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SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES – 67th PLENARY REPORT (PLEN-21-02)

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Abstract

Commission Decision of 25 February 2016 setting up a Scientific, Technical and Economic Committee for Fisheries, C(2016) 1084, OJ C 74, 26.2.2016, p. 4–10. The Commission may consult the group on any matter relating to marine and fisheries biology, fishing gear technology, fisheries economics, fisheries governance, ecosystem effects of fisheries, aquaculture or similar disciplines. The Scientific, Technical and Economic Committee for Fisheries held its 67th plenary as virtual meeting from 5 to 9 July 2021.

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67th PLENARY REPORT OF THE SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (PLEN-21-02)

Virtual Meeting

5-9 July 2021

1. INTRODUCTION

The STECF hold its spring plenary as virtual meeting on 5-9 July 2021 with STECF members addressing the ToRs from their home offices.

2. LIST OF PARTICIPANTS

The meeting was attended by 31 members of the STECF, three invited experts, and nine JRC personnel. Several Directorate General Maritime Affairs and Fisheries (DG MARE) attended parts of the meeting. Section eight of this report provides a detailed participant list with contact details. The STECF members Leyla Knittweiss and Thomas Catchpole were unable to attend the meeting.

3. INFORMATION TO THE PLENARY

STECF autumn 2021 meetings

A new Expert Working Group EWG-21-18 Technical Measures Celtic Sea is scheduled for 1-5 Novemebr as virtual meeting.

All meetings planned during September and October 2021 will take place as virtual meetings.

See STECF 2021 meeting planning here: https://stecf.jrc.ec.europa.eu/meetings/2021

4. STECF INITIATIVES

No STECF initiatives were discussed during the meeting.

5. ASSESSMENT OF STECF EWG REPORTS

5.1 EWG 21-02 Methods for supporting stock assessment in the Mediterranean

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group meeting, evaluate the findings and make any appropriate comments and recommendations.

Additional request to STECF as a follow-up to EWG 21-02:

Background

The past STECF stock assessments have mainly targeted some West Med and Adriatic stocks, for the rest we have **no information on the quality of the collected data**. With regards to the Med & BS data call, the RCG Med & BS end user subgroup considered that quality checks by EWGs on stock assessments **only cover stocks to be assessed** and not the whole set of data reported in the data call. This creates **unbalanced reporting** on data issues among MS and puts **some MS in an unfavourable position**. Not all stocks are assessed in the next year following data collection so some potential problems in data submitted in response to a data call during year N will be used/problems spotted by end-users in years N+2, N+3, N+4 etc., referring to data problems in years N-2, N3, N-4 etc. In addition, all DCF data can be requested by other users and **used in studies, FWC etc, without any data quality check**. On the DCF side, we **do not have a clear picture of MS performance** in terms of data transmission issues and quality of collected data. This equally applies to those MS that receive no feedback on the quality of the data they collect (so, there is no need to fix wrongdoings).

Proposal

DG MARE would like to tackle the issue described above with the setting up of an ad hoc EWG to quality check the Med & BS data not currently scrutinised in STECF stock assessments. This EWG can use the outcomes of the EWG 21-02 and to apply them to at least all the priority stocks for each country and agree in other possible quality checks to describe the level of whole collected data. Added value:

- Past-looking: Checking of past DCF data and fixing of past issues that can be remedied (improvement of historic data series)
- Forward-looking: identified issues will help MS improve their future data collection
- Performance in the EU framework: identify issues with data collection and address weaknesses

Request to STECF

STECF is requested to give its opinion on the proposed approach. If considered positive, STECF is invited to suggest how to proceed in terms of the selection of data to be evaluated (which stocks/ fisheries etc.), the working methodology (similarities and differences to EWG 21-02) and any additional considerations that need to be taken into account.

STECF observations

The STECF EWG-21-02 was held virtually from 12 to 16 April 2021. The meeting was attended by 17 experts, including two STECF members and two JRC experts, and two observers.

A specific data call was issued to provide the EWG-21-02 with all the relevant data.

The EWG-21-02 had the following ToRs:

ToR1

The EWG is required to check and assemble Length Frequency Distribution (LFD) data for the stocks in the Annex I, which are identified as target for assessment activities in 2021. The EWG will:

1. Define the correct procedures to deal with: missing data, raising procedures (with particular reference to survey data), wrong length measurements, and to propose standardized procedures to be followed by participating experts. The EWG is required to compile an R code to generate such standardized procedures. The corrected and verified Length Frequency Distributions (LFD) will be archived in the shared cloud folder of the coming Stock Assessment EWGs.

2. Examine assessment input for any outliers and signs of data issues, and check underlying data sets;

The aim will be to agree on and use data quality checks to resolve all issues and to stabilise and freeze time series in view of the stock assessments to be carried out in the following (2021) EWGs. Relevant information already available in the Data Transmission Monitoring Tool (DTMT) is considered particularly relevant for this EWG. For that reason, DG MARE will ask MSs to check beforehand the DTMT issues from 2020 Stock Assessments EWGs and reply to them. If needed, MSs will be allowed to re-submit corrected historic data before this EWG.

This could also be the case if MSs substantiate that historic data revision is necessary, even in the absence of an identified DTMT issue. The provided information will allow for a better understanding of data issues that have been already encountered. It will be used by the EWG, to check whether MSs have corrected the reported issues. If the error(s) still persist(s) and/or amendments are still needed, the EWG will contact the National Correspondents of Member States to re-submit corrected data. This will be done either, in real time during the EWG or, for substantial amendments, during the official data call.

Depending on the outcomes of this EWG, and in order to prepare for the assessment activities in 2021, the MSs may be requested to re-upload the corrected historic data sets during the official data call.

The EWG is also requested, in its discussions, to take into account the recent disruption of DCF activities due to Covid-19 in 2020. This disruption will most probably lead to a number of gaps and delays in the data collection activities of MSs. The outcomes of the covid-19 questionnaires circulated by COM to Med & BS MSs will be made available to the EWG.

TOR 2

The EWG is requested to review the technical report submitted by Greece, concerning the methodologies for estimation of fleet and stock related variables, evaluate the adequacy of the approaches and make any appropriate comments or recommendations, if needed.

ANNEX I to ToRs

List of suggested stocks for EWG 21-02:

Area		**Common name**	**Scientific name**
West Mediterranean			
GSA	1-5-6-7	Hake	*Merluccius merluccius*
GSA	1	Red mullet	*Mullus barbatus*
GSA	5	Striped red mullet	*Mullus surmuletus*
GSA	6	Red mullet	*Mullus barbatus*
GSA	7	Red mullet	*Mullus barbatus*
GSA	1-5-6-7	Deep-water rose shrimp	*Parapenaeus longirostris*
GSA	5	Norway lobster	*Nephrops norvegicus*
GSA	6	Norway lobster	*Nephrops norvegicus*
GSA	8-9-10-11	Hake	*Merluccius merluccius*
GSA	9	Red mullet	*Mullus barbatus*
GSA	10	Red mullet	*Mullus barbatus*
GSA	9-10-11	Deep-water rose shrimp	*Parapenaeus longirostris*
GSA	9	Norway lobster	*Nephrops norvegicus*
GSA	11	Norway lobster	*Nephrops norvegicus*
GSA	1	Blue and red shrimp	*Aristeus antennatus*

GSA	5	Blue and red shrimp	*Aristeus antennatus*
GSA	6-7	Blue and red shrimp	*Aristeus antennatus*
GSA	9-10-11	Blue and red shrimp	*Aristeus antennatus*
GSA	9-10-11	Giant red shrimp	*Aristaeomorpha foliacea*
Adriatic Sea			
GSA	17-18	Hake	*Merluccius merluccius*
GSA	17-18	Red mullet	*Mullus barbatus*
GSA	17-18	Norway lobster	*Nephrops norvegicus*
GSA	17-18-19	Deep-water rose shrimp	*Parapenaeus longirostris*
GSA	17-18	Common Cuttlefish	*Sepia officinalis*
GSA	17	Sole	*Solea vulgaris*
GSA	17-18	Caramote Prawn	*Penaeus kerathurus*
GSA	17-18	Spottail mantis shrimp	*Squilla mantis*
Ionian/Aegean Sea			
GSA	19/20/22	Hake	*Merluccius merluccius*
GSA	22	Red Mullet	*Mullus barbatus*
GSA	22	Deep-water rose shrimp	*Parapenaeus longirostris*

STECF comments

STECF considers that the EWG addressed all the ToRs satisfactorily and highlights that considerable progress has been achieved by the EWG in the overall quality control of data for Mediterranean stock assessments.

STECF notes that this EWG is part of the set of actions identified by EWG 19-16 to facilitate the work of the Mediterranean assessment EWGs by reducing the workload during the meetings, and by improving the quality of the data for the future stock assessments. It is also one of the suggestions to improve data quality checking procedures formulated by the Subgroup on data requirements and data transmission issues of the Regional Coordination

Group for the Mediterranean and Black Sea[1]. Therefore, STECF considers important to evaluate whether these objectives have been achieved by following up on the impact of the work carried out by EWG-21-02 on the future performance of the Mediterranean assessment EWGs. Specifically, STECF suggests evaluating whether the Mediterranean assessment EWGs accomplish all the ToRs adequately in five days as planned for 2021 (instead of the seven days planned in previous years) and whether the number and magnitude of data transmission issues reported in the DTMT (data transmission monitoring tool) are reduced in comparison with previous years. These results will be taken into account by STECF to plan next year's work accordingly.

ToR1

STECF notes that the EWG-21-02 used six R scripts for quality checks, graphical representation and fill-in procedures of length frequency distribution (LFD) data and one R script for quality checks of MEDITS data. These scripts were developed by JRC building upon the experience gained in the STREAM project (Strengthening Regional cooperation in the Area of fisheries biological data collection in the Mediterranean and Black Sea, Agreement Number MARE/2016/22 – SI2.770115)[2] and upon the philosophy of the RoME R package for the MEDITS data (Bitetto et al. 2019)[3]. All the scripts and the corresponding guidelines are freely available as electronic annexes to the EWG report[4].

STECF notes that the list of suggested stocks in the ToRs contains 31 species/GSA combinations, of which 19 correspond to the Western Mediterranean, 8 to the Adriatic Sea and 4 to Aegean and Ionian Seas. The EWG-21-02 separated the stocks into two groups. Group 1 stocks were those for which length distributions were anticipated to be required for STECF stock assessments in the autumn of 2021. Group 2 stocks were those that had either been fully examined in 2020 but assessments were judged not plausible and 2 years index advice used instead; or the data had been agreed under GFCM benchmarks. The EWG-21-02 applied the R scripts at country level to all the species/GSA combinations in both groups. The only exception was blue and red shrimp in GSA 7 by France that corresponded to Group 2 and had negligible incidental catches from fisheries directed at other species. The prepared LFD data by species, GSA and country were archived in the FTP of the EWG 21-02 for use in the future assessment EWGs.

STECF notes that the EWG-21-02 found data issues related to commercial catch and to MEDITS data from the April 2021 Mediterranean and Black Sea data call. These data issues have been transmitted directly to the Member States' (MS) national correspondents and are duly documented in the EWG report. In addition, the EWG-21-02 scrutinized further the data issues found during the 2019 and 2020 EWGs on stock assessments that are already reported to the DTMT and provided additional comments that will be added to the DTMT.

STECF notes that the EWG-21-02 also found differences in the landings data between the 2021 Mediterranean and Black Sea, the 2020 FDI and the 2020 AER data calls, which have

1 Final report of the "Meeting with end-users of scientific data". Subgroup on data requirements and data transmission issues of the Regional Coordination Group for the Mediterranean and Black Sea, 12-14 March 2019, Rome, Italy.

2 https://datacollection.jrc.ec.europa.eu/documents/10213/1329978/Med+and+BS_STREAM_MARE-2016-22.pdf/f52d0f71-9844-466a-b872-c5eb9c313366

3 https://www.sibm.it/MEDITS%202011/principaledownload.htm

4 https://stecf.jrc.ec.europa.eu/ewg2102

been transmitted directly to the MS national correspondents. STECF considers that the information provided by the EWG-21-02 could be useful for the MS to examine closer the causes of the discrepancies between data calls, and correct the data accordingly. STECF stresses that these issues had already been detected previously by different STECF EWGs but there are no standardised procedures to report such discrepancies in the DTMT, since the data transmission issues are associated to a data call. STECF also notes that when differences between data call occur, it is not possible to know which data are accurate and which are not, so these issues must be treated by comparing the data procedures for each call. STECF notes thus that if these data differences were to be reported in the DTMT, this would need to be done repeatedly for each of the data calls. Then, the MS would be officially alerted on the existence of these differences and could amend the respective data issues, which could correspond either to one or to various data calls. STECF suggests also that RCGs should be asked to discuss these differences and take necessary steps to explain or resolve them.

STECF notes that all the data issues identified have been communicated readily to the MS to give the MS as much time as possible to resolve these issues before the 2021 Black Sea and Mediterranean Data Call Operational Deadline. If data are resubmitted, the data quality checks, graphical representation and fill-ins scripts developed by EWG-21-02 could be carried out again either before or during the assessment EWGs to get the new data sets by species, GSA and country. Further, STECF notes that given that the scripts and the guidelines are freely available, the MS could also use them at their convenience for quality checks before the data submission.

STECF comments that the EWG-21-02 found that three specific cases for which sampling for some important metiers was not implemented:

a) Red mullet in GSA 1 and 6. Improved sampling of the length frequency of discards, particularly for the trawl fleet, would improve this assessment.

b) Blue and red shrimp in GSA 1, 6 and 7. Since the metier OTB-MDD, which is not currently mandatory for sampling in the current work plan, is contributing consistently to the total landings (around 30% in GSA 6) of this species, it would be worth evaluating the feasibility of including the sampling of this metier in future Spanish national work plans.

c) Giant red shrimp in GSA 9, 10 and 11. It is observed to have significant landings in several OTB metiers but OTB_DWS is often not sampled, particularly in GSA 9 and 11. Currently sampling for this species in these areas is not mandatory under the Italian National Programme. Consideration should be given to duplicating sampling or splitting existing sampling across the metiers in future Italian work plans.

The lack of sampling of these metiers could give rise to potential errors in the stock assessment if the LFD from this metier is different from other sampled metiers. STECF considers that these sampling areas should be considered by the Regional Coordination Group for the Mediterranean and Black Sea for possible inclusion under national and regional sampling plans.

ToR2

STECF notes that the EWG-21-02 reviewed the technical report submitted by Greece entitled "Estimation of fleet and stock related variables in the Greek fisheries under Regulation (EC) No 2017/1004". In their review, the EWG examined the methodologies for estimation of fleet and stock related variables, evaluate the adequacy of the approaches and made appropriate comments.

STECF notes that some of the characteristics of the Greek fisheries operating in the GSAs 20, 22 and 23 (such as very large number of small vessels, multi-gear and multi-species fisheries and extensive coastline) poses severe challenges to the data collection. Problems include, among others, i) the fact that logbooks are not mandatory for more than 90% of the commercial fleet, ii) a lack of declarative catch data for small fishing vessels (< 10m), iii) differences between the number of active fishing vessels and the number of vessels with licenses, iv) differences between the actual and the declared gears, and v) difficulties for having observers onboard small vessels.

Two different scientific bodies (the Fisheries Research Institute, FRI, and the Hellenic Centre for Marine Research, HCMR) participate in the implementation of the data collection under the coordination of the Greek national correspondent, being in charge of sampling different areas of the country. Both institutes follow common procedures for biological data collection, but they have developed different stratification methodologies to obtain effort related estimates for small scales fisheries (SSF) justified by the distinct characteristics of the SSF between the regions covered by each institute. STECF notes that using different stratification may well be justified, but a common methodological approach would be preferred. STECF agrees with the EWG's suggestion of three potential approaches to further evaluate in more details both stratification methods: a) use simulation to examine if the different stratification methods are likely to give robust outcomes for the two regions, b) specification of a common methodology at least for identifying inactive vessels across Greece and c) exchange methods and run a pilot project to test methods with actual data coming from two selected sub areas in the two regions or to test a common method.

STECF further notes that the Greek technical report provides a good description of the current sampling program. However, there is no information on how the sampling program was working prior to 2014. In addition, the report does not address the high variability of the landing estimates in the earlier DCF data (before 2008), and differences between these and the landings reported in GFCM and FAO from Hellenic Statistical Authority (HELSTAT). In this context, STECF EWG-20-15 suggested to examine if the DCF data could be extended using HELSTAT data. The EWG-21-02 further discussed this possibility and proposed a list of follow-up priorities for improving the current data coverage of the Greek fisheries. STECF agrees that these actions could help on the further exploration and reconstruction of historic data, impacting directly on the possibilities to obtain reliable stock assessments in these areas.

Additional ToR

STECF notes that the proposal of the DG MARE consists in setting up an EWG in 2022 to quality check the data collected under the Mediterranean and Black Sea data call for stocks that are not scrutinised in STECF stock assessment EWGs, following the same procedures as in EWG 21-02. STECF considers that the proposed approach could be beneficial to have a general overview of the quality of the data collected by the MS under the Mediterranean and Black Sea data call. According to the Article 14 of the Council Regulation (EC) No 2017/1004, the MSs shall be responsible for the quality and completeness of the collected data. Therefore, for the EWG to be successful it is crucial that the data issues found are readily reported to the MS national correspondents for their consideration. This data quality evaluation could help the MS to identify and correct past data issues and to improve future data collections.

STECF notes that given the large number of species, GSA and country combinations, it is not possible during a single EWG to carry out the quality checks of all the data submitted by the MS in the Mediterranean and Black Seas data call. Therefore, STECF considers that the number of data quality checks and number of species/GSA should be accommodated to the duration and workload of the EWG according to some prioritisation.

There are different criteria that could be used as a basis for such prioritisation. The list of species provided as an annex in the Mediterranean and Black Sea data call (Appendix 1.7

Species codification) includes footnote information on whether the importance of the stocks is linked to: *a) Requested as important under the Mediterranean regulation (Annex II of Council Regulation (EC) No 1967/2006, b) Requested as important species in the Black Sea, c) Included in the list of reference species for the MEDITS survey (Annex VI, list of reference species in MEDITS) or d) Identified as important species during the assessment STECF EWGs*. Additional criteria might be related to the volume of catches, economic value for the fleets or vulnerability of the species.

STECF notes that previous prioritisation exercises of the Mediterranean species/GSA have already taken place in STECF, aimed at defining lists of the priority species/GSA for stock assessment (STECF 16-14) or at selecting the reference species/GSA for monitoring the performance of the Common Fisheries Policy (STECF-Adhoc-21-01, and ToR 6.1 of STECF PLEN 21-01). The former ranked the species/GSAs based on the method described in Osio et al. (2015) according to the vulnerability scores from a Productivity Susceptibility Analysis (PSA) and the value of landings, whereas the later included 15 species considered of relevance and the species/GSA that ranked in the top ten either according to landings or to their economic value in 2012-2014. STECF considers that similar analyses could be carried out based on updated data to get an initial list of species/GSAs. However, the final decision on the list of the priority species by country should be agreed among the MS and the DG MARE. The RCG for the Mediterranean and Black Sea could also be an adequate forum to discuss and elaborate this priority list. STECF further notes that the GFCM also has a list of priority species by region that could also be taken into consideration in the elaboration of the list of priority species.

The R scripts used by the EWG-21-02 are readily applicable to any species/GSA/country. The work conducted during the EWG-21-02 served to test the code on many cases and to consolidate the R scripts, ensuring its applicability to other cases. STECF observes though that, even for species/GSA that had previously been routinely scrutinised in assessment EWGs, several new data issues were found by EWG-21-02. For those species that would then be scrutinised for the first time, STECF considers thus likely that new issues will arise, potentially requiring the R scripts to be appended accordingly.

Beyond the data quality checks, the R scripts used by the EWG-21-02 include code to fill-in data gaps for stock assessment purposes. It is unclear to STECF whether these fill-ins may be of any relevance for studies with objectives other than stock assessments (see ToR 7.7 of this PLEN 21-02 report). While the final decision on whether to use the fill-ins currently coded or develop alternative code will be in hands of the end-user, STECF underlines that these R scripts are freely available and could be used beyond dedicated EWGs such as EWG-21-02 or the proposed one in 2022.

STECF conclusions

STECF concludes that the EWG addressed all the ToRs satisfactorily.

STECF highlights that considerable progress has been done in the overall quality control of data for Mediterranean stock assessments. All the data issues found were transmitted to the MS national correspondents for their consideration before the Mediterranean and Black Sea data call operational deadline.

STECF concludes that important metiers are currently not sampled for some stocks (discards for red mullet in GSA 1 and 6, OTB-MDD for blue and red shrimp in GSA 1, 6 and 7 and several OTB metiers for giant red shrimp in GSA 9, 10 and 11), which may bias the length frequency distribution of the assessed stocks. STECF concludes that these issues should be considered by the RCGs for possible inclusion under national and regional sampling plans.

STECF concludes that there are some differences in the landings data between the 2021 Mediterranean and Black Sea, the 2020 FDI and the 2020 AER data calls, which have been transmitted directly to the MS national correspondents and need to be further investigated. STECF concludes that the RCGs should be asked to discuss these differences and take necessary steps to explain or resolve them.

STECF concludes that the technical report submitted by Greece is adequate and endorses the additional comments and suggestions of future work provided by the EWG for the further improvement of data quality.

STECF concludes that the proposed EWG in 2022 could be adequate to quality check the Mediterranean and Black Sea data currently not scrutinised in STECF stock assessment using the same methodology as in the EWG-21-02. STECF acknowledges however that the number of data quality checks will be extensive and should be accommodated to the duration and workload of the EWG, according to some prioritisation of species/GSA agreed among the MS and DG MARE. STECF suggests that some of the prioritisation criteria and methods previously used in other fora could be applicable to get an initial proposal.

References

Osio, G. C., Orio, A., and Millar, C. P. 2015. Assessing the vulnerability of Mediterranean demersal stocks and predicting exploitation status of un-assessed stocks. Fisheries Research, 171: 110-121.

5.2 EWGs 21-03 and EWG 21-08: Annual Economic Report of the EU Fishing Fleet I and II

Request to STECF

STECF is requested to review the report of the STECF Expert Working Group meeting, evaluate the findings and make any appropriate comments and recommendations.

STECF comments

The EWGs 21-03 and EWG 21-08 took place virtually from 19-22 April (AER I) and 07-11 June 2021 (AER II). The first meeting was attended by 30 experts, the second was attended by 25. Both meetings were also attended by two STECF members, two experts from the European Commission's Joint Research Centre (JRC) and a focal person from DGMARE. During the meeting observers were present: one for first meeting (from the Direção-General de Recursos Naturais, Segurança e Serviços Marítimosin Portugal) and four during the second (two from the Market Advisory Council (MAC) and two from North Western Waters Advisory Council (NWWAC)). AER I focussed on the endorsement of the National data, the Regional data and the National chapters. AER II focused on the nowcast and forecast, the special topics (outline of the current socio-economic impacts of COVID-19 in EU fisheries and measures taken to mitigate the negative effects, the effects of the Trade and Cooperation Agreement (TCA) between the EU and the UK, fuel efficiency, providing aggregated data specifically on trawlers) as well as drafting of the regional chapters.

STECF observes that the division between the two EWG working groups, with each having specific sets of Terms of Reference, implemented in 2020 for the first time, provides for a more efficient analysis of the data at the second meeting. However, STECF notes that data issues were still dealt with during AER II. Although this is in cases unavoidable STECF stresses that this should be limited to the highest degree as it reduces the time available in this second meeting to produce the economic analysis of the data and therefore, the quality of the AER.

STECF observes that, although the coverage and quality of the data submitted by Member States have improved over the years, several data transmission issues remain (cf also EWG 21-09 and ToR 5.3 of this plenary 21-02 report). These data transmission issues are related to data availability of fleet segments under 10 metres or fleet segments with low vessel numbers for which data may be sensitive or hard to obtain. STECF notes that these issues are likely to persist in future releases of the AER.

STECF observes that there are some reoccurring data issues at the level of the regional data and the data for the outermost regions. The EWGs established that these data have however improved. In particular, an ad hoc contract addressed the methodological issues raised in 2020, and the EWG considered that the Long-Distance Fleet data are now of adequate quality to be useful in the analysis and can now be treated like the other regional data. For the EU Outermost Fishing Regions data though, these improvements are only partial, and caution remains for the interpretation of the trends displayed, especially for the French outermost regions.

STECF notes that new variables are now collected under EU-MAP (such as debt position and subsidies on investments), but not yet reported in the AER. New approaches will have to be developed on how to present, analyse and interpret these data. As time is a limiting factor during the AER EWGs, it appears this routine of analysing this new set of data should rather be developed intersessionally prior to the 2022 EWGs.

STECF observes that due to a delay in reaching TACs agreement for the stocks shared between the EU and the UK, the data on TACs final allocation for 2021 were received late (Friday before the meeting of AER II) which resulted in the preparation of the nowcast being severely delayed. In addition, and as already stated in 2020, STECF underlines that the nowcast model is designed to be used under stable market conditions, when TACs (and quota shares including quota swaps) are the main driver affecting supply. STECF acknowledges that these stable conditions were not met in 2020 (market channels were closed due to COVID 19 restrictions), and will neither be in 2021 (primarily due to quota swaps between Member States being likely reduced compared to previous years due to the TCA). STECF notes thus that the nowcast's outcomes should be interpreted with caution.

STECF notes that the AER provides a preliminary analysis of the economic impact of the quota transfers between the EU and the UK under the Trade and Cooperation Agreement (TCA). The EWG has only managed to look at the impact of these quota transfers for 2021, based on 2020 quotas. Under the TCA quota transfers to the UK will though continue up until 2025. Furthermore, in addition to the elements presented in the report, STECF underlines that there are other elements under the TCA Agreement relating to access arrangements, the management of non-quota species as well as associated management measures such as technical measures which will be discussed through the Specialised Committee on Fisheries set up for the TCA. All these measures, combined with the reduced possibility for quota swaps between Member States and with the UK, will likely have profound impacts on the profitability of the fleets of some Member States. With the Brexit Adjustment Reserve, the EU Commission will provide Member States with financial aid to fund measures to adjust the national fleets to the changed conditions, especially the loss of their fishing opportunities and the changed conditions also for the shared stocks with Norway and the UK. Member States will be able to use the financial assistance for a variety of measures to adapt fishermen to the new situation under the TCA. The loss of fishing opportunities will most likely influence the balance between fleet capacity and fishing opportunities and, therefore, Member States may have to react on possible over-capacity in fleet segments; decommissioning schemes could be one of the adjustment measures taken. This development will be reflected in the 2022 Balance/Capacity report.

STECF conclusions

STECF concludes that the data presented in the AER report has been validated and is fit for purpose. The EWGs have addressed the TORs and STECF endorses the AER report. For the regional data and for the Long Distance Fleet the issues with methods to allocate the fleet segments to these regions have been solved and the AER provides a reliable overview of these segments. However, for the outermost regions, although improvements in the data quality has been observed, some data gaps still persist and will need to be addressed over the coming years.

STECF concludes that the Trade and Cooperation Agreement between the EU and the UK is likely to have profound impacts on the profitability of the fleets of some Member States and also affects the balance between fleet capacity and fishing opportunities. The 2021 nowcast presented in the 2021 AER did not take into consideration the likely changes in

quota exchanges among Member States (swaps) due to the TCA. Hence the nowcast of the AER EWG in 2022 will more clearly reflect these impacts.

STECF concludes that two important issues require extra analysis, and would need to be addressed before the AER 2022: the development of a routine to analyse the new variables collected under the EU-MAP, and the realignment of the nowcast methodology to accommodate the current unstable conditions of the market and the uncertainty of the effect of management changes. These actions shall be implemented prior to EWG AER II 2022, preferably by intersessional ad-hoc contract.

5.3 EWG 21-09 Evaluation of Annual Reports for data collection and data transmission failures

Background provided by the Commission

Article 11 of the Data Collection framework (DCF) Regulation (EU) 1004/2017 requires Member States to submit to the Commission an annual report (AR) on the implementation of their national work plans (WPs) and requires STECF to evaluate: (a) the execution of the WPs and (b) the quality of the data collected by the Member States. These tasks have been conferred to EWG 21-09 [ToR 1, 2]. In addition, EWG 21-09 was asked to validate the outputs of the pilot studies run under the EU MAP 2017-2019 and their potential extension to 2020-2021. This task refers only to the two first pilot studies: (1) on recreational fisheries and (2) impacts on the ecosystem [ToR 3]. Following consultations on the draft WP/AR templates and guidelines and documents accompanying the assessment process, EWG 21-09 is requested to assess the proposed amendments to the grid and evaluators' guidance for WP 2022-2024 [ToR 4]. Finally, EWG 21-09 is requested to assess the proposed amendments to the WP/AR templates and guidelines after the consultation to Member States and regional coordination groups [ToR 5].

Two pre-screening exercises have taken place to facilitate the work of the EWG: one related to the pilot studies (1) and (2), and the second one related to annual reports from the Member States. The EWG evaluation is actually run as a second level assessment, focusing on topics where the pre-screeners have raised an issue or where the pre-screeners assessment have not been conclusive.

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group meeting, evaluate the findings and make any appropriate comments and recommendations. In addition, PLEN 21-02 is asked to review input to the AR/WP templates that DG MARE received in an inter-service consultation with COM services, after the EWG had finalised its work.

STECF comments

EWG 21-09 met virtually on 21-25 June 2021. Since there was just one week between the end of the EWG and the start of STECF PLEN 21-02, the final EWG report was not yet available to PLEN 21-02. The following STECF comments and suggestions are consequently based on discussions among STECF members based on a presentation of outcomes from the EWG 21-09 meeting made by the chairperson, a preliminary draft of the EWG 21-09 report and various background documents provided to STECF.

<u>Evaluation of 2020 Annual Reports</u>

STECF observes that the evaluation of 2020 Annual Reports (ARs) was based on the outcome from the pre-screening exercise, guidance documents for AR-WP evaluators, a stand-alone document of assessment criteria as proposed by EWG 20-18 and agreed by PLEN 21-01, and the results from the Covid-19 questionnaire compiled by DG MARE in 2020.

STECF notes that it was the first time that, following the approach endorsed by PLEN 21-01, Member States were contacted prior to the EWG meeting to resolve AR issues detected by the pre-screeners. The Member States had the chance to provide clarifications and resubmit the ARs, if necessary, until the first day of the EWG. STECF notes that rules concerning the prior communication had been pre-defined stating that all identified issues had to be reviewed by at least two pre-screeners before the issue was sent to the Member States. Moreover, the issue types (inconsistencies, formatting issues, missing tables etc.) initiating a request to Member States for clarification or AR re-submission had also been defined before the pre-screening. The communication with Member States both prior to the EWG and after was thoroughly documented for future reference.

Prior to the EWG, 22 Member States were contacted for clarification on various AR sections. During the EWG, the Commission re-contacted 7 of them for clarification on various AR sections. Overall, 20 Member States replied, which led to the improvement and finalisation of assessments.

The Covid-19 pandemic has affected the data collection efforts in all Member States. STECF observes that the Commission, as suggested by EWG 20-18 and endorsed by PLEN 21-01, required Member States to clearly highlight any deviation from the Work Plan (WP) due to Covid-19 in their AR. Based on this input the EWG evaluated the Covid-19 consequences on the data collection in 2020.

STECF observes however that the impact of Covid-19 on the data collection in 2020 was not fully reflected in all AR sections. The effects of Covid-19 were most prominent for the evaluation of AR sections 1F (incidental by-catch) and 1G-H (research surveys-at-sea) in which lower assessment scores were obtained compared to last year. At contrary, even though Covid-19 likely affected the sampling reported in the sections 1 A-C (required stocks and sampling intensity for biological variables) and 4 A-C (sampling frame description and data on fisheries), the assessment scores were not lower than last year.

STECF understands that this effect is due to the way the questions in the assessment grid are formulated. The assessment questions are in some sections currently formulated to ask whether deviations are justified or whether a valid explanation is presented for each deviation from the WP, and whether actions considered/taken are appropriate to minimize deviations in the future. Hence, even where impacts on achievement of data collection due to Covid-19 are evident, an appropriate justification for this will result in a high score. A Member State could thus appear as having a high overall score of their AR even if that one was affected by Covid-19. Moreover, some MS, applied alternative ways for sampling such as training of crew on self-sampling, purchasing samples and etc. in order to mitigate the impacts of Covid-19. It was therefore not possible for STECF to quantify the impact of the pandemic on the data collection within the agreed AR assessment process. STECF notes thus, an evaluation of the impact of Covid-19 on data quality issues would be better addressed in a separate analysis that is not bound to follow the agreed AR assessment grid. STECF notes also that more information on the Covid-19 impacts in 2020 might appear when data are being used following the 2021 data calls, and potential issues reported in the DTMT which will be analysed in 2022.

Beside this issue, STECF observes furthermore that the overall scores of performance level by Member States decreased slightly compared to the previous year. The number of Member States that were given the highest overall performance score > 90 % (Yes) decreased from 8 to 5 and 3 Member States as opposed to 1 in 2019 were receiving the compliance level of 10-50 % (partly). STECF observes that based on the information provided by the Member States, the decrease in the overall assessment is partly but not all due to Covid-19 effect.

Evaluation of DCF data transmission issues

STECF observes that as in 2019 and 2020, the assessment of Data Transmission issues (DTi) was based on the Guidance document (version 30-05-2019) coupled with additional assessment criteria suggested by EWG 19-09.

STECF observes that the EWG assessed 555 DTi from 5 data calls in 2020 and 2 end users (STECF EWGs and ICCAT) that had been uploaded to the Data Transmission Monitoring Tool (DTMT). 438 DTi were related to Coverage, 116 to Quality and 1 to Timeliness. 273 issues were assessed by the EWG as Unsatisfactory, 189 as Satisfactory and the remaining 92 issues as Follow-up needed.

In particular, STECF notes that a high number of DTi were reported from the fleet economic data call and EWG on Annual Economic Report AER (391 issues). This high number was mainly due to the fact that, in contrary to previous years, the issues had not been aggregated before being inserted in the DTMT. This high number should thus not be interpreted as a deterioration in data quality.

Indeed, STECF observed that the number of DTis has globally increased substantially, from 106 issues raised in the previous year. As illustrated with the AER issues above, STECF reiterates that the number of DTi is not comparable between years. STECF observes that there is large heterogeneity of reporting between end-users (see also ToR 7.6). STECF even acknowledges that the increase in reported DTi may rather be a sign of a general improvement in the awareness, communication and traceability of detected DTi with the aim of highlighting any issue encountered.

Should a true comparison of DTi changes over years be requested by DGMare, STECF suggests that this shall be done in a specific intersessional analysis (e.g. through an ad-hoc contract reviewing all DTi in the DTMT to assess their severity, aggregation levels etc. Since end-users have different data quality procedures the study would need to look at all end-users separately as well as provide general recommendations. Such a study could then help identify shortfalls in the current reporting procedure in the DTMT and propose improvements to ensure a harmonised approach for monitoring data quality changes between years. STECF further highlights that the revised DTMT guidance (see also ToR 7.6) should improve the assessment of DTi in the forthcoming EWGs dealing with this subject.

The 140 DTi referring to Mediterranean and Black Sea data calls were reported in the DTMT in 2020 during the two stock assessment EWGs 20-09 and 20-15. STECF notes though that most of the DTi relates to historic data and have already been assessed during the EWG 21-02 that asked for the re-submission of the data.

STECF observes that as the DTi in the DTMT relates to data issues occurring in 2019 and before, no DTi due to effects of Covid-19 were assessed by the EWG, but specific attention might be paid to this question next year in relation with the issues raised above in the ARs.

Validation of outputs of pilot studies on recreational fisheries and the level of fishing and impact of fisheries on biological resources and marine ecosystem

STECF observes that the EWG validated two review reports prepared under ad-hoc contracts concerning pilot studies on recreational fisheries and impact on marine ecosystems, undertaken under the EU-MAP 2017-2019.

STECF notes that the report reviewing pilot studies on marine recreational fisheries (MRF) covers pilot studies carried out in most European Member States with the exception of Bulgaria, Romania, Latvia, Lithuania, and the Netherlands. The report constitutes an integrated view of the work done at European level to improve scientific estimations of

catches and fishing effort related to recreational fisheries both in freshwaters and marine waters. Furthermore, it provides individual assessments of the different pilot studies as well as general remarks and provides best-practice examples to improve the data collection. STECF notes that the main challenge encountered in the different sea regions is the difficulty to work with official data, either by lack of a mandatory license system and/or because the existing one is not suitable to be used as sampling frame for MRF data collection (e.g., not covering all fishing modalities, missing contact information, data protection requirements preventing use of contact data etc.). Accordingly, national population surveys are required, which incur substantial additional costs.

STECF notes that these structural issues will likely persist, and highlights the necessity to further work on a clear and cost-efficient EU common strategy to attain the desired final objective of accurately assessing the relative share of catches of recreational fisheries compared to commercial fisheries. STECF notes that beyond this pilot studies review, some expert working groups already contribute to this process by providing scientific evidence and methodologies, mostly the ICES Working Group on Recreational Fisheries Surveys (WGRFS) and the Working Group on Recreational Fisheries (WGRF) of the GFCM.

The second review report on the level of fishing and impact of fisheries on biological resources and marine ecosystem refers to the analysis of 32 pilot studies from 17 Member States. The report consists of two parts, a general part including general comments and a separate summary of all Pilot Studies undertaken by Member States. The report includes general comments regarding main achievements, methodologies, difficulties encountered and potential solutions, conclusions and areas that could be improved. In the second part of the study the structure and content of each pilot study was evaluated against a set assessment criteria. STECF agrees with the comments and suggestions proposed by the EWG.

Proposed amendments to the assessment grid and evaluators' guidance for WP 2022-2024 and to the WP/AR templates and guidelines.

STECF observes that the EWG assessed a number of new amendments to the assessment grid and evaluators' guidance for WP 2022-24 and the most recent version of the WP and AR templates and guidelines, considering the questions from Member States and the Commission's comments in the documents. STECF notes that the assessment of the documents by the EWG closes the external review process of these documents before distribution to Member States for submission of WP 2022-24 by 15 October 2021. STECF observes that DG MARE asked STECF to consider input to Text Box 4.2 from the Inter-service consultation within the Commission.

STECF conclusions

STECF concludes that the EWG addressed all the ToRs appropriately and endorses the report and related documents.

STECF concludes that the communication with Member States prior to the start of the EWG was a positive development of the feedback process from the Member States. Since issues

had been identified and adressed prior to the meeting the early communication allowed for a more efficient and timely assessment of ARs as compared to previous years.

STECF concludes that the impacts of covid-19 restrictions on data collection were not fully reflected in the assessment, due to the standard formulation of the assessment questions that proved sometimes inappropriate for assessing this specific issue. STECF also concludes that the slight quality decrease in the overall assessment of ARs is partly but not all due to Covid-19 effect.

STECF notes that no DTi due to Covid-19 effects were yet assessed by the EWG as the DTi in the DTMT refer to data issues occurring in 2019, but specific attention might be paid to this question next year.

STECF concludes that the high number of DTi this year (555) shall not be interpreted as a deterioration of data quality but is an artefact of some DTi being not aggregated (in contrast to previous years) before being inserted in the DTMT. Furthermore, the high number may actually rather reflect a general improvement in the awareness, communication and traceability of detected DTi. STECF further concludes that the revised DTMT guidance (see also ToR 7.6) should improve the assessment of DT issues in the forthcoming EWGs dealing with this subject.

STECF concludes that the review of the pilot studies on recreational fisheries constitutes a valuable analysis relevant to define next steps in this field and can therefore be published. Given the acknowledged structural challenges of the exercise, STECF further concludes on the necessity to progress work towards a clear and cost-efficient EU common strategy to accurately assess the relative share of catches of recreational fisheries, in close collaboration with ICES and GFCM.

As regards the study on the level of fishing and impact of fisheries on biological resources and marine ecosystem STECF concludes that the report provides a useful summary of activities of Member States but needs to be redrafted following the comments raised by the EWG before publication. STECF concludes that the assessment of the updated review report could be included at terms of reference for the EWG 21-17.

Regarding the WP/AR templates and guidelines, STECF concludes that the EWG revised them appropriately to reflect the changes introduced in the EU-MAP. STECF concludes that regarding the additional question addressed to the plenary regarding the input from the Inter-service consultation (Text Box 4.2), the proposed changes are redundant, as the aspects of sampling design and data quality are already covered in Annex 1.1.

6. ADDITIONAL REQUESTS SUBMITTED TO THE STECF PLENARY BY THE COMMISSION

6.1 Review of national management plans for bottom trawlers in certain territorial waters of Spain (Murcia)

Background provided by the Commission

In October 2020, the Spanish Administration has expressed its intention to adopt a new management plan for trawling in certain territorial waters of Spain (Murcia). This plan envisions the renewal of a previous derogation request from Spain to EC 1967/2006 article 9/13 in terms of distance and minimum depth from the coast in waters of Spain (Murcia).

Request to the STECF

STECF is requested to review and make any appropriate comments and recommendations on the new management plan for the trawl fisheries and its supporting study.

In particular, STECF is requested to:

TOR 1. Advise and assess whether the management plan for trawlers in the waters of Murcia contains adequate elements in terms of:

1.1. The description of the fisheries

- Biological characteristics and state of the exploited resources with reference in particular to long-term yields.
- Description of the fishing pressure and measures to accomplish a sustainable exploitation of the main target stocks.
- Data on catches (landings and discards) of the species concerned, fishing effort and abundance indices such as catch-per-unit-effort (or CPUE).
- if possible, catch composition in terms of size distribution.
- Information on the social and economic impact of the measures proposed.
- Potential impact of the fishing gear on the marine environment with particular interest on protected habitats (i.e. seagrass bed, coralligenous habitat and maërl bed);

1.2. Objectives, safeguards and conservation/technical measures

- Objectives that are consistent with the objectives set out in Article 2 and with the relevant provisions of Articles 6 of CFP Regulation and quantifiable targets, such as fishing mortality rates and total biomass.

- Objectives for conservation and technical measures to be taken in order to achieve the targets set out in Article 15 of Regulation (EU) No 1380/2013, and measures designed to avoid and reduce, as far as possible, unwanted catches.

- Measures proportionate to the objectives, the targets and the expected time frame.

- Safeguards to ensure that quantifiable targets are met, as well as remedial actions, where needed, including situations where the deteriorating quality of data or non-availability places the sustainability of the main stocks of the fishery at risk.

- Other conservation measures, in particular measures to gradually eliminate discards, taking into account the best available scientific advice or to minimise the negative impact of fishing on the ecosystem.

1.3. Other aspects:

- Quantifiable indicators for periodic monitoring and assessment of progress in achieving the objectives of the plan.

TOR 2. Evaluate whether the following conditions set by the MEDREG and Regulation (EU) 2019/1241 are fulfilled:

2.1 Derogation to the distance from the coast (Article 13 – Paragraphs 5, 9 and 10)

- There are particular geographical constraints, such as the limited size of the continental shelf along the entire coastline;

- The fisheries have any significant impact on the marine environment;

- The fisheries involve a limited number of vessels and do not contain any increase in the fishing effort;

- The fisheries cannot be undertaken with another gear;

- The fisheries are subject to a management plan and carry out a monitoring of catches as requested in Article 23;

- The vessels concerned have a track record of more than 5 years;

- The fisheries do not interfere with the activities of vessels using gears other than trawls, seines or similar towed nets;

- The fisheries are regulated in order to ensure that catches of species mentioned in Annex IX of Regulation (EU) 2019/1241 with the exception of mollusc bivalves, are minimal

- The fisheries do not target cephalopods.

2.2 Derogation to the minimum mesh size (Article 9, paragraph 7)

- The fisheries are highly selective and have a negligible effect on the marine environment; and

- The fisheries do not operate above seagrass beds of, in particular, Posidonia oceanica or other marine phanerogams.

STECF response

STECF notes that although the ToRs of the request to STECF are the standard list of checks to be followed when evaluating national management plans in the Mediterranean area, this request is not like similar requests routinely evaluated by STECF for the renewal of exemptions already granted in the frame of the Mediterranean regulation 1967/2006. The present exemption had been historically proposed by Spain back in 2007, but never implemented under a specific Management Plan. Specifically, it did not appear in the list of exemptions requested by Spain in 2011 for operating with bottom trawls between 0.7 and 1.5 nautical miles (nm) off the coast. As such, since the exemption has not been in operation for many years, STECF cannot evaluate the request on the basis of historical data and past compliance with the MedReg 1967/2006, but only on the basis of the future commitments envisaged in the documents.

Summary of the information provided to STECF

Background documents are published on the meeting's web site on: https://stecf.jrc.ec.europa.eu/plen21032

To support the new request of exemptions, several documents were provided:

Document 1. "Analysis trawl fleet Murcia 18062021.pdf"

This brief document (provided both in Spanish and in English) describes the changes in the trawl fleet in the Murcia region between 2005 to 2020. The presented data shows a reduction in the number of vessels from 33 in 2005 to 23 in 2014 and thereafter (vessels' average GT around 50), and a reduction of fishing effort from 8138 fishing days in 2005 to 4106 in 2020.

Document 2 "37.1 ITA P22018b Cartagena Gorguel.pdf" : Informe tecnico de asesoramineto del area de pesquerias del Instituto Espanol de Oceanografia (IEO). ASUNTO: Informe 0,7 millas Murcia (Cartagena – Gorguel).

This short document (in Spanish) consists of some qualitative considerations related to the bathymetric characteristics of the seabed in the Murcia area showing a steep slope of the continental shelf that limit the trawlers' fishing abilities. The document states that the exemption would enlarge the fishing area without an accompanied increase in fishing effort. The enlargement is proposed towards the coast (up to a minimum distance from the coast of 0.7 nm, deeper than 50 m). The document mentions the existence of some scientific studies showing that the impact on some vulnerable stocks would be minimal as they are mostly distributed at shallower or deeper waters. However, no data or results are provided to demonstrate this to be the case.

The document also mentions that the scientific monitoring of landings and discards will be considered in the case the exemption is granted, but again without any details.

Document 3. 37.1 ITA_P22019b_Tinoso_Gorguel.pdf" : Informe tecnico de asesoramiento del area de pesquerias del Instituto Espanol de Oceanografia (IEO). ASUNTO: Informe 0,7 millas Murcia (Tiñoso – Gorguel).

Contains the same considerations of document 2 but related to the Area Tiñoso – Gorguel.

Document 4. "045-20 Informe exepciones Murcia.pdf": Actualizacion de las excepciones para fondos y distancias minimas para la pesca de arrastre en determinadas zonas del litoral Mediterraneo.

This document (in Spanish) describes the rules currently adopted by Spain on derogations to the minimum distances and habitat types for trawling in certain areas of its Mediterranean coastline with geographical coordinates. There are listed some sine qua non conditions for granting such derogations. These are the prohibition for operations at depths lower than 50 m, 0.7 (nm) as the minimum distance from the coast, the prohibition of fishing operations on protected habitats, the use of legal fishing techniques, legal mesh sizes, and the possession of a specific fishing license.

Document 5. "045-20 Mapa propuesta-0.7 millas-Cartagena.pdf"

This is a map with the area for which the derogation is requested.

Document 6. "Documento excepciones Parte I.pdf": Excepciones para fondos y distancias minimas para la pesca de arrastre en determinadas zonas del litoral Mediterraneo"

This document is a notification (in Spanish) to the European Commission of the areas for which exemptions of the minimum distance from the coast have been requested for bottom trawlers.

The document lists the areas with their geographical coordinates, and the list of registered trawlers authorised to operate in each zone.

In the document, several qualitative statements are given to support the request for derogation, but without any accompanying technical or scientific evidence.

Document 7. "Documento Excepciones Part II.pdf "

This document includes a series of maps covering the whole Mediterranean coasts where areas for which exemptions of the distance from the coasts have been enforced or requested are located. There is a chart that shows the Murcia area with the 0.7-1.5 nautical miles from the coast strip highlighted.

STECF comments

STECF notes that with the exception of the time series of number of vessels and fishing days, the elements included in the background documents are largely qualitative and generic. They describe the state of play of existing national rules in the Spanish coastal waters and state that the exemption sought is in line with the required conditions listed in TOR 2 with regards to area, depth, prohibition to trawl on protected habitats, etc, but without any accompanying technical or scientific evidence.

STECF recalls that requests for derogations from the provisions of the Mediterranean Regulation EC 1967/2006 must be framed in a detailed management plan describing the monitoring and management of all elements described in the ToR 1 that will take place. The data that will be collected, in order to ensure that the resources are exploited according to the CFP objectives should also be provided. This includes, inter alia, quantifiable targets for the exploited stocks, such as fishing mortality rates and total biomass, as well as other conservation measures aimed at the gradual elimination of discards, and the minimization of the negative impact of fishing on the ecosystem.

STECF stresses that supporting evidence for the derogation cannot be obtained without a detailed knowledge of the fishery, the catch composition, the characteristics and status of the demersal and benthic species caught as well as the elements necessary for predicting possible biological, social, and economic impacts that may occur if the derogation was to be granted.

STECF notes that scientific monitoring is considered, but not described in any detail.

STECF is aware that the Spanish trawl fleet concerned by the requested derogation is currently managed in the frame of the EU management plan (MAP) for the Western Mediterranean. This means that some of the management and monitoring elements required for the exemption may already exist in the frame of this MAP, especially for the target species included under the MAP. STECF underlines that linkages between the EU management plan and a national management put in place to permit derogations from the MedReg (EC) 1967/2006 provisions should be made explicit and coherent.

STECF notes that beyond the exemption in the Murcia area, the documents mention numerous other derogations to fish closer to the coast. It is unclear to STECF what is the status of these other derogations and whether they have already been scientifically evaluated.

STECF conclusions

STECF recalls that requests for derogations from the provisions of the Mediterranean Regulation must be framed into a detailed management plan. This should detail how the monitoring and management of all elements described in the ToR 1 will take place and

complied with, as well as the data that will be collected, in order to ensure that the resources are exploited according to the CFP objectives.

STECF concludes that the information provided in support of the request is insufficient to permit a scientific assessment of the current resource status in the proposed area or the potential impacts of the proposal.

6.2 Follow-up of EWG 21-01: West Med assessments - evaluation of closure areas

Background provided by the Commission

Article 11.3 of the Western Mediterranean multi-annual management plan (MAP, EU Regulation 2019/1022) requests Member States to adopt additional closure areas by July 17th 2021. Those closure areas shall be delineated in areas where there is evidence of high density of juveniles and of spawning grounds of the MAP target species.

In addition, in the AGRIFISH Council Joint Statement concerning additional closures, the Member States concerned (France, Spain and Italy) committed to provide new area closures information by Mid-February 2021, based on standardized STECF methodology. The additional closures should reduce between 15% and 25% of the bycatch of each target species in each GSA. However, France and Italy did not submit proposals of additional closure areas timely enough for the STECF EWG to work on those.

STECF EWG 21-01 has thus reviewed the proposals of additional closures (placement and period) submitted by Spain and determine their efficiency to protect juveniles and spawners of the demersal species covered by the West Med MAP and accounting for fishing effort displacement.

Following this assessment, Spain, France and Italy have been requested to submit updated proposals by mid-June 2021 for the STECF Plenary to assess the additional closure proposals in light of the scientific evidence and of the MAP provisions.

Request to the STECF

STECF is requested to review the updated proposals of additional closures (placement and period) submitted by the 3 Member States and assess:

- whether the methodology used by the MS is appropriate, consistent with previous STECF evaluations, and

- whether the results demonstrate that the proposals will achieve the MAP provisions, including the reduction objectives of juvenile and spawners by-catch

In case the proposed closures are not meeting the criteria of the MAP provisions, the Plenary could suggest ways of improving the proposals such as identifying published literature with studies on alternative closures (placement and period) for Spain, Italy and France.

Summary of the information provided to STECF

Background documents are published on the meeting's web site on: https://stecf.jrc.ec.europa.eu/plen21032

Spain GSA 6 (ICATMAR)

A technical report from the Catalan Institute for Ocean Governance Research (ICATMAR) for GSA6 was provided. This is the final version of the previous draft "Progress Technical

report" sent to the General Secretary for Fisheries of Spanish Government on February 19th of 2021 and assessed during EWG 21-01. The report includes: 1) a list of permanent (21 areas, corresponding to 852 km^2 and to 4% of the total fishing ground) and temporary closure areas (4 areas, corresponding to 4,655 km^2); 2) the fishing effort (hours) and the swept area (km^2) calculated by means of VMS data for the period 2016-2019 and considering also the bathymetric range; 3) a comparative review of the selectivity performance of square mesh codends is provided from experiments carried out over fishing grounds in NW Mediterranean. The above points have been addressed for European hake (*Merluccius merluccius*), Norway lobster (*Nephrops norvegicus*), blue and red shrimp (*Aristeus antennatus*), deep-water rose shrimp (*Parapenaeus antennatus*), and red mullet (*Mullus barbatus*). The giant red shrimp (*Aristeomorpha foliacea*) was not included in the report. The size-frequency distributions of all 5 reference species were obtained during onboard sampling on commercial vessels. The effects on the target species (i.e., total catches, individuals <MCRS, individuals <size at first maturity) of four management scenarios were investigated (Table 6.3.1): a) closure areas (permanent and temporary); b) closure areas (permanent and temporary) and effort redistribution; c) effort reduction by 7.5% (days); d) adoption of 45 mm (mixed fishery for hake, red mullet, deep-water rose shrimp, Norway lobster) and 50 mm (fishery for blue and red shrimp) square mesh codends.

Table 6.3.1. Summary of catch reductions (%) by species and applying the four different management measures in the GSA6. Baseline reference years: 2016-2019.

Species	**a) Closure areas**	**b) Closure areas + effort redistribution**	**c) Fishing effort reduction (7.5%)**	**d) Use of 45 and 50 mm square mesh codends**	**Total catch reduction (b+c+d)**
Hake (≤20 cm)*	4.7	2.8	6.4	43.9	53.1
Norway lobster (≤20 mm)*	0.6	-0.4	6.4	49.8	55.8
Blue and red shrimp (≤28 mm)**	0.3	-0.2	6.4	48.7	54.9
Deep-water rose shrimp (≤20 mm)*	2.7	0.6	6.4	63.8	70.8
Mullus spp. (≤11 cm)*	1.5	-0.6	6.4	52.8	58.6

* MCRS; ** Size at first maturity (chosen for the Blue and red shrimp has this species has no MCRS)

Spain GSAs 1, 5 and 6 (IEO)

A technical report from the Spanish Institute of Oceanography (IEO) updating and combining three documents (P22107, P22015 and P22108) was also provided to STECF. This was already assessed by EWG 21-01. The report evaluates the effects of two management measures (reduction of fishing activity and improvement of the selectivity of trawl gears) and their combination with the closure areas in reducing catches of juveniles and spawners of the target species in GSAs 1, 5 and 6. The report does not include any proposal for new closure areas.

France (French Administration)

The French Administration provided an accompanying note to the technical report drafted by IFREMER, which focused on spatio-temporal closures aimed at reducing juvenile hake in trawl catches in the Western Mediterranean. It is stated that, in view of the excellent results obtained by the spatio-temporal closures in force since January 2020 (55% reduction of juvenile hake in trawl catches) and in view of the socio-economic cost that additional closures would generate, additional closure areas are not considered at this stage.

France (IFREMER)

A technical report drafted by IFREMER was also provided. It concludes that juvenile hake catches made in 2020 decreased by 55% if compared to the average catch over the period 2015-2017 (i.e., 223 tonnes compared to 500 tonnes). The authors attributed this sharp decrease to the implementation of spatio-temporal closures already implemented by France, but also, in part, to the 10% fishing effort reduction in accordance with the management plan. No additional closure areas are proposed.

Italy

No documents were received from Italy.

STECF comments

Evaluation of new proposed closures

STECF notes that only Spain (ICATMAR report) proposed new additional closure areas for GSA 6, therefore specific observations and conclusions have been drawn only for this proposal. STECF has not evaluated the report from France and the report from Spain for GSAs 1, 5 and 6 (IEO report) since these do not represent new closure proposals and thus do not relate to the Terms of Reference.

STECF acknowledges the improvements made to the updated ICATMAR report (GSA 6), compared to the draft version assessed during EWG 21-01. STECF notes that the permanent closure areas increased from 787 km^2 in the draft version (EWG 21-01) to 852 km^2 in the final report (+8%). Conversely, concerning the temporary closure areas, STECF notes that the surface of the Alicante no-take area has been scaled down by 11% (1,353 km^2 in the draft report and 1,198 km^2 in the final report). STECF notes that a major improvement in the final report concerns the effort displacement, which has now been considered when calculating juveniles catch reduction. STECF notes, however, that the methodology employed to model effort displacement is not described and STECF cannot thus evaluate the validity of the assumptions made.

Concerning the appropriateness of the methodology used, STECF notes that this version is more in line with the guidelines of STECF PLEN 19-03 and STECF PLEN 20-01, compared to the draft version assessed in EWG 21-01. In particular, data on juveniles of five species (hake, Norway lobster, blue and red shrimp, deep-water rose shrimp, and red mullet) have

been included in the calculations to anticipate the effect of different management measures (i.e., closure areas, effort reduction and selectivity improvement).

However, STECF observes that, contrary to the guidelines of STECF, no survey data were used to model hotspots and persistency of nursery and spawning areas. Maps of nursery or spawning areas were not provided, but a proxy of the geo-referenced distribution of species was obtained by mapping trawling footprint (VMS data), landings and length data obtained during sampling onboard. STECF stresses that fisheries-dependent and fisheries-independent data are complementary and do not provide the same type of information, and advises that both sources of information are used to the extent possible.

STECF notes that no information was provided for spawners of any of the species covered by the MAP.

STECF observes that the proposed closures areas along with effort redistribution would generate little to no benefits in terms of reduction in juvenile catches, ranging from +2.8% (hake) to -0.6% (red mullet), while the fishing effort reduction foreseen for 2021 (7.5%) would produce a decrease of 6.4% in juvenile catches for all the five species considered. In comparison, STECF notes that a considerable reduction in juvenile catches ranging from 43.9% (hake) to 63.8% (deep-water rose shrimp) could be obtained by increasing the selectivity by adopting 45 mm and 50 mm square mesh codends compared to the codend in use by the trawl fleets (40 mm square mesh).

In general, STECF observes that spatial and temporal closures alone may not contribute to achieving the objectives of the plan since they may not reduce the overall fishing pressure but merely lead to effort displacement toward other fishing grounds, in an attempt for fishers to maintain stable catches levels on the targeted species (as anticipated by the simulation study), and possibly toward other gears, other species and other habitats.

STECF notes also that the catch reduction analysis presented here only pictures immediate changes in catches compared to a baseline, but does not investigate the changes over medium and long-term. Given the changes over time in harvested resource distribution and fishing effort allocation, STECF suggests that fishing closures are best evaluated in an integrated manner, and should also be re-assessed periodically to adapt to such changes. STECF recalls that a variety of bio-economic models can be employed to forecast the effects of proposed additional closures on the fishing effort displacement, adapted to the amount of knowledge and geo-referenced data available. These models range from the simplest (i.e. homogeneous redistribution, bathymetric weighted redistribution, gravimetric redistribution) to more complex frameworks that can explicitly integrate the spatial dimension in an individual-based simulator of fishery closure scenarios with biological and effort feedbacks.

Spatially-explicit bioeconomic models can also help evaluate the effects of the potential increase of biomass productivity, the potential spill over effect from closure areas, and the ability of species to disperse or migrate, taking also into account the potential impact of the closures in the biomass in those areas still opened to fishing, and consequently the impact of the compensatory effects from the fleet adaptation.

On designing new closures

In case the proposed closures are not meeting the criteria of the MAP provisions, the STECF was asked to suggest ways of improving the proposals such as identifying published literature with studies on alternative closures (placement and period) for Spain, Italy and France.

STECF acknowledges that designing spatio-temporal closures and assessing their effects is not straightforward, as many factors are at play. STECF stresses that the identification of nursery grounds and spawning aggregation areas of exploited stocks is a key requirement

for the development of spatial conservation planning effective at reducing the adverse impact of fishing on the exploited populations and ecosystems. This is particularly true in the Mediterranean, where the spatial distribution of many stocks can be depicted as a mosaic of habitat patches that are functionally connected at multidimensional levels and where nurseries of commercial demersal species are often distributed in offshore habitats such as the shelf break, covering large extensions of the sea bottom (Colloca et al., 2015).

STECF acknowledges the fact that imposing very large closures may not always be politically suitable due their socio-economic impact on fisheries. Therefore, if smaller closures are sought, their identification should be focused on highly productive patches (for nurseries) and on dense concentrations of spawners (for spawning areas). Considering also that the displacement of fishing effort may deplete adjacent areas faster, prioritizing the protection of overlapping persistent hotspots could minimize the negative impact of the effort redistribution.

STECF suggests a roadmap for identifying and testing the effects of closure areas (for further methodological details see: Colloca et al., 2015): a) define recruits and spawners (a number of assumptions can be made to identify thresholds for these two categories); b) estimate the distribution of recruits and spawners densities using several modelling approaches depending on species and area; c) identify hotspots (i.e., areas with higher density) of recruits and spawners (e.g., by means of survey data and sampling onboard); d) verify the spatial and temporal persistency/stability of such hotspots; e) evaluate the importance of each area in a multispecies context by analysing the spatial overlap among the persistent hotspots (areas including nurseries and spawning aggregations for multiple species should be ranked as highly priority areas); f) define a number of closure areas scenarios prioritizing areas with overlapping hotspots and gradually increasing their spatial extensions; g) verify the effect of such scenarios (closure areas) in reducing juveniles and spawners in catches along with effort redistribution (e.g., ideally through a dynamic modelling). Following this roadmap, it could be possible to optimize spatial management objectives for demersal fisheries by identifying the precise location and extension of closure areas achieving a given reduction of juveniles and spawners in catches.

STECF notes that this approach of ranking the areas and estimating the cumulated benefits and trade-offs for various levels of gradually increasing closed surface is of generic interest, used for example by ICES (2021) for estimating the reduction of fishing disturbance on seafloor habitats, and by Sala et al (2021) for estimating appropriate levels of protection of the global ocean for biodiversity, food and climate.

STECF conclusions

STECF has only evaluated the new closure proposal for GSA 6, but not the effect of the closures in GSAs 1, 5, 6 and 7 that were previously evaluated.

STECF acknowledges the improvements made in the final version of ICATMAR report, when compared to the draft version assessed during EWG 21-01. However, STECF concludes that the Spanish proposal of new closure areas in GSA 6 still has shortcomings and does not make full use of standardised data and methods which could have been used. STECF has suggested ways for improving the analyses of fisheries closures involving both fisheries-dependent and fisheries-independent information in order to better assess the expected impact of the closures.

STECF recalls that the evaluation of alternative closure scenarios shall follow the technical guidelines provided by STECF PLEN 19-03 and STECF 20-01.

STECF concludes that the additional closure areas proposed by Spain in GSA 6 do not achieve the objective of reduction of between 15% and 25% in the catch of juveniles and

spawners of each stock covered by the WMMAP. As already concluded in PLEN 21-01, achieving this by means of closures alone would require more ambitious scenarios, adapted to the areas, fisheries and species concerned. Alternatively, the combination of closure areas with effort reductions and selectivity improvement are more likely to contribute to achieve the requirements of the regulation for reducing unwanted catch levels.

STECF has proposed a generic roadmap for optimizing spatial management objectives for demersal fisheries by identifying the precise location and extension of closure areas for a given objective of catch reduction of juveniles and spawners in catches. This is based on a ranking approach of priority areas, allowing for the estimation of gradual cumulated benefits and trade-offs for increasing levels of closed surface.

References

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Sala, E., Mayorga, J., Bradley, D. et al. Protecting the global ocean for biodiversity, food and climate. Nature 592, 397–402 (2021). https://doi.org/10.1038/s41586-021-03371-z

6.3 Review of national management plans for boat seines in the Gulf of Manfredonia (Apulia, Italy)

Background provided by the Commission

In January 2021 the Italian Administration has expressed its intention adopt a new management plan for the transparent goby (*Aphia minuta*) fishery with boat seines in the Gulf of Manfredonia (Apulia, Italy). This plan envisions the renewal of the derogation from EC 1967/2006 article 9/13 in terms of distance and minimum depth from the coast, which is currently granted with the Regulation (EU) 2018/1634 of 30 October 2018. The current derogation will expire on 2 March 2021.

STECF PLEN 21-01 evaluated the national plan submitted by Italy and raised a number of data deficiencies and methodological issues. MARE has subsequently requested to Italy to revise the national plan in question in light of STECF conclusions.

Request to the STECF

STECF is requested to:

TOR 1. Advise and assess whether the updated management plan boat seines targeting transparent goby in the waters of the Gulf of Manfredonia (Apulia, Italy) contains adequate elements in terms of:

1.1. <u>The description of the fisheries</u>

- Biological characteristics and state of the exploited resources with reference in particular to long-term yields.
- Description of the fishing pressure and measures to accomplish a sustainable exploitation of the main target stocks.
- Data on catches (landings and discards) of the species concerned, fishing effort and abundance indices such as catch-per-unit-effort (or CPUE).
- Catch composition in terms of size distribution, with particular reference to the percentage of catches of species subject to minimum sizes in accordance with Annex IX of Regulation (EU) 2019/1241[5].

5 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

- Information on the social and economic impact of the measures proposed.
- Potential impact of the fishing gear on the marine environment with particular interest on protected habitats (i.e. seagrass bed, coralligenous habitat and maërl bed);

1.2. Objectives, safeguards and conservation/technical measures

- Objectives that are consistent with the objectives set out in Article 2 and with the relevant provisions of Articles 6 of CFP[6] Regulation and quantifiable targets, such as fishing mortality rates and total biomass.
- Objectives for conservation and technical measures to be taken in order to achieve the targets set out in Article 15 of Regulation (EU) No 1380/2013, and measures designed to avoid and reduce, as far as possible, unwanted catches.
- Measures proportionate to the objectives, the targets and the expected time frame.
- Safeguards to ensure that quantifiable targets are met, as well as remedial actions, where needed, including situations where the deteriorating quality of data or non-availability places the sustainability of the main stocks of the fishery at risk.
- Other conservation measures, in particular measures to gradually eliminate discards, taking into account the best available scientific advice or to minimise the negative impact of fishing on the ecosystem.
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1.3. Other aspects

- Quantifiable indicators for periodic monitoring and assessment of progress in achieving the objectives of the plan.

TOR 2. Evaluate whether the following conditions set by the MEDREG are fulfilled:

2.1 Derogation to the distance from the coast (Article 13 – Paragraphs 5, 9 and 10)

- There are particular geographical constraints, such as the limited size of the continental shelf along the entire coastline;
- The fisheries have any significant impact on the marine environment;
- The fisheries involve a limited number of vessels and do not contain any increase in the fishing effort;
- The fisheries cannot be undertaken with another gear;
- The fisheries are subject to a management plan and carry out a monitoring of catches as requested in Article 23;
- The vessels concerned have a track record of more than 5 years;
- The fisheries do not interfere with the activities of vessels using gears other than trawls, seines or similar towed nets;

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

6 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.

- The fisheries are regulated in order to ensure that catches of species mentioned in Annex IX of Regulation (EU) 2019/1241[7] with the exception of mollusc bivalves, are minimal
- The fisheries do not target cephalopods.

2.2 Derogation to the minimum mesh size (Article 9, paragraph 7)

- The fisheries are highly selective and have a negligible effect on the marine environment; and
- The fisheries do not operate above seagrass beds of, in particular, *Posidonia oceanica* or other marine phanerogams.

Summary of information provided to STECF

Background documents are published on the meeting's web site on: https://stecf.jrc.ec.europa.eu/plen21032

STECF was provided with a document, submitted in June 2021, titled:

"NATIONAL MANAGEMENT PLAN FOR DEROGATION TO MESH SIZE AND DISTANCE FROM THE COAST (REG EU 1241/2019 ANNEX IX, PART B AND REG EC 1967/2006, ART 13) REGARDING THE FISHING OF TRANSPARENT GOBY (APHIA MINUTA) BY BOAT SEINES IN THE MANFREDONIA FISHING DISTRICT"

The document is a revision of the management plan (MP) submitted in March 2021 that had been reviewed by STECF PLEN-21-01.

STECF examined this new version of the MP and compared it with the March 2021 version. STECF notes that only few changes were made in response to the PLEN-21-01 comments and suggestions. The main revisions of the MP are listed below:

1. In the new version of the MP, annual landings of transparent goby are now provided for 2018, 2019 and 2020 (22065, 13428 and 15819 kg, respectively).
2. The CPUE value, proposed as reference (trigger) point for the definition of harvest control rules, was increased from 15 kg $day^{-1}vessel^{-1}$ to 19 kg $day^{-1}vessel^{-1}$. STECF notes that these limits were defined using data collected when the fishery was carried out using trawl nets (2005-2010). Specifically, from the cumulative distribution of the monthly goby CPUE (kg $day^{-1}vessel^{-1}$) in 2005-2010, the median CPUE and the lower percentile (25%) were identified as 19 and 15 kg $day^{-1}vessel^{-1}$, respectively. Thus, the lower CPUE percentile (25%) in this trawl time series was

7 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

replaced by the respective median CPUE in order to set a more precautionary trigger.

3. On page 57 in the original MP (March version), it was stated: "*On account of the knowledge acquired during the two years of experimentation, the fishers from Manfredonia implemented some changes to the structure of the seine, adapting it to the characteristics and the operative requirements of their vessels*." STECF PLEN-21-01 had noted that such technical changes are likely to have increased the catch efficiency of the net and should be duly documented. However, in the revised (June) version of the plan, no description is given of the modified seine net as well as of the changes made to the trawl vessels to operate the net (e.g., winch, engine, propeller pitch, eco-sounder). Instead, the aforementioned sentence ("*On account of (…)")* was deleted from the new version of the MP (see page 58 in the document provided).
4. Regarding the PLEN-21-01 request to provide discard and bycatch data for the most recent fishing period (2018-2020), a sentence was added (p. 86) stating that: "*During the three years of the experimental campaign, it was registered lack of data on discards and bycatch*."

STECF comments

STECF considers that the few changes listed above do not warrant a detailed response to the ToRs in a point-by-point manner. This would largely replicate the work done in PLEN-21-01 and the reader is referred to the STECF PLEN-21-01 report for such point-by-point response to the same ToRs.

Essentially, the comments and conclusions of PLEN-21-01 for the MP remain the same, except those related to the new elements including the 25% CPUE limit and the lack of landings data.

The main STECF comments and conclusions regarding the MP for boat seines in the Gulf of Manfredonia (March and June versions) are summarised below. These comments address both the new elements (i.e. the few changes made in June) and the elements of concern raised by STECF on the March version of the MP but still included, unchanged, in the June version. STECF notes that there was no response to important STECF PLEN 21-01 comments, regarding for example the definition of management actions associated with the harvest control rules or the effort restriction measures included in the MP, and therefore STECF reiterates them here.

CPUE trigger

The median CPUE (19 kg day-1 vessel-1) of the 2005-2010 trawl fishery is now proposed as reference (trigger) point for the definition of harvest control rules. However, the mean daily yields reported for the boat seines in 2013-2020 were three-four times higher than that obtained by the trawl fleet in the period prior to 2013 (see Table 6.11.1 in STECF PLEN-21-01 report).

STECF acknowledges that the new trigger point is slightly more precautionary than the previous one. However, it is still significantly lower than the CPUEs observed in the period 2013-2020, and would not have triggered any management action either. STECF reiterates that management reference points based on gears that are no more in use are inappropriate and should not be used. This low CPUE reference point, compared to current (seine) CPUEs, is likely to be reached only once the stock would be already severely depleted. STECF notes thus that this revised value can still not be considered precautionary. STECF emphasises that a new CPUE threshold should be defined based on the current situation and the most recent boat seine time series.

STECF also recalls its discussions regarding the use of CPUE to define reference points for management (see section 4.1 in STECF PLEN-21-01 report). The use of CPUE as an indicator of stock abundance has several important drawbacks, especially for pelagic, schooling species (see also STECF PLEN 17-01). Much care must therefore be taken when using catch rates as management indicator, and alternative options should be explored.

Harvest control rules

Using data from the now ceased trawl fishery, the management plan proposes that a management trigger based on a minimum CPUE (19 kg day-1 vessel-1) be used to enact measures to reduce fishing effort.

The following "alarms" are set:

1. The daily average CPUE falls below the value of 19 kg day-1 vessel-1 for 3 consecutive days.

2. The daily average CPUE falls twice within 15 days below the value of 19 kg day-1 vessel-1.

In case of alarms, a management committee ("control entity") will meet immediately to decide actions to be taken (e.g., reduction of the duration of the fishing period, of the number of vessels authorised etc).

STECF acknowledges that the MP contains rules that would allow for a quick, in-season management reaction (e.g., initiate the process of taking actions when the daily CPUE falls below the trigger for three consecutive days). However, the rationale for the choice of these alarms should be described. STECF notes that daily CPUEs can be highly variable, affecting perceptions of true stock abundance in the short-term. For example, changes in environmental conditions may modify the availability or vulnerability of schools. At the beginning of the fishing season, CPUEs may also vary a lot from year to year, depending on the timing of recruitment. STECF suggests that a statistical analysis of daily CPUEs be presented that estimates the appropriate time intervals for in-season management reactions and shows evidence of the robustness of the proposed alarms to separate true signal from noise.

STECF reiterates also that the management actions to reduce fishing effort once the alarms levels are reached should be pre-defined and specified in quantitative manner in the MP, and not left to be decided once the situation deteriorates.

Effort restrictions

The MP proposes the reduction of the number of boat seines authorizations from 100 to 80. Only 30 vessels will be authorised daily, through a weekly turnover mechanism. The fishery will be open from 1st November to 31st May. Each vessel will operate for a maximum of 60 days during each fishing season. Fishing will be allowed up to 4 days per week, from Monday to Thursday, and only in daytime (6:00-18:00).

STECF notes that although 100 vessels were authorized to fish in 2018-2019-2020, only 23, 34 and 26 vessels, respectively, used their authorization (see Table 6.11.1 in STECF PLEN-21-01 report). The remaining authorized vessels did not participate in the fishery. STECF still considers that clarifications need to be given regarding the high number of trawl vessels (80) requested in the fishery.

STECF reiterates that the proposed combination of effort restrictions (7 months fishing season × 4 weeks × 4 days × 30 vessels daily) allows for about 3360 maximum potential fishing days. Given that the average number of total days-at-sea was about 300 in 2018-2020 (Table 6.11.1 in STECF PLEN-21-01 report), there is room for expanding up to 11 times (3360/300) the recent levels of fishing effort.

STECF reiterates thus that this combination of effort restrictions will never restrict the fishery, and cannot be considered as appropriate and effective for management purposes. Realistic limits should be imposed on the total number of authorized vessels as well as the days-at-sea allowed to the authorized fleet.

Bycatches and discards

STECF notes that although several pelagic and demersal species (including species from Annex IX of Regulation 2019/1241) are reported as bycatches in 2013 and 2014 (see Table 6.11.2 in STECF PLEN-21-01 report), it is declared that bycatch was nil in 2015. For the most recent period (2018-2020), it is unclear whether the stated "lack of data" on bycatches and discards is due to the failure of the onboard monitoring program to collect such data or a result of a complete absence of catches of any other species in the fishery. STECF considers that this second interpretation is highly unlikely, and bycatches in the fishery cannot be expected to be zero. STECF underlines thus that bycatches and discards should be properly monitored, and that a clear distinction between the two concepts (bycatches and discards) should be made.

Data collection

According to the MP, the monitoring of the plan will include:

surveys on board the fishing fleet by scientific personnel;

filling a catch data form or logbook daily with data on all catches (fishing area, number of fishing operations, goby catch, bycatch etc),

collection of socio-economic data (income, employment etc).

STECF notes however that although the plan in force for the 2018-2020 period stipulated the collection of similar information (onboard sampling, catch and bycatch data, socioeconomic), the data reported in the March and June versions of the plan are very limited and restricted to CPUEs and landings. STECF considers that all data foreseen to be collected under the MP should be reported in order to adequately monitor the effectiveness of the plan.

STECF conclusions

STECF concludes that the revised MP submitted in June contains only few new elements compared to the March version of the MP. The only additional data provided are the transparent goby landings in 2018, 2019 and 2020. For the same period, no socioeconomic data are presented whereas a "lack of data" on bycatches/discards is reported. STECF considers that it is highly unlikely that the catch of any other species in the transparent goby fishery would actually be zero.

STECF concludes that its previous comment (PLEN-21-01) on the potential changes in gear design and efficiency has not been addressed. Instead, STECF notes that the sentence that STECF had commented upon has been removed from the updated (June) version of the MP. STECF does not consider that this removal is an appropriate response, and reiterates its previous conclusion that potential technical changes made to the net and the vessels are necessary to understand the observed changes in average CPUE levels. These changes should thus be duly documented.

STECF still concludes that the CPUE trigger used in the MP, although it has been slightly increased, is not appropriate and should be updated to correspond to the current boat seine fisheries instead of the (old) trawl fisheries.

STECF still concludes that the proposed combination of effort restrictions is not constraining compared to the current level of fishing effort, and cannot ensure that fishing effort will not increase in the future. Thus, it cannot be considered precautionary.

6.4 Spanish exemption request under Paragraph 2 of Article 15, Council regulation (EU) 2021/92

Background provided by the Commission

In 2020 the Spanish administration requested an exemption for Spanish vessels to the requirement to use 100mm mesh size in demersal fisheries in the Celtic Sea under Article 13(2) of Regulation (EU) No 2020/123. The request was based on Spanish vessels fishing in area 7 having bycatches of cod historically below 1.5%. Using the mandatory 100mm as required in Article 13(2) would result in lower catches of megrim, impairing vessel profitability.

STECF PLEN 20-03 evaluated the request. However STECF couldn't draw any conclusion since only limited aggregated catch data have been provided to warrant an evaluation of the derogation. In addition, STECF concluded that the requested missed the documentation to demonstrate reduce possible bycatch of cod to less than the 1.5% threshold and the information demonstrating that the stocks are fully spatially segregated.

In May 2021 the Spanish Government submitted the same request for an exemption of use 100 mm mesh size by the bottom trawlers operating in ICES area 7. The present request includes a report from IEO that answers STECF 20-03 conclusion and comments and that includes the following elements:

- Information of catch composition of the OTB Spanish fishery, based on the Spanish discard programme, involving observer's on-board commercial vessels that participate on a voluntary basis (2017-2020);
- Maps of VMS distribution of OTB vessels and maps of DFC on-board observer program;
- Selectivity results of project RAPANSEL to minimize the discards of gadoids and other unwanted catch in ICES7.

Celtic Sea cod and whiting are regulated as target stocks under the Western Waters Multi-annual plan (WWMAP). Since 2019, when ICES' catch advice showed that cod and whiting stocks in the Celtic Sea are below Blim, only bycatches are allowed for both stocks. In addition, following Article 8 of the WWMAP, the EU was legally obliged to adopt remedial measures as safeguards, to help rebuild these stocks.

Specific remedial measures were already taken for those stocks pursuant to Regulation (EU) 2020/123. The purpose of those measures was to contribute to the recovery of the stocks concerned. The measures for cod aim at improving selectivity by making the usage of gear that has lower levels of by-catches of cod mandatory in the areas where cod catches are significant, thus decreasing the fishing mortality of that stock in mixed fisheries.

The Fisheries Council of December 2020 adopted the "Remedial measures for cod and whiting in the Celtic Sea" under article 15 of the 2021 Fishing Opportunities regulation (EU) 2021/92. These measures aim to reduce bycatches of gadoids in TACs of species caught in mixed fisheries together with gadoids (e.g. haddock, megrims, anglerfish

and Norway lobster), as, without those measures in place, TAC levels of target species should be reduced to ensure that gadoid stocks are able to recover.

Article 15 (3) provides for the possibility of exemptions to allow 'Baseline Gears' in regulation 2019/1241, when catches of cod doesn't exceed 1.5% of the catch, haddock does not exceed 20% of the catch.

On the other hand Regulation 2019/1241 Annex VI Part B establishes that it allows the use of mesh size at least 80mm with a fitted panel of at least 120mm square meshes for OTB targeting megrim and anglerfish in ICES subarea 7 when the vessel does not exceed 20% catch of cod, whiting and Pollock landed per trip.

Request to the STECF

STECF is requested to:

A. Considering if the attached data set is sufficiently robust to analyse Spanish catches, landings and discards in the requested vessels for exemption, in the following: Spanish vessels fishing with bottom trawls and seines in ICES divisions from 7f to 7k and in the area west of 5° W longitude in ICES division 7e, or vessels fishing with bottom trawls in ICES divisions from 7f, 7g, the part of 7h North of latitude 49° 30' North and the part of 7j North of latitude 49° 30' North and East of longitude 11° West.
B. Should the data set be assessed as robust enough to address point a), and taking into account the previous work of the STECF on the subject of cod thresholds, analyze if the requested vessel's fishing patterns, fishing locations or fishing gear are likely to give bycatches of cod (wanted and unwanted catches) per fishing trip, less than 1.5%, also in the situation where cod SSB is above Btrigger.

Summary of the information provided to STECF

Background documents are published on the meeting's web site on: https://stecf.jrc.ec.europa.eu/plen21032

STECF was provided with two documents and a dataset to inform its review:

1. *Letter from the Ministerio de Agricultura, Pesca y Alimentación*

In correspondence to DGMARE, the Spanish Ministry requested an exemption for Spanish vessels from the requirement to use 100mm mesh size in demersal fisheries in the Celtic Sea under Article 15(3) of Regulation (EU) No 2021/92. This is based on Spanish vessels fishing in area 7 having bycatches of cod historically below 1.5%. Using the mandatory 100mm as required in Article 15(3) would result in lower catches of megrim, and impact on profitability.

2. IEO Report" Scientific report to apply for exemptions of general technical measures in ICES division 7" and an attached excel dataset

A study from the Instituto Español de Oceanografía (IEO) to support the request for an exemption to Art. 15(3) was provided. This document presents data from the Spanish fleet to show that historical catches of cod do not exceed the 1.5% threshold of total catches.

The report responds to the comments made by STECF PLEN 20-03 on 'Spanish exemption request under Paragraph 2 of Article 13, Council Regulation (EU) 2020/123' (STECF PLEN-20-03). STECF PLEN 20-03 requested trip-level data with cod catch percentages for cod from the total catch, clarification on the spatial areas where the fishery is conducted and updated information on selectivity improvements from experimental trials.

The study provided describes the main fishery conducted by the Spanish fleet in ICES area 7. This is a directed OTB fishery targeting megrim, and monkfish, which constitute 80% of the total trip landings (métier OTB_DEF_70-99_0_0), involving 12 to 14 vessels. The fishery takes place along the continental shelf in ICES subdivisions 7 with fishing effort concentrated in two distinct areas in 7h,j to the southwest of Ireland and in 7c to south and west of the Porcupine Bank.

The study provides a map of sampled hauls during the period 2017-2020 obtained during the Spanish DCF onboard observer campaign (reported in Figure 6.5.1). According to the study, the sampling covers 1.0 to 3.6% of the annual trips during 2017-2020 (summing to 56 trips of which 42 are from Divisions 7g-j overlapping with the Celtic Sea Protection Zone CSPZ). Sampling by observers was carried out on 23.1 to 53.8% of the 12 to 14 vessels of the Spanish fleet conducting the mixed fishery with OTB_DEF_70-99 in ICES area 7 with mesh sizes less than 100mm.

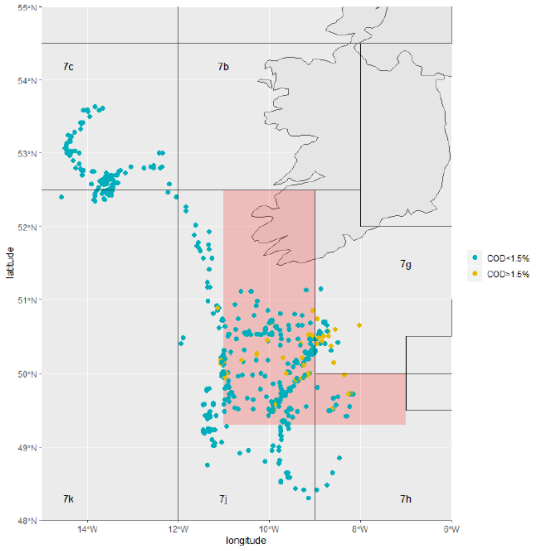

Figure 6.5.1. Map of observed hauls with the percentage of cod below and above 1.5% from monitored hauls by the DCF onboard observer program in years 2017-2020 for the Spanish mixed fishery OTB_DEF_70-99_0_0. Pink shaded area is the part of 7j and 7h that are inside the CSPZ. Figure provided in the IEO report. STECF notes that this figure does not include that part of the CSPZ that extends into 7g and 7f, and has thus provided a more complete map in Figure 6.5.2 further below.

The study provides trip-based catches (landings + discards) from the DCF observer sampled hauls. These hauls are from vessels that participate on a voluntary basis in the DCF programme. The ICES subdivision area and catches by weight and percentages of cod in those catches (0 to 10.1% per trip during the 2017-2020 period) are reported. The study identifies DCF hauls with less than and more than the 1.5% threshold of cod contained in Art.15(3) of Regulation (EU) 2021/92 (mapped on Figure 6.5.1 above). The study also provides maps of annual VMS data showing the entire distribution of fishing activity by this fleet for the years 2017, 2018, 2019 and 2020. In addition, a data file with the information on these DCF sampled trips since 2017, and additional data set since 2014 is also supplied (summing to a total of 117 trips over 2014-2020, of which 85 are from 7g-j).

Finally, the IEO report provides additional summary information about recent selectivity trials. These trials aim to minimise discards of gadoids and other unwanted catch in the 80 mm trawl fishery in ICES area 7 under the national project RAPANSEL, which was initiated in 2018. Previous work from this project by Valerias et al. (2019) was summarised in PLEN 20-03. In the RAPANSEL 2020 trial reported by Velasco et al. (2020), the catches of a 80 mm trawl with a 180 mm square mesh panel mounted at 5-7 m above the codline (T0_80_T45_05_180), was compared to the baseline (i.e. D100 mm codend as per Article 15(3) of Regulation (EU) 2021/92). The IEO report summary of this gear test concludes positive results for the reduction of unwanted catches of cod and haddock (-30% and -54% by weight respectively). Hake of all commercial sizes was also reduced by 55%, whereas catches of commercially sized megrim was comparable to the D100 codend. The report mentions that more selectivity trials are planned in 2021 and 2022 to continue to test gears that improve escapement of unwanted individuals, especially of gadoids and juveniles of other commercial species.

STECF comments

General comments and STECF approach to the ToRs

After clarification with DGMare, STECF understands that Article 15 (3) of Regulation (EU) 2021/92 (2021 TACs & Quotas) is the relevant article and not Article 2 as specified in the Terms of Reference. Article 3 provides for the possibility of exemptions to allow codend mesh sizes below the baseline 100mm to be used outside the Celtic Sea protection zone (CSPZ) as defined in Art 15(1), when catches of cod do not exceed 1.5% of the catch. STECF recalls that Art 15(6) of (EU) 2021/92 stipulates that the catch percentages shall be calculated as the proportion by live weight of all marine biological resources landed after each fishing trip.

STECF acknowledges that the Spanish fleet in area 7 targets megrim (LEZ), monkfish (ANF) and hake (HKE). While not altogether clear from the information provided, STECF assumes that an 80mm codend mesh size with no square mesh panel is the gear being used.

STECF notes that the TMR defines the baseline gear in Annex VI of Regulation (EU) 2019/1241 to be 100mm, with a derogation in a directed fishery for megrim and monkfish to use an 80mm codend +120mm square mesh panel. This derogated gear can be used when the catches do not exceed 20% catch of cod, whiting and saithe landed per trip.

STECF notes the remedial technical measures introduced under Regulation (EU) 2020/123 and (EU) 2021/92 into the Celtic Sea represent regulated gears over and above the baseline gears set out in the TMR. STECF notes that Article 13(2) of Regulation (EU)

2020/123 and 2021/92 made the use of a codend of at least 100mm mesh size mandatory in the entire Celtic Sea fisheries. Therefore, STECF understands that, from 2021 onwards, there should be no fishing for demersal species in the Celtic Sea with a gear less than 100mm mesh size, other than in *Nephrops* fisheries. STECF notes that if the exemption were to be granted, the minimum requirement that could be used would be the 80mm + 120mm square mesh panel as specified in Annex VI of Regulation (EU) 2019/1241 for bottom trawls and seines targeting hake, megrim and monkfish in ICES subarea 7.

STECF 20-03 observes that Regulation (EU) 2021/92 does not specify how to apply the 1.5% cod threshold. It could be, for example, that:

- a single trip with over 1.5% cod would disqualify an individual vessel or the entire fishery from the exemption, or
- even a small proportion of trips with a catch of cod larger than the 1.5% threshold while having an average value below 1.5% based on the entire set of sampled trips would result in the exemption not being granted.

STECF has suggested in PLEN-20-03 that the exemption may be requested only for a subset of vessels that individually meet the catch requirements below <1.5%. However, such a condition for the exemption in this métier would not be possible to apply in this case, because only a fraction of the active vessels has been sampled and therefore, STECF cannot assess which ones would meet the thresholds and be permitted to be exempted.

Furthermore, STECF observes that Art 15(3) could be interpreted as such that, because the threshold is calculated by trip, then logically it should be applied to vessels at trip level. This would mean that any trip over 1.5% would disqualify a vessel (or in this case the fishery overall) from the exemption. However, STECF observes that Art 15(3) does not make such a strict interpretation completely clear, and a level of ambiguity persists. It may thus be considered that vessels' averages or any other metric could be used. Reasoning per vessel or trip would also require that the catches are known for all these vessels or their trips, either because there would be 100% at-sea sampling and/or the landing obligation would be fully implemented; none of these two conditions are currently being met.

STECF has nevertheless used the DCF information provided to estimate the probability of the trips exceeding the threshold on average. Importantly, STECF underlines that only a limited proportion of trips is sampled (1.0 to 3.6% of the annual trips during 2017-2020; Table 6.5.1). As such, even when assuming that the set of trips with observers are representative of the average performance of the fleet, true cod catches cannot be computed with precision. STECF has thus focused its analysis on using various statistical approaches to best capture the uncertainty. Different scenarios are presented below to evaluate compliance with Art15(3) in the most robust and precautionary manner possible given the dataset available. However, STECF points out that caution should remain when interpreting the results.

STECF recalls that DCF sampling programs are aimed at being representative of catches over large distribution areas of the stocks and fisheries, and do not sample at a sufficient level of resolution to accurately address specific management issues in specific sub-areas. Providing individual haul data instead of trip data would help refine the scenarios below; but the observed variability of cod catches among trips (illustrated in figure 6.5.4 below), reflects the variability of cod distribution and dynamics at fine spatio-temporal scale, and

indicates that some degree of uncertainty will always persist when using DCF data. Precisely estimating catches for such specific management purposes would require a dedicated monitoring program.

Table 6.5.1. Sampling effort (provided in the IEO report).

Year	Metier DCF	Number of vessels (fleet)	Number of sampled vessels	% Coverage vessels	Number of trips (fleet)	Number of sampled trips	% Coverage trips
2017	OTB_DEF_70-99_0_0	13	7	53.8	333	12	3.6
2018	OTB_DEF_70-99_0_0	14	7	50.0	320	11	3.4
2019	OTB_DEF_70-99_0_0	13	3	23.1	300	6	2.0
2020	OTB_DEF_70-99_0_0	12	3	25.0	296	3	1.0

ToR a) Suitability of the attached dataset to judge on the proportion of trips exceeding the 1.5% threshold on Cod

STECF expects that a request for an exemption to >=100mm in Art 15(3) should be accompanied with a dataset of sufficient sample size. This should contain information on catches (landings+discards in live weight) of cod and any other caught species for all active vessels, and at the trip level. This allows an evaluation of the number of impacted vessels and the number of trips per active vessel that do not exceed the 1.5% cod threshold, outside of the Celtic Sea Protection Zone defined in Art 15(1).

While the dataset provided contains catches per trip as expected, STECF notes that the dataset does not provide all the information necessary to evaluate compliance with the preamble of Table B of the Annex VI of Regulation (EU) 1241/2019, (i.e. including the proportion of HKE-LEZ-ANF by trip required to identify the directed fishery, and the proportion of COD+WHG+POK catch relating to the 20% threshold contained in Annex VI). STECF notes that some of this information is qualitatively available in the IEO report, which states that i) the OTB_DEF_70-99_0_0, bottom trawl trips were using a codend mesh size of between 70 and 99 mm, fishing in North-Western European Waters (mainly Subarea 7), targeting megrim and anglerfish, and ii) both species would constitute at least 80% of total trip landings. STECF is however unable to verify this based on the data provided.

Overall, STECF acknowledges that the DCF sampling program on this fleet presented in the IEO report can be considered as spatially representative of the fishing operations of this fleet (métier OTB_DEF_70-99_0_0), according to the overlap between sampled fishing areas and the VMS data shown in the report. However, as mentioned above, STECF underlines that only a limited proportion of trips is sampled (1.0 to 3.6% of the annual trips during 2017-2020, Table 6.5.1 above) and this cannot provide great precision in the estimation of catch percentages.

STECF notes that 7j and 7h are partly inside and outside the Celtic Sea Protection Zone (CSPZ) defined by Regulation (EU) 2021/92 Art 15(1,2) (see Figure 6.5.1 above). However, according to Regulation (EU) 2021/92 Art 15(3) the exemption can only apply outside the CSPZ. STECF acknowledges that the IEO report provides a useful figure locating where the trips were exceeding the 1.5% threshold (Figure 6.5.1). This clearly shows that the number of hauls resulting in bycatches of cod higher than the threshold level of 1.5% is higher

within the CSPZ and along the boundary of the zone with 7g. Outside these regions the number of hauls exceeding the threshold is lower.

To make this split between waters inside and outside the CSPZ apparent in the data to be evaluated, STECF requested the dataset be further refined during the plenary week. The dataset was reviewed by IEO and sent back to the STECF to include the number of hauls of each trip falling inside or outside the Celtic Sea Protection Zone. Given the nature of the fishery, several trips straddle over the line with hauls taking place both inside and outside the CSPZ.

STECF notes though that even with this updated information it was still difficult to assess with certainty the percentages of bycaught cod when fishing takes place outside the CSPZ, because some trips straddled over both zones, with hauls both inside and hauls outside the CSPZ in varying proportions and with variable cod catches (Figures 6.5.2 and 6.5.3).

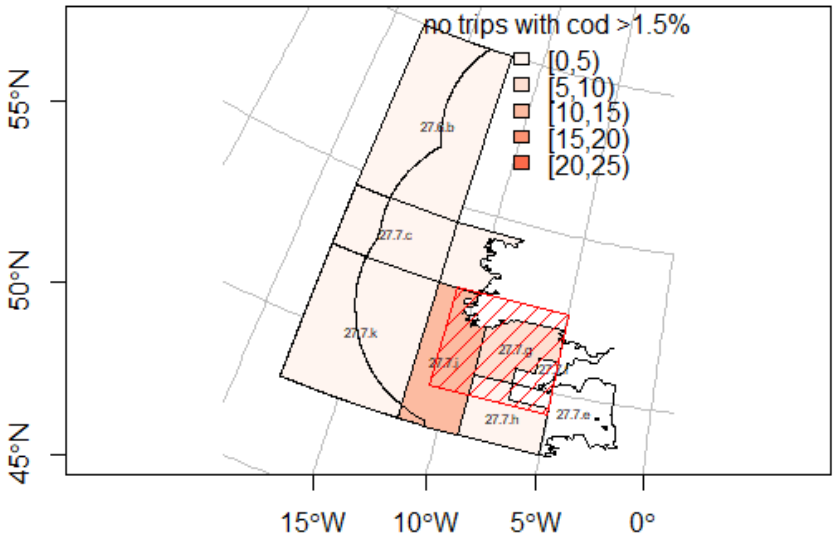

Figure 6.5.2. The number of trips reported per ICES subdivision to exceed the threshold on cod in the attached dataset to the request, with an overlay of the Celtic Sea protection zone for cod and whiting. Figure made by the STECF.

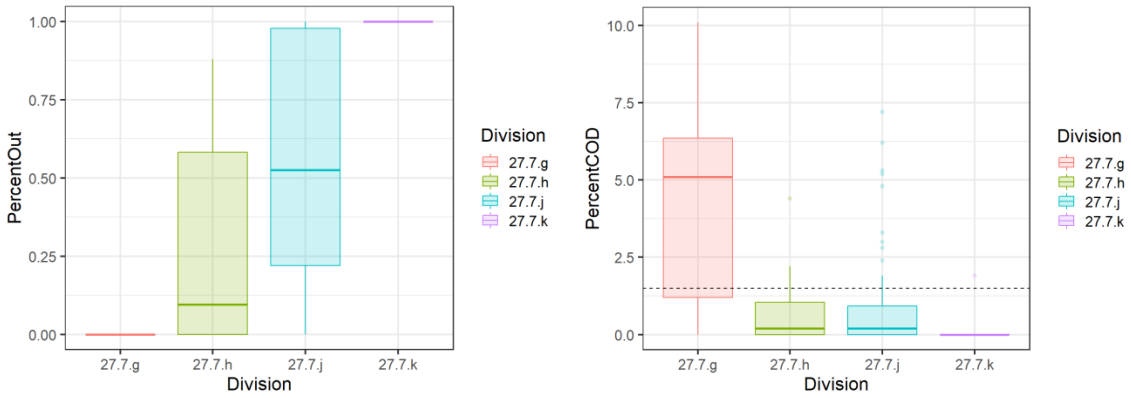

Figure 6.5.3: Left: Percentage of fishing hauls per trip carried out outside the CSPZ by ICES Divisions from the onboard sampling carried out by the IEO on this fleet since 2014 in the DCF. Right: Percentage of bycatches of cod by Divisions. The relationship between % of fishing hauls outside the CSPZ and the incidence of cod by catches is evidenced: outside of the CSPZ the percentages of cod are lower. Figure made by the STECF.

ToR b) analyze if the requested vessel's fishing patterns, fishing locations or fishing gear are likely to give bycatches of Cod (wanted and unwanted catches) per fishing trip, less than 1.5%,

STECF notes that there are several ways to respond to this question. Firstly, one can either interpret the question as asking for an estimate of the average percentage of cod in the trip catches of the fleet (method 1) or interpret the question as asking how likely it is that single trips exceed the threshold of 1.5% (method 2). In the absence of clear specifications in the Regulation, STECF presented both approaches. Secondly, assumptions must be made as to the definition of when a trip is considered inside or outside the CSPZ when individual trips may straddle with both hauls inside and outside the CSPZ. In this regard there is no objective way to select one assumption against another. Therefore, STECF repeated the calculations under several different assumptions on how to classify trips as outside the CSPZ.

Method 1) Average of bycatches of cod in % of total live catch per trip according to ICES areas and years depending upon the main region of fishing

From the dataset attached to the request, STECF computed an average of cod bycatch percentage first when all trips are considered, and then for two subsets of them (given the uncertainty in interpretation of Art15(3)). Following the methodology described in STECF PLEN 11-03 used to assess similar requests under the cod management plan (Regulation (EC) 1342/2008), STECF estimated the probability that the annual average proportion of cod over trips exceeded 1.5% by bootstrapping sampled trips in 7ghjk. This probability is low when all trips inside and outside the CSPZ are analysed, namely p[average>1.5%]=0.0828, and the mean percentage of cod bycatches per trip was 1.04% with confidence interval [0.81-1.72]) (Figure 6.5.4 left graph). These values were even lower when the estimations do not include trips fully inside the CSZP (where cod proportions are higher): when based only on the trips having at least 1 fishing haul outside the CSPZ, p[average>1.5%]=0.0051, mean percentage of cod bycatches of 0.73% [0.55-1.28] (Figure 6.5.4 middle graph; this corresponds to the worst case scenario considered below). If restricting the trip subset even further and including only trips "mainly outside", i.e. only the trips with at least 50% of the hauls outside of the CSPZ, the probability that the average bycatch of cod per trip exceeds the threshold fell to zero (p[average>1.5%]=0) , mean percentage of cod bycatch of 0.22% [0.13-0.49]) (Figure 6.5.4 right graph).

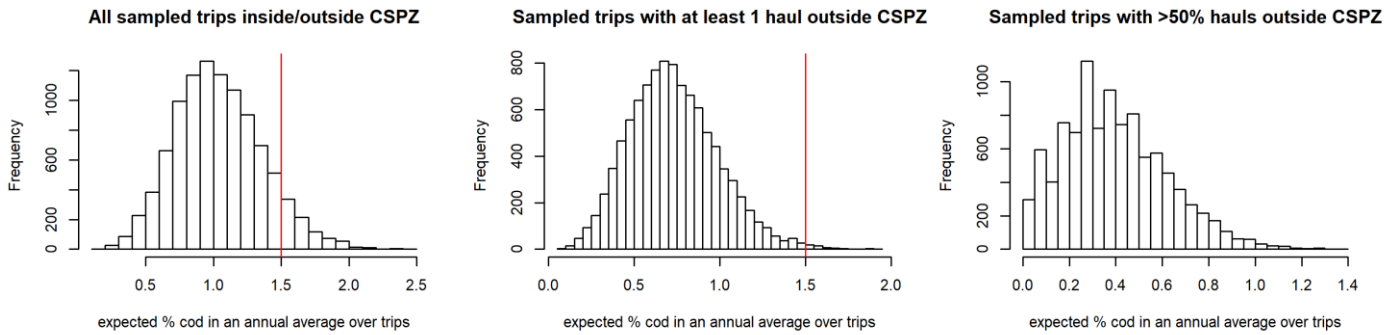

Figure 6.5.4. Frequency distribution of the expected percent of cod bycatch as an average over all trips (2017-2020) (left) or for the trips having at least 1 fishing haul outside the protected zone (middle) or for those having at least 50% of the fishing hauls outside the protected zone. The estimates are obtained by bootstrapping the observed cod trip-catches for the selected sampled trips (as defined above the graphs). The 1.5 % threshold is marked in red.

Method 2) STECF estimates of proportion of trips exceeding the 1.5% threshold

Method 1 computed only average cod catch proportion across trips; however, the formulation of the regulation may also require knowing the proportion of trips exceeding the threshold, and by which magnitude. STECF thus completed the analysis by a second approach. From the dataset attached to the request, and retaining only the more recent 2017-2020 (post-landing obligation) trips, STECF computed the number of sampled trips with >1.5% for each year in ICES areas 7ghjk. Assuming these numbers are representative, STECF raised this number to the total number of trips (in Table 6.5.1) declared by the Spanish fleet using the gear under examination.

The first calculations (worst case, scenario 1) allocate sampled trips from ICES areas 7ghjk with at least one haul outside the CSPZ to the regions outside the Celtic Sea Protection Zone. Since this can include trips with most hauls having occurred inside the protection zone and having thus higher cod catches, STECF considers this to be a worst-case scenario (the trips fully inside the zone are not relevant for this request and for this derogation). The raised numbers are given in Table 6.5.2. This shows that the frequency of the observed trips exceeding the 1.5% threshold was about 13.7%, leading to raised catches for the entire fleet of about 151 t of cod in total over the 4 years. A similar analysis retaining only trips having at least 50% of their fishing hauls outside the CSPZ (Table 6.5.3, scenario 2) resulted in a frequency of about 3.5% of observed trips exceeding the threshold resulting in raised catches of about 51 t of cod over four years.

Table 6.5.2. Scenario 1 - Raised numbers of trips and the catch of cod (tonnes) exceeding the >1.5% threshold of cod catch. The raising by STECF considers here as "trips outside the CSPZ" all the sampled trips with at least one haul outside the CSPZ, given the area assignment in the attached dataset to the request, which therefore constitutes a worst-case scenario.

	2017	2018	2019	2020	2017-2020
No of sampled trips with >1.5% for each year in 7g,h,j,k compared to total number of sampled trips*	2/11	0/10	1/5	1/3	4/29
Percentage sampled trips with >1.5% for each year in 7g,h,j,k	18.2%	0%	20%	33.3%	13.7%
Cod tons declared in the selected trips with exceeding 1.5% cod	1.4283	0	0.3326	1.2137	3.523 tons**
No of trips with >1.5% for each year in 7g,h,j,k (estimated as proportion exceeding sampled trips X total no of trips this year)	60	0	100	99	259**
Number of trips (fleet)	300	320	296	333	1249**
Raised amount of cod estimated to have been caught summed over 2017-2020 (i.e. 13.7%*(300+320+296+333) * 3.523/4)					150.665 tons

*Only the trips in ICES areas 7ghjk are counted; ** sum over the 4y

Table 6.5.3. Scenario 2 - Raised numbers of trips and the catch of cod (tonnes) exceeding the >1.5% threshold of cod catch). The raising by STECF considers here as "trips outside the CSPZ" only the sampled trips with at least 50% hauls outside the CSPZ, given the area assignment in the attached dataset to the request, which therefore constitutes an intermediate scenario.

	2017	2018	2019	2020	2017-2020
No of sampled trips with >1.5% for each year in 7g,h,j,k compared to total number of sampled trips*	0/11	0/10	0/5	1/3	1/29
Percentage sampled trips with >1.5% for each year in 7g,h,j,k	0%	0%	0%	33.3 %	3.44%
Cod tons declared in the selected trips with exceeding 1.5% cod	0	0	0	1.2137	1.2137 tons**
No of trips with >1.5% for each year in 7g,h,j,k (estimated)	0	0	0	148	148**
Number of trips (fleet)	300	320	296	333	1249**
Raised amount of cod estimated to have been caught summed over 2017-2020 (i.e. 3.44%*(300+320+296+333) * 1.2137 /1)					51.5 tons

* Are only counted the trips in ICES areas 7ghjk; ** sum over the 4years

STECF reiterates that both scenario estimates are uncertain as the underlying spatial density process and the seasonality for the cod abundance is unknown, and there are only a limited number of samples (low number of sampled trips compared to the large total number of trips, Table 6.5.1). For this reason, STECF then complemented the analysis by applying, as for method 1, the bootstrapping methodology described in STECF PLEN 11-03, to capture the uncertainty and deduce confidence intervals. This analysis returned slightly more pessimistic results than the above: for the 'worst case' scenario 1, it is expected that 17% [13.8-31.0] of the 2017-2020 trips could have exceeded the 1.5% threshold of cod (Figure 6.5.5, middle), with an averaged expected cod catch of 640 kg for each of these trips exceeding the threshold (Figure 6.5.5, right). Raising from this estimation to the whole fishery, 17% of 1249 trips operated by the fleet in total could have led to catching 135.9 tons during the 2017-2020 years.

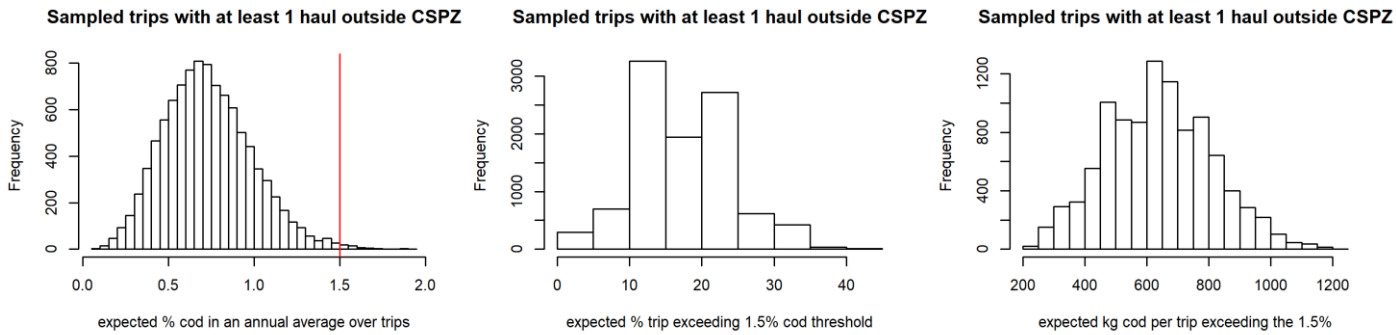

Figure 6.5.5. Summary of bootstrapping estimates for worst-case scenario, i.e., for the trips having at least 1 fishing haul outside the CSPZ in the period 2017-2020. Left: Frequency distribution of the average expected percent of cod bycatch (Same figure as 6.5.4 middle). Middle: expected % of trips exceeding the threshold during the year. Right: Expected cod catch (kg) in each of the exceeding trips. The estimates are obtained by bootstrapping the observed cod trip-catches for the selection of sampled trips. The 1.5% threshold is marked in red.

Specifics of Art 15(4) if 7b and 7c

Art 15(4) stipulates that Union vessels fishing in 7b and 7c may also use other fishing gear which results in the same or better selectivity characteristics in mixed demersal fisheries as that of a minimum cod-end mesh size of at least 100 mm.

STECF notes that if the exemption is to be granted the minimum requirement for the gear to use is the 80mm + 120mm square mesh panel specified in Annex VI of Regulation (EU) 2019/1241 for bottom trawls and seines targeting megrim and monkfish in ICES subarea 7 when fishing outside the areas referred to in paragraph 1. STECF notes that this gear is different from the gear currently used (fishing with mesh size equal or higher than 80 mm but without a square mesh panel). STECF considers however that this addition of the 120 mm panel is unlikely to make any significant differences in the selectivity for cod, therefore the calculations above are considered still valid under the new gear.

STECF observes that the IEO supporting document suggests that an 80mm codend with a 180mm square mesh panel significantly reduces unwanted catches of cod (-30.3%) and haddock (-53.5%) without significant loss of one of the main target species (megrim). STECF acknowledges this information and observes that applying such gear specification in areas 7b and 7c is likely to give reduced unwanted catches compared to applying the baseline gear defined in the TMR (i.e.80mm +120mm square mesh panel) for this directed fishery.

However, specific rules apply in area 7b and 7c. The supporting IEO report does not provide any information other than a reference to an ongoing RANPASEL 2020 project. This project aims to demonstrate that a gear of 80mm + 180mm square mesh panel would have the same or better selectivity characteristics in mixed demersal fisheries as that of a minimum cod-end mesh size of at least 100 mm as requested in Art. 15(4).

STECF is not aware of any other selectivity studies showing the 80mm and 180mm square mesh panel, as tested by Spain, to effectively reduce catches of cod. However, Krag et al (2013) have similarly shown that inserting a 180mm square mesh panel into a 90mm diamond mesh codend leads to a large reduction in the capture of cod. STECF also notes that based on previous studies (Santos et al., 2016), it is unlikely that the addition of a square mesh panel in the top panel would reduce the catches of undersized megrim given the morphology and behaviour of this species.

Regarding selectivity, STECF suggests that another possible gear option in this fishery could be the 100mm T90 (one of the gear options in the protection zone i.e. Article 15(1) of Regulation (EU) 2021/92). T90 has been shown to increase selectivity for roundfish and to be less selective than the T0 mesh orientation for flatfish (Madsen et al. 2012; Browne et al. 2016). This means that the potentially negative effects on catch efficiency by an increase from 80 mm to 100 mm mesh size can possibly be mitigated by the changed mesh orientation. A recent paper by Browne et al. (2021) from area 7j and 7g, reported no loss of megrim in a 100 mm T90 codend compared to an 80 mm codend with a 120 mm square mesh panel, whereas the selectivity of cod, whiting and haddock was significant improved.

STECF acknowledges that the targeted HKE-LEZ-ANF fishery is mainly conducted in areas of low cod and whiting abundance as it is concentrated on areas on the edge of the continental shelf in depths of 100-700m. This is at the limits of the depth ranges that cod and whiting populate (e.g., Calderwood et al. 2020). STECF acknowledges that there is likely limited spatial overlap between the distribution of the Spanish fishery targeting hake, megrim and monkfish, and the distribution of cod andwhiting populations. Therefore, while STECF notes that some bycatch of cod and whiting are possible outside the Celtic Sea Protection zone, they are likely to be small.

<u>How many trips could be expected to be >1.5% cod if the cod stock recovers above SSB MSY Trigger?</u>

STECF observes that the latest 2020 ICES advice shows both cod and whiting are harvested unsustainably (period 2017-2020) with F above FMSY and above the F range of the management plan with the 2020 SSB well below Blim (Figure 6.5.6)

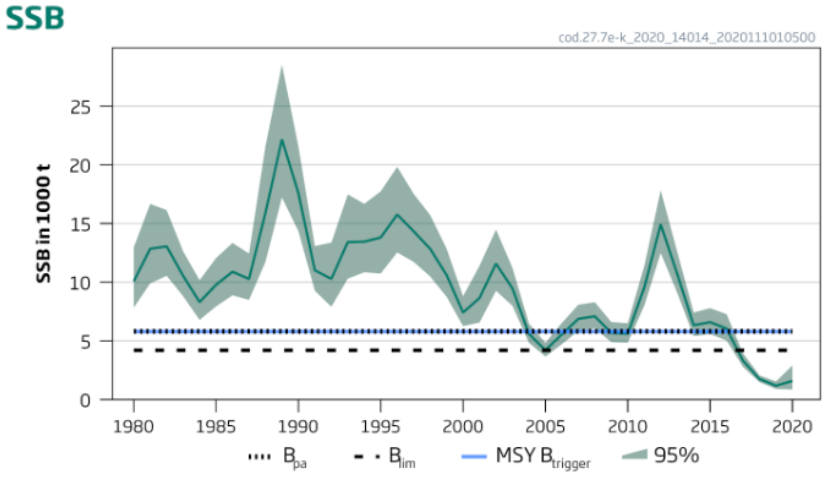

Figure 6.5.6 Summary of the stock assessment for Cod in divisions 7.e–k. extracted from the 2020 ICES advice.

The study provides catch data over the 2014-2020 years, therefore allowing theoretical calculation of the proportion of trips that may meet the 1.5% requirement during the period for which SSB was above MSY B trigger. However, STECF underlines that the cod stock has been close to SSB trigger over the period 2014-2016 and below during the period 2017-2020. Therefore, little information is available on cod bycatches in periods of higher abundance when SSB was well above SSB trigger.

STECF considers furthermore that an attempt to forecast the catch with the same selectivity is of little scientific value. Even if the gear selectivity remains the same, given the currently depleted cod, the percentage of cod catch would likely evolve with changes in fish length-frequency distribution as biomass varies. STECF observes that it is likely that cod catch will increase as the stock recovers even if the stock is not targeted. Higher cod catch would occur unless the targeted species and cod and whiting stocks are completely segregated spatially, or if the gears are very selective. Such an increase would result in the frequency of trips by the non-targeting cod fleets not complying with a 1.5.% threshold increasing.

For these reasons, STECF observes that calculating the probability of trips that would in the future exceed the 1.5% threshold on cod is speculative. STECF observes that the present evaluation may be easily revised and the justification for continuation of the threshold evaluated if and when the situation of cod recovery occurs. Further evaluation of such a risk would require applying bioeconomic modelling to integrate the interlinked stocks, fisheries and management dynamics (cf also ToR 7.5 of this plenary report).

STECF conclusions

Is the Spanish data and information provided robust enough to support an exemption under Regulation (EU) 2021/92 Article 15(3)?

STECF recalls that the minimum fit-for-purpose data to assess whether cod catches are below the threshold is trip-based catch proportions. The data provided by Spain were at that level of resolution, and STECF was therefore able to perform an evaluation of the request for a derogation.

However, STECF concludes that since many trips in the dataset were straddling with hauls both inside and outside the CSPZ, providing the catch information on a haul-by-haul basis would have helped refine the precision of the analysis performed. Also, in the absence of catch information on other species, STECF was unable to verify the conditionalities for the definition of directed fishery specified in the TMR.

STECF underlines the low number of spatially and temporally representative sampled trips. Although STECF acknowledges that the DCF sampling program presented in the IEO report can be considered spatially representative of the fishing operations of this fleet (unbiased and randomized sampling), STECF concludes that true cod catches cannot be monitored and computed with precision, and caution should remain when interpreting the results. This point is discussed in more details in the last paragraphs of these conclusions.

Are the requested vessel's fishing patterns, fishing locations or fishing gear likely to give bycatches of cod (wanted and unwanted catches) per fishing trip, less than 1.5%?

STECF concludes that there are several ways to respond to this question. Firstly, one can either interpret the question as asking for an estimate of the average percentage of cod in the trip catches of the fleet (method 1) or interpret the question as asking how likely it is that single trips exceed the threshold of 1.5% (method 2). In the absence of clear specifications in the Regulation, STECF presented both approaches. Secondly, assumptions must be made as to the definition of when a trip is considered inside or outside the CSPZ when individual trips may straddle with both hauls inside and outside the CSPZ. In this regard there is no objective way to select one assumption against another. Therefore, STECF repeated the calculations under several different assumptions on how to classify trips as outside the CSPZ.

Considering the most pessimistic scenario where all trips having at least 1 haul outside of the CSPZ are considered as being outside of the CSPZ, STECF concludes that over the period 2017-2020: i) cod represented on average 0.73% (with confidence interval [0.55-1.28]%) of catches of the trips outside of the CSPZ in areas 7jghk, with an overall low likelihood of 0.5% to exceed the threshold (Method 1), and ii) 13.7% of sampled trips outside of the CSPZ had exceeded the threshold, which, when bootstrapped and raised to the entire fleet, corresponded to up to 17% of all trips outside of the CSZP likely to exceed the 1.5% catch threshold (Method 2).

STECF concludes that if the exemption is to be granted the minimum requirement for the gear to use is the 80mm + 120mm square mesh panel specified in Annex VI of Regulation (EU) 2019/1241 for bottom trawls and seines targeting megrim and monkfish in ICES subarea 7 when fishing outside the areas referred to in paragraph 1. STECF notes that this gear is different from the gear currently used (fishing with mesh size equal or higher than 80 mm but without a square mesh panel). STECF considers however that this addition of the 120 mm panel is unlikely to make any significant differences in the selectivity for cod, therefore the conclusions above are considered still valid under the new gear.

To which extent the bycatches of Cod less than 1.5% will also hold in future (when Cod could be above Btrigger)?

STECF concludes that responding to the question now may lack relevance given the current ICES advice showing cod to be far below Blim reference point. STECF concludes that the evaluation should be revised, possibly using bioeconomic modelling, as soon as the stock begins to recover, considering that a threshold on catch such as the 1.5% on cod will likely increase the risk of exceeding the threshold.

General comments on the use of thresholds and catch composition rules

STECF has earlier raised concerns of using catch proportion thresholds to trigger remedial actions on protected species and has advised against using them in PLEN 20-02 (as well as in PLEN 09-01 and PLEN 09-02 and STECF 11-07). Given the relevance to this TOR, which is based on such a threshold, STECF PLEN 21-02 reiterates these concerns here. As extensively discussed in STECF-PLEN-20-02, there are inherent risks for managing

overfished stocks with thresholds. This is the ground for misreporting with several side effects, including the risk of inflating the overall catch to lower the proportion of undesired catch when expressed as a percentage of the total. Hence, STECF reiterates therefore the conclusion of STECF-PLEN-20-02 that setting thresholds on stocks that are severely depleted is inappropriate as this could create perverse incentives which would potentially undermine the objective to minimize catches and improve exploitation patterns. STECF concludes that if thresholds are required, then these should be focused on the targeted stocks, not on the stocks to be avoided.

Furthermore, STECF acknowledges that catch composition rules should be coherent with the resolution of data available to monitor and enforce them. As such, enforcing a trip-based catch rule (instead of a fishery- and year-based rule) would ideally require full documentation (FDF) of each trip, or high levels of at-sea monitoring, to limit the uncertainty from applying a raising procedure, especially in a landing obligation context that constitutes an incentive for misreporting catches (see below).

The analysis performed by STECF also demonstrates that the catch composition rule evaluated here is rendered further complicated to monitor, enforce and control by the fact that it also includes spatial management. Different rules apply in different areas while fishing trips are allowed to straddle over inside and outside the CSPZ borderline. Adequately enforcing and controlling the cod and whiting protection measure may require stricter spatial restrictions to avoid bycatches with higher certainty than what could be estimated here.

General comment on the coverage of DCF sampling

STECF has extensively discussed and raised concerns about the use of observer data in the context of this request. STECF notes that DCF sampling is designed for global metier sampling at stock level but not for very specific management issues in discrete areas. Moreover, the context of discard sampling before the landing obligation (LO) is very different from the context after the LO came into force. Pre landing obligation, discards were for the most part legal – there was little incentive to misreport or for fishers to behave differently when an observer was onboard. From 2015, but particularly from 2019 when the LO is fully in force, there is a strong incentive for fishers to change behaviour when an observer is present. One can argue that because there is evidence to suggest that the LO is not being implemented and fines are not being issued, fishers may not be changing their behaviour in the presence of an observer. However, the context of a discard ban and the possibility of illegal behaviour is nevertheless present onboard and the observer is there and can/will observe this. Therefore, one cannot assume fishers' behaviour is equal in the presence of an observer after the LO, and particular at such low sampling levels. Previous advice and assumptions are no longer necessarily applicable when it relates to the data collected by observers. The impact of the LO in European fisheries at-sea monitoring programmes has not yet been fully acknowledged and taken into account in their design and data collected, for many reasons. STECF cautions that data users should be aware of this change and the implications it may have, and highlights that this impact should be investigated.

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6.5 Evaluation of a Joint Recommendation submitted by the Scheveningen Group on the reintroduction of restrictions of the length of the beam in the beam trawl fishery in the North Sea.

Background provided by the Commission

The technical measures Regulation (Regulation (EU) 2019/1241) allows regional Member State groups to amend certain regional baseline selectivity standards on the basis of joint recommendations (JR), based on which the Commission is empowered to implement delegated acts. This permits the tailoring of detailed and technical rules so as to take into account regional specificities. The alternative measures should as a minimum lead to such benefits for the conservation of marine biological resources that are at least equivalent to the ones provided by the baseline standards, in particular in terms of exploitation patterns and the level of protection provided for sensitive species and habitats.

The Member States with interest in the North Sea submitted the JR attached for STECF assessment, in which they propose a general restriction on the length of beam trawls to a maximum of 24 m. This restriction was included in the previous legislative framework (Article 30 of Regulation 850/98), but was not taken forward in the current technical measures Regulation (Regulation (EU) 2019/1241), the TMR)).

Request to the STECF

STECF is requested to assess whether the proposed measure will contribute to reducing the negative environmental impacts of fishing with beam trawls on marine habitats (in line with Article 3.2 of the TMR) and the environmental impact of this activity (in line with Article 4.1.c of TMR) compared to the existing situation.

In the event of a non-conclusive assessment, STECF is further requested to identify any missing elements that may help underpin future proposals.

Summary of information provided to STECF

Background documents are published on the meeting's web site on: https://stecf.jrc.ec.europa.eu/plen21032

STECF reviewed the Joint Recommendation submitted by the Scheveningen Group concerning technical measures for the conservation of fishery resources in the North Sea, which focused on changes to the Annex V Part B point 1 of Regulation (EU) 2019/1241.

In 2019 the current Technical Measures Regulation (Regulation (EU) 2019/1241) came into force. In the preceding Technical Measures Regulation (Regulation (EC) No 850/98) a specification regarding the maximum length of the beam trawl was included in Article 30(1):

Vessels shall be prohibited from having on board or using any beam trawl of which the beam length, or any beam trawls of which the aggregate beam length measured as the sum of the length of each beam, is greater than 24 metres or can be extended to a length greater than 24 metres. The length of a beam shall be measured between its extremities including all attachments thereto.

The Scheveningen Group states that without such a restriction on length of beam there is the potential for fishermen to deploy beams longer than those currently in use which would likely increase the impact on the seabed and disturbance of the benthos habitat. STECF understands that the JR is intended to curb such a development as it would be contrary to the objectives as outlined in Article 3(2)(c) and 4(1)(c) of Regulation (EU) 2019/1241 and is not in line with the precautionary approach referred to in Article 2(2) of Regulation (EU) No 1380/2013.

The Scheveningen Group further states that, notwithstanding the more restrictive area and gear restrictions for beam trawl set out in this regulation (such as the general prohibition to fish with beam trawls in the Kattegat (Annex V part C point 5.1) and the plaice box (Annex V part C point 2(3)), and in line with Article 15(4)(a) and (b) of Regulation (EU) 2019/1241), this restriction should be reintroduced.

The Joint Recommendation also states that the interpretation of "North Sea" here includes 2a, 3a and sub-area 4.

The Group proposes thus to amend Annex V of Regulation (EU) 2019/1241, part B, point 1 as follows:

PART B

Mesh sizes

1. Baseline mesh sizes for towed gear

When fishing with beam trawls the maximum length of the beam or the aggregate beam length measured as the sum of the length of each beam does not exceed 24 meters or cannot be extended to a length greater than 24 meters. The length of a beam shall be measured between its extremities including all attachments thereto.

STECF comments

After clarification with DGMARE, STECF interpreted the question as follows:

STECF is requested to assess whether the proposed measure of fishing with beam trawls on marine habitats (in line with Article 3.2 of the TMR) and the environmental impact of this activity (in line with Article 4.1.c of TMR) will ensure levels of protection that are at least equivalent to what is currently in force (Regulation (EU) 2019/1241).

STECF notes that a general restriction of the length of the beam in the beam trawl fishery in the North Sea (2a, 3a and sub-area 4) to a maximum of 24 m would mean reinstating the provision contained in the previous technical measures Regulation (Regulation (EC) 850/98). Without such a restriction, it would be possible to use trawls with an overall beam length greater than 24m.

STECF observes that while the Joint Recommendation solves the issue highlighted for the North Sea, the same loophole still exists for other sea basins and in particular the NWW and SWW, where there are quite extensive beam trawl fisheries. STECF suggests that the other Member State groups in these sea basins be made aware of this issue and establish whether additional Joint Recommendations are required to close the loophole identified.

Regarding the potential impact on the seabed, STECF observes that Rijnsdorp et al. (2021) published a study on the hydrodynamic drag and the quantity of sediment mobilised by various beam lengths in the Dutch beam trawl fleet. This fleet comprises small (maximum engine power of 221 kW) and large vessels that operate under different management constraints. During the period of the analysis, small vessels were allowed to fish for flatfish with two beam trawls of up to 4.5m within the 12 nautical mile zone, although some vessels also fish outside the 12nm zone with 7 or 8m beam trawls; and large vessels were allowed to fish outside the 12nm zone with two 12m beam trawls.

Taking account of the sediment type of the areas trawled and the number of different types of beam trawls used by the fleet, the quantity of sediment mobilized per square meter of area swept was estimated as 9.2 and 4.2 kg for conventional 12m and 4.5m beam trawls, respectively. This was directly related to the increased number and size of tickler chains/chain-mat, and the ground gear and net size. As these are related to beam length, it is likely that any further increase of beam length will lead to a further increase of the quantity of sediment mobilized per square meter of area swept. This study also shows that the average speed at which the large vessels tow their beam trawls is 3.24 m/s compared with a speed of 2.60 m/s for the smaller vessels with smaller beams, indicating that there is no evidence that a larger beam would slow down the vessel and reduce the swept area. STECF notes thus that based on the Rijnsdorp et al. (2021) study an increased beam length may increase the impact on the seabed and disturbance of the benthic habitat.

STECF conclusions

STECF concludes that without the restriction of a maximum length of the beam or the aggregate beam length measured as the sum of the length of each beam to 24 meters, it is possible for fishermen to increase the length of the beam, potentially increasing the impact on the seabed and disturbance of the benthos habitat.

STECF supports amending the provisions of Regulation (EU) 2019/1241 that the maximum length of the beam or the aggregate beam length measured as the sum of the length of each beam does not exceed 24 meters. This amendment will prevent an increase in negative impact on marine habitats (in line with Article 3.2 of the TMR) and the environmental impact (in line with Article 4.1.c of TMR). It will thus ensure levels of protection that are at least equivalent to what is currently in force.

STECF concludes that the Joint Recommendation provided only addresses this issue for the North Sea and therefore, Member State groups in NWW and SWW should be made aware of this. STECF suggests they establish whether additional Joint Recommendations are required to close the loophole identified in these sea basins.

Reference

Rijnsdorp, A. D., Depestele, J., Molenaar, P., Eigaard, O. R., Ivanovic, A., and O'Neill, F.G., 2021. Sediment mobilization by bottom trawls: a model approach applied to the Dutch North Sea beam trawl fishery. ICES Journal of Marine Science, doi:10.1093/icesjms/fsab029.

7. ITEMS/DISCUSSION POINTS FOR PREPARATION OF EWGS AND OTHER STECF WORK

7.1 Preparation of EWG 21-11 on the West Med stock assessment

Background provided by the Commission

STECF was provided with a draft of the proposed Terms of Reference for EWG 21-11 discussed at STECF Bureau level.

Request to STECF

STECF is requested to discuss the ToRs and organisation of this EWG, which will be reviewed by written procedure and not the STECF PLEN 21-03.

STECF comments

STECF discussed the draft ToRs for EWG 21-11. The draft ToRs include a request for conservation reference points (i.e. B_{pa} and B_{lim}), or proxies. STECF has examined the technical issues related to reference point estimation for the stocks to be assessed in EWG 21-11 and has some reservations regarding the workload involved in addressing this issue. Many Western Med stocks assessed extend back into rather short time series, which allow estimating $F_{current}$ and F_{MSY} but do not provide many historical point estimates of Recruitment (R) and Spawning Stock Biomass (SSB). Normally B_{pa} and B_{lim} are determined from such SSB and Recruitment data and B_{lim} is determined as the SSB below which recruitment declines.

This problem means that there are only few stocks where standard analytical approaches directly based on the SSB and recruitment data can be used to estimate reference points. For the others, a number of alternative approaches should be tested to explore the situation and to advise appropriate reference points. This task is thus more demanding for data-limited or data-moderate stocks than for data-rich ones, and requires much more time and resources than that available within the standard EWGs on Mediterranean assessments. STECF therefore suggests that the task of defining biomass reference points be allocated to a dedicated EWG in spring 2022.

Regarding input data checks and exploration before assessment, STECF considers beneficial a preliminary work be performed before the EWG 21-11 to run the R scripts developed by JRC staff for EWG 21-02 to check for changes in the data according to the issues pointed out by EWG 21-02.

STECF considers it might not be necessary to review the report of EWG 21-11 via a written procedure. This could be done in the winter Plenary 2021, while the draft report and stock assessment results could directly feed the work of EWG 21-13, as it was done in previous years.

The EWG 21-11 ToRs are still under discussion and, when finalized, they will be published.

7.2 Preparation of EWG 21-13 on the scenarios of West Med fishing effort

Background provided by the Commission

STECF was provided with a draft of the proposed Terms of Reference for EWG 21-13.

Request to the STECF

STECF is requested to discuss the ToRs and organisation of this EWG, which will be reviewed by written procedure and not the STECF PLEN 21-03.

STECF comment

STECF discussed the ToRs and noted some points regarding the parametrization of the models that needed to be clarified. The list of parameters that will need assumption on for 2021-2025 should be checked (mean catchability, price, closures etc), so that simulation parameters can be agreed in advance. The EWG 21-13 ToRs are still under discussion and, when finalized, they will be published.

7.3 Preparation of EWG 21-07 review of the technical measures Regulation

Background provided by the Commission and request to the STECF

The entry into force of Regulation (EU) 1241/2019, introduced the obligation for the Commission to report to the European Parliament and to the Council on the implementation of the Regulation. This reporting obligation is aimed at assessing the "extent to which technical measures both at regional and Union level have contributed to achieving the objectives set out in Article 3 and reaching the targets set out in Article 4." (Article 31.1)

Measuring progress is vital to check whether measures put in place are adequate and fit for purpose, and consequently, to assess where and how changes should be made.

To facilitate this, during 2020, a dedicated STECF EWG (STECF EWG 20-02) was tasked to evaluate the performance of technical measures in line with the above. However, the EWG report did not provide all the information required for STECF to provide a fully comprehensive and informed response to all the terms of reference. Given that STECF will be requested to undertake an evaluation of the performance of the technical measures every three years, some considerations on how to proceed in the future were provided.

During STECF 21-01, STECF was tasked to identify the needs for the mid-term, and structure the EWG for technical measures in the next three years. As a result, propose concrete areas to be discussed in EWG 21-07. Data needs to prepare the work of this EWG were also requested.

STECF identified as mid-term need to establish and agree on a methodology and the appropriate indicators that can be used to perform the evaluation of the regulation. STECF 21-01 also agreed that the concrete elements to be discussed in the EWG to be held in October 3021, should be to test and refine the different indicators.

To facilitate EWG 21-07, STECF 21-01 proposed a protocol, which defines the steps and possible indicators that will help in the assessment of the contribution that technical measures have made to optimise exploitation patterns (i.e. the selectivity), and to minimise the fishing impact on exploited stocks (as an implicit requirement of the ecosystem approach to fisheries management).

To progress in the attainment of these objectives, STECF would need to:

1) Calculate of the size-selectivity corresponding to the highest yield at current fishing mortality rates

2) Comparison of the parameters calculated above with current selection patterns for the stocks concerned

3) Comparison of the parameters calculated above with selection patterns as observed by fleet, gear and area, analysed to the most disaggregated level that is both feasible and maintains robustness and a useful level of precision of the estimates.

In particular, STECF is requested to:

1. Formulate the data request to be sent by DGMARE to ICES to deliver the above mentioned.

2. Suggest Terms of Reference for EWG 21-07.

3. Consider any intersessional work to support the work of this group.

STECF response

1. Regarding the data request, STECF notes that it was already formulated 24 June 2021 and sent 25 June 2021 by DGMARE to ICES. STECF did not thus discuss it further.

2. According to Article 31 of REGULATION (EU) 2019/1241, the Commission shall, by 31 December 2023, following evaluation by STECF, report on the extent to which technical measures both at regional and Union level have contributed to achieving the objectives set out in Article 3 and reaching the targets set out in Article 4. In order to provide relevant advice for that report, and following discussions after STECF EWG 20-02, DG MARE and STECF have planned a stepwise approach. For the first step, the STECF proposes that for each of the stocks listed in Annex XIV of REGULATION (EU) 2019/1241, EWG 21-07 is requested to:

Task 1) Calculate the respective selectivity-at-age vectors that, respectively, (a) predict the highest yield at current fishing mortality rates or harvest rates and (b) provide the greatest protection for juveniles at a similar yield;

Task 2) Compare the selectivity parameters calculated under (1) with current selectivity-at-age estimates for the stocks concerned and evaluate impacts in terms of both (a) yield and (b) protection of juveniles;

Task 3) Compare the selectivity parameters calculated under (1) with current selectivity-at-age estimates by fleet, gear and area. This should be analysed to the most disaggregated level that is feasible, maintains robustness and is at a useful level of precision of the estimates; and evaluate impacts in terms of both yield and protection of juveniles;

Priority is to be given to addressing Tasks 1-3.

Task 4) If time and resources permit, for regional case studies, explore trade-offs between fishing pressure and selectivity with a view to minimizing impacts and maximizing catches under different scenarios for catch, fishing mortality and in relation to management reference points.

3. Intersessional work, preparing and testing the methodology to be used ahead of the EWG will be undertaken by JRC experts.

STECFcinsiderations

STECF emphasizes that the ToRs for EWG 21-07 are to be seen as a step on the way towards the objective of advising the Commission in two years' time on their triannual reporting obligation. Further steps will be needed in 2022 and 2023.

STECF considers that the commitment for EWG 21-07 be kept relatively simple, e.g. in that the EWG will consider selectivity at age (as opposed to selectivity at length) and consider simple logistic selection patterns (as opposed to other types), keeping in mind that future work may need to revisit such assumptions. Time and resources permitting, the EWG may tackle issues beyond these simple analyses. Possible evaluations include aspects of: (1) Minimizing the impact on the stock under current catch with respect to spawning ratio potential, (2) Maximize catch under selected target fishing mortality and biomass reference points as specified by the experts and (3) Explore interactions between fishing mortality and selectivity with respect to equilibrium yield and spawning ratio potential.

The terms of reference 1 to 3 are the minimum requirement, as they are specifically requested by the Commission, and are relatively straightforward. Part of this work may be completed intersessionally by JRC experts. Term of reference 4 allows for further explorations towards the final objective of giving comprehensive advice to the Commission in 2023, depending on the features of the fisheries and stocks and giving room to the skills and expertise of the participants.

7.4 Progress of EWG 21-10: Fisheries Dependent Information (FDI)

Background information and request to the STECF provided by the Commission

STECF should be updated on the progress achieved in the FDI EWG 21-10. The report on Fisheries Dependent Information will cover both EWG 21-10 and EWG 21-12 taking place in September, and will be available for Plenary 21-03 scrutiny.

Summary of information provided to STECF

Two STECF Expert Working Groups on Fisheries Dependent Information (FDI) are convened in 2021:

1) EWG 21-10: Data methodology and dissemination.

2) EWG 21-12: Evaluation of Fisheries Dependent Information for European Fleets to review the data transmitted by Member States under the 2021 FDI data-call.

After the second FDI meeting (EWG 21-12) scheduled in September 2021, the joint report covering the findings of the both EWGs will be delivered. The parts of the draft report describing progress achieved by the EWG 21-10 were made available for PLEN 21-02.

The **Terms of Reference for the EWG 21-10** were the following:

1 – Review approaches used by Member States Responding to the FDI data call and if possible common best practice

Discuss and review the following:

1.1 Methods used by MS to partition biological sampling data to the level requested in Table A;

1.2 Review methods used by MS to define confidential cells;

1.3 Metier definitions used by MS;

1.4 Allocation of landings to c-squares using VMS/logbook data;

1.5 Coverage and methods used to estimate landings and effort data for vessels <10m;

1.6 Any other business (AOB).

2 – Based on the Ad-Hoc project proposal review methodology to assemble detailed Table A provided by Member States, the biological data as well as access suitability of proposal to disseminate details Table A

2.1 Review methodology proposed to derive detailed Table A and its suitability;

2.2 Review and propose methods that incorporate numerical indication of estimate robustness and coverage of information provided in Table A (e.g. number of samples collected for discards data).

2.3 Discuss a possibility to transfer the biological data from Mediterranean and Black Sea data call into the FDI format/database

3 – Test the comparability between the data collected in the FDI database and data provided for the fleet socio-economic data call

3.1 For 2017-2018 data, map fleet segments found in the FDI database to fleet segments found in the Fleet Economic database.

3.2 Compare sums of effort (days at sea) and landings (tonnes and values) between FDI and the dataset from the Fleet socio-economic data call by:

a. Country;

b. Fleet segment;

c. Gear type within fleet segment.

The experts are invited to prepare a presentation on their methodology in the respective Member State that will be given in the first days of the EWG.

STECF comments

The EWG 21-10 met virtually from 31st May to 4th June 2021. The following STECF observations and comments are based on: (1) the presentation of outcomes from the EWG 21-10 meeting made by one of the two chairpersons, (2) available sections of the draft EWG 21-10/21-12 report. It was the first opportunity since the new FDI data call was established in 2017 to review the methodologies applied by Member States, to propose common practices, and to follow up on future development of the FDI database and data dissemination.

1 Review approaches used by Member States responding to the FDI data call and if possible propose common best practice

STECF observes that according to the update provided by the chairs, EWG 21-10 reviewed the methodology used by 20 EU Member States (2 MS provided their contribution by correspondence) when answering FDI data call by analysing topics of special interest defined in the ToR 1 of the meeting. The detailed analysis of the results and proposed best practices will be presented in the final report of EWG 21-10 and EWG 21-12 during autumn plenary.

2 Based on the ad hoc project proposal review methodology to assemble detailed Table A from Table A provided by MS and biological data as well as access suitability of proposal to disseminate detailed Table A

STECF observes that according to the chairs presentation the EWG analysed possibility to assess coverage, sampling rate, robustness and accuracy of the information provided by MS in Table A and suggested adding columns in FDI Data call tables C, D and K in order to obtain information needed to improve understanding of the coverage and robustness of the discards information provided during the FDI data call.

STECF observes that based on the presentation made by the chairs the EWG 21-10 considered that the transfer of the biological data from the Mediterranean and Black Sea data call into the FDI format/database is technically feasible, although several inconsistencies/issue in the format of the two data calls exist and should be evaluated and solved.

STECF also notes that according to the chairs presentation, EWG 21-10 suggested to perform a trial on data transfer procedures to be presented at the next FDI meeting in September 2021. However, STECF considers that due to limited time and resource available before and during the EWG 21-12, the proposed trial on data transfer might preferably be conducted before the STECF spring plenary 2022. The trial could be performed intersessionally by the JRC or through an ad hoc contract provided by DGMARE to the expert that developed a routing translating Med&BS data call data to FDI format.

3 Test the compatibility between the data collected in the FDI database and the data found in the Fleet Economic Performance database.

STECF observes also that several STECF EWGs (21-02, 20-11 (Balance) and 20-13 (Med effort)) in addition to EWG 21-10 recently undertook a comparability analysis of FDI data with AER and Med&BS data calls. STECF observes that according to the chairs' presentation the comparison done during EWG 21-10 was not fully finalised during the meeting due to the time limitations, and competing priorities might limit resources during EWG 21-12. STECF encourages coordination among those EWGs involved in such analyses, not least regarding the required follow-up and the reporting of the discrepancies observed. Following EWG 21-02 STECF has advised (cf ToR 5.1 of this PLEN 21-02 report) to first request RCGs to follow-up on these discrepancies. EWG 21-02 outcomes shall also be communicated to EWG FDI II (EWG 21-12) and to Balance EWG (EWG 21-16).

STECF conclusions

STECF concludes that according to the presentation of the chairs of the EWG 21-10 the group addressed all ToRs defined. Follow ups are however needed on the following topics:

- add missing MSs information and complete the coverage of the review;
- analyse pros and cons of changing the métier list in future FDI data calls (ICES RDBES test data call is ongoing, and it is expected that MS will have more experience by autumn in using a new set of métier definitions);
- agree on the best methodology to partition Table A using biological data;
- finalise the analysis started by EWG 21-10 comparing AER data with FDI, in coordination with other EWGs involved in the same topic.

These topics should be addressed during the EWG 21-12 to the best extent possible, depending on the priorities and resources available.

7.5 Preparation of work to prepare analysis on technical measures in the Celtic Sea which results are to be sent to STECF winter plenary for advice

Background provided by the Commission

The evaluation of the technical measures adopted in the Celtic Sea to help to recover the cod and whiting stocks has been requested by the North Western Waters Member States Group. The Group proposed an analysis focuses on three main objectives that could be expanded if new information on Technical Measures is available.

The objectives proposed by the NWW MS Group are:

> Objective 1: Assess catch compositions of all fleets operating in the Celtic Sea and identify fleets that catch cod.
>
> Objective 2: Evaluate the potential biological and economic impact of seasonal closures of relevant parts of the Celtic Sea Protection Zone.
>
> Objective 3: Evaluate the impact of raised-line and other technical measures at biological and economical level.

The necessary data for the analysis have already been requested to the Member States and the potential experts have been contacted in advance.

Request to the STECF

STECF is requested to discuss the work to implement an analysis of Celtic Sea dataset that North Western Waters Member States Group has called for. The analysis should cover the three objectives set in the document prepared by the NWW MS Group and additional objectives could be included if any relevant information about Technical Measures in the Celtic Sea become available.

STECF observations

The poor situation of cod and whiting stocks in the Celtic Sea has led to the adoption of different technical measures aimed to rebuild these stocks. In 2019, ICES advice showed that cod and whiting stocks in the Celtic Sea were below B_{lim}. For cod, ICES advised zero catches. Following Article 8 of the Western Waters Multi-annual plan (WWMAP), the EU adopted *remedial measures* as safeguards to help recover these stocks, and targeted fishing for cod was prohibited with a bycatch quota for cod set accordingly. These remedial measures were included under Article 13 of the 2020 Fishing Opportunities regulation (Regulation (EU) 2020/123). The measures were designed to improve selectivity and included a range of gear options to reduce cod by-catch (paragraph 1a). In addition, the use of a a fishing gear constructed

with a minimum of one metre spacing between the fishing line and ground gear (i.e. raised fishing line gear) linked to a catch threshold for haddock of 20%. Paragraph 1b of the Regulation allowed for the use of alternative measures, proven to be at least equally selective for avoidance of cod. The full list of the measures included in the Regulation is described in STECF PLEN 20-01.

Subsequently, these selectivity improvements have been modified for 2021 by Article 15 of the 2021 Fishing Opportunities Regulation (Regulation (EU) 2021/92). This was based on a Joint Recommendation submitted by the NWW Member States Group. The changes mainly related to the introduction of a threshold for cod catches for the exemption from the application of point (b) of paragraph 1 of Article 15. These measures were assessed by STECF PLEN 20-02 and a full description of the measures is included in the report of STECF PLEN 20-02.

The STECF notes that the document sent by NWW MS Group identifies the need for an evaluation of the technical measures adopted in Celtic Sea and emphasizes the requirement for a bioeconomic impact assessment. This would increase the knowledge of the performance of the technical measures for all fleets operating in the Celtic Sea. STECF observes that the Commission has positively responded to the request raised by the NWW MS Group. DGMare and STECF have agreed that the work envisaged is comprehensive and warrants dedicating an Expert Working Group to carry out the analysis.

STECF is aware of selectivity work being carried out in different Member States. Experiments conducted by France (Ifremer, 2020) show that alternative technical measures could allow maintaining the catch levels of the target species, megrim. A recent selectivity study carried out by Spain (Velasco et al., 2020), shows that the experimental codend D80mm equipped with a 180mm square panel obtained very positive results, with the reduction of 30% of catches of cod and 53% of catches of haddock (cf also ToR 6.5 of this plenary report). Selectivity work is also planned in Ireland with the raised fishing line gear and the use of T90 codends.

STECF notes that France has assessed the biological and socio-economic impact of the raised fishing line and other technical measures in the Celtic Sea but only for French vessels. Following the assessment by STECF PLEN 20-01 the need to extend this analysis with data from all Member States was highlighted, in order to understand the full socio-economic impact of the adopted technical measures for all fleets and Member States affected by the measures.

STECF notes that the UK has notified DG MARE of their intention to introduce new technical measures into the Celtic Sea from the 5th September 2021. These measures will apply in UK waters and differ quite significantly to the current EU measures in place in the Celtic Sea as detailed in table 7.5.1 below. The main changes include the removal of the requirement to use the raised fishing line gear and a reduction of the number of allowable gear options for mixed demersal fisheries. Effectively, this means that vessels will be subject to different technical measures when fishing in EU and UK waters during the same fishing trip, and there are provisions in Article 47 of the control regulation if vessels are to carry two different gears on board. It is not clear yet how fishermen will adapt to this, but potentially it may result in different gears being used and the exploitation pattern for cod and whiting changing. STECF observes this should be taken into account in the analysis carried out as it will impact on the results of the analysis in terms of the effectiveness of the measures on cod and whiting.

Table 7.5.1. New technical measures applicable in UK waters of Celtic Sea. Applicable to Demersal otter trawls and seines (not beam trawls). Expected to enter into force September 5th, 2021.

Area	New measures applicable in UK waters	Existing EU measure(s)
UK 7e, 7f, 7g,7h & 7j (outside the inner CSPZ *)	Baseline codend mesh size 100 mm with 100 mm SMP (SMP not required in 7e east of 5° west)	Baseline codend mesh size 100 mm in ICES 7b-k (Annex VI, Part B, section 1.1 of EU 2019/1241 (TM)) with derogations for directed fisheries
UK 7e (western Channel)	Baseline codend mesh size 100 mm to replace current rules based on catch composition	Baseline codend mesh size 100 mm in ICES 7b-k (Annex VI, Part B, section 1.1 of EU 2019/1241 (TM)) with derogations for directed fisheries
UK Inner CSPZ*	Baseline codend mesh size 110 mm with 120 mm SMP	Baseline codend mesh size 100 mm in ICES 7b-k (Annex VI, Part B, section 1.1 of EU 2019/1241 (TM)) with derogations for directed fisheries. Within Celtic Sea Protection Zone (CSPZ*) article 15 of EU 2021/92 (TAC) also includes technical measures for cod and whiting: 110 mm with 120 mm SMP; 100 mm T90; 120 mm; 100 mm with 160 mm SMP. Vessels with catches ≥ 20 % haddock must have one metre spacing between fishing line and ground gear.
UK 7e, 7f, 7g,7h & 7j	Maximum twine thickness: 4 mm double; 6 mm single	Maximum twine thickness: 4 mm double; 6 mm single (Article 3(a) EC 494/2002 (hake) applies in 7b-k)
UK 7e, 7f, 7g,7h & 7j	Strengthening bags prohibited except for vessels targeting Nephrops	Article 6 of EEC No 3440/84 (net attachments) applies and permits the use of strengthening with conditions
Specific derogations		
UK 7e, 7f, 7g,7h & 7j	Nephrops defined threshold (catches > 5 %) continues to apply. Specific technical measures : 80 mm with 300 mm SMP (vessels < 12m 200 mm SMP); SELTRA panel; sorting grid with 35 mm bar spacing; 100 mm with 100 mm SMP; dual codend with T90 90 mm	Directed fishing for Nephrops at least 80 mm codend must be used (Annex VI, Part B, section 5 of EU 2019/1241 (TM)). Vessels with catches comprising > 30 % Nephrops must use one of the following

	uppermost codend and a separation panel with maximum mesh size of 300 mm	gears: 300 mm SMP (vessels < 12m 200 mm SMP); SELTRA panel; sorting grid with 35 mm bar spacing; 100 mm with 100 mm SMP; dual codend with T90 90 mm uppermost codend and a separation panel with maximum mesh size of 300 mm (Article 15, section 5(a) EU 2021//92)
UK 7f east of 5° west	Vessels with catches < 10 % of gadoids must use 80mm with 120 mm SMP	Not included
UK CSPZ*	Vessels with catches < 55 % whiting or 55 % hake, angler and megrim combined may use a 100 mm codend with a 100 mm SMP. Further derogations pending on the use of lighter twine inshore.	Vessels with catches comprising > 55 % whiting or 55 % anglerfish, hake or megrim combined must use one of the following gears: 100 m with 100 mm SMP; 100 mm T90 codend and extension(Article 15, section 5(b) EU 2021//92)
UK 7f within 12 nm	100 mm codend with 100 mm SMP	Within 12 nm of UK baseline
UK 7e west of 5° west (ICES statistical rectangles 28E3 and 28E4) or 7f within 12 nm	100 mm codend (SMP optional) with maximum single twine thickness: 5 mm. Conditional on trial evaluation.	Baseline codend mesh size 100 mm in ICES 7b-k (Annex VI, Part B, section 1.1 of EU 2019/1241 (TM)) with derogations for directed fisheries. Max single twine thickness in 7b-k is 6 mm (Article 3(a) EC 494/2002 (hake) applies in 7b-k)
*CSPZ: Celtic Sea Protection Zone; ICES divisions from 7f, 7g, the part of 7h North of latitude 49° 30’ North and the part of 7j North of latitude 49° 30’ North and East of longitude 11° West		
Sources: online - https://www.gov.uk/government/news/new-fisheries-technical-measures; **Council working paper -** correspondence between UK and the Commission.		

Based on the objectives defined by the NWW Member States Group and following from previous evaluations STECF proposes a workflow that translates into draft Terms of Reference for the EWG as follows:

ToR 1. i) Estimate the contribution of all fleets operating in the Celtic sea to the fishing mortality of all exploited species and especially F for cod, haddock and whiting. ii) Evaluation of the conditions of application of specific technical measures trigger by thresholds according to the current catch thresholds.

STECF suggests that contribution of fleets to fishing mortality is analysed based on the relative contribution of each fleet to the catches of the main target stocks using the average catches over a recent period of years (i.e. 2018-2020) and the vectors of fishing mortality estimated from the most recent stock assessments for the main stocks. STECF considers that the relative contribution to fishing mortality can be computed using catch-at-age in numbers by fleet and the vector of *F*-at-age estimated from the stock assessment following the methodology described in STECF EWG 21-01.

ToR 2. i) Evaluate the efficiency of existing closed area for the conservation of cod in ICES divisions 7f and 7g (Regulation (EU) 2019/1241). The analysis should include the efficiency in protecting spawners and juveniles of cod and the economic impact of the closure. ii) When the current closure was no longer effective, alternative closures in duration, season and/or geographical extent will be defined. The possible displacement of fishing effort to other areas and/or fisheries should be taken into account in the design of new closures.

STECF considers that closed areas should be assessed periodically to adapt to changes in the distribution of the harvested resources and the fishing effort allocation. STECF suggests that the evaluation of the current closures and the definition of alternative closures should follow the methodology described in Colloca et al. (2015), which has been translated into guidelines in STECF 19-03 and STECF 20-01. In this regard, STECF proposes the geographical and seasonal identification of nursery grounds and spawning aggregation areas of cod including the following elements: 1) the definition of juveniles and spawners of cod; 2) the identification of density hot-spots areas means the distribution maps of juveniles and spawners based on survey and observers onboard information; and 3) the detection of persistent hot-spots areas by overlapping the annual hot-spots occurred over time. Based on the previous analysis, different scenarios of closures areas can be built. Those scenarios should be evaluated in terms of reducing catches of juveniles and spawners of cod considering the impact of fishing effort distribution. STECF notes however that this work is comprehensive, and care must be given to ensure that the relevant data and models are available for the EWG.

ToR 3. Conduct a bio-economic impact assessment of adopted technical measures, specifically raised-fishing line, and alternative technical measures. The bio-economic model should integrate all exploited species and all fleets operating in the Celtic Sea and take into account the uncertainty. The technical measures should be evaluated with a simulation study to ensure that they meet the sustainability of the resources (cod, withing, and all possible target species) and in terms of economic objectives.

STECF suggests that the bio-economic model is employed to forecast the effects of adopted technical measures and alternative technical measures from experimental studies. The biological indicators (ssb, recruitment, catch and fishing mortality) of the exploited stocks and the economic indicators (costs, gross surplus, gross value, gross value added, profitability and salaries) should be evaluated in the short-, mid-, and long-term. The technical measures can be simulated at fleet (or métier) level through changes in the selectivity or temporal constraints in the effort share. The scenarios for technical measures

for improving selectivity would be defined: i) scenario 0 (selectivity previous to 2020); ii) scenario raised-fishing line (improving the selectivity of cod by adopting the use of raised-fishing line), and iii - x) other potential scenarios based on technical measures tested in experimental studies (as those described in Ifremer (2020) and Velasco et al. (2020)).

STECF proposes to use specific software for evaluating the bio-economic impact of fisheries management strategy as FLBEIA (García et al., 2017). FLBEIA has already been used in the evaluation of multiannual management plans in the Demersal Fleets operating in the Celtic Sea (DAMARA Project) and for the evaluation of mixed fisheries within an Ecosystem Based Fisheries Management approach in Celtic Sea (ProByFish and FishKOSM Projects). However, care must be given that a updated and operational model is available to be used during the meeting, and that relevant modelling experts are also available to participate.

ToR 4. Evaluate, to the extent possible, the potential effectiveness of the measures to be introduced by the UK from the 5th September 2021 on cod and whiting stocks in the Celtic Sea in comparison to the current measures in EU waters. Comment on any issues that the differences in measures create.

STECF considers that the comparative evaluation of the measures to be used by UK and the current measures in EU waters, can be carried out through the definition of the specific scenarios considering different technical measures by fleet. These scenarios will be simulated using the bio-economic model developed in ToR 3.

STECF conclusions

STECF suggests that due to the comprehensive and interdisciplinary work needed to carry out a bio-economic impact assessment of the technical measures, the analysis should be realized through an Expert Working Group and not through individual ad-hoc contracts. STECF proposes to hold the EWG in the week 1-5 November 2021 (see section 3 of this plenary report).

In addition, STECF stresses that for the EWG to be successful, care must be given that the relevant data, models and modelling experts are available and operational for the EWG, since the work requested cannot be built "from scratch" in the course of a single EWG week. As a matter of comparison, STECF refers to the suite of EWGs and STECF plenaries' evaluations that took place between 2018 and 2021 in the Western Mediterranean area, to illustrate the required tools and expertise needed to build a fully operational framework for the evaluation of a variety of fleet- and area-based management measures.

References

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7.6 Parallel workshop on the DTMT and the DTMT guidance document

Background provided by the Commission

Data are of paramount importance to support the scientific advice, but data should be, in addition to collected, transmitted in time and form and with enough quality to the relevant end user. STECF EWG dealing with the data collection framework have to assess the work plans, the annual reports, and the transmission of data, or more exactly, the issues reported at the transmission.

The procedure on the evaluation of data transmission issues was improved with the introduction of the Data Transmission Monitoring Tool (DTMT), an online application developed and hosted by JRC in 2015 which has boosted the communication among all actors involved in the process of collecting, transmitting and using data: Member States, end users (such as STECF, ICES, RFMOs, RCGs) and the European Commission (MARE and JRC).

During the PLEN 19-01, JRC data call focal points, DCF EWG chairs, DG MARE and other experts met in a workshop on the DTMT. The group agreed on DTMT modifications according to needs and drafted for the first time a guidance for the use of the DTMT. The aim of this guidance is to harmonise and improve coherence in the DTMT, facilitating the solution of the issues. The guidance addresses:

- End users, to report issues
- Member States, to comment on the issues
- STECF, to assess the issue and the MS comment

EWG 19-09 assessed data transmission issues using the modified DTMT and the DTMT guidance document. Both worked well, facilitating a more consistent and objective evaluation of DT issues. However, EWG 19-09 suggested a number of improvements to the DTMT and to the DTMT guidance document, especially in table 2 of the DTMT guidance related to the assessment criteria to STECF.

Nevertheless, PLEN 19-02 considered that STECF EWGs working with data should continue working with the current version of the DTMT and the DTMT guidance document until the end of 2019. STECF PLEN 20-01 should then endorse the updated DTMT guidance document with the changes suggested in 2019.

Due to the Covid-19 pandemic, the workshop on the DTMT guidance was cancelled in 2020, and it is now requested to PLEN 21-02.

Request to the STECF

STECF is asked to compile the work done during 2019 and 2020 on the reporting and evaluation of DT issues and to update the DTMT and guidance document where needed for (1) end users to report issues, (2) MS to comment on issues and (3) STECF to assess the issue and the MS comment.

STECF workshop notes

On Wednesday, 7 July 2021, a half-day workshop, organised by JRC and DG MARE, was held in parallel to the STECF Plenary to revise the Data Transmission Monitoring Tool (DTMT) and DTMT guidance document. The last workshop of this kind was held during the STECF Plenary 19-01 in Ispra in March 2019. The originally foreseen subsequent revision workshop, scheduled for spring 2020, had to be delayed due to COVID-19 restrictions. The workshop was attended by 25 participants, including DG MARE staff, JRC experts and chairs of STECF Expert Working Groups (EWGs) dealing with data called under the Data Collection Framework (DCF).

First, the introductory section of the DTMT guidance document was revised, including comments by JRC staff and by EWGs chairs. JRC and DG MARE, supported by EWG chairs, briefly explained the background of the DTMT and guidance document and then went through the document section by section to revise the text and insert any comments/amendments where agreed during the session.

As DG MARE explained, the overall target of the DTMT and guidance document is to harmonise the way Data Transmission issues (DTi) are being reported and dealt with by the various involved parties (data end-users, Member States (MS), STECF EWGs on DTi assessment and ultimately DG MARE). Individual DTi have different weights in terms of negative impact on the quality of the outcome of work performed by end-users, and there are also differences among end-users in how they report DTi. However, the number of 'unsatisfactory' issues is used internally within the Commission (cf. ToR 5.3 of this plenary report) and for reporting purposes (e.g. result indicators under the European Maritime and Fisheries Fund, EMFF); and although there is a common understanding among the workshop participants that this number shall not be interpreted as an indicator of data quality, it is unavoidable that a high number of unsatisfactory DTi raises questions to people outside of that process, and renders the follow-up process with Member States more complex. The overarching goal of this DTMT guidance is thus to harmonise the reporting of DTi also with respect to the 'volume' of each DTi. STECF considers that a step towards comparability of numbers of issues within data calls would be the launch of a specific intersessional analysis (see ToR 5.3) with the aim to identify any shortfalls of the current reporting procedure in the DTMT and propose improvements to ensure a harmonised approach for monitoring data quality changes between years.

After a general discussion about the purpose of the DTMT, it was agreed that the DTMT should not document all the technical issues that can be solved bilaterally, but the remaining issues that need attention or follow-up. These processes are in line with the "STECF data-handling procedure" (link). Overall, it was decided to leave the introductory section general and put data call specifics into Annex 1 of the DTMT guidance document.

The timing of DTMT comments by the end-users was also discussed. If an issue is discovered *before* the respective EWG, it should be clarified with MS directly. If discovered *during* the EWG, it should go into the DTMT. This leaves then the question of how to deal with issues discovered *after* the EWG, also sometimes after EWG reports have already been published. In any case, a deadline should be set for reporting these issues in the DTMT. STECF agrees with the workshop proposal that this deadline be set before the launch of the next data call, so the MS can react to these issues while preparing data for the next

data call. The text in the introductory section of the DTMT guidance document was amended accordingly.

Workshop participants agreed to enter DTi by areas and species, in accordance with the list of data sets in the respective data call.

Advantages and disadvantages of aggregating DTi were discussed, but in the end, since the type of DTi varies greatly, it will have to be the end-user who needs to make this decision. Section 2.2 was updated accordingly.

Regarding the issue type 'coverage', it was decided that a sentence containing an example (not to report every missing stratum) should be added to the guidance text in section 2.5.

In section 5, a distinction must be made between STECF as data end-user (e.g. EWG on Annual Economic Report) and the STECF EWG evaluating DTi. Thus, it was agreed to re-name two columns' name specifically.

In Table 2 of the DTMT guidance document, editorial amendments, mainly based on input from the EWGs on DTi assessment, were applied.

It was concluded that the further editing of the DTMT guidance document should be coordinated by JRC and that the corresponding technical changes to the DTMT platform should be implemented as soon as possible, preferably before EWG 21-11 taking place in early September 2021 (time permitting). Ultimately, it was agreed that the DTMT guidance is a living document, and the potential needs for future revisions could be discussed once a year, for example as a recurrent ToR to the STECF winter plenary.

7.7 Question on the use of data following data checks carried out in EWG 21-02

Background provided by the Commission

The EWG 21-02 has carried out a series of checks on available data series officially requested through the Mediterranean and Black Sea (MED & BS) data calls until 2020 with the aim to: (i) evaluate issues reported in the Data Transmission Monitoring Tool, (ii) look for other issues not yet spotted in previous meetings and, (iii) define procedures to deal with missing data, raising procedures, etc for the purpose of preparing and freezing time series of length frequencies distributions, in view of the forthcoming stock assessments meetings in autumn.

The data that is currently in the JRC databases are used, apart from forming the basis for stock assessment purposes, for scientific studies. DG MARE receives more and more requests for data from other (than STECF and regular end users) users, like universities and project managers that want to make use of the data that is officially stored in JRC databases. This shows that these data (stored in JRC databases) get visibility and are used for multiple purposes.

On another level, irregularities in data collection activities during the pandemic (already indicated in the questionnaires circulated by the Commission to MS) are already pointing towards data gaps in previous and current years.

In view of the above, the STECF is requested to comment on the intended use, as well as explore possible use(s) of data sets (those stored in JRC databases and those that have been reconstructed) and procedures used in EWG 21-02: as an example, what would be the possible links of the work carried out in this EWG with the awaited data issues resulting from discontinued data collection due to Covid-19 pandemic. Please discuss if (part of) the EWG work could be applied to data gaps arising from discontinued data collection due to the pandemic.

Request to the STECF

In view of the above, the STECF is requested to comment on the intended use, as well as explore possible use(s) of data sets (those stored in JRC databases and those that have been reconstructed) and procedures used in EWG 21-02: as an example, what would be the possible links of the work carried out in this EWG with the awaited data issues resulting from discontinued data collection due to Covid-19 pandemic. Please discuss if (part of) the EWG work could be applied to data gaps arising from discontinued data collection due to the pandemic.

Summary of the information provided to STECF

Three examples of data request proposals were provided to STECF as illustration of the diversity of end-users (i.e., Research Institutes and University) and data types (i.e., raw and aggregated survey data) covered by different data collection (i.e., MEDITS, DCF, and other European funding projects). The uses of the requested data will for example cover the following research initiatives:

- The effects of climate change and fishing on the structure of fish communities.
- A methodological approach of economic and ecologic impact in European fisheries.
- Calibration/validation of a full ecosystem model (*Ecosim with Ecopath*) to analyse historical and future dynamics and ecosystem services.
- Validation of an Ocean Productivity index available to Fish (OPFish) to map potential fishing yields.
- Primary information for fisheries trends and indicators to inform on the dynamics of fish stocks.
- Input for Integrated Ecosystem/Resilience Assessments to study changing ecosystems in the face of climate change and exploitation.

An excel file "Questionnaire_Marc_2021" was also available gathering information received from member states presenting the changes occurred in the fishery state of play and DCF sampling plan situation due to Covid constraints.

The data request template which specifies the requirement of any end-user needs to fulfil to apply for data was also provided. The document is publically available on DCF website8:.

Summary of additional information

Legislation background

EU REG 1380/2013 defines that MS should manage and make the collected data available to end-users and to other interested parties. The regulation also defines that '*end-user of scientific data*' means a body with a research or management interest in the scientific analysis of data in the fisheries sector.

Beyond the 'traditional' end users (defined below as Type 1), DCF data from the Mediterranean and Black Sea areas are under-utilized, largely, because these data are not easily available. This is acknowledged in the Commission Staff Working Document accompanying the proposal of the Regulation 2017/1004 (COM(2015)294final) that stated that '*it is important to allow for the availability of data to a wider public in order to save resources and profit from the synergies created by cross-cutting interdisciplinary links*

8 https://datacollection.jrc.ec.europa.eu/documents/10213/881778/2021_Template+for+data+requests_v4.docx/bc863dc0-2a58-4a53-857c-5ca1b8300083

between different fields'. Thus, sharing of data is in the spirit of the Regulation: data should be made multi-purpose and reusable, provided that rules on personal data are respected.

According to the Regulation 2017/1004, there is a clear obligation for an EU member state (MS) to submit data to end-users of scientific data or other interested parties upon their request (with different deadlines):

- if data are requested for fisheries management purposes by relevant end users, the MS has to comply with such a request within the deadline set in the request, which may however not be shorter than 1 month (Article 17(3));

- data requested for any other purpose than specified in Article 17(3) has to be sent by the MS to relevant end-users or other interested parties within a reasonable time, which should be proportional to the request (Article 17(4)).

The following exceptions apply (differing in the provision of the data series):

- if the data are requested for scientific publication purposes, the MS may require that the publication of data be delayed by 3 years from the date to which the data refer (sampling date), to protect the professional interests of their national scientists involved in the collection of these data (Article 17(7)). In case of MS refusal to transmit data on this account, the end user can ask the European Commission to launch an official procedure of review (Article 19);

- the MS may also limit or refuse access to (all requested) data (regardless of the purpose it was requested for) if an end user is not respecting the obligations set in Article 20 (see Annex of the data request template). However, such a refusal would be conditional upon European Commission approval;

- in the interest of protection of personal data, the MS may also refuse the transmission of (all requested) data if there is a risk that a natural person or legal entity might be identified in line with Article 17(2). However, in such case, the MS has to provide alternative means to meet the needs of the requesting party while ensuring anonymity.

Different levels of data types are also defined (Article 3):

'primary data' means data associated with individual vessels, natural or legal persons or individual samples;

'metadata' means data giving qualitative and quantitative information on the collected primary data;

'detailed data' means data based on primary data in a form which does not allow natural persons or legal entities to be identified directly or indirectly;

'aggregated data' means the output resulting from summarising the primary or detailed data for specific analytic purposes;

'scientific data' means data referred to in Article 1(1) that are collected, managed or used under this Regulation.

Previous STECF advices

on (types of) end users

STECF EWG 12-01 stated that the end-users should be in a position to be able to clearly define what data they need. End-users priorities could then be ranked by the RCGs in order to design regional work plans with limited capital and human resources. The end-users involvement is considered 'to be important to manage expectations and to avoid increasing (demand-led) obligations set against a static or diminishing national resource availability', improving thus transparency between Member States' activities and the end-user requirements.

As proposed by STECF PLEN 13-02, end-users can be classified into the following three categories that include:

• Type 1: Main end-users for whom the DCF/new EU-MAP was designed, including the Commission, any bodies such as ICES and STECF designated by the Commission to provide them with recurrent advice directly supporting CFP decision making, and other fishery management bodies such as RFMOs (e.g. GFCM) and EU governments using EU-MAP data to implement their fishery management policies.

• Type 2: Other bodies such as Advisory Councils or subcontractors from whom the Commission may request advice or analysis based on new EU-MAP data.

• Type 3: All other bodies such as NGOs, Fishermen's organisations and Universities with an interest in using new EU-MAP data for their own purposes.

on data coverage and quality issues

The different EWGs deal with data coming from the data calls launched by DG MARE and serviced by JRC. The data requested by the different data calls9, and used in the respective EWGs, are usually distinct, but in some cases overlapping. Each EWG carries out own data checks, before using the data for analyses. There is subsequently an extensive process of reporting, reviewing and, where possible improving data quality issues as part of the annual cycle of Data Transmission issues (see also EWG 21-09 and ToR 5.3 of this PLEN 21-02 report)

The EWG 21-02 (report section 3.1) developed an extensive suite of R routines for detecting both known error types and inconsistencies in the data. A guidance / report form was provided to accompany the R code scripts.

EWG 21-02 (report section 4) also pointed out the variation in the reported total landings by species/GSA/year under Med&BS, FDI and AER data calls. The greatest discrepancies were found between AER and the Med&BS/FDI calls, but there were some differences in some years across all data calls.

9 https://datacollection.jrc.ec.europa.eu/data-calls

The EWG 21-09 evaluated the Covid-19 impacts related to DCF data collection in 2020 for all MS and drew attention on the fact that pandemic impacts were not fully reflected on the annual report evaluation (see ToR 5.3 of this plenary).

STECF comments

STECF acknowledges that different types of EU maritime and fisheries data and tools are more available than ever before for jointly proposing and taking informed actions and decisions. (i.e., databases of economic data for the EU fishing fleet, aquaculture and fish processing sectors, biological and transversal data such as capacity, effort, and landings, as well as biological, transversal and survey data) (Dörner et al., 2018).

STECF observes that data available under the DCF and related to STECF work is currently publicly disseminated via the STECF website in 2 ways: (1) contained in the reports of the STECF, either as tables in the reports themselves or as electronic annexes (https://stecf.jrc.ec.europa.eu/reports), or (2) via the online fisheries data dissemination tool developed by the JRC (https://stecf.jrc.ec.europa.eu/data-dissemination).

STECF comments that the EU REGs 1380/2013 and 2017/1004 clearly define the different types of end-users and data levels requested for the dissemination of the above-mentioned data.

STECF recognizes that the definitions issued for the different levels of data needs (EU REG 2017/1004 Article 3) do not provide an explicit distinction between commercial and survey data. STECF acknowledges, however, that processing commercial data is more demanding in terms of workload and responsibility for MS in comparison with survey data, to ensure confidentiality. STECF stresses that survey data are highly valuable generic scientific information for all types of end-users including type 3, and that the open access of survey data would significantly reduce the time and resources needed for the preparation and evaluation of the data requests, in the collective interest of all interested parties (data requesters, MS, DG MARE, JRC).

STECF recognizes that end-users should be aware that data were provided in response to specific data calls under the DCF and as such may not always be suitable for all types of analyses. There is thus a risk that certain data variables may be inappropriately used and/or interpreted, despite being accompanied by contextual information and relevant disclaimers.

STECF underlines however that the liability of this risk pertains to the end-user and not to the provider of these public data. STECF reiterates that the use of the data is legally framed by the end-user obligations defined in the DCF Regulation.

STECF notes that the different data checks performed either by EWG 21-02 or JRC staff for stock assessment purposes offer a comprehensive and replicable methodology available for any end-user. Nevertheless, additional care shall be paid to data quality checks and fill-in procedures for data gaps generated by the interruption or delay in survey coverage linked with the Covid pandemic constraints. STECF underlines however that survey data

gaps sometimes also occur for reasons independent of the pandemic (engine break, weather conditions, etc.), and end-users shall account for this in their research methodologies.

STECF notes that in the absence of specifications otherwise, the scientific authorship on research publications of people participating in a meaningful and substantive way in the DCF data collection cannot be warranted but should follow standard editorial guidelines.

STECF observes that Med&BS data are less accessible than the ones for the ICES subareas, which are freely available through ICES database https://ecosystemdata.ices.dk/). ICES Working Group members can access the data, and other users can get access to the dataset per request. In particular, STECF notes that ICES survey data are publicly available both in the form of raw haul-by-haul data and as pre-processed abundance indices for selected stocks when used by the assessment working groups.

STECF notes that although issues on data gaps, corrections, fill-in or coverage still exist in the Med&BS data set, under good scientific practices there is no need for end users to develop new specific procedures for Med&BS data beyond those that already exist.

STECF promotes open and transparent science as a policy priority for the European Commission that accelerate the research process and increase research integrity, cooperation and knowledge sharing.

STECF highlights that the FAIR principles (Findability, Accessibility, Interoperability, and Reuse of digital assets) mark an important refinement of the concepts needed to give greater value to data (EU, 2018). Within that framework, various initiatives to enhance open access of data are being developed in order to facilitate the free access to reliable and accurate marine data. The platform EMODnet gathers European marine data from more than 120 organizations in bathymetry, biology, geology, seabed habitats, chemistry, physics and human activities. STECF see no reasons that Med&BS data should be treated any differently than in other sea basins.

STECF also acknowledges the Open Data Directive that entered into force on 16 July 2019 (Directive (EU) 2019/1024) to promote "open access policies" from publicly funded research, as specifically defined in the Article 10 and paragraph 1 of the Directive. The Directive also sets the establishment of high-value datasets to be provided free of charge. The Commission may assist the Member States in implementing this Directive in order to develop policies for open access to publicly funded research data.

STECF also points the need of multi-disciplinary data exploration as a crucial step that speeds up the value-added EU-wide information products. Different types of data (Article 13(1) are presented in Annex I of the Directive (EU) 2019/1024) (Geospatial, earth observation and environment, meteorological, statistics, companies and company ownership and Mobility).

STECF reiterates that (STECF PLEN 19-02, section 6.1) since DCF data are one of the main data source of MSFD assessments (EU Members States' obligation - http://cdr.eionet.europa.eu/bg/eu/msfd_mp) in most countries, an easier access to these data could enforce synergies among various management needs for addressing the fishing impact on the ecosystems and the progress towards achieving Good Environmental Status.

STECF conclusions

STECF concludes that there is increasing interest in all sea basins for uses of scientific DCF data beyond the 'usual' end users dealing with stock assessment and management advice.

STECF concludes that because fisheries data (both commercial and survey data) in the Med&BS area are currently less accessible than the corresponding ones in the ICES area, this increasing interest adds a significant workload to all interested parties, and makes data sharing for the Med&BS data a longer and more cumbersome process which negatively affects all interested parties (data requesters, MS, DG MARE, JRC).

STECF stresses that the data collected under DCF calls are funded through public money; survey data, in particular, represent highly valuable information of generic scientific interest and without restrictions linked to commercial confidentiality. STECF fully supports that these scientific resources be made publicly available in the interests of all end-users and be freely used for further analyses provided the source is acknowledged and the obligations are met.

STECF concludes that the EU REGs 1380/2013 and 2017/1004 contain elements supporting the availability of data to a wider public and framing the requests for non-publicly available data including clear obligations for the data requester. STECF concludes that the generic EU guidelines for data policy as well as the FAIR principles should be taken into consideration for the elaboration of an open-access and transparent framework for Med&BS data, alongside what is already in use for data in other areas including the ICES area.

STECF concludes that the intended use(s) of data sets may also require the coordination with the Directorate-General for the Environment (DG-ENV) in order to assess the ecosystem objectives of the Common Fisheries Policy.

STECF concludes that for the years covered by the DCF, Med&BS data are considered of sufficient quality to be used by other end-users. STECF stresses that JRC and STECF EWGs have developed numerous diagnostic scripts checking for known types of data errors of the data (cf EWG 21-02 and ToR 5.1 of this plenary report).

STECF acknowledges the impact of the 2020 Covid disruption in surveys and other data collection, and notes that quality-checking this will be part of the work performed by the various stock assessments EWGs in 2021, thus providing a basis for the characterisation of data quality loss for other end-users. STECF concludes furthermore that survey data gaps may occur for reasons other than the pandemic, and the liability to use robust and appropriate analyses methodologies pertains to the end users.

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7.8 Assessment of changes in types of and topics for requests to STECF

Background provided by the Commission

The mandate of the current STECF has started on 1st July 2019 and runs until the first Plenary of 2022, with a view to be renewed as of the 2022 July Plenary. Compared to previous periods, the current STECF has been consulted during the current mandate on more sustainability related requests from the COM. Other topics that depart from the "classical" fisheries related requests, such as fleet management or elements of CFP evaluation, have also gained in frequency.

Request to the STECF

Against this background, the STECF is asked to outline the main challenges which have been encountered during the current mandate with respect to the expertise necessary to address the ensemble of requests and consultations that have been received. STECF should assess how the existing distribution of fields of expertise in the committee relate to the distribution of the types of/topics for requests that were received. It should also be evaluated, in a longer-term historic perspective, what type of work and topics have become more or less prevalent during the last couple of mandates of STECF and, related to this, what scientific expertise has been in more or less demand.

STECF comment

STECF notes that the chairs of STECF issued a short questionnaire to the membership. A summary of the responses with the addition of some extra information on the work of STECF over the last years (e.g. including some statistics on number of reports) has been included in a separate document and discussed with the Committee. Exchanges of view with some DGMare staff also took place during the PLEN 21-02 meeting in an open discussion session. STECF proposes to follow up afterwards between DG Mare and the STECF bureau based on the finalised document.

8. CONTACT DETAILS OF STECF MEMBERS AND OTHER PARTICIPANTS

1 - Information on STECF members and invited experts' affiliations is displayed for information only. In any case, Members of the STECF, invited experts, and JRC experts shall act independently. In the context of the STECF work, the committee members and other experts do not represent the institutions/bodies they are affiliated to in their daily jobs. STECF members and experts also declare at each meeting of the STECF and of its Expert Working Groups any specific interest which might be considered prejudicial to their independence in relation to specific items on the agenda. These declarations are displayed on the public meeting's website if experts explicitly authorized the JRC to do so in accordance with EU legislation on the protection of personnel data. For more information: http://stecf.jrc.ec.europa.eu/adm-declarations

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The Scientific, Technical and Economic Committee for Fisheries (STECF) has been established by the European Commission. The STECF is being consulted at regular intervals on matters pertaining to the conservation and management of living aquatic resources, including biological, economic, environmental, social and technical considerations.

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