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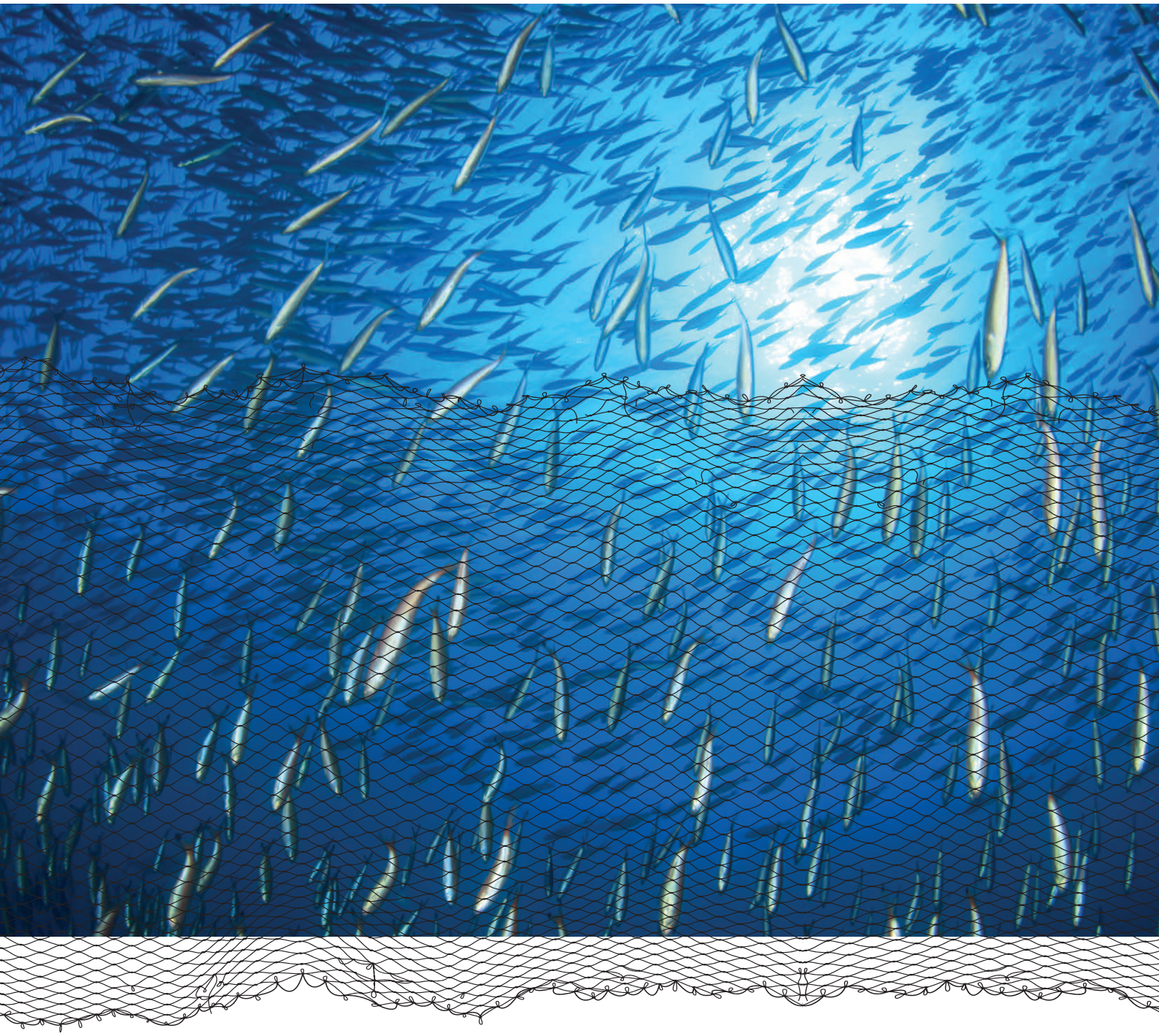

5-year review (2014-2019) of the EU Common Fisheries Policy – summary

BfN Federal Agency for Nature Conservation

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Introduction

Fisheries are a human activity with one of the greatest negative impacts on marine ecosystems and marine biodiversity. The fundamental problems of fisheries in European waters are, amongst others, the unsustainable use of many fish stocks, by-catch of protected species such as seabirds and marine mammals, and the negative effects of bottom trawling on species and marine communities.

To resolve these conflicts between utilisation and protection of the sea, reform of the Common Fisheries Policy (CFP) was adopted in December 2013, entering into force on 01.01.2014. The primary objective of the reform was to make fisheries more sustainable. The harmful effects of fisheries on marine ecosystems should be minimized; sustainable and ecosystem-compatible exploitation of marine biological resources should be made enabled and encouraged.

This publication presents a 5-year assessment of the implementation, effectiveness, and current shortcomings of the CFP. It is a summary of the results of a comprehensive study by the Deutsche Umwelthilfe e.V. (DUH) entitled "5-year (2014-2019) review of the EU Common Fisheries Policy", with the participation of renowned fisheries experts, on the entry into force of the reformed CFP five years ago.

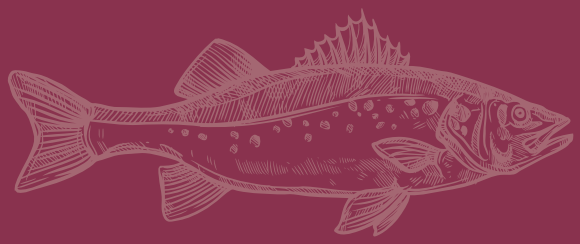
The study looks at, for example, the evolution of European fish stocks, the integration of conservation issues into fisheries, and the interface with the Marine Strategy Framework Directive (MSFD). It also evaluates economic aspects, such as incentives for the fishing industry, and examines to what extent the implementation of the key sustainability targets of the CFP has been successful.

In this publication, the most important results of the above study are presented on the basis of questions such as:

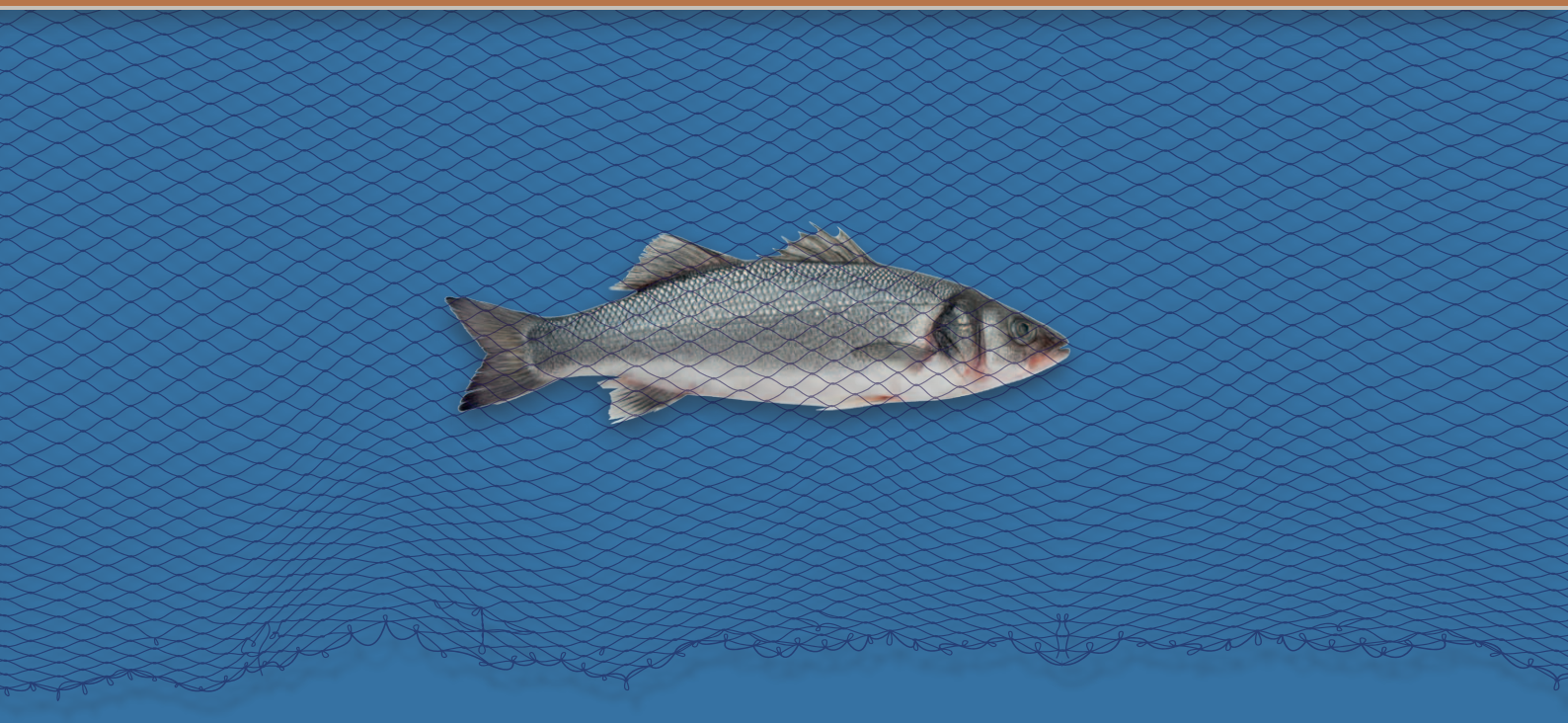
- Have the negative impacts of EU fisheries on marine species (both commercial and protected species) and habitats been reduced?
- To what extent were structural deficiencies identified during the last reform, but not (or only partially) remedied?
- What requirements that could already bring about improvements for marine ecosystems are not being properly implemented? What are the reasons for this?
- How can existing instruments be better understood and given appropriate impact so that the integration of nature conservation concerns into the CFP does not come to nothing?

In addition, specific proposals are made as to how the current implementation of the CFP and the future amended version could be improved. These proposals include measures such as greater attention to MSFs in quota setting, stricter controls on the landing obligation, removal of environmentally harmful subsidies, and implementation of effective fisheries management measures in protected areas.

Finally, the ten most important points for achieving the sustainability goals of the CFP are summarized as a list of demands.



Dr. Markus Salomon | Author



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1. Has there been a reduction in the negative effects of EU fisheries on marine species and habitats?

1.1 Are there improvements in the status of managed fish stocks?

The goal of the 2013 iteration of the regular reforms to the Common Fisheries Policy (CFP) is for fish stocks to regain sizes required for "maximum sustainable yield" (MSY), or for stocks that are above that size to be conserved.

Since the 2013 CFP reform, the status of fish stocks in European waters (North East Atlantic, Mediterranean Sea, and Black Sea) have improved somewhat. For instance, the number of stocks outside safe biological limits fell between 2013 and 2017 from 19 to 17, and the stocks within such limits rose from 27 to 29 (only 46 stocks were included in the assessment) (Section 1.2.3).[1] There was also a slight increase in the biomass of the assessed stocks (see Figure 1, North Sea example).[2] There has thus been progress with respect to the status of fish stocks, but that progress has been extremely slow.

Froese et al. (2018) concluded that of 397 analysed European fish stocks in 2017, half were still outside of safe biological limits (biomass < 0.5 B_{MSY}*).[3] There were also clear regional differences. For instance, the situation for stocks in the Barents Sea and the Norwegian Sea are doing best: 50 % of stocks meet MSY criteria according to Froese et al (2018). The status of stocks in the Mediterranean Sea and the Black Sea, on the other hand, continue to be worrisome: the majority are considered to be overfished. Insufficient data make definitive statements on stock biomasses impossible for either of these seas.

A look at the North Sea and Baltic Sea shows that stocks that are very important economically still have an especially poor status.[4,5] This is true of the two cod stocks (*Gadus morhua*) in the **Baltic Sea** and the herring stock (*Clupea harengus*) in the western Baltic Sea (including the Skagerrak and the Kattegat) (*spring spawners*).[6] The cod stock in the eastern Baltic Sea is outside of safe biological limits (spawning stock biomass SSB < B_{lim}**), meaning that reproductive capacity is impaired and stock recovery endangered.[7,8]

Of the ten Baltic Sea stocks for which an estimate is possible, seven fit the SSB MSY approach (> MSY $B_{trigger}$), but only three of them completely fulfil the CFP criteria (see Art. 2.2 of the basic CFP regulation), meaning that the fishing mortality rate is less than or equal to the target value of F_{MSY}***.[9]

Stocks of cod in the Baltic Sea (Gadus morhua) still in a poor condition

In the **North Sea**, there are minor improvements in fish stock status. For instance, the number of stocks reaching the MSY biomass target rose between 2014 and 2018 from 13 to 29 (Table 1). However, no assessment can be made of 81 stocks due to insufficient data.[10]

B_{MSY}	Spawning stock biomass (SSB) that results from fishing at F_{MSY} for a long time
B_{lim}	Reference point for spawning stock biomass (SSB) that must in no case be undercut so that a stock's reproductive capacity is not compromised
$B_{trigger}$	Spawning stock biomass triggering a specific management reaction. In the context of MSY, this is the lower limit of the ranges around B_{MSY}
F_{MSY}	Reference point for fishing mortality (F) consistent with achieving MSY

1 *Scientific, Technical and Economic Committee for Fisheries (STECF) (2019).*
2 *Ibid*
3 *Froese, R. et al. (2018).*
4 *ICES (2018a).*
5 *ICES (2018b).*
6 *ICES (2018a).*
7 *ICES (2018c).*
8 *Froese, R. et al. (2018).*
9 *ICES (2018a).*
10 *ICES (2018b).*

North Sea	2014	2015	2016	2017	2018
Number of stocks achieving biomass target[1]	13	25	26	16	29
Number of stocks missing biomass target[2]	2	12	11	9	9
Status unknown	95	83	81	93	81

[1] = Stock biomass (SSB) > MSY $B_{trigger}$
[2] = Stock biomass (SSB) < MSY $B_{trigger}$
Data source: (ICES 2018b).

Tab. 1: Number of stocks in the North Sea achieving or missing the MSY biomass goal.

Moreover, among the stocks that have developed positively, there are some that are too heavily exploited. Only 18 stocks have so far completely fulfilled the CFP criteria cited above (see also Section 1.5).

Overall, there are minor improvements in the status of commercially exploited fish stocks in European waters, including the North Sea and the Baltic Sea. The status of individual stocks that are of particularly great economic importance is especially problematic.

1.2 Will the target MSY be reached by 2020? Is it even possible to achieve the targets for all stocks?

In addition to the biomass goal, the CFP stipulates that by 2015 or 2020 at the latest, the degree of stock management will be adapted to the MSY goal. The fishing mortality rate is thus not to exceed F_{MSY}. In order to achieve the biomass target, however, the threshold must be lower, so that a fishing mortality of 0.9 F_{MSY}, for example, may not be exceeded.[11,12]

In the 2015 target year, the MSY target was clearly missed.[13] Minor progress can be seen in the determination of catch limits ("quotas"), so that the number of stocks whose total allowable catch limits (TACs) are above the MSY target (F_{MSY}) is falling steadily (see Figure 1 and Section 1.2.3).

A fundamental condition of stock improvement is to follow scientific recommendations when setting TACs. This condition is still not being met.[14] For instance, TACs in 2019 deviated from the scientific recommendations in about 40 % of cases.[15,16]

For North Sea stocks, the average fishing mortality rate for various commercially exploited stocks has fallen in the past few years and is now less than or equal to the F_{MSY} reference value for more than half of stocks for which a determination can be made. For the majority of stocks, however, there was no reference value (Fig. 1).

Baltic Sea management, too, fails to meet the CFP targets. In 2018, the fishing mortality rate for half of the assessed stocks was above this value (< F_{MSY}) (Fig. 1).

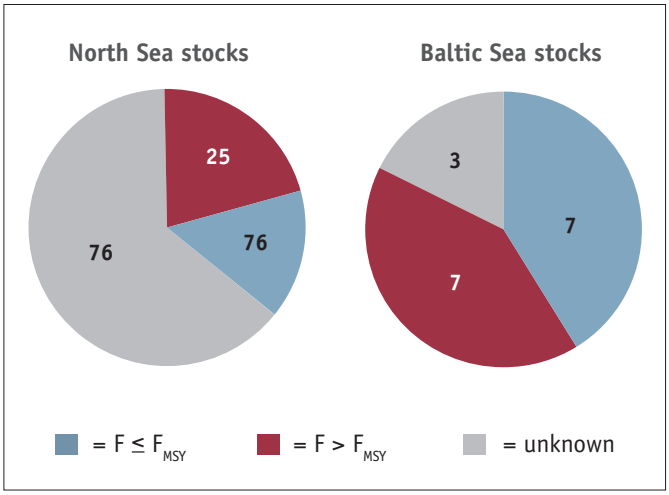

Fig. 1: Fisheries pressure on the North Sea and Baltic Sea stocks in 2018: Number of stocks for which the fishing mortality rate (F) is less than or equal to the reference value (F_{MSY}) = green, F > F_{MSY} = red. Grey is the number of stocks for which no reference value could be determined. Source: ICES (2018a), ICES (2018b).

The extent to which biomass (SSB) of the stocks whose status is not good can grow to a size that meets the MSY approach (> B_{MSY}) is uncertain, as is the time it will take for that to happen. For one thing, for most stocks data on biomass sizes are not available to allow such an estimate to be made. For another, there are other factors besides fisheries pressure, including availability of food, that play an important role. [17]

11 German Advisory Council on the Environment (Sachverständigenrat für Umweltfragen – SRU) (2011).
12 Froese, R. et al. (2011).
13 STECF (2018a).
14 Poseidon Aquatic Resource Management Ltd (2017).
15 Council of the European Union (2019).
16 The PEW Charitable Trusts (2019).
17 See the example of the Baltic Sea cod: Zimmermann, C. & Krumme, U. (2015).

There is noticeable progress in setting sustainable catch limits, but it is being made too slowly for the 2020 CFP targets to be reached. For this reason, it is urgently necessary that a decisive change of course be made in catch limits setting so that all of them, without exception, comply with the CFP and MSFD targets.

1.3 Has fisheries selectivity improved?

The introduction of a landing obligation for important commercial fish species is among the significant innovations initiated with the last CFP reform. Its implementation was incremental via discard plans that the Commission ratified in the form of delegated regulations.[18] Since 2015 and 2016, respectively, a landing obligation has been in force for the North Sea and the Baltic Sea. The progress that has so far been made has not been finally assessed. Nevertheless, the Scientific, Technical and Economic Committee for Fisheries (STECF) report for 2018 reached the conclusion that fisheries practices in the Baltic Sea in particular had not adapted sufficiently to the landing obligation, especially with respect to the use of selective fishing techniques.[19] The data for cod stocks in the two domestic seas indicate that violations are still widespread.[20,21]

The noticeable progress towards greater selectivity with respect to bycatch of endangered species (especially marine mammals and sea birds) is even slighter (see Section 1.5). The risk of harbour porpoise (*Phocoena phocoena*) and diving sea birds drowning in gillnets and entangling nets is high. One technical solution to protect whales that fisheries management keeps proposing is acoustic deterrent devices (pingers). However, because of their deterrent nature and the fact that they are a source of irritating noise for marine mammals, they are to be rejected, especially in protected areas, from the perspective of nature conservation.[22,23] **Moreover, controls and bycatch monitoring is insufficient or non-existent. It is imperative that this must be changed (see Sections 3.9 and 4.3)**.

Alternatives to gillnets are currently being assessed as part of the STELLA project (gillnet fisheries approaches, undertaken by the German Federal Agency for Nature Conservation (Bundesamt für Naturschutz, BfN) and the Thünen Institute of Baltic Sea Fisheries (Thünen Institut für Ostseefischerei, TI-OF)).[24] For greater fisheries selectivity, it is necessary to create incentives for fishermen to test these alternatives and use them. One incentive might be privileged access to certain fishing areas (see Section 5.3.1). Ideally, fishermen should contribute actively to developing environmentally-sound fishing methods, adding their own suggestions. A major advantage of this would be testing the practicability of measures in daily fishing practice and promoting their acceptance.

The reformed CFP's goal of increasing selectivity of fishing practices and fishing gear has so far not been sufficiently achieved. This is especially true with respect to non-target species such as sea birds, marine mammals, and a large number and variety of organisms that live close to the seabed. From the perspective of nature conservation, a more effective implementation of the landing obligation and more intensive research into alternative fishing gear and modification of existing gear is necessary. If promotion and use of environmentally-sound fishing techniques in practice is to increase, incentive systems and legal requirements must be created.

Harbour porpoise (Phocoena phocoena) – victim of bycatch

1.4 Is there noticeable progress towards an ecosystem-based management approach?

Determining whether there is progress towards ecosystem-based stock management requires looking at the relevant descriptors in the MSFD. There is an obvious connection to Descriptor 3, which says that all commercially exploited fish and shellfish should be within safe biological limits (see Section 4.1.2). In 2012, the German federal government described good environmental status for this descriptor with respect to the German North Sea waters as follows: "for all commercially exploited fish and shellfish populations (...) the fishing mortality rate is not greater than the relevant target value (F_{MSY}), the spawning stock biomass (SSB) is greater than MSY $B_{trigger}$, and the stocks of exploited species exhibit an age and size structure that continues to include all age and size classes approximating natural proportions."[25] Concerning the status

18 *European Commission (N.D.).*
19 *STECF (2018b).*
20 *See, for example, the Thünen Institute of Baltic Sea Fisheries (2018).*
21 *ICES (2018c).*
22 *SRU (2012).*
23 *Carlström, J. et al. (2009).*
24 *Thünen Institute (N.D.).*
25 *German Federal Government, Freie Hansestadt Bremen, Freie und Hansestadt Hamburg, Mecklenburg-Vorpommern, Niedersachen, Schleswig-Holstein (2016).*

of fish stock management, reference is made to the explanations above (see Section 6.1.2). **Even after the 2013 CFP reform, continued high fisheries pressure hinders stock recovery and the achievement of a natural age and stock structure.**[26,27]

Other important MSFD descriptors that have close ties to the ecological impacts of fisheries activity deal with the food web (Descriptor 4), biological diversity (Descriptor 1), and seabed integrity (Descriptor 6) (see Section 4.1.2). Achievement of the targets formulated for these descriptors is connected to the CFP. For instance, one of the goals is to establish multi-species management (see Art. 9 of the basic CFP regulation). Such a goal serves to take interactions of exploited species (especially predator-prey relationships) into account in stock management. From a nature conservation point of view, it is necessary to take the food needs of protected species such as sea birds and marine mammals into account. These species sometimes need the same fish species as a food source as those exploited by industrial fisheries (sand eels, sprats, etc.). This means that food webs must be considered in the management process. This is an important step in the direction of an ecosystem-based approach.[28] Implementation within the framework of the CFP is via multiannual plans. An example of this is the multiannual plan for the Baltic Sea,[29] which is based on ICES recommendations. It only affects fisheries targeting stocks of cod, herring, and sprat, summarizes existing obligations, and stipulates target values for fishing mortality rate and spawning stock biomass. Multiannual plans should contribute fully to reaching CFP goals in 2020 and thus to causing the fishing mortality rate to fall below F_{MSY} for all stocks and the landing obligation to be implemented. In this respect, the multiannual plan for the Baltic Sea, for instance, exhibits gaps in the target values. Another point of criticism is that, so far, multiannual plans have been established for few commercially important stocks.[30]

Marine protected areas are a central instrument for preserving biodiversity (MSFD Descriptor 1), especially for protected species and habitats. This includes seabed integrity (MSFD Descriptor 6), which will be addressed in the next section (Section 6.1.5). If in marine protected areas fisheries is greatly or completely restricted fisheries (no-take zones), there is a chance for stocks to develop naturally once more, which benefits fisheries by such means as spillover effects (adult or juvenile fish leave the protected area because of population density, thus contributing to supporting managed stocks outside the boundaries of the protected area).[31]

Overall, the first important steps towards ecosystem-based management of marine biological resources have been taken, such as the introduction of multiannual plans and the landing obligation. To achieve the MSFD and CFP goals, however, further steps must be taken. They include such measures as greater consideration for food webs when multiannual plans are prepared and the systematic implementation of marine protected areas.

1.5 Can sensitive habitats and species requiring special protection be better protected?

Within the framework of the Habitats and Birds Directives, a number of marine protected areas have been set up to protect sensitive marine habitats and species that require special protection. In September 2017, Germany designated its Natura 2000 areas in the Exclusive Economic Zone (EEZ) as legally binding marine protected areas.[32] Fisheries activities present the greatest threat to species and habitats occurring there.[33,34,35,36] In order to improve or conserve the status of habitats (especially reefs and sandbanks) and species (especially marine mammals, sea birds, certain fish species, and lampreys) in the marine protected areas, management measures are necessary for fishing activity. Germany cannot unilaterally limit commercial fisheries in the protected areas, since that can only be done within the framework of the CFP (Arts. 11 and 18 of Regulation No. 1380/2013) via EU Commission delegated regulations (Section 2.3.2). Member states can coordinate with affected states sharing the marine regions to prepare joint recommendations. So far (as of May 2019), coordinated recommendations for fisheries management measures have been submitted to the EU Commission only for the Natura 2000 areas in the German EEZ in the North Sea. They contain a no-take zone and various restrictions on commercial fisheries.[37,38]

26 *ICES (2018b).*
27 *For details, see the impacts of fishery on stock composition in: Kraus, G. & Diekmann, R. (2018).*
28 *See, for example, ICES (2018d).*
29 *REGULATION (EU) 2016/1139.*
30 *European Commission (N.D.).*
31 *Gell F.R. & Roberts C.M. (2003).*
32 *See Salomon M. & Schumacher J. (2018).*
33 *Sell, A. et al. (2011).*
34 *Bellebaum, J. (2011).*
35 *SRU (2012).*
36 *Kraus, G. & Diekmann, R. (2018).*
37 *German Federal Government (2018)*
38 *German Federal Ministry of Food and Agriculture (Bundesministerium für Ernährung und Landwirtschaft, or BMEL) (2019).*

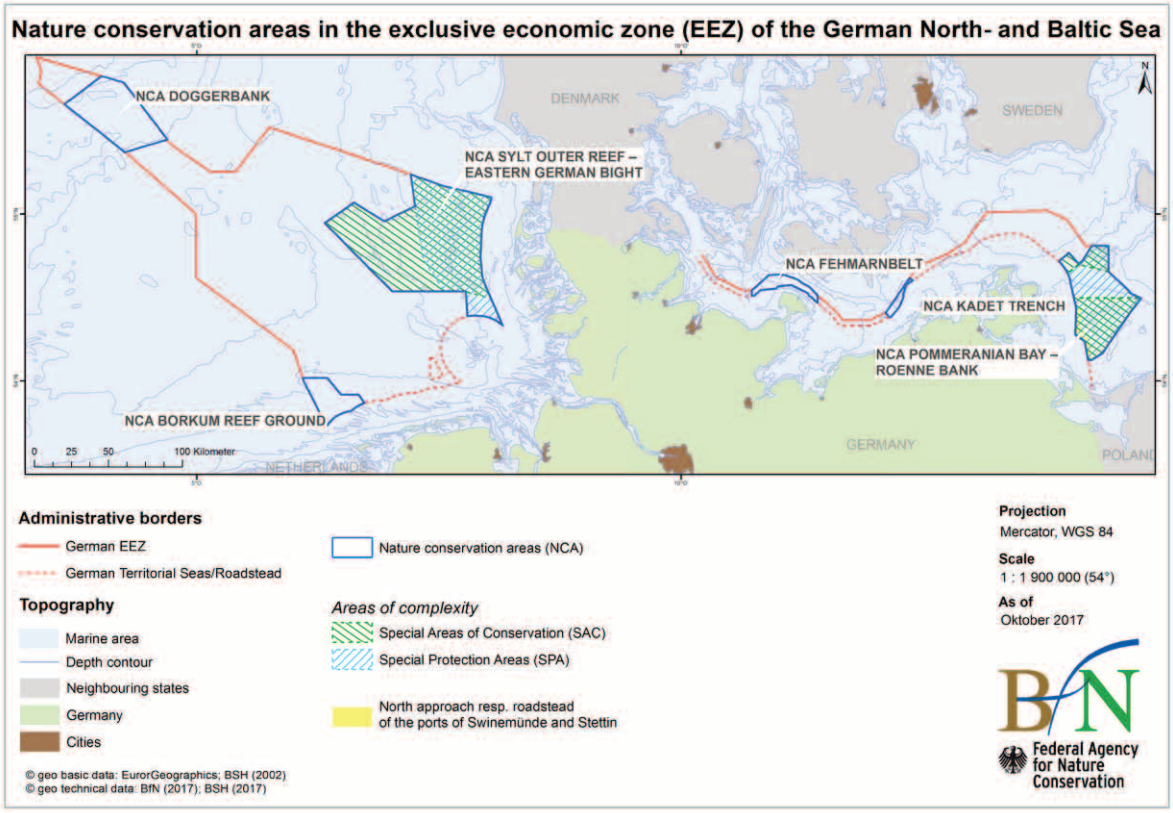

Fig.2: Nature conservation areas in the German North Sea andBaltic Sea EEZ. BfN (2017)

The joint recommendation was weakened in the final Scheveningen Group negotiation process by the economic fisheries interests of individual member states and, from a nature conservation point of view, contains several deficiencies. **For instance, the recommendation continues to countenance the use of gillnets (limited to the average fisheries intensity of the last six years) in the protected areas of Dogger Bank (Doggerbank), Borkum Reef Ground (Borkum Riffgrund) and Sylt Outer Reef (Sylter Außenriff), even though these Natura 2000 areas also serve to protect marine mammals (especially harbour porpoise).** Gillnet fishing is especially dangerous to these animals.[39] Moreover, not all parts of the Natura 2000 area of Sylter Outer Reef will be free of damaging trawling; the site is home to the sandbank and reef Habitats Directive habitat types according to the Habitats Directive and species-rich gravel, coarse sand, and shell substrate areas ("Kies-, Grobsand- und Schillgründe" (KGS), a special habitat type outlined in § 30 of the German Federal Nature Conservation Act (Bundesnaturschutzgesetz)).

Another point of criticism is that no draft fisheries management measures were published for protected areas in the German EEZ in the Baltic Sea until 2019, and the recent proposal regulated only mobile bottom-contacting fishing gear to protect habitats on the seabed.[40] What is missing are management measures for gillnet fishing. This is particularly worrisome with respect to harbour porpoise, which are split into two sub-populations in the Baltic Sea. The conservation status of the western population is moderate, while that of the eastern is very poor (unfavourable-bad in the language of the Habitats Directive).[41] Gillnet fishing is a big reason for this[42] and should be banned at least in the protected areas. There is urgent need for action, especially to help the harbour porpoise sub-population in the central Baltic Sea, which is in danger of extinction. This need for action goes beyond fisheries management for the protected areas since, according to the ASCOBANS agreement[43] and the Habitats Directive, Germany is obligated to implement an action programme for all its marine waters to conserve the harbour porpoise. There are comparable requirements for the protection of resting and wintering sea birds in the Pomeranian Bay Nature Reserve (Schutzgebiet Pommersche Bucht). Sea ducks, auks, and divers under special protection are susceptible to bycatch in gillnets, which indicates an acute need for action.[44] This means that conservation measures that affect fisheries are urgently necessary inside and outside of protected areas.[45]

It has been established that the implementation of the CFP has so far not contributed to ensuring effective protection of sensitive habitats and species in German marine waters.

39 *OSPAR Commission (2017).*
40 *German federal government (2019).*
41 *HELCOM Red List Marine Mammal Expert Group (2013).*
42 *Sell, A. et al. (2011).*
43 *ASCOBANS (2009).*
44 *Sonntag, N. et al. (2012).*
45 *SRU (2012).*

The procedure according to Articles 11 and 18 that has so far been used has proven unsuitable for initiating timely, efficient fisheries management in designated marine protected areas. The process of implementing fisheries management measures in the protected areas is, moreover, very greatly influenced by short-term economic interests of the fisheries industry. It is therefore necessary that the nature conservation requirements receive a much higher priority when management measures are developed.

2. To what extent have structural deficiencies been named, but not (or only partially) corrected, in the last reform?

The green paper on the CFP, which the EU Commission published in 2009,[46] identified the following five decisive weaknesses of the CFP:

1. a deeply rooted problem in fleet overcapacity;
2. imprecise policy goals that lead to inadequate guidelines for decisions and their implementation;
3. a decision-making system that promotes short-term thinking;
4. a framework in which the fisheries industry is not held sufficiently accountable;
5. insufficient political will to enforce requirements and insufficient compliance on the part of the fisheries industry.

The extent to which these weak points in the current CFP reform have been corrected will be addressed below.

2.1 Fleet overcapacities

One of the core problems of European fisheries policy before the CFP reform was fleet overcapacities, some of them substantial.[47] These overcapacities are not a problem for marine conservation per se as long as relevant standards for protecting stocks and ecosystems are established and implemented. But overcapacities lead to inefficiencies, posing an economic challenge. In the past, fleet overcapacities have also been responsible for great political pressure to raise catch limits to levels higher than could be countenanced from the perspective of sustainability and nature conservation. At the same time, they increase pressure on fish stocks for which there are no catch limits and contribute to exploitation of loopholes in enforcement. Fleet overcapacities in conjunction with other factors, accordingly, pose an ecological problem.

Measures for reducing fleet overcapacities that were taken before the last CFP reform as part of structural policy proved to be largely ineffective.[48,49] Responsibility for adapting fishing capacity is with the member states.[50] Under the reformed basic CFP regulation (see Art. 22), those States are obliged to identify overcapacities, report them, and reduce them by means of action plans. In the meantime, some progress has been made in this area.[51] There have been relevant fleet adjustments, but they are still insufficient. For example, the current STECF report's description of sustainable stock use in the North East Atlantic indicates that there are still overcapacities in many fleet segments. Because there is insufficient data, no general conclusions could be reached.[52] Need for action in adapting fleet capacities is especially great in the Mediterranean Sea.[53]

Even though German fisheries overcapacities have been lower than those in several other member states in the past, most fleet segments (such as small gillnet and trawl net fisheries for cod in the Baltic Sea) still exhibit a lack of balance between fisheries policy targets and fishing capacity.[54] For this reason, Germany is obligated to take further measures to adapt capacities.

Fleet overcapacitiy is still driving overfishing

46 *European Commission (2009).*
47 *Ibid.*
48 *SRU (2011).*
49 *European Court of Auditors (2011).*
50 *Salomon, M. et al. (2014).*
51 *European Commission (2016).*
52 *STECF (2018c).*
53 *European Commission (2016).*
54 *STECF (2018c).*

2.2 Imprecise policy goals

The EU Commission was of the opinion that clear priorities are necessary in fisheries policy objectives. For instance, the old CFP Regulation (EC) No. 2371/2002 formulated the goal of managing living aquatic resources in the interest of economic, ecological, and social sustainability.[55] Ecological sustainability was understood to mean no danger to future use of the stocks and no negative impacts to the marine environment.[56] To this end, the ecosystem approach was to be introduced incrementally. These targets were welcome from a nature conservation point of view, but did not result in corresponding binding obligations. For example, the definition of sustainable stock use did not prevent the Fisheries Council from prioritizing short-term economic interests over ecological ones, and thus over long-term economic interests as well.[57] To counter these tendencies, high priority must be given to ecological goals and considerations in fisheries policy in future. **The reformed CFP made the goals much more precise. However, such efforts as the process of setting catch limits since the reform (Section 6.1.2) have clearly shown that achieving ambitious goals requires not only that they be precisely formulated, but that they apply without exception and that the political will to implement them is present**.

2.3 Deficiencies in the decision-making system

Two significant weaknesses in the decision-making system of the old CFP Regulation (EC) No. 2371/2002 were that all decisions were made at the highest political level by the Fisheries Council, which governed policy implementation to the smallest detail (down to establishing certain fishing techniques in individual fisheries).[58,59] This concentration of decision-making in the Council shows that member states do not wish to relinquish responsibility for the number of fish that are caught or the means to catch them. This also favours focusing CFP implementation on short-term economic interests because the fisheries ministers traditionally place great emphasis on pursuing such interests. The ratification of the Treaty of Lisbon, which gave the EU Parliament more influence on the CFP, partially corrected this system. **For instance, Parliament must now be involved in a number of decisions. However, Parliament has no influence on the setting of annual total allowable catch levels (Art. 43 Para. 3 of the TFEU)**. This exception to ordinary legislative procedure (according to Art. 43 Para. 2 of the TFEU) is justified only if the Commission and the Council implement the targets in the basic CFP regulation when they set catch limits. If they deviate from those objectives, the Parliament must be involved. This underscores the fact that the Council and the Commission must pursue the CFP objectives. For example, after 2020, no catch limits that are above scientific recommendations can be established, in compliance with the targets in Art. 2 of the basic regulation.

More responsibility should be shifted to the regional level, especially for technical standards, so that micromanagement can be adapted more closely to special local conditions. As shown in Section 6.2.4 and elsewhere, further steps are necessary here.

2.4 Insufficient transfer of responsibility to the fisheries industry

An important standard for measuring CFP success is the extent to which the fisheries industry accepts the CFP objectives and supports the implementation of CFP goals. Without this acceptance, no sustainable fisheries can be implemented. Under the old CFP, fisheries' awareness of its responsibility was clearly deficient. One important reason for this was the top-down approach which had the Fisheries Council making all decisions down to the last detail and scarcely allowing fisheries to take any responsibility themselves. There were also hardly any procedures established for participation by the fisheries industry or other interest groups. [60,61] This deficiency was corrected when the regional fisheries advisory councils were created in 2004.[62,63] From the point of view of nature conservation, it is unfortunate that the composition of fisheries advisory councils was clearly dominated by fisheries interests.[64] **One option for improving involvement would be to establish self-management systems. The determination of method and measures, including technical measures, used to meet targets could be left to fisheries**.[65]

The new CFP represents an attempt to take initial steps in this direction by giving member states competences in specifying management plans and technical targets, primarily in cooperation with each other. Member states with direct fisheries management interests are empowered to send jointly agreed-upon recommendations to the EU Commission after the regional fisheries advisory councils have been consulted. Associated with this procedure, expert groups have been formed under the regional committees (Scheveningen Group, BALTFISH) to assume the task of preparing recommendations for technical measures (see Section 2). Individual fisheries management recommendations for marine protected

55 *Art. 2(1) REGULATION (EC) No. 2371/2002.*
56 *Art. 3(e) of Council Regulation 2371/02.*
57 *Markus, T. & Salomon M. (2012).*
58 *European Commission (2009).*
59 *Salomon, M. et al. (2013).*
60 *See, for instance, Defra (Department for Environment, Food and Rural Affairs) (2009).*
61 *O'Mahony, J. (2008).*
62 *Council of the European Union (2004).*
63 *Ingerowski, J. B. & Salomon, M. (2006).*
64 *See, for example, North Sea Advisory Council (NSAC) (N.D*
65 *European Commission (2009).*

areas agreed upon by the member states have already been sent to the EU Commission and implemented in the form of delegated acts.[66] The measure proposals for protected areas in the German EEZ that Germany submitted have been deemed by the Commission to be insufficient and must be revised. As has already been mentioned, member states have no decision-making competence and can only make requests for fisheries measures to the EU Commission in mutual agreement with the fisheries nations affected.

The reformed CFP represented a beginning (although a hesitant one) to reducing centralization and involving fisheries in the decision-making process.[67] Other interest groups, in particular environmental and conservation associations, are not sufficiently involved. More competence should be transferred to the member states, especially with respect to fisheries management measures in protected areas, in order to accelerate the implementation processes and prevent individual member states from weakening measures.

2.5 Insufficient enforcement and a culture of ignoring legal requirements

In the past, insufficient enforcement has been part of the CFP's Achilles heel. The EU has constantly attempted to reduce this deficiency.[68] One reason that doing so is the constant conflict between member states and the EU over the extent to which it is necessary to ensure or expand monitoring and sanctioning of violations. Because member states were primarily responsible for enforcing the CFP and not always convinced of its importance, deficiencies continued to appear. On top of that, the Commission scarcely had any competence to sanction violations, and there was insufficient personnel to check implementation of monitoring tasks in member states. The Commission strongly criticized the practice that existed at the time, and as a result initiated a process for revising the monitoring and enforcement system in 2008.[69] This process allowed some progress. However, the revision of the system established in 2009 also showed that there continues to be an urgent need for action and that this process has not yet been completed (see Section 3).

Improvement to monitoring of fisheries activities and sanctioning of violations is urgently necessary (Section 6.4.5). In particular, there are especially great deficiencies in monitoring small fishing vessels and violations of the discard ban.

66 *Janiak, K. (2018).*
67 *Salomon, M. et al. (2014).*
68 *Johnson, C. (2008).*
69 *Schmidt, K.-A. (2019).*

3. What goals that could improve the marine ecosystem in short order are not being properly implemented? What are the reasons for that?

3.1 TACs setting deviates from the MSY approach

As has already been mentioned, setting of catch limits is still deviating from the MSY approach. According to the basic CFP regulation, this practice must be ended by the time total fishing levels are established for 2020 so that stocks can grow back to sizes that allow management according to the ecosystem approach (even though they will now do so after the legal deadline). A reversal in management of cod stocks in the extended North Sea (including the channel and adjacent waters) and the Baltic Sea is especially urgent. To ensure these changes, all TACs without exception must remain below F_{MSY} in future. Exceeding this value stands in clear conflict with the CFP targets. If the F_{MSY} value cannot be determined, a precautionary approach with respect to the MSY approach must be taken. But this still does not achieve the goal of healthy stocks. In addition to sustainable total fishing levels, the relevant stock compositions must have an age and size structure that approaches what would be expected under natural conditions.

The decisive reason for catch limits that are too high continues to be the dominance of short-term economic interests. These interests still play an outsized role in Fisheries Council decisions. Changing this will require forcing the Council to more closely adhere to CFP requirements and implementing the mandatory MSFD targets. One way of legally requiring this at the EU level would be to expand the right of influence for conservation interests by such means as expanding the right of action (see Section 6.5.4).

3.2 Insufficient consideration given to conservation concerns in national quota allocation

The German Federal Office for Agriculture and Food (Bundesanstalt für Landwirtschaft und Ernährung) (BLE) is responsible for the allocation of fishing quotas in Germany.[70] This distribution can also be used to mandate environmentally-sound fisheries behaviour. One option is to reserve part of the quotas for certain

70 *German Federal Office for Agriculture and Food (Bundesanstalt für Landwirtschaft und Ernährung, or BLE) (2018).*

concerns such as targeted promotion of fisheries segments that specifically use low-impact fishing methods (such as traps or weirs) or subject themselves to enhanced surveillance via remote monitoring. So far, the BLE has allocated catch quota according to the principle of relative stability (the percentage represented by a given fisherman's quota must remain constant), even though other concerns could also be taken into account.[71] **From a conservation point of view, ecological criteria should receive more consideration when catch quotas are granted. For instance, fisheries businesses using gear that avoids bycatch could be granted higher quotas.**

3.3 Landing obligation implemented too slowly

As of February 2019, the landing obligation applies to all fisheries and sea areas (see Section 6.4.6). Initial experiences with the landing obligation indicate that it is being insufficiently complied with. One important reason for this is that no effective monitoring system has so far been established. Improvements in monitoring are urgently necessary. New monitoring instruments and techniques (such as cameras on fishery vessels and sensors that capture such values as trawling speed and net fill) must be employed (see Section 3).

3.4 No effective fisheries management in marine protected areas

In 2017, Germany legally designated its Natura 2000 sites in the German EEZ as marine protected areas.[72,73,74,75,76,77] The protected area regulations govern human activity except for commercial fisheries in those areas. The preparation of management plans for fisheries is urgently necessary. As has been mentioned, recommendations for the protected areas in the North Sea and for trawling in the Baltic Sea have been agreed upon (Section 6.1.5). **The protection of marine mammals and diving sea birds urgently requires that a proposal for gillnet fisheries management in protected areas in the German EEZ in the Baltic Sea be prepared and implemented.**

As part of implementing the MSFD in Germany, no-take zones are to be established to serve functions including providing reference areas (see MSFD Recital 39), protecting species, habitats, and ecological processes.[78] So far there are no no-take zones in the German EEZ, and only a small part of the Amrum Bank (about 25 % of the area, or about 22 km²) is intended for such areas.[79]

From a conservation perspective, it is necessary to create areas in which no human use, including fisheries, is permitted (no-take zones) that are large enough to achieve the MSFD conservation goals with respect to the food web (Descriptor 4), biodiversity (Descriptor 1), and seabed integrity (Descriptor 6).

Large marine protected areas are much-needed

71 *Vollmer, K. (2017).*

72 *Regulation for the establishment of the Borkum Reef Ground conservation area (Verordnung über die Festsetzung des Naturschutzgebietes "Borkum Riffgrund", or NSGBRgV).*

73 *Regulation for the establishment of the Kadet Trench conservation area (Verordnung über die Festsetzung des Naturschutzgebietes "Kadetrinne", or NSGKdrV).*

74 *Regulation for the establishment of the Sylt Outer Reef- Eastern German Bight conservation area (Verordnung über die Festsetzung des Naturschutzgebietes "Sylter Außenriff- Östliche Deutsche Bucht", or NSGSyiV).*

75 *Regulation for the establishment of the Dogger Bank conservation area (Verordnung über die Festsetzung des Naturschutzgebietes "Doggerbank", or NSGDgbV).*

76 *Regulation for the establishment of the Pomeranian Bay- Rønne Bank conservation area (Verordnung über die Festsetzung des Naturschutzgebietes "Pommersche Bucht - Rönnebank", or NSGPBRV).*

77 *Regulation for the establishment of the Fehmarn Belt conservation area (Verordnung über die Festsetzung des Naturschutzgebietes "Fehmarnbelt", or NSGFmbV).*

78 *Bundesregierung, Freie Hansestadt Bremen, Freie und Hansestadt Hamburg, Mecklenburg-Vorpommern, Niedersachen, Schleswig-Holstein (2016).*

79 *German federal government (2018).*

4. How can existing instruments be better supported and given appropriate effectiveness so that the integration of nature conservation issues into the CFP does not come to nothing?

4.1 Orient scientific advice more precisely towards CFP and MSFD targets

The scientific recommendations prepared by the International Council for the Exploration of the Sea (ICES) and STECF are the decision-making basis for sustainable stock management. These recommendations must follow the CFP goals. One of the essential goals of the CFP is for fish stocks to achieve a biomass that is higher than that which allows a MSY. Scientific advice should be especially focused on how stocks that still need to grow to this size can do so. The reference point for this endeavour is B_{MSY}, the biomass a fish stock must achieve so that it can allow MSY in the long term. So far, ICES has provided a B_{MSY} value for few stocks, though the number of stocks for which that value is available is growing slowly. Instead, a value for MSY $B_{trigger}$, the lower limit of the fluctuation range around B_{MSY}, is indicated (see box below), and the value for B_{pa} (precautionary reference point for the spawning biomass, see Section 1.1) is used as a proxy for MSY $B_{trigger}$. In 2016, the latter was used for 66 % of 50 stocks assessed with respect to the MSY approach.[80] For some of them, both values are clearly below the target B_{MSY} value.

Criticism of the basics of catch limit determination

The decisive sizes for checking the CFP targets are B_{MSY} for stock size and F_{MSY} for fisheries pressure (or the fishing mortality rate) if these values can be determined. Because there is often no value for B_{MSY}, conclusions about other quantities such as B_{pa} and/or MSY $B_{trigger}$ are drawn, but those quantities are generally less than B_{MSY}. Moreover, a range ($F_{MSY\ ranges}$*) is indicated in some cases in addition to F_{MSY}.[81] But the top end of $F_{MSY\ ranges}$ ($F_{MSY\ upper}$) is much higher than F_{MSY}. Orienting on the top end of the $F_{MSY\ range}$ when setting catch limits contributes to allowing too many fish to be caught and preventing the CFP targets from being reached in the near future. That is why the reference points used as the basis for setting catch limits are only marginally suitable, since they do not (or at least not completely) conform to the CFP targets.

Future stock management requires greater orientation on B_{MSY} than there has previously been or the use of proxies that credibly approximate B_{MSY}. There are proposals for such proxies that could be taken up.[82,83] For instance, a simple option would be to use the value for B_{pa} (the "old" precautionary reference point which, as has been mentioned, is often available) multiplied by two. Otherwise, the impression could be given that achieving a stock size of MSY $B_{trigger}$ is the equivalent of achieving the CFP target – and that is not the case. Moreover, it is necessary for spawning stock biomass (SSB) data to be available. It has been available for only part of the stocks – in 2016, for only one third of the managed stocks in the North East Atlantic.[84] **That is why it is important to determine the stocks for which further data basis improvement is possible and the measures necessary for that improvement.**

ICES is now also preparing recommendations for multi-species management; these recommendations are very important for a stronger ecosystem-based approach to stock management. Here, the scientific recommendations go so far as to contradict the CFP requirements: For instance, it is recommended that cod and saithe (pollack) be fished to a slightly greater extent in the North Sea than the MSY target specifies (grant quotas that are more than F_{MSY}) to reduce predation on prey species such as whiting (*Merlangius merlangus*).[85] An approach that violates the rules to this extent could not be justified.

What is needed are recommendations on how to achieve the MSFD goal of conserving stocks with mixed, nearly natural age and size structures. Recommendations for the relevant indicators have already been prepared.[86] ICES is currently assessing stocks based on only two of the three MSFD criteria. These criteria are used to determine the "good environmental status" of a stock or population.[87]

4.2 Continue to reduce fleet overcapacities

The EU-wide adaptation of fleet capacities to fishing opportunities has not yet been completed. As has been mentioned, there are overcapacities in individual fisheries segments in Germany, too.[88] The German action plan for the 2017 fleet report contains a number of measures that would serve to implement further balancing.[89] For instance, money from the EMFF (European Maritime and Fisheries Fund) for modernizing the fleet is being linked to reducing capacities, a shift of fishing capacity from the Baltic Sea

80 *Poseidon Aquatic Resource Management Ltd (2017).*

81 *ICES (2018e).*

* *$F_{MSY\ ranges}$ – Range of fishing mortalities (F) that lead to an average catch of at least 95 % of MSY in long-term simulations.*

82 *See Froese, R. et al. (2016).*

83 *Poseidon Aquatic Resource Management Ltd (2017).*

84 *Ibid.*

85 *ICES (2018b).*

86 *ICES (2017).*

87 *ICES (2018b).*

88 *STECF (2018c).*

89 *German Federal Office for Agriculture and Food (Bundesanstalt für Landwirtschaft und Ernährung, or BLE) (2018).*

to the North Sea is planned, and public funds are being provided to scrap fishing vessels in fleet segments with overcapacities. Moreover, efforts are being made for fisheries businesses to focus on fishing healthy stocks, refrain from exhausting all quotas, and exchange quotas. The latter helps the fisheries to better take advantage of their quotas. One of the goals is a shift of quotas to coastal fisheries so that its quota endowment and thus its fishing capacity is improved. Marketing measures are being promoted to support fishermen. **The measures cited are welcome, but it remains Germany's responsibility to assess whether they will cause fleet capacities and fishing opportunities to be brought into balance in the near future**.

4.3 Use the regional approach for ecosystem-based management

Member states are challenged, but not required, to cooperate regionally to prepare recommendations for conservation measures. All member states with management interests should be involved and fisheries advisory councils consulted. This opportunity is sometimes taken advantage of and sometimes not. There are also situations in which the member states have difficulty reaching a consensus. According to Art. 11 Para. 4 of the basic CFP regulation, the EU Commission has the option of stepping in when such cases arise. So far, it has rarely exercised this option – and one possible reason for this is that the measures it can impose are of limited duration (12 months with a possible extension to a maximum of 24 months). More EU Commission activity is desirable so that the CFP targets can be reached within an appropriate period of time.

4.4 Optimize technical measures and increase selectivity

Technical measures that determine how and where catches are made serve to protect both resources and the ecosystem. One of their purposes is to prevent bycatch of juvenile fish and non-target species and severe damage to communities on the seafloor. The landing obligation creates an important incentive to employ more selective fishing techniques. Newly developed nets, such as those with exit windows, have showed in tests that much higher selectivity is possible.[90] There are also alternatives to using heavy trawls, which are especially harmful to benthic communities.[91] **From a nature conservation point of view, the development of alternative fishing gear that prevents bycatch in gillnet fisheries, including sea birds and marine mammals (especially harbour porpoise) continues to be important, as does the use of fishing techniques that are less harmful to the ecosystem**.

Because of the incomprehensibility of the many and varied technical requirements, there is the desire, particularly on the part of fisheries, that they be better structured. The EU Commission has proposed regulation to this end. Among other things, it distinguishes between general and regionally specific technical requirements.[92,93] The proposal is a welcome one, but only creates a legislative framework within which the technical requirements are to be refined taking marine conservation issues and the MSFD into consideration. **It is important to continue research on environmentally-sound fishing techniques, in cooperation with other member states if possible, and to promote such research wherever there are not yet technical solutions.** Moreover, it should be assessed whether technical measures that have previously been rarely applied can make a further contribution to ecosystem-based management. Among these measures are real-time closures and the establishment of stock recovery areas, including protected spawning areas, to compensate for special sensitivity.

Alternative fishing gear urgently needed to prevent bycatch of marine mammals and sea birds

4.5 Reform the fisheries control regulation

The changes to the fisheries control regulation proposed by the European Commission, such **as improvements to spatial monitoring and reporting requirements of small fishing vessels, are urgently necessary.** Recreational fishing should also be obligated to document and report catches. For monitoring the landing obligation, cameras and/or sensor-supported techniques should

90 *Zimmermann, C. et al. (2015).*
91 *WWF (2014).*
92 *Zimmermann, C. et al. (2015).*
93 *WWF (2014).*

be introduced on board. It is also desirable to establish minimum requirements, such as an increased VMS (Vessel Monitoring System) frequency, for spatial monitoring of marine protected areas. The first draft for fisheries management in the protected areas in the German EEZ in the North Sea delivers a useful proposal for this (increasing VMS frequency to ten minutes upon entry into protected areas' 4-sm safety zone). Improving the quality and reliability of data captured and their exchange among responsible institutions is also necessary.

The implementation of efficient monitoring of management measures in protected areas is an essential foundation for achieving the conservation goals in designated marine protected areas. For efficient implementation of monitoring measures, a uniform set of regulations should be the goal within the framework of the fisheries control regulation.

4.6 Remove exceptions to the landing obligation

The new basic CFP regulation imposes the obligation of landing caught fish of important commercial species unless the species are endangered or the fish that have been caught are of a species that will probably survive discard (Table 2). The de minimis exception also allows 5 % of the catch to be discarded under certain conditions (Section 2.5.1). The last two exceptions mentioned cannot be countenanced in their current form from a nature conservation point of view. For instance, the term "high survival rate" has yet to be defined. Moreover, this rate is dependent not only on the species caught and the fishing gear used, but also on a number of other factors, such as how the catch is handled on board.

Fishermen also have the ability to count the catch of the bycatch species against the target species quota up to a certain percentage or to "borrow" up to 10 % of the next year's quota, which means catching more in one year and having the excess subtracted from the following year's quota. However, borrowing against future quotas is not linked to any conditions in the basic CFP regulation, but, like quota transfers between species, should be permitted only if the affected stock is within safe biological limits and exhibits a clearly positive development.

Moreover, there has been criticism from conservation activists that the landing obligation does not apply to all species; it excludes those that are protected – but not those for which there are no quotas.[94] **It is important to optimize fishing methods for greater selectivity for these species as well and to acquire data about their bycatch. The de minimis rule should also be eliminated. And discard because of a high survival rate should be allowed only when such a rate is guaranteed for a large proportion of the fish (> 90 %) and careful handling of bycatch on ofboard fishing vessels is ensured. The data gaps on these items should be closed.**

94 *SRU (2011).*

Exception from the landing obligation	Note	Assessment
Protected species	Bycatch must be avoided as much as possible	●
High survival rate (species may be released)	High survival rate is not defined (should be more than 90%) Depends on many factors Not yet sufficiently researched (especially the medium-term survival rate)	●
de minimis (up to 5% of the total catch weight may be discarded)*	Reduced pressure to use selective fishing techniques Conditions for this exception are not clearly defined Extremely difficult to monitor	●
Option for quota deviation		
Counting the catch of the (limiting) bycatch species towards the target species quota (up to 9% of the target species quota if the limiting non-target stock is within safe biological limits)	Low incentive for fishermen to count the catch of commercially unimportant species against the quota of a commercially important species	●
Member states can borrow up to 10% of the following year's quota	Borrowing increasing pressure on the stock for a short time On the other hand, fishermens "bunker mentality" (reserving a part of the quota for a rainy day) can provide short-term relief for stocks.	●

● = accepted according to nature conservation issues
● = acceptable under certain conditions
● = should always be rejected

* = only if increasing selectivity is very difficult or the treatment of the undesired catch results in disproportionately high costs

Table 2: Exceptions from the landing obligation/Options for deviations from quotas and their assessments. Data source: Basic CFP regulation[95]

4.7 Push implementation of fishing restrictions in marine protected areas

Nature conservation measures in marine protected areas affecting commercial fisheries cannot be initiated by member states themselves in their sovereign waters, but only within the framework of the CFP (Section 6.1.5). It is up to the member states to prepare joint recommendations in cooperation with other member states with economic fisheries interests in the affected area. **Because the process of gathering support for a recommendation can be very difficult, the EU Commission should assume a greater mediation role to allow realization of effective Natura 2000 measures in marine protected areas.** When member states cannot reach a consensus, the Commission should make use of its capability of preparing a proposal that is in conformity with the law or to improve a submitted proposal that is deficient.

95 *Zimmermann, C. et al. (2015).*

4.8 Better implement fish stock recovery areas

According to the CFP, protected areas can be set up for stock management reasons as well. They can serve such ends as preventing or minimizing disruptions in spawning or nursery areas. However, such protected areas need time to develop effectiveness. The cod stock in the western Baltic Sea is an example of why it is not a good idea to set up such sanctuaries for a short time only; they need time to become effective.[96] **Spatial fisheries limits should therefore apply for a long time, and their effectiveness should be monitored by means of a suitable monitoring system.**

5. What further instruments would be suitable for bringing about the desired positive CFP effects?

5.1 Make catch quotas (and their allocation) more flexible

One of the central goals of the last CFP reform was to eliminate fish discard and thus inefficiencies and resource wastage in fisheries. It was also hoped that this would contribute to recording the entire catch, including bycatch, providing a better data basis for stock management. The landing obligation was also developed in this context and is being implemented by means of relevant discard plans in the form of delegated acts.[97] What is problematic here, however, is bycatches in so-called mixed fisheries (that in which various target species are caught at the same time). The challenge is that fishermen have a certain quota for each species, but these quotas do not per se reflect the relationship to one another of the species caught. Whenever the quota for one species is filled or the fisherman has no quota for the bycatch species, the fisherman must stop fishing (see Section 2.5.3). The worry is that fishing activities will be continued under these conditions and the specimens of the species for which the quota has been exhausted will be illegally thrown overboard again.

To prevent such occurrences, primary attention should be given to using selective fishing methods (see Section 6.4.4). Among these methods are appropriate nets, but also adaptation of fishing behaviour, such as avoiding fishing areas with high occurrences of juvenile fish or non-target species.[98] Moreover, it is conceivable that quotas could be adjusted to the catch retroactively. For instance, the member state or responsible institution could redistribute quotas after the fact. Another possibility is reserving an appropriate proportion of quotas for bycatches from the very beginning and assigning them as necessary. Systems could also be established or optimized at the member state level to allow fishermen to exchange quotas among themselves. Such a system would function, however, only if the fisherman finds someone who is prepared to exchange the required quota for a quota that has not been exhausted. The CFP also allows member states to initiate tradable quotas, which has long been the practice in some non-EU countries (Art. 21 of the basic CFP regulation).[99, 100]

More flexibility in the allocation of quotas, or to make the quotas themselves much more flexible by an exchange or tradable system can help solve the discard problem in mixed fisheries. Care must be taken in the implementation of such systems that the targets of the CFP and the MSFD are met. For instance, fisheries pressure on a given stock must not in any case be increased to an impermissible degree by transferring quotas from one species to another.

5.2 Establish programmes for monitoring bycatch of protected species

Bycatch of protected species, especially marine mammals and sea birds, is a major problem and impedes the achievement of marine conservation goals. The absence of reliable data makes it difficult to adequately evaluate this intervention in fisheries and to take effective measures. For this reason, and in adherence to requirements and obligations from nature conservation, Germany should establish a monitoring programme for bycatches of protected species. In its own interest, fisheries should contribute seriously to this effort in order to escape being viewed merely as a cause of the problem. If there are no specific data about the extent of non-target catches, the precautionary principle should be applied and the highest likely bycatch rate assumed.

96 *ICES (2018c).*
97 *European Commission (2019).*
98 *Zimmermann, C. et al. (2015).*
99 *Sveriges Riksdag (2016).*
100 *Hentrich, S. & Salomon M. (2006).*

Dead Northern gannet (Morus bassanus)

5.3 Support of in-shore fisheries with new sources of income

Fishermen in Germany traditionally earn their money primarily by selling their catch. Fishing uncomplemented by other activities is often not very financially viable, especially for small in-shore fisheries.[101] On the other hand, these fisheries represent an important factor in maintaining tradition and for tourism in coastal regions. Alternative sources of income can help preserve these fisheries and the associated jobs. Countries such as Spain are already engaging in so-called nautical tourism, which gives tourists the opportunity to go out with fishermen and experience the sea and fisheries first-hand. Similar models are plausible for Germany and should be supported by the German federal government or the federal state governments. Another option is direct marketing of fisheries products by the fishermen being supported. **New sources of income would also reduce the business demands for fishermen to maximize their catches, perhaps making them more receptive to more environmentally-sound fishing practices.**

5.4 End subsidies that damage the environment

Subsidies that fly in the face of nature conservation considerations are a problem in fisheries as well. In the past, they have made a considerable contribution to generating the great overcapacities of the European fishing fleet.[102] They pose a problem even when they do not directly contribute to expanding capacity, but allow fisheries that would fail without subsidies to remain in the market. For this reason, it is important that all forms of subsidy be assessed critically. This is true of all subsidies that Germany provides to fisheries , including the tax exemption of marine diesel.

101 *STECF (2018a).*
102 *Markus, T. (2010).*

Some fisheries[103] practices – especially trawling with conventional beam trawls – require an especially large amount of fuel. The use of this heavy fishing gear is associated with great damage to benthic organisms and habitats.[104] **For this reason, marine diesel for fishing vessels should be taxed at a rate comparable to that for diesel in commercial road traffic. This would, among other things, create an incentive to use fuel-saving techniques and environmentally-sound fishing methods.**

5.5 Expand the right of action at the European level

So far, there has been a limited right of action, especially for interest groups committed to the concerns of ecological sustainability in fisheries (in particular environmental and conservation associations) when total allowable catch limits that do not meet CFP requirements are ratified.[105] **Right of action should be expanded as an additional option for bringing much greater discipline to the EU Council in its ratification of catch limits.** Deviation from scientific recommendations would then be much more difficult than it has been and must be very well justified.

103 *See the information provided by the German Federal Office for Agriculture and Food (Bundesanstalt für Landwirtschaft und Ernährung, or BLE) (N.D.).*
104 *German Federal Agency for Nature Conservation (Bundesamt für Naturschutz) (N.D.).*
105 *Markus, T. (2010).*

6. Conclusions

From an nature conservation point of view, progress with respect to sustainable use of biological resources is being made too slowly in European fisheries policy. This is particularly noticeable in the annually set catch limits and the implementation of the landing obligation.

Some of the annually set total allowable catch limits still deviate greatly from scientific recommendations, and this is unacceptable. At the same time, scientific recommendations are still not completely oriented towards the CFP targets, and those targets are not being sufficiently implemented in policy action.

By 2020, no catch limits that do not conform to the MSY target may be ratified. Thus fishing mortality rate for all stocks will have to be below F_{MSY} . To the extent that no value can be determined for F_{MSY} , the precautionary approach is to be used in a form that ensures that no deviation is made from the MSY approach. But this still does not achieve the target of conserving correspond stock biomass levels (> B_{MSY}), let alone that of stock composition that exhibits an age and size structure approaching a natural one. Stocks that fulfil these criteria would not only be more ecologically stable, but could also return greater yields, given careful management, than overfished stocks. **Unfortunately, those responsible still have not grasped the fact that the negative consequences of missing the MSY targets affect fisheries as well.** The goal of ecosystem-based management must therefore be pursued with greater emphasis by such methods as granting the relevant advocates (such as environmental and conservation associations) greater influence.

To implement the landing obligation, solutions for mixed fisheries are especially important, since it involves special bycatch challenges. **But as long as the fisher's quotas do not correspond to the catch composition and cannot be adapted to it adequately, there is an incentive to illegally throw overboard species for which the quotas have been exceeded. The central concern of the landing obligation must be that fishermen use more selective fishing methods, and some of these methods have yet to be developed. It is imperative that the described exceptions to the landing obligation do not weaken efforts to achieve this goal.**

Another deficiency is the inadequate grasp of the value of intact marine ecosystems and the necessity of ecosystem-based management of marine biological resources. **The prohibition of harmful fisheries activity in marine protected areas and the establishment of no-take zones constitute an important component of sustainable, ecosystem-based fisheries. For the marine protected areas in the German EEZ, there are as yet no fisheries management measures; coordinated recommendations have been sent to the EU Commission for the North Sea only.**

The standards for commercial fisheries must ensure that Natura 2000 targets are achieved. This applies both to the favourable conservation status and to compliance with the no-deterioration rule.

There are also deficits in enforcing the CFP, and an effective monitoring system for the landing obligation has yet to be established. One indispensable condition for this is the use of appropriate onboard technology. Fishing capacity must also be further adapted to fishing options. This means that a number of further efforts are needed if the CFP is to be implemented, and it is very likely that several challenges will persist until 2023 and beyond, especially since the described weaknesses in the landing obligation and in regionalization can be corrected only by revising the rules. **But without the political will to implement sustainable fisheries policy, the proposed improvements will not achieve the targets.**

7. Requirement catalogue for achieving CFP sustainability targets

Some of the following requirements are based on implementing the current CFP (•), and some are improvements to be made to the CFP (»)

1. Setting catch limits

- Set total catch limits on the basis of scientific recommendations: The Fisheries Council must be more significantly constrained by the requirements of the CFP and the MSFD in the interest of achieving the obligatory targets
- Consider conservation and environmental issues when distributing national quotas (for instance, assign higher quotas to fishery operations employing fishing gear that avoids bycatch, or engage in regional area-based fishery management)

» Expressly expand the right of action for recognised non-profit environmental and conservation organisations at the European level as an additional option for bringing much greater discipline to the EU Council, compelling it to consider CFP targets in its ratification of catch quotas

2. Completely implement the landing obligation

- Completely monitor the landing obligation, using such means as observers on vessels and sufficient inspectors in harbours
- Mandate the use of new, effective monitoring instruments and techniques (such as sensors that capture trawling speed and net fill, and cameras on fishing vessels)
- Abolish exceptions to the landing obligation (such as the de minimis rule)
- During national distribution, reserve quotas for unintentional catches of non-target species in order to solve the "choke species" problem in mixed fisheries and prevent discards

» Expand the landing obligation to encompass all fish species (with the exception of species under special protection and those with high discard survival rate) to optimise fishing method selectivity and document bycatch

3. Monitor and sanction

- Completely monitor all fishery activity, especially that of small fishing vessels
- Consistently sanction failure to comply with legal requirements, especially violations of the landing obligation
- Improve real-time monitoring of fishery activity by such means as increasing VMS frequency, using AIS data, especially in marine protected areas and, as necessary, areas with high incidences of juvenile fish and non-target species where fishing is prohibited

4. Increase fishing gear selectivity

- Expand research and development for alternative, environment-friendly, selective fishing gear that avoids bycatch
- Mandate the use of existing, environment-friendly, selective fishing techniques by creating legal requirements and introducing incentive systems
- Foster intensive member state cooperation in researching alternative fishing gear

5. Push ecosystem-based management of marine biological resources to achieve MSFD and CFP goals

- Increase consideration of food webs and ensure sufficient availability of food for protected species such as sea birds and marine mammals when multiannual plans are developed, and expand those plans to encompass all fish species exploited by the EU
- Improve implementation of spatial fishing closures (including spawning areas) of sufficient duration and effectively assess that implementation by means of monitoring

6. Implement effective fisheries management measures in marine protected areas

- Quickly and systematically comply with fisheries regulations and implement effective fisheries management measures in protected areas
- Establish no-take zones to achieve MSFD conservation goals with respect to the food web, biodiversity, and seabed integrity

» Establish effective fisheries management measures in marine protected areas by transferring the lead role in application and implementation procedures to the conservation agencies at the national and European levels, and give the EU Commission the role of actively mediating between member states where there is disagreement. Abandon the principle of joint (unanimously decided) recommendations according to Art. 11 Para. 3 of the CFP reform if such a principle weakens conservation efforts. Clearly specify a period of no longer than three months to clarify conflicts after a recommendation has been rejected by the Commission/Parliament

7. Remove subsidies and adapt fleet capacities

- End environmentally harmful subsidies; for instance, marine diesel for fishing vessels should have the same tax rate as diesel in commercial road transport
- Reduce fishing capacity in order to achieve a balance with the goals of fishery policy (such as for gillnet or trawl net fishing for cod in the Baltic Sea)
- Create further incentives for fuel-saving techniques and environmentally-sound fishing methods

8. Improve scientific consultancy orientation towards CFP and MSFD targets

- Orient stock management on B_{MSY} only (or, as necessary, use a proxy that credibly approximates B_{MSY})
- Clearly improve the data basis for determining spawning stock biomass (SSB)
- Obtain recommendations on measures for conserving stocks with mixed, nearly natural age and size structures (MSFD target)

9. Establish programmes to monitor bycatch of protected species

- Improve collection of fishing effort data, especially from small vessels not subject to the VMS requirement (less than 12 metres long) or log book requirement (less than 10 metres long)
- Monitor bycatch of protected species by means of cameras or observers on vessels in the relevant fleet segments

10. Support in-shore fisheries with new sources of income

- Support local direct marketing
- Create options for generating income via tourism

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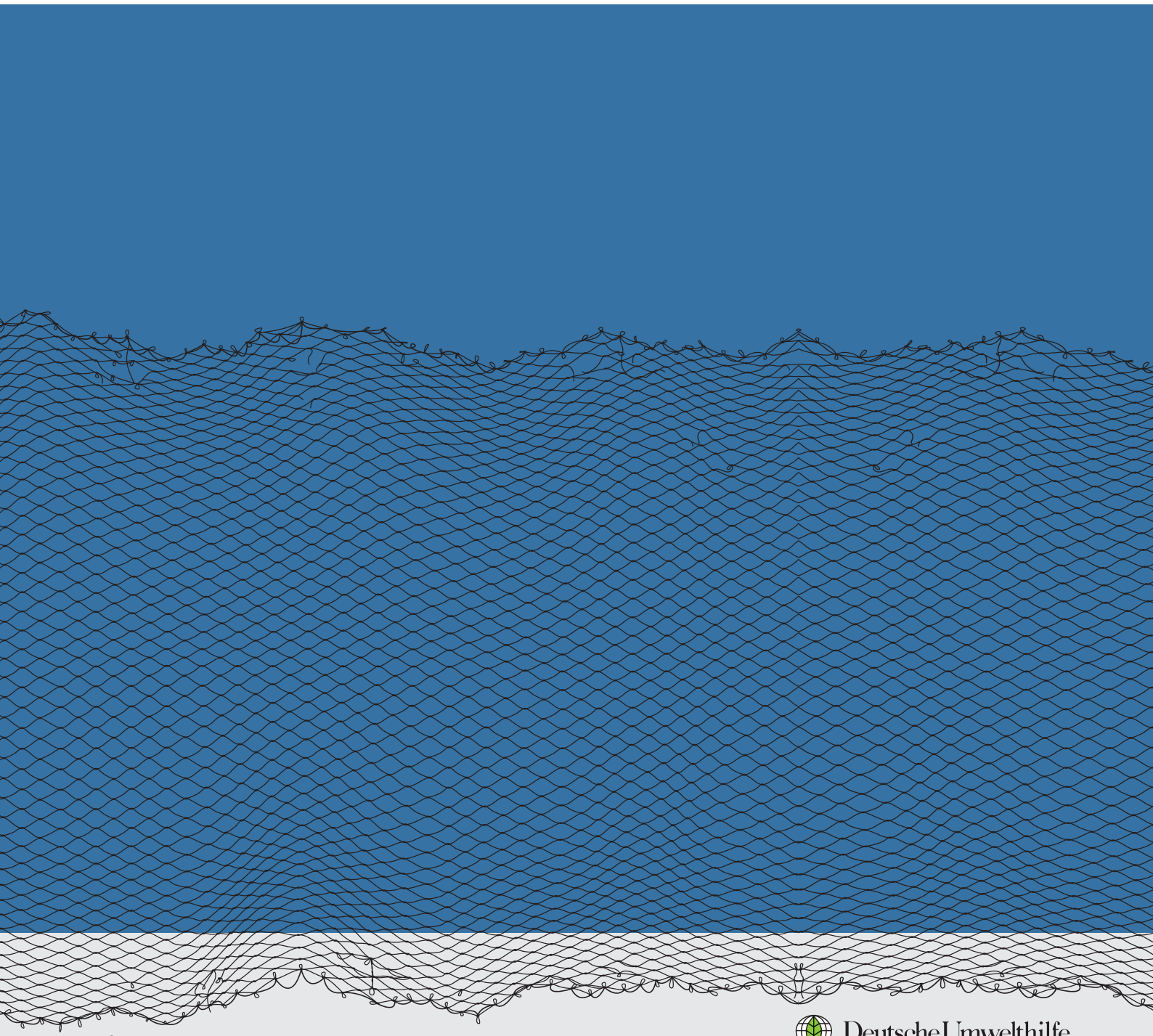

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