice.
7. The digitalisation of reporting tools will help improve the collection and transfer of data, make information comparable across borders, upgrade the management of measures such as MPAs and contribute to social sustainability by creating new employment opportunities.

8. The MS could streamline monitoring by establishing better regional cooperation, by making better utilisation of the existing marine web portal WISE and by requiring existing and new industries to provide data on the impacts of their activities at seas where these are insufficient. Finally, the MS should set up an adequate governance system at regional and national levels by assigning clear responsibilities to competent authorities.

9. Synergies between the MSFD and initiatives adopted or proposed by the Commission under the European Green Deal, including the Biodiversity Strategy, the Zero Pollution Action Plan, the Farm to Fork Strategy, the proposed Nature Restoration Law (NRL) and the Action Plan to conserve fisheries resources and protect marine ecosystems should be increased to integrate sustainability into prominent economic activities impacting the marine environment.

10. The Commission and MS should guarantee that the upcoming Action Plan to conserve fisheries resources and protect marine ecosystems supports strong fisheries management measures in line with the CFP to contribute to reaching GES. Well managed MPAs with well-defined and enforced measures are a key component and should be part of the strategy.

11. Strengthening of the level of international cooperation is key to protecting the marine environment and eliminating or mitigating diverse negative pressures from human activities at sea.

12. To meet the MSFD goals, better integration, coordination and coherence between the MSFD and correlated existing or upcoming legislations and policies are fundamental. Enhanced integration is required across sectors and fields connected to the marine ecosystem to promote sustainability. In particular, the MSFD needs to be better aligned with the Birds and Habitats Directives (BHDs).

13. The implementation of the Data Collection Framework (DCF) regarding data to assess the impact of fisheries on the marine ecosystems should be closely monitored by the Commission, in particular the MS' work plans following the EU multiannual programme, and their implementation annual report.

14. The Commission should provide better guidance and encourage the MS to jointly take conservation measures under article 15 via MS groups such as the Scheveningen group of North Sea MS and the NWW Member States Group and follow up with appropriate actions. Regional cooperation across MS is essential to develop coherent marine strategies and programmes of measures able to tackle in a timely and efficient way the main pressures at seas at the regional or sub-regional level.

15. The Commission should promote the use of RSCs and organisations and MS' strategies as means to reach higher regional coordination. At the same time RSCs should strengthen their cooperation in the form of cross-regional cooperation, where relevant and appropriate.

16. Regarding the EU Strategy on offshore renewable energy, the Commission should ensure that the Marine Spatial Planning Directive (MSP) takes into adequate consideration future infrastructural pressure at sea and actively supports the application of the ecosystem-based approach to every human activity.

17. Due to differing management situations in different sea basins the application of risk-based and adaptive management is needed, recognising the regional differences in information and capacity and highlighting the need to focus on the anthropogenic pressures, particularly climate change, including its mitigation through building renewable energy technologies.

18. The Directive must take on board climate change and for measures there should be specific regulation, not only guidance. A focus on regulation and implementation of measures is needed, as well as coordination and successful monitoring. A European Taskforce on climate change should be established.

19. Blue Carbon should be taken into consideration due to its key role to address climate change. MPAs must remain a key component of any strategy and play a vital role. Finally, more attention should be given to the understanding of the role of fish in blue carbon in terms of how fish influence carbon absorption and sequestration in the ocean by contributing to the biological pump of marine life that moves carbon through the ocean cycle.

20. In MSP, sectoral co-existence should be explored further. The ambitious targets for development of offshore Marine Renewable Energy will mean increasing competition for space with implications for almost all descriptors. A multi-species, multi-sectoral approach should be considered to marine spatial planning (MSP).

21. An important reconciliation needs to be made in terms of resource utilisation to satisfy the increasing need for protein-rich food and nature conservation. Strengthened collaboration between industry and science is key for ensuring environmental, social and economic sustainability.

22. The regional and local authorities should be involved in MSFD implementation from the first stages. This may mean applying local specificities to measures so that the local opportunities and constraints are foreseen and considered and responsibility for measures shared.

23. Breaking the silos between maritime and environmental departments is imperative for a holistic MSP. Regional and cross-regional cooperation (between RSCs) should be strengthened. Regional MS groups should consider MSFD implementation in relation to fisheries management.

24. The commercial fishing sector plays an important role in achieving the objectives of the deliverable (GES) for several descriptors, which only strengthens the view of the importance of inclusion of fisheries stakeholders in the management of the marine environment.

25. Advisory Councils, though operating in the framework of the CFP, should be able to reach those environmental policy actors and departments whose work affects the implementation of CFP and the state of fisher communities and fisheries resources.

26. The NSAC and NWWAC believe that the MSFD would benefit from increased resources and capacity building after clear guidelines have been developed. Any financial incentives need to be accompanied with enforcement measures for visible progress.

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