Study supporting the evaluation of the Deep-sea Access Regulation

Final Report

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Abstract

The Deep-sea Access Regulation (EU) 2016/2336 enacts various conservation and management measures with the objective of i) improving scientific knowledge on deep-sea species and their habitats, ii) preventing significant impacts on Vulnerable Marine Ecosystems (VMEs) and ensuring the long-term conservation of deep-sea fish stocks, while iii) ensuring that Union measures for the management of deep-sea fisheries are consistent with the Resolutions adopted by the United Nations General Assembly.

The Regulation's main provisions define a fishing authorisations scheme for vessels engaged in deep-sea fisheries, regulate their fishing capacity and provide a set of spatial measures to prevent the expansion of deep-sea fishing grounds, to protect VMEs below 400m depth and to prohibit bottom trawling below 800m depth. Specific control and monitoring provisions and a dedicated observer coverage are also included.

The study concludes that the Regulation is meeting its objectives. In addition, this study suggests areas for improvements such as the introduction of criteria for fishing authorisations to ensure that the Regulation is focused on the fishing-fleet segments, which are likely to generate adverse impact on deep-sea ecosystems. The study also recommends a better definition of the provisions for observer coverage to ensure that the EU Member States take a harmonised approach.

Résumé

Le règlement portant sur l'accès pour la pêche aux stocks d'eau profonde (UE) 2016/2336 promulgue différentes mesures de conservation et de gestion avec l'objectif i) d'améliorer les connaissances scientifiques sur les espèces d'eau profonde et leurs habitats, ii) d'éviter des effets néfastes notables sur les écosystèmes marins vulnérables (EMV) dans le cadre de la pêche en eau profonde et veiller à la conservation à long terme des stocks de poissons d'eau profonde tout en iii) assurant l'alignement entre les mesures de l'Union ayant pour but la gestion durable des stocks d'eau profonde et les résolutions adoptées par l'Assemblée générale des Nations unies.

Les principales provisions du Règlement définissent un dispositif d'autorisations de pêche pour les navires exploitant les pêcheries profondes, un mécanisme de gestion de leur capacité, et un ensemble de mesures spatiales pour prévenir l'extension des zones de pêche profondes, pour protéger les EMV au-dessous de 400m et pour interdire le chalutage de fond au-dessous de 800m. Des mesures spécifiques de contrôle et de suivi sont également prévues, ainsi qu'une couverture des activités de pêche par des observateurs.

L'étude conclut que le Règlement atteint ses objectifs. Par ailleurs, l'étude suggère des améliorations comme l'introduction de critères pour les autorisations de pêche de manière à s'assurer que le Règlement est ciblé sur les segments de la flotte de pêche susceptibles d'avoir des répercussions sur les écosystèmes profonds. L'étude recommande également d'améliorer la définition des règles pour la couverture observateurs afin d'assurer d'une approche harmonisée par les États membres de l'UE.

Zusammenfassung

Die Verordnung (EU) 2016/2336 über den Zugang zur Tiefseefischerei sieht verschiedene Erhaltungs- und Bewirtschaftungsmaßnahmen vor. Ihr Ziel besteht darin, i) die wissenschaftliche Erforschung von Tiefseearten und ihren Lebensräumen zu verbessern, ii) spürbaren Belastungen von empfindlichen marinen Ökosystemen vorzubeugen und die langfristige Erhaltung von Tiefseebeständen sicherzustellen und zugleich iii) zu gewährleisten, dass die Maßnahmen der Union zur Bewirtschaftung der Tiefseebestände den von der Generalversammlung der Vereinten Nationen angenommenen Resolutionen entsprechen.

Im Wesentlichen legt diese Verordnung spezifische Fanggenehmigungen für die Tiefseefischerei, Fangkapazitäten und Maßnahmen zur Einschränkung der räumlichen Ausdehnung der Tiefseefischerei fest. Dabei sind insbesondere der Schutz von empfindlichen marinen Ökosystemen in Tiefen von unter 400 m sowie ein Verbot von Grundschleppnetzen in Tiefen von unter 800 m vorgesehen. Geplant sind auch spezifische Kontroll- und Überwachungsmaßnahmen sowie die Ernennung von speziellen Beobachtern.

Im Rahmen der Evaluierung wurde festgestellt, dass die Verordnung ihre Ziele weitgehend erreicht. Ferner schlägt die vorliegende Studie eine Reihe an Empfehlungen vor wie unter anderem die Einführung von Kriterien für Fanggenehmigungen. Dabei geht es darum, sicherzustellen, dass die Verordnung gezielt die Segmente der Fischereiflotte adressiert, die sich nachteilig auf Tiefseeökosysteme auswirken können. Überdies empfehlen die Autoren, die Definition der Bestimmungen für die Überwachung durch Beobachter zu verbessern, um ein harmonisiertes Vorgehen der EU-Mitgliedstaaten zu gewährleisten.

Executive Summary

In February 2020, the European Commission's Directorate-General for Maritime Affairs and Fisheries (DG MARE) and the European Commission Executive Agency for Small and Medium-sized Enterprises (EASME), contracted the consortium led by Coffey International Development Sp. z o. o. to conduct a **study to support the evaluation of the Deep-sea Access Regulation (EU) 2016/2336 of the European Parliament and of the Council[1]** (hereafter referred to as the DSAR). The DSAR enacts various conservation and management measures with objectives of:

i) improving scientific knowledge on deep-sea species and their habitats,
ii) preventing significant impacts on Vulnerable Marine Ecosystems (VMEs) and ensuring long-term conservation of deep-sea fish stocks, while
iii) ensuring that Union measures for the purpose of sustainable management of deep-sea fish stocks are consistent with the Resolutions adopted by the United Nations General Assembly[2].

The DSAR applies to the European Union's waters in the Atlantic Ocean and certain international waters of the Fishery Committee for the Eastern Central Atlantic (CECAF) (specifically areas 34.1.1, 34.1.2 and 34.2). There are also certain specific provisions applying to the Regulatory Area of the North-East Atlantic Fisheries Commission (NEAFC).

The main provisions foreseen by the DSAR to contribute to these objectives include:

- a fishing authorisation scheme for vessels targeting deep-sea species ('targeting fishing authorisation') and vessels catching deep-sea species when targeting other species ('by-catch fishing authorisation'),
- measures for regulating the fishing capacity of fishing vessels engaged in deep-sea fisheries,
- a set of spatial measures designed to prevent the expansion of deep-sea fishing areas, to protect deep-sea vulnerable marine ecosystems (VMEs) from significant adverse impacts caused by fishing gears and to prohibit bottom trawling at depths below 800m,
- a VME encounter protocol prompting fishing vessels to report each encounter with a VME and to immediately cease fishing in the area concerned (the "move-on" rule),
- specific more stringent control and monitoring provisions, and
- an observer coverage of at least 20% in the case of fishing vessels authorised to target deep-sea species with bottom trawls or bottom set gillnets and at least 10% for all other vessels authorised to catch deep-sea species as target or by-catch.

Most DSAR measures were in force as of 2017 except two spatial measures i.e. definition of existing areas defining where vessels having been issued a targeting fishing authorisation may operate, and closures of areas where VMEs are known or likely to occur in which fishing vessels using bottom gears are prohibited to operate. At the time of this study, the spatial measures still need implementing acts to be fully enforceable by the EU Member States.

The purpose of this study is to assist the European Commission's forthcoming evaluation of the measures applicable, as foreseen in the DSAR (Article 19). The study examined, in accordance with EU's Better Regulation guidelines, the effectiveness, efficiency relevance, coherence and EU added-value of the DSAR. The study was intended to

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[1] Regulation (EU) 2016/2336 of the European Parliament and of the Council of 14 December 2016 establishing specific conditions for fishing for deep-sea stocks in the north-east Atlantic and provisions for fishing in international waters of the north-east Atlantic and repealing Council Regulation (EC) No 2347/2002. *OJ L 354, 23.12.2016, p. 1–19*

[2] In particular Resolution 61/109 adopted in 2006 and Resolution 64/72 adopted in 2009

assess to what extent the measures under the Deep-sea Access Regulation are fit for purpose, as well as the level of coherence between the DSAR and other relevant legislation. Other relevant legislation includes the Common Fisheries Policy Regulation[3] and its associated Regulations, which have an impact on conservation and management of deep-sea fisheries, Union environmental legislation and relevant international obligations.

The evaluation methodology included data collection and desk research on available reports and statistical data, in-depth targeted consultations[4] of stakeholders, including Member States' authorities, fishermen associations, research institutions and NGOs, as well as a public consultation. The later was published on the European Commission consultation website[5] between May and August 2020. The research covered the DSAR implementation period from 2017 to 2020.

The final report provides:

- a summary of the state of play of the EU Deep-sea fishing sector,
- an update on the status of scientific knowledge on deep-sea fisheries in the North-East Atlantic,
- a review of the main conservation and management measures for deep-sea fisheries in EU waters, in relation to the main DSAR measures and the other relevant Common Fisheries Policy instruments, and
- a summary of trends as focus of the evaluation, following article 19 of the DSAR.

The above evidence base feeds into answers to address the different evaluation criteria, which support the study's conclusions and recommendations.

Context information on deep-sea fisheries in the North-East Atlantic

Since 2008, the EU's reported catches of deep-sea species listed in Annex I of the DSAR have followed a downward trend, from 35 000 tonnes per year on average over 2009-2011 to approximately 21 000 tonnes per year since 2015 (-43%). The main deep-sea species landed are black scabbardfish *A. carbo* (32% of total landings of deep-sea species on average between 2016 and 2018), greater silver smelt *A. silus* (18%), blue ling *M. dypterygia* (12%) and Greenland halibut *R. hippoglossoides* (9%). The main EU fishing fleet segments exploiting deep-sea species include demersal bottom trawlers (40% of landings in 2017), vessels using hooks (33%) and pelagic trawlers (20%). Portugal is the main Member State concerned (29% of total EU landings of deep-sea species on average between 2016 and 2018), preceding France (20%), Spain (19%) and the Netherlands (14%). In 2018, Member States issued a total of 1 113 fishing authorisations to their vessels to catch deep-sea species as target species (542 fishing authorisations) or as by-catch species (571 fishing authorisations). Two Member States (Spain and Portugal) issued 94% of the total number of fishing authorisations to target deep-sea species, with a large number of such fishing authorisations issued to vessels of less than 12m in the case of Portugal (64%).

Deep-sea species represent on average 0.4% of total EU landings of fisheries products. The proportion of deep-sea species in total national landings is the highest in Portugal (4%), and less than 1% in all other Member States concerned. Deep-sea fisheries are estimated to support 850 crew positions equivalent to 0.8% of total employment in the fisheries sector. Contribution of deep-sea fisheries to national employment in the fisheries sector is the highest for Portugal (8.6%) but less than 1% in all other Member States concerned.

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

[4] Due to the COVID-19 pandemic, targeted consultations had to be conducted via questionnaires followed up by telephone or by video conference as appropriate.

[5] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/11815-Evaluation-of-access-to-deep-sea-fishing-in-the-north-east-Atlantic/public-consultation

Key Findings

Key findings and main lessons from the evaluation are below, in-line with the five evaluation criteria: relevance, effectiveness, efficiency, coherence and EU-added value.

Relevance

- **The design of the DSAR is appropriate** to address the objectives of the Regulation (Article 1) for i) improved scientific knowledge on deep-sea species and their habitats and ii) prevention of significant adverse impacts on VMEs within the framework of deep-sea fishing and long-term conservation of deep-sea fish stocks. The evaluation did not identify other types of sensible measures in addition to the conservation and management measures already implemented under other EU instruments (e.g. TAC and quotas defining fishing opportunities, technical measures defining how, when and where these fishing opportunities may be exploited).

- **Most DSAR measures remain relevant** to address the objectives of the Regulation. The capacity management measure (Article 6) is now less relevant than at the time of adoption of the DSAR. This is due to the reduction in fishing opportunities on deep-sea stocks (TAC and quotas), the implementation of spatial measures (800m bottom trawl prohibition), as well as the reduced economic incentives to catch deep-sea species linked to NGO campaigns targeting consumer markets. The by-catch fishing authorisation regime remains relevant as it identifies fishing vessels authorised to catch deep-sea species, but the by-catch vessels are not subject to certain DSAR measures such as limits of fishing capacity and limitation of fishing activities, within existing fishing areas.

Effectiveness

- The DSAR has provided an **effective contribution to the preservation of deep-sea fish stocks, mainly through the 800m bottom-trawl prohibition** (Article 8.4). The 800m bottom-trawl prohibition reduced bottom trawlers accessibility to some key commercial deep-sea species, which effectively protected the species living below that depth and species with the majority of their biomasses below 800m. This also contributed to a reduction in the by-catch of other deep-sea species present at these depths, in particular deep-sea sharks.

- The DSAR, in conjunction with the EU Data Collection Framework Regulation (EU) 2017/1004[6], **contributed to improve scientific knowledge on certain deep-sea fish stocks.** The forthcoming upgrade of the quality of the stock assessment for two deep-sea species (greater silver smelt and black scabbardfish) by the International Council for the Exploration of the Sea (ICES) supports this finding. However, improving scientific knowledge on all deep-sea species caught in relatively small quantities was probably out of reach for both the DSAR and the Data Collection Framework because the species are caught by different fishing fleet segments, in low quantities and mainly as by-catches which makes the scientific assessment of stock status very difficult.

- Due to the delay of two key DSAR measures[7], the Regulation has **not yet been effective at ensuring the protection of vulnerable marine ecosystems (VMEs)** present below 400m in the EU waters of the North-East Atlantic. Other DSAR measures have had some effectiveness:

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[6] Regulation (EU) 2017/1004 of the European Parliament and of the Council of 17 May 2017 on the establishment of a Union framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy and repealing Council Regulation (EC) No 199/2008. *OJ L 157, 20.6.2017, p. 1–21*

[7] Art. 7 definition of existing fishing areas and Art. 9 closures of areas below 400 m where VMEs are known or likely to occur

- the 800m bottom trawl prohibition has helped to protect VMEs, but only those below that depth and only from significant adverse impacts generated by this type of gear;
- the VME encounter protocol is foreseen as a safeguard measure to protect VMEs that have not been protected by the DSAR spatial measures but, as a stand-alone, the VME encounter protocol cannot be a sufficient conservation measure.

- However, The DSAR **has not been effective to improve scientific knowledge on deep-sea habitats** as evidenced by the absence of VME records collected onboard EU commercial fishing vessels. This could be the result of an absence of VME indicator species in vessels' catches while observers were onboard. However, this might also be the result of inadequate implementation of the observer scheme by Member States using scientific personnel, who are not properly trained to identify such species at required taxonomic levels.

- Overall, the evaluation of the effectiveness of **DSAR provisions for observer coverage** is limited by the diversity of implementing rules among EU Member States, which result in inconsistencies in the implementation of the observer scheme in practice.

Efficiency

- Considering the balance between the resources used for the DSAR and the results generated, the DSAR and its fishing authorisation regime appear to be **efficient**. The implementation and management of the fishing authorisation regime are the main cost drivers for Member States, particularly those issuing a high number of fishing authorisations (i.e. Portugal, Spain and France to a lesser extent). Other DSAR-related administrative costs relate to Member States' monitoring, control and surveillance of fishing vessels, including for the implementation of the multiannual plans for the collection of scientific data under the provisions set out by the Data Collection Framework. But given the relatively small scale of deep-sea species caught compared to the total landings, these costs represent small amounts in relative terms and there is no reliable method for their identification and analysis.

- Some measures would enhance the efficiency of the DSAR, such as:
  - **simplifying the criteria** for issuance of fishing authorisations, which would focus the scope of the DSAR authorisation scheme on fishing vessels using gears interacting with the deep-sea ecosystem below 400m depth. However, this would leave certain fishing fleet segments out of the scope of the DSAR and, thus, reduce the overview and control over the EU fleet catching deep-sea species;
  - **clarifying the reference** to NEAFC Regulatory Area on the observer coverage, as Article 16 of the DSAR can be confusing for the relevant Member States and generates additional administrative work.

Coherence

The DSAR is **broadly coherent with Resolutions 61/105 and 64/72** of the United Nations General Assembly on the protection of deep-sea ecosystems. The level of consistency between the DSAR and the Resolutions will also depend on the forthcoming implementing acts on the definitions of the existing fishing areas (i.e. the fishing footprint) and on the designation of areas where VMEs are known, or likely to occur.

The DSAR is **aligned with NEAFC Recommendation 19.2014 on the protection of vulnerable marine ecosystems in the NEAFC Regulatory Area.** DSAR measures are more stringent than NEAFC measures in relation to types of gear covered and rules to be followed in case of an encounter with a VME.

The DSAR is aligned with the EU environmental legislation enacted through the Marine Strategy Framework Directive[8] and the Habitat Directive[9], with the latter providing additional tools for Member States to protect deep-sea ecosystems in line with the DSAR. There are also clear complementarities between the DSAR and other CFP-related instruments comprising conservation and management measures of deep-sea fisheries. The main issue for coherence relates to **the TAC and quota Regulations and the Technical Measures Regulation, which do not replicate the conservation rules for deep-sea sharks** set by the DSAR and designated as "Most Vulnerable".

The DSAR and EU measures for the protection of VMEs in the high seas through Council Regulation (EC) 734/2008[10] have different provisions for the protection of vulnerable marine ecosystems from the adverse impacts of bottom fishing gears. The key coherence question arises since both Regulations apply to EU vessels fishing in the same international waters of CECAF areas 34.1.1, 34.1.2 and 34.2. However, this duplication of Regulations applying in these CECAF international waters probably has no impact as there is no evidence of activities of EU fishing vessels using bottom gears in this particular area.

EU added-value

The design of certain DSAR measures provides **EU added-value** through i) alignment of the EU framework for management of deep-sea fisheries with international standards set out by the United Nations, ii) transparent and science-based identification of areas where VMEs are known or likely to occur by an independent scientific body, iii) haul-by-haul reporting of deep-sea fishing activities, iv) a mandatory minimum level of coverage of fishing operations by observers significantly higher than the observer coverage achieved by Member States when implementing the observer scheme foreseen by the EU Data Collection Framework and v) the obligation for fishing masters to board an observer upon request, with a specific sanction scheme for failure to do so, also add value compared to observer schemes based on voluntary participation such as the EU DCF observer scheme.

CONCLUSIONS

The overarching conclusion of the study to support the evaluation of the Deep-sea Access Regulation is that the DSAR is fit for purpose in its contribution to the objectives of i) improving scientific knowledge on deep-sea species and their habitats and ii) preventing significant impacts on VMEs within the framework of deep-sea fishing and ensuring long-term conservation of deep-sea fish stocks, and iii) ensuring consistency of Union deep-sea conservation scheme in EU waters with resolutions adopted by the United Nations General Assembly. In addition, the review of trends on the different subjects listed in Article 19 of the DSAR does not suggest that the objectives of the DSAR are not complied with by fishing vessels using bottom gears (Article 19.3).

This study suggests areas for improvements such as the introduction of criteria for fishing authorisations to ensure that the Regulation is focused on the fishing-fleet segments which are likely to generate adverse impact on deep-sea ecosystems. The study also recommends a better definition of the provisions for scientific observer coverage to ensure that the EU Member States take a harmonised approach.

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[8] Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) (Text with EEA relevance). *OJ L 164, 25.6.2008, p. 19–40*

[9] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. *OJ L 206, 22.7.1992, p. 7–50*

[10] Council Regulation (EC) No 734/2008 of 15 July 2008 on the protection of vulnerable marine ecosystems in the high seas from the adverse impacts of bottom fishing gears. *OJ L 201, 30.7.2008, p. 8–13*

Résumé exécutif

En février 2020, la Direction générale Affaires maritimes et pêche de la Commission européenne (DG MARE) l'Agence exécutive pour les petites et moyennes entreprises (EASME) de la Commission européenne ont engagé un contrat avec le consortium dirigé par Coffey International Development Sp. z o. o.pour conduite une **étude en soutien à l'évaluation du Règlement sur l'accès pour la pêche aux stocks d'eau profonde (UE) 2016/2336 du Parlement européen et du Conseil[11]** (désigné ci-après par l'acronyme DSAR pour *Deep-sea Access Regulation*). Le DSAR institue plusieurs mesures de conservation et de gestion sous les objectifs :

i) d'améliorer les connaissances scientifiques sur les espèces d'eau profonde et leurs habitats,
ii) d'éviter des effets néfastes notables sur les écosystèmes marins vulnérables (EMV) dans le cadre de la pêche en eau profonde et veiller à la conservation à long terme des stocks de poissons d'eau profonde,
iii) d'assurer la cohérence entre les mesures de l'Union ayant pour but la gestion durable des stocks d'eau profonde et les résolutions adoptées par l'Assemblée générale des Nations unies[12].

Le DSAR s'applique aux eaux de l'Union de l'Océan Atlantique ainsi que dans les eaux internationales des zones 34.1.1, 34.1.2 et 34.2 du Comité des Pêches pour l'Atlantique Centre-Est (COPACE). Certaines provisions s'appliquent également dans la zone de réglementation de la Convention des Pêches de l'Atlantique Nord-Est (CPANE).

Les principales provisions prévues par le DSAR pour contribuer à ces objectifs comprennent :

- un dispositif d'autorisations de pêche pour les navires ciblant les espèces profondes (« autorisation de pêche ciblée » et pour les navires capturant des espèces profondes quand ils ciblent d'autres espèces (« autorisation de pêche de prise accessoire »),
- des mesures pour réguler la capacité des navires de pêche exploitant les pêcheries profondes,
- un ensemble de mesures spatiales conçues de manière à prévenir l'extension des zones de pêche profondes, à protéger les écosystèmes marins vulnérables (EMV) contre de graves répercussions causées par les engins de pêche et à interdire le chalutage au-delà de 800m,
- un protocole en cas de rencontres d'EMV demandant aux navires de signaler chaque rencontre d'EMV et de cesser immédiatement la pêche dans la zone concernée (la règle d'éloignement),
- des mesures spécifiques plus strictes de contrôle et de suivi, et
- une couverture observateurs d'au moins 20% dans le cas des navires autorisés à cibler les espèces profondes avec un chalut de fond ou avec un filet maillant de fond, et d'au moins 10% pour tous les autres navires autorisés à capturer des espèces profondes en tant qu'espèces cibles ou prises accessoires.

La plupart des mesures du DSAR étaient applicables depuis 2017, à l'exception de deux mesures spatiales (définition des zones de pêche existantes dans lesquelles les navires titulaires d'une autorisation de pêche ciblée peuvent travailler, et fermeture des zones où la présence d'EMV est avérée ou probable applicable aux navires utilisant des engins de fond). Au moment de cette étude, ces mesures spatiales attendaient toujours des actes d'exécution pour pouvoir être pleinement applicables par les États membres de l'UE.

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[11] Règlement (UE) 2016/2336 du Parlement européen et du Conseil du 14 décembre 2016 établissant des conditions spécifiques pour la pêche des stocks d'eau profonde dans l'Atlantique du Nord-Est ainsi que des dispositions relatives à la pêche dans les eaux internationales de l'Atlantique du Nord-Est et abrogeant le règlement (CE) n° 2347/2002 du Conseil. JO L 354 du 23.12.2016, p. 1–19
[12] En particulier la résolution 61/105 adoptée en 2006 et la résolution 64/72 adoptée en 2009

L'objectif de cette étude est d'aider à la préparation de l'évaluation par la Commission européenne des mesures applicables, comme prévu par le DSAR (Article 19). L'étude a examiné, en suivant les lignes directrices pour une meilleure règlementation de l'UE, l'efficacité, l'efficience, la pertinence, la cohérence et la valeur ajoutée de l'UE au travers du DSAR. L'étude devait évaluer dans quelle mesure le DSAR reste adapté aux besoins, et le niveau de cohérence entre le DSAR et d'autres textes législatifs pertinents. Ces autres textes législatifs pertinents incluent le Règlement Politique Commune de la Pêche[13] et les règlements associés ayant un impact sur la conservation et la gestion des pêcheries profondes, la législation environnementale de l'Union et les obligations internationales pertinentes.

La méthode d'évaluation employée a intégré la collecte de données et d'informations publiées, des consultations ciblées approfondies[14] des parties prenantes comprenant les autorités des États membres, les associations de pêcheurs, les instituts de recherche et les ONGs, ainsi qu'une consultation publique. Cette dernière a été ouverte sur le site internet de la Commission européenne[15] entre mai et août 2020. Les investigations ont couvert la période de mise en œuvre du DSAR entre 2017 et 2020.

Le rapport final présente :

- Un résumé de la situation du secteur des pêches profondes dans l'UE ;
- Une revue de l'état des connaissances scientifiques sur les pêcheries profondes dans l'Atlantique Nord-Est ;
- Une revue des principales mesures de conservation et de gestion des pêcheries profondes dans les eaux de l'UE prévues par la DSAR et par d'autres instruments pertinents de la Politique Commune de la Pêche, et ;
- Un résumé de l'évolution de la situation pour des points focaux de l'évaluation définis par l'Article 19 du DSAR

Les informations obtenues ont été utilisées pour répondre à un ensemble de questions d'évaluations relatives aux différents critères, motivant les conclusions et recommandations de l'étude.

Information de contexte sur les pêcheries profondes dans l'Atlantique Nord-Est

Depuis 2008, les captures déclarées des espèces profondes listées en Annexe I du DSAR par l'UE ont suivi une tendance décroissante, de 35 000 tonnes par an en moyenne sur la période 2009-2011 à environ 21 000 tonnes par an depuis 2015 (-43%). Les principales espèces profondes débarquées sont le sabre noir *A. carbo* (32% des débarquements totaux d'espèces profondes en moyenne entre 2016 et 2018), la grande argentine *A. silus* (18%), la lingue bleue *M. dypterygia* (12%) and le flétan noir commun *R. hippoglossoides* (9%). Les principaux segments de flotte exploitant les espèces profondes sont les chalutiers de fond (40% des débarquements en 2017), les navires utilisant des hameçons (33%) et les chalutiers pélagiques (20%). Le Portugal est le principal État membre concerné (29% des débarquements totaux de l'UE entre 2016 et 2018), devant la France (20%), l'Espagne (19%) et les Pays-Bas (14%). En 2018, les États membres ont délivré un total de 1 113 autorisations à leurs navires pour cibler les espèces profondes (542 autorisations de pêche) ou pour en capturer en qualité de prises accessoires (571 autorisations de pêche). Deux États membres (l'Espagne et le Portugal) ont émis 94% des autorisations de pêche pour cibler les espèces profondes, avec un nombre important de ces autorisations délivrées à des navires de moins de 12 m dans le cas du Portugal (64%).

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[13] Règlement (UE) n ° 1380/2013 du Parlement européen et du Conseil du 11 décembre 2013 relatif à la politique commune de la pêche, modifiant les règlements (CE) n ° 1954/2003 et (CE) n ° 1224/2009 du Conseil et abrogeant les règlements (CE) n ° 2371/2002 et (CE) n ° 639/2004 du Conseil et la décision 2004/585/CE du Conseil. JO L 354 du 28.12.2013, p. 22–61

[14] Du fait de la pandémie de COVID-19, les consultations ciblées ont dû être conduites par questionnaires suivis par téléphone ou par vidéoconférence le cas échéant.

[15]   https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/11815-Evaluation-of-access-to-deep-sea-fishing-in-the-north-east-Atlantic/public-consultation

Les espèces profondes représentent en moyenne 0,4% des débarquements UE de produits de la pêche. La proportion des espèces profondes dans les débarquements est la plus élevée pour le Portugal (4%), et moins de 1% dans les autres États membres concernés. Les pêcheries profondes sont estimées soutenir 850 emplois embarqués équivalent à 0,8% de l'emploi dans le secteur de la pêche. La contribution des pêcheries profondes à l'emploi national dans le secteur de la pêche est la plus élevée pour le Portugal (8,6%) mais moins de 1% pour tous les autres États membres concernés.

Principaux résultats

Les principaux résultats et les leçons de l'évaluation sont présentés dans les paragraphes suivants en lien avec les cinq critères d'évaluation standards : pertinence, efficacité, efficience, cohérence et valeur ajoutée de l'UE

Pertinence

- **La conception du DSAR est appropriée** pour répondre aux objectifs du Règlement (article 1) visant à i) améliorer les connaissances scientifiques sur les espèces d'eau profonde et leurs habitats et, ii) éviter des effets néfastes notables sur les écosystèmes marins vulnérables (EMV) dans le cadre de la pêche en eau profonde et veiller à la conservation à long terme des stocks de poissons d'eau profonde. L'évaluation n'a pas identifié d'autres mesures raisonnables en plus des mesures de conservation et de gestion déjà mises en œuvre par d'autres instruments de l'UE (TAC et quotas définissant les possibilités de pêche, mesures techniques définissant comment, quand et où ces opportunités de pêche peuvent être exploitées).

- **La plupart des mesures du DSAR restent pertinentes** pour atteindre les objectifs du règlement. La mesure de gestion de la capacité (article 6) est maintenant moins pertinente qu'au moment de l'adoption du DSAR. Ceci découle des réductions des possibilités de pêche sur les espèces profondes (TAC et quotas), de la mise en œuvre de mesures spatiales (interdiction du chalutage au-delà de 800m), ainsi que de l'attractivité économique réduite de la capture d'espèces profondes résultant des campagnes des ONGs ciblées sur le marché de la consommation. Le régime d'autorisations de pêche prises accessoires reste pertinent car les navires titulaires de ces autorisations sont identifiés comme autorisés à capturer des espèces profondes, mais ils sont exemptés de certaines mesures du DSAR comme les limites de capacité et la limitation des activités dans les zones de pêche existantes.

Efficacité

- Le DSAR a apporté **une contribution efficace à la préservation des stocks d'espèces profondes, principalement au travers de l'interdiction de chalutage à plus de 800m** (Article 8.4). Cette interdiction a réduit l'accessibilité de certaines espèces profondes commerciales pour les chalutiers de fond, en protégeant efficacement les espèces vivant sous cette profondeur et les espèces pour lesquelles la majorité de la biomasse est sous 800m. La mesure a également contribué à une réduction des prises accessoires d'autres espèces profondes, en particulier les requins profonds.

- Le DSAR, en conjonction avec le Règlement cadre de collecte de données (UE) 2017/1004[16] **a contribué à l'amélioration des connaissances scientifiques sur certain stocks d'espèces profondes**. L'amélioration prochaine de la qualité des évaluations des stocks de deux espèces profondes (grande argentine et sabre noir) par le Conseil International pour l'Exploration de la Mer (CIEM) en

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[16] Règlement (UE) 2017/1004 du Parlement européen et du Conseil du 17 mai 2017 relatif à l'établissement d'un cadre de l'Union pour la collecte, la gestion et l'utilisation de données dans le secteur de la pêche et le soutien aux avis scientifiques sur la politique commune de la pêche, et abrogeant le règlement (CE) no 199/2008 du Conseil. JO L 157 du 20.6.2017, p. 1–21

apporte une preuve. Cependant, l'amélioration des connaissances scientifiques sur toutes les espèces profondes capturées en petites quantités était probablement hors de portée de la DSAR et du cadre de collecte des données (UE) dans la mesure où l'évaluation scientifique de l'état des stocks est très difficile pour les espèces capturées souvent en tant que prise accessoire par différents segments de flotte et en quantités réduites.

- Du fait des délais pour la mise en œuvre de deux mesures clés du DSAR[17], **le Règlement n'a pas encore été efficace pour protéger les écosystèmes marins vulnérables (EMV)** présents à partir de 400m de profondeur dans les eaux de l'UE de l'Atlantique Nord-Est. Cependant, d'autres mesures ont eu de l'efficacité comme:
  - L'interdiction du chalutage au-delà de 800m qui a favorisé la protection des EMV mais seulement ceux sous cette profondeur et contre les effets néfastes causés par ce type d'engin de pêche,
  - Le protocole pour les rencontres d'EMV qui est une mesure de sauvegarde pour protéger les EMV qui n'ont pas été déjà protégée par les autres mesures spatiales de la DSAR. Mais le protocole pour les rencontres d'EMV ne peut être considéré à lui seul comme une mesure de conservation suffisante.

- Le DSAR **n'a pas été efficace pour améliorer les connaissances sur les habitats profonds** comme le suggère l'absence d'indicateurs d'EMV collectés à bord des navires de pêche commerciale de l'UE. Cela peut être le résultat de l'absence d'espèces indicatrices d'EMV quand les observateurs étaient à bord, mais également le résultat d'une mise en œuvre inadaptée du dispositif observateurs par les États membres avec le déploiement à bord de personnel scientifique non formé à l'identification des espèces indicatrices aux niveaux taxonomiques requis.

- Globalement, l'évaluation de l'efficacité de **la couverture observateurs prévue par le DSAR** est limitée par les modalités variables de mise en œuvre entre les États membres qui a pour résultat des disparités dans les modalités pratiques de mise en œuvre.

Efficience

- Du point de vue de l'équilibre entre les ressources utilisées pour le DSAR et les résultats générés, il apparaît que le DSAR et son régime d'autorisations de pêche sont **efficients**. La mise en œuvre et la gestion du régime d'autorisations de pêche sont les principaux facteurs de coût pour les États membres, particulièrement pour ceux délivrant un nombre élevé d'autorisations (Portugal, Espagne et France dans une moindre mesure). Les autres coûts administratifs afférents découlent du suivi, contrôle et surveillance des navires de États membres, incluant la mise en œuvre des programmes pluriannuels de collecte de données scientifiques suivant les prescriptions du Cadre de Collecte de Données de l'UE. Du fait de la relativement faible contribution des espèces profondes aux débarquements totaux, ces coûts représentent de faibles coûts par comparaison et il n'existe pas de méthode fiable pour leur identification et leur analyse.

- Quelques mesures pourraient améliorer l'efficience de la DSAR telles que :

  - La **simplification des critères** pour la délivrance des autorisations de pêche de manière à concentrer le champ d'application du DSAR sur les navires de pêche interagissant avec les écosystèmes marins au-dessous de 400m de profondeur. Cependant, cela écarterait certains segments de flotte du champ du DSAR, et ainsi réduirait la supervision et le contrôle de la flotte UE capturant des espèces profondes ;

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[17] Art.7 zones existantes de pêche en eau profonde et Art. 9 fermeture des zones qui abritent, ou sont susceptibles d'abriter, des EMV

- **La clarification de la référence** à la zone de compétence de la CPANE en ce qui concerne la couverture observateurs dans la mesure ou l'Article 16 du DSAR peut prêter à confusion pour les États membres concernés, en plus de générer du travail administratif supplémentaire.

Cohérence

Le DSAR est **globalement cohérent avec les Résolutions 61/105 et 64/72** de l'Assemblée générale des Nations unies sur la protection des écosystèmes profonds. Le niveau de cohérence entre le DSAR et les Résolutions des Nations unies dépendra également des prochains actes d'exécution sur la définition des zones de pêche existante ('l'empreinte pêche') et sur la désignation des zones où la présence d'EMV est avérée ou probable.

Le DSAR **est alignée sur la Recommandation 19.2014 de la CPANE sur la protection des écosystèmes marins vulnérables dans la zone de compétence de la CPANE**. Les mesures du DSAR sont plus strictes que celles la CPANE en ce qui concerne les engins de pêche couverts et les règles à suivre en cas de rencontre avec un EMV.

Le DSAR est aligné sur la législation environnementale de l'UE mise en œuvre par la Directive-cadre stratégie pour le milieu marin (DCSMM)[18] et par la Directive Habitats[19], avec cette dernière donnant aux États membres des outils complémentaires pour protéger les écosystèmes profonds en ligne avec le DSAR. Il y a également des complémentarités claires entre le DSAR et les autres instruments de la PCP prévoyant des mesures de conservation et de gestion des pêcheries profondes. La principale question de cohérence tient dans **les Règlements TAC et quota et dans le Règlement Mesures Techniques qui ne répliquent pas les règles de conservation prises pour les requins profonds** par le DSAR et désignés comme « Espèces les plus vulnérables » par celui-ci.

Le DSAR et les mesures prises pour la protection des EMV en haute mer par le Règlement (CE) 734/2008[20] ont des provisions différentes pour la protection des écosystèmes marins vulnérables contre les répercussions causées par les engins de pêche de fond. La principale question de cohérence est que ces deux Règlements s'appliquent aux navires de pêche de l'UE dans la même zone eaux internationales 34.1.1, 34.1.2 et 34.2 du COPACE. Cependant, cette duplication de réglementation dans ces eaux internationales du COPACE n'a pas d'impact dans la mesure où il n'y a pas de signes de navires UE pêchant avec des engins de fond dans la zone.

Valeur-ajoutée de l'UE

La conception des mesures du DSAR a apporté une certaine **valeur ajoutée de l'UE** du fait i) d'un alignement du cadre UE de gestion des pêcheries profondes avec les standards internationaux définis par le Nations unies, ii) d'un processus transparent et basé sur la science pour l'identification des zones où la présence d'EMV est avérée ou probable par un organisme scientifique indépendant, iii) la déclaration des activités de pêche profonde par action de pêche, et iv) un taux minimum obligatoire de couverture observateurs significativement plus élevé que le taux de couverture atteint par les États membres pour la mise en œuvre du Cadre UE de Collecte des Données et v) l'obligation pour les capitaines de pêche d'embarquer un observateur sur demande, avec un régime de sanction spécifique en cas de refus, apporte également une valeur ajoutée par

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[18] Directive 2008/56/CE du Parlement Européen et du Conseil du 17 juin 2008 établissant un cadre d'action communautaire dans le domaine de la politique pour le milieu marin (directive-cadre stratégie pour le milieu marin) (Texte présentant de l'intérêt pour l'EEE). JO L 164 du 25.6.2008, p. 19–40

[19] Directive 92/43/CEE du Conseil, du 21 mai 1992, concernant la conservation des habitats naturels ainsi que de la faune et de la flore sauvages. JO L 206 du 22.7.1992, p. 7–50

[20] Règlement (CE) no 734/2008 du Conseil du 15 juillet 2008 relatif à la protection des écosystèmes marins vulnérables de haute mer contre les effets néfastes de l'utilisation des engins de pêche de fond. JO L 201 du 30.7.2008, p. 8–13

comparaison avec les dispositifs observateurs basés sur un embarquement volontaire comme c'est le cas sous le dispositif observateurs du Cadre UE de Collecte de Données.

CONCLUSIONS

La principale conclusion de cette étude en soutien à l'évaluation du Règlement pour l'accès aux pêcheries profondes et que le DSAR est adaptée aux besoins afin i) d'améliorer les connaissances scientifiques sur les espèces d'eau profonde et leurs habitats, ii) d'éviter des effets néfastes notables sur les écosystèmes marins vulnérables (EMV) dans le cadre de la pêche en eau profonde et veiller à la conservation à long terme des stocks de poissons d'eau profonde tout en iii) assurant l'alignement entre les mesures de l'Union ayant pour but la gestion durable des stocks d'eau profonde et les résolutions adoptées par l'Assemblée générale des Nations unies. Par ailleurs, la revue de l'évolution de la situation en ce qui concerne les points énumérés à l'Article 19 du DSAR ne suggère pas que les objectifs du DSAR ne sont pas respectés par les navires de pêche utilisant des engins de fond (Article 19.3).

L'étude suggère des améliorations comme l'introduction de critères pour les autorisations de pêche de manière à s'assurer que le Règlement est ciblé sur les segments de la flotte de pêche susceptibles d'avoir des répercussions sur les écosystèmes profonds. L'étude recommande également d'améliorer la définition des règles pour la couverture observateurs afin d'assurer d'une approche harmonisée par les États membres de l'UE.

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Kurzfassung

Im Februar 2020 haben die Generaldirektion Maritime Angelegenheiten und Fischerei der Europäischen Kommission (DG MARE) und die Exekutivagentur der Europäischen Kommission für kleine und mittlere Unternehmen (EASME) dem von Coffey International Development Sp. Z o. o. geführten Konsortium den Auftrag erteilt, eine **Studie zur Unterstützung der Evaluierung der Verordnung (EU) 2016/2336 des Europäischen Parlaments und des Rates über den Zugang zur Tiefseefischerei[21]** (im Folgenden mit dem Akronym DSAR für *Deep Sea Access Regulation* bezeichnet) durchzuführen. Die DSAR führt eine Reihe von Erhaltungs- und Bewirtschaftungsmaßnahmen ein, deren Ziel es ist:

i) die wissenschaftliche Erforschung von Tiefseearten und ihren Lebensräumen zu verbessern,
ii) spürbaren Belastungen von empfindlichen marinen Ökosystemen (EMÖ) vorzubeugen und die langfristige Erhaltung von Tiefseebeständen sicherzustellen und zugleich
iii) zu gewährleisten, dass die Maßnahmen der Union zur nachhaltigen Bewirtschaftung der Tiefseebestände den von der Generalversammlung der Vereinten Nationen angenommenen Resolutionen entsprechen[22].

Die DSAR gilt für EU-Gewässer im Atlantischen Ozean sowie für bestimmte internationale Gewässer des Fischereiausschusses für den östlichen Zentralatlantik (CECAF) (insbesondere die Gebiete 34.1.1, 34.1.2 und 34.2). Einzelne Bestimmungen sind auch im Regelungsbereich der Nordost-Atlantik-Fischereikommission (NEAFC) anwendbar.

Zu den wichtigsten Bestimmungen, die die DSAR zur Erreichung dieser Ziele vorsieht, gehören:

- ein System von Fanggenehmigungen für Fischereifahrzeuge zur gezielten Befischung von Tiefseearten („Fanggenehmigung für gezielte Fischerei") sowie für Fischereifahrzeuge, auf denen Tiefseearten als Beifang anfallen („Beifanggenehmigung"),
- Maßnahmen zur Regulierung der Fangkapazität von Fischereifahrzeugen, die Tiefseefischerei betreiben,
- eine Reihe von räumlichen Maßnahmen zur Verhinderung der Ausweitung von Fischereigebieten für Tiefseearten. Hiermit sollen empfindliche Tiefseeökosysteme vor schwerwiegenden Schäden infolge der Verwendung von Fanggeräten geschützt und der Einsatz von Grundschleppnetzen in Tiefen von unter 800 m verboten werden,
- ein Protokoll für richtiges Verhalten bei Antreffen von empfindlichen marinen Ökosystemen, das die Fischereifahrzeuge verpflichtet, jedes Treffen auf ein EMÖ zu melden und die Fischerei im betreffenden Gebiet umgehend einzustellen („Entfernungsregel"),
- strengere spezifische Kontroll- und Überwachungsmaßnahmen und
- die Überwachung durch Beobachter von mindestens 20 % der Fischereifahrzeuge mit einer Fanggenehmigung für die gezielte Fischerei auf Tiefseearten mithilfe von Grundschleppnetzen oder Stellnetzen und mindestens 10 % aller sonstigen Fischereifahrzeuge mit einer Fanggenehmigung für Tiefseearten als Zielart oder Beifang.

Die meisten Maßnahmen der DSAR sind seit 2017 in Kraft. Eine Ausnahme bilden zwei räumliche Maßnahmen: die Definition bestehender Fischereigebiete, in denen Fischereifahrzeuge mit einer Fanggenehmigung für gezielte Fischerei arbeiten dürfen, und die Sperrung von Gebieten, in denen nachweislich oder wahrscheinlich EMÖ vorhanden sind, für Fischereifahrzeuge mit Grundfanggeräten. Zum Zeitpunkt der

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[21] Verordnung (EU) 2016/2336 des Europäischen Parlaments und des Rates vom 14. Dezember 2016 mit besonderen Auflagen für die Befischung von Tiefseebeständen im Nordostatlantik und Vorschriften für den Fischfang in internationalen Gewässern des Nordostatlantiks und zur Aufhebung der Verordnung (EG) Nr. 2347/2002 des Rates. *ABl. L 354 vom 23.12.2016, S. 1-19.*
[22] Insbesondere die 2006 verabschiedete Resolution 61/109 und die 2009 verabschiedete Resolution 64/72.

Studie waren diese beiden räumlichen Maßnahmen aufgrund ausstehender Durchführungsrechtsakte von den EU-Mitgliedstaaten noch nicht in vollem Umfang durchsetzbar.

Ziel der vorliegenden Studie ist es, die Europäische Kommission gemäß Artikel 19 der DSAR bei der Ausarbeitung ihrer Bewertung der geltenden Maßnahmen zu unterstützen. Im Einklang mit den EU-Leitlinien für eine bessere Rechtsetzung wurden in der Studie die Wirksamkeit, Effizienz, Relevanz und Kohärenz sowie der EU-Mehrwert der DSAR untersucht. In der Studie sollte bewertet werden, inwieweit die DSAR-Bestimmungen ihrem Zweck gerecht werden und mit anderen einschlägigen Rechtsvorschriften in Einklang stehen. Zu Letzteren zählen die Verordnung über die Gemeinsame Fischereipolitik[23] und die damit verbundenen Vorschriften, die sich auf die Erhaltung und Bewirtschaftung der Tiefseebestände auswirken, die Umweltgesetzgebung der Union und die einschlägigen internationalen Verpflichtungen.

Die Evaluierungsergebnisse basieren auf veröffentlichten Daten und Dokumenten sowie eingehenden und gezielten Befragungen von Interessensvertretern[24] einschließlich Behörden der Mitgliedstaaten, Fischereiverbänden, Forschungsinstituten und Nichtregierungsorganisationen (NGO). Des Weiteren wurde auf der Website der Europäischen Kommission[25] zwischen Mai und August 2020 eine öffentliche Konsultation durchgeführt. Der Untersuchungsrahmen erstreckt sich über den Umsetzungszeitraum der DSAR zwischen 2017 und 2020.

Der Abschlussbericht enthält:

- eine Zusammenfassung der Lage des Tiefseefischereisektors in der EU,
- den aktuellen Stand der wissenschaftlichen Erkenntnisse zur Tiefseefischerei im Nordostatlantik,
- eine Überprüfung der wichtigsten Erhaltungs- und Bewirtschaftungsmaßnahmen für die Tiefseefischerei in EU-Gewässern, die von der DSAR und anderen relevanten Instrumenten der Gemeinsamen Fischereipolitik vorgesehen sind, und
- eine Zusammenfassung der Veränderungen und Trends entsprechend den Evaluierungsschwerpunkten gemäß Artikel 19 DSAR.

Die evidenzbasierte Datenanalyse lieferte Antworten hinsichtlich der verschiedenen Bewertungskriterien, auf die sich die Schlussfolgerungen und Empfehlungen der Studie stützen.

Hintergrundinformationen zur Tiefseefischerei im Nordostatlantik

Seit 2008 ist bei den in der EU gemeldeten Fängen von Tiefseearten, die in Anhang I der DSAR aufgeführt sind, ein rückläufiger Trend zu beobachten. So sanken diese Mengen von durchschnittlich 35.000 Tonnen pro Jahr im Zeitraum 2009-2011 auf jährlich rund 21.000 Tonnen seit 2015 (-43 %). Zu den angelandeten Tiefseearten zählen in erster Linie der Schwarze Degenfisch *A. carbo* (durchschnittlich 32 % aller Anlandungen von Tiefseearten zwischen 2016 und 2018), der Goldlachs *A. silus* (18 %), der Blauleng *M. dypterygia* (12 %) und der Schwarze Heilbutt *R. hippoglossoides* (9 %). Bei den an der Tiefseefischerei beteiligten Fangflottensegmenten handelt es sich hauptsächlich um Grundschleppnetztrawler (40 % der Anlandungen im Jahr 2017), Fischereifahrzeuge, die Haken einsetzen (33 %) und pelagische Schleppnetzfänger (20 %). Portugal weist den höchsten Anteil an Tiefseefischerei auf (29 % aller EU-Anlandungen zwischen 2016 und 2018), gefolgt von Frankreich (20 %), Spanien (19 %)

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[23] Verordnung (EU) Nr. 1380/2013 des Europäischen Parlaments und des Rates vom 11. Dezember 2013 über die Gemeinsame Fischereipolitik und zur Änderung der Verordnungen (EG) Nr. 1954/2003 und (EG) Nr. 1224/2009 des Rates sowie zur Aufhebung der Verordnungen (EG) Nr. 2371/2002 und (EG) Nr. 639/2004 des Rates und des Beschlusses 2004/585/EG des Rates. *ABl. L 354 vom 28.12.2013, S. 22-61.*

[24] Aufgrund der COVID-19-Pandemie mussten gezielte Konsultationen mittels Fragebögen durchgeführt und gegebenenfalls in Telefon- oder Videokonferenzen vertieft werden.

[25] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/11815-Evaluation-of-access-to-deep-sea-fishing-in-the-north-east-Atlantic/public-consultation

und den Niederlanden (14 %). Im Jahr 2018 erteilten die EU-Mitgliedstaaten ihren Fischereifahrzeugen insgesamt 1.108 Genehmigungen für die gezielte Befischung von Tiefseearten (542 Fanggenehmigungen) oder deren Anlandung als Beifang (566 Fanggenehmigungen). Spanien und Portugal erteilten 94 % aller Fanggenehmigungen für Tiefseearten, wobei im Fall Portugals ein bedeutender Teil dieser Genehmigungen für Schiffe unter 12 m erteilt wurde (64 %).

Tiefseearten machen durchschnittlich 0,4 % aller Anlandungen von Fischereierzeugnissen in der EU aus. Der Anteil der Tiefseearten an den gesamten Anlandungen ist mit 4 % in Portugal am höchsten und liegt in den anderen betroffenen Mitgliedstaaten unter 1 %. Auf die Tiefseefischerei entfallen schätzungsweise 850 Bordarbeitsplätze, was 0,8 % der Gesamtbeschäftigung im Fischereisektor entspricht. Der Anteil der Beschäftigten in der Tiefseefischerei im Vergleich zur Gesamtbeschäftigungszahl im Fischereisektor ist in Portugal am höchsten (8,6 %), beträgt in allen anderen betroffenen Mitgliedstaaten jedoch unter 1 %.

Wichtigste Ergebnisse

Die wichtigsten Ergebnisse der Evaluierung werden in den folgenden Absätzen in Bezug auf die fünf Standardevaluierungskriterien dargestellt: Relevanz, Wirksamkeit, Effizienz, Kohärenz und EU-Mehrwert der Intervention.

Relevanz

- **Das Konzept der DSAR** eignet sich, die Ziele der Verordnung (Artikel 1) zu erreichen, und zwar i) die wissenschaftliche Erforschung von Tiefseearten und ihren Lebensräumen zu verbessern, ii) spürbaren Belastungen von empfindlichen marinen Ökosystemen (EMÖ) im Rahmen der Tiefseefischerei vorzubeugen und die langfristige Erhaltung von Tiefseebeständen sicherzustellen. In der Evaluierung wurden keine weiteren Maßnahmen identifiziert, die nicht schon von anderen EU-Instrumenten umgesetzt wurden (d. h. TAC und Quoten für Fangmöglichkeiten sowie technische Maßnahmen, die festlegen, wie, wann und wo diese Fangmöglichkeiten genutzt werden können).

- **Die meisten DSAR-Maßnahmen sind** für die Erreichung der Ziele der Verordnung **nach wie vor relevant**. Der Maßnahme zum Kapazitätsmanagement (Artikel 6) kommt heute weniger Bedeutung zu als beim Erlass der DSAR. Dies ist durch die Verringerung der Fangmöglichkeiten für Tiefseearten (TAC und Quoten), die Umsetzung räumlicher Maßnahmen (Verbot der Fischerei mit Grundschleppnetzen in Tiefen unter 800 m) sowie die gesunkene wirtschaftliche Attraktivität des Fangs von Tiefseearten aufgrund von NGO-Kampagnen zur Verbrauchersensibilisierung bedingt. Die Beifanggenehmigungsregelung bleibt relevant, da die Fischereifahrzeuge mit diesen Genehmigungen zwar als befugt gelten, Tiefseearten zu fangen, obwohl diese Fischereifahrzeuge von bestimmten DSAR-Maßnahmen wie Begrenzungen der Fangkapazitäten und der Beschränkung der Tätigkeiten in bestehenden Fischereigebieten ausgenommen sind.

Wirksamkeit

- Die DSAR hat jedoch einen **wirksamen Beitrag zur Erhaltung der Tiefseebestände geleistet, hauptsächlich durch das Verbot der Fischerei mit Grundschleppnetzen in Tiefen unter 800 m** (Artikel 8.4). Dieses Verbot hat den Zugang zu wichtigen gewerblich befischten Tiefseearten für Grundschleppnetztrawler verringert und Arten, die unterhalb dieser Tiefe leben, sowie Arten, deren Biomasse größtenteils unter 800 m anzutreffen ist, wirksam geschützt. Ferner hat diese Maßnahme zu einer Verringerung des Beifangs anderer Tiefseearten beigetragen, insbesondere von Tiefseehaien.

- Die DSAR hat in Verbindung mit der Rahmenverordnung (EU) 2017/1004 für die Datenerhebung[26] **zur Verbesserung der wissenschaftlichen Kenntnisse über bestimmte Tiefseebestände beigetragen**. Dies belegt auch die bevorstehende Qualitätsverbesserung der Bestandsabschätzung von zwei Tiefseearten (Goldlachs und Schwarzer Degenfisch) durch den Internationalen Rat für Meeresforschung (ICES). Wissenschaftliche Kenntnisse über alle Tiefseearten, die in relativ kleinen Mengen gefangen werden, konnten wahrscheinlich weder über die DSAR noch über den Datenerhebungsrahmen verbessert werden. Dies ist durch die Schwierigkeit der wissenschaftlichen Bewertung des Bestandsstatus von Arten begründet, die vornehmlich als Beifang von verschiedenen Flottensegmenten und in begrenzten Mengen gefangen werden.

- Aufgrund der Verzögerungen bei der Umsetzung von zwei ihrer Schlüsselmaßnahmen[27] konnte die DSAR **noch nicht wirksam zum Schutz von empfindlichen marinen Ökosystemen (EMÖ) eingesetzt werden**, die sich in EU-Gewässern des Nordostatlantiks in Tiefen unter 400 m befinden. Andere DSAR-Maßnahmen haben jedoch Wirksamkeit gezeigt:

    - Das Verbot der Fischerei mit Grundschleppnetzen in Tiefen unter 800 m hat den Schutz von EMÖ begünstigt, jedoch nur vor erheblichen schädlichen Auswirkungen dieser Art von Fanggeräten.
    - Das EMÖ-Protokoll ist eine Maßnahme zum Schutz derjenigen EMÖ, die noch keinen Schutz durch die anderen räumlichen Maßnahmen der DSAR genießen. Für sich allein kann das EMÖ-Protokoll nicht als ausreichende Erhaltungsmaßnahme angesehen werden.

- Die DSAR hat die **wissenschaftliche Kenntnislage über Tiefsee-Lebensräume nicht wirksam verbessert**, was sich daran zeigt, dass keine EMÖ-Aufzeichnungen an Bord gewerblicher EU-Fischereifahrzeuge gesammelt wurden. Dies könnte darauf zurückzuführen sein, dass während der Anwesenheit von Beobachtern an Bord keine EMÖ-Indikatorarten gefangen wurden. Der Grund könnte aber auch eine unzureichende Umsetzung des Beobachtersystems durch die Mitgliedstaaten mit dem Einsatz von wissenschaftlichem Personal an Bord sein, das nicht in der Identifizierung dieser Arten auf den erforderlichen taxonomischen Ebenen geschult ist.

- Insgesamt wird die Bewertbarkeit der Wirksamkeit der **von der DSAR vorgesehenen Überwachung durch Beobachter** durch die unterschiedlichen Durchführungsbestimmungen in den Mitgliedstaaten begrenzt. Diese führen dazu, dass das Beobachtersystem auch unterschiedlich umgesetzt wird.

Effizienz

- Wenn man die die Kosten für die DSAR mit ihren erzielten Resultaten vergleicht, kommt man zu dem Schluss, dass die DSAR und ihr Fanggenehmigungssystem **effizient** sind. Die Umsetzung und Verwaltung des Fanggenehmigungssystems sind die Hauptkostentreiber für die Mitgliedstaaten, insbesondere für diejenigen, die eine hohe Anzahl von Genehmigungen erteilen (Portugal, Spanien und in geringerem Umfang Frankreich). Weitere Verwaltungskosten im Zusammenhang mit der DSAR entstehen durch die Kontrolle und Überwachung von Schiffen durch die Mitgliedstaaten einschließlich der Durchführung von Mehrjahresprogrammen für die Erhebung wissenschaftlicher Daten gemäß den Anforderungen des EU-Datenerhebungsrahmens. Tiefseearten machen nur einen relativ geringen Anteil der Gesamtanlandungen aus. Deshalb sind die Kosten vergleichsweise niedrig und es gibt keine zuverlässige Methode für ihre Erhebung und Analyse.

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[26] Verordnung (EU) 2017/1004 des Europäischen Parlaments und des Rates vom 17. Mai 2017 zur Einführung einer Rahmenregelung der Union für die Erhebung, Verwaltung und Nutzung von Daten im Fischereisektor und Unterstützung wissenschaftlicher Beratung zur Durchführung der Gemeinsamen Fischereipolitik und zur Aufhebung der Verordnung (EG) Nr. 199/2008 des Rates. *ABl. L 157, 20.6.2017, S. 1-21.*

[27] Art. 7 Bestehende Fischereigebiete für Tiefseearten und Art. 9 Sperrung von Gebieten, in denen EMÖ bekanntlich oder wahrscheinlich vorkommen.

- Über bestimmte Maßnahmen ließe sich die DSAR effizienter gestalten. So könnte ins Auge gefasst werden:

    - **die Kriterien** für die Erteilung von Fanggenehmigungen zu **vereinfachen**, um den Geltungsbereich der DSAR auf Fischereifahrzeuge zu konzentrieren, deren Fanggeräte mit marinen Ökosystemen in Tiefen unter 400 m in Berührung kommen. Dies würde jedoch bestimmte Flottensegmente vom Geltungsbereich der DSAR ausschließen und somit die Aufsicht und Kontrolle über die EU-Tiefseeflotte verringern.

    - **den Verweis** auf den NEAFC-Regelungsbereich bezüglich der Überwachung durch Beobachter **klarzustellen**. Dies ist insbesondere deswegen notwendig, da Artikel 16 der DSAR für die betroffenen Mitgliedstaaten missverständlich sein und zusätzlichen Verwaltungsaufwand verursachen kann.

Kohärenz

Die DSAR steht **weitgehend im Einklang mit den Resolutionen 61/105 und 64/72** der Generalversammlung der Vereinten Nationen zum Schutz von Tiefseeökosystemen. Das Maß an Kohärenz zwischen der DSAR und den UN-Resolutionen wird auch von den bevorstehenden Durchführungsrechtsakten zur Definition bestehender Fanggebiete („Fußabdruck der Fischerei") und von der Ausweisung von Gebieten abhängen, in denen EMÖ bekanntlich oder wahrscheinlich vorkommen.

Die **DSAR steht im Einklang mit der NEAFC-Empfehlung 19.2014 zum Schutz empfindlicher mariner Ökosysteme im NEAFC-Regelungsbereich**. Im Vergleich zur NEAFC sieht die DSAR strengere Maßnahmen für die betroffenen Fanggeräte und bezüglich der Regeln vor, die beim Antreffen von EMÖ einzuhalten sind.

Die DSAR steht im Einklang mit EU-Umweltvorschriften, die in der Meeresstrategie-Rahmenrichtlinie (MSRL)[28] und der Habitatrichtlinie[29] festgelegt sind, wobei Letztere den Mitgliedstaaten zusätzliche Instrumente zum Schutz von Tiefseeökosystemen im Sinne der DSAR an die Hand gibt. Zudem ergänzen sich die DSAR und die anderen GFP-Instrumente, die Erhaltungs- und Bewirtschaftungsmaßnahmen für die Tiefseefischerei vorsehen. Ein Mangel an Kohärenz besteht hauptsächlich im Hinblick auf die **TAC- und Quotenverordnungen sowie die Verordnung über technische Maßnahmen**, da sich dort die von der DSAR festgelegten **Erhaltungsvorschriften für die als „besonders gefährdet" ausgewiesenen Tiefseehaie** nicht wiederfinden.

Die DSAR und die in der Verordnung (EG) Nr. 734/2008[30] enthaltenen EU-Maßnahmen zum Schutz von EMÖ auf hoher See enthalten abweichende Bestimmungen zum Schutz empfindlicher mariner Ökosysteme vor schädlichen Auswirkungen von Grundfanggeräten. Beide Verordnungen gelten für EU-Fischereifahrzeuge in denselben internationalen Gewässern der CECAF-Gebiete 34.1.1, 34.1.2 und 34.2. Konkret dürften diese Doppelregelungen jedoch keine Auswirkungen haben, da es keine Anzeichen dafür gibt, dass EU-Fischereifahrzeuge in den betreffenden internationalen CECAF-Gewässern mit Grundfanggeräten fischen.

EU-Mehrwert

Über die DSAR-Maßnahmen wurde ein **EU-Mehrwert** erzielt, und zwar durch i) die Anpassung des EU-Rahmens für das Management der Tiefseefischerei an die von den Vereinten Nationen festgelegten internationalen Standards, ii) einen transparenten und

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[28] Richtlinie 2008/56/EG des Europäischen Parlaments und des Rates vom 17. Juni 2008 zur Schaffung eines Ordnungsrahmens für Maßnahmen der Gemeinschaft im Bereich der Meeresumwelt (Meeresstrategie-Rahmenrichtlinie) (Text von Bedeutung für den EWR). *ABl. L 164, 25.6.2008, S. 19-40.*

[29] Richtlinie 92/43/EWG des Rates vom 21. Mai 1992 zur Erhaltung der natürlichen Lebensräume sowie der wildlebenden Tiere und Pflanzen. *ABl. L 206, 22.7.1992, S. 7-50.*

[30] Verordnung (EG) Nr. 734/2008 des Rates vom 15. Juli 2008 zum Schutz empfindlicher Tiefseeökosysteme vor den schädlichen Auswirkungen von Grundfanggeräten. *ABl. L 201, 30.7.2008, S. 8-13.*

wissenschaftlich fundierten Prozess zur Identifizierung von Gebieten, in denen EMÖ bekanntlich oder wahrscheinlich vorkommen, durch eine unabhängige wissenschaftliche Einrichtung, iii) die Meldung von Fangtätigkeiten in der Tiefsee je Hol, und iv) einen verbindliche Mindestgrad an Überwachung durch Beobachter, der deutlich über dem Überwachungsgrad liegt, den Mitgliedstaaten bei der Umsetzung des EU-Datenerhebungsrahmens erreichen. Auch stellt v) die mit spezifischen Sanktionen bewehrte Pflicht für Kapitäne von Fischereifahrzeugen, auf entsprechende Aufforderung einen Beobachter an Bord zu nehmen, einen Mehrwert gegenüber Beobachtersystemen wie dem des EU-Datenerhebungsrahmens dar, die auf freiwilliger Teilnahme beruhen.

SCHLUSSFOLGERUNGEN

Die vorliegenden Studie zur Unterstützung der Evaluierung der Verordnung über den Zugang zur Tiefseefischerei gelangt insgesamt zu dem Schluss, dass die DSAR ihrem Zweck gerecht wird, indem sie dazu beiträgt, i) die wissenschaftliche Erforschung von Tiefseearten und ihren Lebensräumen zu verbessern, ii) spürbaren Belastungen von empfindlichen marinen Ökosystemen (EMÖ) im Rahmen der Tiefseefischerei vorzubeugen und die langfristige Erhaltung von Tiefseebeständen sicherzustellen, und zugleich iii) zu gewährleisten, dass die Maßnahmen der Union zur nachhaltigen Bewirtschaftung der Tiefseebestände in EU-Gewässern mit den von der Generalversammlung der Vereinten Nationen angenommenen Resolutionen in Einklang stehen. Darüber hinaus konnte im Rahmen der Evaluierung von Trends gemäß Artikel 19 der DSAR kein Hinweis darauf gefunden werden, dass die Befischung mit Grundfanggeräten nicht mit den Zielen der DSAR vereinbar wäre (Artikel 19.3).

Zudem schlägt die Studie eine Reihe an Empfehlungen vor. So wird die Einführung von Kriterien für Fanggenehmigungen empfohlen. Es soll sichergestellt werden, dass sich die Verordnung gezielt auf die Segmente der Fischereiflotte richtet, die sich nachteilig auf Tiefseeökosysteme auswirken können. Abschließend empfiehlt die Studie, die Definition der Regeln für die Überwachung durch wissenschaftliche Beobachter zu verbessern, um ein harmonisiertes Vorgehen der EU-Mitgliedstaaten zu gewährleisten.

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Acronyms	Definition
AC	EU Advisory Council
CECAF	Fishery Committee for the Eastern Central Atlantic
CFP	Common Fisheries Policy
DCF	EU Data Collection Framework
DSAR	Deep-Sea Access Regulation (EU) 2016/2336
EEZ	Exclusive Economic Zone
EFCA	European Fisheries Control Agency
EMFF	European Maritime and Fisheries Fund
EQM	Evaluation Question Matrix
EUMOFA	European Market Observatory for Fisheries and Aquaculture Products
FAO	Food and Agriculture Organisation of the United Nations
FDI	Fisheries Dependent Information
FTE	Full-Time Equivalent
GEBCO	General Bathymetric Chart of the Oceans
GES	Good Environmental Status
GT	Gross Tonnage
HD	Habitat Directive 92/43/EEC
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
IOTC	Indian Ocean Tuna Commission
JDP	Joint Deployment Plan
kW	Kilowatt
MS	EU Member State
MSFD	Marine Strategy Framework Directive 2008/56/EC
MSY	Maximum Sustainable Yield
NAFO	Northwest Atlantic Fisheries Organization
NEAFC	North-East Atlantic Fisheries Commission
NGO	Non-Governmental Organisation
PC	Public Consultation
RA	Regulatory Area
RFMO	Regional Fisheries Management Organisation
SCIP	Specific Control and Inspection Programme
STECF	Scientific, Technical and Economic Committee for Fisheries
TAC	Total Allowable Catch
UNGA	United Nations General Assembly
VME	Vulnerable Marine Ecosystem
WCPFC	Western and Central Pacific Fisheries Commission
WGDEC	ICES working group on deep-water ecology
WGDEEP	ICES working group on biology and assessment of deep-sea fisheries resources

Introduction

Background to the evaluation

In 2016, the EU adopted Regulation (EU) 2016/2336 of the European Parliament and of the Council[31] (the so-called Deep-Sea Access Regulation) to replace Council Regulation (EC) 2347/2002[32]. The Deep-Sea Access Regulation (DSAR) defines specific conditions which apply to deep-sea fishing activities taking place in EU waters and certain provisions which apply in the international waters of the North East Atlantic. It pursues three main objectives: i) improving scientific knowledge on deep-sea stocks and habitats, ii) preventing significant adverse impacts on Vulnerable Marine Ecosystems (VMEs) and ensuring the long-term conservation of stocks of deep-sea species, and iii) ensuring consistency of EU measures with UN Resolutions (61/105 and 64/72). The overarching objective of the DSAR is to bring an effective contribution to the objectives of the Common Fisheries Policy (CFP) defined in Article 2 of Regulation (EU) 1380/2013 of the European Parliament and of the Council[33] for what concerns deep-sea fisheries, namely that the CFP shall:

- ensure that fishing and aquaculture activities are environmentally sustainable in the long-term (Article 2.1),
- apply the precautionary approach to fisheries management (Article 2.2),
- implement the ecosystem-based approach to fisheries management so as to ensure the negative impacts on the marine ecosystem are minimised (Article 2.3).

To contribute to these objectives, the DSAR comprises measures including:

- a fishing authorisation scheme for vessels targeting deep-sea species ('targeting fishing authorisation') and vessels catching deep-sea species when targeting other species ('by-catch fishing authorisation'),
- measures for regulating the fishing capacity of fishing vessels engaged in deep-sea fisheries,
- a set of spatial measures designed to prevent the expansion of deep-sea fishing areas, to protect deep-sea vulnerable marine ecosystems (VMEs) from significant adverse impacts caused by fishing gears and to prohibit bottom trawling at depths below 800m,
- a VME encounter protocol prompting fishing vessels to report each encounter with a VME and to immediately cease fishing in the area concerned (the "move-on" rule),
- specific stringent control and monitoring provisions, and
- an observer coverage of at least 20% in the case of fishing vessels authorised to target deep-sea species with bottom trawls or bottom set gillnets and at least 10% for all other vessels authorised to catch deep-sea species as target or by-catch.

The DSAR operates in conjunction with other EU instruments implementing conservation and management measures for deep-sea fish stocks and their habitats such as limits on fishing opportunities or technical measures defining how, when and where fishing vessels

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[31] Regulation (EU) 2016/2336 of the European Parliament and of the Council of 14 December 2016 establishing specific conditions for fishing for deep-sea stocks in the north-east Atlantic and provisions for fishing in international waters of the north-east Atlantic and repealing Council Regulation (EC) No 2347/2002. *OJ L 354, 23.12.2016, p. 1–19*

[32] Council Regulation (EC) No 2347/2002 of 16 December 2002 establishing specific access requirements and associated conditions applicable to fishing for deep-sea stocks. *OJ L 351, 28.12.2002, p. 6–11*

[33] Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC. *OJ L 354, 28.12.2013, p. 22–61*

may exploit the fishing opportunities allocated to them. **Appendix 1** shows the reconstituted intervention logic of the DSAR.

Purpose of the evaluation

Article 19 of the DSAR foresees that by 13 January 2021, the Commission shall evaluate the impacts of the measures laid down in the Regulation and determine to what extent objectives i) and ii) cited above have been achieved. In addition, Article 19 of the DSAR calls for the evaluation of trends in a series of 11 specific subjects.

Scope of the evaluation

The scope of the evaluation is defined as follows:

- In terms of EU intervention, the evaluation concentrates on the DSAR and includes considerations on other EU instruments relating to the management of deep-sea fisheries and their impacts on habitats in the scope of the DSAR as defined by its Article 2 (i.e. Union waters of the North Sea, of the North-Western Waters and of the South Western Waters as well as Union waters of ICES division IIa; international waters of the Fishery Committee for the Eastern Central Atlantic (CECAF) areas 34.1.1, 34.1.2 and 34.2). For certain provisions of the DSAR, the geographical scope of the evaluation also includes international waters of the North East Atlantic that correspond to the Regulatory Area of the North-East Atlantic Fisheries Commission (NEAFC);
- In terms of temporal scope, the evaluation is focussed on the period between 2017, the year of entry into force of the DSAR, and 2020 (depending on availability of data);
- In terms of EU Member States, the evaluation includes in its scope all Member States having an interest in fisheries in the geographical area of application of the DSAR as flag State or as coastal State. Fifteen Member States are potentially concerned by the DSAR: Belgium, Denmark, Germany, Estonia, Finland, France, Ireland, Latvia, Lithuania, Netherlands, Poland, Portugal, Spain, Sweden and the United Kingdom[34].

1 Method / process followed

1.1 Data collection

1.1.1 *Collection and analysis of relevant information (published or unpublished)*

During the inception phase, several exchanges were organised with DG MARE to collect data and information stemming from Members States' reporting obligations (e.g. available Member States annual reports on the implementation of the DSAR, deep-sea species quota uptake, notifications of VME encounters and requests submitted to the International Council for the Exploration of the Sea - ICES).

In view of the numerous interlinkages between the DSAR and other EU and international instruments, all relevant legal texts were collected and analysed. The list of instruments consulted and referenced in the report is shown in **Appendix 14**.

Relevant published technical and scientific information (e.g. reports, scientific papers) were gathered and analysed. The list of references reviewed and cited in the text of the report is shown in **Appendix 15**.

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[34] The United Kingdom was a Member State of the European Union until 31 January 2020.

1.1.2 Consultations

The evaluation's consultation strategy aims to provide parts of the evidence base for the evaluation. There were two types of consultations implemented in support of the evaluation: targeted consultations and a public consultation.

Targeted consultations

The evaluation methodology included implementation of a targeted consultation strategy to reach EU stakeholders that have a high interest and/or a high stake in deep-sea fisheries. This facilitated the collection of information in support of the study, and enabled the gathering of opinions and perceptions on the DSAR and on its implementation. Three groups of stakeholders were identified during the inception phase of the study:

- stakeholders impacted by the provisions of the DSAR (e.g. operators of the fishing industry);
- stakeholders in charge of the implementation of the DSAR (e.g. relevant Commission services and EU agencies, MS authorities, research institutes, representatives of the Advisory Councils); and
- stakeholders of the civil society having a stated interest in the conservation of deep-sea ecosystem (e.g. environmental NGOs).

Initially, the methodology considered direct contacts with the different stakeholders through face-to-face interviews or telephone calls. However, with the Covid-19 outbreak and associated sanitary measures that culminated during the period initially earmarked to implement the consultations (April-May 2020), the strategy had to be adapted to reach stakeholders using written questionnaires, and with follow-up telephone calls or videoconferences, as appropriate. The Interservice Steering Group agreed to extend the targeted consultation period to June 2020 to factor in the impacts of the lockdown on stakeholders' ability to provide feedback.

Three different types of questionnaires were prepared during the inception phase to ensure adaptation of the questions to the target audience, as follows:

- one questionnaire for Member State authorities, with one version for Member States issuing fishing authorisations to catch deep-sea species and an abridged version for Member States not issuing fishing authorisations;
- one questionnaire for fishermen associations;
- one questionnaire for Advisory Councils and NGOs.

The different questionnaires were included in the inception report submitted to the Interservice Steering Committee.

In view of the important involvement of certain Member States in deep-sea fisheries, the questionnaires for Member States and for fishermen associations were translated into French, German, Spanish and Portuguese to improve their accessibility.

Stakeholders identified in the preliminary list included in the inception report were contacted from early April 2020. Other stakeholders were subsequently included in the scope of our targeted consultations, when relevant, in view of their potential contribution to the evaluation. The full list of stakeholders contacted is presented in **Appendix 11**. Those stakeholders that provided feedback to the evaluation team are identified. In total, 73 entities were contacted, and 58 (78%) responded.

Concerning the four Advisory Committees (AC) consulted, two responded (North Western Waters and South Western Waters) but not in the form of a formal AC position paper. The two ACs' contributions consisted mainly of feedback on what the ACs had already prepared

at the time of negotiation of the DSAR, the dissemination of questionnaires to all their members and communication to the evaluation team of individual responses.

Overall, the feedback displays the following strengths:

- All 15 Member States authorities having fishing vessels operating in the North-East Atlantic responded;
- Fishermen associations who responded represent different types of fishing interests in terms of types of fisheries exploited, categories of fishing vessels (large-scale, small-scale) and nationalities;
- There was a good level of engagement by NGOs having a stated interest in the management of deep-sea fisheries.

Public consultation

The public consultation on the DSAR was published on the European Commission consultation website[35] between 13 May 2020 and 5 August 2020.The public consultation was open to all citizens and the wider stakeholder community. It was promoted on the DG MARE website and advertised via newsletters and social media.

The survey questionnaire was divided into two sections:

- General Questions – to assess the relevance and effectiveness of the DSAR, aimed at respondents with limited or no knowledge of the Regulation
- Specialised Questions – to assess the relevance, effectiveness and coherence of the DSAR, aimed at respondents with a more in-depth knowledge of the Regulation.

Overall, 156 respondents participated, of whom 112 (72%) also responded to the specialised questions.

A synopsis report presenting a concise overview and conclusions of the consultation activities implemented to support this evaluation is shown in **Appendix 12**

The evidence base

Our assessment of the data and information collected through desk research and consultations is that these are broadly adequate to inform the evaluation. The main factor potentially impacting the robustness of findings is the relatively short time period (i.e. 3.5 years) between the entry into force of the DSAR and this evaluation. Due to the time lag for releasing certain data into the public domain, such as data on catches or on fishing fleet performances, the evaluation could use public data generally referring to 2017 or 2018. As a result, trends measured are limited to the short term. In addition, this evaluation was conducted before the adoption of the Commission's regulations implementing into EU law two DSAR flagship measures (i.e. definition of existing fishing areas and definition of areas where VMEs are known of likely to occur). As a result, the evaluation could consider these two measures only on their principles and objectives, but could not evaluate their effectiveness in detail, nor could the evaluation identify potential unexpected effects stemming from their implementation.

1.2 Steering of the study

The implementation of this study in support of the evaluation of the DSAR was overseen by an Interservice Steering Group (ISG) composed of representatives of DG MARE, DG ENV, Secretariat-General, Legal Service and of the Executive Agency for Small and

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[35] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/11815-Evaluation-of-access-to-deep-sea-fishing-in-the-north-east-Atlantic/public-consultation

Medium-sized Enterprises (EASME). The main interactions between the contractors and the ISG took place during:

- A kick-off meeting held on 18 February 2020 in Brussels after contract signature on 10 February 2020.
- A meeting held on 12 March 2020 by videoconference to discuss the evaluation methodology and tools detailed in the inception report submitted on 9 March 2020
- A meeting held on 13 July 2020 by videoconference to discuss interim findings presented in an interim report submitted on 24 June 2020.
- A meeting held on 29 September 2020 by videoconference to discuss the draft final report submitted on 15 September 2020.

The ISG provided written comments on each of the deliverables cited above.

2 Overview of the EU deep-sea fishing sector

2.1 Total catches of deep-sea species

Since 2008, EU reported catches of deep-sea species listed in Annex I of the DSAR follow a decreasing trend, from 35 000 tonnes per year on average over 2009-2011 to approximately 21 000 tonnes per year since 2015 (-43%).
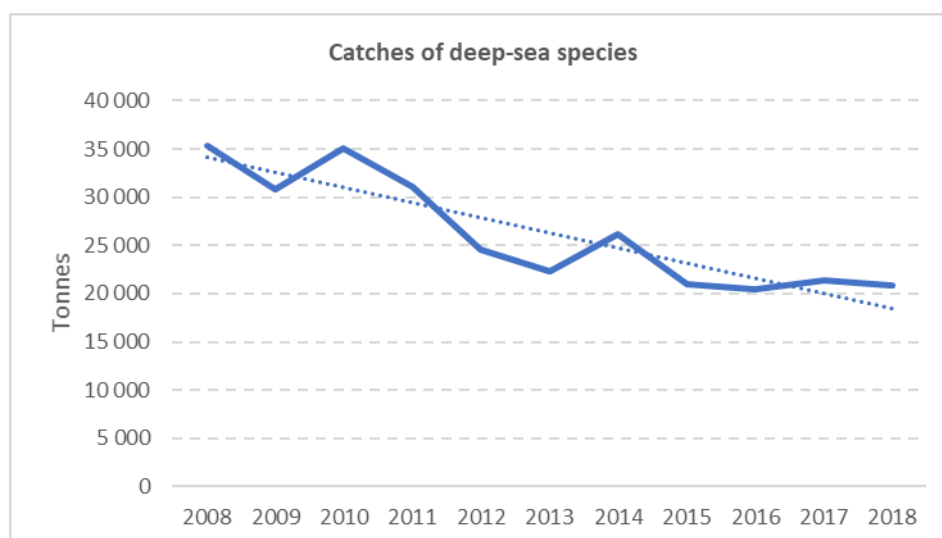
Figure 1: Evolution of EU reported catches of deep-sea species referred to in Annex I of the DSAR in the North-East Atlantic and in CECAF areas 34.1.1, 34.1.2 and 34.2 (except Greenland waters). Dotted line: trend

Source: based on Eurostat data

The next table shows reported catches of the 12 main deep-sea species by decreasing order of importance. The first seven species in the list represent 90% of total reported catches of deep-sea species. The 12 named species in the table equal 97% of the total reported catches of deep-sea species.

Table 1: EU reported catches (tonnes) of the twelve main deep-sea species referred to in Annex I of the DSAR in the North-East Atlantic and in CECAF areas 34.1.1, 34.1.2 and 34.2

Common name	Scientific name	2016	2017	2018	Average	% total
Black scabbardfish	*A. carbo*	7 167	6 638	6 018	6 608	32%
Greater silver smelt	*A. silus*	2 896	4 091	4 016	3 667	18%

Blue ling	*M. dypterygia*	1 981	2 610	3 094	2 562	12%
Greenland halibut	*R. hippoglossoides*	1 998	1 559	2 230	1 929	9%
Bluemouth (Bluemouth redfish)	*H. dactilopterus*	1 637	1 821	1 657	1 705	8%
Roundnose grenadier	*C. rupestris*	1 435	1 624	1 399	1 486	7%
Red (blackspot) seabream	*P. bogaraveo*	853	772	693	773	4%
Baird's smoothhead	*A. Bairdii*	400	482	400	427	2%
Silver scabbardfish (Cutlass fish)	*L. caudatus*	492	349	138	326	2%
Common mora	*M. moro*	306	269	237	271	1%
Alfonsino	*B. splendens*	229	222	227	226	1%
Wreckfish	*P. americanus*	201	272	185	219	1%
Other deep-sea species		797	662	604	688	3%
Total		**20 391**	**21 370**	**20 897**	**20 886**	**100%**

Source: based on Eurostat data

In the group of 'other' deep-sea species, catches of deep-sea sharks as defined by Regulation (UE) 2018/2025[36] represented an average annual amount of 9 tonnes over the 2016-2018 period.

Concerning deep-sea species identified as "Most vulnerable" in Annex I of the DSAR[37], annual reported catches have been below 40 tonnes, on average, over the 2016-2018 period, i.e. about 0.2% of total catches of deep-sea species. The main most vulnerable deep-sea species appearing in deep-sea catch statistics is black cardinalfish (*E. telescopus*) which accounts for 95% of reported catch of most vulnerable deep-sea species.

Reported EU catches of each deep-sea species referred to in Annex I of the DSAR in the North East Atlantic and in CECAF areas 34.1.1, 34.1.2 and 34.2 are presented in Appendix 2.

Catches of deep-sea species in the NEAFC Regulatory Area

Some of the catches of deep-sea species reported in Table 1 were obtained in the high seas under the management mandate of the North-East Atlantic Fisheries Commission (NEAFC), also known as the NEAFC Regulatory Area (NEAFC-RA).

According to catch statistics published by NEAFC, EU catches of deep-sea species referred to in Annex I of the DSAR in the NEAFC-RA were 3 347 tonnes per year on average between 2016-2018, representing 16% of the total EU catches of deep-sea species reported in Table 1. The EU is by far the main fishing entity exploiting deep-sea species in the NEAFC-RA with 90% of total catches, the second placed fishing entity is Faroes with 8% of deep-sea catches in the NEAFC-RA.

Table 2: Total reported catches (tonnes) of the deep-sea species referred to in Annex I of the DSAR in the Regulatory Area of the North-East Atlantic Fisheries Commission by fishing entity.

Fishing entity	2016	2017	2018	Average
EU	2 788	3 315	2 974	3 026
Faroes	460	323	30	271
Iceland	37	0	0	12
Norway	20	18	54	31

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[36] All species of deep-sea sharks listed in Annex I of the DSAR except Blackmouth dogfish *G. melastomus*

[37] Most Vulnerable Species identified by the DSAR include some of the deep-sea shark species listed, black cardinalfish (*E. telescopus*) and orange roughy (*H. atlanticus*).

Russia	14	2	5	7
Total	**3 319**	**3 658**	**3 063**	**3 347**

Source: NEAFC Fisheries Statistics (https://www.neafc.org/catch)

The main deep-sea species targeted by EU vessels in the NEAFC-RA is roundnose grenadier (*C. rupestris*) with an average of 1 370 tonnes per year between 2016 and 2018 (44% of EU catches in the NEAFC-RA), preceding Greenland halibut (*R. hippoglossoides*) with 715 tonnes (23%) and black scabbardfish (*A. carbo)* with 245 tonnes (8%)*.

2.2 Catches of deep-sea species by Member State

The next table summarises reported catches of deep-sea species by EU Member State. Five Member States (Portugal, France, Spain, Netherlands and United Kingdom) reported catches above 2 000 tonnes per year. Portugal, France and Spain represent 67% of total EU catches, and these Member States plus the Netherlands, the United Kingdom and Germany equate to 97% of the total EU catches. In the group of 'other Member States', Estonia reported average annual catches close to 480 tonnes, and Lithuania close to 100 tonnes. For all other Member States, reported catches of deep-sea species are less than 50 tonnes per year (Denmark and Poland), 5 tonnes and less (Ireland, Latvia, Belgium and Sweden), or none (Sweden and Finland).

Table 3: Reported catches (tonnes) of deep-sea species referred to in Annex I of the DSAR by Member State

Member State	2016	2017	2018	Average	% total
Portugal	6 166	6 353	5 605	6 042	29%
France	4 770	3 654	3 881	4 102	20%
Spain	3 852	4 243	3 629	3 908	19%
Netherlands	2 503	3 439	2 915	2 952	14%
United Kingdom	2 078	2 171	2 245	2 165	10%
Germany	536	809	1 811	1 052	5%
Other MS*	485	701	810	665	3%
Total	**20 391**	**21 370**	**20 897**	**20 886**	**100%**

Source:based on Eurostat data
*Note: * Other MS include Estonia, Lithuania, Denmark, Poland, Ireland, Latvia, Belgium, Sweden and Finland (by decreasing order of importance in % total EU catches).*

According to catch statistics available, the six main Member States representing 97% of total catches have different target species. For the different Member States considered, the main species caught over the 2016-2018 period were as follows:

- For Portugal, black scabbardfish represents 70% of reported catches, with red seabream and bluemouth redfish, as the other main species (≈ 10% of total catches each);
- For France, black scabbardfish (47% of total catches) and blue ling (28%) are the main deep-sea target species, with other species in total national catches being relatively minor (7% or less);
- For Spain, the range of deep-sea species caught is larger than in the other Member States with roundnose grenadier (31%), bluemouth redfish (20%), Baird's smoothhead (11%) black scabbardfish (7%) and silver scabbardfish (7%) making 77% of total national catches of deep-sea species;
- For the Netherlands, only one deep-sea species (greater silver smelt) is reported to be caught;

- For the United Kingdom, blue ling (52%) and Greenland halibut (30%) represent 82% of the total national catches of deep-sea species;
- For Germany, the three main deep-sea species caught are greater silver smelt (62%) Greenland halibut (21%) and deep-water crab (17%).

The next figures show the main deep-sea species reported by each of the six Member States representing together 97% of total catches over the 2016-2018 period. For each Member State, the species shown represent at least 90% of average national catches of deep-sea species over the 2016-2018 period.
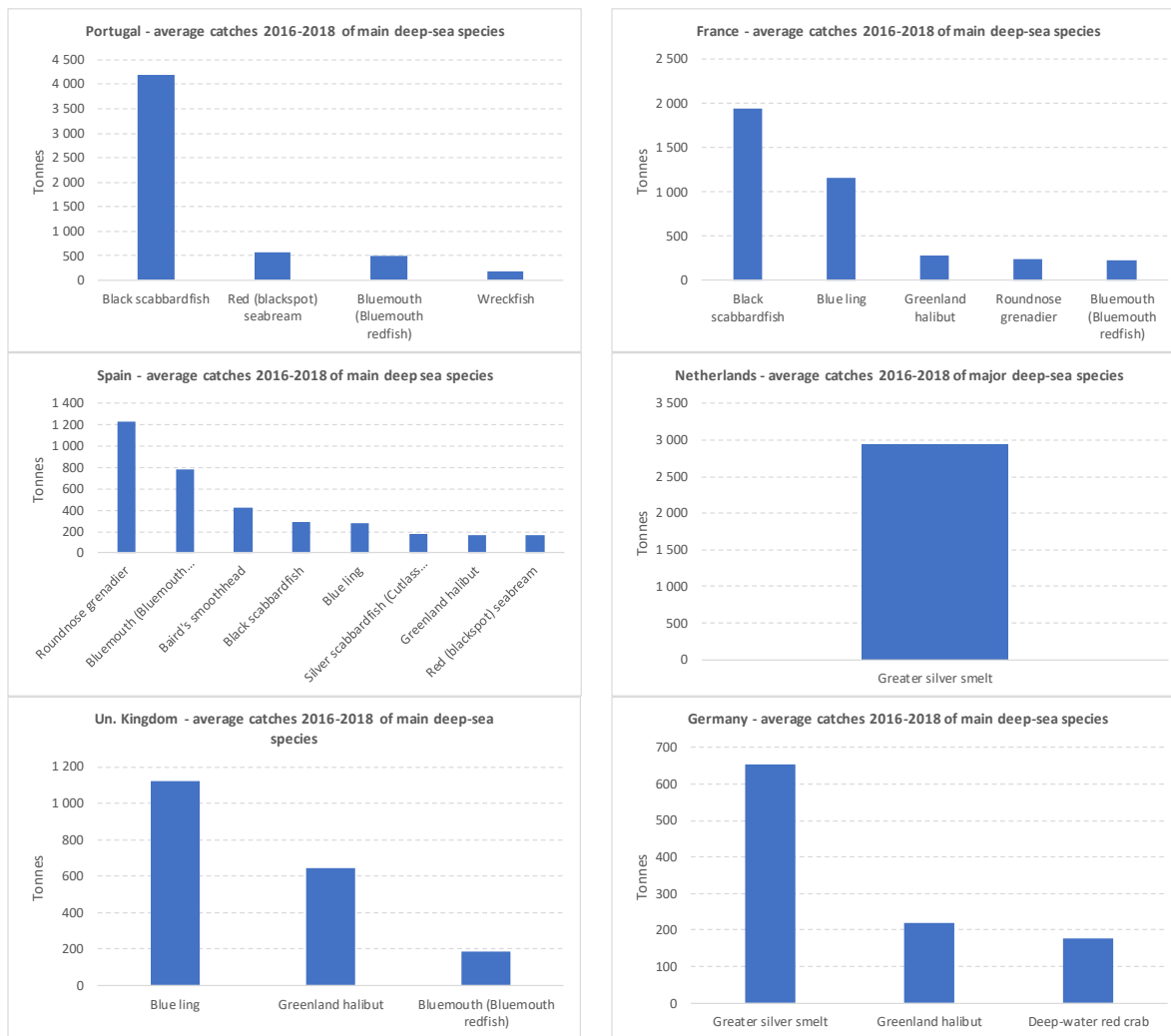
Figure 2: Main deep-sea species reported in the catches of the six Member States representing together 97% of total EU catches of deep-sea species. Species shown represent at least 90% of national catches of deep-sea species

Source: based on Eurostat data

For the six main Member States catching deep-sea species, the contribution of deep-sea species in total weight of national landings is the highest for Portugal (close to 4%), and below 1% for all other five Member States
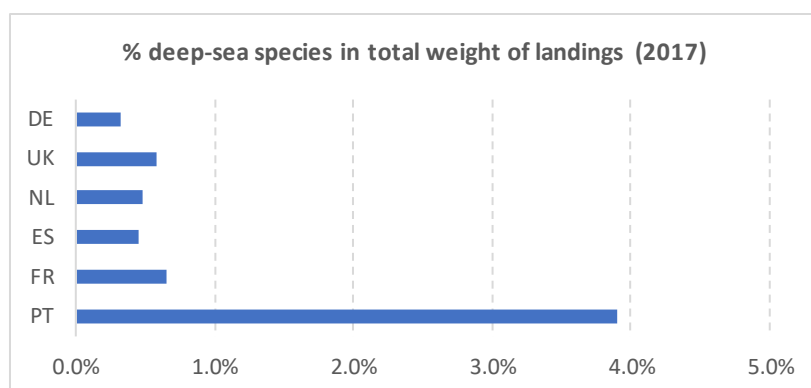
Figure 3: % weight of deep-sea catches in total national landings in 2017 for the main Member States reporting deep-sea catches.

Source: Table 1 for weight of deep-sea catches and STECF (2019a) for weight of total landings

At EU level, total landings of deep-sea species in 2017 (31 370 tonnes) represented 0.4% of the total EU landing of fisheries products (5.2 million tonnes) (STECF, 2019a).

2.3   Main fleet segments involved in exploitation of deep-sea species

According to the EU Annual Economic Report on the EU fishing fleet published in 2019 for 2017 (STECF, 2019a)[38], approximately 140 EU fishing fleet segments[39] reported some catches of the deep-sea species listed in Annex I of the DSAR. However, 18 fishing fleet segments, listed in Table 4, represented more than 90% of total catches of deep-sea species, with the first four fishing fleet segments alone representing 54% of the total catches.

Table 4 : Catches of deep-sea species (DSS) listed in Annex I of the DSAR for the main fishing fleet segments and percentage of total catches of deep-sea species (data for 2017)

Fleet segment (STECF segment code)	Catch DSS (tonnes)	% total DSS catch	Cumulative
NLD pelagic trawlers 40m and more (NLD NAO TM 40XX)	3 459	17%	17%
FRA demersal trawlers 40m and more (FRA NAO DTS40XX)	3 055	15%	33%
ESP demersal trawlers 40 m and more (ESP NAO DTS40XX)	2 578	13%	45%
PRT vessels using hooks 12-18 m Madeira (PRT NAO HOK1218 P2)	1 761	9%	54%
PRT vessels using hooks 12-18 m Mainland (PRT NAO HOK1218)	1 259	6%	60%
UK demersal trawlers 24-40 m (GBR NAO DTS2440)	901	4%	65%
PRT vessels using hooks 12-18 m Mainland (NAO HOK1824)	897	4%	69%
ESP vessels using passive gears 24-40 m (ESP NAO PGP2440)	793	4%	73%
DEU pelagic trawlers 40m and more (DEU NAO TM 40XX)	584	3%	76%
PRT vessels using hooks 10-12 m Azores (PRT NAO HOK1012 P3)	446	2%	79%
FRA demersal trawlers 24-40 m (FRA NAO DTS2440)	405	2%	81%
DEU demersal trawlers 40m and more (DEU NAO DTS40XX)	392	2%	83%
PRT vessels using hooks 12-18 m Azores (PRT NAO HOK1218 P3)	385	2%	84%

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[38] STECF (2019a) The 2019 Annual Economic Report on the EU Fishing Fleet (STECF 19-06). Carvalho, N., Keatinge, M. and Guillen Garcia, J. editor(s), EUR 28359 EN, Publications Office of the European Union, Luxembourg, 2019. ISBN 978-92-76-09517-0, doi:10.2760/911768, JRC117567, 496 p.

[39] For STECF, a fleet segment is defined on the basis on the main fishing area, the Member State of registration, the main type of gear used and the length category of the vessels. In some case, a geographic indicator is added, in particular to denote registration of the vessel in an outermost region.

PRT vessels using hooks less than 10 m Azores (PRT NAO HOK0010 P3	338	2%	86%
ESP demersal trawlers 24-40 m (ESP NAO DTS2440)	321	2%	88%
PRT vessels using hooks 18-24 m Madeira (PRT NAO HOK1824 P2)	296	1%	89%
PRT vessels using hooks 24-40 m Azores (PRT NAO HOK2440 P3)	235	1%	90%
DEU vessels using nets 24-40 m (NAO DFN2440)	175	1%	91%

Source: based on STECF (2019a)

The main operational patterns of these 18 EU fishing fleet segments which constitute 91% of total catches of deep-sea species in the North-East Atlantic are described in Appendix 3 based on information available for 2017 (STECF, 2019a) and feedback from the operators concerned.

Table 5 proposes a classification of the main fleet segments listed in Table 4 in five groups, based on apparent similarities in operational patterns. For each group, we provide an estimate of the number of vessels concerned, their main target species, the share of deep-sea species in their total catches, the main deep-sea species caught, and the main fishing areas exploited. The five main groups are:

1- Pelagic trawlers of 40 m and more
Catches of deep-sea species by the 20 pelagic trawlers flagged to the Netherlands and Germany represented 20% of total EU catches of deep-sea species in the North-East Atlantic in 2017. Catches were almost exclusively composed of greater silver smelt (4 000 tonnes). Deep-sea species represented approximately 1% of total catches of vessels of this group, and their catches occurred mainly when vessels were fishing in the Northern North Sea and North West of Scotland.

2- Bottom trawlers of 40 m and more fishing mainly in EU waters
This group includes the 10 bottom trawlers registered in France targeting whitefish species in the North and in the West of Scotland. Catches of deep-sea species represented 15% of total EU catch of deep-sea species in the North East Atlantic in 2017, with black scabbardfish (1 600 tonnes), Blue ling (880 tonnes) and Greenland halibut (250 tonnes) as main deep-sea species caught. Deep-sea species catches represented 9% of total catches of vessels of this group.

3- Bottom trawlers of 40 m and more fishing mainly outside EU waters
The main difference with the previous group is that the large-scale trawlers concerned are active mostly outside EU waters, in Norwegian waters, in the NEAFC and NAFO Regulatory areas. The 20 trawlers in this group target whitefish species, with deep-sea catches in the North East Atlantic representing an aggregate 5% of their total catches in 2017, but up to 8% for the Spanish trawlers in this group. Catches of deep-sea species were close to 3 000 tonnes in 2017, with the first three being roundnose grenadier (1 560 tonnes), Greenland halibut (560 tonnes) and Baird's smoothhead (480 tonnes).

4- Vessels 24-40 m using bottom gears
This group includes approximately 320 vessels flagged to France, Germany, Spain and the United Kingdom exploiting mixed fisheries in West of Scotland, the Celtic Sea and the Bay of Biscay. Most vessels in this group are trawlers, with some vessels using longline or gillnets. The total catches of deep-sea species amounted to 2 600 tonnes in 2017, 13% of total deep-sea catches in the North East Atlantic this year, with blue ling (990 tonnes), bluemouth redfish (720 tonnes) and black scabbardfish (300 tonnes) as main deep-sea species caught. Overall, deep-sea catches represented around 1% of their total catches. German vessels using nets were an exception with one deep-sea species caught (deep-water crab) representing 12% of the total catch of this segment.

5- Vessels using hooks (longline and handline) any length in Southern waters
This group includes approximately 560 vessels based in mainland Portugal, Azores and Madeira specialising on exploitation of deep-sea species, highly migratory species and various coastal species. Vessels of this group caught around 5 600 tonnes of deep-sea species in 2017, with black scabbardfish (4 100 tonnes) as the main species caught and red seabream (510 tonnes), bluemouth redfish (375 tonnes) and wreckfish (180 tonnes) as the other main targeted deep-sea species. At group level, the catch of deep-sea species represented close to 30% of total catches, but close to 80% for vessels based in Madeira.

Table 5: Main groups of EU vessels catching deep-sea species (DSS) listed in Annex I of the DSAR in the North East Atlantic

Cluster	DCF segment code	Target species	Number of vessels	Catch of DSS (% EU total)	% DSS in total catch	Main DSS caught	Main fishing areas
Pelagic trawlers > 40 m	NLD NAO TM 40xx DEU NAO TM 40xx	Small pelagics (herring, blue whiting, mackerel, etc.)	20	4 000 t (20%)	1%	Greater silver smelt (4 000 t) Red seabream (21 t)	North Sea / North-West Scotland / Celtic Sea
Bottom trawlers > 40 m active mainly in EU waters	FRA NAO DTS 40 xx	Whitefish species (saithe, cod, hake)	10	3 000 t (15%)	9%	Black scabbardfish (1 600 t) Blue ling (880 t) Greenland halibut (250 t) Rabbitfish (121 t).	North and West Scotland
Bottom trawlers > 40 m active mainly outside EU waters	ESP NAO DTS 40xx DEU NAO DTS 40xx	Whitefish species (cod, saithe, haddock)	20	3 000 t (15%)	5% (8% for ESP trawlers and 2% for DEU trawlers)	Roundnose grenadier (1 560 t) Greenland halibut (560 t) Baird's smoothhead (480 t)	Norwegian waters, NEAFC-RA, NAFO-RA
Vessels 24-40m using bottom gears (trawl, longline and gillnets)	GBR NAO DTS2440 ESP NAO PGP2440 FRA NAO DTS2440 ESP NAO DTS2440 DEU NAO DFN2440	Mixed fisheries (hake haddock, anglerfish, cod, whiting, flatfish)	320	2600 t (13%)	1%(except DEU netters with 12% deep-sea species)	Blue ling (990 t) Bluemouth redfish (720t) Black scabbardfish (300 t)	West of Scotland Celtic Sea Bay of Biscay
Vessels using hooks (longline and handline) any length in Southern waters	PRT NAO HOK 1218 P2* PRT NAO HOK 1218 PRT NAO HOK 1824 PRT NAO HOK1012 P3 PRT NAO HOK 1218 P3 PRT NAO HOK0010 P3 PRT NAO HOK 1824 P2 PRT NAO HOK 2440 P3	Deep-sea species, highly migratory species, various coastal fish species	562	5 600 t (28%)	35% (in excess of 60% for vessels between 18 and 24m)	Black scabbardfish (4 100 t) Red seabream (510 t) Bluemouth redfish (375 t) Wreckfish (180 t)	Portugal Mainland waters Madeira Azores

Source: based on data published by STECF (2019a) and on feedback from operators as available
*Note: * P2 refers to Madeira and P3 refers to Azores. Reference year for quantitative data presented is 2017*

2.4 Catches of deep-sea species by type of gear used

Catches of deep-sea species by main types of gear used in 2016 and 2017 are shown in Figure 4 below.
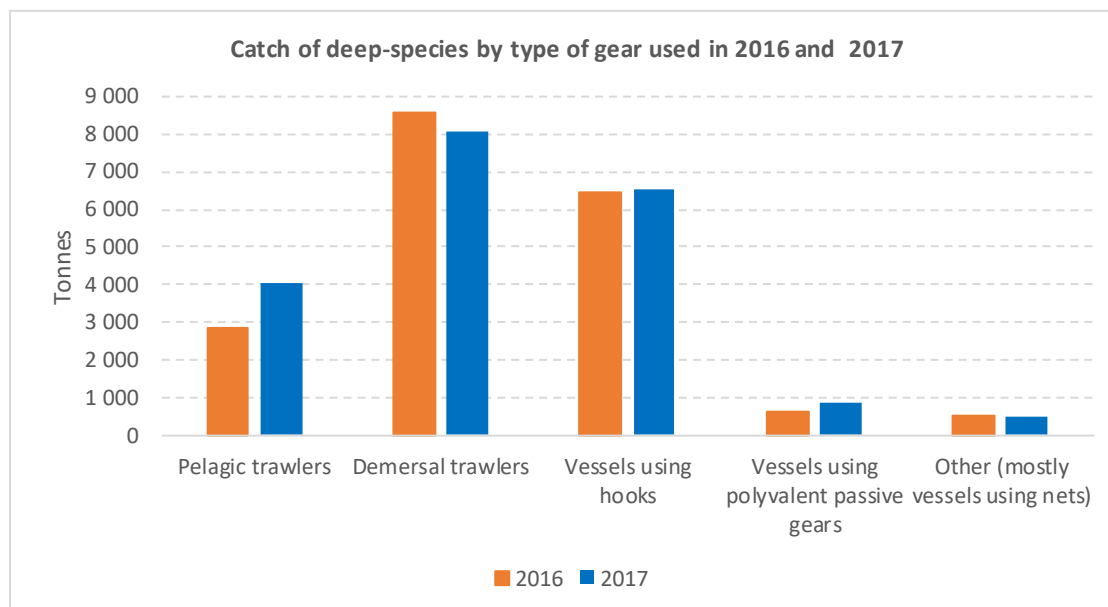
Figure 4: Reported catches of deep-sea species listed in Annex I of the DSAR by type of gear used

Source: based on data published by STECF (2019a)

Across all fishing fleet segments for which deep-sea species catches have been reported in STECF (2019a), vessels using demersal trawls represented 40% (2017) and 45% (2016) of total deep-sea reported catches, preceding vessels using hooks (longline and handline) with 33% and pelagic trawlers with 15% (2016) and 20% (2017). Vessels using polyvalent passive gears (longline and gillnets, but mostly longline) represented 4% of the total deep-sea catches, with longline activities on hake probably at the origin of most deep-sea catches. Catches of deep-sea species by vessels using bottom set nets represent 2% to 3% of total deep-sea catches. The relatively low share of vessels using nets in total is due to the prohibition to target deep-sea species with gillnets introduced in 2005 by the EU's Technical Measures Regulations[40].

For each type of gear, the next table shows the main species landed and the number of other deep-sea species recorded in total landings in 2017.

Table 6: Main deep-sea species landed by type of gear used for 2017 and number of other deep-sea species caught in association

Type of gears	Main species landed (10% or more of deep-sea species landings)	Number of other deep-sea species landed (by-catches)
Pelagic trawlers	Greater silver smelt (>99%)	3 taxa
Demersal trawlers	Black scabbardfish (26%) Blue ling (22%) Grenadiers (21%)	28 taxa

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[40] The prohibition was introduced through amendment to Council Regulation (EC) No 850/98 applicable until 2019 and carried over under Regulation (EU) 2019/1241 of the European Parliament and of the Council repealing Council Regulation (EC) No 850/98.

	Greenland halibut (13%)	
Vessels using hooks	Black scabbardfish (66%) Bluemouth redfish (11%) Red seabream (10%)	26 taxa
Vessels using polyvalent passive gears	Bluemouth redfish (60%) Blue ling (16%)	18 taxa
Other (mostly nets)	Deep-water crabs (37%) Bluemouth redfish (30%)	35 taxa

Source: based on STECF (2019a) data

2.5 Economic value of deep-sea fisheries

2.5.1 Prices of main commercial deep-sea species

The next table shows the average first sale value (EUR / kg) of the main deep-sea species landed in the EU, based on data published by EUMOFA[41]. Species shown in the table are those for which data are available, due to sufficient landing information in the EUMOFA information flow.

According to EUMOFA price information, the first sale price of the main deep-sea species is close to EUR 3.50/kg on average. However, some deep-sea species have a relatively higher commercial value (e.g. red seabream, wreckfish with EUR 18.76/kg, alfonsinos) compared to the average, while other deep-sea species are sold at relatively lower prices (e.g. greater silver smelt with EUR 0.89/kg, blue ling, grenadiers).

Table 7: Average annual first sale prices of main deep-sea species landed (EUR / kg)

Common name	Scientific name	Code	2016	2017	2018	2019	Average
Black scabbardfish	*A. carbo*	BSF	2.75	3.15	3.41	3.62	3.23
Greater silver smelt	*A. silus*	ARU	*0.89**	0.81	0.88	1.00	0.89
Blue ling	*M. dypterigia*	BLI	1.74	1.95	1.71	1.80	1.80
Greenland halibut	*R. hippoglossoides*	GHL	4.49	4.21	5.02	4.64	4.59
Bluemouth redfish	*H. dactilopterus*	BRF	3.17	3.22	3.38	3.26	3.26
Roundnose grenadier	*C. rupestris*	RNG	1.74	2.20	1.33	1.55	1.70
Red seabream	*P. bogaraveo*	SBR	16.61	15.97	18.59	19.02	17.55
Baird's smoothhead	*A. Bairdii*	ALC	*1.22**	1.13	1.42	1.12	1.22
Silver scabbardfish	*L. caudatus*	SFS	3.47	3.62	4.24	4.00	3.83
Common mora	*M. moro*	RIB	2.73	3.11	2.80	2.97	2.90
Alfonsino	*B. splendens*	BYS	5.18	6.29	6.75	6.95	6.29
Wreckfish	*P. americanus*	WRF	17.15	17.73	19.38	20.78	18.76
Average**			3.89	3.35	3.51	3.22	3.49
Other deep-sea species***			1.94	1.73	1.94	2.10	1.93

Source: extracted from EUMOFA database (12/03/2020)
*Note: * Price data estimated as average of prices available for other years due to insufficient coverage of landings by EUMOFA*
*   ** weighted average*
*   *** Average price for other deep-sea species not listed in the table is assumed to be equal to average price of groundfish species, all species included, as published by EUMOFA*

2.5.2 First sale value of deep-sea catches

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[41] Path: EUMOFA / Data / Disaggregated data / Ad-hoc queries / First sale - (EU) with extraction of relevant data by ERS (=FAO) species code available on EMOFA website at https://www.eumofa.eu/ .

The product of reported catches (Table 1) by average price of deep-sea species shown in Table 7 provides an estimated average annual first sale value of deep-sea catches of EUR 67.6 million over the 2016-2018 period. As a result of national fisheries exploiting mainly high value species (black scabbardfish, red seabream, bluemouth species and wreckfish, see Table 7), Portugal represents 50% of the total first sale value of deep-sea catches (EUR 33.5 million on average), preceding Spain (EUR 12.1 million) and France (EUR 10.7 million). In contrast, the Netherlands and Germany, which both have large catches of low value deep-sea species (i.e. greater silver smelt) obtained a relatively lower turnover from deep-sea catches (EUR 2.4 million and EUR 1.9 million respectively).

Table 8: Estimates of total first sale value (EUR million) of deep-sea catches

Member State	2016	2017	2018	Average	% total
PT	31.8	35.0	33.8	33.5	50%
ES	12.0	12.9	11.4	12.1	18%
FR	11.7	9.8	10.4	10.7	16%
UK	6.6	5.4	5.5	5.9	9%
NL	2.1	2.6	2.4	2.4	4%
DE	0.7	0.9	4.0	1.9	3%
Other MS	0.9	1.0	1.5	1.1	2%
Total	65.8	67.8	69.1	67.6	100%

Source: Table 1 for weight and Table 7 for average prices

Set in the context of the total first sale value of national landings, the first sale value of deep-sea species represents 9% of the total for Portugal, and below 1% for all the other five main Member States, with an interest in deep-sea fisheries.
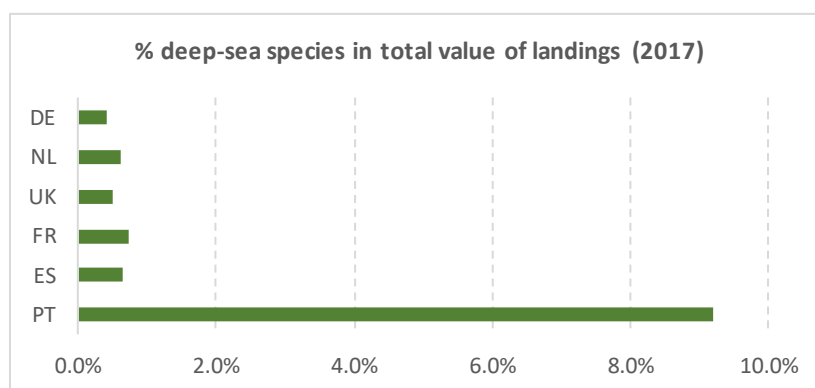
Figure 5: % first sale value of deep-sea catches in total value of landings in 2017 for the main Member States reporting deep-sea catches

Source: Table 8 for value of deep-sea catches and STECF (2019a) for value of total landings

At EU level, the total value of deep-sea catches in 2017 (EUR 67.8 million) represented 0.9% of the total EU landing value EUR (7.2 billion) (STECF, 2019a).

2.6   Contribution of deep-sea fisheries to employment

As evidenced by data presented in Table 4 and further detailed in **Appendix 3**, most EU fishing fleet segments land a relatively low proportion of deep-sea species compared to their total catches. As a result, employment onboard the vessels catching deep-sea species cannot be assumed to be dependent on these species. However, certain fleet segments of Portugal (Mainland, Madeira and Azores) rely to a large extent on the exploitation of deep-

sea species (see **Appendix 3**), with employment onboard probably dependent on an access to these fisheries.

An estimate of employment dependent on exploitation of deep-sea species can be obtained by assuming that the number of jobs onboard, which depend on deep-sea species, is proportional to the value of deep-sea species landed by a fleet segment. This would mean, for example, that if a fleet segment employs 100 full-time equivalent (FTE) with deep-sea catches representing 10% of its total sales, then the number of FTE depending on deep-sea species is 10[42].

Based on this working assumption, the number of FTE dependent on deep-sea fisheries was estimated based on STECF (2019a) data, considering for each fishing fleet segment: i) value of total landings of deep-sea species and value of total landings all species included, and ii) the total number of FTE employed.

According to estimates, the number of FTE dependent on the exploitation of deep-sea species is around 850 FTEs for 2017. Compared to the total number of FTE in the fishing sector across the EU – 107 807 FTEs according to STECF (2019a), deep-sea fisheries are estimated to support 0.8% of total employment in the fishing sector.

The next figure shows that the number of jobs dependent on deep-sea fisheries is the highest for Portugal (close to 680 FTEs), preceding Spain (around 120 FTEs). For other Member States, the number of FTEs dependent on deep-sea fisheries is low by comparison. Compared to total employment at national level, only Portugal is significantly dependent on deep-sea species for employment in the fishing sector (8.6%). For all other Member States, the contribution of deep-sea fisheries to total employment is less than 1%.
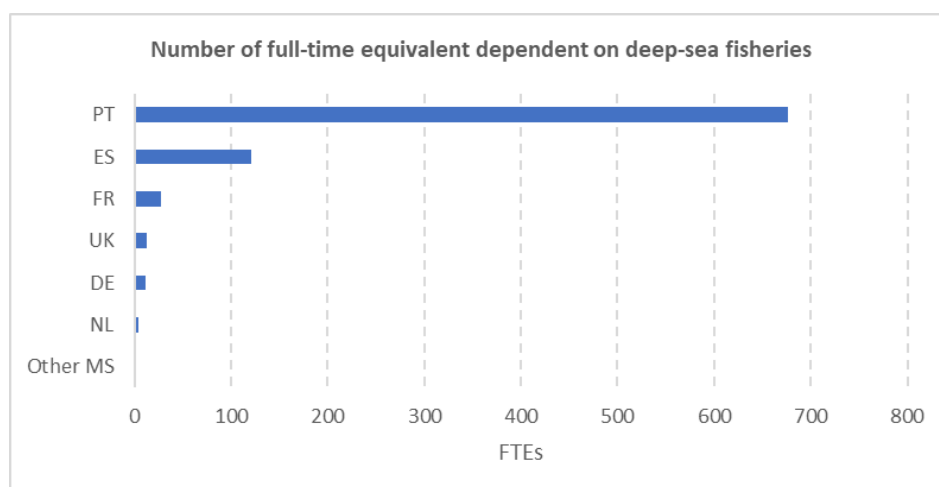
Figure 6: Estimates of number of full-time equivalents dependent on deep-sea fisheries by Member States in 2017

Source: own estimates based on STECF (2019a) data

The breakdown of jobs by Member States reflects the dominant nature of fishing activities exploiting deep-sea species. In Portugal, almost all landings of deep-sea species are obtained by small-scale fishing fleet segments using labour-intensive fishing techniques

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[42] A same approach is applied to estimate the number of jobs dependent on an access to a fishing zone under sustainable fishing partnership agreements as detailed in COFREPECHE, MRAG, NFDS, POSEIDON (2014) Analyse économique de la flotte thonière de l'UE – Note de méthode. Contrat cadre MARE/2011/01 -Lot 3, contrat spécifique n°09. Bruxelles, 32p

(hooks). By contrast, all landings of deep-sea species attributable to the Netherlands are obtained by capital-intensive large-scale fishing fleet segments (pelagic trawl).

2.7 Main ports concerned by deep-sea fisheries

Based on information submitted by Member States to the Commission and on feedback collected from stakeholders, the next table lists the main fishing ports from where fishing vessels exploiting deep-sea species operate. Note that large-scale vessels from France and Spain also use ports in Ireland and in the United Kingdom, when fishing for deep-sea species in the West of Scotland.

Table 9: Main fishing ports in relation to deep-sea fisheries

Member State	Main fishing ports in relation to deep-sea fisheries
DE	Rostock, Bremerhaven
ES	Mugia, Burela, La Coruña, Cedeira, Santa Eugenia de Riveira, Cangas Aviles, Ondarroa Camariñas, Vigo, Marin, Cariño, Lastres, Gijon, Cillero, Santander, Castletownbere (IE), Killybegs (IE), Tromsø (NO)
FR	Boulogne s/Mer, Lorient, Concarneau, Lochinver (UK), Peterhead (UK)
NL	IJmuiden, Scheveningen, Amsterdam
PT	Matosinhos Nazaré, Peniche, Sesimbra, Olhão (Mainland) Ponta Delgada, São Mateus, Praia da Vitória and Horta (Azores) Funchal (Madeira)
UK	Grimsby, Macduff, Marin, Peterhead, Lochinver, North Shields

Source: Member States reports and feedback from stakeholders

Information is qualitative. Quantitative data on the number of vessels or amounts of deep-sea landings transiting through each port are not readily available.

2.8 Trends over time

Data available on fleets and catches generally provide indications up to 2018. The evolution of catches of deep-sea species over time (Figure 1) show stable landings since 2015, and no particular signal as from 2017, the year of entry into force of the DSAR.

The stability of deep-sea fishing activity over the last three to four years is also the main message received from stakeholders consulted. No entities consulted (Member States and fishing associations) mentioned particular trends in the number of vessels exploiting deep-sea species, nor did they report notable changes in fishing strategies, i.e. fishing vessels leaving deep-sea fisheries to exploit other stocks or vice-versa. Some Member States (Spain, France and Poland) reported significant decreases in the number of their fishing vessels exploiting deep-sea fish stocks over time, in the period up to 2010. Madeira also reported a decrease in the number of its fishing vessels targeting deep-sea fisheries as a result of a permanent cessation scheme implemented in 2012. These adaptations occurred before the DSAR.

Operators of large-scale fishing vessels (Spain) reported that the main driver for decreasing activity in deep-sea fisheries, since the early 2010's has been the decreasing amount of fishing opportunities available rather than the technical measures imposed. Examples were Total Allowable Catches (TAC) for black scabbardfish and grenadiers in North Western waters which reduced by 40% between 2013 and 2019. Other operators (France and UK) mentioned that NGOs' campaigns against deep-sea fisheries and against supermarket chains offering deep-sea species to consumers[43] had resulted in a decrease in market demand for deep-sea fish, which had reduced the economic incentive to catch them. According to one fisherman association (UK), NGOs' market campaigns delivered

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[43] See for example http://www.bloomassociation.org/le-classement-de-bloom-des-supermarches-francais/

benefits for the conservation of deep-sea stocks that no other conservation and management measures could have done other than a total ban.

3 The status of scientific knowledge on deep-sea fisheries in the North-East Atlantic

3.1 Scientific knowledge on stocks of deep-sea species

ICES provides scientific advice on the status of several deep-sea species including black scabbardfish (*A. carbo)*, alfonsinos (*Beryx spp.*), black spot seabream (*P. bogaraveo*), orange roughy (*H. atlanticus*), roundnose and roughead grenadier (*Coryphaenoides spp.*), greater silver smelt (*A. silus*), blue ling (*M. dypterygia*) and Greenland halibut (*R. hippoglossoides*) mainly based on scientific reviews produced by the ICES Working Group on Deep-Sea Species (WGDEEP) (ICES, 2019d). In addition, ICES provides scientific advice on the status of some deep-sea shark and rays species including black-mouthed dogfish (*G. melastomus*), kitefin shark (*D. licha*), leafscale gulper shark (*C. squamosus*) and Portuguese dogfish (*C. coelolepis*) based on the research work developed by the Working Group on Elasmobranch Fishes (WGEF) (ICES, 2018). Compared to the list of deep-sea species in Annex I of the DSAR, 13 deep-sea species (27%) are covered by ICES scientific reviews, and 36 (73%) are not. Appendix 4 details the species covered and not covered by ICES scientific reviews.

There are no scientific assessments of the deep-sea species listed in Annex I of the DSAR for the CECAF regions covered by the DSAR (FAO, 2018). Scientific assessments conducted by CECAF scientific working groups concentrate mostly on coastal species exploited in the waters of African Costal States, with some exceptions (such as deep-sea shrimps and black hake). However, black scabbardfish, which is the main species exploited in CECAF areas concerned by the DSAR, may be assumed to be covered by ICES advices for this species in the North-East Atlantic given its wide distribution range which probably extends to Northern areas of CECAF, in particular around Madeira and Canary Islands (Farias et al., 2013).

ICES advice on deep-sea species is published annually or biennially, depending on the needs of the EU in relation to advice supporting TAC and quota settings. At the time of writing this evaluation, detailed ICES advices was available for 2018 and 2019.

For its evaluations of stock status, ICES uses fisheries dependent information (information derived from catch, landings and fishing effort), fisheries independent information (information derived from scientific surveys) or a mix of both. ICES classifies the stocks into six main categories on the basis of available scientific knowledge, which are then used as a basis for the advice issued.

Table 10: Categories defined by ICES for the purpose of advice rule to be applied

Stocks categories
Category 1: *stocks with quantitative assessments*. Includes the stocks with full analytical assessments and forecasts, as well as stocks with quantitative assessments based on production models
Category 2: *stocks with analytical assessments and forecasts that are only treated qualitatively*. Includes stocks with quantitative assessments and forecasts which for a variety of reasons are considered indicative of trends in fishing mortality, recruitment, and biomass.
Category 3: *stocks for which survey-based assessments indicate trends*. Includes stocks for which survey or other indices are available that provide reliable indications of trends in stock metrics, such as total mortality, recruitment, and biomass.
Category 4: – *stocks for which only reliable catch data are available*. Includes stocks for which a time-series of catch can be used to approximate MSY.

> **Category 5:** – *landings only stocks*. Includes stocks for which only landings data are available.
>
> **Category 6:** – *negligible landings stocks and stocks caught in minor amounts as bycatch*. Includes stocks where landings are negligible in comparison to discards and stocks that are primarily caught as bycatch species in other targeted fisheries.

Source: ICES Advice basis published 13/07/2018

For category 1 and 2 stocks, ICES provides advice in accordance with agreed management plans. If such plans have not been agreed, ICES advice follows the ICES MSY approach. For category 3-6 stocks, available knowledge is insufficient to apply the ICES MSY approach, and advice is, therefore, based on the precautionary approach. However, if proxies are available for reference points for some stocks in categories 3 and 4, ICES may assess the state of the stock relative to MSY criteria.

The next table shows how each stock of deep-sea species has been classified by ICES in the most recent published advice.

Table 11: Classification of stocks of deep-sea species according to ICES categories established for the purpose of advice rule to be applied

Category	Stocks (year of published advice)
Category 1 3 stocks	Blue ling (*Molva dypterygia*) in subareas 6–7 and Division 5 (2018) Greenland halibut (*Reinhardtius hippoglossoides*) in subareas 5, 6, 12, and 14 (2019) Greenland halibut (*Reinhardtius hippoglossoides*) in subareas 1 and 2 (2019)
Category 3 9 stocks	Black scabbardfish (*Aphanopus carbo*) in subareas 1, 2, 4–8, 10, and 14, and divisions 3.a, 9.a, and 12.b (2018) Red (blackspot) sea bream (*Pagellus bogaraveo*) in Subarea 9 (Atlantic Iberian waters) (2018) Red (blackspot) seabream (*Pagellus bogaraveo*) in Subarea 10 (Azores grounds) (2019) Greater silver smelt (*Argentina silus*) in divisions 5.b and 6.a (2019) Greater silver smelt (*Argentina silus*) in subareas 1, 2, and 4, and in Division 3.a (2019) Greater silver smelt (*Argentina silus*) in subareas 7–10 and 12, and in Division 6.b (2019) Roundnose grenadier (*Coryphaenoides rupestris*) in Division 3.a (Skagerrak and Kattegat) (2018) Black-mouthed dogfish (*Galeus melastomus*) in subareas 6 and 7 (2019) Black-mouthed dogfish (*Galeus melastomus*) in Subarea 8 and Division 9.a (2019)
Category 5 4 stocks	Alfonsinos (*Beryx* spp.) in subareas 1–10, 12, and 14 (2018) Blue ling (*Molva dypterygia*) in subareas 1, 2, 8, 9, and 12, and in divisions 3.a and 4.a (2019) Roundnose grenadier (*Coryphaenoides rupestris*) in divisions 10.b and 12.c, and in subdivisions 12.a.1, 14.b.1, and 5.a.1 (2019) Roundnose grenadier (*Coryphaenoides rupestris*) in subareas 6 and 7 and divisions 5.b and 12.b (2018)
Category 6 6 stocks	Red (blackspot) seabream (*Pagellus bogaraveo*) in subareas 6, 7, and 8 (2018) Orange roughy (*Hoplostethus atlanticus*) in the Northeast Atlantic (2016) Roundnose grenadier (*Coryphaenoides rupestris*) in subareas 1, 2, 4, 8, and 9, Division 14.a, and in subdivisions 14.b.2 and 5.a.2 – (2019) Kitefin shark (*Dalatias licha*) in subareas 1–10, 12, and 14 (2019) Leafscale gulper shark (*Centrophorus squamosus*) in subareas 1–10, 12, and 14 (2019) Portuguese dogfish (*Centroscymnus coelolepis, Centrophorus squamosus*) in subareas 1–10, 12, and 14 (2019)

Source: own review of ICES published advices
Note: for some stocks, more recent advices were issued in June 2020. However, new advice are abbreviated due to Covid-19 disruption

Out of 22 stocks of deep-sea species available in EU waters, 3 stocks are category-1 stocks (14%), 9 are category-3 stocks (41%), 4 are category-5 stocks (18%) and 6 are category-6 stocks (27%). There are no deep-sea stocks falling into categories 2 and 4.

However, a majority of reported landings of deep-sea species, EU and non-EU fishing entities included, comes from the 3 stocks falling into ICES category 1 (55%), and most of the remainder from the 9 stocks falling into ICES category 3 (43%). Reported landings from the 10 stocks classified into categories 5 and 6 are relatively low by comparison (2%).
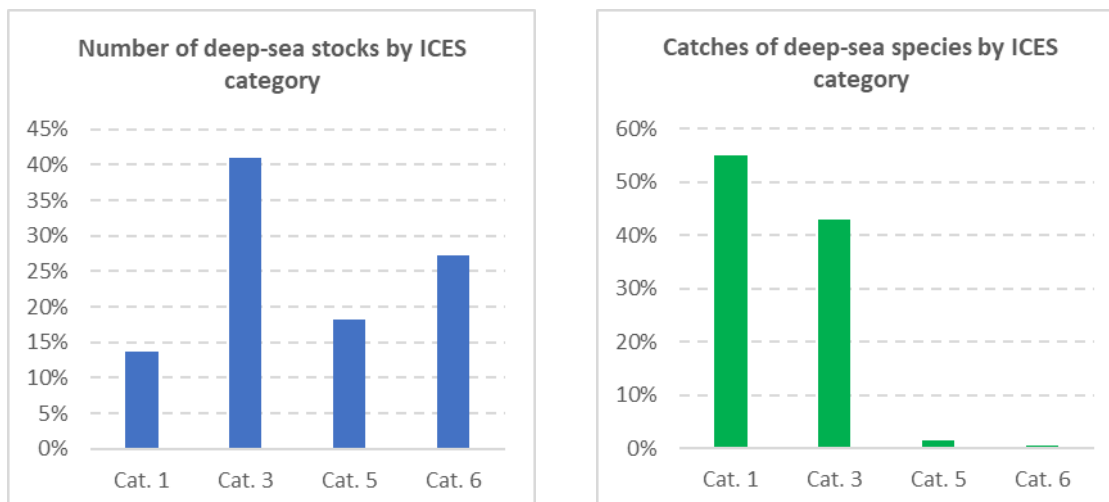
Figure 7: Share of number of stocks (left) and total reported landing (right) of deep-sea species in 2017 by ICES categories of stocks

Source: own review of ICES published advice

For category 1 stocks, ICES uses both fisheries dependent information (commercial catches, landing per unit effort) and fisheries independent information (research cruises) to run stock assessment models. For category 1 stocks, reference points for fishing pressure and for stock size are generally known. For category 3, reference points for fishing pressure and for stock size are generally unknown, except when proxies are available for at least one of the two exploitation indicators (examples of greater silver smelt and of Greenland halibut). For other stock categories, reference points are unknown.

Status of deep-sea stocks

The status of deep-sea stocks in relation to MSY is available only for stocks for which MSY indicators or proxies could be estimated. This includes category 1 stocks such as blue ling (subareas 6–7 and Division 5.b) and Greenland halibut (stock in subareas 1 and 2 and stock in subareas 5, 6, 12 and 14), as well as the category 3 greater silver smelt (stock in divisions 5.b and 6.a, in subareas 1, 2, and 4, and in division 3.a). The status of other stock categories, including deep-sea sharks, in terms of fishing pressure and stock size is generally unknown.

According to ICES advice, the exploitation status of the different deep-sea stocks subject to scientific assessment has been stable over the past three years (2015-2017 or 2016-2018 depending on the year of the advice).

ICES advice on fishing opportunities on deep-sea stocks

For almost all deep-sea stocks considered in this evaluation[44], ICES is requested to provide scientific advice on the level of fishing opportunities. Based on information available, most advice (17 stocks out of 20, 85%) is based on the precautionary approach, and there are three stocks (15%) for which the MSY approach is the basis for advice. In terms of landings of deep-sea species, ICES advice based on the precautionary approach covers 71% of the landings of deep-sea stocks reviewed for 2017, and advice based on the MSY approach equates to 29% of landings for the same year.

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[44] Except for two stock units of deep-sea shark *G. melastomus* (SHO)

For some deep-sea stocks, ICES advices based on the precautionary approach recommend zero TAC. This includes stock of red seabream in subareas 6, 7 and 8, blue ling in subareas 1, 2, 8, 9 and 12 and in divisions 3a and 4a, orange roughy in the North East Atlantic, roundnose grenadier in division 3a, and three species of deep-sea sharks in the North East Atlantic and in adjacent waters (kitefin shark, leafscale gulper shark and Portuguese dogfish).

Feedback from scientists on data available for assessment of deep-sea stocks

- Over the last few years, the quantity and quality of fisheries dependent data improved significantly, probably as a result of the implementation of the EU data collection framework for certain deep-sea stocks subject to some targeted fishing (such as blue ling, greater silver smelt, black scabbardfish and Greenland halibut). As a result, two stocks of greater silver smelt (stock codes ARU.27.5b6A and ARU.27.123a4) might move from category 3 to category 1. The black scabbardfish stock (code BSF.27.NEA) is also a candidate for upgrading from category 3 to category 1, depending on the outcome of a programmed ICES new benchmarking[45] for this stock.

- There are examples of stocks being downgraded in lower categories due to fisheries dependent information becoming scarce as a result of decreasing catches. This is the case for roundnose grenadier in subareas 6 and 7 and divisions 5.b and 12.b for which catches decreased significantly as a result of a decrease in fishing activities on this stock and consequent lack of data[46]. The stock was downgraded from category 1 to category 5, when it was last assessed in 2018.

- For stocks of deep-sea species that are caught as by-catches in low quantities, fisheries dependent information will always be insufficient to support a scientific assessment of stock status, even if sampling effort is increased. This means that for most species listed in Annex I of the DSAR, stock status is likely to remain unknown. However, this does not prevent ICES from issuing advice, but only based on the precautionary approach.

- Overall, the availability and quality of fisheries dependent data and of biological data for main deep-sea stocks is now assessed to be broadly satisfactory by the ICES working group. Improvements will only marginally increase precision. However, there is a gap in fisheries independent information collected through dedicated scientific surveys monitoring deep-sea species abundance over time. There are two surveys in EU waters focusing on deep-sea-species: the deep-water trawl survey organised by Marine Scotland in the West of Scotland, which provides biennial abundance indexes for blue ling, roundnose grenadier and black scabbardfish; and the deep-water longline survey organised by the University of Azores, which provides abundance indexes for red seabream around the archipelago. Other EU surveys provide only partial information of deep-sea species abundance mostly because they do not concentrate on deep habitats (for example, the Spanish Porcupine survey does not extend beyond 600m depth). In 2011, the EU submitted a request to ICES for scientific surveys on deep water species[47]. In its answer, ICES advised that the following fisheries independent surveys should be extended or established to meet the needs for stock assessment and ecosystem

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[45] For ICES, the normal procedure is to use the same assessment methodology from one year to the next. When a new assessment methodology is considered, it has to go through an internal benchmarking process before being applied.

[46] ICES (2018) Roundnose grenadier (Coryphaenoides rupestris) in subareas 6 and 7 and divisions 5.b and 12.b (Celtic Seas and the English Channel, Faroes grounds, and western Hatton Bank) https://doi.org/10.17895/ices.pub.4397

[47] ICES (2011) EC request on scientific surveys for deep water fisheries.

monitoring: i) a coordinated deep-water trawl survey to cover ICES subareas 4, 7 and ICES divisions 5b and 12b that incorporates the existing deep-water trawl survey from Marine Scotland and the now discontinued survey from Ireland, and ii) a coordinated international longline survey covering ICES subarea 8 and division 9a. There has not been a follow-up on this ICES advice up to now.

3.2 Vulnerable marine ecosystems

Vulnerable marine ecosystems (VMEs) are groups of species, communities, or habitats that may be vulnerable to impacts from fishing activities.

The United Nations General Assembly (UNGA) highlighted examples of VMEs being benthic ecosystems associated with seamounts, hydrothermal vents, deep-sea trenches and submarine canyons, as well as oceanic ridges. In most cases, the slow growth rates of the taxa associated with such ecosystems makes them particularly vulnerable to adverse impacts from fishing gear. Importantly, therefore, UNGA Resolution 61/105 paragraph 83 called upon "*Regional Fisheries Management Organisations (RFMOs) with the competence to regulate bottom fisheries to adopt and implement measures, in accordance with the precautionary approach, ecosystem approaches and international law, for their respective regulatory areas as a matter of priority, and not later than 31 December 2008*"

The FAO International Guidelines for the Management of Deep-sea Fisheries in the High Seas (FAO, 2009), are designed to provide tools, including guidance towards sustainable use of marine living resources exploited by deep-sea fisheries, and the protection of VMEs and the marine biodiversity these ecosystems contain (Paragraph 6 of FAO guidelines). The Guidelines provide detailed criteria for identifying VMEs (Paragraph 42), which include certain characteristics such as:

- uniqueness or rarity;
- functional significance of the habitat;
- fragility;
- life history traits of the components species that make recovery difficult, and
- structural complexity.

Communities and habitats with these characteristics may be candidates for VMEs and should be considered for the application of protective measures. The key concepts related to VMEs are vulnerability and significant adverse impacts.

- Vulnerability relates to the likelihood that a population, community or habitat will experience substantial alteration from short-term or chronic disturbance, and the likelihood that it would recover and in what time frame.
- Significant adverse impacts are those that compromise the ecosystem integrity (structure and function), i.e. impair the ability of populations to replace themselves, degrade the long-term natural productivity of the habitat, or cause significant loss of species richness, habitat or community type on more than a temporary basis.

Intuitively all types of VMEs are deemed vulnerable, however, the current scientific information on function, fragility and life-history of various types of VME indicator species suggest that some VMEs should be considered more vulnerable to anthropogenic impacts than others. For example, deep-sea coral aggregations create structurally diverse habitats, are relatively long lived and slow growing and are very sensitive to bottom fishing impacts. On the other hand, sea pens, while they are much less well understood, do not appear to be as slow growing or long lived (Morato et al., 2018).

The FAO guidelines provide a comprehensive list of species and habitats that form VMEs. Annex III to the DSAR includes seven different VME habitat types along with a list of representative indicator species.

State of knowledge on occurrence of VMEs in the North East Atlantic

ICES started collating information on VMEs in the North Atlantic in 2015 through a data call covering the 2004-2014 period. ICES launched subsequent data calls for each year since 2016. Data collected by ICES are stored in a VME database which comprises i) 'VME habitats' which are records for which there is unequivocal evidence of a VME, e.g. Remotely Operated Vehicles (ROV) observations of a coral reef, and ii) VME indicators which are records that suggest the presence of a VME with varying degrees of uncertainty. Records come from a variety of sources, ranging from dedicated deep-sea research cruises equipped with high resolution seabed imagery to fishing trawls and long line by-catch records that are submitted by ICES member countries.

ICES' VME database provides an essential resource for some core work of ICES, such as recommending bottom fishing closures within the NEAFC Regulatory Area to protect VMEs (NEAFC Rec. 19.2014). The database of VME records is critical to support ICES advice in relation to the implementation of the DSAR (e.g. identification of areas where VME are known or likely to occur in EU waters as per Article 9).

According to ICES (2019a)[48], the total number of presence records in the database is 41 898 (as of 2019), covering the North-East and North-West Atlantic for waters below 200m depth. Approximately two thirds of VME records available are in the North West Atlantic, and one third in the North East Atlantic (NEAFC Regulatory Area and EEZ of member countries, including the EU Member States). For the North-East Atlantic, the ICES VME public database shows close to 16 000 public records of VME indicators submitted by EU Member States.

The next figure shows that a large amount of VMEs records in the North East Atlantic concern West of Scotland with high density around Rockall Rise, and South-West of Ireland (Porcupine Bank). By contrast, there are fewer VME records in South-Western Waters in particular around the Iberian Peninsula. Note that one record does not necessarily mean one VME. When several VME records are close to each other, this may refer to the same VME.

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[48] ICES/NAFO Joint Working Group on Deep-water Ecology (WGDEC). ICES Scientific Reports

Figure 8: Screenshot of ICES VMEs records in the North East Atlantic (EU and adjacent waters) available in May 2020.

Source: ICES VME mapping interface https://vme.ices.dk/map.aspx

Evolution of the number of records over time shows that ICES member countries regularly submit new VME data, with more than 1 100 records added since 2017 making a total of 16 000 records in 2019 for the North-East Atlantic. According to ICES (2019a), several new records are expected to be added to the database in the near future, in particular as a result of the extensive survey of Ireland's Exclusive Economic Zone (EEZ)[49] conducted with dives of Remotely Operated Vehicles (ROV) along the Irish Northwest continental margin to monitor the abundance and distribution of offshore cold-water reef habitats. For EU Member States having reported VMEs indicator species to ICES, all records are from findings during research cruises. There are no VME records shared with ICES that originate from findings from commercial vessels of EU Member States.

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[49] Surveys co-funded by the EMFF (Article 80 of the EMFF Regulation (EU) 508/2014)
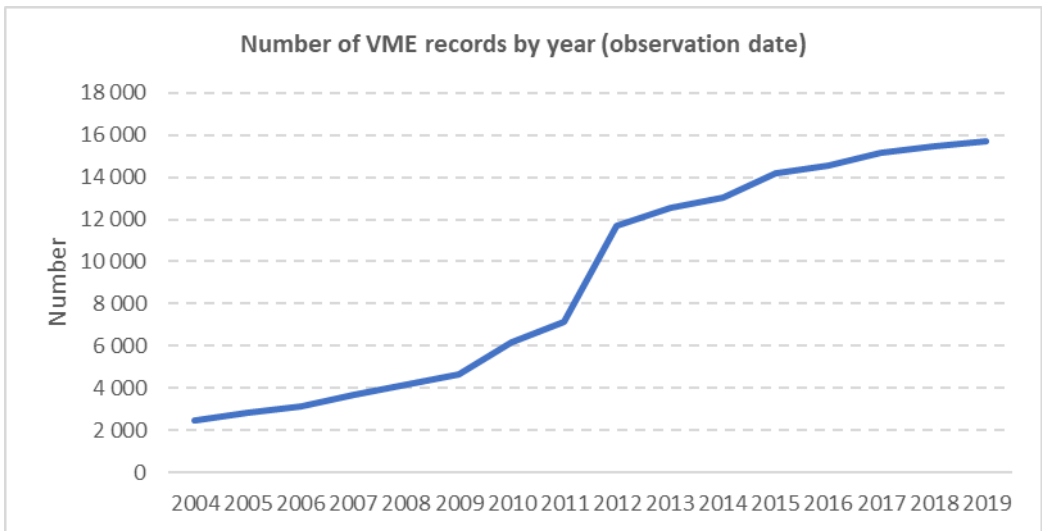
Figure 9: Number of VME records in the ICES VME database by year of observation date in the North East Atlantic

Source: own analysis of ICES public VME database

The depth of each VME record for the North East Atlantic has been identified by cross-referencing the VME records position data (when available) shown in the ICES database with the GEBCO database. The analysis is limited to VME records registered in the database until 2018 included. The next figure shows that a majority of VME records (42%) are between 200m and 400m depth, with 25% between 400m and 800m depth, 7% between 800m and 1 000m depth, and 26% beyond 1 000m depth.
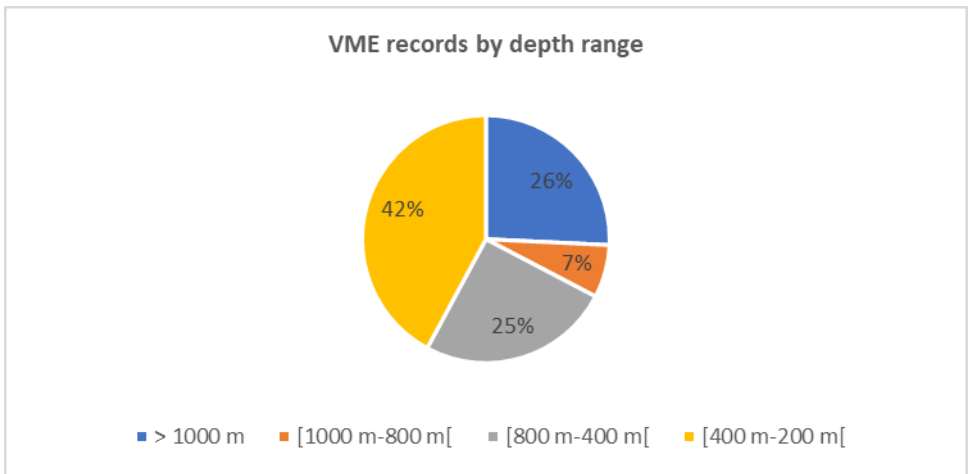
Figure 10: Proportion of VME records for the North-East Atlantic in the ICES VME database by depth range (excluding records added in 2019)

Source: own analysis of ICES public VME database cross-referenced with GEBCO database

4   Review of the main conservation and management measures for deep-sea fisheries in EU waters

4.1   Preamble

The review of EU legislation shows that deep-sea fisheries in EU waters are regulated through different instruments ensuring the implementation of the Common Fisheries Policy (CFP). The DSAR is one of these instruments. Other EU CFP instruments with an impact on

the conservation and management of deep-sea fisheries in their scope (deep-sea stocks and their habitats) over the period starting in 2017 considered by this evaluation include:

- The biennial deep-sea TAC and quota Regulation fixing fishing opportunities for certain deep-sea stocks;
- The annual general TAC and quota Regulation fixing fishing opportunities for certain stocks, including some deep-sea stocks;
- The Technical Measures Regulation setting rules on how, where and when fishing vessels may exploit fishing opportunities, including fishing opportunities granted for the exploitation of deep-sea stocks;
- The Western Water Multiannual Plan which covers management and conservation of some stocks of deep-sea species as from 2019;
- The landing obligation introduced through the CFP Regulation applicable to most deep-sea fisheries as from 2019;
- The Control Regulation defining rules to ensure uniform control of EU fisheries, including deep-sea fisheries;
- The Data Collection Framework Regulation establishing rules on the collection, management and use of technical and scientific data in the fisheries sector

The next figure shows the different CFP instruments listed above and summarises the nature of the main measures which have an impact on the conservation and management of deep-sea fisheries. The next sections review all relevant measures in detail, including references to the legal instruments cited.
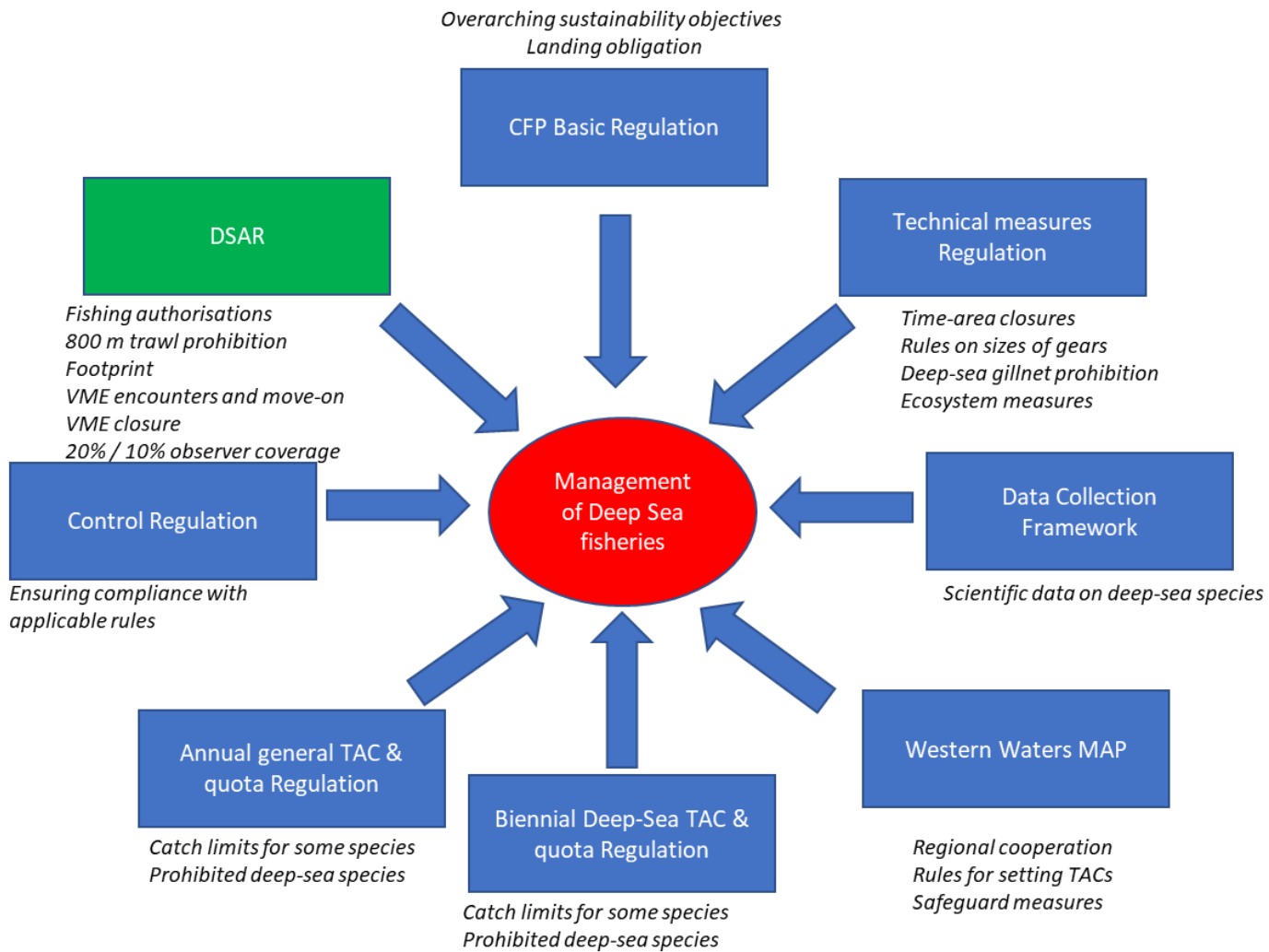
Figure 11: Overview of the different EU regulations implementing the CFP which have an impact on conservation and management of deep-sea fisheries

The next sections detail the main measures foreseen by the DSAR (section 4.2) and the main measures enacted by other CFP Regulations (section 4.3). For the DSAR measures subject to this evaluation, the review establishes how the different measures have been implemented by Member States and with what results so far. The analysis, which is complemented by stakeholders' feedback as appropriate, also identifies implementation issues related to these measures.

4.2   Review of the main measures of the DSAR

4.2.1   The species included in Annex I of the DSAR

Annex I of the DSAR lists 49 deep-sea species or group of deep-sea species at species or family levels. The main role of the list of deep-sea species is to support definition of criteria for fishing authorisations (Article 5) based on quantities of deep-sea species caught in any fishing trip and/or in the calendar year.

Based on DSAR's definition (Article 3), deep-sea species occur in deep-sea waters, and are characterised by one or a combination of the following factors: maturation at relatively old ages, slow growth, low natural mortality, high longevity, intermittent recruitment or

spawning season. According to ICES, deep-sea waters are all waters below 200m depth in the North-East Atlantic, in line with the limits used by FAO (2009) and Bensch et al. (2009).

The list of species to include in Annex I of the DSAR was subject to some discussions during the preparation of the Regulation. In answer to an EU request[50], ICES confirmed that Greenland halibut (*R. hippoglossoides*), greater silver smelt (*A. silus),* wreckfish (*P. americanus*), red seabream (*P. bogaraveo*), tusk (*B. brosme*) and greater forkbeard (*P. blennoides*) qualify on scientific grounds as deep-sea species. For silver scabbardfish (*L. caudatus*), blackmouth catshark (*G. melastomus*) and ling (*M. molva*), ICES advised that the three species do not qualify, on scientific grounds, as deep-sea species.

The final list of deep-sea species in Annex I of the DSAR includes four of the species considered by ICES as deep-sea species, but does not include tusk and greater forkbeard. Also, the final list of deep-sea species retains two species not considered by ICES as deep-sea species (silver scabbardfish and blackmouth catshark).

As shown in Appendix 5, not all deep-sea species are exclusively distributed in deep waters. Some deep-sea species have the upper limits of depth distribution range above 200m depth, with some key commercial deep-sea species potentially present above the continental shelf in shallow depths (50m and less) like red seabream and greater silver smelt, or near the subsurface like wreckfish commonly identified in by-catches of tuna purse seiners fishing around fish aggregating devices (Goujon, 2003).

There are also commercial species present / exploited in deep areas but not in the list of deep-sea species in Annex I of the DSAR like hake (30m - 1 000m depth distribution range), anglerfish (20m – 1 000m), ling (100-1 000m), greater forkbeard (20-1 000m), conger eel (0-1 200m) or deep-sea shrimps[51] exploited by trawlers up to 1 000m depth (Bueno-Pardo et al., 2017).

From an exploitation perspective, this means that some of the deep-sea species can be caught in waters shallower than 200m, and that some non-deep-sea species may be caught in waters more than 200m deep.

Comparison with the list of deep-sea species considered under the previous deep-sea access Regulation (EC) 2347/2002

The previous deep-sea access Regulation (EC) 2347/2002 established a list of deep-sea species (Annex I) to support the definition of eligibility criteria for deep-sea fishing authorisations – called at that time deep-sea fishing permits. The previous regulation also included a second list of deep-sea species (Annex II) but only to enforce specific reporting obligations on catch and effort deployed. Annex II species were not included in the scope of deep-sea species for which catches require a fishing authorisation for catches above 10 tonnes each calendar year.

Annex I of the current DSAR includes to a large extent all species considered in Annex I and in Annex II of the previous deep-sea access Regulation. However, the comparison between the two lists of deep-sea species shows that:

- Some potentially important commercial deep-sea species that were not in Annex I of the previous deep-sea access Regulation, hence not considered in the scope of the previous deep-sea authorisation regime, are in Annex I of the current DSAR. Examples include roundnose grenadier (*C. rupestris*), red seabream (*P. bogaraveo*), bluemouth redfish (*H. dactilopterus*), Baird's smoothhead (*A. bairdii*) or deep-water red crab (*C. affinis*) (see Appendix 2 for catch data on these deep-sea species);

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[50] EU request to ICES on the assessment of the deep-sea status of certain fish species. ICES Advice 2015, Book 11

[51] *Parapenaeus longirostris* and *Aristeus antennatus* exploited in the South of the Iberian Peninsula

- One potentially important commercial species greater forkbeard (*P. blennoides*) [52] that was in Annex I of the previous deep-sea access Regulation is not in Annex I of the current DSAR;
- Greenland halibut (*R. hippoglossoides*), which was not in Annex I of the previous deep-sea access Regulation (nor in its Annex II), is in Annex I of the current DSAR.

Overall, by comparison with the previous deep-sea access Regulation, the DSAR broadened the scope of deep-sea species for which catches beyond certain thresholds require a fishing authorisation. It is, therefore, likely that more EU fishing vessels are concerned by the DSAR deep-sea fishing authorisation regimes compared to the fishing authorisation regime implemented through the previous deep-sea access Regulation in 2002, in particular for fishing authorisations applicable to fishing vessels catching deep-sea species as by-catches. For example, France issued a total of 42 fishing authorisations in 2017 based on criteria defined under the previous deep-sea access Regulation[53] and a total of 88 fishing authorisations in 2018 (17 'targeting' plus 71 'by-catch') based on the criteria defined by the DSAR. Fishermen associations (Spain and France) confirmed that an increased number of their vessels fell under the scope of the deep-sea management regime implemented through the DSAR in 2017 compared to the previous one.

4.2.2 Fishing authorisations (Article 5 and Article 20)

The DSAR foresees that fishing activities catching deep-sea species listed in Annex I of the Regulation shall be subject to two different types of fishing authorisations, targeting and by-catch authorisations (Article 5). Article 5 of the DSAR applies to EU or third-country fishing vessels active in the core geographical scope of the DSAR, as defined in Article 2 (Union waters of the North Sea, of the North-Western waters and of the South-Western waters, as well as Union waters of ICES division 2a), and to EU vessels in international waters of CECAF areas 34.1.1, 34.1.2 and 34.2.

For EU vessels catching deep-sea species in the NEAFC Regulatory Area, Article 20.3 of the DSAR carries over the single type fishing authorisation defined by the previous deep-sea access regulation in all waters falling under its scope[54]. The next table shows the criteria defining the different types of fishing authorisations, in relation to catches of deep-sea species.

Table 12: Criteria set by the DSAR to define the different types of fishing authorisations required for catching deep-sea species

Types of fishing authorisations	Criteria
The targeting fishing authorisation (Art. 5.2) Applies in EU waters*	Fishing vessels for which deep-sea species reported catches is at least 8% in any fishing trip and total catches of deep-sea species more than 10 tonnes in the calendar year
The by-catch fishing authorisation (Art. 5.3 and 5.6) Applies in EU waters*	Fishing vessels that, although not targeting deep-sea species, catch deep-sea species with total catch of deep-sea species less than 10 tonnes in the calendar year (with 15% tolerance for quota species)

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[52] According to catch statistics, annual reported catches of greater forkbeard were in the region of 1 600 tonnes on average over 2016-2018 (source: Eurostat).

[53] Article 20.4 of the DSAR provided opportunity for Member States to extend for one year validity of fishing authorisations issued based on criteria defined by the previous deep-sea access regulation (EC) 2347/2002 before 12.01.2017.

[54] The previous deep-sea regulation 2347/2002 applied to EU fishing activities in all ICES sub-areas (EU waters, 3rd country waters, international waters) and to Union waters of CECAF areas 34.1.1, 34.1.2, 34.1.3 and 34.2.

The NEAFC-RA fishing authorisation (Art. 20.3) Applies in the NEAFC Regulatory Area	Fishing vessels for which deep-sea species reported catches is more than 10 tonnes in the calendar year.
No fishing authorisation (Art. 5.5) Applies in EU waters*	Fishing vessels not holding any fishing authorisation shall be prohibited from fishing for deep-sea species in excess of 100 kg in each trip. Deep-sea species in excess of 100 kg shall not be retained onboard, except unintended catches of species subject to the landing obligation (counted against quota).

Source: Own analysis of Article 5 and Article 20 of the DSAR
*Note: * EU waters plus international waters of CECAF 34.1.1, 34.1.2 and 34.2*

The types of fishing authorisations define the scope of application of certain rules of the DSAR. The next table lists these main rules and identifies the types of fishing authorisations considered for application, as appropriate.

Table 13: Scope of DSAR main measures in relation to the types of fishing authorisations held by the vessels

DSAR main rules	Targeting fishing authorisation (art. 5.2)	By-catch fishing authorisation (art. 5.3)
Capacity ceiling (Art. 6)	Included	Not included
Existing fishing areas (Art. 7)	Included	Not included
800m depth bottom trawl prohibition (Art. 8.4)	Included	Included
VME encounter protocol (Art. 9.2)	Irrespective	Irrespective
VMEs closure to bottom gears (Art. 9.6)	Irrespective	Irrespective
Control provisions (Art. 10-13)	Irrespective	Irrespective
Data collection and reporting (Art. 15)	Irrespective	Irrespective
Observer coverage (Art. 16)	20% bottom trawl and gillnet 10% other gear	10% any gear

Source: own analysis of the DSAR
Note: irrespective means that DSAR do not refer to the types of fishing authorisations issued for the scope of application of the measure.

The two types of fishing authorisations introduce a differentiated treatment mainly for capacity ceilings (Article 6) and for the limitation of deep-sea fishing activities within existing fishing areas (Article 7). These two DSAR measures only concern vessels holding targeting fishing authorisations. The types of fishing authorisations held are also considered for the observer coverage with vessels using bottom trawls and gillnets with a targeting fishing authorisation subject to a 20% observer coverage, and all other vessels holding one of the authorisations subject to a 10% observer coverage (i.e. vessels holding targeting authorisation using longlines for example, and all vessels holding a by-catch fishing authorisation). The 800m depth trawl prohibition (Article 8.4) is a condition applicable when issuing both types of fishing authorisations to bottom-trawlers.

All the other main DSAR measures apply to any fishing vessels, irrespective of the type of fishing authorisations they hold. This includes the VMEs-encounter protocol (Article 9.2), the closure of VME areas below 400m to bottom gear (Article 9.6), the control provisions (Articles 10-13) and the rules on data reporting (Article 15).

The numbers of fishing authorisations issued by Member States are shown in the next table based i) on Member States' reports to the Commission pursuant to Article 15.5 for 2017 and 2018 and ii) on Member States responses to our targeted consultation for 2019 and 2020. Note that for 2017 and 2018, the total number of fishing authorisations may be different from the sum of the numbers of targeted and by-catch fishing authorisations due to single fishing vessels being issued both types of fishing authorisations (see page 32).

Table 14: Number of targeting and by-catch deep-sea fishing authorisations issued by Member States between 2017 and 2020

MS	2017 Target	By-catch	Total	2018 Target	By-catch	Total	2019 Target	By-catch	Total	2020**** Target	By-catch	Total
BE	0	0	0	0	0	0	0	0	0	0	0	0
DE	2	11	13	3	12	14	2	10		1	8	9
DK	0	0	0	0	0	0	0	0	0	0	0	0
EE**	0	3	3	0	3	0	0	0	0	0	0	0
ES	69	5	+599*	184	275	459	198	201	399	196	192	388
FI	0	0	0	0	0	0	0	0	0	0	0	0
FR			42*	17	71	88	19	89	108	16	79	95
IE			12*				0	0	0	0	0	0
LT**	0	2	2	0	5	0	0	3	3	0	0	0
LV	0	0	0	0	1	1	0	0	0	0	0	0
NL			8	7	8	8	6	6	6	6	6	6
PL**	1	1	2	1	1	2	1	1	2	1	1	2
PT***	624	2	626	324	150	434	429	125				
SE	0	0	0	0	0	0	0	0	0	0	0	0
UK	6	51	57	6	45	51						
Total	702	75	763	542	571	1 057						

Source: Member States report to the Commission (Article 15 of the DSAR) for 2017 and 2018; own survey for 2019 and 2020

*Note: * denotes fishing authorisations issued according to criteria set out by the previous deep-sea Regulation 2347/2002.*

*** Information received, slightly different from information submitted to the Commission*

**** For Portugal, numbers of targeting fishing authorisations reported for 2019 include 127 for Mainland, 280 for Azores and 22 for Madeira. Number of by-catches authorisations provided only for Mainland*

**** Data collected until April 2020*

In 2018[55], two Member States (Spain and Portugal) issued 94% of the 542 targeting fishing authorisations reported by Member States having fishing activities in the area covered by the DSAR. Information provided by these two Member States suggests that a large number of targeting fishing authorisations have been issued for vessels of less than 12m, but the details provided do not allow a more precise quantification. These two Member States also issued 74% of the 571 by-catch fishing authorisations reported by all Member States. France and the United Kingdom are other countries issuing significant numbers of fishing authorisations with, in both cases, larger number of by-catch fishing authorisations compared to targeting fishing authorisations. For both countries, fishing authorisations concern mainly fishing vessels of 20m length and more. Other Member States issue only a small number of fishing authorisations (Germany, Estonia, Latvia and Poland) or not at all (Belgium, Denmark, Ireland, Finland, Lithuania and Sweden).

The analysis of the DSAR and feedback from concerned Member States suggest that there are uncertainties as to how DSAR prescriptions should be implemented, and as a result, different implementation modalities by Member States.

- The criteria for defining targeting fishing clearly specify that two conditions must be met simultaneously i) reported catches of at least 8% in any fishing trip and ii) total catches of deep-sea species of more than 10 tonnes in the calendar year. No

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[55] For 2017, certain Member States (e.g. Spain and France) applied the fishing authorisation regime foreseen by the previous deep-sea regulation as authorised by Article 20.4 of the DSAR.

Member States consulted reported issues in relation to the interpretation of the condition.

- The criteria for defining by-catch fishing leave some room for interpretation by Member States. While the DSAR specifies a catch of less than 10 tonnes with a 15% tolerance for quota species to qualify as by-catch fishing authorisation, it does not specify rules in relation to the 8% threshold in any fishing trip (i.e. what fishing authorisation should be granted to vessels catching less than 10 tonnes in the calendar year, but reporting deep-sea catches in excess of 8% in any fishing trip?). Consultations with Member State authorities confirmed that by-catch fishing authorisations may be applied differently: one Member State (Spain) applied by-catch fishing authorisations to vessels catching less than 8% deep-sea species in any fishing trip, and in case this percentage is exceeded to less than 10 tonnes in the calendar year, another Member State (UK) issued by-catch fishing authorisations to vessels landing more than 8% deep-sea species in any one trip, but not landing more than 10 tonnes of deep-sea species and another Member State (France) allocated by-catch fishing authorisations to vessels not qualifying for a targeting fishing authorisation, but landing more than 100 kg of deep-sea species in any fishing trip.

- Article 16 on observer coverage introduced some confusion for Member States having vessels active only in the NEAFC Regulatory Area (Estonia, Poland and Lithuania). Article 16 setting observer coverage levels according to the type of fishing authorisations held (Article 16.1) applies *mutatis mutandis* for fishing for deep-sea species in the NEAFC-RA (Article 16.5). Based on their interpretation of Article 16, the Member States delivered the two types of fishing authorisations foreseen in Article 5, in addition to the NEAFC fishing authorisation, although their vessels do not exploit deep-sea species in the area covered by the DSAR as defined by its Article 2 (essentially EU waters). These Member States reported to us different figures for the number of fishing authorisations compared to figures reported to the Commission in annual reports pursuant to Article 16 of the DSAR.

- There are at least four examples of Member States issuing the two types of fishing authorisations to the same vessel at the same time (Spain, Germany, Netherlands and Portugal). According to explanations provided by two Member States (ES and NL), the rationale for granting the two types of fishing authorisation to single vessel is that this vessel can target deep-sea species at certain times of the year and/or in certain areas, and catch deep-sea species as by-catches in other fisheries in other periods of the year and/or in other areas[56]. In the case of another Member State (Portugal), it appears that targeting fishing authorisations are species-specific, meaning that one vessel will have a targeting fishing authorisation for the deep-sea species targeted, and a by-catch fishing authorisation for the deep-sea species caught in association, both fishing authorisations being valid at the same time. This is based on interpretation by the Portuguese authorities of Article 5.3 which states that "the by-catch fishing authorisation shall indicate the deep-sea species that the vessel may encounter as by-catch while targeting other species" with "other species" being understood as other deep-sea species[57]. For another Member State (Germany), issuing the two types of fishing authorisations to a single vessel may become necessary once existing fishing areas have been defined (Article 7 of the DSAR) to allow fishing vessels to fish outside the defined areas. Note that the DSAR does not specify that the two types of fishing authorisations should be mutually

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[56] Example: the NL issue targeting fishing authorisation for greater silver smelt in ICES 4,5,6 and 7 and by-catch fishing authorisation for all species in Annex I in all ICES areas

[57] Example: a targeting fishing authorisation for black scabbardfish and a by-catch fishing authorisation for deep-water sharks caught in association.

exclusive, nor does it specify the validity periods or geographical scope of the fishing authorisations.

- One Member State (France) reported exceptional occurrences of a couple of vessels requesting a change in the nature of their fishing authorisations from by-catch to targeting during the same year, as a result of catch levels qualifying for a targeted fishing authorisation during a fishing trip.

- According to industry feedback, applying for fishing authorisations does not necessarily mean that the vessels will catch deep-sea species, in particular for by-catch fishing authorisations. Fishing authorisations may be requested on a precautionary basis in case the vessels catch deep-sea species when targeting other non-deep-sea species in shallow waters. Some industry representatives also reported submitting applications to maintain a historical record to secure their positions in case access rules are reviewed.

Overall, the DSAR conditions for issuing targeting fishing authorisations are clear and uniformly implemented by Member States. But the DSAR conditions for by-catch fishing authorisations appear to be interpreted differently by Member States which as yet has probably had a limited impact on DSAR implementation as by-catch vessels have few specific conditions applying to them by contrast with targeting vessels. In addition, for some Member States, the two fishing authorisation regimes are not mutually exclusive, with the same vessel possibly having two valid types of fishing authorisations at the same time. However, in such cases, it can be assumed that conditions applying to both types of fishing authorisations apply cumulatively.

4.2.3 Capacity management (Article 6)

The DSAR establishes that the aggregate fishing capacity measured in GT and in kW of all EU vessels to which a Member State has issued a targeting fishing authorisation shall not exceed the aggregate fishing capacity of the vessels of that Member State during the 2009-2011 period, whichever year provides the highest figure. Capacity limits are for the whole fleet with no consideration of gear types or vessels operational characteristics such as gear used, length or operational range. By contrast, by-catch fishing authorisations are not subject to capacity ceilings.

According to the Regulation, the capacity ceilings include:

- Article 6.1 a) Vessels which have caught 10 tonnes or more of deep-sea species. The 10 tonnes threshold corresponds to the threshold used in the previous deep-sea regulation to define vessels subject to a deep-sea permit. However, the list of deep-sea species considered under the previous deep-sea access Regulation was different, preventing direct correspondence, and;
- Article 6.1 b) Vessels registered in outermost regions where catches of deep-sea species by any such vessel in any of the three calendar years between 2009-2011 constituted at least 10% of their total yearly catches. In practice, this condition allows to include in the capacity ceiling of the capacity of small-scale vessels registered in Azores, Madeira and Canary Islands catching less than 10 tonnes of deep-sea species in any calendar year, but for which deep-sea catches are more than 10% of total catches.
- Article 6.2 By way of derogation from point a) above, where a Member States has been allocated fishing opportunities for deep-sea species before 2017, but its vessels have not caught more than 10 tonnes in any of the reference years, the aggregate fishing capacity of its vessels in any of the three latest years in which at least one of its vessels caught 10 tonnes or more of deep-sea species shall be included in the capacity ceiling. In practice, this condition means that capacity ceilings can include fishing vessels previously engaged in deep-sea fisheries like for

example, Poland or Lithuania which had more vessels engaged in deep-sea fisheries in 2004-2006 with relatively low deep-sea activities in the years 2009-2011.

The analysis of eligibility criteria for the fishing-capacity levels used to cap the capacity of vessels for which a targeted fishing authorisation may be issued reveals some potential issues:

- The DSAR does not specify clearly that the area of deep-sea catches considered by Member States to establish their capacity ceilings are the area covered by the DSAR. In the absence of such specification, catches of deep-sea species obtained outside EU waters could be legally included by Member States to establish capacity ceilings, in particular for conditions set out by Article 6.1 a) and 6.2.
- For outermost regions, it is not clear if conditions set out by Article 6.1 a) and Article 6.1 b) are exclusive or not, but the wording "and" suggests they are not. The capacity of a fishing vessel registered in an outermost region catching more than 10 tonnes of deep-sea species and for which deep-sea species represent more than 10% of catches may be counted twice.
- For Article 6.2, the condition defined in the DSAR is unclear on the amount of capacity to include in the national capacity envelope by the concerned Member State, if at least one of its vessels caught 10 tonnes of deep-sea species.
- Capacity ceilings are unspecific on gear used. For some Member States, the national capacity ceiling can include capacity of different fishing fleet segments such as large-scale bottom trawlers or pelagic trawlers and small-scale vessels using hooks.

As a result, capacity ceilings set pursuant to Article 6 of the DSAR may not correspond in practice to the presumed ambition of the Regulation to cap deep-sea fishing capacity levels in EU waters at the levels of fishing capacity deployed in the same waters in 2009-2011.

However, this conclusion would require an in depth investigation of the rules adopted by Member States to establish their national capacity ceilings. Information on the fishing capacity of vessels with a targeting fishing authorisation is not available, nor is the capacity ceiling that the current fishing capacity should not exceed. The evolution of catches of deep-sea species since 2009-2011 follows a decreasing trend (-43% since the reference period, see Figure 1), suggesting a corresponding decrease in fishing effort. However, the decreasing trend in catches, and possibly effort, does not provide information on the evolution of the fishing capacity deployed on deep-sea stocks. It may be the result of the deployment of the same amount of fishing capacity, but for fewer days in the year compared to the reference period[58]. However, in practice, feedback from consulted Member States and fishermen associations confirmed that the number of vessels exploiting deep-sea species decreased significantly as a result of decreasing fishing and market opportunities.

4.2.4 Existing deep-sea fishing areas (Article 7)

One of the main measures of the DSAR is to limit the activities of fishing vessels holding a targeting fishing authorisation, irrespective of the gear deployed, to areas where deep-sea fishing activities have historically occurred (Article 8.2), and to authorise targeted fishing outside existing deep-sea fishing areas on an exploratory basis under specific conditions (prior submission of an impact assessment, technical limitations, presence of observers) (Article 8.5 to 8.7). The limitation to existing deep-sea fishing areas does not apply to vessels holding a by-catch fishing authorisation (see Table 13).

A similar measure is implemented in the NEAFC Regulatory Area with existing bottom deep-sea fishing areas defined and specific requirements to fish outside these existing fishing

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[58] In terms of fishing pressure, 1 000 GT or 1 000 kW deployed 200 days per year on deep-sea fisheries will not have the same effect as the same amount of capacity deployed 20 days per year.

areas (NEAFC Rec. 19-2014). A main difference with the DSAR is that NEAFC measures concern only bottom fishing activities defined as fishing activities deploying gears that are likely to interact with the seafloor during the normal course of fishing operations, whereas the DSAR covers any fishing gear, including those for which interactions with the bottom like pelagic trawls are unlikely albeit possible (ICES, 2020b).

Article 7 of the DSAR defines the basis for the identification of existing deep-sea fishing areas. By 13 July 2017, Member States whose vessels have been granted a deep-sea fishing permit under the previous deep-sea Regulation (EC) 2347/2002 and as far as it relates to fishing activities by vessels catching more than 10 tonnes of deep-sea species in the calendar year, were expected to provide VMS records, or other information, on the locations of fishing activities for deep-sea species of such vessels during the reference calendar years 2009-2011. On this basis, as well as on the basis of best available scientific and technical information, the Commission was expected to define the existing deep-fishing areas by way of an implementing act by 13 January 2018.

As of September 2020, Article 7 was not fully implemented due to the lack of available scientific advice, preventing existing deep-sea fishing areas to be defined through an implementing act. However, Article 8.2 of the DSAR provided that until determination of existing fishing area could be made according to Article 7, targeting fishing authorisations could be issued only for deep-sea fishing activities in areas previously exploited by the vessels for the past three years before the lodging of the fishing authorisation request.

In January 2018, ICES issued a data call to obtain 2009-2017 VMS and logbook data for fishing activities deployed by fishing entities exploiting deep-sea species in the North East Atlantic[59]. The data received fed into ICES advice[60] on fishing footprint of 2009-2011. However, the footprint identified was missing information from some fleets with some VMS / logbook data not submitted by some Member States as well as from fishing vessels of less than 15 m[61],which could introduce a bias in areas where deep-waters occur close to the coast (nb: deep water layers are relatively close to the coast around the Iberian Peninsula as well as around Azores, Madeira and Canary Islands).

After receiving the VMS / logbook data from the missing Member States, and having obtained some information, although incomplete on activities of some vessels below 15 m, ICES published a new advice[62] providing further technical service to aid the interpretation of the previous ICES advice (sr.2018.10). The advice reported some progress with missing data but indicated that ICES was still in the process of quality checking late submissions. ICES also proposed four options to describe the bottom footprint as a uniform area to avoid 'holes', which occur where no VMS signal have been received and thus fishing assumed not to take place, and 'islands' which occur when individual or small clusters occur where VMS signals have been received intermittently.

In 2019, ICES published an updated advice[63] on existing deep-sea fishing areas with the full coordinates of all 2009-2011 deep-sea fishing areas. The 2019 advice could include VMS / logbook data that were not included in the previous advice. The 2019 advice was

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[59] EU Member States and third countries exploiting deep-sea species in the North East Atlantic, including in EU waters.

[60] Advice on locations and likely locations of VMEs in EU waters of the NE Atlantic, and the fishing footprint of 2009-2011. Advice sr.2018.10 published 28 June 2018.

[61] VMS data became mandatory for vessels of more than 15 m only in 2012 (Reg. (EC) 1224/2009).

[62] EU request to provide a further technical service to aid the interpretation of ICES advice on locations and likely locations of VMEs in EU waters of the NE Atlantic, and the fishing footprint of 2009-2011. Advice sr.2018.28 published 30 November 2018.

[63] EU request to provide an update on the list of areas where VMEs are known to, or likely to occur, and on the existing deep-sea fishing areas for 2009-2011. Advice sr.2019.19 published 3 October 2019.

accompanied by interactive maps showing the extent of the bottom fishing footprint (pelagic gear excluded) between 200m and 400m, 400m and 800m and beyond 800m, where bottom trawls are prohibited to operate according to the DSAR.

After the publication of the 2019 advice, ICES organised a stakeholder workshop (22-23 October 2019) to disseminate the ICES deep-sea access regulation technical advice and scope the required steps for regulatory purpose (WKREG). Workshop participants noted that the following information would be useful for advancing the work leading to the identification of existing deep-sea fishing areas (ICES, 2019b)[64]:

- Spatial pressure layers by gear type to determine what fisheries are impacted and what proportion of the activity may be in conflict with the VME areas;
- Spatial fisheries pressure layers for the 0-200m depth band to include those fisheries in the trade-off analysis when areas to be protected overlap with shallow areas (> 400m or even > 200m);
- Spatial fisheries pressure layers for years subsequent to the 2009-2011 period to identify areas where past and recent damage by bottom contact fishing may have occurred outside the reference period and to capture the use of historical footprint to include in the trade-off analysis;
- Fisheries intensity maps by gear for the reference period 2009-2011 and more recently, to provide an overview of consistently fished areas.

The scientific work supporting the identification of existing deep-sea fishing areas is still ongoing. A stakeholder workshop to discuss ICES proposals took place early September 2020, with the final ICES advice announced for publication early 2021. The final ICES advice will provide the scientific basis of the implementing act to be adopted by the European Commission three years after the date set by law (i.e. 13 January 2018 pursuant to Article 7.2 of the DSAR).

In the absence of a formal definition of existing fishing areas through a Commission implementing act, no requests for exploratory fishing outside existing fishing areas accompanied by an impact assessment conducted in accordance with FAO (2009) standards as foreseen by Article 9.5 to 9.6 of the DSAR have been submitted by Member States to the Commission.

4.2.5 VME encounter protocol (Articles 9.2 and 9.3)

As recommended by FAO Guidelines on the management of deep-sea fisheries (FAO, 2009), Article 9.2 of the DSAR defines what constitutes evidence of a "vulnerable marine ecosystem" or VME encounter in the course of fishing operations with bottom gears and in case of an encounter, prompts the concerned fishing vessel to immediately cease fishing and to resume operations only when reaching an alternative area at least five nautical miles from the area in which the encounter occurred (i.e. the move-on rule). An encounter with a possible VME is defined as (in Annex IV of the DSAR) as:

- For a trawl tow and other fishing gear than longlines: the presence of more than 30 kg of live coral and/or 400 kg of live sponge of VME indicators; and
- For a longline set: the presence of VME indicators of 10 hooks per 1 000 hook segment or per 1 200m section of longline, whichever is the shorter

There are no such provisions defining a VME encounter for other types of fishing gear catching deep-sea species listed in Annex I of the DSAR (e.g. midwater trawls, bottom set nets or handlines).

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[64] Stakeholder workshop to disseminate the ICES deep-sea access regulation technical service, and scope the required steps for regulatory purposes (WKREG). ICES Scientific Reports. 1:79. 34 pp.

VME indicators are listed in Annex III of the DSAR with a list of representative taxa at species or family levels for different habitat type (e.g. cold-water reef, coral gardens, deep-sea sponge aggregations, sea pen fields).

According to the DSAR, the fishing vessel master must immediately report each encounter with VMEs to its competent authority, which shall notify the Commission without delay. In addition, Article 13.2 of the DSAR mandates the fishing vessel master to record any quantity of VME indicators above the threshold in the vessels' logbook. The DSAR does not include provisions for temporary closure of the area where the VME was encountered.

As of May 2020, no VMEs encounters have been notified to the Commission. A similar VME encounter protocol is effective in the NEAFC Regulatory Area, with VME indicators and triggering thresholds identical to those considered by the DSAR in its Annex III and IV respectively. According the NEAFC Secretariat, no reports of VME encounters have been submitted either over the last few year. However, in the case of NEAFC, this may be more expected as existing fishing areas have been defined and areas where VMEs are known or likely to occur are closed to bottom fishing meaning the likelihood of unexpected VME encounters by fishing vessels is comparatively reduced.

4.2.6 Closure of VMEs to bottom gears (Article 9.6)

A major initiative of the DSAR to protect VMEs from significant adverse impacts caused by fishing gears was to identify areas below 400m where VMEs are known or likely to occur, and to prohibit fishing activities by vessels using bottom gears within the designated VME areas. For the purpose of the DSAR measure, bottom gears are those defined by Council Regulation (EC) 734/2008 as gears deployed in the normal course of fishing operations in contact with the seabed including bottom trawls, bottom-set gillnets, bottom-set longlines, pots and traps (hence considering static and mobile gears).

The designation of areas where VMEs are known or likely to occur was expected to follow a similar process to the process established by the DSAR for the designation of existing fishing areas. Namely with the Commission expected to adopt an implementing act by 13 January 2018 on the basis of best scientific and technical information. The DSAR provided flexibility to review the VME areas annually, on the basis of scientific advice.

As of May 2020, Article 9.6 was not fully implemented due to the delayed availability of the supporting scientific advice. As a result, areas where VMEs are known or likely to occur were not yet defined through an implementing act at the time of writing this study.

The advisory process for the designation of lists of areas where VMEs are known or likely to occur has been implemented in parallel with the advisory process supporting the identification of existing fishing areas with both issues being dealt with simultaneously by ICES as requested by the European Commission. As far as VME areas identification is concerned, the following developments have occurred:

-   In 2018, ICES published a first advice identifying areas where VMEs are known to occur following a data call to its member countries, and three options to identify areas where VMEs are likely to occur;

-   A new ICES advice was published at the end of 2018 with provisions for interactive maps showing VME habitats and likely VMEs with nine options (three options based on quality of information available x three options based on level of confidence);

-   At the end of 2019, ICES published updated advice with a list of areas where VMEs either occur or are likely to occur, with a set of coordinates for the three largest VMEs areas in the North-East Atlantic, all in Rockall Bank, out of a total of 1 943 VME areas potentially identified.

At the time of the writing this report, the advice process is still ongoing at ICES and it is expected that the final advice will be released early 2021, together with the advice on the existing fishing areas (i.e. the 'footprint').

4.2.7 800m bottom trawl prohibition (Article 8.4)

Article 8.4 of the DSAR provides that no fishing authorisation, either targeting or by-catch, shall be issued for the purpose of fishing with bottom trawls at a depth below 800m. The 800m trawl ban was of immediate application as from the date of entry into force of the DSAR in January 2017. The DSAR measure does not apply to other bottom or pelagic gears. In addition, the use of bottom set gillnet, entangling nets and trammel nets is also prohibited at depth below 200m since 2005 through the Technical Measures Regulation, with specific derogations applying up to 600m depth for directed fishing for hake and for anglerfish.

The next map shows the extent of areas below 800m closed to bottom trawling in EU waters as a result of the DSAR measure.
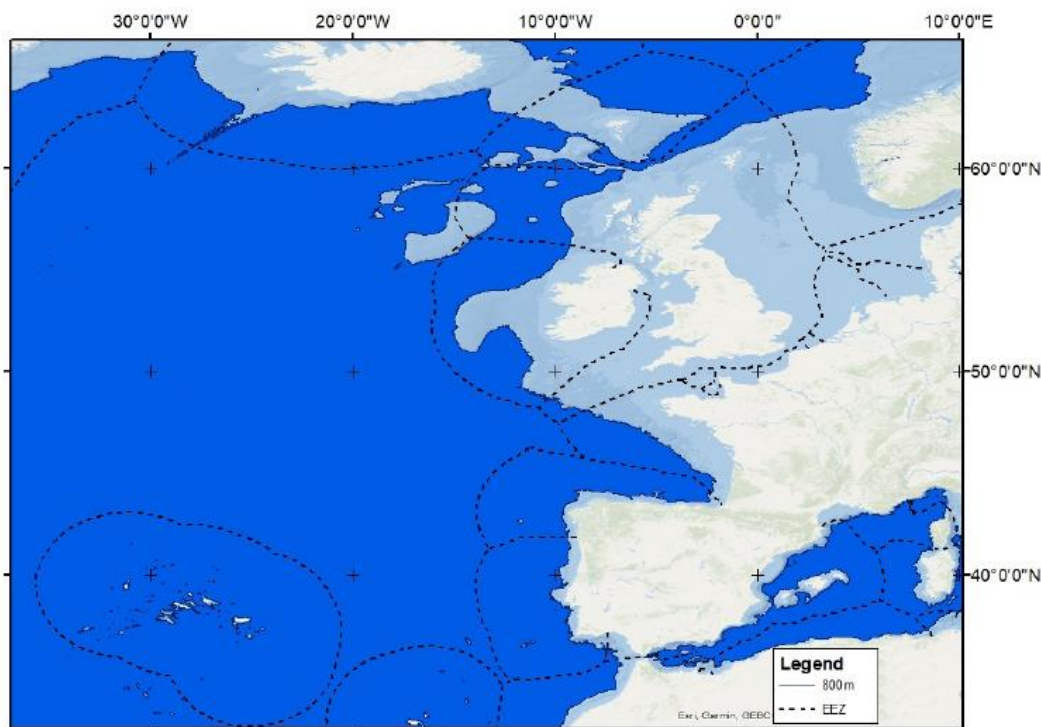
Figure 12: Areas below the 800m isobath (dark blue) closed to bottom trawling in the North East Atlantic as a result of the DSAR

Source: ICES (advice sr.2018.10)

The 800m bottom trawl ban prohibition is reviewed in more details in **Appendix 7**. The main findings are summarised in the next paragraphs.

The DSAR bottom trawl ban is effective to protect the deep-sea ecosystem below 800m from any adverse impacts caused by bottom trawls which pose the greatest risk of instantaneous physical impact on habitats, including VMEs.

Based on information available, the 800m bottom trawl ban supported a reduction of fishing pressure caused by bottom trawls on deep-sea species present below 800m, in particular commercial deep-sea species like grenadiers and orange roughy, and commercial deep-sea species for which depths below 800m form a major part of their natural habitat

(i.e. black scabbardfish). As shown in the following graphs, catches of the two main commercial species (grenadiers and black scabbardfish) in ICES subarea 6 (Rockall, Northwest Coast of Scotland and North Ireland) divided by a factor of four between 2016 and 2019 for grenadiers, and halved for black scabbardfish over the same period.
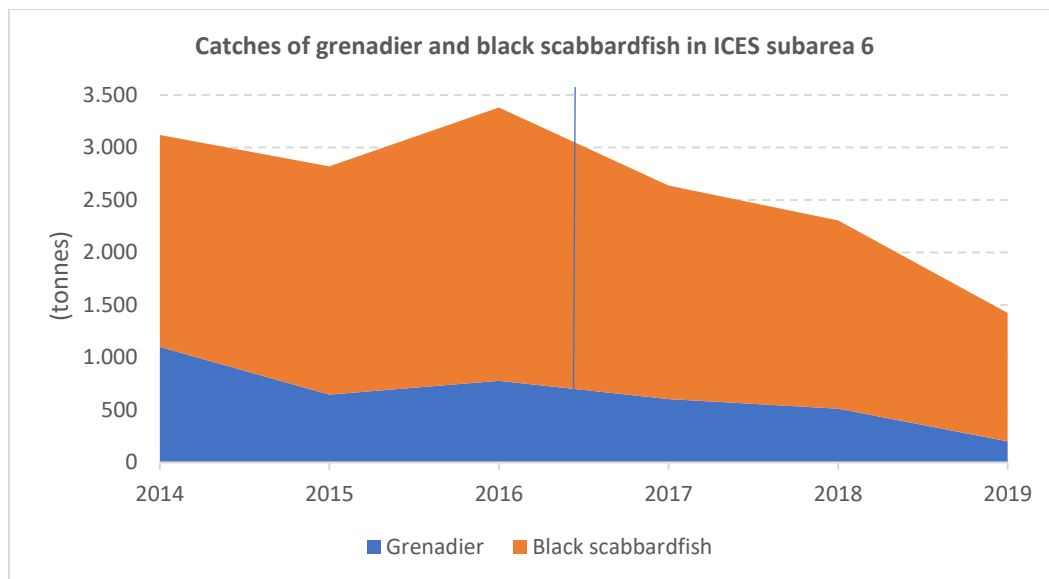
Figure 13: Evolution of EU catches of grenadiers and black scabbardfish in ICES subarea 6

Source: based on data published in ICES (2020a)

The measure also protects non-commercial species which are often caught as by-catches by bottom trawlers below 800m when targeting grenadiers and black scabbardfish. Based on scientific information available from results of the French scientific observer programme implemented by IFREMER, the discard rate (weight of catches discarded / total weight of catches) estimated through scientific observations on French deep-sea trawlers operating in the West of Scotland and in the West of Ireland dramatically decreased from ≈ 21% in 2011-2013 to slightly less than 5% in 2018. Scientific information available indicates that the 800m bottom trawl prohibition has been effective to reduce by-catches of deep-sea species designated by the DSAR as most vulnerable, namely deep-sea sharks and orange roughy.
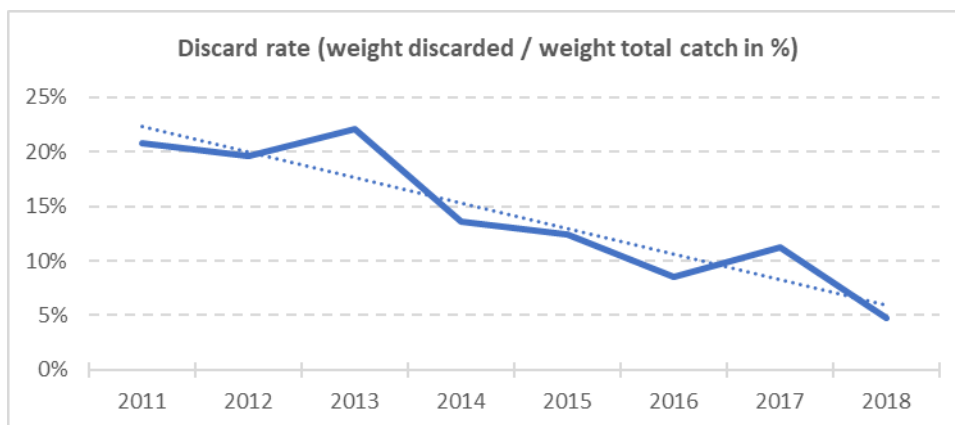
Figure 14: Evolution of the proportion of total weigh of discards / total weight of catches by French trawlers targeting deep-sea species in the West of Scotland and in the West of Ireland

Source: IFREMER – programme OBSMER. Data for métier OTB/OTT_DWS. See for example Gauduchon et al. (2020) for 2018 results of scientific observations
Note: dotted line = trend

The 800m trawl ban did not raise implementation issues according to feedback received from relevant stakeholders. The only uncertainty raised by ICES in its advice ref. sr.2018.28 is on the precise positioning of the 800m depth contour, which may be slightly different depending on the data sources[65] considered. However, differences are relatively minor not exceeding about 10m in certain places, thus unlikely to raise an enforcement problem. One Member State (France) confirmed that the definition of the 800m contour for integration in the VMS software has been challenging.

All Member States confirmed that no infringements to the 800m bottom trawl prohibition have been detected since 2017, suggesting that the measure is complied with by EU fishing operators concerned.

4.2.8 Control provisions (Article 10-13)

Through Article 10 to 12, the DSAR triggers the application of specific control provisions foreseen by the Control Regulation in the case of fisheries subject to a multiannual plan, hence fisheries for which compliance with specific conservation and management rules defined is critical. The control provisions in question are detailed in section 4.3.5 of this report. Article 11 on designated ports and Article 12 on prior notifications provide the metrics required by the Control Regulation to operationalise the two control measures.

Article 13 of the DSAR on logbook entries in deep water is the only control rule created by the DSAR. It concerns haul-by-haul reporting of activities in the logbook (as opposed to reporting on a daily basis under the general case) when vessels are engaged in a deep-sea métier or when fishing below 400m, including mandatory reporting of VMEs indicators above the threshold set out by the DSAR to define evidence of a VMS encounter. Haul-by-haul reporting in the logbooks is already an obligation for EU fishing vessels operating in the NEAFC Regulatory Area. It is proposed to become the general case in the Commission's proposal for a revision of the Union Control System[66].

The status of implementation of the haul-by-haul reporting requirement was one of the questions to which the Member States had to reply in their annual reports to the Commission pursuant to Article 15.5 of the DSAR. The review of submissions indicates that Member States concerned had implemented the requirements without specific problems, mainly through an adaptation of the Electronic Reporting System (ERS), which was already mandatory since 2012 for any fishing vessel of length greater than 12m[67]. In some Member States, haul-by-haul reporting was already a national requirement.

Whilst reporting of catch data is unlikely to pose a problem, reporting of VME indicators and their quantities in case of VME encounters, as required by Article 13.2, may not be possible as VME indicator species are not included in the ERS list of species available for the development of an electronic logbook (Commission's Master Data Register[68]). However, two Member States (Germany and France) reported having partly solved this problem by requiring reporting of a VME encounter in the comment field of the ERS system.

4.2.9 Rules on data collection and reporting (Article 15)

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[65] There are two possible sources of data: GEBCO and EMODnet depth datasets

[66] Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Council Regulation (EC) No 1224/2009, and amending Council Regulations (EC) No 768/2005, (EC) No 1967/2006, (EC) No 1005/2008, and Regulation (EU) No 2016/1139 of the European Parliament and of the Council as regards fisheries control COM/2018/368 final

[67] With possible exemptions for vessels between 12 and 15 m

[68] https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp

Article 15 of the DSAR introduced two types of provisions: i) provisions for collection of scientific data (Article 15.1 to Article 15.4) and ii) provisions for submission of national reports on the implementation of the DSAR.

Article 15.1 to 15.4 of the DSAR mandates the collection of scientific data and information on deep-sea fisheries, including deep-sea species listed in Annex I of the DSAR and species belonging to the seabed ecosystem such as deep-water corals, sponges, or other organisms but without cross-referencing with the list of VME Indicator species in Annex III of the DSAR. For data collection, general rules defined by the EU Data Collection Framework (DCF) defined by Regulation (EU) 2017/1004 apply.

As detailed in section 4.3.6 of this report, the EU DCF includes all deep-sea species listed in Annex I of the DSAR in its scope. As a result, Member States with at least 10% of the TAC of certain deep-sea species or, where no TAC is fixed, total landings of the Member State represent at least 10% of total EU landings, Member States are required to collect biological data on deep-sea species according to scientific sampling plans reviewed by STECF. However, data collection requirements do not apply when total landings of a Member State of a species is less than 200 tonnes, which potentially excludes from the scope of the DCF several of the deep-sea species listed in Annex I of the DSAR caught in small quantities as by-catches (e.g. deep-sea crabs, deep-sea shark species, chimaera).

Scientific data on deep-sea fish catches collected by Member States are shared with competent scientific entities (i.e. STECF or ICES) through data calls. Data collected are used mostly to support stock assessments.

According to our review of the EU DCF, there are no provisions to implement the collection of scientific data on VME indicator species listed in Annex III of the DSAR caught by commercial vessels. In addition, most Member States conceded that scientific observers deployed on commercial vessels are not specifically trained to identify and report VME indicator species. However, VME species found during scientific research surveys organised under the DCF, are sampled and analysed as evidenced by the significant number of records collected by Member States and reported in the ICES VME database (see section 3.2).

Article 15.5 of the DSAR introduced the possibility for the Commission to request annual reports containing aggregate data on fishing fleets involved in deep-sea fishing (number of fishing authorisations, fishing areas, types of vessels, originating ports) and on deep-sea fishing opportunities available to them, including their level of use. Member State reports shall be made publicly available.

The Commission requested the reports foreseen by the DSAR from the 15 Member States with interests in fishing activities in the North East Atlantic[69]. Reports were expected to cover information detailed in Article 15.5 of the DSAR and to include Member State information on the implementation of four of the main DSAR measures: the 800m trawl ban, VME encounter protocols, haul-by-haul data reporting and observer coverage.

The 2017 annual deep-sea reports were requested by the Commission on 30 May 2018. The 2018 annual deep-sea reports were requested on 25 November 2019. The next table shows that all concerned Member States submitted the reports for 2017 and 2018. The table shows that reports for 2017 were submitted with some delays (≈ 8-month delay on average), while submission of 2018 reports was generally faster (≈ 3-month delay on average).

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[69] Landlocked, Mediterranean and Black Sea EU Member States are not concerned by implementation of the DSAR.

Table 15: Dates of submission of deep-sea national reports foreseen by Article 15.5 of the DSAR by Member States

	2017 report	2018 report
COM requests sent on:	30/05/2018	25/11/2019
MS submissions received on:		
BE	15/02/2019	25/11/2019
DE	15/01/2019	20/04/2020
DK	29/03/2019	31/01/2020
EE	20/12/2018	23/01/2020
ES	22/01/2019	28/04/2020
FI	02/04/2019	16/04/2020
FR	21/01/2019	21/01/2019
IE	25/05/2019	12/05/2020
LT	09/07/2018	16/01/2020
LV	08/03/2019	03/03/2020
NL	08/04/2019	04/03/2020
PL	25/02/2019	05/12/2019
PT	26/04/2019	22/01/2020
SE	10/01/2019	16/12/2019
UK	01/08/2018	01/08/2018

Source: DG MARE's records
Note: situation as of May 2020

The reports submitted by some Member States were published on DG MARE website in June 2020[70]. Online publication of some Member States reports for 2017 and/or 2018 was still outstanding at the time of writing of this study due to incomplete submission of data.

4.2.10 The observer coverage (Article 16)

Article 16 of the DSAR prompts Member States to establish an observer coverage to ensure the collection of relevant, timely and accurate data on catch and by-catch of deep-sea species and encounters with VMEs and other relevant information for the effective implementation of the DSAR (Article 16.1). The DSAR observer coverage contributes to DSAR objective of improving scientific knowledge on deep-sea species and their habitats, with data collected by observers onboard being included in DSAR data collection requirements described in Article 15 of the DSAR and further detailed in its Annex II, in particular point 3 referring to sampling of landings, discards and species belonging to the seabed ecosystem caught by fishing vessels engaged in a deep-sea métier.

The DSAR (Article 16.1) defines quantitative targets for observer coverage in relation to the gear used and to the type of fishing authorisations issued pursuant to Article 5 of the DSAR: vessels using bottom trawl and set gillnet with a targeting fishing authorisation shall be subject to at least 20% observer coverage, and all other fishing vessels authorised to catch deep-sea species (e.g. longliners and pelagic trawlers with a targeting fishing authorisation and any other vessel with a by-catch fishing authorisation irrespective of the gear used) subject to at least a 10% observer coverage. Fishing vessels that, for security reasons are not suitable to receive an observer are exempted from observer coverage. In practice, this exemption may apply mostly to small-scale fishing vessels catching deep-sea species on a regular or seasonal basis (e.g. small-scale fishing vessels registered in Portugal, Spain and France).

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[70] https://ec.europa.eu/fisheries/cfp/fishing_rules/deep-sea-fisheries_en (accessed 19.06.2020)

The DSAR observer coverage measures apply to EU waters and international waters of CECAF areas 34.1.1, 34.1.2 and 34.2 (where all other DSAR measures apply) but also in the NEAFC Regulatory Area for EU vessels.

The DSAR observer coverage is reviewed in detail in **Appendix 8**. The main findings are summarised in the next paragraphs.

All Member States interpreted the DSAR observer coverage as being a scientific observer coverage, as opposed to a control observer coverage. This interpretation underpinned deployment of scientific observers to collect data under the scientific methodologies defined by Member States for the deployment of scientific observers under the broader framework of the DCF Regulation (EU) 2017/1004, the latter coherently including deep-sea species in the scope of species for which detailed biological data should be collected by Member States. As outlined by one Member State (Spain), the scientific nature of the observer scheme deployed on vessels exploiting deep-sea species prevented observers from contributing to the monitoring of compliance with applicable rules, in particular the VME encounter protocol and the depth limits for deployment of certain gears.

DSAR quantitative targets for observer coverage leaves some margin for interpretation by Member States. The DSAR does not define the reference for establishing the percentage. The observer coverage rate is different if the reference considered to establish the percentage is the number of vessels, the number of fishing trips, the number of fishing days or the number of fishing operations sampled by the observer while onboard.

Feedback from Member States confirmed that the DSAR provisions for observer coverage are applied differently. Two Member States (France and UK) indicated that the deep-sea observer deployment plan is prepared based on the number of vessels having a fishing authorisation with 20% or 10% of the number of vessels being included in the sampling plan. Three Member States (Spain, Netherlands and Portugal) reported that the observer deployment plan is prepared based on forecasts of the number of trips of the fleet concerned.

Upon Commission's request, ICES was unable to provide the advice foreseen by January 2018 in Article 16.3 of the DSAR mostly because of the difficulty to collect relevant quantitative information on Member States' implementation of the DSAR observer coverage. Equally, the diverging interpretations of Article 16 among Member States makes the establishment of quantitative targets, their assessment and comparison, very complex in practice.

Anecdotal information obtained suggests that only a few vessels are subject to a specific deep-sea sampling rate. Most vessels authorised to catch deep-sea species are covered according to scientific observer coverage implemented under the broader EU DCF which does not impose quantitative targets in terms of observer presence onboard fishing vessels.

Data on catches and discards of deep-sea species collected by scientific observers are reported by scientists to be adequate to support stock assessment of the main commercial species. However, the contribution of scientific observers to increased scientific knowledge on deep-sea habitats appears to be very limited as evidenced by the absence of VME records collected from commercial vessels shared by Member States with ICES for inclusion of relevant data in the ICES VME database. While this could be a result of no catches of VME indicator species by fishing vessels when observers were present onboard, another explanation may be the lack of adequate training of scientific observers to contribute to the identification of VME indicator species at required taxonomic levels by Member States. In this respect, we noted that there was no identification guide of VMEs taxa in EU waters available in a format suitable for seagoing observers (i.e. taxa fiches) in some Member

States. Certain RFMOs (i.e. CCALMR, NAFO and SEAFO[71]) developed a VMEs taxa identification guide to support data collection in the waters under their management mandate.

4.3 Review of other CFP instruments affecting conservation and management of deep-sea fisheries in EU waters

4.3.1 The TAC and quota Regulations

Two distinct EU TAC and quota regulations impose catch limits and fishing prohibitions on certain deep-sea species.

- The biennial deep-sea TAC and quota Regulation fixing fishing opportunities for certain deep-sea stocks with Council Regulation (EU) 2016/2285[72] applicable for 2017 and 2018 and Council Regulation (EU) 2018/2025[73] applicable for 2019 and 2020.
- The annual general TAC and quota Regulation fixing fishing opportunities for certain stocks, including some deep-sea stocks, with Council Regulation (EU) 2017/127[74] applicable for 2017, Council Regulation (EU) 2018/120[75] applicable for 2018, Council Regulation (EU) 2019/124[76] applicable for 2019 and Council Regulation (EU) 2020/123[77] applicable for 2020.

Fishing prohibitions

The two EU TAC and quota Regulations specify fishing prohibitions for some species listed in Annex I to the DSAR. Fishing prohibition means that the concerned species shall not be retained onboard (=discarded) and catches not counted against quota. Fishing prohibitions defined by the two Regulations are as follows:

For biennial deep-sea TAC and quota Regulations:
- Orange roughy (*H. atlanticus*) in Union and international waters of ICES subareas 1 to 10, 12 and 14
- Deep-sea sharks in ICES subareas 5 to 9, in Union waters of ICES subarea 10, in international waters of ICES subarea 12 and in Union waters of CECAF 34.1.1,

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[71] CCAMLR http://www.ccamlr.org/en/system/files/VME-guide.pdf / NAFO http://archive.nafo.int/open/studies/s43/S43.pdf and SEAFO http://www.seafo.org/Science/Coral-Sponge-Guide

[72] Council Regulation (EU) 2016/2285 of 12 December 2016 fixing for 2017 and 2018 the fishing opportunities for Union fishing vessels for certain deep-sea fish stocks and amending Council Regulation (EU) 2016/72. *OJ L 344, 17.12.2016, p. 32–45*

[73] Council Regulation (EU) 2018/2025 of 17 December 2018 fixing for 2019 and 2020 the fishing opportunities for Union fishing vessels for certain deep-sea fish stocks. ST/14418/2018/INIT. *OJ L 325, 20.12.2018, p. 7–17*

[74] Council Regulation (EU) 2017/127 of 20 January 2017 fixing for 2017 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters *OJ L 24, 28.1.2017, p. 1–172*

[75] Council Regulation (EU) 2018/120 of 23 January 2018 fixing for 2018 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters, and amending Regulation (EU) 2017/127. OJ L 27, 31.1.2018, p. 1–168

[76] Council Regulation (EU) 2019/124 of 30 January 2019 fixing for 2019 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters. *OJ L 29, 31.1.2019, p. 1–166*

[77] Council Regulation (EU) 2020/123 of 27 January 2020 fixing for 2020 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters. ST/15319/2019/INIT. *OJ L 25, 30.1.2020, p. 1–156*

34.1.2 and 34.2 except where bycatch TACs apply for deep sea sharks taken in the longline fisheries targeting black scabbardfish.

For the annual general TAC and quota Regulations:
- Five deep-sea sharks species (Leafscale gulper shark *C. squamosus*, Portuguese dogfish *C. coelolepis,* birdbeak dogfish *D. calcea*, kitefin shark *D. licha* and great lanternshark *E. princeps*) in Union waters of ICES division 2a and ICES subareas 4, and in Union and International waters of ICES subareas 1 and 14.

Catch limits

The next table shows the species or group of deep-sea species for which catch limits are defined by the two Regulations. Note that the biennial deep-sea TAC and quota Regulations define which shark species listed in Annex I of the DSAR should be included in the group of deep-sea sharks, subject to bycatch allowances[78].

Table 16: Deep-sea species concerned by the two EU TAC and quota Regulations since 2017

Biennial deep-sea TAC and quota regulations	Annual general TAC and quota regulation
Black scabbardfish *(A. carbo)*	Greater silver smelt (*A. silus*)
Alfonsinos (*Beryx spp.*)	Blue ling (*M. dypterygia*)
Roundnose grenadier *(C. rupestris)*	Greenland halibut (*R. hippoglossoides*)
Red seabream *(P. bogaraveo)*	Skates and Rays*
Deep-Sea sharks	

Source: TAC and quotas regulations
Note: * EU TAC for skates and rays does not consider specific treatment for the three ray species listed in Annex I of the DSAR

Almost all TAC sets are precautionary TACs[79]. The TACs supported by an MSY assessment (i.e. analytical TACs) concern blue ling in Union and international waters of 5b, 6 and 7 (BLI/5b67) and Greenland halibut Union waters of 2a and 4; Union and international waters of 5b and 6 (GHL/2A-C46).

On average over the 2016-2018 period, 84% of EU reported catches of deep-sea species were subject to catch limits (TAC and quotas), representing close to 17 500 tonnes on average per year. Catches of species not subject to catch limits represented 16% of the total catches of deep-sea species (close to 3 500 tonnes on average per year) with 80% of those catches composed of bluemouth redfish (1 705 tonnes), Baird's smoothhead (427 tonnes), silver scabbardfish (326 tonnes) and common mora (271 tonnes).

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[78] All shark species present in annex 1 of the DSAR, except blackmouth dogfish (*G. melastomus*)
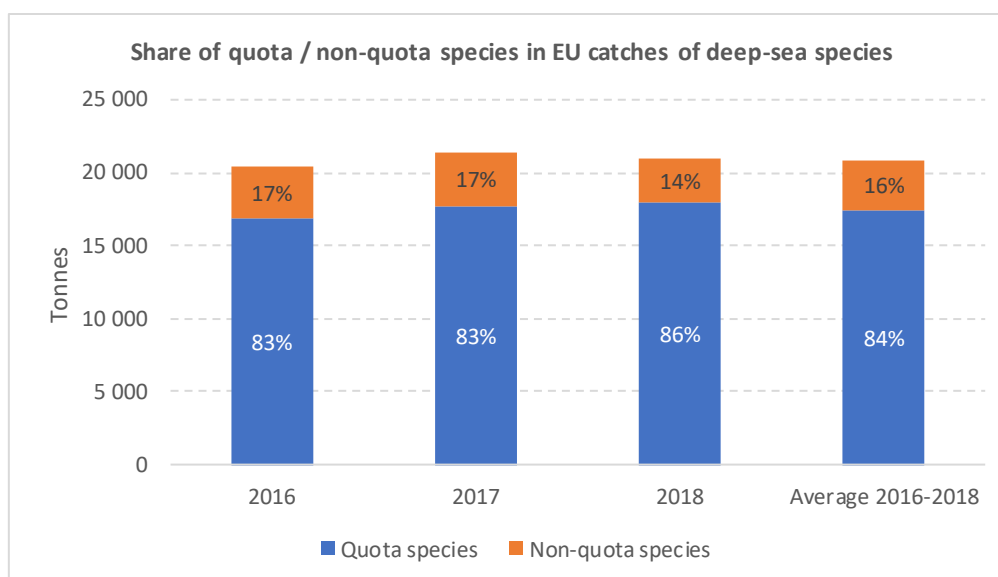
Figure 15: Breakdown of EU reported catches of deep-sea species referred to in Annex I of the DSAR according to quota status

Source: based on Eurostat catch data and TAC and quota regulations

The next table shows the quota uptakes for the main quotas between 2017 and 2019 (i.e. ratio reported catches / available TAC). TAC for 2019 is reported in the table to provide an order of magnitude of the amount of catch concerned for each stock.

Table 17: Ratio reported catches / available TACs (%) for the main stocks of deep-sea species over the 2017-2019 period (red characters: 80% and above)

Species	Stock (TAC code)	2017	2018	2019	TAC 2019* (tonnes)
Black scabbardfish (*A. carbo*)	BSF/56712	64%	66%	49%	2 470
	BSF/8910	63%	57%	67%	2 832
	BSF/C3412	75%	77%	67%	2 189
Alfonsinos (*Beryx spp.*)	ALF/3X14	**94%**	**96%**	**102%**	252
Roudnose grenadier (*C. rupestris*)	RNG/03	0%	0%	0%	50
	RNG/5B67	10%	14%	9%	2 558
	RNG/8X14	47%	39%	28%	2 281
Red seabream (*P. bogaraveo*)	SBR/678	**85%**	**92%**	**88%**	117
	SBR/9	65%	64%	35%	149
	SBR/10	**94%**	**83%**	65%	576
Deep-sea sharks	DWS/56789	16%	15%	4%	7
	DWS/10	0%	3%	2%	7
	DWS/F3412C	5%	1%	0%	7
Greater silver smelt (*A. silus*)	ARU/3A4-C	30%	18%	7%	1 234
	ARU/567	**92%**	75%	**95%**	4 661
Blue ling (*M. dypterygia*)	BLI/5B67	15%	19%	19%	11 378
	BLI/24	32%	20%	35%	53
Greenland halibut (*R. hippogloides*)	GHL/2A-C46	27%	18%	18%	1 250
	GHL/1/2/INT	66%	**94%**	**121%**	900

Source: DG MARE
Note: TAC 2019 is as published in the relevant Regulations. It does not take into account possible exchanges with 3rd countries for shared stocks.

The TACs of two of the main deep-sea species exploited by EU vessels (black scabbardfish and blue ling) are relatively under-utilised. For greater silver smelt, the TAC in Union and international waters of 5, 6 and 7 was almost fully utilised in 2017 and 2019, as was the TAC for Greenland halibut in international waters of 1 and 2, while utilisation of the TAC for the same species in Union waters of 2a and 4[80]; Union and international waters of 5b and 6 was low. For deep-sea species subject to relatively low TACs, utilisation is generally low as well, with some exceptions (red seabream and alfonsinos). Uptake of deep-sea shark TACs is also low, but the fishing prohibitions applying to certain types of fishing vessels means that some catches of deep-sea sharks are not counted against the quotas.

Overall, limits set by TAC and quota regulations on catches of deep-sea species do not appear to be a limiting factor to the pelagic and demersal fisheries since 2017, except in a few cases. Trends over the 2017-2019 period are difficult to establish, but for most TACs, uptake seems stable if not decreasing.

4.3.2 The Technical Measures Regulation

Council Regulation (EC) 850/98[81] applicable until 2019 and its successor Regulation (EU) 2019/1241[82] of the European Parliament and of the Council (the Technical Measures Regulation) define a broad set of rules which govern how, where and when fishing vessels may exploit the fishing opportunities available to them. Technical measures shall aim to ensure that i) catches of marine species below minimum conservation reference size are reduced as far as possible, ii) incidental catches of sensitive species do not exceed agreed levels and iii) environmental impacts of fishing activities on seabed habitats are in line with EU environmental legislation (Article 4 of Reg. (EU) 2019/1241).

Various technical measures apply to deep-sea fisheries. Of interest for this evaluation, they include i) specifications for design and use of gear, ii) closed areas and seasons and iii) measures to minimise the impact of fishing on the deep-sea ecosystem.

Specification for the design and use of fishing gears

Article 8 of Regulation (EU) 2019/1241 defines minimum mesh sizes for towed bottom gears, including those used to catch deep-sea species. Minimum mesh sizes are 120mm in the North Sea and in North Western Waters and 70 mm in South Western Waters (55mm in ICES division 9a).

Article 9 of the same Regulation prohibits the use of bottom set gillnet, entangling nets and trammel nets at any position where the charted depth is greater than 200m (prohibition applicable as from 2005). However, specific derogations apply when the charted depth is between 200m and 600m for bottom set gillnets for directed fishing for hake and entangling nets / trammel nets used for directed fishing of anglerfish. Directed fishing for deep-water sharks listed in Annex I of the DSAR in charted depths of less than 600m is prohibited. When accidental catches of deep-water sharks by the vessels of any Member State exceed 10 tonnes, those vessels may no longer avail the derogations applying between 200 and 600m depth.

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[80] For 2019, the fishery was closed on 30/09/2019.

[81] Council Regulation (EC) No 850/98 of 30 March 1998 for the conservation of fishery resources through technical measures for the protection of juveniles of marine organisms. *OJ L 125, 27.4.1998, p. 1–36*

[82] Regulation (EU) 2019/1241 of the European Parliament and of the Council of 20 June 2019 on the conservation of fisheries resources and the protection of marine ecosystems through technical measures, amending Council Regulations (EC) No 1967/2006, (EC) No 1224/2009 and Regulations (EU) No 1380/2013, (EU) 2016/1139, (EU) 2018/973, (EU) 2019/472 and (EU) 2019/1022 of the European Parliament and of the Council, and repealing Council Regulations (EC) No 894/97, (EC) No 850/98, (EC) No 2549/2000, (EC) No 254/2002, (EC) No 812/2004 and (EC) No 2187/2005. PE/59/2019/REV/1. *OJ L 198, 25.7.2019, p. 105–201*

Closed areas and seasons

The Technical Measures Regulation establishes a specific measure for the protection of blue ling in ICES division 6a (directed fishing prohibited between 1 March and 31 May each year in a defined area at the edge of Scottish continental shelf and edge of Rosemary Bank). The Technical Measures Regulation also transposes the NEAFC blue ling protection measures south of the Icelandic EEZ in international waters (prohibition to fish in a defined area between 15 February and 15 April each year).

Measures to minimise the impact of fishing on the deep-sea ecosystem

The Technical Measures Regulation enforces the prohibition to deploy bottom trawls or similar towed nets, set gillnets, entangling nets or trammel nets and bottom set longline in several offshore areas in the EEZ of Member States (Ireland, Spain and United Kingdom) in which the identified presence of deep-sea reefs supported the designation of Special Areas for Conservation as per the Habitat Directive 92/43/EEC[83]. The Technical Measures Regulation foresees that the list of closed areas can be modified through a delegated act under the same conditions as those established by the DSAR for areas closed for the protection of VMEs (Article 17 of the DSAR).

For the outermost regions, Azores, Madeira and Canary Islands, the Regulation enforces a prohibition of deploying nets at depths greater than 200m or bottom trawls in defined areas encompassing large parts of the waters around those islands[84].

The Technical Measures Regulation transposes NEAFC VME closures implemented under NEAFC recommendation 19.2014 into EU Law. However, the NEAFC annex of the Technical Measures Regulation could be updated in relation to evidence of VME encounters and include a definition of VME indicator species for operationalisation.

4.3.3 The Western Water Multiannual Plan

Regulation (EU) 2019/472[85] of the European Parliament and of the Council establishes a multiannual plan for stocks fished in North Western waters (ICES area 5 excluding 5a and only Union waters of 5b, 6, 7) and South Western waters (ICES subareas 8,9 and 10 (waters around Azores) and CECAF zones 34.1.1, 34.1.2 and 34.2.0), and where those stocks extend beyond Western waters in their adjacent waters and for the fisheries exploiting those stocks. The waters covered by the Multiannual plan are also covered by the DSAR.

The Regulation sets MSY conservation objectives for a number of 'target' species, including four deep-sea species: black scabbardfish in ICES 1, 2, 4 6-8 and 14 and divisions 3a, 5a, 9a and 12 b, roundnose grenadier in ICES subareas 6, 7 and division 5b, blue ling in ICES 6 and 7 and 5b and red seabream in ICES subarea 9. Conservation objectives are also set for by-catches caught when fishing for the deep-sea species listed.

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[83] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. *OJ L 206, 22.7.1992, p. 7–50*

[84] The protection measures for these outermost regions are in place since 2005.

[85] Regulation (EU) 2019/472 of the European Parliament and of the Council of 19 March 2019 establishing a multiannual plan for stocks fished in the Western Waters and adjacent waters, and for fisheries exploiting those stocks, amending Regulations (EU) 2016/1139 and (EU) 2018/973, and repealing Council Regulations (EC) No 811/2004, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007 and (EC) No 1300/2008. PE/78/2018/REV/1. *JO L 83 du 25.3.2019, p. 1–17*

Before the adoption of the Western Water Multiannual plan in 2019, deep-sea species were not covered by an EU multiannual plan.

4.3.4 The landing obligation of the CFP Regulation

Regulation 1380/2013[86] (the CFP Regulation) established a number of overarching principles and objectives that also govern the DSAR. The coherence between the CFP and the DSAR is reviewed in detail in section 6.4.4. However, the landing obligation introduced by the CFP Regulation is discussed here in view of its possible effects on the management of deep-sea fisheries.

As a result of the landing obligation enforced through Article 15 of the CFP Regulation, all deep-sea species subject to catch limits must be landed and counted against the quotas where applicable. The landing obligation applies to greater silver smelt caught in small pelagic fisheries since 1 January 2015, and to all other deep-sea species since 1 January 2019. The only known exemption running until 2021 concerns black scabbardfish caught by longlines in South-Western Waters.[87]

Before the landing obligation, catches of deep-sea species subject to catch limits could be discarded at sea. This could happen in particular when deep-sea species quotas were exhausted, allowing the fishing vessels to continue their fishing activities in multi-species contexts, while being compliant with catch limits. With the landing obligation, a fishing vessel will have to cease fishing activities as soon as one of the quotas of the species caught is exhausted. Deep-sea species, in particular those subject to small quotas, have therefore the potential to become choke species[88].

Among the different deep-sea species, alfonsinos appear to be the main choke species. The relatively small TAC of 252 tonnes for all EU waters (ALF/3X14) has been fished up to 96% in 2018 and up to 102% in 2019 (Table 17), suggesting its limiting influence on operations of fishing vessels catching this species as by-catch, essentially fishing vessels using hooks and longlines (93% of total catches of alfonsinos according to ICES). The potential choke species effect of alfonsinos had already been identified for fisheries in South Western Waters (Prellezo et al., 2018).

Based on the available information, no other deep-sea species appear to be a candidate choke species. TACs for deep-sea sharks are low (7 tonnes for each of the three different areas subject to deep-sea sharks catch limits), but reported catches of these species by vessels authorised to catch them as by-catches represent generally less than 5% of the limits according to DG MARE data (see Table 17). The North-Western Waters Advisory Council confirmed that deep-sea sharks could pose a choke risk, and also possibly red seabream if ICES advice for zero TAC was followed[89]. At a broader scale, no deep-sea species had been identified as potential choke species in North Western Waters (Rihan, 2018).

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[86] Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC. *OJ L 354, 28.12.2013, p. 22–61*

[87] Commission Delegated Regulation (EU) 2017/2167 of 5 July 2017 amending Delegated Regulation (EU) 2016/2374 establishing a discard plan for certain demersal fisheries in South-Western waters. OJ L 306, 22.11.2017, p. 2–5

[88] A choke species is a term used to describe a species with a low quota that can cause a vessel to stop fishing even if they still have quota for other species caught during the same fishing operation.

[89] North Western Waters Advisory Council. Advice Addressing choke risk in NWW after exemptions (issued 06.11.2018).

4.3.5 The Control Regulation

Council Regulation (EC) 1224/2009[90] (the Control Regulation) establishes a Union system for control, inspection and enforcement to ensure compliance with the rules of the Common Fisheries Policy. The Control Regulation is one of the four pillars of the Union Fisheries Control System with i) the Regulation establishing the European Fisheries Control Agency (EFCA)[91], ii) the Regulation establishing a system to combat Illegal, Unreported and Unregulated (IUU) Fishing[92] and iii) the Regulation on the sustainable management of the external fishing fleets (SMEF Regulation)[93].

Articles 10 to 12 of the DSAR specify some control provisions but do not create specific control rules. The DSAR enforces, for its own purpose, the stricter control provisions foreseen in the Control Regulation for stocks subject to multiannual plans. This includes the following Articles of the Control Regulation:

- Article 7 of the Control Regulation (legal basis for fishing authorisations),
- Article 17 on prior notifications operationalised by Article 12 of the DSAR (100 kg threshold, no exemptions for vessels less than 12m),
- Article 42 on the prohibition of transhipments in ports before catch weighing,
- Article 43 on designated ports, operationalised by Article 11 of the DSAR (mandatory landings in designated ports for 100 kg or more of deep-sea species, irrespective of the type of fishing authorisation),
- Article 45 on the real time use of quotas, although in the case of deep-sea species, the Council did not decide on the relevant threshold to apply and frequency of catch data submission when thresholds are reached (Article not operationalised in the case of deep-sea species),
- Article 84(1) on investigations for suspected cases of catch misrecording,
- Article 95(3) on the establishment of risk-management based target benchmarks in the frame of Specific Control and Inspection Programme (SCIP),
- Article 104(1) on the possibility for the Commission to close fisheries for failure to comply with CFP objectives by one Member State,
- Article 105(3)c on additional penalties for quota deduction in case of overfishing of a quota,
- Article 107(1) on the possibility for the Commission to operate deductions from quotas in case of non-compliance by a Member State,
- Article 108(1) on the possibility for the Commission to decide on emergency measures if evidences suggests non-compliance with applicable rules,
- Article (115)1 on information to be published by Member States on public parts of their websites (of interest in the DSAR context, essentially information on designated ports); and

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[90] Council Regulation (EC) No 1224/2009 of 20 November 2009 establishing a Community control system for ensuring compliance with the rules of the common fisheries policy, amending Regulations (EC) No 847/96, (EC) No 2371/2002, (EC) No 811/2004, (EC) No 768/2005, (EC) No 2115/2005, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007, (EC) No 676/2007, (EC) No 1098/2007, (EC) No 1342/2008 and repealing Regulations (EEC) No 2847/93, (EC) No 1627/94 and (EC) No 1966/2006. *OJ L 343, 22.12.2009, p. 1–50.*

[91] Council Regulation (EC) No 768/2005 of 26 April 2005 establishing a Community Fisheries Control Agency and amending Regulation (EEC) No 2847/93 establishing a control system applicable to the common fisheries policy. OJ L 128, 21.5.2005, p. 1–14

[92] Council Regulation (EC) No 1005/2008 of 29 September 2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing, amending Regulations (EEC) No 2847/93, (EC) No 1936/2001 and (EC) No 601/2004 and repealing Regulations (EC) No 1093/94 and (EC) No 1447/1999. OJ L 286, 29.10.2008, p. 1–32

[93] Regulation (EU) 2017/2403 of the European Parliament and of the Council of 12 December 2017 on the sustainable management of external fishing fleets and repealing Council Regulation (EC) No 1006/2008. OJ L 347, 28.12.2017, p. 81–104

- Annex I on specific inspection benchmarks.

Article 13 is the only control rule created by the DSAR. It concerns haul-by-haul reporting of activities in the logbook (as opposed to reporting on a daily basis under the general case) when vessels are engaged in a deep-sea métier or when fishing below 400m, including mandatory reporting of VME indicators above the threshold set out by the DSAR to define an evidence of a VMS encounter. Haul-by-haul reporting in the logbooks is already an obligation for EU fishing vessels operating in the NEAFC Regulatory Area and is proposed to become the general case in Commission's proposal for a revision of the Union Control System[94]. The Commission's proposal for a reformed control system introduces other innovations that will improve control of deep-sea fisheries, including *inter alia* electronic reporting by vessels of less than 12m, sharing of Automatic Identification System (AIS) records with the Commission, the possibility to mandate electronic observation systems for the control of the landing obligation, and importantly, the removal of the exemption of reporting catches below 50 kg in logbooks, which is particularly relevant to ensure comprehensive reporting of all catches of deep-sea species.

With the adoption of the Commission Implementing Decision (EU) 2018/1986[95], deep-sea fisheries are now in the scope of the Specific Control and Inspection Programme (SCIP) implemented for certain demersal and pelagic fisheries in Western Waters of the North East Atlantic which considers coverage of all fisheries exploiting species under the landing obligation pursuant to Article 15 of the CFP Regulation. The Commission Implementing Decision sets the legal basis for application of Article 95 of the Control Regulation to deep-sea fisheries in EU Western Waters and for intervention of the EFCA in the organisation and coordination of the Joint Deployment Plans (JDPs) foreseen under the SCIP. EFCA is also empowered with the coordination of EU inspection activities in the NEAFC-RA pursuant to Regulation (EU) 1236/2010[96].

Lastly, the DSAR introduces a specific scheme for mandatory administrative sanctions in the form of the withdrawal of fishing authorisations for a duration of at least two months for failure to comply with conditions set in the fishing authorisations and failure to take onboard a scientific observer (Article 14). However, based on feedback received from the Member States, administrative sanctions foreseen by the DSAR have never been applied so far.

4.3.6 The EU Data Collection Framework

The EU Data Collection Framework (DCF) implemented through Regulation (EU) 2017/1004[97] of the European Parliament and of the Council establishes rules on the collection, management and use of biological, environmental, technical and socioeconomic

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[94] Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Council Regulation (EC) No 1224/2009, and amending Council Regulations (EC) No 768/2005, (EC) No 1967/2006, (EC) No 1005/2008, and Regulation (EU) No 2016/1139 of the European Parliament and of the Council as regards fisheries control COM/2018/368 final

[95] Commission Implementing Decision (EU) 2018/1986 of 13 December 2018 establishing specific control and inspection programmes for certain fisheries and repealing Implementing Decisions 2012/807/EU, 2013/328/EU, 2013/305/EU and 2014/156/EU. C/2018/8461 *OJ L 317, 14.12.2018, p. 29–46*

[96] Regulation (EU) No 1236/2010 of the European Parliament and of the Council of 15 December 2010 laying down a scheme of control and enforcement applicable in the area covered by the Convention on future multilateral cooperation in the North-East Atlantic fisheries and repealing Council Regulation (EC) No 2791/1999. *OJ L 348, 31.12.2010, p. 17–33*

[97] REGULATION (EU) 2017/1004 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL f 17 May 2017 on the establishment of a Union framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy and repealing Council Regulation (EC) No 199/2008 (recast)

data in the fisheries sector. Articles 15 and 16 of the DSAR ensures that data collection on deep-sea fisheries is organised according to the scientific methodologies designed to meet DCF expectations, with specific additional requirements in relation to collection of data on VME indicator species and on observer coverage.

Collected data

The exact data requirements have been formulated by STECF working groups on the basis of scientific needs for stock assessment and related policy advice. The data requirements are specified in the Commission Delegated Decision 2019/910[98]. Four main types of data are collected: biological data, fisheries dependent data, environmental data and socio-economic data. The specifications of the Articles 15 and 16 of DSAR are discussed below in relation to the requirements of the EU MAP[99].

The EU MAP data regarding commercial fisheries is collected at varying levels of detail, depending on scientific needs. Table 2 of CDD 910/2019 defines six levels (métiers):
- Level 1 distinguishes fishing, other activities than fishing and inactive vessels;
- Level 2 distinguishes 8 main gear classes, with the 'fishing' activity of level 1;
- Level 3 distinguishes 9 gear groups within the 6 main gear classes;
- Level 4 distinguishes further 25 gear types;
- Level 5 distinguishes target assemblages, i.e. group species. Two of these groups are relevant this context: the Deep Water Species (DWS) and Mixed Deep-water species and Demersal (MDD);
- Level 6 specifies 'mesh size and other selective devices'. These are minimum mesh size requirements, required under specific regulations;

The six levels above determine the 'métier' of the fishing vessel. Métier is defined in CDD 2019/910 Article 1.9 as: *group of fishing operations targeting a similar (assemblage of) species, using similar gear[100], during the same period of the year and/or within the same area and which are characterised by a similar exploitation pattern*. The application of this definition in general and to deep-sea fisheries in particular is, however, less straightforward because some fisheries catch deep-sea species as by-catch. In those cases, they will not be classified as deep-sea métier (DWS or MDD), but rather as small pelagic fisheries (SPF) or demersal species (DEF) for example. This means that the scientific data on catches of deep-sea species are not limited to deep-sea métiers. In addition, the definition of data builds on in three other dimensions:

- Six classes of vessel lengths;
- Geographic location (FAO-sub-area and ICES rectangles);
- Time: usually quarter.

In addition to data on commercial fisheries, biological and environmental data is collected during scientific surveys at sea with EU MAP regulations listing the obligatory surveys.

Biological data

Biological data are defined in chapter III, section 2 of the CDD 2019/910 as follows:

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[98] Commission Delegated Decision (EU) 2019/910 of 13 March 2019 establishing the multiannual Union programme for the collection and management of biological, environmental, technical and socioeconomic data in the fisheries and aquaculture sectors. C/2019/1848. *OJ L 145, 4.6.2019, p. 27–84.* Similar Commission decisions were published since the introduction of the data collection legislation in 2008.

[99] EU Multi Annual Programme, replaced the term DCF (Data Collection Framework)

[100] As specified in Annex XI of Regulation (EU) No 404/2011

(i)   For commercial fisheries, <u>volume and length frequency</u> of all catch fractions (including discards and unwanted catches) for the stocks listed in Tables 1A, 1B and 1C, reported at the aggregation level 6 as set out in Table 2. The temporal resolution shall be coordinated at marine region level based on end-user[101] needs;
(ii)   For commercial fisheries, <u>mean-weight and age distribution</u> of catches of the stocks listed in Table 1A, 1B and 1C. The selection of stocks from which these variables have to be collected and the temporal resolution shall be coordinated at marine region level based on end-user needs;
(iii) For commercial fisheries, <u>sex-ratio, maturity and fecundity</u> data for stocks listed in Tables 1A, 1B and 1C of catches at frequencies needed for scientific advice. The selection of stocks from which these variables have to be collected and the temporal resolution shall be coordinated at marine region level based on end-user needs;
(iv)   Species for which data must be collected to assess the environmental impact of EU fisheries under protection programmes in the Union or under international obligations are listed in table 1D.

The biological data is collected through sampling either in ports at landing or on board fishing vessels. The extent of sampling (number of samples taken / statistical observations) is defined in the preparatory phase in the Regional Coordination Meetings.

DSAR Annex I lists 46 individual species and three species at genus level (spp). All of these species are mentioned in the CDD 2019/910, either in Table 1A (Stocks in Union waters[102]) or in Table 1C (Stocks in marine regions under Regional fisheries management organisations and Sustainable Fishing Partnership Agreements). Several deep-sea species caught as by-catches are covered by Table 1D (species to be monitored under protection programmes). This means that for biological data, there is full consistency between the two legal acts. The EU MAP ensures the availability of biological data for deep-sea species covered by the DSAR in EU waters and in NEAFC Regulatory Area.

Surveys at sea

Surveys at sea are carried out by vessels equipped for scientific observations, generating fisheries independent data, which is complementary to the biological and Fisheries Dependent Information data for stock assessment purposes. Surveys at sea are implemented at regular intervals of time (i.e. annually, during specific periods of the year). Their main output is the provision of data on the abundance of the different species caught and on oceanographic conditions (e.g. temperature, salinity). Commission Implementing Decision 2019/909[103] lists the mandatory research surveys at sea. Some of these surveys provide some contribution to scientific knowledge on deep-sea species according to ICES WGDEEP reports (ICES, 2019d):

-       International Redfish Trawl and Acoustic Survey
-       Greenland Groundfish survey
-       Western IBTS 4th quarter (including Porcupine survey)

Fisheries dependent information (FDI)

FDI are data on activity of the fishing fleets in terms of catches, fishing effort and discards. FDI data originate from the logbooks collected under the Control Regulation by the national

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[101] 'end-user of scientific data' is defined in the CFP Regulation 1380/2013, Article 4 as: *a body with a research or management interest in the scientific analysis of data in the fisheries sector.*
[102] According to the Commission, "Stocks in Union Waters" designated under CDD 2019/910 are to be understood as comprising stocks in the North East Atlantic outside EU waters.
[103] Commission Implementing Decision (EU) 2019/909 of 18 February 2019 establishing the list of mandatory research surveys and thresholds for the purposes of the multiannual Union programme for the collection and management of data in the fisheries and aquaculture sectors. C/2019/1001. *OJ L 145, 4.6.2019, p. 21–26*

control authorities. The fishing vessels are obliged to report the location of their catches at the level of ICES rectangle. When the rectangle does not fully fall in EU waters, a further distinction is made between EU and non-EU area, as different management conditions may apply. Apart from catches, the FDI also provides information on fishing effort and discards. Discards apply to non-TAC species and protected species for which the discards are allowed.

Organisation of the EU MAP

EU MAP data is collected by national research institutes. All Member States are obliged to prepare a multi-annual work programme (2017-2019 and 2020-2021), which is updated yearly. These programmes are coordinated at sea-basin level during the Regional Coordination Meetings (RCM). RCMs increase the efficiency of the data collection by allocating specific tasks to specific Member States. In this way, Member States can focus their observations on specific topics (species, areas).
Commission implementing decision (EU) 2019/909 (Annex, chapter II) specifies thresholds under which the Member States are not obliged to collect biological information on certain species. The main thresholds related to deep sea species are:

a)   Member State's share of the related total allowable catch (TAC) is less than 10 % of the Union total, or
b)   where no TAC is fixed, the total landings of a Member State of a stock or species are less than 10 % of the average total EU landings in the previous 3 years, or
c)   the total annual landings of a Member State of a species is less than 200 tonnes.
d)   For species with a specific management need a lower threshold may be defined at marine region level.

The data regarding the Atlantic areas is submitted to databases maintained by ICES on the basis of data calls launched either by ICES or by one of its working groups[104].

EU MAP is funded for 80% by the European Maritime and Fisheries Fund (EMFF), while the individual Member States cover the remaining 20% of the costs.

5   Summary of trends (Article 19 of the DSAR)

Based on the findings developed in sections 2 (Overview of the EU deep-sea fishing sector), 3 (The status of scientific knowledge on deep-sea fisheries in the North-East Atlantic) and 4 (Review of the main conservation and management measures for deep-sea fisheries in EU waters) of this report, **Appendix 6** provides answers to each of the 11 subjects enumerated in Article 19.2 of the DSAR.

Overall, the study's review of trends on the different subjects does not support the conclusion that fishing with bottom gears[105] does not comply with the objectives set out in Article 1 of the DSAR since its entry into force. Meaning, in other words, that the trends rather indicate that fishing with bottom gears may be compliant with the objectives set out in Article 1 of the DSAR.

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[104] Data calls for economic data and data on Mediterranean are operated by JRC.
[105] Article 19.3 of the DSAR makes reference to bottom gears only

6 Analysis and answers to evaluation questions on the performances of the Deep-Sea Access Regulation (EU) 2016/2336

The following sections provide an analysis of the evaluation questions based upon the Evaluation Question Matrix (EQM) designed during the inception phase of the project, based on the terms of reference and the reconstructed DSAR intervention logic shown in **Appendix 1**. The EQM is presented in **Appendix 9**. The sections are structured around the five evaluation criteria (Relevance, Effectiveness, Efficiency, Coherence and EU Added-Value) from the EU Better Regulation guidelines, detailing for each judgement criterion:

- a list of evaluation questions and sub-questions;
- judgement criteria against which the DSAR is assessed;
- associated indicators (quantitative and qualitative);
- sources of evidences.

6.1 Relevance of the DSAR

6.1.1 To what extent was there a need to adopt the measures under the DSAR?

Findings

The previous Deep-Sea Access Regulation (EC) 2347/2002 concentrated on measures to manage fishing pressure on certain deep-sea fish stocks through capacity management and effort restrictions, but it did not include measures to protect deep-sea habitats from significant adverse impacts from fishing gear, in particular Vulnerable Marine Ecosystems (VMEs). At the same time, the previous Deep-Sea Regulation was considered by the Commission[106] to be broadly ineffective as a means to protect deep-sea fish stocks from unsustainable exploitation and to ensure provision of relevant data to support scientific advice.

As from 2004, the United Nations General Assembly (UNGA) adopted three resolutions[107] which address the management of bottom deep-sea fisheries, including their impacts on VMEs. UNGA Resolutions are not directly applicable in EU / national law, but set out principles and standards that apply primarily in areas beyond national jurisdictions covered or not by a relevant multilateral arrangements like Regional Fisheries Management Organisations (RFMOs). UNGA Resolutions are operationalised by FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas[108] adopted in 2008 pursuant to paragraph 89 of UNGA Resolution 61/105, and published in 2009. EU measures for the management of deep-sea fisheries, including their impacts on deep-sea ecosystems, were not fully consistent with UNGA Resolutions at that time.

The need for enhanced protection of deep-sea fish stocks and of their habitats was further underpinned by the adoption of the Common Fisheries Policy implemented as from 2013 through Regulation (EU) 1380/2013, which established as a main CFP objective an ecosystem-based approach to fisheries management so as to ensure that negative impacts of fishing activities on the marine ecosystems are minimised. An EU intervention was thus

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[106] COM(2007) 30 final. Review of the management of deep-sea fish stocks

[107] Resolution 59/25 (November 2004), Resolution 61/105 (December 2006) and Resolution 64/72 (December 2009)

[108] FAO. International Guidelines for the Management of Deep-sea Fisheries in the High Seas. Rome, FAO. 2009. 73p.

needed to better address the four fundamental problems of deep-sea fishing identified by the Commission's impact assessment[109] :

- The high vulnerability of deep-sea stocks to fishing;
- Fishing with bottom trawls destroys or risks destroying irreplaceable benthic habitats (VMEs) which represent main sources of biodiversity in the deep sea. The extent of destruction that already occurred is unknown;
- Fishing with bottom trawls for deep-sea species produces medium to high levels of undesired catch of deep-sea species;
- Determining the sustainable level of fishing pressure via scientific advice is particularly difficult.

All Member State Authorities and all NGOs consulted through our targeted consultations confirmed that there was a need for a new instrument mainly to protect deep-sea ecosystems and to bring EU legislation in line with international commitments. Most fishermen associations also supported the need for a revised regime in view of the specificities of deep-sea fisheries, but some fishermen associations (Spain, Netherlands, Germany) expressed a different view stating that existing measures were sufficient on the ground that fishing for deep-sea species did not necessarily mean fishing in VMEs. Feedback from the Public Consultation on the DSAR (online from May to August 2020) implemented in the context of this study, confirmed the need to protect deep-sea VMEs (92% of respondents) and deep-sea fish stocks (89% of respondents).

6.1.2 To what extent does this need continue to exist?

Deep-sea species and ecosystems are particularly vulnerable to depletion and significant adverse impacts from bottom gears, especially given the longevity and slow recovery potential of many deep-sea species and habitats. While other EU fisheries (e.g. TAC and quota Regulations, Technical Measures Regulation) and environmental legislation (e.g. Habitat Directive, Marine Strategy Framework Directive) also play an important role, these alone are not sufficiently tailored to the particular needs of vulnerable deep-sea species and habitat with specific provisions needed in particular for regulating fishing capacity exploiting deep-sea stocks, freezing the fishing footprint, protecting the different species of the seabed ecosystem forming VME habitats (e.g. cold-water corals, deep-sea sponges, sea pen fields), implementing more stringent control and reporting rules and strengthening the enhanced provision of scientific information on deep-sea stocks and habitats.

All Member State Authorities and all NGOs consulted through our targeted consultations confirmed that the need for a specific deep-sea access regime continues to exist to ensure implementation of measures tailored to the vulnerability of the deep-sea environment. Fishermen associations also supported the continued existence of a specific framework for access to deep-sea fisheries but were more focused on fishing fleets interacting with the deep-sea environment. Feedback from the Public Consultation corroborated these findings with 91% of respondents indicating that there is still a need to prevent significant impacts on vulnerable marine ecosystems and to ensure the long-term conservation of deep-sea stocks, and 85% confirming the need to improve scientific knowledge on deep-sea species and habitats.

6.1.3 To what extent are measures under the DSAR appropriate to address needs, do they continue to be appropriate to respond to needs?

Findings

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[109] Commission Staff Working Document – Impact Assessment of 19 July 2012, SWD (2012) 202 final - Accompanying the document Proposal for a Regulation of the European Parliament and of the Council establishing specific conditions to fishing for deep-sea stocks in the North-East Atlantic and provisions for fishing in international waters of the North-East Atlantic and repealing Regulation (EC) No 2347/2002

The DSAR implements the following four main types of interrelated measures:

- Management of fishing capacity including:
  - ✓ Fishing authorisation regimes based on quantities of deep-sea species caught in absolute value or in proportion of total catches.
  - ✓ Capacity ceilings to ensure that total fishing capacity expressed in kW and GT does not exceed 2009-2011 reference levels.

- Protection of deep-sea stocks and deep-sea habitats through spatial restrictions including:
  - ✓ Limitation of exploitation to defined existing deep-sea fishing areas (i.e. the fishing footprint) based on areas exploited in 2009-2011 calendar years, with a specific science-based procedure for authorising fishing outside existing deep-sea fishing areas.
  - ✓ Closure of areas below 400m where VMEs are known or likely to occur to bottom gear.
  - ✓ VME encounter protocol, including move-on rule.
  - ✓ 800m bottom trawl prohibition to ensure full protection of ecosystems and deep-sea fish stocks beyond this depth.

- More stringent monitoring and control rules.

- Enhanced scientific data collection on deep-sea species and on species belonging to the seabed ecosystem.

Management of fishing capacity

The key instrument for managing fishing capacity engaged in deep-sea fisheries is the DSAR fishing authorisation regime (Article 5). Fishing authorisation regimes are commonly used in EU legislation, where access to certain stocks / areas needs to be managed and controlled, like for example under EU multiannual management plans or for fishing in the waters of third countries. The DSAR fishing authorisation regime provides the legal basis for identifying fishing vessels authorised to catch deep-sea species as target species (the targeting fishing authorisation) or as by-catches (the by-catch fishing authorisation) under certain conditions defined by other DSAR measures. The two types of authorisations allow application of different treatments with the possibility to focus conservation and management measures on the part of the fleet presumed to have the greatest impact on deep-sea stocks and habitats. However, the non-exclusive nature of the targeting and by-catch regimes could raise concerns as some Member States issue both types of fishing authorisations to the same vessel.

Fishing authorisation regimes are often used to cap the fishing capacity of fishing vessels authorised to access the fisheries beyond certain reference levels. The DSAR includes such mechanisms through its Article 6 by limiting the fishing capacity (expressed in kW and GT) of vessels eligible to targeting fishing authorisations to 2009-2011 levels, whichever year provides the higher figure.

The DSAR fishing authorisation regime and the associated limitation mechanisms are relevant to control and manage the fishing fleet exploiting deep-sea species. None of the stakeholders consulted challenged the principle of regulating access to deep-sea fisheries through fishing authorisations. However, fishermen associations and NGOs indicated that the implementation modalities of the DSAR fishing authorisation regime, based on a list of designated deep-sea species, may not be fully relevant to achieve DSAR objectives. Fishermen associations and NGOs further challenged the relevance of the by-catch fishing authorisation regime as a mechanism to contribute to the protection of the deep-sea environment on the ground that fishing vessels issued with such fishing authorisation are

subject to few DSAR measures and are exempt from limitations of fishing operations within existing fishing areas. The provision on capacity limitations appears to be less relevant now with the reduction of the number of fishing vessels exploiting deep-sea stocks as a result of increased limitations on fishing opportunities (TAC and quotas), spatial restrictions (800m bottom trawl prohibition) and, as reported by fishermen associations, the decreased economic incentives to catch deep-sea species as a result of NGOs' campaigns against consumption of deep-sea fish. The forthcoming implementation of the DSAR footprint delimitation and closure of VMEs areas will probably impose further spatial restrictions likely to limit further the fishing capacity deployed in deep-sea fisheries.

Protection of deep-sea stocks and deep-sea habitats through spatial restrictions

Three measures recommended by the United Nations General Assembly to protect deep-sea VMEs from significant adverse impacts caused by fishing gears are reflected in the DSAR:
- the limitation of operations of fishing vessels targeting deep-sea fish to existing deep-sea fishing areas (Article 7 of the DSAR), i.e. the fishing footprint, with specific procedures for the authorisation to fish outside (Article 8.5) i.e. exploratory fisheries,
- the closure of areas below 400m where VMEs are known or likely to occur to fishing vessels using bottom gear (Article 9.6),
- the VME encounter protocol including move-on rule (Article 9.2).

The three measures have already been implemented in the NEAFC Regulatory Area. The implementation of these three measures through the DSAR is relevant to protect deep-sea VMEs in EU waters while ensuring alignment of EU legislation with recommendations of the United Nations General Assembly on these matters.

None of the stakeholders consulted through targeted consultations challenged the relevance of these three measures to contribute to DSAR stated objectives, but mentioned that the forthcoming implementation modalities will have an effect on the extent to which the measures respond to needs. However, NGOs suggested that the scope of application of VME protection to depths below 400m is not appropriate to protect VMEs present above that depth.

The 800m bottom trawl prohibition defined by Article 8.4 of the DSAR has two main expected effects: i) protection of deep-sea habitats against interactions with bottom trawls irrespective of the characteristics of the habitats (i.e. VMEs or not) and ii) protection from fishing pressure of deep-sea species living mostly below that depth like grenadier and orange roughy, and commercial deep-sea species for which depths below 800m form a major part of their natural habitat (i.e. black scabbardfish).The measure also protects non-commercial species often caught as by-catches by bottom trawlers below 800m like deep-sea sharks or chimaera. The 800m bottom trawl prohibition is appropriate to address the needs for enhanced protection of deep-sea stocks and of their habitats below that depth.

Feedback from targeted consultations on the relevance of the 800m bottom trawl prohibition reveals two radically different perceptions of the relevance of the measure. For NGOs, the measure is the most appropriate way of preventing significant adverse impacts on VMEs within the framework of deep-sea fishing and ensuring the long- term conservation of deep-sea fish stocks. This view is shared by 88% of contributors to the Public Consultation. For fishermen associations, the 800m bottom trawl prohibition is irrelevant as fishing below 800m depth does not entail destruction of VMEs if the gear is towed over muddy bottom. According to them, the measure has been adopted without reasonable scientific justification. Fishermen associations with fishing interests in South-Western Waters (Spain and Portugal) further report that such prohibition may be counterproductive as waters deeper than 800m are relatively close to the shore, forcing

vessels to move closer to the coast to deploy their gears with increased risks of interactions for small-scale vessels. Member State authorities did not comment on the relevance of the measure but indicated that it was a reasonable compromise to reconcile the opposing positions of civil society and fishing operators.

More stringent monitoring and control rules

Article 10 of the DSAR details specific control provisions of the EU control system applying in the context of stocks subject to the multiannual plans referred to in Article 9 of the CFP Regulation and for which compliance with existing rules is assessed as essential to reach conservation objectives. In view of the vulnerability of deep-sea stocks and VMEs, implementing through the DSAR the more stringent control rules generally applied in the context of multiannual plans was relevant.

The main control rule created by the DSAR (Article 13) is an obligation to report catches on a haul-by-haul basis when engaging in a deep-sea métier or when fishing below 400m, as opposed to a daily basis under the general case. This more stringent reporting obligation is relevant to improve monitoring of fishing activities deployed on deep-sea stocks or in waters deeper than 400m as fishing vessels may exploit different stocks or areas during the same day. The haul-by-haul reporting obligation generates specific monitoring information on deep-sea fishing operations that would be otherwise amalgamated with information on fishing vessels activities on other non-deep-sea stocks during the same day.

None of the stakeholders consulted challenged the relevance of applying the more stringent control rules applied in the context of EU multiannual plans to deep-sea fisheries. The haul-by-haul reporting requirement is already imposed on fishing vessels operating in the NEAFC Regulatory Area and it was considered logical to apply the same requirement in EU waters. Feedback from the Public Consultation also indicated a large majority of respondents (>80%) supporting more stringent control rules on vessels exploiting deep-sea species.

Enhanced scientific data collection on deep-sea species and on species belonging to the seabed ecosystem

Article 15 of the DSAR provides that scientific data on deep-sea species, including those discarded, and on species belonging to the seabed ecosystem are collected by Member States under the mechanisms implemented through the EU Data Collection Framework (DCF). This provision is appropriate to ensure the deployment of scientifically-based sampling strategies with data collected of sufficient quality to be considered for deep-sea fish stock assessment purposes and for improved knowledge on areas where VMEs are known or likely to occur.

The DSAR also introduced a specific observer scheme on fishing vessels authorised to catch deep-sea species, with quantitative coverage objectives for Member States. The purpose of the DSAR observer scheme was to ensure the collection of data on catches, by-catches of deep-sea species, encounters with VMEs and other relevant information for the effective implementation of the DSAR. If the spirit of the DSAR observer scheme was to ensure sufficient scientific monitoring of the activities of the fleet authorised to catch deep-sea species, defining a uniform observer coverage at levels higher than those generally implemented under the broader scope of the DCF, was appropriate to meet the needs for improved scientific knowledge on deep-sea species and habitats. Contributors to the Public Consultation widely supported the principle of a specific observer coverage (85% of respondents).

Stakeholders consulted and a large majority of contributors to the Public consultation (>80%) confirmed that enhanced data collection of deep-sea species and their habitats is needed to better inform decision-making. Some fishermen associations (Spain, Portugal)

highlighted that it is not suitable for small-scale vessels to receive an observer, but the DSAR provides waivers in this case.

Conclusion

In conclusion, DSAR measures are appropriate to address the needs identified to i) improve scientific knowledge on deep-sea species and their habitats and ii) prevent significant impacts on VMEs within the framework of deep-sea fishing and ensuring long-term conservation of deep-sea fish stocks. Stakeholders consulted in the framework of our targeted consultations did not identify other types of sensible measures that could have been relevant to contribute to the DSAR objectives without a risk that these other measures are redundant given other CFP conservation and management measures (e.g. fishing opportunities available, technical measures). Most measures remain relevant as needs identified ex-ante remain the same.

By contrast, the capacity management measure (Article 6) is probably less relevant now than it was at the time of adoption of the DSAR. This assessment is based on the decreasing levels of fishing activities on deep-sea stocks as a result of increased limitations on fishing opportunities (TAC and quotas) reinforced by the landing obligation, spatial measures (800m bottom trawl prohibition), combined with the decreased economic incentives to catch deep-sea species as a result of NGO campaigns targeting market outlets that offer deep-sea species to consumers (as reported by fishermen associations). The relevance of the by-catch fishing authorisation regime remains important as it results in the identification of fishing vessels authorised to catch deep-sea species and the application of the observer coverage. However, there is the inconvenience that these vessels are exempted from the application of one of the DSAR flagship measures: the spatial limitation of deep-sea operations within the fishing footprint (Article 7).

6.2 Effectiveness of the DSAR

6.2.1 To what extent is the DSAR effective to protect deep-sea vulnerable ecosystems?

Findings

The DSAR includes four main measures to ensure protection of the deep-sea ecosystems, including VMEs:

- ✓ Limitation of exploitation to defined existing deep-sea fishing areas (i.e. the fishing footprint) based on areas exploited in 2009-2011 calendar years, with a specific procedure for authorising fishing outside existing deep-sea fishing areas;
- ✓ Closure of areas below 400m where VMEs are known or likely to occur to bottom gear;
- ✓ VME encounter protocol, including move-on rule;
- ✓ 800m bottom trawl prohibition to ensure full protection of ecosystems and deep-sea fish stocks beyond this depth.

At the time of drafting this report (mid 2020), the first two measures were not implemented with the Commission implementing acts referred to in Article 7.2 for the determination of existing fishing areas and Article 9.6 for the closure of VMEs areas below 400m to bottom gear still outstanding, despite a commitment to adoption in early 2018 in the DSAR. The two other measures (VME encounter protocol and 800m bottom trawl prohibition) were immediately applicable.

The main reason for the delayed adoption of the Commission implementing acts is a scientific advisory process that took more time than the single year established by the

DSAR. The delayed implementation of the two measures may be explained i) by delayed submission of relevant data by some Member States and ii) by the relative complexity of the advices to be provided by ICES (new and specific methodologies for the VMEs likelihood, analysis of impact on fishing activities and options for closure of areas based on trade-off analysis).

In the meantime, areas where VMEs are known or likely to occur are not closed to bottom fishing by a dedicated instrument. Existing fishing areas are not defined either, but the DSAR introduced a safeguard clause in its Article 8.3 by limiting issuance of targeting fishing authorisations to areas previously exploited by the fishing vessels. However, the safeguard clause has a different temporal coverage (the last three years as opposed to 2009-2011 period), and it does not establish how past fishing areas should be defined. The review of Member States' annual reports to the Commission suggests that Member States identify authorised fishing areas on a statistical rectangle basis, which may be appropriate, or on ICES division (e.g. 6a) basis, which is probably too large, or on a mix of both spatial references. The effectiveness of the safeguard clause is probably also undermined by the fact that coastal States may not be fully aware of the licensing conditions imposed by flag States for access to certain areas, hindering monitoring of compliance.

The VME encounter protocol, including the move-on rule, was applicable as from 2017 but with implementation modalities only applicable to bottom trawls and longlines (Annex IV to the DSAR). According to Commission and Member State feedback, no VME encounters have been reported so far. This possibly reflects a combination of a general decline in bottom fishing activity in EU waters and an enhanced awareness and capability of vessels to avoid coral and sponge areas. It is also known that bottom trawls are designed to catch fish and are poor sampling tools for most sessile benthic organisms and in general the catchability of VME indicator species is unknown (Auster et al., 2011). Additionally, the sampling effectiveness is likely to be species-specific and for some species the trawl may only retain a very small proportion of the VME species actually impacted (Parker et al., 2009).

It cannot be excluded, however, that the lack of reports also reflects some failure to report actual encounters. This may not be intentional as fishermen associations reported that the identification of VMEs indicator species by masters of fishing vessels is beyond their technical capacity, starting by determination of the dead or live status of coral and/or sponge taxa brought onboard in the net. Scientific observers considered by Article 16 of the DSAR may support through their expertise, but i) their primary task is to collect data without interfering with vessel operations, and ii) they cover 10% or 20% of fishing activities, depending on the nature of the fishing authorisation held.

NGOs consulted indicated that the VME encounter protocol should be considered only as a backup measure to ensure the protection of undiscovered VMEs that could not be included in stronger spatial protection measures like existing fishing areas, or closures of areas where VMEs are known or likely to occur.

The 800m bottom trawl prohibition was also of immediate application. The measure is probably effective to protect any type of ecosystem below 800m irrespective of their attributes in relation to determination of VME status. Obviously, the measure does not address the protection of VMEs above that depth or protection from significant adverse impacts caused by other types of bottom contacting fishing gear (e.g. longlines) on VMEs below 800m.

Conclusion

As a result of the delayed implementation of two of its key measures (i.e. the definition of the fishing footprint and the closure of areas below 400m for VMEs protection), the DSAR has not been effective to date in protecting deep-sea vulnerable marine ecosystems from

significant adverse impacts caused by bottom fishing gear between 400m and 800m depths. This view was shared by more than 70% of respondents to the Public Consultation with some feedback highlighting that no VME area has been closed so far despite DSAR commitments. The 800m bottom trawl prohibition is effective to prevent significant adverse impacts on VMEs but only for those VMEs located below that depth and only for prevention of significant adverse impacts caused by bottom trawling as other bottom impacting gears (e.g. bottom set longlines) are not covered by the fishing prohibition. The VME encounter protocol is useful as a back-up measure, but it cannot be considered as an effective conservation measure on its own given the poor sampling effectiveness of VME indicator species by commercial fishing gears and the lack of adequately informed resources onboard to analyse catches of VME indicator species and to determine if they correspond to evidence an encounter with a VME.

Whilst the delayed implementation of the two DSAR key measures for protection of VMEs may be explained by the complexity of the underlying advisory process and associated data requirements, NGOs reported that it casts doubts on the willingness of the Member States and of the Commission to ensure an effective implementation of the DSAR. This perception is compounded by the delayed implementation of two other time bound DSAR measures: the scientific advice on observer coverage foreseen in Article 16.4 of the DSAR and the publication of Member States annual reports on implementation of the DSAR (Article 15.5) which are still awaited more than 3 years after entry into force of the Regulation[110]. From NGOs' perspective, there is a discrepancy between the Union's pledges for protection of the deep-sea ecosystems and actual achievements.

Finally, irrespective of the effectiveness of the DSAR measures yet to be implemented, it is not in the DSAR's remit to address the effective protection of VMEs located above 400m depth, despite available scientific evidence suggesting that VMEs are present in EU waters in the 200m – 400m depth band (see Figure 10 page 25 indicating that 42% of available VMEs records concern observations between 200 and 400m).

6.2.2 To what extent is the DSAR effective to preserve deep-sea fish stocks?

Findings

The main measures for conservation and management of deep-sea fish stocks are implemented through other EU CFP-related Regulation, in particular the TAC and quota Regulations fixing levels of fishing opportunities and the Technical Measures Regulation defining how, when and where fishing vessels may exploit available fishing opportunities. The DSAR does not include such conservation and management measures aiming at regulating the level of fishing mortality of deep-sea fish stocks.

However, two DSAR measures could be expected to contribute to preservation of deep-sea stocks: the capacity management measures (defined in Article 6) and the 800m bottom trawl prohibition, established by Article 8.4.

Capacity management

The capacity management measures enacted through Article 6 of the DSAR seek to ensure that the aggregate fishing capacity of fishing vessels issued with a targeting fishing authorisation does not exceed 2009-2011 levels, whichever year provides the highest figure. Although limits on fishing capacity are frequently enforced to contribute to management fisheries in EU waters and in waters under the management mandate of RFMOs, the design of the DSAR measures raises doubts on the potential effectiveness of the measure:

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[110] This feedback was obtained in May 2020 before public dissemination of some Member States' report in June 2020 on DG MARE website.

- As detailed in section 4.2.3 page 33, the criteria defined by the DSAR to establish capacity levels applicable to vessels having been issued a targeting fishing authorisation leave room for interpretation by Member States. As a result, it is likely that capacity limits established by Member States are not defined on an uniform basis, with the likely consequence that limits do not correspond to the assumed ambition of the DSAR to cap deep-sea fishing capacity levels in EU waters at the levels of fishing capacity deployed in the same waters in 2009-2011.
- The capacity limits defined at Member State levels include all types of vessels. They do not make a distinction that would capture the ability of the vessels to catch deep-sea species and the extent of significant adverse impacts on VMEs that the vessels could generate.

Other considerations suggest that capacity management regimes may not be fully effective instruments to support fisheries management:

- The European Commission recently raised concerns that capacity management as a whole is undermined due to the lack of compliance by Member States that do not generate reliable capacity indicators for registration and certification purposes[111], as evidenced by the study completed by Roos Diesel Analysis BV (2019).
- Effort management does not equal capacity management. Both can be categorised as input management (as opposed to output management such as quotas), but the two are different in nature. Effort management assumes the existence of capacity, and then limits the use of the available capacity through specific measures, such as technical measures.

Overall, it is likely that the effectiveness of the capacity management measures enacted through Article 6 of the DSAR have a somewhat limited effective contribution to the preservation of deep-sea fish stocks.

800m bottom trawl prohibition

The 800m bottom trawl prohibition enforced through Article 8.4 of the DSAR had the immediate effect of preventing bottom trawlers from accessing fishing areas where some commercial deep-sea species are abundant. According to ICES scientific reports (see Table 20 in Appendix 7) and as confirmed by fishermen associations and scientists, the 800m bottom trawl ban effectively protects deep-sea species with habitats below that depth (i.e. orange roughy and grenadiers), and decreases the availability of deep-sea species with the majority of biomass below 800m (i.e. black scabbardfish). A comparison of the results of catch sampling by scientific observers onboard French deep-sea trawlers in 2013 (prior to the 800m bottom trawl prohibition) and in 2018 indicates that the 800m trawl prohibition has been effective in reducing discards with a drop from 22.1% to 4.8% (discard rate, see Figure 22 in Appendix 7) and a decreased abundance of deep-sea sharks in discards, both in quantity and in the number of species caught.

The 800m bottom trawl prohibition does not yet have a visible effect on the status of exploited stocks. According to published ICES advice, the exploitation status of all deep-sea stocks reviewed has been stable over the past three years (2015-2017 or 2016-2018 depending on the year the advice was provided). There are no stocks exploited sustainably that transitioned to being exploited unsustainably and vice-versa. It will probably take another couple of years to detect any impacts of the measure on deep-sea fish stocks providing it is possible to disaggregate the effects of fishing pressure from the effects of natural variations (i.e. recruitment) on biomass variations. However, information on

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[111] Evaluation of the Entry/Exit scheme in accordance with Article 23.3 of Regulation (EU) 1380/2013 on the Common Fisheries Policy. Commission Staff Working Document SWD(2019) 311 final – 25.7.2019

catches[112] transmitted by the European Commission shows that catches of the main deep-sea species remain consistently well below the TACs allocated (Table 17 page 46) which may suggest that the current fishing pressure is low or very low on certain stocks.

Conclusion

Whilst capacity management measures introduced by the DSAR are unlikely to provide an effective contribution to the preservation of deep-sea fish stocks, the 800m bottom trawl ban has been effective in reducing the availability of some key commercial deep-sea species for bottom trawlers, leading to an effective decrease of the quantities of deep-sea species discarded, in particular deep-sea sharks.

The DSAR does not include other main conservation and management measures for exploited deep-sea stocks. Results achieved in conserving deep-sea stocks depend to a large extent on the effectiveness of other EU conservation and management measures, including TAC and quota Regulations and the Technical Measures Regulation. In some cases, results obtained on conservation of deep-sea stocks extending beyond EU waters are also dependent on measures implemented by third countries in their waters. Examples include stocks of greater silver smelt, blue ling or Greenland halibut in North Western Waters shared with Northern third countries (e.g. Norway and Faroes) or stocks of black scabbardfish and red seabream in South-Western Waters shared with Morocco.

6.2.3 To what extent is the DSAR effective at improving scientific knowledge on the deep-sea environment?

Findings

The DSAR included two main measures to improve scientific knowledge on deep-sea fish stocks and deep-sea habitats: a scientific data collection scheme placed under the umbrella of the broader EU Data Collection Framework (Article 15) and a specific observer coverage (Article 16).

Scientific data collection scheme

The DSAR measure ensuring data collection under the overarching framework of the Data Collection Framework (DCF) supported the collection of scientific information on exploited species according to scientific methodologies sufficiently robust and representative for stock assessment purpose. The inclusion of deep-sea species in the list of species subject to collection of biological data by Member States under the DCF ensures operationalisation of the DSAR measure. As a result of increased scientific data and according to ICES feedback, two deep-sea stocks (black scabbardfish and greater silver smelt) are likely to move from the ICES category 3 that comprises stocks for which MSY reference points are not available, to ICES category 1 that includes stocks subject to full analytical assessment with MSY reference points available. Availability of data was further underpinned by the DSAR obligation to report catches on a haul-by-haul basis when engaged in a deep-sea métiers or when fishing below 400m (Article 13). Without this DSAR requirement, catch data would have been reported on a fishing day basis, amalgamating hauls targeting deep-sea species and hauls targeting other species. Feedback from scientists through the targeted consultations confirmed the positive contribution of the haul-by-haul reporting to scientific knowledge.

However, scientific information for most deep-sea species stocks remain insufficient for stock assessment purposes. According to feedback from scientists, and confirmed by fishermen associations, the relatively low catch levels of most deep-sea species prevents

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[112] Information from the FIsheries Data Exchange System (FIDES)

any further improvement as the amount of available data will remain insufficient for stock assessment purposes, even if sampling rates are increased. In certain ways, some DSAR measures resulting in lower catches of some species decrease the amount of data available for stock assessment purposes. ICES noted the example of the stock of grenadiers in subareas 6 and 7 and divisions 5.b and 12.b for which catches decreased significantly as a result of the 800m trawl ban enforced by the DSAR[113]. The stock was downgraded from data-rich category 1 to data-poor category 5 when it was last assessed in 2018.

In addition, it should be noted that the DCF Regulation exempts Member States from collecting biological data on fish stocks when Member States catches are less than 200 tonnes per year, which is the case for most deep-sea species caught as by-catches or deep-sea species targeted by small fleets, like for example deep-sea crabs which are targeted by German vessels in quantities below that threshold, and are thus exempted from data collection obligations.

Observer coverage

The observer coverage mandated through Article 16 was designed to ensure sufficient coverage of fishing vessels activities by onboard scientific observers to sample landings and discards of deep-sea species as well as species belonging to the seabed ecosystem, in particular VME indicator species. Although the measure was fully relevant to increase amount of data available, its design probably hindered its potential effectiveness.

The DSAR sets quantitative targets for observer coverage (i.e. 20% for vessels using bottom trawls and bottom set gillnets with a targeting fishing authorisation, 10% for all other vessels with a by-catch fishing authorisation), but the DSAR does not define the reference for calculating the percentage (e.g. % number of vessels, % number of trips, % number of fishing operations).

According to information collected, Member States applied the DSAR observer coverage differently with a rather restrictive approach consisting for some Member States in applying higher observer coverage of vessels when their fishing operations target deep-sea species, and the commonly reported national DCF observer coverage ($\approx$ 1% of fishing trips) in other cases. However, this perception needs further explorations as it was difficult to collect relevant quantitative data during our consultations. This being said, all fishing operators boarded scientific observers as required by their Member States as evidenced by the absence of occurrence of sanctions foreseen in Article 14b of the DSAR in case of refusal to board an observer. Thus, potential shortcomings cannot be attributed to a lack of cooperation from fishing operators.

According to some Member States, the objective of the DSAR observer coverage generated further confusion. According to interpretation of Article 15 and the wording of Article 14b, the DSAR observer scheme appears to be a scientific observer scheme, as opposed to a control observer scheme as defined by Article 73 of the Control Regulation (EU) 1224/2009. All Member States shared this interpretation and implemented observations on vessels authorised to catch deep-sea fish under the overarching rules foreseen by the DCF. Based on this understanding, the DSAR observer scheme could not effectively monitor compliance with DSAR rules, such as the fishing depth limits and full adherence with the VME encounter protocol by fishing masters, although the DSAR considered in its Article 16.1 that the observer coverage was expected to provide "*relevant information for the effective implementation of this Regulation*".

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[113] ICES (2018) Roundnose grenadier (Coryphaenoides rupestris) in subareas 6 and 7 and divisions 5.b and 12.b (Celtic Seas and the English Channel, Faroes grounds, and western Hatton Bank) https://doi.org/10.17895/ices.pub.4397

In terms of data collected, scientific observations onboard vessels have been reported by scientists as effective to collect data on total catches and discards of deep-sea species useful to support stock assessment. Concerning the collection of scientific data on species belonging to the seabed ecosystem, in particular VME indicator species, the DSAR observer scheme has been ineffective as evidenced by the absence of records collected on EU commercial vessels in the ICES VME database (all VME records shared by EU Member States with ICES concern detections during scientific surveys). The reason for the lack of effectiveness of the DSAR observer scheme to collect scientific information on VMEs may be attributable to an absence of VMEs indicator species in vessels' catches while observers where onboard, but may be also attributable to inadequate implementation of the scheme by Member States with scientific observers deployed not trained in the identification of VME indicator species at the required taxonomic levels.

Article 16.3 of the DSAR introduced provisions for the revision of the observer coverage. Although the Commission made a request to ICES, the revision could not be undertaken. ICES rightly indicated that it was first necessary to assess Member States' compliance with DSAR rules before considering revision of the rules. In view of the margins for interpretation left by Article 16.1 of the DSAR, an assessment of compliance with the DSAR rules is difficult.

Conclusion

The DSAR, in conjunction with the EU DCF, has effectively improved scientific knowledge on the main commercial deep-sea stocks. Biological data collected by Member States, including data on catches and discards collected by scientific observers onboard fishing vessels, have been adequate to upgrade the quality of the assessment of the status of at least two deep-sea species (greater silver smelt and black scabbardfish). However, the relatively small catches of most other deep-sea species prevent any further improvement of their stock status, even if the sampling rate is increased. Data available for stock assessments depend on the amount of catches, and measures to reduce fishing pressure, such as the 800m bottom trawl ban, can limit the quality of stock assessments as evidenced in the case of grenadiers. Feedback from the Public Consultation acknowledged that scientific knowledge has improved overall, notably as a result of deep-sea research projects[114] co-funded by the EU.

The effectiveness of the DSAR observer coverage provisions are unclear for what concerns increased scientific knowledge on deep-sea fish species. Whilst the amount of observer data is considered as broadly adequate to support stock assessment of key species, it is not possible to clearly identify the added-value of the DSAR observer coverage compared to the regular DCF observer coverage in terms of sampling rate, mostly as a result of the design of the DSAR observer coverage measure leaving large margins for interpretation by Member States.

The DSAR observer coverage probably has limited influence on any increase in scientific knowledge on VME indicator species. Scientific observations on vessels authorised to catch deep-sea species did not result in new information being recorded in the ICES VME database, which provides the institution with an essential resource for some core work, including advice in relation to the implementation of the DSAR (e.g. identification of VME areas in EU waters). The reason for the lack of contribution of the DSAR observer scheme to knowledge of VMEs may be attributable to an absence of VME indicator species in vessels' catches, but may also be attributable to inadequate implementation of the scheme by Member States and/or lack of knowledge/training among observers deployed by certain Member States to identify VMEs indicator species.

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[114] Replies referred to research projects such as ATLAS, SponGES and Merces co-funded by the EU under Horizon2020 initiative.

6.3 Efficiency of the DSAR

6.3.1 What are the average DSAR implementation costs?

Findings

Based on the number of fishing authorisations issued under the scope of the DSAR by the Member States (Table 14 page 31), the implementation costs of the DSAR are likely to be the highest for the three Member States (Portugal, Spain and France) issuing the largest number of targeting and by-catch fishing authorisations[115]. By contrast, implementation costs are comparatively lower for Member States issuing limited numbers of fishing authorisations (Germany, Estonia, Lithuania, Netherlands, Poland and UK). There are no DSAR implementation costs for Member States issuing no deep-sea fishing authorisations (Belgium, Denmark, Finland, Ireland, Latvia and Sweden).

No Member State authorities could provide detailed quantitative indications on the implementation costs of the DSAR. Anecdotal qualitative information on likely recurring and one-off administrative costs is presented below:

Recurring administrative costs

- Two Member States (Germany and Portugal) raised the issue that the management of fishing authorisations entails significant administrative costs but did not provide an estimate of these costs. Other Member States issuing large numbers of fishing authorisations (Spain and France) did not specify this administrative task as entailing significant administrative costs. Note that the DSAR fishing authorisation regime is one of the fishing authorisation regimes implemented through CFP-related Regulations. There are several comparable fishing authorisation regimes for access to EU fisheries subject to multiannual plans and for access to waters under third countries' jurisdictions and international waters under RFMOs' management mandate.
- No Member State reported specific administrative costs for monitoring, control and surveillance of fishing vessels whose activities fall under the scope of the DSAR. According to feedback received, control of the national fishing vessels authorised to catch deep-sea species is part of the national control strategies with no possibility to separate actions and associated administrative costs stemming from DSAR provisions.
- Two Member States (Germany and Netherlands) highlighted that the annual reports to the Commission pursuant to Article 15.5 of the DSAR entail administrative costs that could be reduced given that part of the information requested by the Commission is already reported or accessible under the provisions of the Control Regulation (EU) 1224/2009 (e.g. catches of deep-sea species against quotas, fishing authorisations issued).

One-off implementation costs

- One Member State (France) reported relatively high deployment of resources to define depth contours considered by the DSAR and to introduce them in the VMS software to monitor compliance.
- One Member State (Netherlands) mentioned that the identification of capacity limits considered under Article 6 of the DSAR has been time-consuming.
- One Member State (Netherlands) noted that communication with owners of fishing vessels falling under the scope of the DSAR to explain what the DSAR would require for them mobilised some administrative resources.

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[115] In 2018 based on information submitted to the Commission, Spain issued a total of 459 deep-sea fishing authorisations, Portugal a total of 459 and France a total of 88.

The implementation cost of the DSAR observer programme was not reported to entail significant administrative costs by and from Member States. The main reasons are that i) the implementation of the DSAR observer programme is part of the implementation of the broader DCF observer scheme, with a likely share of the DSAR observer scheme commensurate with the relative importance of deep-sea fisheries compared to all national fisheries (i.e. often less than 1% for most Member States, except 4% for Portugal -see Figure 3 page 9), and ii) costs of implementation of data collection schemes by Member States , including DCF observer schemes, are 80% covered by the EU through the European Maritime and Fisheries Fund (EMFF)[116], with the Commission's proposal for EMFF post 2020[117] carrying over EU support for data collection. However, Member States reported that DCF budgets to support scientific observer programmes are limited with some difficulties encountered to ensure adequate sampling rates of all national fishing fleet segments included in the scope of the DCF. In this respect, Member States raised concerns that if the DSAR observer coverage was to be increased, this would mean fewer resources being deployed on other fishing fleet segments, if DCF budgets are not increased accordingly.

No fishermen association reported costs beyond the business-as-usual administrative costs stemming from implementation of the DSAR. The main feedback received, in particular from fishermen associations representing small-scale fisheries (Spain and Portugal) or pelagic fisheries (Germany and Netherlands) was that the administrative rules set out by the DSAR and their associated costs are in essence disproportionate because they are irrelevant for fishing vessels not interacting with deep-sea bottom and/or landing low quantities of deep-sea species caught as by-catches.

Conclusion

Qualitatively, the implementation and the management of the fishing authorisation regime is likely to be the main administrative cost impacting factors for Member States issuing the largest numbers of fishing authorisations to their vessels (i.e. Portugal, Spain and to a lesser extent, France). Other administrative costs stemming from DSAR implementation are a fraction of administrative costs borne by Member States for monitoring, control and surveillance of fishing vessels under their competence, and for implementation of the broader DCF multiannual plans for collection of scientific data. In view of the relatively low share of deep-sea species catches in total national catches (around 1% see Figure 3 page 9), the fraction is likely to be small, and probably too small to support analytical identification of costs.

Fishermen associations were not concerned about the administrative costs of implementing the DSAR. Feedback received, in particular from fishermen associations representing small-scale vessels and pelagic vessels, was more on the relevance of these administrative costs considering their assumed low or insignificant impacts on deep-sea ecosystems.

6.3.2 Is there scope for simplification of DSAR design and operation?

Findings

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[116] Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund and repealing Council Regulations (EC) No 2328/2003, (EC) No 861/2006, (EC) No 1198/2006 and (EC) No 791/2007 and Regulation (EU) No 1255/2011 of the European Parliament and of the Council. OJ L 149, 20.5.2014, p. 1–66

[117] Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the European Maritime and Fisheries Fund and repealing Regulation (EU) No 508/2014 of the European Parliament and of the Council. COM/2018/390 final

Analysis and feedback from consultations supported identification of some scope for simplification of the DSAR in relation to i) the criteria for issuing fishing authorisation, ii) the by-catch fishing authorisation regime, iii) geographical scope of application of the DSAR and iv) Member States' annual reports to the Commission.

The criteria for issuing fishing authorisation

The DSAR fishing authorisation regime based on a list of designated deep-sea species had the likely unexpected effect of bringing under the scope of the DSAR types of fishing vessels not using bottom gears and hence unlikely to generate significant adverse impacts on VMEs (i.e. pelagic trawls catching greater silver smelt *A. silus*), and small-scale fleets exploiting deep-sea species when they are available in shallow waters (i.e. red seabream *P. bogaraveo*) or close to the coast[118], with in this case also unmonitored recreational fisheries contributing to fishing mortality. According to feedback from almost all entities consulted through our targeted consultations (Member States authorities, fishermen associations and NGOs), the fishing authorisation regime should be simplified so as to concentrate the implementation of the DSAR on vessels likely to generate significant adverse impacts on VMEs in deep-waters, which suggests the importance of considerations of the type of fishing gear used and of the depths exploited in any simplified fishing authorisation regime.

The by-catch fishing authorisation regime

There are few specific measures imposed by the DSAR on fishing vessels which have been issued a by-catch fishing authorisation. As detailed in Table 13 page 30, the main DSAR measure applying to fishing vessels issued with a by-catch fishing authorisation is a 10% observer coverage, with no further specifications on the reference for calculation of this percentage and the operational conditions on which it applies (i.e. any time or only when the vessel catches deep-sea species). Other DSAR measures apply only to vessels issued with a targeting fishing authorisation (existing fishing areas, capacity ceiling), or apply to any vessel either targeting or catching deep-sea species as by-catches (800m bottom trawl prohibition, VMEs area closure, VME encounter protocol, more stringent control rules, data collection and reporting).

Although not related to simplification aspects of the DSAR, it should be noted that the by-catch fishing authorisation may result in the official identification of fishing vessels authorised to catch deep-sea species but with these vessels being outside the scope of the fishing footprint, a DSAR flagship measure.

According to many fishermen associations consulted (Spain, Portugal, Netherlands, Germany), the by-catch fishing authorisation could be removed. However, some fishermen associations (France) reported that issuance of by-catch fishing authorisations provides a vehicle to inform relevant fishermen of the DSAR rules. For Member States, the by-catch fishing authorisation contributes to narrowing down the scope of their vessels that should be subject to closer monitoring in view of the potential involvement in deep-water fisheries.

Concentration of DSAR measures on EU waters

The DSAR introduces references to the NEAFC Regulatory Area through its Article 16.5 applying *mutatis mutandis* the observer coverage defined for EU waters to NEAFC waters for EU vessels. According to Member States concerned, the interpretation of Article 16.5 led to the perception of a need to issue to their fishing vessels exploiting NEAFC international waters with the two types of fishing authorisations, namely those foreseen under Article 5 of the DSAR to manage deep-sea fishing activities in EU waters, in addition to the NEAFC deep-sea fishing authorisation foreseen by Article 20.3 of the DSAR. Issuance

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[118] In some regions (Southern Bay of Biscay, Iberian Peninsula, Azores and Madeira), areas deeper than 400m may be found at 1 to 2 km from the coast.

of DSAR fishing authorisations foreseen under Article 5 further creates uncertainty on the extent to which other DSAR provisions apply to their vessels while fishing in the NEAFC Regulatory Area (e.g. capacity management, rules for data collection and reporting, and 800m bottom trawl ban). All stakeholders consulted (Member State authorities and fishermen associations) suggested that any such references to fishing activities in the NEAFC Regulatory Area should be clarified to streamline and simplify the scope of the DSAR application.

It also emerged from the analysis that inclusion of international waters of CECAF areas 34.1.1, 34.1.2 and 34.2 in the scope of application might be removed as a dedicated EU instrument (Regulation (EC) 734/2008 on the protection of vulnerable marine ecosystems in the high seas) designed for protection for VMEs already applies in these international waters.

Member States annual reports to the Commission

One Member State (Netherlands) pointed out that some of the information required by the Commission is already made available by Member States, as a result of the Control Regulation. This includes, in particular, data on deep-sea species quota uptake already submitted to the Commission on a regular basis through the Aggregated Catch Data Reporting (ACDR) database. However, information required from Member States by the Commission corresponds to the information requirements decided by the co-legislators through Article 15.6 of the DSAR.

Conclusion

There is scope for simplifying the DSAR design and operations. Based on the analysis confirmed by the feedback from both the targeted and public consultations, the DSAR fishing authorisation regime is the main candidate for simplification by concentrating its application on fishing vessels likely to generate significant adverse impacts on VMEs below 400m depth (i.e. vessels using bottom gears). The geographical scope of the DSAR is another area for simplification to make rules applicable to deep-sea fishing operations in the NEAFC Regulatory Area clearer for Member States, and to avoid duplication of regulations applying in the international waters of CECAF areas 34.1.1, 34.1.2 and 34.2. Some Member States' authorities suggested the simplification of information to be reported to the Commission, noting however that current reporting obligations are limited to those imposed by the co-legislators.

6.4 Coherence of the DSAR with other international or EU instruments

6.4.1 To what extent is DSAR coherent with EU international commitments under UN Resolutions 61/105 and 64/72

Findings

The United Nations General Assembly (UNGA) adopted three resolutions since 2004 in which the management of bottom deep-sea fisheries, including their impacts on VMEs, is addressed. The three resolutions are Resolution 59/25 (17 November 2004), Resolution 61/105 (8 December 2006) and Resolution 64/72 (4 December 2009). UNGA Resolutions are not directly applicable, but set out principles and standards that apply primarily in areas beyond national jurisdictions, covered (or not) by relevant multilateral arrangements, such as Regional Fisheries Management Organisations (RFMOs). UNGA Resolutions are operationalised by *FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas* adopted in 2008 pursuant to paragraph 89 of UNGA Resolution 61/105.

UNGA Resolutions set out internationally agreed principles and standards that have been included in NEAFC relevant recommendations for deep-sea fishing activities taking place in its Regulatory Area. For deep-sea fishing activities covered by the DSAR, one of the three stated objectives was to ensure that EU measures for the management of deep-sea fish stocks are consistent with UNGA Resolutions, in particular Resolutions 61/105 and 64/72 (Article 1.c).

Appendix 10 displays abridged versions of the three relevant UNGA Resolutions. The next paragraphs discuss the consistency between the main relevant UNGA Resolutions and DSAR measures.

UNGA 61/105 § 86 (management of high seas areas where there is no RFMO with competence to manage deep-sea fisheries)

The DSAR includes international waters of CECAF 34.1.1, 34.1.2 and 34.2 in its scope. This inclusion is consistent with UNGA Resolution 61/105 § 86, which calls upon states to implement measures in areas beyond national jurisdiction to manage deep-sea bottom fisheries where there is no RFMO with competence to regulate such fisheries, which is the case for the CECAF areas covered by the DSAR. Regulation (EC) 734/2008 which also includes CECAF 34.1.1, 34.1.2 and 34.2 in its scope is also consistent with the UNGA resolution.

UNGA 64/72 § 119.a (assess whether bottom fishing activities should have significant adverse impacts, and ensure that vessels do not engage in bottom fishing until such assessment have been carried out)

Article 7 of the DSAR sets the legal basis for the determination of existing deep-sea fishing areas exploited in 2009-2011.

Article 8.2 of the DSAR prescribes that targeting fishing authorisations shall be issued only for fishing activities within existing deep-sea fishing areas. Modification of existing deep-sea fishing areas can be considered by the Commission, on the basis of the results of a science-based impact assessment conducted in accordance with FAO Guidelines (Article 8.8), with specific provisions for authorising and conducting exploratory fishing outside existing fishing areas (Articles 8.5 to 8.7).

However, limitation to existing deep-sea fishing areas applies only to vessels with a targeting fishing authorisation. Fishing vessels with a by-catch fishing authorisation are not bound by the measure. These fishing vessels may exploit new deep-sea fishing areas with bottom gears, without prior impact assessment, but for a limited amount of catches (less than 10 tonnes per year). The limitation to existing fishing areas for fishing vessels with a targeting fishing authorisation, but not conducting bottom fishing activities (i.e. midwater trawling for example), goes beyond UNGA resolutions which consider only bottom fishing activities.

The DSAR exempts fishing vessels with by-catch authorisation of the obligation to carry out an impact assessment before exploiting new fishing areas and considerations have to be made whether this could fall short of the UNGA Resolution. The limitation of activities within existing fishing areas for fishing vessels not using bottom gears does not affect coherence with UNGA Resolution, but broadens the DSAR's ambition by comparison.

UNGA 64/72 § 119.b (identify where VMEs are known or likely to occur and adopt conservation and management measures to prevent significant adverse impacts on such ecosystems, or close such areas until conservation and management measures have been established)

Article 9.4 prompts Member States to use the best scientific and technical information to identify where VMEs are known or likely to occur below a depth of 400m. In addition, a competent advisory body (i.e. ICES) shall be asked by the Commission to carry out an annual assessment of areas where VMEs are known or likely to occur.

Based on the information available, the Commission shall adopt an implementing act for the purpose of establishing a list of areas where VMEs are known or likely to occur (Article 9.6). Fishing with bottom gears shall be prohibited in all areas listed below a depth of 400m (Article 9.9). The list of VME areas may be amended, if impact assessments suggest that there is sufficient evidence to indicate that VMEs are not present, or that appropriate conservation and management measures have been adopted which ensure that significant adverse impacts on VMEs in the area are prevented.

The DSAR is fully consistent with this UNGA resolution for waters below 400m depth in its objective. Full consistency will depend, however, on the extent to which areas where VMEs are "likely to occur" will be included in the forthcoming implementing act. Also, it may be noted that UNGA does not define a depth range in which VME protection measures should be implemented. The 400m depth limit is the reference unilaterally adopted by the DSAR.

UNGA 64/72 § 119.c (establish and implement appropriate protocols to cease bottom fishing activities in case VMEs are encountered and to report the encounter, including what constitutes an evidence of an encounter with a VME, in particular threshold levels and indicator species)

In its Article 9.2, the DSAR defines what constitutes the evidence of an encounter by providing a list of indicator species (Annex III) and setting thresholds levels (Annex IV) applicable to bottom trawlers and longliners. If the encounter is considered to have taken place, the vessel shall cease fishing operations and resume operations only when reaching an alternative area at least five nautical miles from the encounter.

The fishing vessel shall immediately report each VME encounter to the national competent authority which shall notify the Commission without delay (Article 9.3).

The DSAR is fully consistent with this UNGA resolution

UNGA 64/72 § 119.d (adopt conservation and management measures on the basis of stock assessment, including monitoring, control and surveillance measures, to ensure long-term sustainability of deep-sea fish stocks)

The DSAR supports stock assessments of deep-sea species through specific rules on data collection and reporting (Article 15) and through a mandated scientific observer coverage of 20% (bottom trawls and bottom set gillnets with a targeting fishing authorisation) or 10% (all other vessels authorised to catch deep-sea species) that applies also in the NEAFC Regulatory area (Article 16). Measures for the conservation and the management of deep-sea stocks fall under the scope of the EU Common Fisheries Policy Regulation and other specific Regulations, namely the TAC and quota Regulations, the Technical Measures Regulation and the Western Waters Multiannual Plan Regulation.

The DSAR foresees monitoring and control measures that are more stringent than those applying in the general case (Articles 10, 11, 12 and 13), with provisions for administrative sanctions in case of non-compliance with DSAR rules (Article 14).

The DSAR is fully consistent with this UNGA resolution.

Conclusion

The DSAR ensures the application into EU law of measures to protect deep-sea ecosystems aligned on initiatives recommended by the United Nations General Assembly, in particular through Resolutions 61/105 and 64/72. However, a potential shortcoming confirmed by feedback from the Public Consultation is the non-application of limitation of fishing activities within existing fishing areas for fishing vessels having been issued a deep-sea by-catch fishing authorisation, meaning that some fishing vessels authorised to catch up to 10 tonnes of deep-sea species per year, including vessels using bottom gears, may deploy their gear outside existing fishing areas but still with the limit of 800 meters depth applying to bottom trawls. Some contributors to the Public Consultation also underlined that the extent to which United Nations recommendations are taken onboard will also depend on relevant consideration of areas where VMEs are likely to occur in the forthcoming implementing acts.

6.4.2 To what extent is the DSAR coherent with NEAFC Recommendation 19.2014

Findings

NEAFC recommendation 19.2014 on the protection of vulnerable marine ecosystems in the NEAFC Regulatory Area is a binding instrument adopted by all NEAFC contracting parties, including the EU, to implement measures ensuring prevention of significant adverse impacts of bottom fishing activities in areas where VMEs known or likely to occur. The NEAFC recommendation applies in the NEAFC Regulatory Area (i.e. the high sea areas of the North-East Atlantic), while the DSAR applies in EU waters and some CECAF international waters. The geographical scope of the two instruments does not overlap.

The next table compares the main provisions of NEAFC Recommendation 19.2014 and of the DSAR.

Table 18: Comparison between VME protection measures implemented under NEAFC Recommendation 19.2014 and VME Protection measures implemented under the DSAR

	NEAFC Rec. 19.2014	DSAR
Existing bottom fishing areas	Existing bottom fishing areas are defined (reference period 1987-2007).	Existing deep-sea fishing areas still to be defined (reference period 2009-2011) but no specification on types of vessels concerned for definition (any gear).
Areas closures for protection of VMEs	13 VMEs areas closed to bottom gear so far No specification of depth.	Ongoing for depth below 400m with closures targeting bottom gears.
Impact assessment	Deep-sea fishing with bottom gears outside existing areas may be permitted only on the basis of the result of an impact assessment Impact assessment promoted by NEAFC (Annex 4) largely consistent with FAO Guidelines.	Deep-sea fishing with bottom gears outside existing areas may be permitted only on basis of the result of an impact assessment in accordance with FAO Guidelines.
VME encounter	Define evidence of a VME encounter incl. VME indicator species (both similar to DSAR) Move-on rule 2 nm Mandatory reporting of encounter	Define evidence of a VME encounter incl. VME indicator species (both similar to NEAFC) Move-on rule 5 nm Mandatory reporting of encounter
Observer	No observer requirement for bottom fishing within existing fishing areas.	Observer coverage 20% for targeting fishing authorisations, 10% for by-catches fishing authorisations

	100% coverage for exploratory fishing outside existing bottom fishing areas.	100% coverage for exploratory fishing outside existing bottom fishing areas during first 12 months

Source: own interpretation

Conclusion

The DSAR is consistent with NEAFC recommendation 19.2014.

The main difference is that the DSAR generally goes beyond NEAFC minimal requirements, like, for example, the DSAR definition of existing fishing areas encompassing historical records of all vessels having caught deep-sea species irrespective of their gear, whereas existing fishing areas are defined on the basis of historical records of vessels using bottom gear for NEAFC; and the DSAR move-on rule of five nautical miles as opposed to two nautical miles for NEAFC.

The transposition of NEAFC Recommendation 19.2014 into EU Law is considered partial. Annex XII of the Technical Measures Regulation (EU) 2019/1241 transposes some measures of NEAFC Recommendation 19.2014 (such as VME areas closed to bottom fishing and the VME encounter protocol, although in an outdated version for the latter and without specification of what defines a VME encounter). But neither the EU Technical Measures Regulation nor any other EU instrument appear to transpose the NEAFC existing fishing areas and the rules for exploratory fishing outside these existing fishing areas into EU Law. The European Commission confirmed that this shortcoming is being addressed and relevant adaptations could be expected in 2021.

6.4.3 To what extent is the DSAR coherent with other non-CFP EU instruments on protection of the marine environment (MSFD, Habitats Directive)

Findings

The DSAR focusses on sustainable management of deep-sea resources and it foresees measures to protect related marine environments. It allows targeted fishing activities in those areas where deep-sea fishing activity has occurred during the reference period 2009-2011 and it pledges to avoid negative impact on vulnerable marine ecosystems (VMEs).

The environmental component of the DSAR is related to broader EU environmental legislation, in particular the Marine Strategy Framework Directive[119] and the Habitat Directive[120]. Below the main purpose of these two directives and their relation to the DSAR are summarised.

The Marine Strategy Framework Directive (MSFD)

The Marine Strategy Framework Directive (MSFD) is a 'horizontal' directive, which: *shall contribute to coherence between, and aim to ensure the integration of environmental concerns into, the different policies, agreements and legislative measures which have an impact on the marine environment[121]. The main aim is to achieve or maintain good environmental status in the marine environment by the year 2020 at the latest[122].*

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[119] Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) (Text with EEA relevance). *OJ L 164, 25.6.2008, p. 19–40*

[120] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. *OJ L 206, 22.7.1992, p. 7–50*

[121] MSFD Article 1.4

[122] MSFD Article 1.1

The MSFD obliges Member States to formulate marine strategies and action plans, following an ecosystem-based approach, which allow sustainable use of marine resources and ensures achievement of good environmental status (GES).

GES is assessed on the basis of 11 qualitative descriptors (Annex I of the MSFD Directive) of which three are relevant for fisheries:

- GES descriptor 1: Biological diversity;
- GES descriptor 3: Status of populations of commercially exploited species;
- GES descriptor 6: Sea-floor integrity.

The DSAR is coherent with the EU objective of achieving good environmental status in European seas by 2020 and of minimising the negative impact of fishing activities on marine ecosystems. The DSAR implements capacity management measures and spatial measures (the 800m bottom trawl ban) that contributes with other CFP management measures (e.g. TAC and quota Regulations, Technical Measures Regulation) to the conservation of deep-sea stocks with contribution to GES descriptors 1 and 3.

The DSAR also implements a set of spatial measures aiming at ensuring protection of deep-sea habitats (e.g. limitation of exploitation to existing fishing areas, closures of areas below 400m where VMEs are known or likely to occur to bottom gears, 800m bottom trawl ban) that contribute to the achievements of MSFD GES descriptors 1 and 6.

The Habitat Directive

The aim of the Habitat Directive is *to contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty applies* (Article 2.1), taking into account *economic, social and cultural requirements and regional and local characteristics* (Article 2.3)*.

The Habitat Directive pursues the establishment of a network of special areas of conservation (Natura 2000) to protect certain habitat types (listed in Annex I[123]) and species (listed in Annex II[124] and Annex IV[125]). The selection of the Natura 2000 areas is the responsibility of the Member States. The criteria to be used for this selection are listed in Annex III of Directive.

Annex I of the Habitat Directive considers reefs in the open sea and tidal areas (code 1170) as natural habitat types of EU interest whose conservation requires the designation of special areas of conservation. The opportunities provided by the Habitat Directive have been taken up by some countries (Ireland, Spain and United Kingdom) to define Special Areas for Conservation based on the presence of deep-water coral reefs outside their territorial waters with some of the areas designated[126] subsequently closed to fishing with bottom gears through the Technical Measures Regulation to ensure uniform application to all Member States' fishing fleets. Since deep-water coral reefs areas closed to bottom fishing under the Habitat Directive are likely to have the attributes of vulnerable marine ecosystems as defined by FAO (2009) (i.e. uniqueness or rarity / functional significance of the habitat / fragility / life history traits of the components species that make recovery difficult, and structural complexity, see section 3.2), there are synergies between the DSAR

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[123] Natural habitat types of community interest whose conservation requires the designation of special areas of conservation

[124] Animal and plant species of community interest whose conservation requires the designation of special areas of conservation

[125] Animal and plant species of community interest in need of strict protection

[126] *Inter alia* Belgica Mound Province, Hovland Mound province, North-West Porcupine Bank Area, South-West Porcupine Bank (IE), Darwin Mounds (UK), El Cachucho (ES)

and the Habitat Directive to protect VMEs, in particular VME habitat types, including coral reefs.

Conclusion

The DSAR is fully coherent with other non-CFP EU instruments considering protection of the marine environment under their scope. The DSAR objective of preventing significant impacts on VMEs and ensuring long-term conservation of deep-sea fish stocks supports the objectives of the Marine Strategy Framework Directive, in particular for descriptors 1, 3 and 6 of the Good Environmental Status promoted by the MSFD. DSAR measures supporting protection of the deep-sea ecosystems also support the broader ecosystem protection objective of natural habitats set out by the Habitat Directive, with the latter providing opportunities for Member States to designate deep-water coral reefs as Special Areas of Conservation in synergy with DSAR measures targeting protection of similar habitat types.

6.4.4 To what extent is the DSAR coherent with the CFP Regulation and CFP-instruments in relation to fishing opportunities, technical measures, Control and Data collection

Findings

As shown in Figure 11 on page 27, the DSAR is one of the available EU instruments adopted under the Common Fisheries Policy (CFP) with provisions having an effect on conservation and management of deep-sea fisheries. The relevant EU instruments applicable at the time of drafting this report are:

- The biennial deep-sea TAC and quota Regulation fixing fishing opportunities for certain deep-sea stocks with the most recent act Regulation (EU) 2018/2025 applicable for 2019 and 2020;
- The annual general TAC and quota Regulation fixing fishing opportunities for certain stocks, including some deep-sea stocks, with the most recent act Regulation (EU) 2020/123 applicable for 2020;
- The Technical Measures Regulation (EU) 2019/1241 and its predecessor Regulation (EC) 850/98 setting rules on how, where and when fishing vessels may exploit fishing opportunities, including those granted for exploitation of deep-sea stocks;
- The Western Water Multiannual Plan enforced through Regulation (EU) 2019/472 which covers management and conservation objectives of some stocks of deep-sea species;
- The landing obligation enacted by the CFP Regulation 1380/2013 applicable to most deep-sea fisheries as from 2019;
- The Control Regulation (EC) 1224/2009 defining rules to ensure control of EU fisheries, including deep-sea fisheries;
- The Data Collection Framework Regulation (EU) 2017/1004 establishing rules on the collection, management and use of technical and scientific data in the fisheries sector with provisions for deep-sea species.

All EU instruments listed above have clear interlinkages with the DSAR at the level of their objectives. In the case of the Control Regulation (EC) 1224/2009 and of the Data Collection Framework Regulation (EU) 2017/1004, interlinkages are also at the level of measures, with the DSAR building its provisions on the provisions of the two instruments ensuring full coherence and complementarities.

The review of the different EU instruments with an impact on the conservation and management of deep-sea stocks shows that there is no contradiction / duplication / overlap with DSAR measures (see section 4.3):

- The TAC and quota Regulations define fishing opportunities for 27% of deep-sea species listed in Annex I to the DSAR but the TAC Regulations cover 84% of the total catches of these designated deep-sea species. Precautionary TACs are set when there is not sufficient scientific information to define analytical TACs (i.e. TAC having an MSY assessment), consistent with DSAR and overarching CFP objectives. The DSAR does not address levels of fishing opportunities nor harvest control rules.
- The Technical Measures Regulation enforces several measures of interest for conservation of deep-sea stocks including *inter alia* i) a prohibition to set bottom gillnets beyond 200m depth, with derogations until 600m depth to target hake and anglerfish, ii) closure to bottom fishing of offshore areas designated by Member States under the Habitat Directive to protect deep-sea coral reefs, iii) bottom trawl ban in the waters of outermost regions of Portugal and Spain and iv) special rules for protection of blue ling during its spawning season in North-Western Waters. The DSAR does not consider similar measures.
- The Western Water Multiannual Plan defines target MSY fishing mortality levels for certain stocks of deep-sea species, with application of the precautionary approach when MSY indicators are not available. The Western Water Multiannual Plan operationalise the long-term conservation objective of certain deep-sea fish stocks foreseen by the DSAR.
- The landing obligation enacted by the CFP Regulation provides a relevant tool to ensure that discarding of catches of deep-sea species subject to catch limits is prohibited.
- As outlined above, the DSAR builds on measures enacted through the Control Regulation for more stringent control rules applicable to deep-sea fisheries, and on measures enacted through the DCF to ensure mandatory collection of scientific information on deep-sea fisheries according to scientific methodologies aiming at providing robust and representative data in support to stock assessment.

However, whilst CFP instruments adequately support DSAR achievements by enacting complementary measures for the conservation of deep-sea stocks and ecosystems, the review suggests that there is a potential gap for adequate protection of deep-sea sharks, including those identified as 'Most Vulnerable' by the DSAR. As detailed in section 4.3.1, the two currently applicable TAC and quota Regulations (the biennial deep-sea TAC and quota Regulation and the annual general TAC and quota Regulation) both introduce measures for the conservation of some deep-sea sharks species by placing these species under a status of 'prohibited species' if caught by any gear except longlines, meaning that the deep-sea sharks species concerned must be discarded with catches not counted against quotas. As indicated by NGOs consulted, the prohibited species status granted to some deep-sea shark species does not incentivise fishing vessels enough, in particular bottom trawlers, to make the necessary efforts to avoid sharks bycatches. The Technical Measures Regulation could also ensure better protection of deep-sea sharks by reducing or clarifying the catch threshold defined to avail the derogations for fishing with gillnets between 200m and 600m depth. The consistency between TAC and quota Regulations and the Technical Measures Regulation could also be improved in relation to by-catches of deep-sea sharks by vessels using bottom set gillnets. Enhancement of the protection regime of deep-sea sharks in EU waters in support of DSAR objectives could thus require adjustments to the three regulations cited (the biennial deep-sea TAC and quota Regulation, the annual general TAC and quota Regulation and the Technical Measures Regulation[127]), but not of the DSAR itself.

At a broader level, the DSAR is fully consistent with CFP overarching objectives, with the DSAR contributing to conservation of deep-sea fish stocks and of their habitats under an ecosystem-based approach seeking to reduce significant adverse impacts on VMEs. The DSAR also applies the precautionary approach to fisheries management promoted by the

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[127] Other inconsistencies have been detected in the Technical Measures Regulation in relation to transposition of certain VME protection rules applying in the NEAFC Regulatory Area (see section 4.3.2).

CFP through protection of waters below 800m and areas where VMEs are known but also likely to occur from adverse impacts.

Conclusion

The DSAR is coherent with the CFP Regulation and EU CFP-instruments in relation to fishing opportunities, technical measures, control and data collection with the different EU instruments showing no contradiction / duplication / overlapping at the level of objectives or measures. However, it is to be noted that there could be an issue of adequate and consistent conservation measures of deep-sea shark species provided by other CFP-related instruments (the biennial deep-sea TAC and quota Regulation, the annual general TAC and quota Regulation and the Technical Measures Regulation). At a broader level, the DSAR contributes to the overarching objectives of the CFP by ensuring integration of the ecosystem-based and precautionary approaches to the management of deep-sea fisheries.

6.4.5 To what extent is DSAR coherent with other EU measures for VMEs protection

Findings

Council Regulation (EC) 734/2008[128] applies to vessels carrying out fishing activities with bottom gears in the high seas where no relevant organisation or arrangement exists with the competence to regulate bottom fisheries and the impacts of fishing on VMEs. For EU waters covered by the DSAR, Regulation (EC) 734/2008 does not apply. Regulation(EC) 734/2008 does not apply either to the NEAFC Regulatory Area as NEAFC is a RFMO with a mandate to regulate bottom fisheries and the impacts of fishing on VMEs in its Regulatory Area. However, there is no such relevant organisation or arrangement covering international waters of CECAF areas 34.1.1, 34.1.2 and 34.2. Therefore, Regulation (EC) 734/2008 applies in these CECAF areas with the DSAR also applying by virtue of its Article 2.1.b.

The next table compares the main provisions of Regulation (EC) 734/2008 and of the DSAR.

Table 19: Comparison between VME protection measures implemented under Regulation (EC) 734/2008 and VME Protection measures implemented under the DSAR

	Reg. (EU) 734/2008	**DSAR**
Fishing authorisations	In relation to gear used irrespective of deep-sea species caught	In relation to deep-sea species caught irrespective of gear used
Fishing capacity	No limitation	Limited to 2009-2011 levels
VME encounter	Does not define evidence of an encounter Move-on rule 5 nautical miles	Define evidence of an encounter Move-on rule 5 nautical miles
VMEs area closure	Identification of areas where VMEs are known or are likely to occur without specification of depth Closure of VMEs areas to bottom gears	Identification of areas where VMEs are known or are likely to occur below a depth of 400m Closure of VMEs areas to bottom gears
Impact assessment	Deep-sea fishing may be permitted only on the basis of an impact assessment No specifications on impact assessment methodology	Deep-sea fishing outside existing fishing areas may be permitted only on basis of the result of an impact assessment Impact assessment should be consistent with FAO Guidelines

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[128] Council Regulation (EC) No 734/2008 of 15 July 2008 on the protection of vulnerable marine ecosystems in the high seas from the adverse impacts of bottom fishing gears. *OJ L 201, 30.7.2008, p. 8–13*

800m bottom trawl prohibition	No	Yes
Observer coverage	100% for any fishing operation Observer mandate include control	20% for targeting fishing authorisations, 10% for by-catches fishing authorisations Scientific mandate for observer
Monitoring, control and surveillance	Mandatory Vessel Monitoring System	More stringent rules including, but not limited to, landing in designated ports, prior notifications, logbook entries in deep waters

Source: own interpretation

Overall, the DSAR ensures better integration of international standards recommended by the United Nations General Assembly into EU Law (see section 6.4.1) compared to Regulation (EC) 734/2008. This could be expected as Regulation (EC) 734/2008 has been prepared and adopted before adoption of UNGA Resolution 64/72 in 2009, which provided more detailed guidance and higher levels of expectations on the type of measures recommended, compared to Resolution 61/105, with FAO guidelines providing further operational specifications (FAO, 2009). We understand that a revision of Regulation (EC) 734/2008 is on the agenda for the Commission based on the conclusions of an evaluation conducted in 2010[129], which already identified the poor level of alignment of the Regulation with UNGA Resolutions. Revision of Regulation (EC) 734/2008 is still pending, but meanwhile, two different EU Regulations are in force (the DSAR and Regulation (EC) 734/2008) each enacting different measures to be complied with by EU vessels and their flag Member States in international waters of CECAF areas 34.1.1, 34.1.2 and 34.2. However, there is probably no important issue for the time being as there is no evidence of EU fishing vessels deploying bottom gears in international waters of designated CECAF areas according to FAO (2017)[130] and CEFAS et al. (2018)[131].

Conclusion

The Regulation (EC) 734/2008 contains some outdated provisions compared to the DSAR, as a result of the later adoption of the UNGA Resolution 64/72. As acknowledged by the Commission, Regulation (EC) 734/2008 will be revised to ensure alignment with UNGA Resolutions to provide legal certainty to EU vessels operating in international waters of CECAF areas 34.1.1, 34.1.2 and 34.2. However, this situation has probably currently no operational consequence, as recent literature shows no evidence of EU fishing vessels deploying bottom gears in these international waters.

6.5 EU Added Value

6.5.1 What is the additional value resulting from the EU measures under the DSAR?

Findings

Based on Article 3 of the Consolidated Version of the Treaty on the Functioning of the EU (TFEU), the Union has an exclusive competence for the conservation of marine biological

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[129] REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL on the implementation of Council Regulation (EC) No734/2008 on the protection of vulnerable marine ecosystems in the high seas from the adverse impacts of bottom fishing gears. /* COM/2010/0651 final */

[130] FAO (2017) Report of the Technical Workshop on Deep-sea Fisheries and Vulnerable Marine Ecosystems of the Eastern Central Atlantic, Dakar, Senegal, 8–10 November 2016. FAO Fisheries and Aquaculture Report. 1184, Rome, Italy. 142 pp.

[131] CEFAS, AZTI Tecnalia, MRAG, IEO, IMPA (2018) Scientific approaches for the assessment and management of deep-sea fisheries and ecosystems in RFMOs and RFBs Specific Contract N°8 - EASME/EMFF/2016/008

resources under the common fisheries policy. The EU intervention through the DSAR was justified by the scale of the action, which encompasses all EU waters of the North-East Atlantic and any EU fishing vessel operating in international waters covered by the NEAFC and international waters of CECAF areas 34.1.1, 34.1.2 and 34.2. The DSAR ensures that measures implemented are applicable to any EU or third country fishing vessel exploiting deep-sea species in EU waters, ensuring a level playing field for concerned fishing operators. The EU intervention is largely supported by contributors to the Public Consultation with 96% of respondents agreeing that an EU regulatory framework is essential to ensure consistency in the protection of the deep-sea environment by the Member States.

According to feedback received and own analysis under the relevance, effectiveness and coherence criteria, the design of certain DSAR measures added value through:

- Alignment of EU measures for management of deep-sea fisheries with international standards set out by the Resolutions adopted by the General Assembly of the United Nations.
- The recourse to independent scientific advice foreseen through Article 9.6 for identification of areas where VMEs are known or likely to occur ensures a transparent and science-based implementation of the measure likely to foster adherence of the forthcoming measure by relevant fishing operators. A similar result would not have been obtained if the identification of VME areas was left to coastal Member States based on TFUE identification of shared competences (Article 4).
- The haul-by-haul reporting obligation (Article 13) which provides additional resources for monitoring activities of fishing vessels when targeting deep-sea species or when fishing below 400m, has also added-value for provision of scientific data for stock assessment purpose.
- The observer coverage (Article 16), which, despite its design leaving room for interpretation, obliges Member States to ensure a mandatory minimum level of observer coverage of deep-sea fisheries (obligation of means). In the absence of such a clause, activities of deep-sea fishing vessels would have probably been given a low priority for resource allocation in view of their small contribution to national fishing fleet activities in most Member States.
- At least one Member State (France) also mentioned that the obligation for fishing vessel to board an observer upon request, with specific administrative sanctions for failure to do so, helps to ensure deployment of scientific personnel onboard the vessels. Under the broader DCF observer scheme, boarding of observers is on a voluntary basis for fishing operators and hence may be refused[132].

Conclusion

The added-value of the EU intervention through the DSAR is to ensure a level playing field for all concerned fishing operators by making the measures compulsory for any EU or third country fishing vessel exploiting deep-sea species in EU waters.

The design of certain DSAR measures provides some added-value to ensure contribution to the objectives of the Regulation. The additional value results from i) EU measures for management of deep-sea fisheries aligned with Resolutions of the General Assembly of the United Nations, ii) transparent and science-based identification of areas where VMEs are known or likely to occur, iii) haul-by-haul reporting of deep-sea fishing activities, iv) a minimum level of coverage of fishing operations by scientific observers and v) the mandatory nature of the deep-sea observer scheme for fishing operators, with waivers for security reasons.

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[132] Refusal rates from the at-sea DCF observer programme are monitored by STECF, but information is not public (STECF, 2019b)

6.5.2 *What would be the effects of discontinuing the DSAR all other things being equal?*

Findings

Under this scenario, the DSAR is discontinued (i.e. repealed), as are the forthcoming Commission implementing acts foreseen under Article 7.2 (existing fishing areas) and Article 9.6 (VMEs areas) adopted on the legal basis of the DSAR. Discontinuation of the DSAR and associated implementing instruments will have the following main effects:

- The deep-sea fishing authorisation regime will no longer be available to identify those EU vessels authorised to exploit deep-sea fisheries and to define the specific conservation and management rules to be applied.
- The legal basis for the definition of existing fishing areas and definition of VME encounter protocol will no longer be available.
- The process for identification of areas where VMEs are known or likely to occur will be left to Member States' initiatives according to the procedures set out by Article 12 of the Technical Measures Regulation (EU) 2019/1241 and Article 11 of the CFP Regulation (EU) 1380/2013. This process will certainly entail considerable scientific work for the Member States to identify VME areas in waters under their sovereignty, lead Member States to conduct consultations with other Member States having a direct management interest in the fisheries concerned, before submitting the area for closure. Ultimately, there is no guarantee that the best available scientific advice will be either used or followed.
- The 800m bottom trawl prohibition will no longer apply (unless it is included in the Technical Measures Regulation by way of an amendment).
- EU vessels exploiting deep-sea fisheries will no longer be subject to a dedicated observer coverage. Collection of scientific data onboard deep-sea fishing vessels will be implemented according to the rules governing the EU Data Collection Framework without specific quantitative sampling targets and without obligation for fishing masters to board scientific observers.

Discontinuation of the DSAR will have limited effect on specific control provisions as deep-sea species are subject to the Western Waters Multiannual Plan since 2019 triggering application of the specific control rules foreseen by Article 10 of the DSAR. The haul-by-haul reporting obligation may still apply if co-legislators accept the Commission's proposal to generalise this prescription to all EU vessels through adoption of a revised Union control system.

Conclusion

Discontinuation of the DSAR will deprive the EU of an instrument designed for the management of the impacts of fishing gear on deep-sea vulnerable marine ecosystems in EU waters aligned with the Resolutions of the United Nations General Assembly. The absence of a dedicated instrument will undermine CFP achievements for what concerns deep-sea fisheries. A large majority of respondents to the Public Consultation (90%) agreed that discontinuing the DSAR would have an adverse effect on the protection of the deep-sea environment in EU waters.

7   Conclusions and recommendations

7.1   Main lessons learnt from the evaluation

7.1.1 Relevance

It was relevant to reform the deep-sea access management regime adopted in 2002 through Regulation (EC) 2347/2002 to ensure better alignment of EU legislation with international standards set out by the United Nations General Assembly in relation to protection of deep-sea ecosystems, and to include the ecosystem-based and precautionary approaches to management of deep-sea fisheries enshrined in the overarching objectives and principles of the CFP Regulation adopted in 2013.

The design of the DSAR is appropriate to address the need for i) improved scientific knowledge on deep-sea species and their habitats and ii) prevention of significant adverse impacts on VMEs within the framework of deep-sea fishing and long-term conservation of deep-sea fish stocks. The evaluation did not identify other types of measures that could have been considered without these other measures risk being redundant with conservation and management measures implemented under other EU instruments (e.g. TAC and quotas, technical measures).

Most DSAR measures remain relevant to address the conservation and management needs. However, the capacity management measure (Article 6) is probably less relevant now than it was at the time of adoption of the DSAR, considering the decreasing levels of fishing activities on deep-sea stocks as a result of increased limitations on fishing opportunities (TAC and quotas) reinforced by the landing obligation, spatial measures (800m bottom trawl prohibition) and as reported by fishermen associations, the decreased economic incentives to catch deep-sea species.

7.1.2 Effectiveness

As a result of the delayed implementation of two of its key measures[133], the DSAR has not been effective so far to ensure protection of vulnerable marine ecosystems (VMEs) in EU waters of the North-East Atlantic, in particular those located between 400 and 800m depth. Other DSAR measures have had some (limited) effectiveness:
- the 800m bottom trawl prohibition is effective to protect VMEs but only those located below that depth and only from significant adverse impacts generated by this type of gear.
- The VME encounter protocol is rather as a backup measure to protect VMEs that have not been protected the DSAR spatial measures and, as a stand-alone, the VME encounter protocol cannot be considered as a sufficient conservation and management measure.
- There is evidence of VMEs in the 200 – 400m depth range, which are not covered by the DSAR.

The DSAR has provided an effective contribution to the preservation of deep-sea fish stocks mainly through the 800m bottom trawl prohibition (Article 8.4). The 800m bottom trawl prohibition decreased accessibility of some key commercial deep-sea species to bottom trawlers, with effective protection of species living below that depth (grenadiers and orange roughy) and of species with the majority of their biomass below 800m (black scabbardfish). The measure also contributed to a decrease in catches of other deep-sea species caught as by-catches, when fishing under these depths, in particular deep-sea sharks, as evidenced by the results of scientific sampling programmes onboard the vessels subject to the prohibition.

The DSAR, in conjunction with the EU data collection Regulation (EU) 2017/1004, has been effective in improving scientific knowledge of certain deep-sea fish stocks. The forthcoming

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[133] Article 7 definition of existing fishing areas and Article 9 closures of areas below 400m where VMEs are known or likely to occur.

upgrade of the quality of the stock assessment for three stocks of deep-sea species supports this finding[134]. However, improving scientific knowledge on deep-sea species caught in relatively small quantities was probably out of reach of both the DSAR and the DCF. This is because an assessment of the status of stocks of species caught by different fishing fleet segments in low quantities mainly as by-catches is generally not possible. The DSAR may also have side effects in this respect, with the example of the 800m bottom trawl prohibition leading to a decrease in the volume of catches of grenadiers in the West of Scotland, which led to the downgrading of the scientific advice rule for this stock by ICES.

The DSAR has not been effective in improving scientific knowledge on deep-sea habitats as evidenced by the absence of VME records collected onboard EU commercial vessels shared with ICES by Member States. This could be the result of an absence of VME indicator species in vessels' catches while observers were onboard. However, this might also be the result of inadequate implementation of the observer scheme by some Member States who deployed scientific personnel not trained to identify VME indicator species listed in Annex III of the DSAR at required taxonomic levels. Overall, the evaluation of the effectiveness of the DSAR observer programme is hindered by its uneven application by Member States.

7.1.3 Efficiency

Qualitatively, the implementation and the management of the fishing authorisation regime is likely to be the main administrative cost impacting factors for Member States issuing the largest number of fishing authorisations to their vessels (i.e. Portugal, Spain and France to a lesser extent). Other administrative costs stemming from DSAR implementation are a fraction of administrative costs borne by Member States for monitoring, control and surveillance of fishing vessels under their competence or for implementation of the broader DCF multiannual plans for collection of scientific data. In view of the relatively low share of deep-sea species catches in total national catches, the fraction is likely to be small, and probably too small to support a robust analytical identification of costs.

Analysis and feedback from stakeholders suggest some scope for simplification of the DSAR, which will have effects on the efficiency of the intervention. The criteria for issuing the fishing authorisation may be reviewed to focus the scope of DSAR on fishing vessels interacting with the deep-sea ecosystem. The current criteria based on a list of deep-sea species had the effect of bringing under the scope of the DSAR categories of fishing vessels not using bottom contacting gears, and hence less likely to generate significant adverse impacts to VMEs (pelagic trawls, handlines), and small-scale fleets exploiting deep-sea species when they are available in shallow waters or close to the coast, with, in this case, unmonitored recreational fisheries contributing to fishing mortality. Some Member States' authorities suggested that reference to NEAFC Regulatory Area on observer coverage should be clarified, as Article 16 of the DSAR is confusing, in addition to generating additional administrative work. Finally, some Member States noted that information required in Member States annual reports to the Commission could be simplified to exclude information already shared with the Commission under the Control Regulation (EC) 1224/2009.

7.1.4 Coherence

The DSAR is broadly coherent with Resolutions 61/105 and 64/72 of the United Nations General Assembly on the protection of deep-sea ecosystems. The main potential issue for coherence is the non-application of fishing limits in existing fishing areas for vessels being issued a by-catch fishing authorisation. The level of consistency between the DSAR and Resolutions of the United Nations General Assembly will also depend on the extent to which

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[134] Two stocks of greater silver smelt and one stock of black scabbard fish.

DSAR VME closures include areas where VMEs are likely to occur in the forthcoming implementing act.

The DSAR is aligned with NEAFC Recommendation 19.2014 on the protection of vulnerable marine ecosystems in the NEAFC Regulatory Area. DSAR measures are more stringent than NEAFC measures in relation to types of gear covered and rules to be followed in case of an encounter with a VME, but this does not affect coherence between the two instruments. NEAFC Recommendation 19.2014 appears not to be fully and/or adequately transposed into EU law, but the European Commission plans to address this shortcoming in 2021 through submission of a legislative proposal.

There are no issues of coherence between the DSAR and EU environmental legislation enacted through the Marine Strategy Framework Directive and through the Habitat Directive, with the latter providing additional tools for Member States to protect deep-sea ecosystems in synergy with the DSAR. Analysis of the coherence between the DSAR and other CFP-related instruments, which include conservation and management measures for deep-sea fisheries under their scope, suggested clear complementarities. The main issue of coherence relates to the TAC and quota Regulations and the Technical Measures Regulation which do not incentivise fishing vessels enough to reduce their catches of certain deep-sea shark species, some of those being designated as 'Most Vulnerable' by the DSAR.

The DSAR and Regulation (EC) 734/2008 on the protection of vulnerable marine ecosystems in the high seas have different provisions for the protection of VMEs from the adverse impacts of bottom fishing gears. As the European Commission has already acknowledged the need to revise measures implemented through Regulation (EC) 734/2008, the key coherence question that arises is that both Regulations apply to EU fishing vessels fishing in the same international waters of CECAF areas 34.1.1, 34.1.2 and 34.2. However, this duplication of Regulations applying in these CECAF international waters probably has no impact as there is no evidence of activities of EU fishing vessels using bottom gears in this particular area.

7.1.5 EU added-value

The added-value of the EU intervention through the DSAR is to ensure application of its measures to any EU or third country fishing vessel exploiting deep-sea species in EU waters, to ensure a level playing field for relevant fishing operators.

The design of certain DSAR measures provides some added-value to ensure contribution to the objectives of the Regulation. The additional added-value results from i) alignment of the EU framework for management of deep-sea fisheries with international standards set out by the United Nations, ii) transparent and science-based identification of areas where VMEs are known or likely to occur by an independent scientific body, iii) haul-by-haul reporting of deep-sea fishing activities, iv) a mandatory minimum level of coverage of fishing operations by observers significantly higher than the observer coverage achieved by Member States when implementing the observer scheme foreseen by the EU Data Collection Framework and v) the obligation for fishing masters to board an observer upon request with a specific sanction scheme for failure to do so, with justified waivers for security reasons.

7.2 Conclusions and recommendations

The overarching conclusion of the study to support the evaluation of the Deep-sea Access Regulation is that the DSAR is fit for the purpose in its contributions to the objectives of i) improving scientific knowledge on deep-sea species and their habitats and ii) preventing significant impacts on VMEs within the framework of deep-sea fishing and ensuring long-term conservation of deep-sea fish stocks, while iii) ensuring consistency of Union deep-

sea conservation scheme in EU waters with resolutions adopted by the United Nations General Assembly. In addition, the review of trends on the different subjects listed in Article 19 of the DSAR does not suggest that the objectives of the DSAR are not complied with by fishing vessels using bottom gears (Article 19.3). However, it needs to be recalled that this overarching conclusion is drawn after a relatively short time period of implementation of the DSAR (3.5 years) and when not all the implementing acts deriving from the regulation have been enforced[135].

Nevertheless, the definition of criteria to issue fishing authorisations could be reviewed to focus the measures of the Regulation on fishing fleet segments likely to generate adverse impact on deep-sea ecosystems. The rules governing the observer coverage could also be better defined to foster consistency in their implementation by the EU Member States. Therefore, three main recommendations are made:

1- Focus on the fishing fleet segments falling under the scope and measures of the DSAR through reviewed criteria for fishing authorisations

The fishing authorisation regime implemented through the DSAR is based solely on catch levels of a list of designated fish species. The defined criteria resulted in some fishing fleet segments being brought under the scope of the DSAR which do not impact the deep-sea bottom, when fishing in areas at a depth greater than 400m (e.g. pelagic trawls, handlines) or fishing fleet segments exploiting deep-sea species, when they are available above that depth and even in shallow waters (e.g. red seabream). By contrast, the key DSAR measures focus on prevention of significant impacts caused by bottom-fishing gears on VMEs present below 400m through spatial measures (i.e. fishing footprint and closure of areas where VMEs are known or likely to occur) reinforced by a prohibition of fishing with bottom trawl below 800m depth. A better alignment between the DSAR fishing authorisation regime and the objectives of the DSAR may support:

- simplification for Member States, in particular for those (Spain and Portugal including their outermost regions[136]) issuing large number of fishing authorisations to their small-scale vessels having little adverse impact on VMEs or the deep-sea bottom;
- availability for the EU of a management tool better targeted to fishing vessels which are the focus of the DSAR intervention.

> **Recommendation 1**: The fishing authorisation regime could be reviewed to be based on considerations of depth of areas fished (i.e. below 400m depth) and considerations of gear used (i.e. vessels using bottom gears, active gears vs. passive gears) to ensure better alignment between the objectives of the DSAR and the fishing fleet subject to its measures. References to species caught may be abandoned[137].

2- Better definition of the observer coverage scheme by the DSAR, to foster consistency in its implementation by EU Member States

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[135] Implementing acts foreseen under Article 7 definition of existing fishing areas (i.e. the fishing footprint) and under Article 9 closures for bottom gears of areas below 400 m where VMEs are known or likely to occur

[136] Canary Islands (Spain), Azores and Madeira (Portugal).

[137] A further justification for abandoning the criteria based on species is that the DSAR includes in its Annex I some species not qualifying, on scientific grounds, as deep-sea species and does not include some species qualifying, on scientific grounds, as deep-sea species. In addition, the DSAR list of species does not include commercial species exploited in deeper layers such as hake, monkfish or deep-sea crustaceans. (see discussion in section 4.2.1)

The imprecise definition of the requirements for observer coverage under the DSAR leaves room for interpretation by Member States, which results in inconsistencies in the way scientific observer schemes are implemented under the Regulation by Member States. The main shortcomings of the DSAR in this regard are i) lack of definition of the reference to establish the coverage percentages (i.e. number of fishing trips, number of vessels, number of fishing operations) and ii) lack of specification of the types of fishing operations that should be subject to observer coverage under the DSAR (i.e. operations targeting deep-sea species, operations resulting in some catches of deep-sea species or any fishing operation conducted by vessels having a fishing authorisation). In addition, under the DSAR the observer mandate could be interpreted as a mix of scientific tasks and enforcement tasks, which are in practice hard for Member States to implement in a coherent way due to current legislation. As a result, it is hard to assess the effectiveness of the observer coverage, which limits insights into possible revision of quantitative targets foreseen by Article 16.3 of the DSAR. Inadequate training of observers in certain Member States to correctly identify and classify the VME-indicator species listed in Annex III of the DSAR could also constitute a limit to the effectiveness of the observer coverage.

Recommendation 2: The DSAR implementing rules of the observer programme should be clarified and reviewed to ensure even application by Member States. Suggestions are:
- To remove potential ambiguities in the mandate of the observer: a scientific mandate is relevant for the purpose of increasing scientific knowledge on deep-sea species and their habitats, and this is how Member States interpreted the nature of the DSAR observer scheme so far. However, it must be recognised that a scientific observer scheme cannot support control of compliance with applicable conservation and management measures.
- If the intention of the co-legislators was to have observers with a mix of scientific / control tasks, the DSAR observer mandate should be clearly defined in law, including reporting channels
- The definition of a verifiable reference target for establishing the percentage coverage needs further discussions with Member States' authorities. However, a percentage based on the number of fishing operations below a certain depth may be considered.

Recommendation 3: If Member States confirm the need, the European Commission could support adequate training of deep-sea observers through the elaboration of an illustrated identification guide for VMEs taxa in EU waters plus e-training modules to support observers' training as appropriate. The development of a dedicated electronic reporting system of VME indicator species sampled onboard by observers could also support a more effective implementation of the measure.

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Appendix 1: Reconstituted intervention logic of the Deep-Sea Access Regulation (EU) 2016/2336

Needs*

- High vulnerability of deep-sea stocks to fishing
- Fishing with bottom trawls destroys or risks destroying vulnerable marine ecosystems (VMEs)
- Fishing with bottom trawl for deep-sea species produces medium to high levels of unwanted catches
- Determining sustainable level of fishing pressure via scientific advice is particularly difficult

External factors

- Profitability of deep-sea fishing operations
- Availability of fishing opportunities on other non deep-sea commercial fish species
- MS deploy sufficient resources to ensure compliance with applicable rules
- Scientific data on deep-sea fish stocks and VME indictor species are adequately collected and reported

Impacts

- Deep-sea ecosystem protected from significant adverse impacts by fishing gears
- Deep-sea fishing stocks exploited within sustainable limits

Objectives**

- Contributing to CFP objectives (environmental sustainability, precautionary approach, ecosystem approach)
- Improving scientific knowledge on deep-sea species and habitats
- Preventing significant adverse impacts on VMEs
- Ensuring conservation of deep-sea fish stocks
- Ensuring consistency with resolutions adopted by the General Assembly of the United Nations

Other EU policies
Common Fisheries Policy
- Common Fisheries Policy Regulation
- EU Regulations defining conservation objectives (MAPs), fishing opportunities, technical measures, control rules and data collection framework

Environmental Policy
- Marine Strategy Framework Directive
- Habitat Directive

Results

- Deep-sea fishing areas fixed and cannot expand without a prior authorisation based on an impact assessment
- Areas below 400m where VMEs are known or likely to occur are closed to bottom gears
- Full protection of areas below 800m against impacts from bottom trawls
- VMEs encounters are reported and vessels move on
- Fishing pressure on deep-sea stocks commensurate with stocks' reproductive capacity
- Levels of unwanted catches decrease

Inputs

- Administrative resources allocated by MS to national authorities competent for management and control, and to fisheries research institutes
- Relevant scientific working groups of international scientific advisory bodies
- Commission's empowerment to adopt implementing acts
- Commission's oversight of DSAR implementation

Activities

- MS ensure compliance with DSAR rules (capacity management measures, spatial measures incl. 800m bottom trawl prohibition, more stringent control rules, observer coverage)
- MS ensure collection of scientific information
- MS submit annual reports to the Commission on DSAR implementation
- Commission requests scientific advisory body to elaborate advices on existing fishing areas, VMEs areas and levels of observer coverage as appropriate

Outputs

- Existing fishing areas and areas where VMEs are know or likely to occur defined by Commission's implementing acts based on scientific advice
- Observer coverage percentage adjusted based on scientific advice as appropriate
- Availability of adequate scientific information of deep-sea fish stocks and on VMEs indicator species
- Impact assessments submitted prior to authorisation of deep-sea fishing operations outside existing fishing areas

Effects

Source: own interpretation
Notes: Needs: based on DSAR Impact Assessment SWD (2012) 202 final / Objectives**: based on Article 1 of the DSAR*

Appendix 2: EU reported catches (tonnes) of the deep-sea species identified in Annex I of the DSAR in the North East Atlantic and in CECAF area

FAO code	Scientific name	Most vulnerable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average 2016-2018	% Average
BSF	*Aphanopus carbo*	N	9 288	9 146	7 612	7 349	6 753	6 508	8 149	7 094	7 167	6 638	6 018	6 608	32%
ARU	*Argentina silus*	N	3 026	42	3 093	1 585	2 334	2 247	4 766	3 243	2 896	4 091	4 016	3 667	18%
BLI	*Molva dypterygia*	N	4 264	3 913	3 805	2 274	2 074	2 646	2 674	2 214	1 981	2 610	3 094	2 562	12%
GHL	*Reinhardtius hippoglossoides*	N	1 532	2 154	2 425	1 682	1 034	1 720	1 849	1 577	1 998	1 559	2 230	1 929	9%
BRF	*Helicolenus dactilopterus*	N	2 230	2 470	4 033	4 656	2 772	2 300	1 768	1 656	1 637	1 821	1 657	1 705	8%
RNG	*Coryphaenoides rupestris*	N	5 776	3 599	6 423	5 392	2 956	1 714	1 819	1 472	1 435	1 624	1 399	1 486	7%
SBR	*Pagellus bogaraveo*	N	1 605	1 463	1 187	996	1 046	1 030	1 174	997	853	772	693	773	4%
ALC	*Alepocephalus Bairdii*	N	1 829	1 515	1 567	1 504	931	677	504	245	400	482	400	427	2%
SFS	*Lepidopus caudatus*	N	1 010	958	1 095	1 628	1 396	1 010	1 775	906	492	349	138	326	2%
RIB	*Mora moro*	N	129	156	144	147	104	170	153	233	306	269	237	271	1%
BYS	*Beryx splendens*	N	247	262	305	310	219	244	248	226	229	222	227	226	1%
WRF	*Polyprion americanus*	N	1 280	1 117	1 007	1 227	624	459	297	251	201	272	185	219	1%
KEF	*Chaceon (Geryon) affinis*	N	263	309	445	475	158	179	194	292	223	181	142	182	1%
CMO	*Chimaera monstrosa*	N	16	33	33	231	298	357	301	139	128	130	123	127	1%
SHO	*Galeus melastomus*	N	143	91	5	17	6	18	37	104	126	141	70	112	1%
BXD	*Beryx decadactylus*	N	157	186	205	213	67	69	68	75	106	74	106	95	0%
ALF	*Beryx spp.*	N	195	165	151	163	94	54	68	58	55	60	70	62	0%
RHG	*Macrourus berglax*	N	294	1 420	311	511	893	180	168	84	104	7	0	37	0%
EPI	*Epigonus telescopus*	Y	37	68	57	60	32	21	16	14	41	26	41	36	0%
GUQ	*Centrophorus squamosus*	N	429	352	360	208	160	72	114	10		15	11	13	0%
RJG	*Raja hyperborea*	N	0	1	5	3	2	3	3	23	6	16	15	13	0%
HPR	*Hoplosthetus mediterraneus*	N	0	0	14	3	27	36	40	22	4	4	4	4	0%
ETX	*Etmopterus spinax*	N		0		2	1	0	0	1	0	0	10	3	0%
NEN	*Nesiarchus nasutus*	N											2	2	0%
GUP	*Centrophorus granulosus*	N	65	21	4	1	1	0	0	1	1	1	5	2	0%
CYO	*Centroscymnus coelolepis*	Y	439	502	138	0	0		5	1		3	2	2	0%
DCA	*Deania calcea*	N	70	35	4	1	0	0				2	1	2	0%
SCK	*Dalatias licha*	Y	11	7	6	3	1	0	0	0		1		1	0%
TJX	*Trachyscorpia cristulata*	N	8	7		3	5	3	2	1	1	0	1	1	0%

FAO code	Scientific name	Most vulnerable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average 2016-2018	% Average
SFV	*Sebastes viviparus*	N									0		1	0	0%
ANT	*Antimora rostrata*	N				1	0				0	0	0	0	0%
JAD	*Raja nidarosiensus*	N	102	10		0						0	0	0	0%
SYR	*Scymnodon ringens*	N	240	161	216	3	3	1	1	0		0	0	0	0%
CFB	*Centroscyllium fabricii*	Y	5	94	70	0	1	0	9	0			0	0	0%
SBL	*Hexanchus griseus*	Y	0	9	1	2	1	2	0	1	0	0	0	0	0%
MLL	*Malacocephalus laevis*	N									0		0	0	0%
ETR	*Etmopterus princeps*	Y	40			0	0	0		0	0	0		0	0%
GRV	*Macrourus spp*	N					3	0	0	0		0		0	0%
GAM	*Galeus murinus*	N	1	7	5	5	1	4	4	2		0		0	0%
RJY	*Raja fyllae*	N	2	1	1		1	0	0	0	0		0	0	0%
CYH	*Hydrolagus mirabilis*	N											0	0	0%
APQ	*Apristuris spp.*	N						0		0			0	0	0%
CEM	*Centrophorus moluccensis*	N				7							0	0	0%
CPL	*Centrophorus lusitanicus*	N	243	423	271	437	632	543		0			0	0	0%
CPU	*Centrophorus uyato*	N											0	0	0%
CYP	*Centroscymnus crepidater*	Y	35	33	2		1	0	0				0	0	0%
ELZ	*Lycodes esmarkii*	N			0	0	0	0					0	0	0%
GSK	*Somniosus microcephalus*	N	1	0									0	0	0%
NZA	*Nezumia aequalis*	N											0	0	0%
ORY	*Hoplostethus atlanticus*	Y	180	69	12	4	8	2	0	0			0	0	0%
OXN	*Oxynotus paradoxus*	N					3						0	0	0%
PHO	*Alepocephalus rostratus*	N											0	0	0%
RCT	*Rhinochimaera atlantica*	N		0						1			0	0	0%
RTX	*Macrouridae*	N	0	0		0								0	0%
TSU	*Trachyrincus scabrus*	N	99					0						0	0%
	Total (tonnes)		**35 290**	**30 801**	**35 013**	**31 110**	**24 637**	**22 268**	**26 207**	**20 942**	**20 391**	**21 370**	**20 897**	**20 886**	**100%**

Source: based on Eurostat data
Note: blue characters: shark species, green characters: ray species

Appendix 3: Detailed information on the main EU fishing fleet segments reporting catches of deep-sea species identified in Annex I of the DSAR in the North East Atlantic and in CECAF area

- All quantitative data reported refer to 2017 -

NLD pelagic trawlers 40m and more (NLD NAO TM 40XX)	Number of vessels	% DSS in total catch of segment
	8	1%
Main target species are small pelagic species (herring, blue whiting mackerel, horse mackerel) The only deep-sea reported is greater silver smelt (ARU). It is caught as by-catch when the pelagic trawlers target blue whiting in the North Sea and West of Scotland		

FRA demersal trawlers 40m and more (FRA NAO DTS40XX)	Number of vessels	% DSS in total catch of segment
	10	9%
Main target species of these demersal trawlers are saithe, cod and hake. Main fishing areas are North and West of Scotland (ICES 5.b and 6.a) Main deep-sea species caught include by decreasing order of importance black scabbardfish (1 600 t), blue ling (880 t), Greenland halibut (250 t) and rabbitfish (121 t).		

ESP demersal trawlers 40 m and more (ESP NAO DTS40XX)	Number of vessels	% DSS in total catch of segment
	13	8%
Main target species of these demersal trawlers are cod and redfish. Main fishing area in Norwegian waters, NAFO-RA and NEAFC-RA Main deep-sea species caught in the North East Atlantic include by decreasing order of importance roundnose grenadier (1 550 t), Baird's smoothhead (480 t), black scabbardfish (234 t) and Greenland halibut (170 t)		

PRT vessels using hooks 12-18 m Madeira (PRT NAO HOK1218 P2)	Number of vessels	% DSS in total catch of segment
	18	84%
Vessels of this segment concentrate on exploitation of deep-sea species and tuna species. Most catches are obtained in the waters around Madeira (CECAF 34.1.2), with some catches obtained in the waters around Azores (ICES 10.a) Main deep-sea species caught are black scabbardfish (1 750 t - 99.5% of catches of deep-sea species) and leafscale gulper shark (6 t).		

PRT vessels using hooks 12-18 m Mainland (PRT NAO HOK1218)	Number of vessels	% DSS in total catch of segment
	20	62%
Vessels of this segment concentrate on exploitation of deep-sea species and of large pelagics (swordfish, blue shark. Most catches are obtained in ICES 9 with some activities in waters around Azores (ICES 10.a) Main deep-sea species caught are black scabbardfish (1 175 t - 93% of catches of deep-sea species), wreckfish (20 t), red seabream (16 t) and bluemouth redfish (14 t)		

UK demersal trawlers 24-40 m (GBR NAO DTS2440)	Number of vessels	% DSS in total catch of segment
	93	1%
Vessels of this segment concentrate on exploitation of whitefish (haddock, cod, saithe, whiting, hake and ling) and anglerfish. Main fishing areas are the North Sea (ICES 4.a and 4.b), West of Scotland (ICES 6.a and 6.b) and Celtic Sea. Main deep-sea species caught are blue ling (625 t), Greenland halibut (152 t) and black scabbardfish (86 t)		

PRT vessels using hooks 12-18 m Mainland (NAO HOK1824)	Number of vessels	% DSS in total catch of segment
	17	38%
Vessels of this segment concentrate on exploitation tunas and other large pelagics (swordfish, blue shark, shortfin mako) and on deep-sea species. Most catches are obtained in ICES 9 with some activities in waters around Azores (ICES 10.a) Main deep-sea species caught are black scabbard fish (850 t – 95% of catches od deep-sea species), wreckfish (22 t) and bluemouth redfish (16 t)		

ESP vessels using passive gears 24-40 m (ESP NAO PGP2440)	Number of vessels	% DSS in total catch of segment
	55	3%
The target species of this segment is hake, mostly caught with longlines, with some catches of ling and blackbelly rosefish. Most catches are obtained in the South West of Ireland (ICES 7.j), West of Scotland (ICES 6.a) and in the North of the Bay of Biscay (ICES 8.a)		

Main deep-sea species caught are bluemouth redfish (495 t), blue ling (141 t) and alfonsinos (60 t).		

DEU pelagic trawlers 40m and more (DEU NAO TM 40XX)	Number of vessels	% DSS in total catch of segment
	15	<0.5%

Fishing patterns of German pelagic trawlers mirror to a large extent fishing patterns of Dutch pelagic trawlers

The only deep-sea species caught is ARU (585 t).

PRT vessels using hooks 10-12 m Azores (PRT NAO HOK1012 P3)	Number of vessels	% DSS in total catch of segment
	72	40%

Fishing vessels of this segment target deep-sea species, large pelagics (tuna, swordfish, barracudas) and diversified coastal species (squids, conger, small pelagics). Fishing activities take place in the Azores area (ICES 10.a)

Deep-sea species caught are by decreasing order of importance red seabream (132 t), bluemouth redfish (125 t) and common mora (72 t). Catches of black scabbard fish by the vessels of this segment are low (0.1t). .

FRA demersal trawlers 24-40 m (FRA NAO DTS2440)	Number of vessels	% DSS in total catch of segment
	58	1%

Trawlers of this segment target anglerfish, whitefish (whiting, hake, haddock), nephrops and various flatfish species.Main fishing areas are mainly in the Celtic Sea (ICES 7.j, 7.h, 7.e and 7.d). Like Spanish trawlers of the same segment, fishing areas include NAFO-RA, NEAFC RA and Norwegian waters, with som

Main deep-sea species caught are black scabbardfish (170 t), blue ling (169 t) and bluemouth redfish (34 t)

DEU demersal trawlers 40m and more (DEU NAO DTS40XX)	Number of vessels	% DSS in total catch of segment
	7	2%

Main target species of these demersal trawlers are whitefish species (cod, saithe, haddock ling and pollack), redfish and Greenland halibut. Like Spanish trawlers of the same segment, fishing areas include NAFO-RA, NEAFC RA and Norwegian waters.

Deep-sea species caught in the North East Atlantic comprise Greenland halibut (390 t), roundnose grenadier (2.5 t) and rabbitfish (1.5 t).

PRT vessels using hooks 12-18 m Azores (PRT NAO HOK1218 P3)	Number of vessels	% DSS in total catch of segment
	44	28%

Main target species of this fleet segment include deep-sea species and tuna and other large pelagic species (swordfish). Fishing activities concentrate around Azores (ICES 10.a) and in CECAF 34.1.2 to a lesser extent.

Targeted deep-sea species include by decreasing order of importance bluemouth redfish (135 t), red seabream (95 t), common mora (80 t) and silver scabbard fish (31 t).

PRT vessels using hooks less than 10 m Azores (PRT NAO HOK0010 P3)	Number of vessels	% DSS in total catch of segment
	360	26%

Fishing vessels of this segment target a wide range of species, including coastal species, deep-sea species and large pelagics. Activities concentrate around Azores in ICES 10.a

Main deep-sea species caught include by decreasing order of importance red seabream (234 t), bluemouth redfish (40 t) and wreckfish (30 t).

ESP demersal trawlers 24-40 m (ESP NAO DTS2440)	Number of vessels	% DSS in total catch of segment
	108	0.5%

Fishing vessels of this segment target pelagic species (blue whiting, horse mackerel and mackerel), hake, anglerfish and various demersal fish species. Main fishing areas exploited include the Bay of Biscay (ICES 8), North of Spain (ICES 9.a), the Celtic Sea (ICES 7.j, k and h).

The few deep-sea species caught include by decreasing order of importance bluemouth redfish (155 t), blackmouth dogfish (88 t) and blue ling (58 t).

PRT vessels using hooks 18-24 m Madeira (PRT NAO HOK1824 P2)	Number of vessels	% DSS in total catch of segment
	3	53%

Vessels of this segment concentrate on exploitation tunas and other large pelagics (swordfish, blue shark, shortfin mako) and on deep-sea species. Fishing areas are concentrated around Madeira (CECAF 34.1.2).

Deep-sea species are mainly black scabbard fish (295 t – 99% of catches of deep-sea species), with some catches of leafscale gulper shark (6 t).

	Number of vessels	% DSS in total catch of segment

PRT vessels using hooks 24-40 m Azores (PRT NAO HOK2440 P3)	28	4%
Fishing vessels of this segment mainly tunas and other large pelagic species in the waters around Azores (ICES 10.a and 10.b), CECAF 34.1.2 and along the Iberian Peninsula (ICES 9.a and 9.b) Deep-sea species caught include by decreasing order of importance Beryx (122 t), wreckfish (53 t), bluemouth redfish (43 t).and red seabream (34 t)		

DEU vessels using nets 24-40 m (DEU NAO DFN2440)	Number of vessels	% DSS in total catch of segment
	6	12%
German netters of this segment target anglerfish, whitefish species (cod, pollack and haddock) and flat fish species. Main fishing areas include the North Sea (ICES 4.a and 4.b) and in the West of the British Isles (ICES 6.a, 6..b and 7.c). The only deep-sea species caught by vessels of this segment are deep-sea crabs (175 t) caught mostly in the West of the British Isles (ICES 6.a, 6..b and 7.c). This is by far (96%) the main EU fleet segment catching this species.		

Appendix 4: Status of deep-sea species listed in Annex I of the DSAR in relation to ICES scientific reviews

Covered by ICES reviews	Not covered by ICES reviews
Gulper sharks (Centrophorus spp.)	Black dogfish (Centroscyllium fabricii)
Portuguese dogfish (Centroscymnus coelolepis)	Longnose velvet dogfish (Centroscymnus crepidater)
Kitefin shark (Dalatias licha)	Greater lanternshark (Etmopterus princeps)
Blackmouth dogfish (Galeus melastomus)	Iceland catshark (Apristuris spp.)
Black scabbardfish (Aphanopus carbo)	Frilled shark (Chlamydoselachus anguineus)
Greater silver smelt (Argentina silus)	Birdbeak dogfish (Deania calcea)
Alfonsinos (Beryx spp.)	Mouse catshark (Galeus murinus)
Roundnose grenadier (Coryphaenoides rupestris)	Bluntnose six-gilled shark (Hexanchus griseus)
Roughhead grenadier (Macrourus berglax)	Velvet belly (Etmopterus spinax)
Orange roughy (Hoplostethus atlanticus)	Sailfin roughshark (Sharpback shark) (Oxynotus paradoxus)
Blue ling (Molva dypterigia)	Knifetooth dogfish (Scymnodon ringens)
Red (blackspot) seabream (Pagellus bogaraveo)	Greenland shark (Somniosus microcephalus)
Greenland halibut (Reinhardtius hippoglossoides)	Smoothheads (Slickheads) (Alepocephalidae)
	Baird's smoothhead (Alepocephalus Bairdii)
	Risso's smoothhead (Alepocephalus rostratus)
	Deep-water red crab (Chaceon (Geryon) affinis)
	Rabbitfish (rattail) (Chimaera monstrosa)
	Large-eyed rabbitfish (Ratfish) (Hydrolagus mirabilis)
	Straightnose rabbitfish (Rhinochimaera atlantica)
	Black cardinalfish (Epigonus telescopus)
	Bluemouth (Bluemouth redfish) (Helicolenus dactilopterus)
	Common mora (Mora moro)
	Blue antimora (Blue hake) (Antimora rostrata)
	Wreckfish (Polyprion americanus)
	(Cataetyx laticeps)
	Silver roughy (Pink) (Hoplosthetus mediterraneus)
	Grenadiers (rattails) other than roundnose grenadier and roughhead grenadier
	Black gemfish (Nesiarchus nasutus)
	Snubnosed spiny eel (Notocanthus chemnitzii)
	Round skate (Raja fyllae)
	Arctic skate (Raja hyperborea)
	Norwegian skate (Raja nidarosiensus)
	Spiny (deep-sea) scorpionfish (Trachyscorpia cristulata)
	Silver scabbardfish (Cutlass fish) (Lepidopus caudatus)
	Greater eelpout (Lycodes esmarkii)
	Small redfish (Norway haddock) (Sebastes viviparus)

Source: based on ICES published advices
Note: blue characters: shark species, green characters: ray species

Share of landings of deep-sea species according to availability of ICES reviews
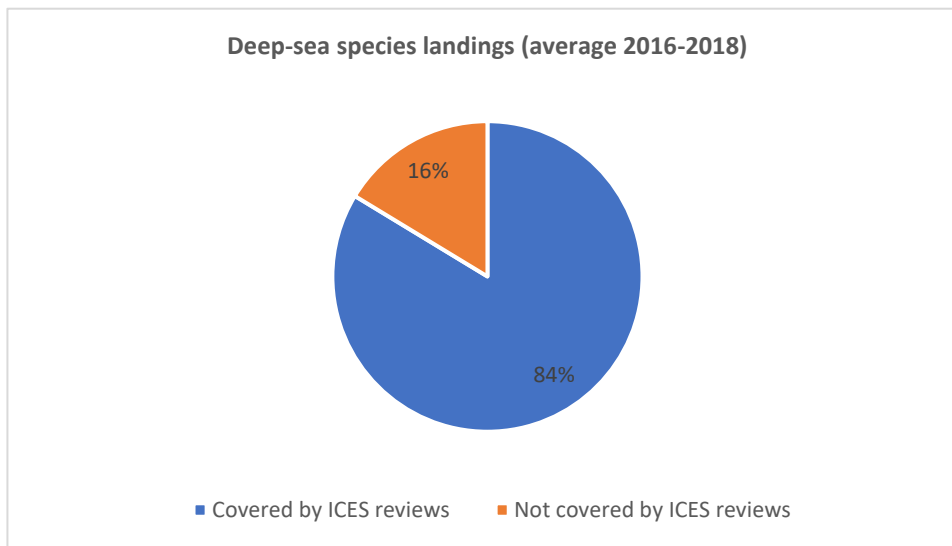
Source: based on Eurostat catch data and TAC and quota regulations

Appendix 5: Depth distribution of deep-sea species listed in Annex I of the DSAR

FAO_code	Scientific name	Common name	Most vulnerable	Min	Max	Cont. Shelf ?
CWO	*Centrophorus spp.*	Gulper sharks	N	300	1 500	No
CFB	*Centroscyllium fabricii*	Black dogfish	Y	1 000	1 600	No
CYO	*Centroscymnus coelolepis*	Portuguese dogfish	Y	500	1 900	No
CYP	*Centroscymnus crepidater*	Longnose velvet dogfish	Y	500	1 300	No
SCK	*Dalatias licha*	Kitefin shark	Y	600	1 900	No
ETR	*Etmopterus princeps*	Greater lanternshark	Y	600	1 900	No
APQ	*Apristuris spp.*	Iceland catshark	N	500	1 800	No
HXC	*Chlamydoselachus anguineus*	Frilled shark	N	120	1 300	No
DCA	*Deania calcea*	Birdbeak dogfish	N	300	1 500	No
SHO	*Galeus melastomus*	Blackmouth dogfish	N	200	1 200	No
GAM	*Galeus murinus*	Mouse catshark	N	400	1 200	No
SBL	*Hexanchus griseus*	Bluntnose six-gilled shark	Y	0	2 500	**Yes**
ETX	*Etmopterus spinax*	Velvet belly	N	200	2 500	No
OXN	*Oxynotus paradoxus*	Sailfin roughshark (Sharpback shark)	N	*265*	*720*	No
SYR	*Scymnodon ringens*	Knifetooth dogfish	N	450	1 100	No
GSK	*Somniosus microcephalus*	Greenland shark	N	0	2 200	**Yes**
PZC	Alepocephalidae	Smoothheads (Slickheads)	N	400	2 000	No
ALC	Alepocephalus Bairdii	Baird's smoothhead	N	600	1 300	No
PHO	Alepocephalus rostratus	Risso's smoothhead	N	600	1 300	No
BSF	Aphanopus carbo	Black scabbardfish	N	200	1 600	No
ARU	Argentina silus	Greater silver smelt	N	100	1 000	**Marginally**
ALF	Beryx spp.	Alfonsinos	N	25	1 300	No
KEF	Chaceon (Geryon) affinis	Deep-water red crab	N	500	1 000	No
CMO	Chimaera monstrosa	Rabbitfish (rattail)	N	200	1 200	No
CYH	Hydrolagus mirabilis	Large-eyed rabbitfish (Ratfish)	N	600	1 600	No
RCT	Rhinochimaera atlantica	Straightnose rabbitfish	N	500	1 500	No
RNG	Coryphaenoides rupestris	Roundnose grenadier	N	400	2 000	No
EPI	Epigonus telescopus	Black cardinalfish	Y	300	800	No
BRF	Helicolenus dactilopterus	Bluemouth (Bluemouth redfish)	N	100	1 100	**Juveniles**
ORY	Hoplostethus atlanticus	Orange roughy	Y	500	1 800	No
RHG	Macrourus berglax	Roughhead grenadier (Rough rattail)	N	100	1 100	No
BLI	Molva dypterigia	Blue ling	N	200	1 300	No
RIB	Mora moro	Common mora	N	600	1 300	No

FAO_code	Scientific name	Common name	Most vulnerable	Min	Max	Cont. Shelf ?
ANT	*Antimora rostrata*	Blue antimora (Blue hake)	N	600	2 000	No
SBR	*Pagellus bogaraveo*	Red (blackspot) seabream	N	0	900	**Yes**
WRF	*Polyprion americanus*	Wreckfish	N	40	600	No
GHL	*Reinhardtius hippoglossoides*	Greenland halibut	N	200	1 500	No
CXL	*Cataetyx laticeps*		N	1 100	2 000	No
HPR	*Hoplosthetus mediterraneus*	Silver roughy (Pink)	N	100	1 200	No
RTX	*Macrouridae*	Grenadiers (rattails)	N	400		No
NEN	*Nesiarchus nasutus*	Black gemfish	N	200	1 200	No
NNN	*Notocanthus chemnitzii*	Snubnosed spiny eel	N	125	3 000	No
RJY	*Raja fyllae*	Round skate	N	200	2000	No
RJG	*Raja hyperborea*	Arctic skate	N	90	3000	No
JAD	*Raja nidarosiensus*	Norwegian skate	N	100	1 400	No
TJX	*Trachyscorpia cristulata*	Spiny (deep-sea) scorpionfish	N	200	1 500	No
SFS	*Lepidopus caudatus*	Silver scabbardfish (Cutlass fish)	N	40	600	No
ELZ	*Lycodes esmarkii*	Greater eelpout	N	50	1 100	No
SFV	*Sebastes viviparus*	Small redfish (Norway haddock)	N	50	300	**Yes**

Source: Lorance (2012)
Note: blue characters denote shark species, green characters denote ray species

Appendix 6: Summary of trends on subjects listed in Article 19.2 of the DSAR

(a) The use of all types of fishing gear when targeting deep-sea species, with a particular emphasis on the impact on the most vulnerable species and on VMEs

At the time of preparation of this evaluation, data by fishing fleet segments were available only up to 2017, the first year of implementation of the DSAR.

As shown in the following graph, demersal trawlers, which have the largest potential impacts on deep-sea habitats, represented between 40% (2017) and 45% (2016) of total EU catches of deep-sea species. Fishing vessels using hooks (longline and handline) which are known to have moderate impacts on deep-sea habitats, represented around 33% in both years of total EU catches of deep-sea species. Pelagic trawlers, assumed to have no impacts on deep-sea habitats, represented between 15% (2016) and 20% (2017) of the total EU catch of deep-sea species.

Catch of deep-species by type of gear used in 2016 and 2017
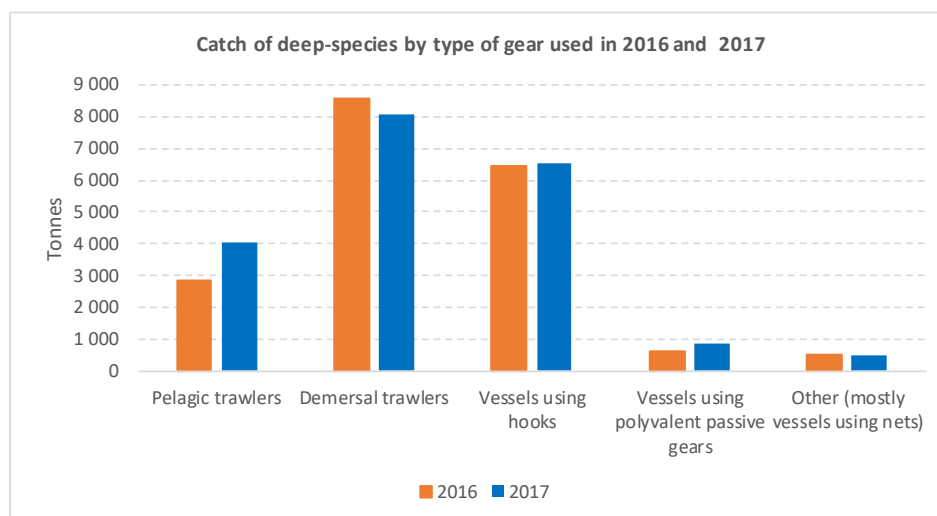
Figure 16: Reported catches of all deep-sea species listed in Annex I of the DSAR by type of gear used

Source: based on data published by STECF (2019a)

There are no clear trends between 2016, the last year before implementation of the DSAR, and 2017, its first year of implementation. With regards to 2018 and beyond, data on catches of deep-sea species by fishing gears have not yet been published.

(b) The vessels that have changed to using gears with a reduced impact on the sea bottom, and progress as regards the prevention, minimisation and, where possible, the elimination of unintended catches

Available information suggests that bottom trawlers targeting deep-sea species before adoption of the DSAR did not modify their fishing techniques used to catch deep-sea species. Instead, bottom trawlers decreased the levels of their activity on deep-sea species in EU waters to exploit other stocks available in shallower waters (e.g. saithe, hake) taking advantage of increased fishing opportunities underpinned by effective conservation and management measures.

For fleet segments using hooks (longline, handlines) which have lower impacts on the sea bottom compared to bottom trawlers, there is no information suggesting changes in fishing techniques or strategies. Most of the vessels concerned are small-scale vessels operating in South Western Waters with few opportunities, if any, to exploit alternative fisheries.

Pelagic trawlers do not interact with the sea bottom when exploiting deep-sea species (principally greater silver smelt, a pelagic species). Fishing vessels using bottom-set gillnets are prohibited by EU Technical Measures Regulations from targeting deep-sea species available up to 600m depth, as well as from deploying their gears below that depth in EU waters.

(c) The range of operation of vessels engaging in each deep-sea métier

At fishing fleet segment level, information published by STECF could support identification of the fishing fleet segments which are the most dependent on deep-sea species. Based on information available for 2017, the fleet segments that are the most dependent on deep-sea species are all from Portugal. They include vessels using hooks (longline, handline) based in mainland Portugal, the Azores and Madeira, with deep-sea species representing around 50% of their total catch. By contrast, the share of deep-sea species in the total catch of large-scale bottom trawlers flagged to France and Spain is now less than 10% while it was approximately 40% by 2010.

Overall, there was a significant decrease in catches of deep-sea species by EU vessels over the last ten years, from approximately 35 000 tonnes per year on average between 2009-2011 to 21 000 tonnes between 2017-2018 (-40%).
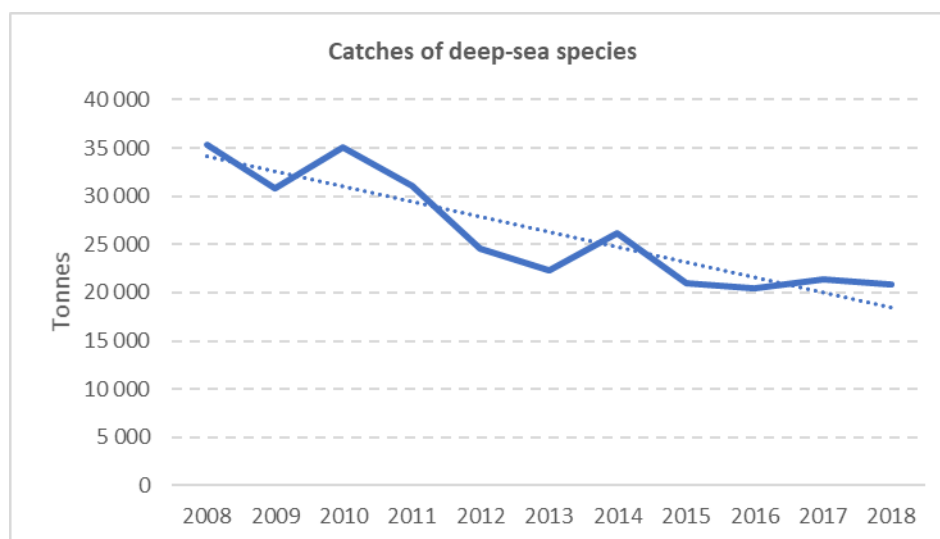
Figure 17: Evolution of EU reported catches of deep-sea species referred to in Annex I of the DSAR in the North-East Atlantic and in CECAF areas 34.1.1, 34.1.2 and 34.2 (except Greenland waters). Dotted line: trend

Source: based on Eurostat data

Based on information collected during the evaluation, an upturn in deep-sea fishing activities by bottom trawlers in EU waters is unlikely due to i) the 800m bottom trawl ban enforced by the DSAR, which reduced accessibility to certain commercial deep-sea species like grenadiers and black scabbardfish, and ii) the reduced economic incentives to commercialise deep-sea species due to negative consumer perceptions. Although implementation details are still unknown, the forthcoming Commission Acts on the definition of existing fishing areas (Article 7.2 of the DSAR) and on identification of areas where VMEs are known or likely to occur (Article 9.6) are likely to introduce further spatial restrictions impacting the operational range of deep-sea fishing vessels.

(d) The completeness and reliability of data that Member States provide to scientific bodies for the purpose of stock assessment, or to the Commission in case of specific data calls

According to feedback from scientists working on stock assessment of deep-sea species, biological data and fisheries-dependent information collected by Member States are broadly adequate to support the scientific assessment of the status of stock of the main commercial deep-sea species (i.e. black scabbardfish, greater silver smelt, blue ling, Greenland halibut and grenadiers). As shown in the following figure (left), out of 22 deep-sea stocks reviewed by ICES, 14% are in category 1 for which analytical assessment is possible, 41% are in category 3 for which survey-based assessment indicate trends, and 45% are in ICES categories 5 and 6 for which the available data may just suggest trends at best. In terms of landings (right), 55% of deep-sea catches are obtained from stocks in category 1 and 43% obtained from stocks in category 3, with 2% of deep-sea catches obtained from stocks in categories 5 and 6.
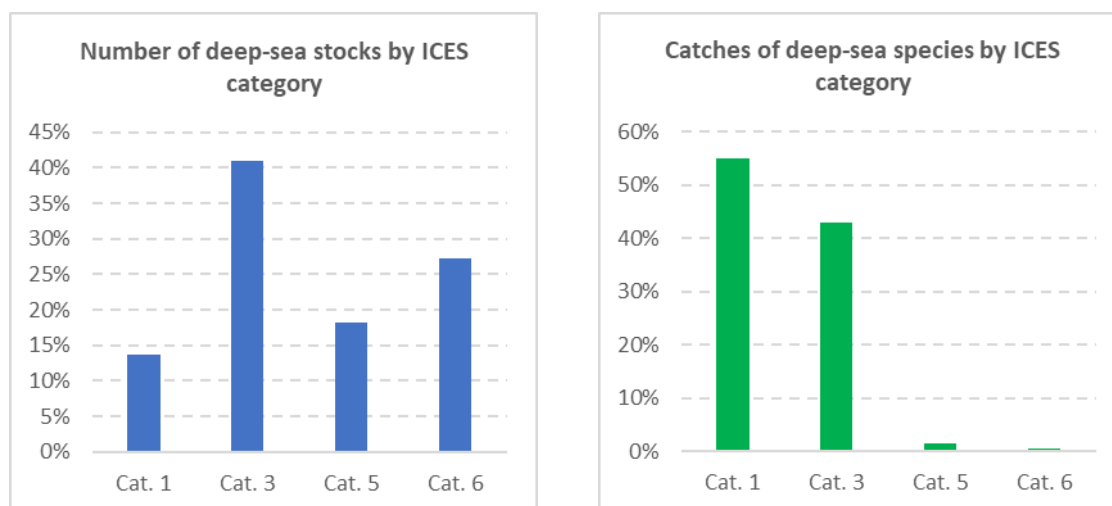
Figure 18: Number of deep-sea stocks (left) and catches on deep-sea stocks (right) by ICES advice category

Source: own review of ICES advices

However, for deep-sea species caught in small quantities mostly as by-catches in different mixed fisheries, biological and fisheries dependent / independent data remain insufficient for the purpose of stock assessment. In fact, 36 of the 49 species (73%) which are identified as deep-sea species by the DSAR are not subject to ICES' periodic scientific stock assessment. The reported catch of these unassessed deep-sea species is low (less than 500 tonnes per year) to negligible or nil.

Neither the DSAR nor the EU Data Collection Framework could improve the situation, because i) the DSAR results in the reduction of catches of some commercial species (i.e. grenadiers) and associated by-catches with less fisheries dependent data available for stock assessment purposes, and because ii) the EU DCF exempts Member States from the collection of biological data in support of stock assessments for stocks where annual national catches are less than 200 tonnes, which is the case for most deep-sea species identified by the DSAR.

(e) The deep-sea stocks for which the scientific advice has improved

According to ICES, two stocks of argentines (ARU.27.5b6a and ARU.27.123a4) and the stock of black scabbardfish (BSF.27.NEA) are candidates for upgrade to the category of stocks with full analytical assessments and forecasts that are either age-/length structured or based on production models (ICES category 1). For category 1 stocks, ICES may provide advices on the basis of the MSY approach.

These three stocks are currently in the category of stocks for which only survey-based assessments provide trends (ICES category 3) triggering application of the ICES precautionary approach.

(f) The effectiveness of accompanying measures to eliminate discards and reduce catches of the most vulnerable species

The landing obligation that entered into force in 2019 for deep-sea fisheries will probably incentivise fishing vessels to reduce their amounts of unwanted catch if such unwanted catch are counted against quotas. The scope of application of the landing obligation to deep-sea species, including most vulnerable species (i.e. identification of species subject to landing obligation) falls under the remit of other EU instruments, in particular i) the annual general TAC and quota regulation, ii) the biennial deep-sea specific TAC and quota regulation and iii) the Technical Measures Regulation (EU) 2019/2014.

(g) The quality of the impact assessments carried out pursuant to Article 8

To date, there have been no impact assessment submitted in relation to Article 8 of the DSAR. This is due to the delayed implementation of the definition of existing fishing areas foreseen in Article 7 of the DSAR.

(*N.B.: impact assessments are required by the DSAR for vessels wishing to engage in exploratory fishing outside defined existing fishing areas*)

(h) The number of vessels and ports in the Union directly affected by the implementation of this Regulation

Based on Member States' annual reports to the Commission, Member States issued 1 113 fishing authorisations to catch deep-sea species in 2018. Of these, 542 (49%) were targeting fishing authorisations and 571 (51%) were by-catch fishing authorisations. Spain issued 43% of total number of both types of fishing authorisations in 2018 followed by Portugal which issued 41%, France 8% and the United Kingdom 5%. Ninety-four percent of the 542 targeting fishing authorisations issued in 2018 were by Portugal (60%) and Spain (34%).

Based on data collected from Member States in the frame of this evaluation, the numbers of fishing authorisations issued each year between 2017 and 2020 appear to be rather stable. The consulted EU Member State authorities and fishermen associations also confirmed that there are no significant trends to be reported in relation to the number of fishing vessels catching deep-sea species as target species or as by-catch.

The main fishing ports in the Union through which some catches of deep-sea species are landed is shown in the following table. However, the relative importance of deep-sea species in total landings transiting through these ports could not be assessed. Yet, since catches of deep-sea species represent less than 1% of total catches in the Member States (except Portugal 4%), it is likely that most EU ports do not have a socio-economic dependence on landings of deep-sea species. Nonetheless, landings of deep-sea species are probably critical in some specific regional contexts, such as the outermost regions of Portugal (the Azores and Madeira). This is due to the specialisation of local fishing fleets, including small-scale fleets, on the exploitation of deep-sea species, in the absence of other alternatives.

Member State	Main fishing ports in relation to deep-sea fisheries
DE	Rostock, Bremerhaven
ES	Mugia, Burela, La Coruña, Cedeira, Santa Eugenia de Riveira, Cangas Aviles, Ondarroa Camariñas, Vigo, Marin, Cariño, Lastres, Gijon, Cillero, Santander, Castletownbere (IE), Killybegs (IE), Tromsø (NO)
FR	Boulogne s/Mer, Lorient, Concarneau, Lochinver (UK), Peterhead (UK)
NL	IJmuiden, Scheveningen, Amsterdam
PT	Matosinhos Nazaré, Peniche, Sesimbra, Olhão (Mainland) Ponta Delgada, São Mateus, Praia da Vitória and Horta (Azores) Funchal (Madeira)
UK	Grimsby, Macduff, Marin, Peterhead, Lochinver, North Shields

Source: Member States reports and feedback from stakeholders

(i) The effectiveness of measures established to ensure the long-term sustainability of deep-sea fish stocks and to prevent by-catch of non-target species, in particular by-catch of the most vulnerable species

The 800m bottom trawl prohibition (Article 8.4 of the DSAR) is the main measure implemented by the DSAR with an effect on environmental sustainability of the exploitation of deep-sea fish stocks. The 800m bottom trawl prohibition has been effective at protecting deep-sea commercial species with a majority of their biomass below that depth, like grenadiers and black scabbardfish, from fishing pressure by bottom trawlers. As shown in the following graph, EU catches of these two commercial deep-sea species in the West of Scotland and Rockall (ICES subarea 6) decreased by a factor of 4 for grenadiers, and by a factor of 2 for black scabbardfish between 2016 and 2019, with a clear decreasing trend from 2017. The impact of the 800m trawl prohibition on the accessibility of these two commercial deep-sea species was confirmed by fishing operators and scientists.
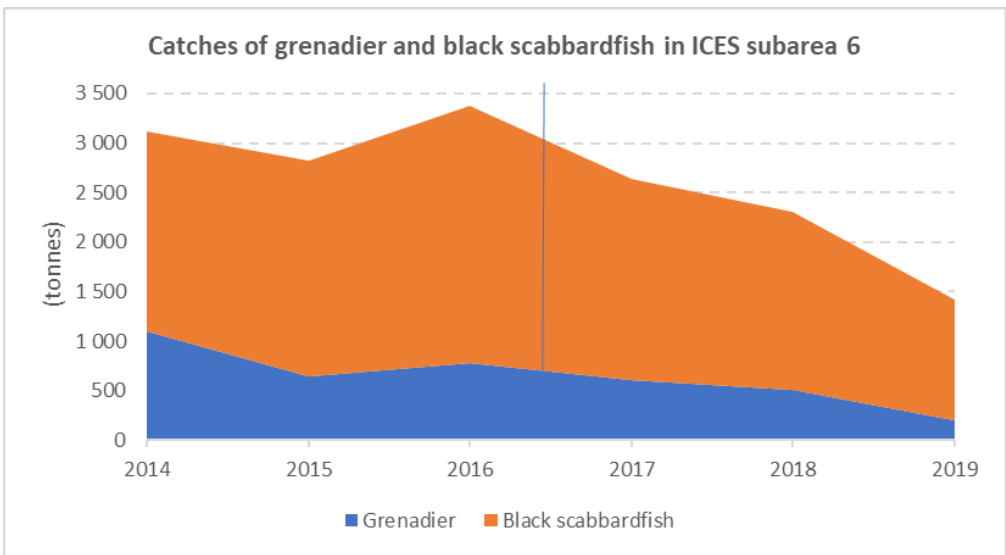
Figure 19: Evolution of EU catches of grenadiers and black scabbardfish in ICES subarea 6

Source: based on data published in ICES WGDEEP report (2020)

According to available scientific information, the restriction of bottom trawlers operations to waters shallower than 800m was effective at reducing the amount of by-catch, and in particular by-catch of deep-sea sharks and orange roughy, which the DSAR designates as the Most Vulnerable Species. As shown in the next figure, the discard rate of French bottom trawlers fishing for deep-sea species in the West of Scotland and West of Ireland decreased from about 20% in 2013 to less than 5% in 2018, based on data collected by scientific observers.
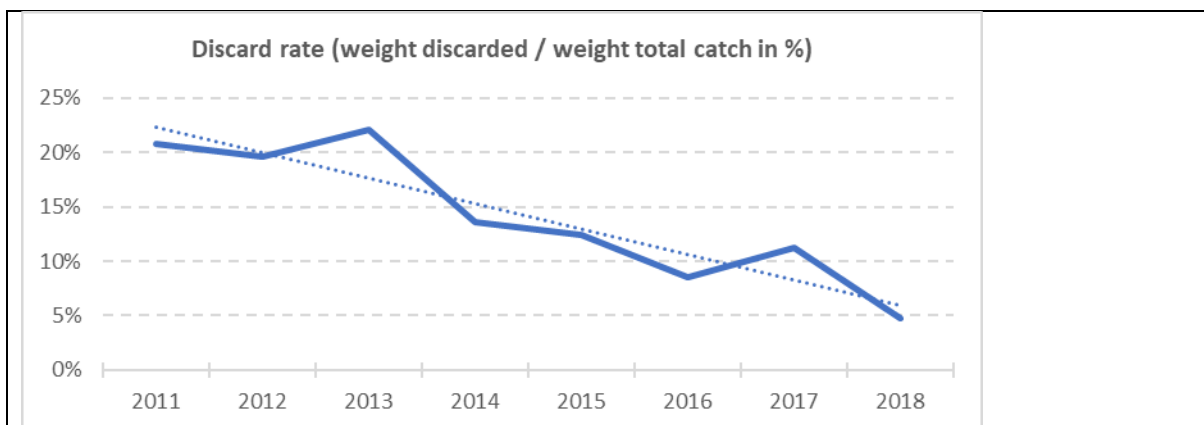
Figure 20: evolution of proportion of total weigh of discards / total weight of catches by French trawlers targeting deep-sea species in the West of Scotland and in the West of Ireland

Source: IFREMER – programme OBSMER. Data for métier OTB/OTT_DWS (demersal trawlers targeting deep-water species)
Note: the French bottom trawler fleet unilaterally committed to stop fishing operations below 800m starting in 2014

(j) the extent to which VMEs have been effectively protected through the restriction of authorised fishing activities to existing deep-sea fishing areas, the move-on rule and/or by other measures

At the time of drafting this report, two DSAR flagship measures for the protection of VMEs could not be implemented (i.e. limiting deep-sea fishing activities to existing fishing areas, and the closures of areas where VMEs are known or likely to occur). As a result, VMEs located in EU waters below 400m and 800m depth are not yet fully protected from any significant adverse impacts caused by fishing gears through spatial closure measures. The 800m bottom trawl prohibition resulted in the protection of VMEs below 800m depth, but only from significant adverse impacts generated by the gear subject to prohibition.

The VME encounter protocol, including the move-on rule has been in force since 2017, but since then, no EU vessels have reported a VME encounter to their flag Member States. This possibly reflects a combination of a general decline in bottom fishing activity in EU waters and an enhanced awareness and capability of vessels to avoid coral and sponge areas. It is also known that bottom trawls are designed to catch fish and are poor sampling tools for most sessile benthic organisms and in general the catchability of VME indicator species by commercial fishing vessels is unknown. It cannot be excluded, however, that the lack of reports also reflects some failure by fishing masters to report actual encounters.

Overall, the DSAR has not been effective so far in protecting deep-sea vulnerable marine ecosystems from significant adverse impacts caused by fishing gear as a result of the delayed implementation of two of its key spatial measures. Independently of the effectiveness of the DSAR measures yet to be implemented, the DSAR will not address effective protection of VMEs located above 400m depth although available scientific evidences suggest that VMEs are present in EU waters in the 200 – 400m depth band.

(k) the application of the depth limitation of 800 metres

According to feedback from the Member States, the application of the depth limitation of 800m is controlled mostly through the vessel monitoring system (VMS) requiring any EU fishing vessel of length greater than 12 m overall to transmit its position at least once every 2 hours according to the Control Regulation (EC) 1224/2009. The Control Regulation (EC) 1224/2009 provides other tools for enforcing the measure, including a capacity of polling the actual position of each vessel by Member States' Fisheries Monitoring Centres, the possibility to require VMS information at shorter time intervals,

and to cross-check VMS positions with positions transmitted by the Automatic Identification System (AIS) mandatory for any EU vessel of length greater than 15 m overall. The haul-by-haul reporting obligation enforced by the DSAR (Article 13) provides an additional effective tool for enhancing the monitoring of activities deployed by fishing vessels engaged in a deep-sea métier or fishing at depths below 400m.

Feedback from Member State authorities confirmed that the 800m bottom trawl prohibition is complied with by their flag vessels as confirmed by the absence of infringements since 2017.

Appendix 7: Case study 1 - The 800m ban on bottom trawling

Background

Article 8.4 of the DSAR provides that no fishing authorisations shall be issued for the purpose of fishing with bottom trawls at depth below 800 metres. The intention of the DSAR was to ban bottom trawling in deep-waters below 800m, with expected positive impacts i) on deep-sea - species caught as target species or as by-catches in deep layers, and ii) to provide full protection of deep-sea vulnerable marine ecosystems (VME) below that depth against adverse impacts caused by bottom trawls, irrespective of the status of these ecosystem in relation to VME criteria.

The 800m ban on bottom trawling has been welcomed by environmental NGOs as a major contribution towards the protection of deep-sea environment[138]. In fact, public pressure organised by specialised NGOs already convinced the main French fishing company exploiting deep-sea species with large-scale trawlers to abandon bottom trawling below 800m before adoption of the DSAR. The unilateral commitment of the French fishing company became effective in 2015[139], and probably guided trilogue discussions on DSAR proposal towards a generalisation of the 800m prohibition to bottom trawlers of all Member States through the DSAR as from 2017, ensuring a level playing field.

Scope of the measure

The DSAR provides that no fishing authorisations shall be issued for the purpose of fishing with bottom trawls below 800m depth. The fishing authorisations referred to are the targeting and the by-catch fishing authorisations defined in Article 5 of the DSAR.

The measure applies to bottom trawls. The DSAR does not define a bottom trawl, but a definition is available in the Technical Measures Regulation (EU) 2019/1241, with bottom trawls meaning "*a trawl designed and rigged to operate on or near the seabed*". For the purpose of logbook declarations, the Electronic Reporting System (ERS) references for bottom trawls include beam trawls (ERS code TBB), otter trawls (OTB), otter twin trawls (OTT), pair trawls (PTB), nephrops trawls (TBN), shrimp trawls (TBS) and bottom trawls unspecified (TB).

The measure applies to EU and third country fishing vessels operating in Union waters, and to EU fishing vessels in international waters of CECAF areas 34.1.1, 34.1.2 and 34.2 (Article 2 of the DSAR). The 800m ban does not apply in other areas of the Atlantic Ocean where EU vessels may operate. In fact, using bottom trawls at depths below 800m is not prohibited in NEAFC and NAFO Regulatory Areas, and in any third country waters that can be exploited by EU vessels in the frame of bilateral Sustainable Fishing Partnership Agreements (e.g. Greenland, Morocco, Mauritania, Senegal). In third countries of the North East Atlantic, there is no depth limit enforced in Iceland and in Faroes, but Norway enforces a 1 000m depth limit but that can be subject to derogations. In the Mediterranean, bottom trawling beyond 1 000m is prohibited since 2005 through GFCM Rec.GFCM/29/2005/1.

Implementation of the measure

Member States annual deep-sea reports to the Commission (Article 15.5 of the DSAR) indicate that the 800m prohibition is generally included as a condition in the targeting or by-catch fishing authorisation issued to bottom trawlers. Feedback from targeted consultations confirmed this *modus operandi*.

Control of compliance with the measure

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[138] See for example Bloom association webpage: https://www.bloomassociation.org/leurope-interdit-enfin-chalutage-profond/

[139] http://www.scapeche.fr/actus-1/2015/arret-de-la-peche-profonde-en-dessous-de-800-metres-la-scapeche-tient-ses-engagements-et-tire-un-premier-bilan

All Member States confirmed that compliance with the 800m trawl prohibition was verified through VMS and ERS reports. For bottom trawlers, fishing activity can be relatively easily detected by estimating the vessel's speed between two positions with vessel's speed below five knots denoting fishing activity with bottom trawl deployed. Two Member States (Estonia and France) reported having, or being in the process of implementing mandatory declaration of tow start depth and tow end depth in ERS declarations which, according to Article 13 of the DSAR, are to be submitted on a haul-by-haul basis. If not enhanced accordingly, ERS declarations are probably not useful to determine the geographical area of capture, and hence to verify compliance with 800m bottom trawl prohibition. The Control Implementing Regulation (EU) 404/2011[140] foresees that the area of capture to be reported in the logbooks is on an ICES rectangle basis (0.5° latitude x 1° longitude) and limited to the area in which the majority of the catch was taken.

Technically, VMS software used by Member States may be programmed to set an alarm in case of suspected fishing activities beyond 800m. However, the 800m depth contour needs to be introduced as an additional layer in the VMS software. Based on feedback from one Member State (France), this requires specific expertise. As a broker of good practices, the European Fisheries Control Agency (EFCA) develops such automated alarm systems useful to control compliance with any geographical limitation (e.g. closed areas).

The Control Implementing Regulation (EU) 404/2011 establishes that VMS positions should be received once every two hours at minimum. However, at an average towing speed for bottom trawls of 3.5 knots, this suggests that the vessel can work up to three nautical miles at depth below 800m and move out again without being detected by Fisheries Monitoring Centres of Member States. Similarly, the edges of the 800m contour can be crossed without the vessel being detected of any infringement. However, according to the Control Implementing Regulation (EU)404/2011, Member States may require VMS signals at shorter time intervals, and must have the capacity of polling the actual position of each of their fishing vessels. Another useful tool for control of compliance with the 800m bottom trawl ban is utilisation of Automatic Identification Systems (AIS) mandatory for any fishing vessel of length greater than 15 m. AIS provide vessels' position at 6 to 12 second intervals depending on speed, and hence may capture in almost real time a vessel course. However, AIS signals may not be received by a shore station if the vessel operates beyond the reception range of its equipment. In conclusion, detection of infringements to the 800m trawl ban may require specific efforts from Member States beyond the minimum standard provisions of the Control Regulation (e.g. polling, shorter time intervals for VMS and cross-checking with AIS data).

Status of compliance

According to feedback from Member States, the 800m bottom trawl prohibition is complied with by fishing operators with no such infringement being detected since 2017.

Contribution of the 800m trawl ban to DSAR objectives

The effects of the 800m bottom trawl ban have not been subject to a dedicated scientific evaluation by ICES or STECF. However, the most recent ICES scientific reports on deep-sea species by WGDEEP (ICES, 2020a) and by WGEF (ICES, 2019c) includes considerations on the likely effects of the 800m bottom trawl ban on exploitation patterns of deep-sea commercial stocks, in particular those subject to exploitation in the West of Scotland, the main fishing area exploited by EU deep-sea bottom trawlers. The next table shows relevant extracts of ICES scientific reviews. The extracts suggest that:

- The 800m bottom trawl prohibition reduced accessibility of grenadiers and black scabbardfish to bottom trawlers

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[140] Commission Implementing Regulation (EU) No 404/2011 of 8 April 2011 laying down detailed rules for the implementation of Council Regulation (EC) No 1224/2009 establishing a Community control system for ensuring compliance with the rules of the Common Fisheries Policy. *OJ L 112, 30.4.2011, p. 1–153*

- The 800m bottom trawl prohibition ensure almost full protection against any unwanted catch of orange roughy
- The 800m bottom trawl prohibition reduced by-catches of deep-sea shark species caught by bottom trawlers targeting black scabbardfish and grenadiers below 800m.

Table 20: Selected extracts of ICES scientific reports discussing impacts of the 800m bottom trawl prohibition on exploitation patterns of deep-sea species

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Black scabbardfish

Fishing effort on [black scabbardfish] have been decreasing probably associated with the ban of trawling in deeper area.

ICES (2020a) Exec. Summary page X

Explanation on decreasing biomass index of black scabbardfish:

This effect [i.e. decreasing level of recruitment] is unlikely to result from an increasing fishing pressure because 1) the TAC set for black scabbardfish have been stable for several years and 2) in EU waters, the ban on trawling in areas deeper than 800m has strongly reduced the fraction of the species habitat which can be exploited as the depth range of the species extends down to 2 000m.

ICES (2020a) Page 3

The ban in 2016 of trawling deeper than 800m in EU waters might have resulted in reduction of deep-water sharks bycatch to low levels in trawl fisheries. Although no reliable indicator of deep-water shark abundance is available, population might be increasing in recent year, and this increase the predation on black scabbardfish.

ICES (2020a) Page 4

Orange roughy

The fisheries for orange roughy in subareas 6 and 7 have now ceased and a zero EU TAC has been implemented since 2010. A zero TAC without allowing a by-catch can potentially lead to discarding if existing fisheries overlap with the distribution of orange roughy. However, since the ban on trawling deeper than 800m, the overlap between existing fisheries and the distribution of orange roughy might be minimal in subarea 6.

Before the ban on trawling deeper than 800m, some spatial overlap between the species and fisheries remained […]. Following the application [of the ban], this bycatch might be minor because the fraction of orange roughy biomass occurring shallower than 800m is minor or inexistent.

ICES (2020a) Page 365

Roundnose grenadier

After introduction of TAC in 2003 and 2005, reported landings have decreased. […] the stock has also been affected by the EU Regulation 2016/2336 establishing specific conditions for fishing for deep-sea stocks, establishing a ban for bottom trawling at depths > 800m

ICES (2020a) page 389

As a consequence of the ban of fishing deeper than 800m, the core depth range of the roundnose grenadier is no longer accessible to trawlers.

ICES (2020a) Page 657

Over the last five years, discard rates [of grenadiers] have been lower than the period before for the French fishery in Division 5.b and subareas 6 and 7, mostly because the fishery has moved to shallower water in recent years

(ICES advice published 2018)

Deep-water sharks

French by-catch of Portuguese dogfish and leafscale gulper sharks occurs mainly, if not only, in the deep-water [bottom trawl] fishery in the West of Scotland. […] Variations, including lower occurrence of Portuguese dogfish in recent years, or the higher occurrence in 2009-2014 of leafscale gulper shark, may result from the shallower distribution of the fishing grounds.

ICES (2019c) Page 111

Source: as reported in the table
Note: In italic, *verbatim* extracts of ICES referenced reports

The effects of the 800m bottom trawl ban on availability of grenadiers and black scabbardfish are reflected by the evolution of catches of both species in ICES division 6 (Rockall, Northwest Coast of Scotland and North Ireland). Since 2016 the last year before application of the DSAR, catches of grenadiers have been divided by a factor of almost four and catches of black scabbardfish halved.
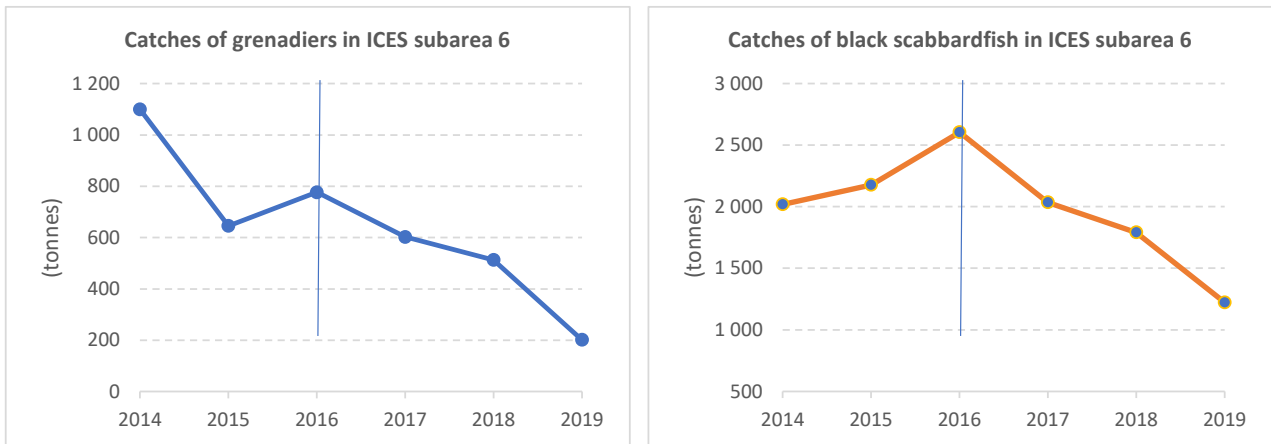

Figure 21: Evolution of catches of grenadiers (left) and black scabbardfish (right) in ICES division 6

Source : catch data published in ICES (2020a)
Note : 2016 is the last year before prohibition of bottom trawling below 800m

Fishermen association (Spain and France) confirmed that the 800m bottom trawl prohibition reduced the availability of important commercial deep-sea species such as grenadiers. The 800m depth limit is also reported to have had an impact on availability of black scabbardfish, but to a lesser extent compared to grenadiers. These two species were the main commercial species sought after by large-scale trawlers beyond the 800m depth limit.

As suggested by ICES, the 800m bottom trawl prohibition also supported reduction of by-catch of other deep-sea species. As shown in the following figure, discard rates (weight of catches discarded / total weight of catches) of French deep-sea trawlers operating in the West of Scotland and the West of Ireland estimated though scientific observations onboard consistently decreased over the period. A first downward shift of the curve is evident in 2014 when the main French fishing company concerned started to implement its unilateral commitment of stopping trawling deeper than 800m, with discard rates following the same decreasing trend after. In 2018, discard rate measured for deep-sea bottom trawler was close to 5%. A discard rate of 5% is relatively low by comparison with discard rates estimated in 2018 for nephrops trawlers (57% discard rate), demersal trawlers operating in the Bay of Biscay (37%) or netters (30%) and longliners targeting demersal species (13%) in the same area – see Gauduchon et al. (2020).
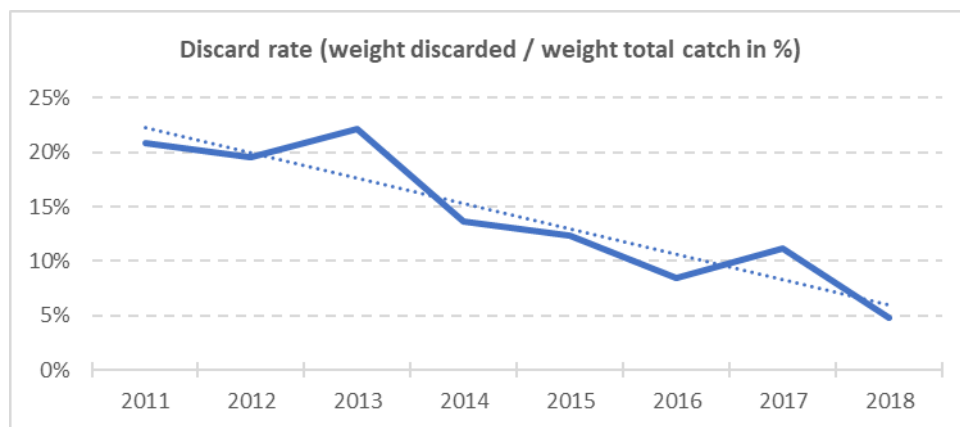

Figure 22: evolution of proportion of total weigh of discards / total weight of catches by French trawlers targeting deep-sea species in the West of Scotland and in the West of Ireland

Source: IFREMER – programme OBSMER. Data for métier OTB/OTT_DWS in the West of Scotland and in the West of Ireland

A detailed review of the sampling results show that deep-sea shark species are less present in catches in 2018 – both in quantity and in number of species – compared to 2011.

Effects of the 800 bottom trawl ban on fishing strategies

It is probably too early to detect changes in fishing strategies as a result of the 800m bottom trawl prohibition and the impacts of such changes on other fisheries. However, there is anecdotal information to suggest that fishing operators could adapt:

- The French fishing company who unilaterally decided to stop bottom trawling beyond 800m as from 2014 could maintain its activities by redeploying the concerned vessels on whitefish stocks (i.e. saithe and hake), taking advantage of increased fishing opportunities granted to Member States as a result of stock recoveries. The company also decided to diversify its activities by investing in fishing vessels using other fishing techniques than trawls (i.e. purse seine for small pelagics, pots for crustaceans).

- As noted by ICES in its advice on roundnose grenadier published in 2018[141], the 800m trawl ban prohibition in EU waters probably incentivised large scale trawlers flagged to Spain to increase their activities in the NEAFC Regulatory Area to catch the grenadiers that are no longer available in sufficient quantities in EU waters as a result of the depth limit. According to ICES, catches of grenadiers in ICES Division 12.b increased by 60% in 2017 compared to previous years.

Complementary analysis of spatial landings

In 2019, STECF disseminated georeferenced data on total live weight landed by EU vessels aggregated over all Member States based on Fisheries Dependent Information collected through the EU Data Collection Framework (STECF, 2019b). **The FDI dataset is the only public source of georeferenced catch and effort data**.

Data released by STECF show the amount of catches obtained by different fishing fleet segments by c-square (0.5° latitude x 0.5° longitude). For the purpose of this evaluation, maps showing amounts of landings of deep-sea species caught by demersal trawlers and seine (DTS) have been produced for each year between 2015 and 2018, with 400m, 800m and 1 000m depth contours added based on our exploitation of the GEBCO database.

Maps have been produced by the evaluation team for all deep-sea species listed in Annex I of the DSAR and one series of maps for each main commercial deep-sea species (black scabbardfish, blue ling, grenadiers and Greenland halibut).

The next figure shows one example of the maps produced with landings of all deep-sea species listed in Annex I of the DSAR caught by demersal trawlers and seine represented for 2017.

Published FDI spatial data have two major limitations when it comes to assessing the extent to which bottom trawlers may have obtained catches of deep-sea species below 800m depth.

- The geographic reference of logbook declaration is the ICES statistical rectangle (0.5° lat x 1° long.). Consequently, further spatial disaggregation of data in STECF defined c-squares (0.5 lat. x 0.5° long) requires specific statistical treatments. The review of methodologies implemented by the different Member States for further spatial disaggregation described in Annex 2 of STECF (2019b) does not provide clear explanations, with only one Member State (France) indicating using VMS data for finer spatialisation of landing data. For other Member States, methods for disaggregation of landing data from statistical rectangle to c-square are unclear. In fact, review of data

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[141] ICES advice on Roundnose grenadier (Coryphaenoides rupestris) in subareas 6 and 7 and divisions 5.b and 12.b (Celtic Seas and the English Channel, Faroes grounds, and western Hatton Bank). Rng.27.5b6712b published 07.06.2018.

shows that in a number of case, the same landing data are in two latitudinally adjacent c-squares, suggesting replication or equal splitting of landing data obtained for an ICES rectangle in the two c-squares it contains. This assumption is supported by the fact that c-squares with deep-sea catches often appear in adjacent pairs on the maps.

- As the example shows, the spatial resolution available (0.5° x 0.5°) is too large to determine the extent to which catches occurred beyond 800m depth when the 800m isobath crosses a c-square. In such situations, it cannot be excluded that all catches shown in the c-square occurred in the portion of the c-square shallower than 800m. The only detectable "suspects" are catches in c-square entirely located at depths greater than 800m.

- Maps produced reveal a certain number of "suspects". Data associated with these suspects often reveal small quantities of deep-sea species (a few kilos), and sometimes reveal non-deep-sea species for which presence at depths below 800m is possible (e.g. hake, blue whiting, anglerfish), but also non deep-sea species for which presence at depths below 800m is highly unlikely given knowledge on their usual depth distribution (e.g. cod, haddock, megrims).

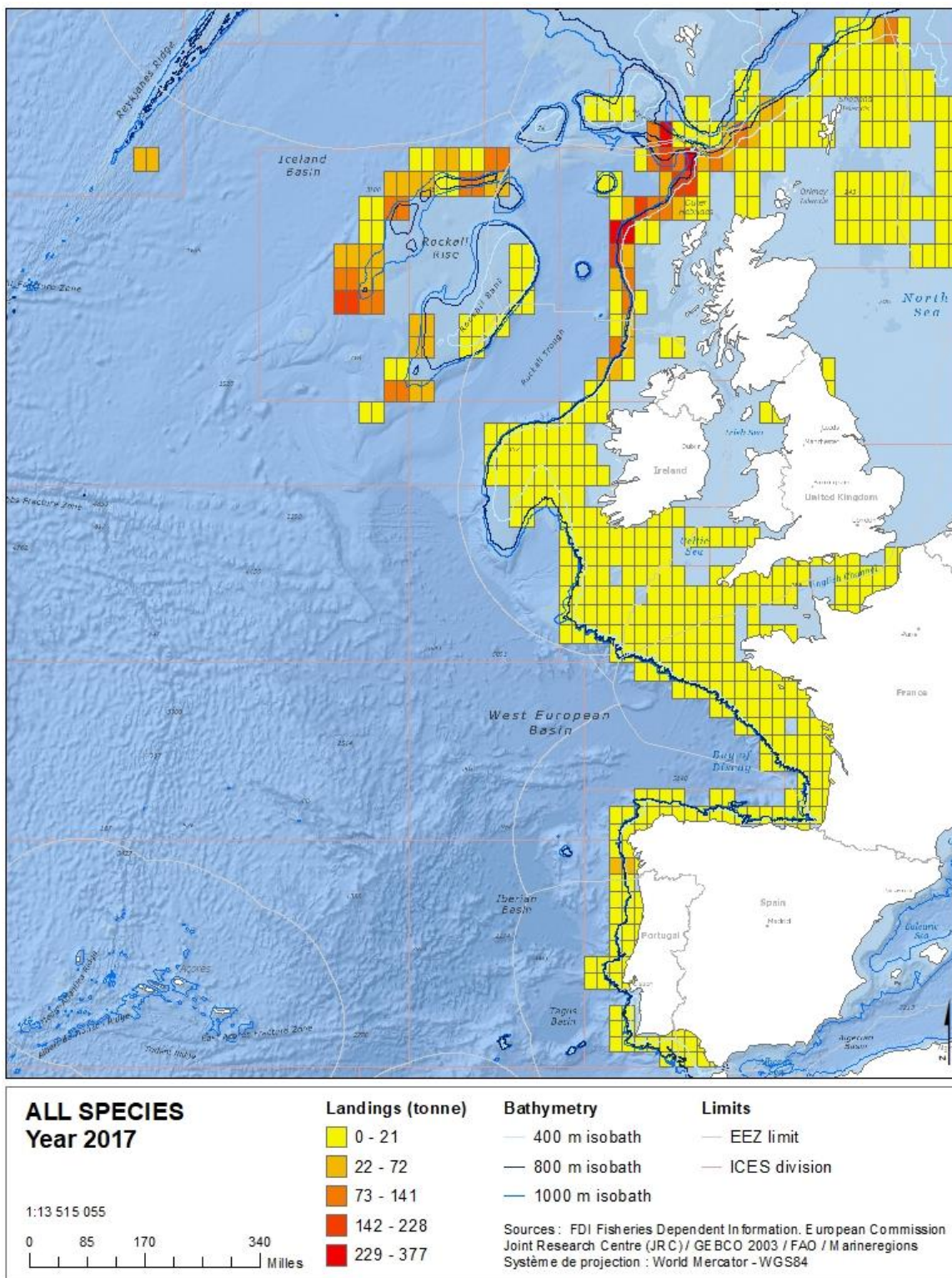In view of the limitations associated with this dataset, no further analysis is developed.

Figure 23: Map showing landings of all deep-sea species listed in Annex I to the DSAR by vessels using demersal trawl and seine (DTS) aggregated by c-square (0.5°x0.5°) for 2017 in EU waters and adjacent NEAFC waters.

Source: own elaboration based on FDI data published by STECF (2019b) and GEBCO database for isobaths

Note: the map does not show areas around Madeira and Canary Islands, both being part of the CECAF area. However, no catch of deep-sea species by vessels using demersal trawls and seine have been reported around these two outermost regions. This could be expected as bottom trawling is banned in these waters, as it is the case around the Azores.

Appendix 8: Case study 2 - the observer coverage

Background

Article 16 of the DSAR prompts Member States to establish an observer coverage to ensure collection of relevant, timely and accurate data on catch and by-catch of deep-sea species and encounters with VMEs and other relevant information for the effective implementation of the DSAR (Article 16.1). The DSAR observer coverage contributes to the DSAR objective of improving scientific knowledge on deep-sea species and their habitats, with data collected by observers onboard being included in DSAR data collection requirements described in Article 15 of the DSAR and further detailed in its Annex II, in particular point 3 referring to sampling of landings, discards and species belonging to the seabed ecosystem caught by fishing vessels engaged in a deep-sea métier.

The DSAR observer coverage measures apply to EU waters and international waters of CECAF areas 34.1.1, 34.1.2 and 34.2 (where all other DSAR measures apply) but also in the NEAFC Regulatory Area. For NEAFC international waters, DSAR mandated observer scheme on EU vessels goes beyond existing rules. NEAFC does not impose an observer scheme for deep-sea fisheries in its Regulatory Area, except in the frame of exploratory fishing outside existing fishing areas.

Implementation of the measure

Based on DSAR provisions, the mandated observer scheme may be understood as a scientific observer scheme, as opposed to a control observer scheme[142]. The wording of Article 14.b of the DSAR, feedback from Member States through their annual reports to the Commission and through our targeted consultations show that the DSAR observer scheme, is uniformly understood as a scientific observer scheme. However, some DSAR prescriptions (i.e. *[…] collection of relevant information for the effective implementation of this Regulation […]* art. 16.1) may also suggest that the observer coverage was expected to contribute to enforcement of DSAR provisions to some extent, like implementation of the VME encounter protocol or compliance with depth limits for example.

All Member States confirmed that DSAR observer coverage has been included in the observer coverage implemented to meet requirements of the EU Data Collection Framework (DCF). One Member State (Portugal) reported an exception with a specific observer scheme implemented on vessels authorised to fish on seamounts, but this concerns a limited number of vessels (seven units). While Member State authorities remain accountable for the results of the observer scheme, its practical implementation including sampling plan, data collection methodology, reporting, data quality check and data analysis is delegated to competent National scientific institutes. Implementation of the deep-sea observer scheme under the broader DCF observer scheme ensure that the deep-sea observer scheme follows a scientific methodology with sampling of different fishing vessels in different period of the year and in different fishing areas to obtain representative results.

Thus, the DSAR observer scheme has been integrated in the broader DCF observer scheme implemented by Member States to comply with the DCF Regulation (EU) 2017/1004. Assuming a deployment of deep-sea observers broadly commensurate with level of catches of deep-sea species compared to total catches, the DSAR observation scheme represents probably a small percentage of total DCF observer scheme for most Member States (around 1%, see Figure 3), except for Portugal (in the region of 4%).

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[142] According to Article 73 of the Control Regulation (EU) 1224/2009, control observers are onboard to monitor compliance with applicable rules of the Common Fisheries Policy. Their reports are submitted to competent authorities and may be used for further investigations. In case of detection of a serious infringement, the control observer is mandated to inform without delay the competent authorities of the flag Member State.

According to feedback received, scientific observers fulfil most of the requirements set out by Annex II to the DSAR for what concern deep-sea fish species. Sampling of vessels' catches of deep-sea species with separate sampling of the fraction of catches retained onboard and of the fraction of catches discarded is the core task of all DCF scientific observers with adequate training provided by the Member States for the identification of deep-sea fish species and for the implementation of sampling methods and for reporting of results through standardised forms. According to scientists working on deep-sea stock assessments, there are no particular issues in relation with observer data provided on catches of deep-sea species.

However, sampling of species belonging to the seabed ecosystem (i.e. VME indicator species listed in Annex III of the DSAR) seems more problematic. Most Member States conceded that scientific observers are not necessarily trained in the identification and weighing of VME indicator species at family or species levels. In addition, reporting forms used by observer are not adapted to record VME indicator species other than in a general 'comment' field. This suggests that VME indicator species, if present in vessels' catches, may go unreported at the full level of taxonomic details required by Annex II and III to the DSAR.

Data collected by scientific observers are subject to strict protection rules. Data submitted in response to STECF or ICES data calls are aggregated and/or anonymised, meaning that the identity of the vessel on which observation took place cannot be disclosed. Disclosures of individual data are possible, but only with prior formal agreement of the operator concerned. At Member State level, the general understanding is that scientific information collected onboard by observers are not shared with enforcement authorities and hence cannot be used to support the detection of infringements. Scientific observers' mandate is only to observe and report scientific data and while onboard, the observer must not interfere with any operations of the fishing vessel. Such understanding prevented scientific observers from being assigned with any enforcement tasks, such as monitoring compliance with the VME encounter protocol or with depth limits.

Quantitative targets for observer coverage

DSAR definition of quantitative targets

The DSAR (art. 16.1) defines quantitative targets for observer coverage in relation to gears used and to the type of fishing authorisations issued, pursuant to Article 5 of the DSAR: vessels using bottom trawl and set gillnet with a targeting fishing authorisation shall be subject to at least 20% observer coverage, and all other fishing vessels authorised to catch deep-sea species (e.g. longliners and pelagic trawlers with a targeting fishing authorisation and any other vessel with a by-catch fishing authorisation irrespective of the gear used) subject to at least a 10% observer coverage. Fishing vessels that, for security reasons are not suitable to receive an observer are exempted from observer coverage. In practice, this exemption may apply mostly to small-scale fishing vessels catching deep-sea species on a regular or seasonal basis e.g. small-scale fishing vessels registered in Portugal, Spain and France.

The main uncertainty with DSAR observer coverage targets is that the reference for calculating the percentage is not defined. Quantitative targets for observer coverage set by other binding instruments generally define the reference: for ICCAT and WCPFC, reference for percentage of observer coverage is fishing effort, for IOTC, reference is number of operations / sets for depending on gear type, for NAFO, reference is the number of fishing trips. As the example below shows, results in terms of coverage are different if the reference considered to establish the percentage is the number of vessels, the number of fishing trips, the number of fishing days or the number of fishing operations sampled by the observer while onboard.

Table 21: Examples of metrics used to monitor observer coverage on French trawlers engaged in deep-sea métiers

Observation indicators	Achieved in % total
3 vessels observed out of total of 4	75% coverage
20 fishing trips observed out of a total of 125 fishing trips	16% coverage

| 206 fishing days observed out of a total of 1 186 fishing days | 17% coverage |
| 118 fishing operations sampled out of 245 fishing operations observed | 48 % coverage |

Source: Gauduchon et al. (2020)
Note: the example shown concerns FR bottom trawlers in the West of Scotland and in the West of Ireland for 2018

Feedback from Research institutes confirmed that there are some margins of interpretation to define observer coverage. Two Member States (France and UK) indicated that the deep-sea observer deployment plan is prepared based on the number of vessels having a fishing authorisation with 20% or 10% of the number of vessels being included in the sampling plan. Three Member States (Spain, Netherlands and Portugal) reported that the observer deployment plan is prepared based on forecasts of the number of trips of the fleet concerned.

A further layer of uncertainty in the definition of observer coverage is that fishing vessels having a targeting or a by-catch fishing authorisation exploit deep-sea stocks in complement to exploitation of other stocks during the year or during the same fishing trip. The relatively low proportion of deep-sea catches in their total catches is evidence of the different exploitation patterns (see **Appendix 3** for key fleet segments). Scientific observers onboard such vessels will collect data on different fishing operations, some of them – and often a majority – not involving fishing operations in deep waters. The quantitative targets defined by the DSAR do not specify if observer coverage refers to coverage of fishing operations actually targeting deep-sea species[143], or fishing operations resulting in catches of deep-sea species, or to any fishing operation conducted by fishing vessels having a by targeting or a by-catch fishing authorisation.

Comments on fishing vessels subject to increased observer coverage

Article 16 of the DSAR foresees a 20% observer coverage on vessels using bottom trawls or bottom set gillnets with a targeting fishing authorisation, and 10% for all other vessels with a targeting or a by-catch fishing authorisation.

A higher observer coverage of bottom trawlers with a targeting fishing authorisation is relevant as bottom trawlers represent 40 to 45% of total EU deep-sea catches (Figure 4) and include in their catches a large number of deep-sea species taxa (Table 6). Bottom trawlers are also the main vessels likely to catch VME indicator species. The higher observer coverage for bottom set gillnets seems less relevant as these vessels are prohibited by law (see section 4.3.2) from targeting deep-sea species below 200m and hence unlikely to request a targeting fishing authorisation, and are also unlikely to catch VME indicator species (no evidence of a VME encounter has been defined for this type of gear by the DSAR nor by any RFMO). Introduction of a higher observer coverage for bottom set gillnet was possibly established by the co-legislators as an additional means to control compliance with the 600m depth ban for gillnets but the scientific nature of the observation scheme prevents any exploitation of observer data for enforcement purposes.

Member States compliance with quantitative targets

In view of the scope for interpretation of quantitative targets and the likely aggregation of data collected on fishing vessels catching deep-sea species as by-catches (i.e. not qualifying for the designation of a deep-sea métier) within broader demersal métiers, independently of the type of fishing authorisation issued, it is probably impossible to have a uniform assessment of Member States compliance with DSAR quantitative objectives, in terms of observer coverage.

Annual Member States' reports to the Commission pursuant to Article 15.5 of the DSAR do not provide comprehensive quantitative information in this regard. However, the question asked by the Commission was not specific on quantitative achievements "i.e. *How has an observer program been established at national level in accordance with Article 16.1 of the DSAR?*". In addition, Article 15.5 of the DSAR does not foresee mandatory reporting on the DSAR observer scheme.

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[143] Hence qualifying for the definition of a deep-sea métier at the meaning of the EU DCF

Reports by Member States on implementation of DCF sampling plans could provide an independent source of verification. However, DCF reports consulted for four Member States indicated that two Member States (France and Portugal) identify deep-sea métiers in their sampling plans, with two others (Spain and Netherlands) not reporting separately for deep-sea métiers. Furthermore, deep-sea métiers do not cover all métiers catching deep-sea species.

Our targeted consultation did not produce better results. Member States authorities appear to have partial information available on the performances of the DSAR observer scheme which is delegated to scientific institutes under the broader DCF umbrella. However, some Member States reported being compliant with the DSAR quantitative objectives for fishing vessels engaged in deep-sea métiers (Spain, France, Portugal). However, the number of vessels subject to higher percentages is generally reduced (for example only one vessel for Spain, seven vessels in Portugal, eight vessels for Netherlands) according to consultations. In the example of Spain and Portugal, achievements may fall short of the DSAR objectives when considering the relatively high numbers of targeting (and by-catch fishing authorisations) issued.

For fishing vessels catching deep-sea species in quantities not qualifying for designation in a deep-sea métier, feedback from most Member States tend to indicate that observer coverage is not specific. It is generally aligned on observer coverage deployed under the DCF for main national métiers, meaning coverage rates varying around 1% of total number of operations; i.e. below the 10% mandated by the DSAR. This suggests that the DSAR observer scheme is primarily understood by most Member States as applying to fishing vessels for which a targeting fishing authorisation has been issued and when such fishing vessels actually target deep-sea species. No specific coverage would be applied to fishing vessels for which catches of deep-sea species are relatively low placing these vessels in other métiers strata, especially since these vessels are unlikely to encounter VMEs during the normal course of their operations.

No Member States reported having imposed sanctions foreseen by Article 14.b of the DSAR in case of failure to take onboard a scientific observer, which suggests that fishing vessels falling under the scope of Article 16 of the DSAR boarded scientific observers, as requested by their Member States.

Adequacy of DSAR quantitative targets

Article 16.3 of the DSAR established provisions for reviewing the observer coverage based on scientific advice, in particular to evaluate if observer coverage set out by the DSAR is sufficient to prevent significant adverse impacts on VMEs within the framework of deep-sea fishing.

As expected by the DSAR, the Commission submitted a request to ICES in February 2018. ICES answered in March 2018 that it was not in a position to reply to the request given lack of information on the degree of implementation of the DSAR and thus the available data requested for the evaluation was not available. Further exchanges with ICES Secretariat in the context of this evaluation further explained the ICES rationale for not being in a position to provide an advice on observer coverage:

- Before evaluating observer coverage, ICES mentioned that it would have been essential to assess the extent to which Member States were compliant with sampling requirements set out by the DSAR before it could be established whether the collected data provides sufficient scientific basis to advise on meeting the objectives of conserving deep water species and VMEs.
- ICES also mentioned that a relevant data call could have come from the Commission to the national management authorities implementing the DSAR rather than from ICES to the national correspondents responsible for the DCF.

As such, the ICES argument on the need to assess compliance with DSAR current provisions before considering revisions seems very valid.

The added-value of data collected through the DSAR observer scheme

The DSAR observer scheme mandates collection of scientific data i) on landings and discards of deep-sea species listed in Annex I to DSAR and ii) on species belonging to the deep-sea ecosystem, in particular species being considered as VME indicator species.

Landings and discards of deep-sea species listed in Annex I to DSAR

Sampling of landings and discards is the core objective of the observer scheme implemented under the DCF, to collect scientific data on any type of fishing métier to support stock assessment. Collection of scientific data on deep-sea species landings and discards is included under the scope of the DCF regulations with no specific arrangements required beyond a specific coverage. In particular, the DCF regulations do not impose quantitative targets in terms of observer coverage. None of the entities consulted reported issues in relation with the implementation of this observer task.

Feedback from scientists working on stock assessment suggests that scientific data collected on deep-sea species are adequate to support stock assessment, in particular to increase knowledge on discards. Enhanced quality of scientific data is evidenced by the likely forthcoming upgrade in ICES category 1 of two deep-sea stocks (black scabbardfish and greater silver smelt). For deep-sea species subject to small catches (e.g. by-catch species), scientific data collected by observers will remain insufficient to identify MSY of MSY proxies, even if the observer coverage is increased. A similar issue is found for stocks for which DSAR measures contribute to a decrease in commercial catches like for example grenadiers which is now downgraded to lower ICES categories (see page 21). These views are shared by fishermen associations of several Member States (Spain, France, UK) who raised concerns that decreasing the amount of catches of deep-sea species will undermine the availability of fisheries dependent data for stock assessment purposes.

From a scientific perspective, it has been reported that coverage of deep-sea fishing vessels by scientific observers brings added-value compared to scientific port sampling. On certain types of vessels, it is common practice to behead black scabbardfish before storing in the vessels' holds. Length measurements made by scientific observers onboard before processing provide scientific information that would not be available otherwise. However, this is not unique to vessels catching deep-sea species but to any vessel on which catches are processed onboard before landing.

Deep-sea ecosystems

Contributions of the observer scheme to the protection of VMEs is specific to the DSAR. The DCF does not include under its scope sampling of seabed species by observers.

Based on our own interpretation of the DSAR, observer contribution to the protection of deep-sea ecosystems was expected through i) support to implementation of the VMEs encounter protocol, and ii) collection of data on seabed species, in particular the VME indicator species listed in Annex III of the DSAR.

- For support to implementation of the DSAR VMEs encounter protocol, responsibility for identifying VMEs encounters based on thresholds of VME indicator species lies primarily with the fishing master who must immediately move away from the area. Measuring catches of VME indicator species and assessing their quantities against thresholds, while onboard and then suggesting an evidence of an VME encounter to the fishing master is beyond scientific observers' mandate.

- For identification of VME indicator species, most Member States conceded that scientific observers are not trained to identification of VMEs indicator species down to required taxonomic levels. Some Member States also indicated that observer reporting forms do not allow reporting of VMEs species other than in a general unformatted comment field. Under these conditions, the contribution of scientific observers to knowledge on VMEs was likely to be minimal. Evidence of this is that ICES VME database does not contain recent records of VME indicator species detected from commercial vessels in the North-

East Atlantic, although this could also suggest that no such VME indicator species have been found in the catches by observers while they were active onboard (due to working time regulations, an observer samples roughly half of the hauls made by a trawler).

Other added-value of the DSAR observer scheme

According to the scientific institute of one Member State (France), a clear added-value of the DSAR is that boarding of scientific observers is mandatory for fishing operators, with an obligation for Member States to withdraw fishing authorisations in case of refusal (Article 14b of the DSAR). Under the regular DCF scientific observer coverage, fishing operators may refuse to take onboard a scientific observer without being liable for sanctions. As a result, onboard scientific coverage of fishing vessels having been issued a targeting deep-sea fishing authorisation is substantially higher than regular DCF sampling by observers of fishing vessels in other métiers (≈ 15% of deep-sea fishing trips observed by comparison with a ≈ 1% rate for other métiers). However, this opinion is not shared by other Member States (Germany, Spain and Netherlands) who reported that DSAR prescriptions did not add particular value to regular DCF observer schemes, with the regular DCF sampling effort being assessed as sufficient to cover catches of deep-sea species.

Conclusions of the case study

The main benefits of the DSAR observer scheme

- The DSAR observer scheme is implemented under scientific methodologies developed under the EU DCF framework ensuring robustness and representativeness of scientific data collected. Feedback from scientists working on the assessment of deep-sea stocks indicate that scientific observations at sea are useful to generate relevant scientific data on discards and on target species in particular for the latter when processed onboard before landing.
- Under the DSAR, taking onboard a scientific observer is a legal obligation with dedicated administrative sanctions in case of failure to comply. According to some Member States, this contributes to an increase in the coverage rate in comparison to regular DCF observer schemes under which acceptance of a scientific observer by fishing masters is on a voluntary basis.

The main shortcomings of the DSAR observer scheme

- Quantitative targets set out by the DSAR (20% or 10%) are not defined. This leaves some room for interpretation for Member States and prevents uniform assessment of compliance with the Regulation. Undefined targets also hinder provision of scientific advice on the extent to which DSAR quantitative targets are sufficient to meet DSAR objectives, in particular to prevent significant adverse impacts on VMEs.
- It appears from consultations that the DSAR observer scheme is applied to vessels issued with a targeting fishing authorisation when such vessels actually target deep-sea species. Other vessels are covered by the DCF but without being subject to a differentiated sampling rate. Although the logic for this interpretation can be understood in view of the likely low impact of by-catch vessels on VMEs and deep-sea stocks, it is a deviation from DSAR rules.
- The potential contribution of DSAR observer scheme to protection of adverse impacts on VMEs within the framework of deep-sea fishing is probably low. As observers are being assigned on scientific tasks, they cannot monitor compliance with existing rules such as VME encounter protocols or depth limits. The absence of VME records of indicator species registered in ICES VME database originating from the sampling on an EU commercial vessel suggests that the contribution of the DSAR observer scheme to scientific knowledge on deep-sea habitats has been minimal.

Appendix 9: Evaluation Question Matrix used to assess the performances of the DSAR

Evaluation question	Sub-question	Judgment criteria	Indicators	Sources of evidences
RELEVANCE				
To what extent are the existing measures under the DSAR still relevant?	To what extent was there a need to adopt the measures under the DSAR?	Adoption of the DSAR corresponded to the needs and EU objectives at the time of its adoption	Identification of the needs at the time of the set-up of the DSAR Views of Citizens and stakeholders	DSAR Impact assessment (COM(2012) 371 final / SWD(2012) 203 final) Views of citizens and stakeholders (PC) Feedback from stakeholders (targeted consultations)
	To what extent does this need continue to exist?	Measures under the DSAR continue to respond to current needs and EU objectives	Citizens and stakeholders confirm current needs Identification of evolving challenges and changing needs of the fishing industry	Views of citizens and stakeholders (PC) Feedback from stakeholders (targeted consultations) State of play of EU deep-sea fishing industry (task 1)
	To what extent were measures under the DSAR appropriate to address the needs, do they continue to be appropriate to respond to the needs?	The design of measures under the DSAR were suitable to address the identified needs originally and continue to respond to current needs.	Stakeholders views and documentary review confirm that the measures of the DSAR are relevant to address the needs identified	Views of citizens and stakeholders (PC) Feedback from stakeholders (targeted consultations) ICES publications on status of deep-sea stocks (WGDEEP and WGEF) and on VMEs (WGDEC)
EFFECTIVENESS				
To what extent was the DSAR effective to protect the deep-sea biological environment?	To what extent was the DSAR effective to protect deep-sea vulnerable ecosystems?	Extent that the DSAR has led to the protection of VMEs in the area of application of the DSAR.	Number of VME encounters reported Number of VMEs protected, or proposed for closure based on information from DSAR measures	NEAFC recommendations Scientific rationale for closures of VMEs in EU waters Results of DSAR observer scheme in relation to reporting of VMEs species Feedback from targeted consultations (e.g. science providers, Commission)
	To what extent was the DSAR effective to preserve deep-sea fish stocks?	Extent that stocks of deep-sea species (as defined by the DSAR) are exploited sustainably in the area of application of the DSAR.	Stock status of deep-sea species	ICES advices on status of deep-sea-stocks Feedback from targeted consultations (e.g. science providers, Commission)

Evaluation question	Sub-question	Judgment criteria	Indicators	Sources of evidences
	To what extent was the DSAR effective at improving scientific knowledge on the deep-sea environment?	DSAR supported a flow of good quality scientific data for use by providers of scientific advices	Number of VMEs protected, or proposed for protection, based on information collected under the DSAR Number of stocks for which scientific advice could be obtained Peer review / scientific quality control systems were in place to validate scientific data collected by MS under the DSAR	Scientific rationale for existing or proposed VMEs closures ICES advices on status of deep-sea-stocks Reports of ICES WGDEEP / WKREG Feedback from targeted consultations (e.g. science providers, Commission)
EFFICIENCY				
To what extent is the DSAR cost-effective?	What are the average DSAR implementation costs for MS?	Extent that it is possible to identify implementation costs for the concerned Member States	MS Administrative costs compared to socio-economic benefits of DSAR Benchmarking of administrative costs	Administrative costs calculation (sub-task 1.4) Assessment of socio-economic impacts of deep-sea fisheries (sub-task 1.1)
	What are the average DSAR implementation costs for fishing operators?	Same as above but for fishing operators	Administrative costs compared to profits	Administrative costs calculation (sub-task 1.4) Profit estimates from exploitation of deep-sea species (sub-task 1.1)
	What are the items which have the most cost-generating impact?	None (supporting evidence)		Administrative costs calculation (sub-task 1.4)
Is there scope for simplification of DSAR design and operation?		None (supporting evidence)	Identification of administrative costs stemming solely from the DSAR implementation	Administrative costs calculation (sub-task 1.4) Feedback from stakeholders (e.g. Commission, ME authorities, deep-sea fishing operators)
COHERENCE				

Evaluation question	Sub-question	Judgment criteria	Indicators	Sources of evidences
To what extent is the DSAR externally coherent?	To what extent is DSAR coherent with EU international commitments under UN Resolutions 61/105 and 64/72	The DSAR provides measures to fully enforce UN resolutions in the waters falling under its scope	Documentary review and stakeholders' feedback confirm that there are no contradictions but synergies between the DSAR and other EU international commitments	Analysis of relevant instruments Feedback from citizens and stakeholders (PC and targeted consultations)
	To what extent is the DSAR coherent with its obligations under NEAFC Recommendation 19 2014	There is no contradiction/duplication/overlapping and there are synergies between the DSAR and NEAFC recommendation	Documentary review and stakeholders' feedback confirm that there are no contradictions but synergies between the DSAR and NEAFC obligations	Same as above
	To what extent is DSAR coherent with other non-CFP EU instruments on protection of the marine environment (MSFD, Habitat Directive)	There is no contradiction/duplication/overlapping and there are synergies between the DSAR and relevant EU instruments	Documentary review and stakeholders' feedback confirm that there are no contradictions but synergies between the DSAR and other non-CFP instruments	Same as above
To what extent is the DSAR internally coherent?	To what extent is DSAR coherent with the CFP Regulation and CFP-instruments in relation to Control, Data collection and VMEs protection	There is no contradiction/duplication/overlapping and there are synergies between the DSAR and other CFP instruments	Documentary review and stakeholders' feedback confirm that there are no contradictions but synergies between the DSAR and other CFP instruments	Same as above
EU ADDED VALUE				
To what extent does EU intervention through the DSAR add value to the objective of protecting the deep-sea environment?	What is the additional value resulting from the EU measures under the Deep-sea Access Regulation?	Objectives of the DSAR could not be achieved solely by actions from MS	Expert judgment.	Results of evaluation of relevance, effectiveness and coherence Feedback from citizens and stakeholders (PC and targeted consultations)
	What would be the effects of discontinuing the DSAR all other things being equal?	Discontinuation of the DSAR does not provide for a similar level of protection of the deep-sea environment	Expert judgment	Results of evaluation of relevance, effectiveness and coherence Feedback from citizens and stakeholders (PC and targeted consultations)

Appendix 10: Abridged versions of relevant paragraphs of the different Resolutions of the United Nations General Assembly considering management of deep-sea fisheries

Resolution 59/25 (17 November 2004)
Section IX
Responsible fisheries and the marine ecosystem

66. Calls upon States to take action urgently and consider on a case by case basis and on a scientific basis the interim prohibition of destructive fishing practices, including bottom trawling, that has adverse impacts on VMEs located beyond national jurisdiction until such time as appropriate measures have been adopted

67. Calls upon RFMOs or arrangement with the competence to regulate bottom fisheries urgently to adopt appropriate conservation and management measures to address impacts of destructive fishing practices, including bottom trawling that has adverse impacts on VMEs and to ensure compliance with such measures

68. Call upon member of RFMO or arrangement without competence to regulate bottom fisheries to expand their competence

69. Calls upon States urgently to cooperate in the establishment of new RFMOs where necessary and appropriate, with the competence to regulate bottom fisheries and the impacts of fishing on VMEs in areas where no such relevant organisation or arrangement exists

Resolution 61/105 (8 December 2006)

Section X
Responsible fisheries in the marine ecosystem

81. Reaffirms the importance it attaches to paragraphs 66 to 69 of its resolution 59/25 concerning the impacts of fishing on VMEs.

82. Welcomes important progress made by States and RFMOs to address impacts of fishing on VMEs

83. Calls upon RFMOs to implement measures in accordance with precautionary approach, ecosystem approaches and international law as a matter of priority, but no later than 31/12/2008:
- 83 a) to assess on the basis of the best scientific information whether individual bottom fishing activities should have significant adverse impacts on VMEs, and to ensure that if it is assesses that these activities would have significant impacts, they are management to prevent such impacts, or not authorised to proceed
- 83 b) To identify VMES and determine whether bottom fishing activities would cause significant adverse impacts to such ecosystems and long-term sustainability of deep-sea fish stocks, inter alia, by improving scientific research and data collection and sharing, and through new and exploratory fishing
- 83 c) In respect of areas where VMEs are known to occur or are likely to occur based on the best available scientific information, to close such areas to bottom fishing and ensure that such activities do not proceed unless conservation and management measures have been established to prevent significant adverse impacts on VMEs
- 83 d) To require members of the RFMOs to arrangements to require vessels flying their flag to cease bottom fishing activities in areas where, in the course of fishing operations, VME are encountered, and to report the encounter so that appropriate measures can be adopted in respect of the relevant site

85 Calls upon those States participating in negotiations to establish a RFMO competent to regulate bottom fisheries

86 Calls upon flag States to either adopt and implement measures in accordance with paragraph 83 of the present resolution, or cease to authorise flag fishing vessels to conduct bottom fisheries in areas beyond national jurisdiction where there is no RFMO with competence to regulate such fisheries

89 Commends the FAO for its work on the management of deep-sea fisheries in the high seas […] developing standards and criteria in identifying VMEs and the impacts of fishing on such ecosystems, and establishing standards for the management of deep-sea fisheries, such as through the development of an international action plan.

Resolution 64/72 (4 December 2009)

Section X
Responsible fisheries in the marine ecosystem

117. Welcomes the substantial work of FAO, in particular the development and adoption of the Guidelines and urges States and RFMOs to ensure that their actions in sustainably managing deep-sea fisheries are consistent with the guidelines

119. Considers that on the basis of the review carried out in accordance with paragraph 91 of 61/105, further actions are needed to strengthen implementation of paragraphs 80 and 83 to 87 of resolution 61/105 and calls to:

- 119 a) conduct the assessments called for in paragraph 83 a) of resolution 61/105 consistent with the Guidelines, and ensure that vessels do not engage in bottom fishing until such assessment have been carried out
- 119 b) conduct further marine scientific research and use the best scientific and technical information available to identify where VMEs are known to occur or are likely to occur and adopt conservation and management measures to prevent significant adverse impacts on such ecosystems consistent with the Guidelines, or close such areas until conservation and management measures have been established, as called for in paragraph 83 c) of resolution 61/105
- 119 c) Establish and implement appropriate protocols for implementation of paragraph 83 d) of resolution 61/105 including what constitutes an evidence of an encounter with a VME, in particular threshold levels and indicator species based on scientific advice and consistent with the Guidelines, and taking into account any other CMM to prevent significant adverse impacts on VMEs included those based on the results of assessments carried out pursuant to 83 a) of Res. 61/105 and paragraph 119 a) of the present resolution
- 119 d) Adopt conservation and management measures, including MCS measures, on the basis of stock assessments and the best available scientific information to ensure long term sustainability of deep-sea fish stock and non-target species, and the rebuilding of depleted stocks consistent with the Guidelines, and where scientific information is uncertain, unreliable or inadequate, ensure that the conservation and management measures are established consistent with the precautionary approach, including measures to ensure that fishing effort, fishing capacity and catch limits, as appropriate, are at levels commensurate with long term sustainability of such stocks

120 Calls upon flag states […] to implement measures in accordance with paragraphs 83, 85 and 86 of Resolution, paragraph 119 of the present resolution and international law and consistent with the Guidelines, and not to authorise bottom fishing activities until such measures have been adopted and implemented.

Appendix 11: List of entities subject to targeted consultations with indication on feedback provided

MS	Name entity	Responded	Group*
BE	BE Fisheries	Yes	MSA
DE	Deutsche Fischfang-Union GmbH & Co. KG, Cuxhaven	Yes	FC
DE	Federal Ministry for Food and Agriculture (BMEL)	Yes	MSA
DE	Deutscher Hochseefischerei-Verband	Yes	FA
DE	Thünen-Institut für Seefischerei	Yes	RSC
DK	DK Fisheries	Yes	MSA
EE	EE Directorate for Fisheries	Yes	MSA
ES	General Secretary for Fisheires	Yes	MSA
ES	Cooperativa de Armadores de Pesca del Puerto de Vigo (ARVI)	Yes	FA
ES	PescaGalicia – Arpeca - Obarco (Grandsol)	Yes	FA
ES	Puerto de Celeiro / OPP 77	Yes	FA
ES	Organización de Productores Pesqueros de Lugo (OPP Lugo)	Yes	FA
ES	AGARBA	No	FA
ES	FECOPPAS - Asturias	Yes	FA
ES	OP Conil	Yes	FA
ES	Federacion de cofradias de la provincia de Cadiz	Yes	FA
ES	Federacion de cofradias de la provincia de Las Palmas	No	FA
ES	Federacion de cofradias de la provincia de Tenerife	No	FA
ES	Cofradia de Pesacdores El Hierro (Canary Isl.)	Yes	FA
ES	Instituto Español de Oceanografía	Yes	RSC
FI	FI Fisheries	Yes	MSA
FR	Scapêche	Yes	FC
FR	DPMA	Yes	MSA
FR	Bloom Association	Yes	NGO
FR	Pêcheurs de Bretagne	Yes	FA
FR	UAPF	Yes	FA
FR	FROM Nord	Yes	FA
FR	CNPMEM	Yes	FA
FR	IFREMER (ICES WGDEEP)	Yes	RSC
FR	IFREMER Obsmer	Yes	RSC
IE	DAFM	Yes	MSA
IE	Killybegs Fishermen's Organisation	Yes	FA
IE	Irish South and West PO	No	FA
LT	LT Directorate for Fisheries	Yes	MSA
LV	LV Directorate for Fisheries	Yes	MSA
NL	NL Director of fisheries	Yes	MSA
NL	PFA	Yes	FA
NL	Wageningen University & Research	Yes	RSC
PL	PL Directorate for Fisheries	Yes	MSA
PT	Direcção Geral de Recursos Marinhos - DRGM	Yes	MSA
PT	Direção Regional Pescas - Azores	Yes	MSA
PT	Direcção Regional Pescas - Madeira	Yes	MSA
PT	VianaPesca - Cooperative of fisherman and ship-owners from the north of Portugal	No	FA
PT	OPCentro - Cooperative of fisherman and ship-owners from the Center of Portugal	No	FA
PT	Anopcerco – Associação Nacional das Organizações de Produtores da Pesca do Cerco	No	FA
PT	ADAPI - Association of industrial fisheries ship-owners – trawlers	Yes	FA
PT	OlhãoPesca - Association of fisherman and ship-owners from the Algarve	No	FA
PT	APEDA (association of demersal fishers) Azores	Yes	FA
PT	APASA (association of tuna fishers) Azores	No	FA

MS	Name entity	Responded	Group*
PT	Federation of Fisheries of the Azores (based in S. Miguel)	Yes	FA
PT	Porto de Abrigo	No	FA
PT	Assoc Graciosa	No	FA
PT	CoopescaMadeira (cooperative of fisherman and ship-owners from Madeira)	No	FA
SE	Division for Fisheries	Yes	MSA
UK	Defra	Yes	MSA
UK	Lunar Fish Producers Organisation / Lunar Fishing Company Limited	Yes	FA
UK	Scottish Fishermen's Organisation / SFO LTD	No	FA
UK	National Federation of Fishermen's Organisations (NFFO)	Yes	FA
UK	Scottish White Fish Producers Association (SWFPA)	Yes	FA
UK	Marine Scotland	Yes	RSC
EU	Deep-Sea Coalition	Yes	NGO
EU	WWF	Yes	NGO
EU	Oceana	Yes	NGO
EU	Client Earth	Yes	NGO
EU	Dutch Elasmobranch Society	Yes	NGO
EU	Sciaena	Yes	NGO
EU	EFCA	Yes	OTH
EU	North Western Waters AC	Yes	OTH
EU	South Western Waters AC	Yes	OTH
EU	Pelagic AC	No	OTH
EU	Long Distance AC	No	OTH
EU	NEAFC	Yes	OTH
EU	ICES WGDEC	Yes	RSC

Note: Group*: FA: fishermen association, FC: fishing company, MSA Member State authority, NGO: Non-governmental association, OTH: other, RSC: Research institution

Appendix 12: Synopsis report of consultation activities

This synopsis report summarises the results of all the consultation activities conducted in relation to the evaluation of the DSAR. Consultations activities included i) targeted consultations of stakeholders having a stake or a stated interest in the management of deep-sea fisheries through the DSAR and ii) a public consultation to gather opinions on the DSAR from any citizen or stakeholder wishing to provide feedback on the DSAR. Targeted consultations have been implemented between March and June 2020, and Public consultation was open for feedback between 13 May 2020 and 5 August 2020.

Before the consultation activities, the Commission published the roadmap to inform citizens and stakeholders about its initiative to evaluate the DSAR. The roadmap was published on 17 September 2019 on EU's Better Regulation website. No feedback on the roadmap was received before closing date of 15 October 2019.

Targeted consultations

Targeted consultation strategy

The targeted consultation strategy aimed at contacting EU stakeholders that have a high interest and/or a high stake in deep-sea fisheries to collect technical information in support of the study, and to gather opinions and perceptions on the DSAR and on its implementation. The consultation strategy has been tailored to the groups of stakeholders concerned by the DSAR:

- stakeholders in charge of the implementation of the DSAR (e.g. relevant Commission services and EU agencies, MS authorities, science providers);
- stakeholders impacted by the provisions of the DSAR (e.g. operators of the fishing industry);
- stakeholders having a stated interest in the DSAR (e.g. NGOs).

A preliminary list of stakeholders was prepared during the inception phase based on our knowledge of the fishing sector, and shared with the Steering Committee. The initial list was extended during the research phase to include other entities having an interest in deep-sea fisheries based on recommendations from certain stakeholders and from the Commission.

In total, 73 entities were approached between April and June 2020, with 59 of them answering (81%). The list of targeted entities is shown in **Appendix 11**

The next figure shows details of targeted consultation outcomes for the main groups of stakeholders approached.
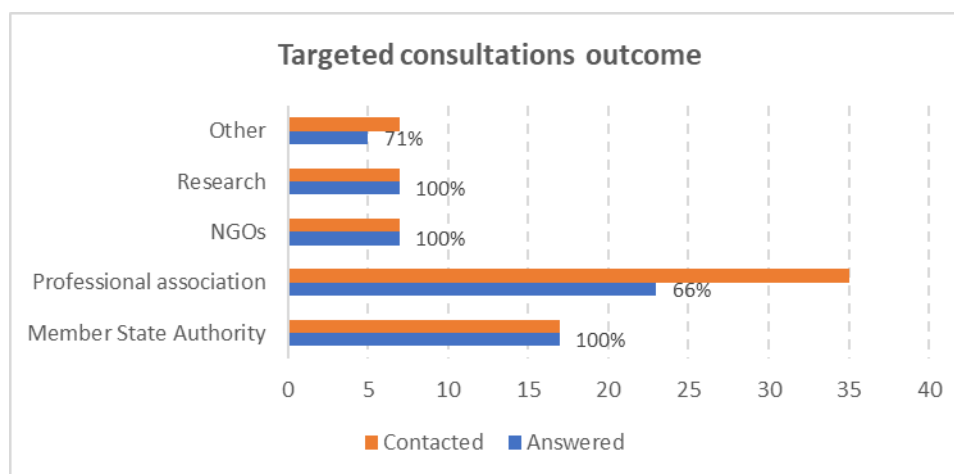
- Member States' authorities: all 15 Member States having some of their flag vessels active in the North East Atlantic[144] contributed to the evaluation, plus the authorities of the two autonomous regions of Portugal (Azores and Madeira)
- Professional associations: feedback was provided by associations representing fishing operators involved in deep-sea fisheries in South Western waters and North Western waters (including NEAFC Regulatory Area), and representing large-scale and small-scale fleets. By Member State, feedback has been received from professional associations representing fishing operators from DE (2), ES

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[144] BE, DE, DK, EE, ES, FI, FR, IE, LV, LT, NL, PL, PT, UK and SE

(8), FR (5), IE (1), NL (1), PT (3) and UK (3). In the case of ES and PT, feedback received included contributions from fishing operators based in the outermost regions.

- Research: feedback has been received from ICES (Secretariat and chairs of WGDEEP and WGDEC), and from research institutes of DE, ES, FR, NL and UK.
- NGOs: feedback was provided by the Deep-Sea Coalition as a group, and individually by some of its members.
- Other: none of the four Advisory Councils[145] contacted submitted an official position paper in response to our consultation proposal. However, two of them confirmed dissemination of our questionnaire to their members, and transmitted individual contributions received. Other entities of this group providing feedback include the European Fisheries Control Agency and the NEAFC Secretariat.

Targeted consultation tools

The initially planned consultation methodology privileged direct consultations through face-to-face interviews. However, as a result of the Covid-19 outbreak and resulting social distancing measures that culminated during the research phase of the study (March-June 2020), consultations took place remotely through submission of written questionnaires, with follow-up discussions though telephone or videoconference systems as appropriate.

Three different types of questionnaires have been prepared during the inception phase to ensure adaptation of the questions to the targeted audience:

- one questionnaire for Member State authorities, with one version for Member States issuing deep-sea fishing authorisations and an abridged version for Member States not issuing deep-sea fishing authorisations;
- one questionnaire for fishermen associations;
- one questionnaire for Advisory Councils and NGOs.

The different questionnaires were included in the inception report submitted to the Steering Committee for review prior to their dissemination to targeted entities.

In view of the important involvement of certain Member States in deep-sea fisheries, the questionnaires for Member States and for fishermen associations were translated into DE, ES, FR and PT to improve their accessibility.

Summary of feedback received

All Member States and NGOs consulted acknowledged a need for a revision of the previous deep-sea access regulation (EC) 2347/2002 to ensure better alignment with recommendations of the United Nations General Assembly on the protection of deep-sea stocks and their habitats, in particular the vulnerable marine ecosystems (VMEs) that were left unprotected from damaging bottom gear under the previous regulation. However, this opinion was not shared by certain fishermen associations (Germany, Spain and Netherlands) on the ground that existing conservation and management measures were sufficient to regulate fishing in deep waters, and that fishing for deep-sea species does not necessarily mean generating significant adverse impacts on VMEs.

All stakeholders consulted confirmed the need for a specific management scheme of deep-sea fisheries in view of their particularities underpinning design of dedicated measures for protection of deep-sea habitats, management of fishing capacities and monitoring and control. However, stakeholders based in outermost regions of Azores, Madeira and Canary Islands reported that management of deep-sea fisheries should take into account the specificities of their regions through the CFP regionalisation process, instead of being centralised and uniform across the EU.

Among the different provisions of the DSAR, the fishing authorisation regime and the 800m bottom trawl ban concentrated most of the feedback received from stakeholders:

> For certain Member States (Germany and Netherlands) and professional association (Germany, Spain, Netherlands and Portugal), while in principle a **fishing authorisation regime** is a relevant tool to identify and manage fishing fleet exploiting deep-sea fisheries, the DSAR fishing authorisation regime based on a list of designated deep-sea species had the unexpected effect of bringing under the scope of the regulation fishing vessels using gear unlikely to generate significant adverse impacts on VMEs (midwater trawls and handlines) and fishing vessels, mostly small-scale fishing vessels, catching deep-sea species in waters shallower than 400m with the example of red seabream

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[145] NWW-AC, SWW-AC, LD-AC and PEL-AC

frequently reported. In this latter case, fishermen associations (Spain) questions the relevance of the deep-sea access regime in view of the unregulated fishing pressure deployed by recreational fishermen on this species on the same fishing grounds. In addition, certain fishermen associations and NGOs put forward that a fishing authorisation regime should include components related to the gear used and the depth exploited rather than being based solely on a list of designated deep-sea species.

The **800m bottom trawl ban** is supported by NGOs in view of the likely effectiveness of the measure to protect deep-sea species and VMEs beyond that depth. However, NGOs support the establishment of further restrictions in the use of fishing gears which have a negative impact on unwanted species and VMEs (like the ban of bottom trawling in shallower depths or restrictions in the use of bottom gillnets). For all fishermen associations representing fishing operators in EU Mainland, the 800m bottom trawl ban is felt as an arbitrary measure not supported by scientific evidence. According to them, fishing bans must be specific in space, and created with adequate scientific justification, otherwise they are illegitimate. From an operational perspective, fishermen associations confirmed that the main effect of the 800m trawl ban is to decrease accessibility to deep-sea species such as grenadiers in North Western Waters. In South Western Waters, the 800m bottom trawl prohibition may force fishing vessels to operate closer from the coast as a result of the narrower continental shelf compared to North Western Waters. Fishermen associations in outermost regions recall that bottom trawling has been phased out from their waters since several years. Member States' authorities did not comment on the relevance or effectiveness of the measure, but indicated that it was seen as a reasonable compromise to reconcile opposite positions of the civil society and of fishermen associations.

Concerning two other flagship measures of the DSAR (i.e. the footprint by Article 7 and the VMEs spatial protection by Article 9), fishermen associations have shared opinion with some associations (Germany, Spain and UK) supporting the measures replicating those already implemented in the NEAFC Regulatory Area, and other (Spain, France, Netherlands and Portugal) raising that they could lead to unjustified further restrictions, with in particular, the relevance of the historical reference period (2009-2011) to define the footprint being challenged. NGOs support the two measures but raised that the delayed implementation of the two measures promised by Law for early 2018 casts doubts on the willingness of Member States and of the Commission to ensure protection of deep-sea ecosystems. NGOs doubts are said to be underpinned by delayed materialisation of other time-bound DSAR measures, namely publication of Member States annual reports foreseen in Article 15.5 and scientific advice on the observer coverage foreseen in Article 16.3.

According to all stakeholders consulted, the VME encounter protocol established by Article 9.2 makes sense as this is a measure already implemented in international waters. For NGOs, the evidence to define a VME encounter are somewhat arbitrary and should be defined based on scientific advice. Also it should be added that a buffer area where the VME encounter has happened should be closed immediately to all bottom contacting fishing practices until there is scientific evidence that these type of fishing activity does not represent a risk for the conservation of the encountered VME. Fishermen associations (Spain and Portugal) raised that identification of VME species up to taxonomic levels required by the DSAR is beyond the competence of the fishing master suggesting that his/her responsibility should be nuanced in case of an encounter, and also that catchability of VME indicators by bottom trawls or longlines is probably very low.

DSAR measures on more stringent control rules and observer coverage are understood and did not attract particular comments. However, fishermen associations and science providers recall that the amount of scientific information for stock assessment is strongly dependant on amount of catches. If DSAR measures or other EU conservation measures such as quotas contribute to decrease amount of catches of certain deep-sea species, fisheries dependent information for stock assessment will become insufficient for stock assessment purpose.

Public Consultation

A detailed report on the results of the Public Consultation is available in **Appendix 13**. The next sections summarise its main outcomes.

Implementation of the public consultation

The public consultation (PC) on the DSAR ran from 13 May 2020 until 5 August 2020, according to the obligatory 12-week consultation period as stated in the Better Regulation Guidelines. It was open to all citizens and the wider stakeholder community, and translated into all EU languages.

The PC questionnaire was developed during the inception phase of the evaluation using a two-pronged approach and approved by the Steering Committee. It aimed to collect feedback organised in two sections:

- 4 general questions (3 closed and 1 open) – to assess the relevance and effectiveness of the DSAR, aimed at respondents with limited or no knowledge of the Regulation;

- 13 specialised questions (9 closed and 4 open) – to assess the relevance, effectiveness and coherence of the DSAR, aimed at respondents with a more in-depth knowledge of the Regulation.

> **Identified campaign:**
> In open comments of this public consultation, we identified a "campaign" (as specified in the Better Regulation Toolbox 2), meaning where organisations call their members to participate in the consultation with suggested responses, and more than 10 responses are identical. We include the share of contributions and their viewpoints when presenting our analysis of open comments in Appendix 13. The campaign did not extend to closed questions, where responses within the campaign group varied.
>
> Fifty contributions have been identified as originating from a campaign. They were from respondents based in France (n=32), Belgium and United Kingdom (n=4, respectively), Portugal (n=3) Netherlands and Spain (n=2, respectively) and Germany, Ireland and Sweden (n=1, respectively). 37 respondents gave their contribution as EU citizens, 12 as non-governmental organisations, and 1 as "other".

Contributions submitted

Overall, 156 respondents participated in the PC, of whom 112 also responded to the specialised questions.

The respondents represented 14 EU Member States and 3 non-EU countries (New Zealand, United Kingdom, United States). Half of all respondents were from France (n=78), followed by Spain (n=14) and Belgium (n=11). There were no contributions from Bulgaria, Croatia, Cyprus, Czechia, Finland, Hungary, Latvia, Lithuania, Luxembourg, Poland, Romania, Slovakia, and Slovenia.

Sixty-nine percent of respondents (n=107) gave their contribution as EU citizens. The rest constituted representatives of non-governmental organisations (14%), academic / research institutions and public authorities (4%, respectively) non-EU citizens, company / business organisations and environmental organisations (3%, respectively).

Three position papers from the following organisations have been submitted:

- European Association of Fish Producers Organisations (EAPO)
- Association of National Organisations of Fishing Enterprises in the EU (Europêche)
- Coalition of French fishermen (CNPMEM-UAPF-ANOP-FROM NORD–Les Pêcheurs de Bretagne)

Summary of feedback received

In the general part of the survey, the DSAR appears to be highly relevant. The vast majority of respondents strongly agreed that:

- "deep-sea vulnerable marine ecosystems should be protected from damages caused by fishing gear" (92%, 144 out of 156 respondents);
- "an EU regulatory framework is essential to ensure consistency in the protection of the deep-sea environment by different national governments" (90%, 140 out of 156 respondents);
- "stocks of deep-sea species are very vulnerable to overfishing" (89%, 139 out of 156 respondents);
- "discontinuation of the Deep-sea Access Regulation would have an adverse effect on the protection of the deep-sea environment" (80%, 125 out of 156 respondents);
- "there is not enough scientific knowledge on deep-sea species and their habitats" (69%, 108 out of 156 respondents).

90% (140 out of 156 respondents) also indicated that they considered that deep-sea fish stocks and deep-sea vulnerable marine ecosystems were not adequately protected from impacts of fishing activities, and suggested in open comments that in order to ensure better protection, more restrictions and a more punitive system should be in place for bottom trawling, areas with VME encounters should be closed, a better understanding of the deep-sea environment through scientific research should be gained, and the criteria for identifying deep-sea fishing activity and granting fishing authorisations should be improved.

In the specialised part of the survey, the vast majority of respondents (over 85%, more than 95 out of 112 respondents) strongly agreed that the needs that underpinned the adoption of the DSAR were still relevant today, and that the measures of the Regulation to prevent significant adverse impacts on VMEs and to ensure the long-term conservation of deep-sea fish stocks were relevant. Respondents who worked in fisheries rated the extent to which the needs and measures were relevant significantly lower than those who worked in the field of environment or participated as EU citizens. In open comments, respondents suggested additional measures to prevent significant adverse impacts on VMEs, which included impact assessments prior to granting fishing authorisations, restricting fishing gear with known negative impact on VMEs, and tailoring evidence-based provisions for setting of fishing opportunities.

Over 70% (more than 78 out of 112 respondents) rated the measures to achieve the objective to improve scientific knowledge on deep-sea species and their habitats as relevant to a great extent. In open comments, respondents proposed additional measures that would be relevant to achieve this objective, namely to increase funding for deep-sea research, increase the coverage of observers (and make information that they obtain publicly available), and make the use of remote electronic monitoring systems mandatory.

Most respondents strongly disagreed that the stocks of deep-sea fish species are exploited sustainably (68%, 76 out of 112 respondents) and that VMEs are adequality protected from adverse impacts generated by bottom fishing activities (71%, 80 out of 112 respondents). Fifty-five percent of respondents (62 out of 112 respondents) also disagreed that scientific knowledge on deep-sea species and on their habitats has improved (18%, 20 out of 112 respondents, agreed with this statement). In open comments, respondents stated that scientific knowledge had improved, but not due to the Regulation, and still remained insufficient, and that the 800m trawl ban was effective, but needed to be enforced.

Finally, most respondents (76%, 85 out of 112 respondents) found that the DSAR does not take onboard UN recommendations on protection of VMEs (17%, 19 out of 112 respondents, indicated that they "did not know", and 5%, 6 out of 112 respondents, agreed that it took the recommendations onboard). In open comments, many respondents quoted a document published by the Bloom Association, which compares the DSAR with the UN recommendations on protection of VMEs[146] as a result of i) lack of measures in the DSAR to preserve fish stocks and ii) non-application of existing fishing areas to vessels having been issued a by-catch fishing authorisation. Other contributors stated that while the DSAR takes on board many of the recommendations, it does not do so to the full extent possible. They suggested that additional elements should be incorporated into the DSAR, for example, with regards to the use of "benthic ecosystem modelling, comparative benthic studies and predictive modelling" to identify areas in which VMEs are likely to exist.

Respondents also provided final remarks in open comments, which predominantly focussed on the need for measures of the DSAR to be rigorously enforced and monitored (rather than the Regulation being revised), and the suggestion that other tools for the conservation of deep-sea stocks and habitats (e.g. Technical Measures Regulation, Action Plan of the Biodiversity Strategy) are explored.

Feedback received from the three position papers notes the following:

The **European Association of Fish Producers Organisations (EAPO)** in their "feedback on the evaluation of the Deep-Sea Access Regulation" noted that the DSAR was relevant to the EAPO, that the authorisation system was efficient and that the protection of VMEs was effective. The Association emphasised that scientific knowledge needed to be developed, and that the Regulation should ensure sustainable exploitation of deep-sea stocks while reducing the impact of deep-sea fisheries. However, it also noted that the ban to fish below 800m was an arbitrary limit and more restrictive than the international one, and hinders data collection on species below 800m.
The Association also provided specific remarks on:
- Article 5 on fishing authorisations – finding it to be relevant and effective;
- Article 7 on existing deep-sea fishing areas – finding it unclear who this will apply to;
- Article 9 on specific requirements for the protection of VMEs – finding it to potentially impact regular fisheries operations.

The Association of National Organisations of Fishing Enterprises in the EU (Europêche), in their response to the consultation, noted that deep-sea fishing should be soundly managed rather than further prohibited, and that the fishing sector is committed to research and innovation to ensure sustainable deep-sea fishing. The Association also noted that scientific knowledge on vulnerable habitats and species had improved due to collaboration between observers and the scientific community, and that good scientific knowledge on the deep-sea fish stocks together with fisheries management measures based on scientific

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[146] (http://www.bloomassociation.org/wp-content/uploads/2017/01/JANV17-REGLEMENT-PP-BLOOM-DSCC-VDEF.pdf)

advice can benefit fish populations, the ecosystem and the fishing community. The Association found that the Regulation did not need a revision at this stage, as it was on track to achieving its objectives, however, the list of species could be adapted, and the 800m depth ban – which the Association found to be arbitrary – deleted.

A **Coalition of French fishermen (CNPMEM–UAPF–ANOP–FROM NORD – Les Pêcheurs de Bretagne**) echoed in their position paper the last two points of Europeche. They also found that the 800m depth ban was arbitrary and negatively impacted scientific knowledge on deep-sea species, and suggested that the list of species is reconsidered. They also found that prohibiting fishing in areas with a likely presence of VMEs beyond 400m could negatively impact fleets that do not fish deep-sea species, and that a traffic light system should be put in place in consultation with stakeholders to create maps that show the probability of VME presence and define adequate protection measures. Finally, the Coalition noted a sharp decrease in deep-sea fishing in France since 2015.

Summary of main outcomes from the consultations

- There is a consensus among the different stakeholders consulted through the targeted and public consultations to confirm there was a need to adopt a specific revised conservation and management framework for deep-sea fisheries in EU waters in view of the vulnerability of deep-sea stocks and deep-sea ecosystems to fishing pressure. This need was largely underpinned by the perceived lack of efficiency of the previous deep-sea access regulation (EC) 2347/2002 to protect deep-sea vulnerable marine ecosystems (VMEs) along the lines promoted by the resolutions adopted by the United Nations General Assembly. However, a minority of respondents representing some fishermen associations believed that existing rules enforced through limits on fishing opportunity and technical measures were sufficient to ensure sustainable management of deep-sea fisheries.

- A large majority of respondents to the targeted and public consultations shared the opinion that DSAR conservation and management measures are broadly relevant and potentially effective to contribute to prevention of significant impacts on VMEs while outlining that implementation of the spatial protection measures foreseen by the DSAR is still outstanding. However, while a large majority of the civil society supported the 800m bottom trawl prohibition providing it is properly enforced, most fishermen associations raised that the prohibition is not supported by scientific evidence and hence felt arbitrary.

- Stakeholders consulted confirmed that more scientific data on deep-sea stocks and their habitats are needed to support management. Contributions received confirmed that the amount of data available increased somehow over the last few years with a significant contribution from EU-funded research project on deep-sea ecosystems to scientific knowledge. However, fishermen associations and scientists outlined that low and/or decreasing catches of certain deep-sea species impact availability of fisheries dependent data used to support stock assessment.

- Most contributors to the public consultation are of the opinion that the DSAR does not fully take onboard resolutions of the United Nations General Assembly. Main shortcomings mentioned are the lack of measures in the DSAR to preserve deep-sea fish stocks and non-application of limitation to existing fishing areas for fishing vessels having been issued a by-catch fishing authorisation. In addition, level of alignment with resolutions of the United Nations will depend on the extent to which areas where VMEs are likely to occur are protected by DSAR forthcoming spatial measures.

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Appendix 13: Public Consultation Summary report

Introduction

The public consultation (PC) on Regulation (EU)2016/2336, called the Deep-Sea Access Regulation (DSAR), ran from 13 May 2020 until 5 August 2020, according to the obligatory 12-week consultation period as stated in the Better Regulation Guidelines. It was open to all citizens and the wider stakeholder community, and translated into all EU languages.

The PC questionnaire was developed during the inception phase of the evaluation using a two-pronged approach and approved by the Steering Committee in charge of the evaluation study's oversight. It aimed to collect feedback organised in two sections:

- 4 general questions – to assess the relevance and effectiveness of the DSAR, aimed at respondents with limited or no knowledge of the Regulation;
- 13 specialised questions – to assess the relevance, effectiveness and coherence of the DSAR, aimed at respondents with a more in-depth knowledge of the Regulation.

Overall, **156 respondents** participated in the PC, of whom **112** (72%) also responded to the **specialised questions**. Below, we present the respondents' profile and a summary of their responses.

Identified campaign:

In open comments of this public consultation, we identified a "campaign" (as specified in the Better Regulation Toolbox 2), meaning where organisations call their members to participate in the consultation with suggested responses, and more than 10 responses are identical. We include the share of contributions and their viewpoints when presenting our analysis of open comments. The campaign did not extend to closed questions, where responses within the campaign group varied.

Fifty contributions have been identified as originating from a campaign. They were from respondents based in France (n=32), Belgium and United Kingdom (n=4, respectively), Portugal (n=3) Netherlands and Spain (n=2, respectively) and Germany, Ireland and Sweden (n=1, respectively). 37 respondents gave their contribution as EU citizens, 12 as non-governmental organisations, and 1 as "other".

Respondents' profile

The **156 respondents** represented **14 EU Member States and 3 non-EU countries** (New Zealand, United Kingdom, United States). Half of all respondents were from France (n=79), followed by Spain (n=14) and Belgium (n=11). There were **no contributions** from Bulgaria, Croatia, Cyprus, Czechia, Finland, Hungary, Latvia, Lithuania, Luxembourg, Poland, Romania, Slovakia, and Slovenia.
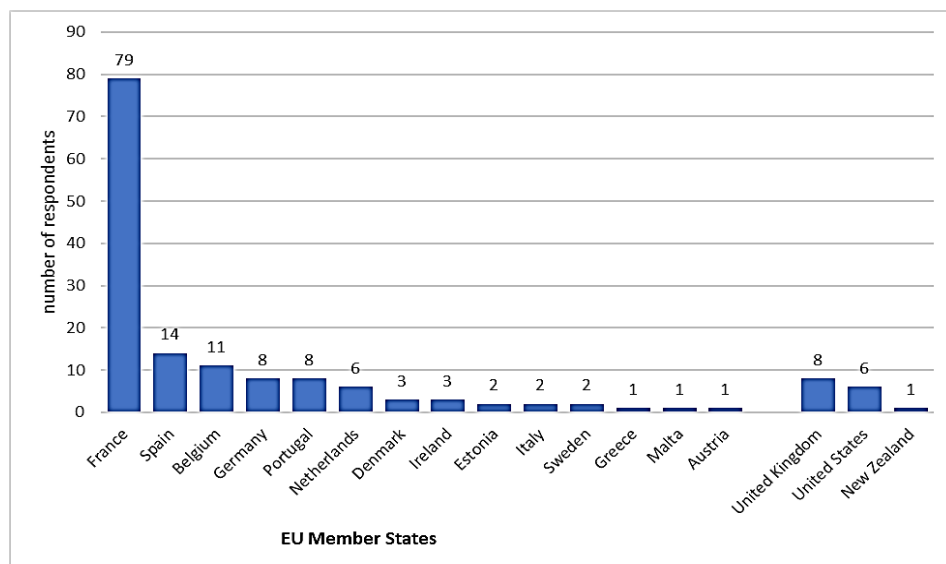

Figure 24: Respondents by country of origin

Respondents were able to submit their contributions in any official EU language. The majority provided their contributions in French (n=78) and English (n=56).
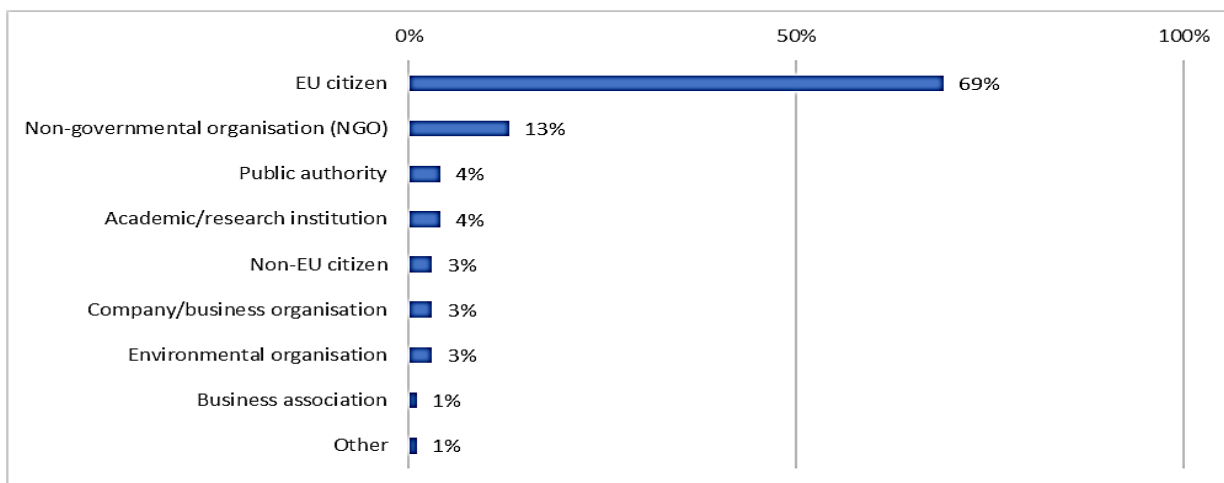
Figure 25: Respondents by contribution type

69% (107 out of 156 respondents) gave their contribution as **EU citizens**. The rest constituted representatives of non-governmental organisations, academic / research institutions and public authorities, non-EU citizens, company / business organisations and environmental organisations.
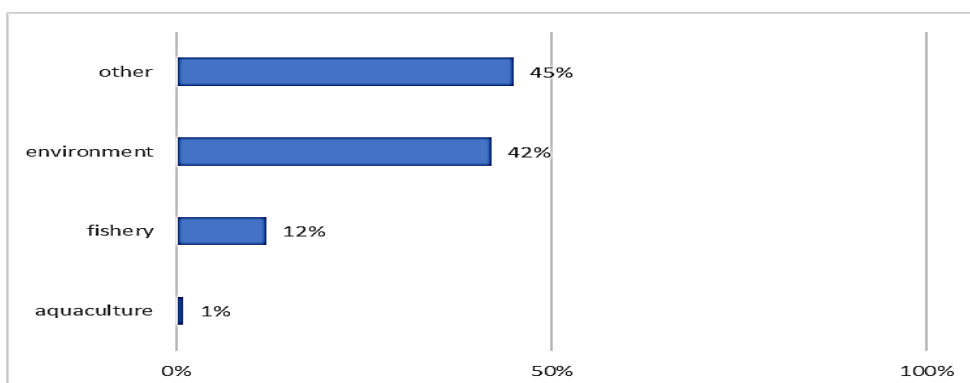

Figure 26: Respondents by main field of activity

In terms of **main field of activity**, **45%** (70 out of 156 respondents) indicated **"other"** and **42%** (66 out of 156 respondents) indicated "**environment**". Most respondents who indicated "other" specified in open comments that they were **EU citizens** (n=31) or responding in a "personal capacity" (n=7); others worked in "education and research" (n=7), agriculture (n=2), and individual respondents in various fields including communication, energy, tourism and sports. 19 respondents (12%) indicated "**fishery**", and 1 respondent indicated "aquaculture".

The **largest proportion of respondents** (36%, 56 out of 156 respondents) indicated "**other**" when asked what **type of organisation** they represented, specifying in open comments that they were EU citizens or responding in a personal capacity. 24% (37 out of 156 respondents) represented a non-governmental organisation, platform or network, 14% (22 out of 156 respondents) were from research and academia, and 12% (19 out of 156 respondents) represented a private enterprise.

57% (89 out of 156 respondents) described the nature of their understanding and involvement in matters related to deep-sea fishing and the DSAR as having "**a general interest in matters concerning fisheries in the EU**". 37 respondents (24%) worked for **"an environmental organisation with an interest in the management of deep-sea fisheries",** and 14 respondents (9%) for **"a research institution with an interest in deep-sea fish stocks and / or deep-sea ecosystems". 8%** (12 out of 156 respondents) indicated **"other",** most of whom specified in open comments that they were **"concerned EU citizens"**.

Summary of responses to general questions

In the "general questions" part of the survey, respondents were asked three closed and one open question to assess the **relevance** and **effectiveness** of the DSAR.

First, respondents were asked to what extent they agreed or disagreed with a number of statements that were aimed at assessing the **relevance of the DSAR.**

The vast majority strongly agreed that "deep-sea vulnerable marine ecosystems should be protected from damages caused by fishing gear" (92%, 144 out of 156 respondents) and that "an EU regulatory framework is essential to ensure consistency in the protection of the deep-sea environment by different national governments" (90%, 140 out of 156 respondents).

89% (139 out of 156 respondents) also **strongly agreed** that "stocks of deep-sea species are very vulnerable to overfishing", and 69% (108 out of 156 respondents) **strongly agreed** that "there is not enough scientific knowledge on deep-sea species and their habitats".

Finally, **80%** (125 out of 156 respondents) **strongly agreed** that "discontinuation of the Deep-sea Access Regulation would have an adverse effect on the protection of the deep-sea environment".

Table 22: To what extent do you agree or disagree with the following statements?

Number of respondents = 156	strongly agree	agree	neither agree nor disagree	disagree	strongly disagree	don't know
Deep-sea vulnerable marine ecosystems should be protected from damages caused by fishing gear	**92%**	6%	1%	0%	0%	1%
An EU regulatory framework is essential to ensure consistency in the protection of the deep-sea environment by different national governments	**90%**	6%	2%	1%	0%	1%
Stocks of dee-sea species are very vulnerable to overfishing	**89%**	7%	1%	1%	0%	1%
Discontinuation of the Deep-sea Access Regulation would have an adverse effect on the protection of the deep-sea environment	**80%**	10%	7%	1%	1%	1%
There is not enough scientific knowledge on deep-sea species and their habitats	**69%**	21%	5%	3%	1%	1%

Respondents were then asked whether they considered that deep-sea fish stocks and deep-sea vulnerable marine ecosystems were adequately protected from impacts of fishing activities, to which **90%** (140 out of 156 respondents) indicated **"no".** Only 8 respondents (5%), respectively, indicated "yes" or "no opinion". There were no significant differences in responses by country of origin, main field of activity or type of organisation.

In open comments, 124 respondents contributed answers to the question on **how better protection of deep-sea fish stocks and deep-sea vulnerable marine ecosystems could be ensured**. The most commonly mentioned examples were:
- to put **more restrictions** in place for deep-sea fishing and bottom trawling, and establish a more **punitive system** in cases where restrictions are ignored;
- to **close areas with VME encounters** / **improve the move-on rule** and base the **threshold for identifying VME** encounters on **scientific evidence**;
- to gain a **better understanding of the deep-sea environment through scientific research;**
- to **improve criteria for identifying deep-sea fishing activity** and for **granting fishing authorisations.**

50 contributions were part of the identified campaign, which also reflected all the examples listed above. The campaign also stated that a **buffer area surrounding encountered VMEs should be closed to bottom fishing immediately** and **criteria for identifying deep-sea fishing activity and for granting fishing authorisations should be improved by**: i. assessing whether the current catch amount thresholds are appropriate; ii. assessing whether there is a need to expand the list of species; iii. recognizing that the Regulation is largely designed to manage fisheries to prevent damage to deep-sea ecosystems and should apply to any bottom contact fisheries operating below 400m, irrespective of the catch.

Summary of responses to specialised questions

In total, **112 respondents** proceeded to answer the specialised questions in the questionnaire, which consisted of nine closed and four open questions to assess the **relevance, effectiveness and coherence** of the DSAR.

Of the 112 respondents, **44%** (49 out of 112 respondents) indicated that their main field of activity was "**environment**" and **41%** (46 out of 112 respondents) indicated "**other**" (predominantly **EU citizens** and those who responded in a personal capacity). 16 respondents worked in fisheries and 1 respondent in aquaculture. Most of these respondents were from France (49%), followed by Spain (9%), Belgium (8%), Germany and Portugal (5%, respectively).

> **35%** (39 out of 112 respondents) who replied to the specialised questions indicated that their **type of organisation** was "**other**" (meaning predominantly EU citizens), followed by **non-governmental organisations, platforms or networks** (31 out of 112 respondents), and **research and academia** (16 out of 112 respondents).

In the specialised questions section of the questionnaire, respondents were first asked whether the **needs that underpinned the adoption of the DSAR were still relevant today. The vast majority** of respondents **strongly agreed** that there is still a need to prevent significant impacts on vulnerable marine ecosystems and to ensure the long-term conservation of deep-sea stocks (91%, 102 out of 112 respondents). 85% (95 out of 112 respondents) also **strongly agreed** that there is still a need to improve scientific knowledge on deep-sea species and their habitats.

There were **significant differences** in responses by main field of activity, with respondents who indicated "**other**" (predominantly EU citizens) and "**environment**" generally **agreeing more strongly** that these needs remain relevant, compared with respondents who worked in **fisheries**.

Table 23: To what extent do you agree or disagree that each of the needs that underpinned the adoption of the Deep-Sea Access Regulation remains relevant today?

Number of respondents = 112	strongly agree	agree	neither agree nor disagree	disagree	strongly disagree	don't know
There is still a need to improve scientific knowledge on deep-sea species and their habitats	**91%**	4%	3%	1%	0%	1%
There is still a need to prevent significant impacts on vulnerable marine ecosystems and to ensure the long-term conversation of deep-sea stocks	**85%**	11%	3%	1%	0%	1%

Respondents were then asked about the extent to which the **measures of the Regulation were relevant** to achieve the objectives of **preventing significant adverse impacts on VMEs** and to **ensure the long-term conservation of deep-sea fish stocks. 88%** (99 out of 112 respondents) felt that the ban on fishing with bottom at depths below 800m was relevant **to a great extent**, as was the closure of areas containing VMEs below 400m to any type of bottom fishing and the obligation for fishing vessels to report encounters with VMEs and to move away to other areas if they do so (85%, 95 out of 112 respondents). 73% (82 out of 112 respondents) indicated that maintaining fishing capacity exploiting deep-sea stocks below 2009-11 levels, and limiting exploitation of deep-sea stocks to areas already fished in 2009-11 were **relevant to a great extent.**

Table 24: The extent to which the measures of the Regulation are relevant to achieve these objectives.

Number of respondents = 112	to a great extent	to some extent	no opinion	to a small extent	not at all	don't know
Ban on fishing with bottom trawls at depths below 800m	**88%**	3%	1%	0%	5%	3%
Closure of areas containing Vulnerable Marine Ecosystems below 400m to any type of bottom fishing	**85%**	7%	1%	2%	1%	4%
Obligation for fishing vessels to report encounters with Vulnerable Marine Ecosystems and to move away to other areas if they do so	**85%**	5%	2%	1%	5%	2%
Maintaining fishing capacity exploiting deep-sea stocks below 2009-11 levels	**73%**	11%	2%	8%	2%	2%
Limiting exploitation of deep-sea stocks to areas already fished in 2009-11	**73%**	12%	2%	7%	3%	3%

There were **significant differences** in responses by main field of activity, with respondents who worked in **fisheries** generally **rating the extent** to which the measures of the Regulation were relevant to achieve the objectives **lower** than those working in the field of environment or "other" (predominantly EU citizens).

87% (97 out of 112 respondents) also indicated that **stricter control provisions applying to fishing vessels authorised to catch deep sea species,** such as the obligation for Member States to apply administrative sanctions (such as withdrawal of fishing authorisations to vessels not complying with the rules of the Deep-Sea Access Regulation) was **relevant** for achieving the objectives **to a great extent.** Most respondents similarly rated reporting deep-sea fishing activities on a haul-by-haul basis rather than on a daily basis, and restricting landings of deep-sea species to certain ports designated by Member States.

Table 25: Stricter control provisions applying to fishing vessels authorised to catch deep-sea species.

Number of respondents = 112	to a great extent	to some extent	no opinion	to a small extent	not at all	don't know
Obligation for Member States to apply administrative sanctions such as withdrawal of fishing authorisations to vessels not complying with the rules of the Deep-sea Access Regulation	**87%**	4%	3%	3%	0%	3%
Reporting deep-sea fishing activities on a haul-by-haul basis rather than on a daily basis	**78%**	13%	2%	2%	2%	3%
Restricting landings of deep-sea species to certain ports designated by Member States	**74%**	6%	5%	5%	5%	5%

In the open comments, 89 respondents elaborated on any **additional measures** that, in their opinion, would have been relevant to **prevent significant adverse impacts on Vulnerable Marine Ecosystems** and to ensure the long-term conservation of deep-sea fish stocks. The most frequently cited measures were:
- to conduct **impact assessments** prior to granting fishing authorisations in all waters;
- to further **restrict fishing gear** with a known negative impact on VMEs and bycatch species, underpinned by **scientific research to identify such gear**;
- to tailor **evidence-based provisions for setting of fishing opportunities** and adhere to them rigorously, even where scientific data is insufficient on the status of fish stocks.

49 contributions were part of the identified campaign, which also reflected all the examples listed above. The campaign further specified that specific provisions related to the setting of fishing opportunities should be tailored to scientific uncertainties and the life history characteristics of deep-sea species, and that explicit requirements to assess, minimize and prevent bycatch and other impacts on non-target deep-sea species and the vulnerability of the habitats where the species live are important for the long-term conservation of deep-sea stocks. The contributions suggested that these measures could be developed and implemented as part of the action plan to conserve fisheries resources and protect marine ecosystems of the biodiversity strategy, referencing the Communication from the Commission – EU Biodiversity Strategy for 2030 (20 May 2020).

Respondents were then asked to indicate to what extent current measures were relevant to achieve the objective **to improve scientific knowledge on deep-sea species and their habitats**. 78% (87 out of 112 respondents) rated the definition of specific data collection and reporting requirements to include species belonging to the deep-sea ecosystem (such as deep-water corals, sponges or other organisms belonging to the same ecosystem) as **relevant to a great extent**. 74% (83 out of 112 respondents) rated as relevant to a great extent the obligation to deploy scientific observes to ensure a 20% coverage of activities by fishing vessels targeting deep-sea species. This was also the case for a 10% coverage for fishing vessels catching deep-sea species as by-catches.

Table 26: The extent to which the following measures are relevant to improve scientific knowledge on deep-sea species and their habitats.

Number of respondents = 112	to a great extent	to some extent	no opinion	to a small extent	not at all	don't know
Definition of specific data collection and reporting requirements to include species belonging to the deep-sea ecosystem, such as deep-water corals, sponges or other organisms belonging to the same ecosystem	**78%**	16%	2%	2%	0%	2%
Obligation to deploy scientific observers to ensure a 20% coverage of activities by fishing vessels targeting deep-sea species	**74%**	13%	4%	3%	3%	3%
Obligation to deploy scientific observers to ensure a 10% coverage of activities by fishing vessels catching deep-sea species as bycatches	**74%**	10%	5%	4%	4%	3%

In the open comments, 81 respondents replied to whether they could think of any **additional measures** that would have been relevant to **improve the knowledge on deep-sea species and their habitats**. The most frequently cited measures were:
- to **increase funding** for deep-sea research;
- to **increase observer coverage** and make information obtained through observers **publicly available;**
- to make the **use of remote electronic monitoring systems mandatory.**

50 contributions were part of the identified campaign, which specified measures such as the implementation of fully-documented fisheries provisions (incl. mandatory use of Remote Electronic

> Monitoring Systems) in vessels targeting deep-sea species; publication of information on the observer programme and its evaluation; and mandatory observer coverage.

Respondents were then asked to indicate the extent to which they agreed or disagreed that the main achievements have been met in relation to the stated objectives of the DSAR.

68% (76 out of 112 respondents) **strongly disagreed** that stocks of deep-sea fish species are **exploited sustainably** and 71% (80 out of 112 respondents) that deep-sea ecosystems and, in particular, Vulnerable Marine Ecosystems, are adequately protected from adverse impacts generated by bottom fishing activities. 55% (62 out of 112 respondents) also **disagreed** that scientific knowledge on deep-sea species and on their habitats has improved. However, 18% (20 out of 112 respondents) agreed with this statement.

Table 27: To what extent do you agree that the following main achievements have been met in relation to the stated objectives of the Deep-Sea Access Regulation?

Number of respondents = 112	strongly agree	agree	neither agree nor disagree	disagree	strongly disagree	don't know
Stocks of deep-sea fish species are exploited sustainably	3%	3%	7%	16%	**68%**	3%
Deep-sea ecosystems, and in particular Vulnerable Marine Ecosystems,	5%	3%	4%	15%	**71%**	2%
Scientific knowledge on deep-sea species and on their habitats has improved	3%	18%	11%	**55%**	11%	2%

There were **significant differences** in responses by main field of activity, with respondents who worked in **fisheries** generally agreeing **more strongly** that deep-sea fish species are exploited sustainably and that deep-sea ecosystems, and in particular Vulnerable Marine Ecosystems, are adequately protected from adverse impacts generated by bottom fishing activities, **than those who worked in the field of environment and "other" (predominantly EU citizens).**

> In the open comments, 69 respondents elaborated on their answers, **48 of which were part of the identified campaign.** Explanations were consistent across both groups (campaign and non-campaign respondents), and stated that:
> - **scientific knowledge** has improved, but not due to the Regulation, but independent scientific research, surveys and expeditions (incl. through EU funded deep-sea research projects such as the Atlas, SponGES, and Merces Projects), and still remains **insufficient**:
> - the **800m trawl ban is effective** in protecting VMEs, but needs to be **enforced**, as no VME areas have been closed to date and the trawl ban has not been effectively complied with and enforced.

Finally, respondents were asked to what **extent the DSAR takes onboard UN recommendations** on protection of Vulnerable Marine Ecosystems. **76%** (85 out of 112 respondents) indicated that it **did not**, and 19 respondents (17%) indicated that they "did not know". Only 6 respondents (5%) indicated that the DSAR fully takes onboard the UN recommendations.
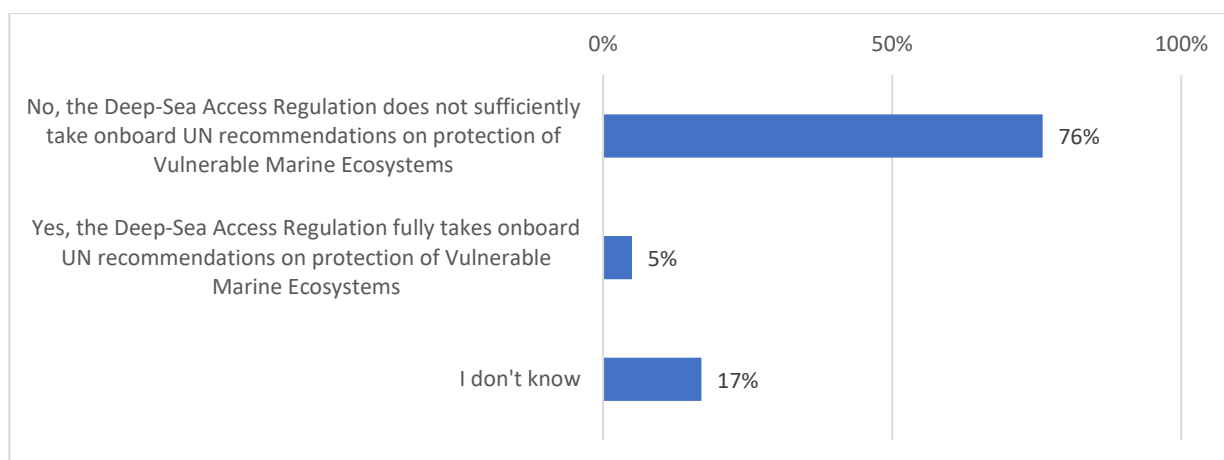

Figure 4: The extent to which the EU Deep-Sea Access Regulation takes onboard UN recommendations.

In the open comments, **47 respondents** elaborated on their answers, **of whom 34 were part of the identified campaign.** The campaign respondents quoted the **Bloom Association**'s document[147] stating that the **Regulation takes into account many of the UN recommendations**, but **not** the most recent recommendations adopted by the UN following reviews of the implementation of resolutions 61/105 and 64/72, namely resolution 66/68 adopted in 2011 and, more recently, resolution 71/123 adopted in 2016. Respondents noted that these additional elements should be incorporated into the implementation of the DSAR, for example, with regards to the use of "benthic ecosystem modelling, comparative benthic studies and predictive modelling" to identify areas in which VMEs are known or likely to exist.

At the end of the survey, respondents could provide **additional comments** in open comments. Overall, **49 respondents** provided additional comments, **of whom 32 were part of the identified campaign.** Comments predominantly centred on the **need for measures of the Regulation to be rigorously enforced and monitored**, rather than the Regulation being revised. Respondents also suggested that **other tools for the conservation of deep-sea stocks and habitats are explored,** such as CFP, the Technical Measures Regulation, or the upcoming Action Plan of the Biodiversity Strategy. Campaign respondents also cited an ICES report of the Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources, which shows that the highest biodiversity of species can be found in depth between 1000 and 1500m, and that these species are particularly vulnerable to overexploitation due to their life history traits.

Position papers:

Three position papers were provided:

The **European Association of Fish Producers Organisations (EAPO)** in their "feedback on the evaluation of the Deep-Sea Access Regulation" noted that the DSAR was relevant to the EAPO, that the authorisation system was efficient and that the protection of VMEs was effective. The Association emphasised that scientific knowledge needed to be developed, and that the Regulation should ensure sustainable exploitation of deep-sea stocks while reducing the impact of deep-sea fisheries. However, it also noted that the ban to fish below 800m was an arbitrary limit and more restrictive than the international one, and hinders data collection on species below 800m.

The Association also provided specific remarks on:
- Article 5 on fishing authorisations – finding it to be relevant and effective;
- Article 7 on existing deep-sea fishing areas – finding it unclear who this will apply to;
- Article 9 on specific requirements for the protection of VMEs – finding it to potentially impact regular fisheries operations.

The Association of National Organisations of Fishing Enterprises in the EU (Europêche), in their response to the consultation, noted that deep-sea fishing should be soundly managed rather than further prohibited, and that the fishing sector is committed to research and innovation to ensure sustainable deep-sea fishing. The Association also noted that scientific knowledge on vulnerable habitats and species had improved due to collaboration between observers and the scientific community, and that good scientific knowledge on the deep-sea fish stocks together with fisheries management measures based on scientific advice can benefit fish populations, the ecosystem and the fishing community. The Association found that the Regulation did not need a revision at this stage, as it was on track to achieving its objectives, however, the list of species could be adapted, and the 800m depth ban – which the Association found to be arbitrary – deleted.

The **Coalition of French fishermen (CNPMEM-UAPF-ANOP-FROM NORD – Les Pêcheurs de Bretagne**) echoed in their position paper the last two points of Europeche. They also found that the 800m depth ban was arbitrary and negatively impacted scientific knowledge on deep-sea species, and suggested that the list of species is reconsidered. They also found that prohibiting fishing in areas with a likely presence of VMEs beyond 400m could negatively impact fleets that do not fish deep-sea species, and that a traffic light system should be put in place in consultation with stakeholders to create maps that show the probability of VME presence and define adequate protection measures. Finally, the Coalition noted a sharp decrease in deep-sea fishing in France since 2015.

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[147] Available at http://www.bloomassociation.org/wp-content/uploads/2017/01/JANV17-REGLEMENT-PP-BLOOM-DSCC-VDEF.pdf

Appendix 14: List of EU Regulations and international instruments in relation to the DSAR applicable over the evaluation period

Current DSAR
Regulation (EU) 2016/2336 of the European Parliament and of the Council of 14 December 2016 establishing specific conditions for fishing for deep-sea stocks in the north-east Atlantic and provisions for fishing in international waters of the north-east Atlantic and repealing Council Regulation (EC) No 2347/2002. *OJ L 354, 23.12.2016, p. 1–19*

VME Regulation (international waters)
Council Regulation (EC) No 734/2008 of 15 July 2008 on the protection of vulnerable marine ecosystems in the high seas from the adverse impacts of bottom fishing gears. *OJ L 201, 30.7.2008, p. 8–13*

Technical measures Regulations

Until June 2019

Council Regulation (EC) No 850/98 of 30 March 1998 for the conservation of fishery resources through technical measures for the protection of juveniles of marine organisms. *OJ L 125, 27.4.1998, p. 1–36*

As from June 2019

Regulation (EU) 2019/1241 of the European Parliament and of the Council of 20 June 2019 on the conservation of fisheries resources and the protection of marine ecosystems through technical measures, amending Council Regulations (EC) No 1967/2006, (EC) No 1224/2009 and Regulations (EU) No 1380/2013, (EU) 2016/1139, (EU) 2018/973, (EU) 2019/472 and (EU) 2019/1022 of the European Parliament and of the Council, and repealing Council Regulations (EC) No 894/97, (EC) No 850/98, (EC) No 2549/2000, (EC) No 254/2002, (EC) No 812/2004 and (EC) No 2187/2005. PE/59/2019/REV/1. *OJ L 198, 25.7.2019, p. 105–201*

Control Regulation and its implementing Regulation
Council Regulation (EC) No 1224/2009 of 20 November 2009 establishing a Community control system for ensuring compliance with the rules of the common fisheries policy, amending Regulations (EC) No 847/96, (EC) No 2371/2002, (EC) No 811/2004, (EC) No 768/2005, (EC) No 2115/2005, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007, (EC) No 676/2007, (EC) No 1098/2007, (EC) No 1300/2008, (EC) No 1342/2008 and repealing Regulations (EEC) No 2847/93, (EC) No 1627/94 and (EC) No 1966/2006. *OJ L 343, 22.12.2009, p. 1–50.*

Commission Implementing Regulation (EU) No 404/2011 of 8 April 2011 laying down detailed rules for the implementation of Council Regulation (EC) No 1224/2009 establishing a Community control system for ensuring compliance with the rules of the Common Fisheries Policy. *OJ L 112, 30.4.2011, p. 1–153.*

Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Council Regulation (EC) No 1224/2009, and amending Council Regulations (EC) No 768/2005, (EC) No 1967/2006, (EC) No 1005/2008, and Regulation (EU) No 2016/1139 of the European Parliament and of the Council as regards fisheries control OM/2018/368 final

Specific Control and Inspection Programmes
Commission Implementing Decision (EU) 2018/1986 of 13 December 2018 establishing specific control and inspection programmes for certain fisheries and repealing Implementing Decisions 2012/807/EU, 2013/328/EU, 2013/305/EU and 2014/156/EU. C/2018/8461 *OJ L 317, 14.12.2018, p. 29–46*

Deep-Sea species TAC and Quota Regulation (biennial) applicable as from 2017 and until 2020
Council Regulation (EU) 2018/2025 of 17 December 2018 fixing for 2019 and 2020 the fishing opportunities for Union fishing vessels for certain deep-sea fish stocks. ST/14418/2018/INIT. *OJ L 325, 20.12.2018, p. 7–17*

Council Regulation (EU) 2016/2285 of 12 December 2016 fixing for 2017 and 2018 the fishing opportunities for Union fishing vessels for certain deep-sea fish stocks and amending Council Regulation (EU) 2016/72. *OJ L 344, 17.12.2016, p. 32–45*

General TAC and Quota Regulation (annual - certain deep-sea species in them) applicable as from 2017 and until 2020

Council Regulation (EU) 2020/123 of 27 January 2020 fixing for 2020 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters. ST/15319/2019/INIT. *OJ L 25, 30.1.2020, p. 1–156*

Council Regulation (EU) 2019/124 of 30 January 2019 fixing for 2019 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters. *OJ L 29, 31.1.2019, p. 1–166*

Council Regulation (EU) 2018/120 of 23 January 2018 fixing for 2018 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters, and amending Regulation (EU) 2017/127. OJ L 27, 31.1.2018, p. 1–168

Council Regulation (EU) 2017/127 of 20 January 2017 fixing for 2017 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters *OJ L 24, 28.1.2017, p. 1–172*

Data Collection Regulation and implementing instruments
Until May 2017

Council Regulation (EC) No 199/2008 of 25 February 2008 concerning the establishment of a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy *OJ L 60, 5.3.2008, p. 1–12.*

Commission Regulation (EC) No 665/2008 of 14 July 2008 laying down detailed rules for the application of Council Regulation (EC) No 199/2008 concerning the establishment of a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy. *OJ L 186, 15.7.2008, p. 3–5*

As from May 2017

Regulation (EU) 2017/1004 of the European Parliament and of the Council of 17 May 2017 on the establishment of a Union framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy and repealing Council Regulation (EC) No 199/2008. *OJ L 157, 20.6.2017, p. 1–21*

Applicable for the period 2017-2019

Commission Implementing Decision (EU) 2016/1251 of 12 July 2016 adopting a multiannual Union programme for the collection, management and use of data in the fisheries and aquaculture sectors for the period 2017-2019 (notified under document C(2016) 4329). C/2016/4329. *OJ L 207, 1.8.2016, p. 113–177*

Applicable as from 2020

Commission Delegated Decision (EU) 2019/910 of 13 March 2019 establishing the multiannual Union programme for the collection and management of biological, environmental, technical and socioeconomic data in the fisheries and aquaculture sectors. C/2019/1848. *OJ L 145, 4.6.2019, p. 27–84*

Commission Implementing Decision (EU) 2019/909 of 18 February 2019 establishing the list of mandatory research surveys and thresholds for the purposes of the multiannual Union programme for the collection and management of data in the fisheries and aquaculture sectors. C/2019/1001. *OJ L 145, 4.6.2019, p. 21–26*

Western Waters Multiannual Plan

Regulation (EU) 2019/472 of the European Parliament and of the Council of 19 March 2019 establishing a multiannual plan for stocks fished in the Western Waters and adjacent waters, and for fisheries exploiting those stocks, amending Regulations (EU) 2016/1139 and (EU) 2018/973, and repealing Council Regulations (EC) No 811/2004, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007 and (EC) No 1300/2008. PE/78/2018/REV/1. *JO L 83 du 25.3.2019, p. 1–17*

Basic CFP Regulation
Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and

repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC. *OJ L 354, 28.12.2013, p. 22–61*

NEAFC regulation
Regulation (EU) No 1236/2010 of the European Parliament and of the Council of 15 December 2010 laying down a scheme of control and enforcement applicable in the area covered by the Convention on future multilateral cooperation in the North-East Atlantic fisheries and repealing Council Regulation (EC) No 2791/1999. *OJ L 348, 31.12.2010, p. 17–33.*

MSFD Directive
Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) (Text with EEA relevance). *OJ L 164, 25.6.2008, p. 19–40*

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 (Text with EEA relevance). C/2017/2901 *OJ L 125, 18.5.2017, p. 43–74*

Habitat Directive
Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. *OJ L 206, 22.7.1992, p. 7–50*

International obligations

UN Resolution 59/25 Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments (November 2004)

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