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Scientific, Technical and Economic Committee for Fisheries (STECF) - Fisheries Dependent Information – FDI (STECF-21-12)

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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 STECF reviewed the report of the EWGS on Fisheries-dependent Information during its winter 2021 plenary meeting.

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STECF advice:

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EWG-21-10 report:

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EWG-21-12 report:

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TABLE OF CONTENTS

SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (STECF) – FISHERIES DEPENDENT INFORMATION (STECF-21-12)

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.

STECF observations

STECF observes that two STECF Expert Working Groups on Fisheries Dependent Information (FDI) were 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.

The joint EWG report covering the findings of both the EWG 21-10 and EWG 21-12 was made available to the STECF PLEN 21-03.

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.

Terms of Reference EWG 21-12 Evaluation of Fisheries Dependent Information for European Fleets:

4 – Review and document completeness of the data set and feedback from Member States on approaches used and problems encountered in responding to the data call.

4.1 As a matter of priority, the EWG is requested to ensure that all unresolved data transmission (DT) issues encountered prior to and during the EWG meeting are reported on line via the Data Transmission Monitoring Tool (DTMT) available at https://datacollection.jcrc.ec.europa.eu/web/dcf/dtmt. Such issues should be reported in full within 2 weeks of the end of the EWG.

4.2 Review outputs of ad hoc contract that provides the catches, landings and discards, at a level of aggregation corresponding to the fleet, area and gear type as specified in each exemption of each discard plan for 2022.

4.3 Review results of script developed under ToR 2.1 of EWG 21-10 and check consistency of the results produced.

4.4 Review analysis of compatibility between AER and FDI data calls produced by EWG 21-10 ToR 3 and provide relevant explanations where needed. Rerun the analysis using most recent data (if resources allow).

4.5 Review data quality checks and produce National methodological chapters

5 – Provide landings and discards data for exemptions in discard plans.

Based upon the previous work and method established in STECF EWG 20-10:

5.1 STECF is asked to provide figures for landings and discards in 2020, at a level of aggregation corresponding to the fleet, area and gear type as specified in each exemption of each of the discard plans for 2022.

5.2 STECF is asked to assess and if possible, provide percentages of discards estimates below and above MCRS at a level of aggregation corresponding to the fleet, area and gear type as specified in each exemption of each of the discard plans for 2022.

5.3 Where there is insufficient discard data for the above task, the STECF is asked to provide estimated catches (landings + discards[1]) for 2020, if possible and enough data provided during data call.

6 - Produce dissemination tables and maps of spatial effort and landings by c-squares

6.1 Discuss results of ToR 2.1 and 2.2 of the EWG 21-10 and agree the format of the Table A and biological data (FDI Tables C, D, E and F) and of the refusal rate data to be publicly disseminated in the future.

6.2 Calculate coverage of confidential data (as proposed by EWG 21-10 ToR 1.2).

6.3 If GIS technical skills are available in the EWG, produce maps of effort and landings by c-square (to be inserted in the EWG report) for the following regions (as defined in COM-2016-134 for areas other than 'distant waters') and major gear types (as defined in appendix 4 of the data call):

a. Baltic; North Sea; North Western Waters; South Western Waters; Mediterranean and Black Sea; Distant waters

b. Trawls (except beam trawls) with mesh < 100mm; trawls (except beam trawls) with mesh ≥ 100mm; beam trawls with mesh < 120mm; beam trawls with mesh ≥120mm; seine nets; gillnets and entangling nets; dredges; hooks and lines; surrounding nets; pots and trap.

STECF comments

The EWG 21-10 and 21-12 met virtually from 31st May to 4th June 2021, and from 13th to 17th of September 2021 respectively.

The following STECF observations, comments and conclusions are based on: (1) the presentation of outcomes from the EWG 21-10 and EWG 21-12 meetings made by the two chairpersons, (2) and from the consolidated EWG 21-10/21-12 report.

STECF observes that EWG 21-10 was primarily aimed to review various methodological issues identified in previous meetings while EWG 21-12 primarily checked the coverage and quality of data and information submitted under the 2021 FDI data call and responded to specific requests for information regarding discard estimates for specific groups of vessels that may be exempted from the obligation to land all catches in 2022.

STECF also notes that the EWG 21-10 was the first opportunity since the new FDI data call was established in 2017 to review the methodology applied by Member States (MS), propose common practices, and follow up on future development of the FDI database and data dissemination.

[1] 'Discards' are defined here as the fish/crustaceans thrown overboard.

STECF further notes that PLEN 21-02 was informed on the preliminary findings of the EWG 21-10. However, the EWG 21-12 revisited some of the ToRs of EWG 21-10 and provided additional information. The outcomes of the two EWGs were combined in the consolidated EWG21-10/12 report, and in the following text the statements referring to "the EWG" refer to the combined EWGs report.

STECF considers that the EWG 21-10 and 21-12 have fully addressed all their Terms of Reference.

the STECF comments are given by Terms of Reference below:

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

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

STECF observes that the EWGs obtained information from 21 Member States. 16 MS partition total discard estimates for a species proportionally to the landings of the same species within the domain. Two other MSs use effort, landings of target species, or landings of all species for partitioning of discards, while the remaining three MS do not partition because only official discards or zeros are provided. There is some variation in how countries partition discard estimates for species without landings: effort or landings of all species. Some countries do not include estimates for such species in Table A. STECF notes that the latter approach means that discard estimates for non-commercial species are likely to be missing from Table A.

The STECF also notes that discard estimates are derived using data collected under sampling plans that are not designed to provide data at the level of details required in Table A.

STECF agrees with the EWG suggesting the following best practices for partitioning of discard estimates in Table A:

- Total discards should be estimated in accordance with the design of the sampling program to ensure that the total discards of a "domain" is statistically sound. That means that the "discards domain" usually would equate to the strata in the sampling and estimation;
- The partitioning of the discards into Table A is suggested to be carried out by use of the same variable that was used for the raising of the total discards;
- It is recommended that MS also ensures partitioning of discards with zero landings in Table A.

1.2. Review methods used by MS to define confidential cells

STECF notes that three different approaches to declare data as confidential are currently being implemented (sometimes in a combined way) by Member States:

1. No data transmitted in response to the FDI data call are declared as confidential (9 MS)

2. Less than 3 vessels' rule is applied and rows concerned are marked as confidential (12 MS)
3. All rows regarding long-distance fishing fleets are marked as confidential (2 MS)

STECF acknowledges that EWG 21-10/12 performed a thorough analysis of the amount of confidential information in key variables for FDI data call (for years 2014-2020).

Previous FDI EWGs (e.g. EWG 19-11) had raised the importance of achieving a common criterion for confidentiality. STECF observes that the harmonization of the criteria used to declare data as confidential between Member States has now clearly improved. Since the size of long-distance fleets of the two MS, marking their information as confidential, is small, STECF endorses the EWG's perception that this issue is of limited extent and does not affect anymore the quality and coverage of the data to be disseminated publicly.

1.3. Metier definitions used by MS

STECF notes that all MS use the métier codes that correspond to the data call code list approved by the RCGs. STECF observes however that there still are some differences in assigning fishing activities to métier:

- large-scale fishing fleets: in most cases métier codes are assigned using logbook information, but some countries also combine with other data sources, e.g. sales notes, sampling data, scientific census survey.

- In small-scale fishing fleets: there is variation in the data sources used and, in some cases, assumptions are applied due to the lack of relevant data (e.g. small-scale fishing fleets where only sales note are available).

- In most of the cases weight or value are used to assign target species assemblages but; in a few cases, these are recorded directly in logbooks.

STECF also notes that there has been a lot of work done by ICES and RCGs to harmonise definitions and improve comparability of the metiers (including mesh size definitions). New métier codes were trialled in the ICES RDBES test data call in 2021. STECF notes that the timing of EWG 21-10 and 21-12 meetings were before the deadline of the ICES RDBES test data call for 2018-2020, so the use of the new métier codes could not be evaluated.

The EWG considered though that for the FDI data call in 2022, it should be made possible to upload new métier codes as proposed by the RCG ISSG on Métier Issues, keeping old métier codes as alternative for Member States that have issues updating their métiers. STECF notes however that since the transition to the new metier codes will generate the need for re-uploading of full FDI time series. STECF suggests thus to wait until the full agreement /check of suggested new codes has been performed by the MS and the conditions for the changes to new codes have been agreed in RCGs.

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

STECF observes that EWG summarised the methods used by MS to provide spatial data in FDI data calls so far. The majority of MSs provide FDI using coordinates of the centre of the ICES rectangle together with a rectangle type which is registered in logbooks. Only a few Mediterranean countries provide data at a smaller spatial resolution, using c-square notation and prepared using VMS data.

STECF further observes that the majority of countries include small scale fleet (SSF) data in their spatial data submissions. In cases when no data on spatial resolution for small scale fleet is available the most common approximation method is based on the port of landings.

STECF notes that the importance of spatial data for end-users constantly increases. It is recommended for MS to use VMS data as far as possible to provide spatial information at high resolution. It is also important to include small scale fleet spatial data in the FDI submissions.

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

STECF observes that, based on the country-specific presentations made during the EWG 21-10 meeting, the EWG compiled an overview of the coverage and methods used by 20 Member States to estimate landings and effort data for vessels <10m in order to respond to FDI data calls.

STECF observes that census is the most common approach used by countries to collect data on SSF (17 countries). 4 countries are using other approaches (sampling approach or combined) to provide SSF fishing activity data as declarative data in these countries are not available. The analysis conducted during the EWG meeting showed that most of the countries have a mandatory requirement for SSF to report fishing activity data. STECF however notes that this does not guarantee full coverage of the SSF in the database unless this mandatory requirement is fully monitored. Furthermore, the official declarative data quality has to be assessed as well.

STECF agrees with the proposal of EWG to add in the future a specific section on the SSF data available in the national chapters. STECF notes that it would be the right place to highlight some issues about data quality/coverage related to this specific fleet segment and/or to indicate any improvement done in order to monitor these vessels.

1.6. Covid-19 impacts on the quality of data provided

STECF acknowledges the initiative of EWG to compile the MS-specific information on Covid-19 pandemic impact on data collection by MS in 2020 by adding a separate sub chapter in the

national methodological chapters. The EWG provided also an overview categorising the impact on discard sampling and discard estimation in 2020 by quarter.

The STECF observes that more than half of MS (58%) estimated the Covid-19 impact on sampling and the estimation of the discards to be "No" or "Low". The effect on the sampling was estimated to be medium and high by 9% and 33% respectively. The effect on the discard estimation were marked medium and high for 24% and 18% respectively.

STECF observes thus that the restrictive effect of COVD-19 situation may at least partly be responsible for the lower coverage of landings with discard information in 2020, presented in the EWG report Table 2.2.1.

STECF notes that the question of Covid-19 impacts on the quality of data provided was also investigated by EWG 21-09, this time through the Member States' Annual Reports 2020. The EWG 21-09 concluded that Covid-19 restrictions particularly affected the sampling of incidental by-catch and led to cancelation/reduction of several research surveys. This resulted in low quality scores (high number of MOSTLY) for 17 MS. However, the EWG 21-09 also discussed the inadequacy of the scoring system to properly reflect the quality change of the data collection. As such, STECF notes that the analysis presented in EWG 21-10/21-12 provide a different and complementary assessment of covid-19 impact, and notes that any related data issue encountered in 2021 and reported in the DTMT will be further analysed in 2022.

1 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 EWG reviewed the methodology and outputs of the ad hoc contract (Ref STECF 2116), awarded to develop and propose methodology to assemble "*detailed* Table A" from Table A and biological data in Tables C, D, E, F provided by Member States.

In general, the EWG found the methodology used in ad hoc contract to be appropriate.

However, a number of issues were encountered which resulted in only a part of the biological tables being successfully merged with the catch summary table A. The main issue centred around the misspecification of the 'domains' by Member States, which resulted in a mismatch between those used in catch summary and the biological tables.

STECF further observes that in order to overcome this problem, the EWG recommended a modification and clarification of the Domain definition in the 2022 data call to assist the Member countries on defining the domains.

The EWG also recommended that the *detailed* Table A should not be disseminated on the STECF website as such, but rather that the individual Table A and Tables C, D, E and F are disseminated in the form they are submitted. The R codes produced during the ad-hoc contracts this year and previous years should be made available on the STECF data dissemination website once adapted to fit the format and structure of the data published in the dissemination website. STECF agrees with the EWG recommendations, but notes however that there is an inherent risk of data mis-understanding, mis-use or mis-handling when providing non-experts end-users with non-merged data and scripts. STECF suggests that this is considered again and progressed during the next EWG in 2022.

STECF observes that the EWG analysed the feasibility to assess coverage, sampling rate, robustness and accuracy of the information provided by MS in Table A and suggested adding columns (Total number of Trips, Number of Samples, Number of Sampled Trips, Discard CV, Upper and Lower Confidence limits of Discard estimate) in FDI Data call tables C and D 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 supports this proposal.

- *Issue of transfer of the biological data from Mediterranean and Black Sea data call into the FDI format/database*

DGMARE considers the need to rationalize the FDI database towards the establishment of a pan-European database including data for all the fisheries regions, while at the moment biological data from the Mediterranean and the Black Sea are the only ones not present in the FDI database.

STECF observes that the EWG21-10/12 analysed the present status of the both data sets and considered that the transfer of the biological data from the Mediterranean and Black Sea data calls into the FDI format/database is technically feasible and some tools have been already developed by the STREAM project. STECF observes however that the EWG still depicted a number of issues and inconsistencies between the FDI and Med&BS data calls and concluded that due to these inconsistencies it is not straightforward to transpose biological data from Med&BS data call to FDI formats.

STECF agrees that there is an urgent need to evaluate and resolve those inconsistencies/issues betweeen the two data calls, involving discussions with JRC and DG mare. STECF notes that ad-hoc contracts in 2022 would be needed to implement procedures proposed by the EWG.

STECF also notes that apart from technical issues, the need to inform MS on the transfer of the biological data from Mediterranean and Black Sea data call into the FDI format/database should be considered by including an informative note in the official data call letters.

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

STECF observes that other STECF EWGs have already attempted to compare the FDI and AER data sets in the past, and most recently the EWG 20-11 on Balance Capacity and the EWG 21-02 on Methods for Supporting Stocks Assessments in the Mediterranean. For the EWG 20-11, the analysis was a preliminary one with an ad-hoc contract focused on the landings weight and values for Belgium and Italy.

EWGs 21-10 and 21-12 analysed in details the consistency of the activity data between the two sources – AER and FDI data set. STECF further observes that the EWGs compared the information from AER data sets published on the STECF website with data submitted for 2017 and 2018 to FDI database during 2020 data call. STECF observes that the data analysis showed an improvement in data codification between both data calls and consistency between different data sets with the same information. Most of the data inconsistencies still identified between the data sets are due to: timing in data exports to answer the data call, possibility to report to FDI confidential data (that is not available in AER) and due to the clustering of fleet segments used in AER data set.

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

STECF observes that EWG performed a thorough comparative analysis of the information from the two databases on:

- Fleet segments in the capacity files;
- Number of vessels in the capacity files;

- Fleet segments defined in landings data sets

STECF observes that the differences between the data sets are relatively small and can be explained e.g. by reporting inactive vessels to AER and not reporting them to FDI, by the difference in fleet segments names used when providing data to different data calls or by clustering of fleet segments in AER data due to confidentiality reasons.

STECF agrees with the EWG proposal to further improve the FDI data call guidance making sure consistent definitions and guidance are used in both data calls. STECF notes furthermore that the AER data call would also need to be checked as well, and code names improved accordingly where relevant. STECF suggests that JRC is tasked with this follow up before next year's data calls.

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

STECF observes that the EWG was tasked to perform the comparisons on country, fleet and gear type level within the fleet segment. The analysis revealed though that gear type data in the AER data set is reported optionally and is not a robust parameter in the data set, making such an analysis unfeasible.

STECF agrees with EWG that MS should dedicate more effort to improve national coordination during preparation of data for the FDI and AER data calls, especially defining clustering procedures, allocation of vessels to the fleet segments and when providing landing and effort data by fleet segments and metiers.

STECF also notes that in coordination with JRC, the PGECON organized two Workshops on transversal variables (Zagreb, 2015 and Nicosia, 2016), which focused on methods to calculate days at sea and fishing days. This focused approach proved successful in harmonizing methodologies on transversal data and is referenced as relevant methodology in the FDI data call specifications.

Therefore, STECF also support the EWG proposal that such a focused approach should be considered at a dedicated workshop called by RCGs in coordination with JRC, and in line with the work carried out in ISSG on Metier Issues to explore how MS allocate vessels, landing and effort to fleet segments and metiers for the FDI and AER data calls, and to harmonize different approaches, in accordance with DCF definitions on variables and data call specifications. STECF notes also that EWG 21-09 (Tor 5.7 of this PLEN 21-03 report) has collected extensive quality annexes describing data collection protocols by Member States, which may provide useful information in this process.

4 – Review and document completeness of the data set and feedback from Member States on approaches used and problems encountered in responding to the data call.

4.1. *As a matter of priority, the EWG is requested to ensure that all unresolved data transmission (DT) issues encountered prior to and during the EWG meeting are reported on line via the Data Transmission Monitoring Tool (DTMT). Such issues should be reported in full within 2 weeks of the end of the EWG.*

STECF acknowledges that the data provided by Member States in response to the 2021 FDI data call, and incorporated into the FDI database, represent the most comprehensive data set currently available on fishery-dependent information from European fleets for the years 2014-2020. However, STECF notes that a number of shortfalls and gaps have still been identified in

the data submitted. The unresolved issues that still require to be addressed by Member States were all recorded in the Data Transmission Monitoring Tool (DTMT).

4.2 *Review outputs of ad hoc contract that provides the catches, landings and discards, at a level of aggregation corresponding to the fleet, area and gear type as specified in each exemption of each discard plan for 2022*

STECF notes that the EWG21-12 reviewed the methodology and outputs of the ad hoc contract (# 2045) awarded, as in previous years. This ad hoc contract provided data on landings and discards, at a level of aggregation corresponding to the fleet, area and gear type as specified in each anticipated exemption contained in the individual discard plans for 2022. STECF observes that the methodology used in the ad hoc contract was appropriate and identical to the one used in previous years.

STECF observes that Member State-specific catch fractions were provided for the majority of anticipated 2022 exemptions. Two sets of estimates were computed: i) estimates for exempted fleets for which discard sample data were provided and ii) estimates for exempted fleets for which no sample data were available, so-called 'fill-ins'.

STECF observes however that the same data limitation applies for this exercise as in previous years, however STECF acknowledges that the EWG has attempted to provide catch fractions for exemptions to the Landing obligation required by DG MARE for planning purposes. STECF further observes that the EWG was not able to provide catch fractions for exemptions containing operation-specific conditions such as engine power (kW), tow duration (≤90 mins) and proximity to the shore (within 12 nautical miles), as such information is not available in the FDI database.

In the re-occurring situation of data limitations observed by the EWG, STECF stresses the need for discards information for exemptions proposed by Regional Advisory Groups, required by DG MARE for planning purposes and e.g. as basis for conservation measures under Union environmental legislations. STECF concludes that this additional data collection may well go beyond the DCF/EU-MAP requirements and that specific data needs such as these need to be collected in targeted sampling on the national or regional level (See also ToR 5.7).

4.3. Review data quality checks and produce National methodological chapters

STECF observes that data submitted by each Member States were thoroughly reviewed. The review included the methodology used for responding to the data call and the coverage, quality and consistency of data submitted. The review sections by Member State are reproduced in Annex 1 of the EWG 21-10/12 Report.

STECF notes that Member States are responsible for providing checked and validated data. Given the complexity, size, and high level of disaggregation of the datasets submitted, some erroneous records are though still expected to occur, despite of the extensive automated checks already implemented by the JRC.

STECF further notes that experts attending the meeting conduct essential additional time-consuming checks, which have compromised the ability of the EWG to address other essential TOR's. Ideally, the EWG should have a dedicated meeting, restricted to checking the integrity of the database, that should not include any requests for advice.

STECF observes that the EWG recommends a methodology meeting to be held every second year. STECF support this recommendation since these methodology meetings form an essential pillar to the functioning of this EWG as they facilitate the development of methods used to answer the data call and check quality of the data. The experience of having such a meeting in 2021 ensures that such dedicated methodology meetings have clear positive effect on the quality of the data (and subsequent advice), and significantly reduce the time required for data checking during the advice meeting. These methodology meetings also provide a space in which historical data can be explored and investigated for stability and consistency across years. This feature of the meeting will become increasingly important as FDI will request more historical years in future data calls (pre 2014).

5 – Provide landings and discards data for exemptions in discard plans.

5.1 *STECF is asked to provide figures for landings and discards in 2020, at a level of aggregation corresponding to the fleet, area and gear type as specified in each exemption of each of the discard plans for 2022. Where there is insufficient discard data for the above task, the STECF is asked to provide estimated catches (landings + discards) for 2020, if possible and enough data provided during data call.*

STECF acknowledges that EWG 21-12 put a lot of effort to provide discard estimates for each anticipated exemption for 2022. However, some exemptions required detailed information currently not available in the FDI database (i.e. distance fished from shore and vessels engine power). Based on the feasibility of the EWG to extract the relevant data, exemptions were characterised in four categories:

Category 1 – "Yes": hereby the discard estimates are calculated exactly as described in the Delegated Acts.

Category 2 – "Partly/Yes": hereby the discard estimates are calculated as described in the Delegated Acts but not taking into account the MCRS which makes part of the exemption.

Category 3 – "Partly": hereby the discard estimates are calculated as described in the Delegated Acts without taking into account some specifications (e.g., within 3 nautical miles, flip-up rope or benthos panel, engine power < 221 Kw, tow duration of no more than ninety minutes, etc.),

Category 4 – "No": hereby it is impossible to calculate discard estimates as described in the Delegated Acts. This implies where the Delegated Acts include e.g., specific areas – IXa Gulf of Cadiz – or purse seine with net not fully taken on board, processing on board to obtain surimi).

STECF observes that EWG21-12 summarised the discard information in two types of tables: tables with landings and discards reported by MS and estimated for the fleets under exemptions (Tables 1-12 in Annex 4) and tables with FDI data reported and filled in aggregated by species and sub regions (Tables 14-18 in Annex 4). In addition this year EWG 21-12 added Table 13 with discards <MCRS for exemptions.

STECF also notes that considering the shortcomings highlighted by the EWG and previous STECF plenaries, the resulting estimates should be interpreted with caution.

5.2 *Discard estimates by exemption*

STECF observes that the estimated discards for fleets likely to make use of anticipated exemptions to the landing obligation in 2022, the details of the anticipated exemptions and associated data available are given for each region in sections 3.5.2.1 to 3.5.2.5 and in Tables 1-18 (Annex 4) of the EWG21-10/12 report.

5.3 *STECF is asked to assess and if possible, provide percentages of discards estimates below and above MCRS at a level of aggregation corresponding to the fleet, area and gear type as specified in each exemption of each of the discard plans for 2022*

STECF observes that as for the previous years, estimation of the proportion of fish above and below the MCRS by species, country, métier, year was done merging tables A, D and F using the fields domain discards and domain landings.

STECF also observes that the EWG provides a detailed description of computation of the numbers above and below MCRS by Country, Year, Area, and metier.

STCF notes that it was only possible to extract data for the exemptions with the available biological data. Corresponding total discard estimates and % of discards below MCRS per exemption and country in 2017-2020 are provided in Table 13 of Annex 4.

STECF observes that where exemptions relate to multiple species, the percentages for each species above and below MCRS related to the catch of that species only and not to the total catch of all species concerned in the exemption.

The results of calculations for landings and discards <MCRS per Member States and metier are presented in Annex 5 of the EWG21-10/12 report.

6 - Produce dissemination tables and maps of spatial effort and landings by c-squares

6.1 *Discuss results of TOR 2.1 and 2.2 of the EWG 21-10 and agree the format of the table A and biological data (FDI Tables C, D, E and F) to be publicly disseminated in the future.*

Biological data (Tables C, D, E, F)

STECF observes that the EWG21-12 discussed the outcome from TOR 2.1 and 2.2 of the EWG 21-10 and recommended that the biological tables are disseminated in the form that they are submitted. EWG 21-12 further recommended that next year (2022) an R script can be prepared by the EWG expert(s) and made available as an attachment to the EWG Report once it is adapted to fit the format and structure of the data published in the dissemination website.

STECF agrees with the EWG and notes that this process would require disseminating Domain Landings and Discards in Table A. Prior to dissemination of the biological data with the script, the final outputs should be shared with the national correspondents seeking for their approval to publish the data for the first time. Afterwards publication of the data should be mentioned as part of the data call informing MS about intended use of the data.

Refusal rates (Table B)

STECF observes that the EWG21-12 recommended disseminating Table B as submitted by Member States. This table mainly relates to the at-sea sampling programmes and contains refusal rates estimated by Member States from statistically sound sampling frames.

STECF notes that this information should be disseminated with some guidance on what the table contains, i.e references and links to the definitions in the data call, and the methodologies used to derive data which can be found in the national chapters in the report.

6.2 *Calculate coverage of confidential data (as proposed by EWG 21-10 Tor 1.2)*

STECF observes that the EWG compiled the criteria, used to define confidential cells by Member States in section 3.1.2. of the report and presented the coverage of confidential data for some key variables based on the data submitted by each MS in response to the 2021 FDI data call. The EWG also listed the sub-regions where more than 50 percent of the weight and value of landings are marked as confidential (Table 3.1.2.4 in the report).

Overview Figures 3.1.2.1 and 3.1.2.2 show the percentage of the data submitted in tables I and H that have been marked as confidential by region, gear type and year for the period 2014-2020.

STECF agrees with the EWG that the dissemination of EWG outputs in form of data sets of capacity, catches and effort tables should stay as stated in recommendation of the STECF 19-11:

• Data that are aggregated across Member States can be published without removing the data marked as confidential as it will be impossible to isolate the confidential data.

• When publishing data at Member State level, data marked as confidential by the Member State in question should be redacted.

6.3 *Produce maps of effort and landings by c-square (to be inserted in the EWG report) for the following regions (as defined in COM-2016-134 for areas other than 'distant waters') and major gear types (as defined in Appendix 4 of the data call):*

a) Baltic; North Sea; North Western Waters; South Western Waters; Mediterranean and Black Sea; Distant waters;

b) Trawls (except beam trawls) with mesh < 100mm; trawls (except beam trawls) with mesh ≥ 100mm; beam trawls with mesh < 120mm; beam trawls with mesh ≥120mm; seine nets; gillnets and entangling nets; dredges; hooks and lines; surrounding nets; pots and traps.

STECF observes that that a comprehensive set of maps of spatial effort and landings were produced for all fishing regions and major gear types. They were included in Annex 6 of the EWG Report and are available at the EU level for public access in the STECF web: https://stecf.jrc.ec.europa.eu/dd/fdi.

STECF observes that in order to account for the different geographical formats allowed in data call, the geographical data validation process adopted earlier (STECF19-11) was implemented and documented in a series of scripts made available to the experts during and after the working group. STECF agrees that such data checks should be included in the FDI data call uploading tool.

STECF acknowledges that the geographical data validation process highlighted an overall improved quality of the spatial data submitted with only 0.71% of invalid records for Table I (Effort by rectangle) and 0.61% invalid records for Table H (Landings by rectangle).

Proposals to improve future data calls

STECF observes that the EWG21-10/12 discussed and proposed updates to the data call, methodological issues and guidelines to improve future data calls. The EWG proposed updates to Domains definitions, updates to Tables C, D and B and to Appendix 3 of the FDI data call. In particular, new columns (Total number of Trips, Number of Samples, Number of Sampled Trips, Discard CV, Upper and Lower Confidence limits of Discard estimate) in FDI Data call tables C and D would improve understanding of the coverage and robustness of the discards information provided during the FDI data call.

STECF notes that discussions on future changes in the FDI data call are also given in section 7.4 of this PLEN 21-03 report.

STECF conclusions

STECF concludes that the EWG 21-10/12 appropriately addressed all ToRs defined.

STECF concludes that two FDI meetings conducted in 2021 allowed to further improve and harmonise methodology reporting to the FDI data call and had a positive effect on the quality of the data (and subsequent advice). Methodology meetings also provide a space in which historical data can be explored and interrogated for stability and consistency across years. This feature of the meeting will become increasingly important as FDI requests more historical (pre-2014) years in future data calls. Therefore, STECF suggests conducting methodology meetings every second year to facilitate further development of FDI and use of additional quality indicators to be added in the future data calls.

STECF concludes that additional biological data should for now be published in the same format as provided by MS, as proposed by the EWG 21-10/12. STECF notes that prior to release of any additional data the format should be shared with National Correspondents informing about the publication of the data. STECF also concludes that the publication of the R script creating "detailed Table A" by merging Table A with Biological data (Tables C, D, E and F) would facilitate future data use by end users. STECF concludes however that a merged detailed Table A would still remain easier for end-users to manipulate than individual tables and scripts, and that this issue should be reconsidered in future EWG

STECF endorses all the EWG's proposals to change the FDI data call clarifying definitions and providing further specification to the Member States providing data.

STECF concludes on the need for better discards information to evaluate the exemptions proposed by Regional Advisory Groups, required by DG MARE for planning purposes and e.g. as basis for conservation measures under Union environmental legislations. STECF concludes that as this additional data collection may well go beyond the DCF/EU-MAP requirements, additional specific data may need to be collected in targeted sampling on the national or regional level.

STECF supports the EWGs' proposed updates to the FDI data call.

STECF endorses the EWGs proposed procedure for solving through a dedicated ad hoc contract the remaining technical issues preventing data translation from Med&Black Sea data call format to FDI. STECF also concludes that additional note informing MS about the transfer of the data from Med&Black Sea database to FDI database should be included in both data calls official letters in 2022.

Contact details of STECF members

[1-] Information on STECF members' affiliations is displayed for information only. In any case, Members of the STECF shall act independently. In the context of the STECF work, the committee members do not represent the institutions/bodies they are affiliated to in their daily jobs. STECF members 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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REPORT TO THE STECF

EXPERT WORKING GROUP ON
Fisheries Dependent Information – "FDI"
(EWG-21-10 and EWG-21-12)

Virtual meeting, 31 May-04 June 2021
Virtual meeting, 13-17 September 2021

3 INTRODUCTION

The STECF EWG 21-10 met as a virtual meeting during 31 May – 4 June 2021. The meeting was opened at 9 am on 31 May and was adjourned at 17.00 on 4 June 2021. Working conditions were challenging but adequate.

The STECF EWG 21-12 met as a virtual meeting during 13 – 17 September 2021. The meeting was opened at 9 am on 13 September and was adjourned at 17.00 on 17 September 2021. Working conditions were challenging but adequate.

3.1 Terms of Reference for EWG-21-10 and EWG-21-12

DG Mare focal person: Evelien Ranshuysen, Jonathan Shrives and Cristina Ribeiro

Chairs: Willy Vanhee and Arina Motova

Background

Two STECF Expert Working Groups on Fisheries Dependent Information (FDI) will be convened:

3) EWG 21-10 Data methodology and dissemination

4) EWG 21-12 Evaluation of Fisheries Dependent Information for European Fleets to review the data transmitted by Member States under the 2021 FDI datacall to judge:
    a. If data submitted is complete in terms of areas of fishing, types of fleet segment and gear operated and species identified;
    b. If data submitted is complete in terms of type of data requested: capacity metrics, effort metrics, landings, discards and spatially disaggregated landings and effort.

In addition, the EWG is asked to map the data on fishing effort obtained from the call for spatially disaggregated data.

In considering the completeness of the data submitted the EWG is entitled to use external sources of data where necessary, as well as expert judgement.

Terms of Reference EWG 21-10 (Data methodology and dissemination)

Based upon the

- STECF PLEN 20-02 conclusions on the ToR 7.4 preparation of the EWG 20-10 Fisheries Dependent Information;
- STECF EWG 20-10 conclusions to establish a common practices (use of confidentiality data records and dissemination tools), and the need to create methodology to partition data (numbers at length) from Tables C and D (aggregations according to sampling programs) to Table A (detailed catch table).
- The need stressed by the STECF PLEN 19-03 to develop a suite of methodologies for the dissemination of FDI data. Such methodologies should provide a visual and numerical indication of estimate robustness and coverage – in particular for discard estimates.

Considering that this EWG is very technical and will take place virtually, an **ad-hoc contract** will be put in place to prepare proposal for the methodology to create detailed Table A and disseminate it providing visual and numerical indication on robustness and coverage estimated.

The STECF EWG is requested to:

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 detailes 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 comparatibility 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.

Terms of Reference EWG 21-12 Evaluation of Fisheries Dependent Information for European Fleets

The STECF EWG is requested to:

4 – Review and document completeness of the data set and feedback from Member States on approaches used and problems encountered in responding to the data call.

4.1 As a matter of priority, the EWG is requested to ensure that all unresolved data transmission (DT) issues encountered prior to and during the EWG meeting are reported on line via the Data Transmission Monitoring Tool (DTMT) available at https://datacollection.jrc.ec.europa.eu/web/dcf/dtmt. Such issues should be reported in full within 2 weeks of the end of the EWG.

4.2 Review outputs of ad hoc contract that provides the catches, landings and discards, at a level of aggregation corresponding to the fleet, area and gear type as specified in each exemption of each discard plan for 2022.

4.3 Review results of script developed under ToR 2.1 of EWG 21-10 and check consistency of the results produced.

4.4 Review analysis of compatibility between AER and FDI data calls produced by EWG 21-10 ToR 3 and provide relevant explanations where needed. Rerun the analysis using most recent data (if resources allow).

4.5 Review data quality checks and produce National methodological chapters

5 – Provide landings and discards data for exemptions in discard plans.

Based upon the previous work and method established in STECF EWG 20-10:

5.1 STECF is asked to provide figures for landings and discards in 2020, at a level of aggregation corresponding to the fleet, area and gear type as specified in each exemption of each of the discard plans for 2022.

5.2 STECF is asked to assess and if possible, provide percentages of discards estimates below and above MCRS at a level of aggregation corresponding to the fleet, area and gear type as specified in each exemption of each of the discard plans for 2022.

5.3 Where there is insufficient discard data for the above task, the STECF is asked to provide estimated catches (landings + discards[2]) for 2020, if possible and enough data provided during data call.

6 - Produce dissemination tables and maps of spatial effort and landings by c-squares

6.1 Discuss results of ToR 2.1 and 2.2 of the EWG 21-10 and agree the format of the Table A and biological data (FDI Tables C, D, E and F) and of the refusal rate data to be publicly disseminated in the future.

6.2 Calculate coverage of confidential data (as proposed by EWG 21-10 ToR 1.2).

6.3 If GIS technical skills are available in the EWG, produce maps of effort and landings by c-square (to be inserted in the EWG report) for the following regions (as defined in COM-2016-134 for areas other than 'distant waters') and major gear types (as defined in appendix 4 of the data call):

a. Baltic; North Sea; North Western Waters; South Western Waters; Mediterranean and Black Sea; Distant waters

b. Trawls (except beam trawls) with mesh < 100mm; trawls (except beam trawls) with mesh ≥ 100mm; beam trawls with mesh < 120mm; beam trawls with mesh ≥120mm; seine nets; gillnets and entangling nets; dredges; hooks and lines; surrounding nets; pots and trap.

[2] 'Discards' are defined here as the fish/crustaceans thrown overboard.

4 DATA PROVISION AND CHECKS

4.1 DCF FDI data call 2021

The DCF Fisheries Dependent Information (FDI) data call 2021 opened on 1st June 2021 with the legal deadline on 30th June 2021 and the operational deadline on 30th August 2021.

The 2021 FDI data call was consistent with the comments and suggestions from the EWG 20-10 (see the STECF report of the EWG 20-10, chapter 4). In particular, the following changes proposed during the EWG 20-10 were implemented in the 2021 data call:

- The refusal rate table (table B) has been modified.
- Guidelines for the identificatin of the principal sub-region requested in the capacity table (table J) have been added.
- Guidelines about the *Nephrops* sub-region variable have been added.
- Guidelines extracted from deep fisheries regulations have been added to specify how to deal with the deep variable.

The data format to be used to answer the data call was detailed in the annex sent to the Member States with the official letter. The annex was also published with the Excel templates on the JRC DCF website (https://datacollection.jrc.ec.europa.eu/data-calls). In the annex to the data call, 11 tables were described, among which table K was optional and tables C, D, E, and F were not requested for the Mediterranean and Black Sea regions (GFCM GSAs).

Data were requested for 2 years only, 2020 and 2014 for all the tables except table H and table I that contain spatial information. For Mediterranean and Black Sea regions (GFCM GSAs), spatial data were requested for 2020 only; for these countries, data for year 2014 were welcomed if available, but the submission was not compulsory.

Declaration about data confidentiality

In the context of the confidential data used during the EWG 21-12, the experts signed the following declaration at the beginning of the meeting.

In order to answer the term of reference of the EWG 21-12, the Fisheries Dependent Information (FDI) data provided by Member States in the context of the DCF FDI 2021 data call will be used. The FDI data call requests data at a detailed level; for this reason, it is possible for Member States to mark data as confidential.
I hereby declare that I was informed by the STECF secretariat and the chairs of the EWG 21-12 that the dataset used during the EWG contains some confidential data and that access to and use of the dataset is only permitted in the EWG context. Consequently, all DCF FDI datasets shall be removed all the electronic supports used (e.g., hard disk, memory stick, etc.), and no electronic or paper copies of the data shall be kept by experts after completion of the EWG 21-12 report.
Signing the present declaration, I acknowledge that I was informed on the above.

4.2 Data checks on uploads and data evaluations before EWG 21-12 meeting

Timeliness and coverage

Most Member States submitted data for all the requested tables by the legal deadline of the data call (see Figure 2.2.1a and 2.2.1b). There were only 2 Member States that did not provide all the tables before the legal deadline (France for tables C and E and Spain for table B).

Data set	Belgium	Bulgaria	Croatia	Cyprus	Denmark	Estonia	Finland	France	Germany	Greece	Ireland	Italy
TABLE_A	29/06/2021	28/05/2021	24/06/2021	25/06/2021	29/06/2021	30/06/2021	07/06/2021	29/06/2021	29/06/2021	29/06/2021	30/06/2021	30/06/2021
TABLE_B	21/06/2021	28/05/2021		17/06/2021	30/06/2021	30/06/2021	11/06/2021	29/06/2021	15/06/2021	29/06/2021	29/06/2021	30/06/2021
TABLE_C	29/06/2021				30/06/2021	30/06/2021	09/06/2021	20/07/2021	30/06/2021		30/06/2021	
TABLE_D	30/06/2021				30/06/2021	30/06/2021	10/06/2021	29/06/2021	30/06/2021		30/06/2021	
TABLE_E	30/06/2021				30/06/2021	30/06/2021	18/06/2021	20/07/2021	30/06/2021		30/06/2021	
TABLE_F	30/06/2021				30/06/2021	30/06/2021	22/06/2021	29/06/2021	30/06/2021		30/06/2021	
TABLE_G	21/06/2021	29/06/2021	24/06/2021	25/06/2021	29/06/2021	30/06/2021	09/06/2021	28/06/2021	25/06/2021	29/06/2021	29/06/2021	30/06/2021
TABLE_H	25/06/2021	25/06/2021	24/06/2021	25/06/2021	29/06/2021	30/06/2021	23/06/2021	28/06/2021	25/06/2021	14/09/2021	29/06/2021	30/06/2021
TABLE_I	21/06/2021	25/06/2021	24/06/2021	25/06/2021	29/06/2021	30/06/2021	23/06/2021	28/06/2021	25/06/2021	29/06/2021	29/06/2021	30/06/2021
TABLE_J	21/06/2021	25/06/2021	24/06/2021	25/06/2021	29/06/2021	30/06/2021	10/06/2021	28/06/2021	15/06/2021	29/06/2021	29/06/2021	30/06/2021
TABLE_K	30/06/2021				30/06/2021							

Figure 2.2.1a: Timeliness overview: data sets uploaded by Member States during the FDI data call with the date of the first successful upload (table K is optional and tables C, D, E and F are not requested for Mediterranean and Black Sea countries).

Data set	Latvia	Lithuania	Malta	Netherlands	Poland	Portugal	Romania	Slovenia	Spain	Sweden	United Kingdom
TABLE_A	23/06/2021	29/06/2021	22/06/2021	29/06/2021	29/06/2021	28/06/2021	02/06/2021	22/06/2021	29/06/2021	18/06/2021	21/06/2021
TABLE_B	29/06/2021	29/06/2021	22/06/2021		29/06/2021	28/06/2021		22/06/2021	01/07/2021	18/06/2021	30/06/2021
TABLE_C	25/06/2021	29/06/2021		29/06/2021	29/06/2021	30/06/2021			30/06/2021	18/06/2021	21/06/2021
TABLE_D	25/06/2021	29/06/2021		29/06/2021	29/06/2021	30/06/2021			29/06/2021	18/06/2021	21/06/2021
TABLE_E	25/06/2021	29/06/2021		29/06/2021	29/06/2021	30/06/2021			30/06/2021	18/06/2021	21/06/2021
TABLE_F	25/06/2021	29/06/2021		29/06/2021	29/06/2021	30/06/2021			29/06/2021	18/06/2021	21/06/2021
TABLE_G	25/06/2021	29/06/2021	22/06/2021	30/06/2021	29/06/2021	28/06/2021	02/06/2021	22/06/2021	30/06/2021	30/06/2021	28/06/2021
TABLE_H	25/06/2021	29/06/2021	22/06/2021	30/06/2021	29/06/2021	28/06/2021	02/06/2021	22/06/2021	30/06/2021	30/06/2021	28/06/2021
TABLE_I	25/06/2021	29/06/2021	22/06/2021	30/06/2021	29/06/2021	28/06/2021	02/06/2021	22/06/2021	30/06/2021	30/06/2021	28/06/2021
TABLE_J	25/06/2021	29/06/2021	22/06/2021	30/06/2021	29/06/2021	28/06/2021	02/06/2021	22/06/2021	30/06/2021	18/06/2021	28/06/2021
TABLE_K				30/06/2021	29/06/2021						

Figure 2.2.1b: Timeliness overview: data sets uploaded by Member States during the FDI data call with the date of the first successful upload (table K is optional and tables C, D, E and F are not requested for Mediterranean and Black Sea countries).

As shown in Figure 2.2.2, many Member States re-uploaded data after the legal deadline and before the operational deadline. Some Member States re-uploaded data also during the EWG; however, compared to previous years, the number of re-uploads during the EWG was lower, allowing experts more time to work on the ToR assigned to the working group.

About the coverage of the data, Member States submitted data for most of the variables for all the years requested.

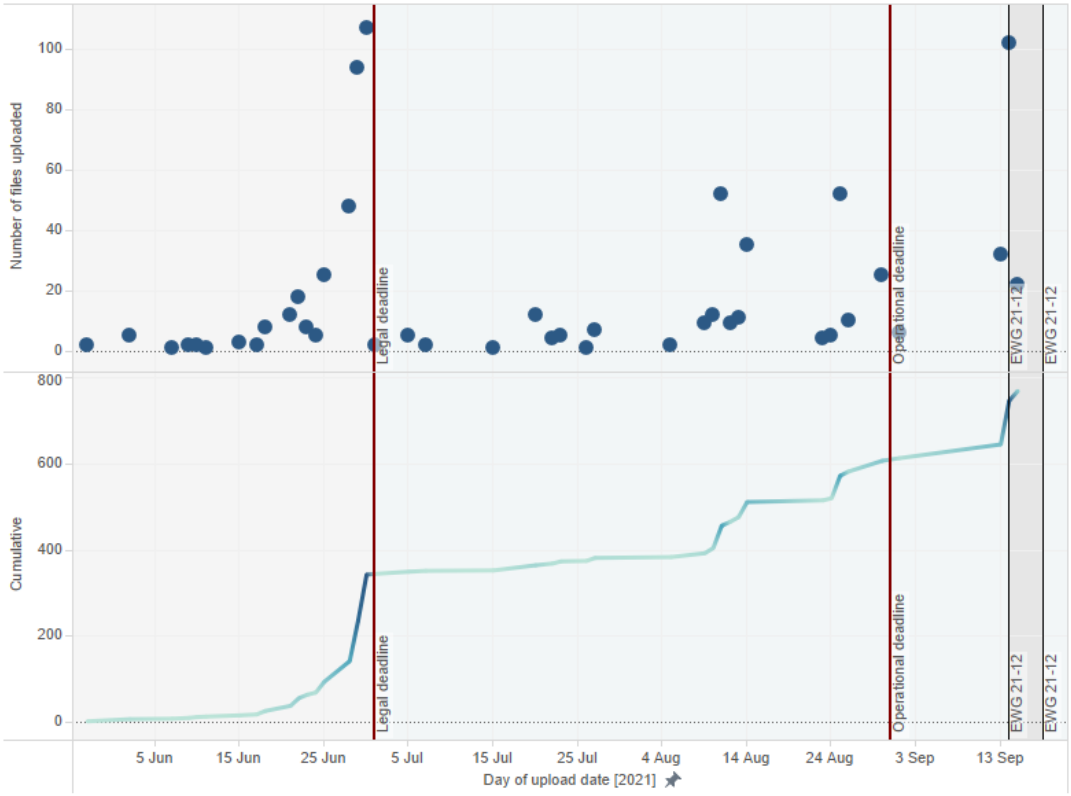


Figure 2.2.2 Uploading progress: the graph shows the number of datasets (i.e., files Excel) uploaded over the time during the FDI data call and the EWG 21-12.

The coverage of discards data in table A is generally poor for all the years present in the FDI dataset. For all the 7 years, on a total of 3555424 rows, there are 483078 entries with discards greater than 0; 414475 entries with discards equal to 0; and 2657871 entries with discards not known (NK code).

Considering the landings for 2020: from a total of 4602473 tonnes landed, for 369851 tonnes of landings the corresponding discards was reported greater than 0; discards was reported equal to 0 for 523290 tonnes of landings; and discards is not known for 3709330 tonnes of landings. In Table 2.2.1 the coverage of discards is reported also for the other years.

Table 2.2.1 Discards coverage in table A (the comma is used as thousands separator).

Year	Landings with discards>0		Landings with discards=0		Landings with discards=NK		Total Landings
	tonnes	% of total Landings	tonnes	% of total Landings	tonnes	% of total Landings	tonnes
2014	732,514	13.92	483,269	9.18	4,046,341	76.9	5,262,125
2015	761,732	14.29	664,100	12.46	3,905,053	73.25	5,330,886
2016	743,193	14.22	710,734	13.6	3,773,407	72.19	5,227,335
2017	553,876	10.24	780,694	14.44	4,072,458	75.32	5,407,029
2018	595,064	11.06	1,742,627	32.39	3,041,868	56.54	5,379,560
2019	539,753	11.22	758,359	15.77	3,511,707	73.01	4,809,820
2020	369,851	8.04	523,290	11.37	3,709,330	80.59	4,602,473

The comparison of the coverage of table A against table H provided consistent results for most of the countries (except for Estonia, France, Greece, Ireland, Italy, Romania and Spain); in Table 2.2.2 the comparison of the total weight of landings provided for 2020 in the two tables is shown.

Table 2.2.2 Coverage comparison of weight of landings between table A and table H for the year 2020 (the comma is used as thousands separator).

Country code	Landings from table A (tonnes)	Landings from table H (tonnes)	Table H compared to table A: difference %	Year
BEL	19,816	19,580	-1.19	2020
BGR	6,227	6,227	0	2020
CYP	1,246	1,246	0	2020
DEU	202,319	194,941	-3.65	2020
DNK	736,417	733,076	-0.45	2020
ENG	188,866	183,179	-3.01	2020
ESP	796,675	691,056	-13.26	2020
EST	70,660	55,767	-21.08	2020
FIN	112,347	112,347	0	2020
FRA	484,724	380,749	-21.45	2020
GBG	832	832	0	2020
GBJ	116	116	0	2020
GRC	59,192	42,405	-28.36	2020
HRV	71,143	70,813	-0.46	2020
IOM	2,924	2,922	-0.07	2020
IRL	257,789	214,285	-16.88	2020
ITA	136,392	58,803,540	43,013.63	2020
LTU	89,650	89,650	0	2020
LVA	103,207	103,207	0	2020
MLT	2,129	2,129	0	2020
NIR	44,724	44,710	-0.03	2020
NLD	306,711	305,189	-0.5	2020
POL	193,471	193,471	0	2020
PRT	148,911	146,072	-1.91	2020
ROU	4,463	2,906	-34.89	2020
SCO	390,618	390,048	-0.15	2020
SVN	152	152	0	2020
SWE	170,751	170,751	0	2020

Regarding effort, comparison of the coverage of table G against table I provided consistent results for most of the countries (except Greece, Ireland, Italy, Romania, Slovenia and Spain); in Table 2.2.3 the comparison of the *totfishdays* variable provided for 2020 in the two tables is shown.

Table 2.2.3 Coverage comparison of totfishdays between table G and table I for the year 2020 (the comma is used as thousands separator).

Country code	Fish days from table G	Fish days from table I	Table I compared to table G: difference %	Year
BEL	13,291	13,166	-0.94	2020
BGR	22,831	22,831	0	2020
CYP	142,698	142,698	0	2020
DEU	86,712	86,864	0.18	2020
DNK	75,164	75,162	0	2020
ENG	133,781	132,021	-1.32	2020
ESP	853,598	608,539	-29.71	2020
EST	71,301	70,107	-1.67	2020
FIN	84,171	82,678	-1.77	2020

Country code	Fish days from table G	Fish days from table I	Table I compared to table G: difference %	Year
FRA	534,033	527,952	-1.14	2020
GBG	674	674	0	2020
GBJ	82	82	0	2020
GRC	1,625,761	84,140	-94.82	2020
HRV	292,323	298,142	1.99	2020
IOM	4,841	4,841	0	2020
IRL	57,419	39,222	-31.69	2020
ITA	1,045,764	160,857	-84.62	2020
LTU	5,035	5,035	0	2020
LVA	15,460	15,458	-0.01	2020
MLT	19,310	19,310	0	2020
NIR	11,551	11,508	-0.37	2020
NLD	51,949	49,216	-5.26	2020
POL	38,097	38,097	0	2020
PRT	252,779	263,804	4.36	2020
ROU	3,957	553	-86.02	2020
SCO	126,591	126,471	-0.09	2020
SVN	6,252	23,818	280.97	2020
SWE	55,558	55,498	-0.11	2020

Concerning the refusal data information requested in table B, for both 2014 and 2020, Croatia, Netherlands and Romania did not provide this table (see Figures 2.2.1 and 2.2.3) and Greece provided an empty table. In addition, Estonia, Italy and Portugal provided data for the year 2014 with all the variables set to not known (NK value) and Belgium provided data for both 2014 and 2020 with all the variables set to not known (NK value). Lastly, the following Member States provided information for 2020 but not for 2014: Bulgaria, Finland, France, Ireland, Netherlands, Poland, Spain and United Kingdom.

Checks during the upload of the data

The majority of the checks performed during the upload of the data concerned the use of valid codes referred to the various appendixes of the data call and the type of the data entered (numeric or text).

In particular, the upload tool verified the format of the provided files and checked the codes used to specify the following information: country, fishing technique, vessel length, gear type, target assemblage, mesh size range, metier, species, supra-region, sub-region, *Nephrops* sub-region, geographical indicator, EEZ indicator, deep fisheries, specific conditions related to technical measures (variable name: specon tech).

In addition, in tables A, G, H and I, the consistency between sub-region codes and EEZ indicator codes were verified; in tables C and D, the age value was validated against the min-max age range provided; in tables D and F, the length value was validated against the min-max length range provided; in tables H and I, the format of the the geographical coordinates (latitude and longitue) and of the c-square was checked, and the consistency of the spatial information was verified.

In the upload tool, the following check among different tables was provided: during the upload of tables C, D, E, F and K, a control was performed on the presence of domain landings and domain discards codes in table A for the same country, year and species.

Post-upload data checks

After the upload of the data by Member States, JRC carried out some quality checks:

- To verift the consistency between the data submitted and the specification of the data call

- To verify the consistency between the data submitted in the different tables of the FDI data call
- To compare data comparison among years
- To cross checks data with another data source (EUROSTAT data)

In more detail, the following checks were performed and visualized with Tableau:

- Comparison of any given metric over the time series (2014-2020).
- Using the total weight landings and total value landings fields from table A, an average price per species and year were calculated and compared to the average price calculated per country.
- Comparison between discards [tonnes] and the sum of products [tonnes] = no_age [number in thousand]*mean_weight [kg] (tables C and D).
- Comparison between totwghtlandg [tonnes] and the sum of products [tonnes] = no_age [number in thousand]*mean_weight [kg] (tables E and F).
- Where domain landings codes match between tables A, E and F, the sum of total weight landings values in table A for the given domain name was check against the total weight landings value in tables E and F.
- Where domain discards codes match between tables A, C and D, the sum of total weight landings values in table A for the given domain name was check against the total weight landings value in tables C and D.
- Comparison between total weight landings and total value landings: totwghtlandg>0 and totvallandg=0 in table A.
- Comparison between weight landings and effort: totwghtlandg>0 in table A and effort (totfishdays and totseadays) not present or NK in table G.
- Comparison between spatial weight landings in table H and weight landings in table A: totwghtlandg>0 in table H and totwghtlandg not present in table A.
- Comparison between spatial effort in table I and effort in table G: totfishdays>0 in table I and totfishdays not present or NK in table G.
- In table H and I, verification of the compatibility of the geographical coordinates (latitude and longitude) with the value provided for the rectangle type.
- In tables H and I, identification of incorrect combination of NA values in the spatial columns and identification of data without any sub-region assigned.
- Comparison of Nephrops sub-region values from tables A, C, D, E and F with identification of the cases where the Nephrops sub-region values are different among the tables are shown.
- Average length vessels compatibility with the vessel length category (table J).
- Comparison of number of vessels from table J and table G: totves>0 in table G and totves in table J is not present or NK.

Among the issues highlighted by the data checks implemented at JRC, the most relevant were the following:

- Data provided with different unit of measures (in tables A, C, D, E, F, G, H and I).
- Row data provided instead of data raised to the total production (in tables C, D, E and F).
- For the same domain landings, different values of total weight landings (in tables E and F).
- For the same domain discards, different values of discards (in tables C and D).
- For the same domain discards, different values of total weight landings (in tables C and D).
- In tables H and I, incompatibility of the geographical coordinates (latitude and longitude) with the value provided for the rectangle type.

Cross check with EUROSTAT data

The purpose of the cross check with an external data source was to verify the completeness of the submitted data sets. EUROSTAT datasets have been downloaded from:

http://ec.europa.eu/eurostat/web/fisheries/data/database

Results of the checks were made available to national correspondents (with access credentials that restricted them to seeing information about their own country only) and the EWG 21-12 experts (with access credentials that allowed them to see information about all countries).

5 RESPONSES TO THE TERMS OF REFERENCE

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

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

The EWG recognises the usefulness of a standardized format for commercial catch data. Nevertheless, the EWG also wishes to emphasise that the discard estimates are derived using data collected under sampling plans that are not designed to provide data at the level of details required in Table A. Hence, the quality and representativeness of the derived discard estimates presented by fleet in Table A of the FDI database cannot be assured for all aggregation levels because the fleet descriptors in Table A have a higher resolution than the level of resolution used to collect the biological samples (e.g., vessel length is used as a fleet descriptor but is not taken into account in most countries biological sampling protocols. The potentially large variation in discarding practice between fleets may also be hidden, since the same discard proportion will have been applied to several different cells in Table A. It is therefore of high importance to communicate the limitations of the data to the end user.

Nevertheless, partitioning of discard estimates can be carried out by slightly different approaches, and consequently with some differences in the outcome.

Formally,

$D_m(i) = V_m(i) \cdot r$, (1)

where $V_m(i)$ is a value of a variable defining discard partitioning (e.g. landing of the same species, effort of the target species in domain, etc.) in the line i from the domain m in the table A, $D_m(i)$ is a corresponding discard value, and r is the partitioning ratio. Note that $D_m = \sum_{i \in m} D_m(i)$, $V_m = \sum_{i \in m} V_m(i)$, and $r = r(V_m)$.

Equation (1) constitutes a unifying framework for all partitioning approaches. Nevertheless, they differ in the choice of the variable V_m, and, consequently, in how the ratio r is constructed. Table 3.1.1 reflects, in particular, the differences in selection of the variable V_m (column 3 – general case, column 4 – special case).

The different practices currently used by MS are summarized in Table 3.1.1.1.

Table 3.1.1.1. Summary table of methods currently used by MS to provide discard estimates.

Country	Raising variable in discard estimation	Methods for partitioning discards	Methods for partitioning discards without landings	Variables defining domain
Belgium	Landings of the same species.	Proportionally to the landings of the same species.	Discards without landings are not included.	Year/quarter, metier and sub-region.
Bulgaria	NA	Only zeros provided (Both official and scientific discards)	NA	NA
Croatia	NA	Only official discards were provided in Table A.	NA	NA
Cyprus	Landings of the same species	Proportionally to the landings of the same species (but usually no need for partitioning)	NA	Year/quarter, métier (only one region).
Denmark	Landings of all species for most. Number of trips for a few. Landing of same species for Nephrops.	Proportionally to the total landings of all species	Proportionally to the total landings of all species	Quarter, fishery (group of métiers) and sub-region.
Estonia	NA	Only official discards were provided in Table A (only zeros provided).	NA	NA
Finland	NA	Proportionally to the landings of the same species by gear.	NA, the fishing gear is known from the logbook even if there are no landings.	Year/quarter/metier/rectangle
France	Landings of the same species	Proportionally to the landings of the same species by "year*quarter*sub-region and gear type"	NA	Domain are provided in line, as far as possible, with the strata retained by expert to do stock assessment analysis *(e.g., ICES stratum)*.
Germany	Landings of the	Proportionally to	Proportionally	Year/quarter, subarea for

Country	Raising variable in discard estimation	Methods for partitioning discards	Methods for partitioning discards without landings	Variables defining domain
	same species. For species without landings, landings of all species.	the landings of the same species.	to landings of all species.	North Sea, subregion for Baltic Sea, gear, mesh size.
Greece	Landings of the same species.	Proportionally to the landings of the same species.	Discards without landings are not included.	Year/quarter, sub-region, métier, vessels length category.
Ireland	Effort	Proportionally to the landings of the same species.	Proportionally to the effort (days at sea).	
Italy	Landings of the same species	Proportionally to the landings of the same species.	NA	Year/quarter, subregion, métier lvl 6.
Latvia	Landings of the same species	Proportionally to the landings of the same species.	Discards without landings are not included.	Year/quarter, subregion, metier
Lithuania	Number of trips	Proportionally to the landings of the same species.	Proportionally to the number of trips	Year/quarter, sub-region, métier.
Malta		No methodologies were provided		
Poland	Landings of the same species	Proportionally to the landings of the same species.	Discards without landings are not included.	Year/quarter, subregion, group of métiers.
Portugal	Fishing effort (fishing duration/number of trips)	Proportionally to the landings of the same species.	Discards without landings are not included.	Year/Metier lvl5
Romania		No methodologies were provided		
Slovenia	Landings of the same species	Landings of the same species	NA	Year/quarter, subregion, metier
The Netherlands	Effort (kWd) or landings per	Proportionally to the variable used	Included but not	Year/quarter, division/subarea and métier.

Country	Raising variable in discard estimation	Methods for partitioning discards	Methods for partitioning discards without landings	Variables defining domain
	species.	for the raising.	partitioned. Total discards with no landings are assigned to one row (per domain and species).	
UK - Scotland		No methodologies were provided.		
UK – England and Wales	Landings of the same species or effort (days at sea)	Proportionally to the landings of the same species.	Proportionally to the effort (days at sea).	For demersal trawls and beam trawls: Quarter, sub-region, metier lv4, mesh size. For passive and pelagic gears: Quarter, sub-region, metier lv4.
Spain	Effort (number of trips)	Proportionally to the landings of the same species.	Included but not partitioned. Total discards with no landings are assigned to one row (per domain and species).	Year/quarter, area according to sampling unit, métier
Sweden	Effort or landings of target species.	Proportionally to the variable used for the raising.	Proportionally to effort or landings of target species.	Year/quarter, group of métiers and sub-region.

The EWG notes that most MS partition total discard estimates for a species proportionally to the landings of the same species within the domain. Some MS use effort, landings of target species, or landings of all species for partitioning of discards. There is some variation in how countries partition discard estimates for species without landings: effort or landings of all species. Some countries do not include estimates for such species in Table A. The latter approach means that discard estimates for non-commercial species are likely to be missing from Table A.

Out of the 21 Member States that provided information 16 Member States partitioned the discards to the landings of the same species and 2 MS used different variables for partitioning: effort, landings of the same species or landings of the target species (corresponding with the variable used for raising the discard estimates). For 3 MS no partitioning is done because only official discards or zeros are provided.

The EWG notes that most MS use the same variable for raising discards and consequently for partitioning discard estimates in Table A.

The EWG also notes that the level of aggregation in domains varies between MS, and consequently defines the level of partitioning in Table A.

The EWG suggests the following practices for partitioning of discard estimates in Table A:

- Total discards should be estimated in accordance with the design of the sampling program, to ensure that the total discards of a "domain" is statistically sound. That means that the "domain discards" usually would equate to the strata in the sampling and estimation.
- The partitioning of the discards into Table A is suggested to be carried out by use of the same variable that was used for the raising of the total discards.
- It is recommended that MS also ensures partitioning of discards with zero landings in Tabe A (e.g. proportion of effort can be used in case discards with zero landings are observed in the biological sampling results).

5.1.2 Review methods used by MS to define confidential cells

The confidentiality rules applied in the relevant tables of the FDI data call (A, G, H, I), are summarized in Table 3.1.2.1. In the absence of national expertise during the meeting the information provided in the STECF EWG 19-11 report was used to supplement Table 3.1.2.1 in combination with e-mail communication. The responses from Greece and Finland were obtained by e-mail during EWG meeting.

The criteria of declaring data as confidential when a stratum contains less than 3 vessels is applied by the majority (12) of EU Member States. 2 Member States apply the confidentiality mark to their entire long-distance fishing fleets. In most cases, confidential data were indicated for long-distance fisheries. 9 Member States do not declare any of their data as confidential. The importance of a common criterion for confidentiality was raised by previous FDI EWGs meetings and it now appears that **the criteria used to declare data as confidential have been harmonised to the extent possible.**

In summary, three different approaches to declare data as confidential are currently being implemented *(sometimes in a combined way)* by Member States:

1. No data transmitted in response to the FDI data call are declared as confidential (9 Member States)

2. Less than 3 vessels' rule is applied and rows concerned are marked as confidential (12 Member States)

3. All rows regarding long-distance fishing fleets are marked as confidential (2 Member States)

Data were marked as confidential by member states in Tables A (catch summary) and H (landings by rectangle) either for the weight variables (landings and discards) (W option), for the value variable (V option), for the two (A option) or finally for none of them (N option). Data could also be marked as confidential in the tables G (effort summary) and I (effort by rectangle) for fishing effort variables (Y= confidential and N= not confidential options).

Table 3.1.2.1. Criteria applied to confidentiality by MS

Country	**Confidentiality definition**
Confidentiality application	
Belgium	If the data relates to less than 3 vessels then the weight and value fields

Country	Confidentiality definition
	are considered confidential
Denmark	Table A, H if less than 3 vessels in aggregation level then A Table G, I if less than 3 vessels in aggregation level then Y
Finland	If less than 3 vessels then A else N
France	Very few data highlighted as confidential until now, concerned only long-distance fisheries and Mediterranean Bluefin tuna fisheries as there are very specific and relate to very few vessels. For the other fisheries, further checks will be needed to identify the rows holding information for less than 3 vessels *(especially the lines for the spatial information which are highly disaggregated)* and decide if they have to be marked as confidential or not. Such checks will be planned for the next year data call.
Ireland	If an aggregated unit had less than 3 distinct vessels it was marked as confidential (for Weight and Value). Consider to add a dominance criterion.
Lithuania	Any aggregated operation that contains less than three vessels is confidential
Latvia	LDF vessels marked as confidential (less than 3 vessels per aggregation)
The Netherlands	Table A, H, G, I if less than 3 vessels in domain aggregation then A else N
Poland	3-5 vessel outside of the Baltic Sea marked as confidential
Portugal	All the data that relate to less than 3 vessels was considered as Confidential
Spain	Table A, H if less than 3 vessels in aggregation level then A else N Table G, I if less than 3 vessels in aggregation level then Y else N
No confidentiality application	
Bulgaria	No confidential cells
Croatia	No confidential cells
Cyprus	No confidential data except in the case of Purse-seiner targeting BFT segment (1 vessel, no economic data provided)
Estonia	No confidential cells

Country	Confidentiality definition
Germany	Long-distance fisheries in e.g., CECAF or South Pacitfic are treated as confidential because very few vessels participate in such fisheries. Value column confidential due to more and more concentration on few companies and POs. Apart from this, no confidential data (but might change if aggregation level changes in dissemination tool specially for landing and effort by rectangle)
Greece	Are considered as confidential if the data are related to less than 3 vessels in domain aggregation
Italy	No confidential cells
Slovenia	No confidential cells
Sweden	No confidential cells
United Kingdom	No confidential cells
Unknown on confidentiality application	
Malta	No criteria were provided
Romania	No criteria were provided

In Table 3.1.2.2 below, the amount of both confidential and non-confidential data is presented for some key variables based on the data submitted by each MS in response to the 2021 FDI data call.

The table shows that the percentage of data considered by MS as confidential is more or less stable between years and specifically during the period 2014-2020. The effort variables: days at sea, fishing days and hours at sea have the smallest percentage of confidential data, whereas the Gt*Hours at sea the highest, reaching more than 20%. Most of the Member states used the criteria of less than three vessels in the aggregation level for mark as confidential data, otherwise the confidential field is marked as non-confidential. During the whole period 2014-2020, 11 of 24 countries have not reported data as confidential. The confidentiality W option has not been marked in the data set by any country and only Germany used the confidentiality V option.

Table 3.1.2.2: Showing the amount of confidential and non-confidential data in key variables for FDI 2021 data call in A and G tables

Variables		2014		2015		2016		2017		2018		2019		2020		2014-2020	
Units	Classification	Value	% Confidential	Value	% Confidential	Value	% Confidential	Value	% Confidential	Value	% Confidential	Value	% Confidential	Value	% Confidential	Value	% Confidential
Days at Sea	Not confidential	6452358	3.3	5251078	3.7	6711574	3.0	4615842	4.3	6236629	1.7	6174844	1.8	5336059	2.0	5825483	2.8
	Confidential	223392		199136		207417		205098		108832		110855		110832		166437	
kW*Days at Sea	Not confidential	752556835	15.8	738095286	14.5	857613333	13.4	731441246	16.0	729579527	9.8	714238611	9.8	632521760	11.2	736578085	13.1
	Confidential	141501993		125066432		132266110		139048229		78930072		77841353		80083112		110676757	
Gt*Days at Sea	Not confidential	238780262	23.2	243695329	21.0	268931006	20.3	235843152	23.9	216178585	11.8	212304615	12.9	196501866	13.7	230319259	18.7
	Confidential	72184532		64667832		68368426		74159850		28887687		31495777		31212021		52996589	
Fishing days	Not confidential	6541267	3.0	5293020	3.4	6837509	2.8	4672062	4.0	6427780	1.9	6320706	1.9	5510100	2.1	5943206	2.7
	Confidential	203326		188499		197670		193391		124439		124039		120881		164606	
kW*Fishing days	Not confidential	687089325	14.3	672558425	13.4	793220725	12.5	633559414	15.7	695069086	9.9	674707404	10.1	595500689	11.5	678815010	12.5
	Confidential	114646384		103781341		113277659		117851889		76763646		75611667		77037701		96995755	
Gt*Fishing days	Not confidential	200104971	20.5	203184068	19.2	226591056	19.0	190698441	23.1	194050305	11.8	189060692	13.0	172764746	13.9	196636326	17.5
	Confidential	51673824		48244629		53153078		57198162		25881731		28303431		27850157		41757859	
Hours at sea	Not confidential	47082235	8.2	47511432	7.5	47819010	7.7	48362420	7.4	57607871	3.3	55089307	3.4	49543719	3.9	50430856	5.8
	Confidential	4205151		3826189		3995836		3890594		1954080		1966135		1989494		3118211	
kW*Hours at sea	Not confidential	11259209342	22.1	11757968547	19.6	11998819857	19.5	11773933946	20.9	10835227265	13.1	10097742297	14.0	9442842098	14.9	11023677622	18.1
	Confidential	3196990715		2861382533		2904261030		3112865060		1632022469		1641897081		1657288668		2429529651	
Gt*Hours at sea	Not confidential	4475606239	27.2	4813332155	24.3	4974521605	23.2	4574188190	26.8	3891248659	12.2	3711269370	14.6	3551614087	14.5	4284540044	21.4
	Confidential	1673127521		1544127167		1499752111		1674838106		541375555		636017023		602409874		1167378194	
Landings tonnes	Not confidential	4512249	14.2	4588925	13.9	4521299	13.5	4533790	16.2	4741064	11.9	4225882	12.1	3986458	15.5	4444238	13.6
	Confidential	749877		741961		706036		873240		638497		583939		616015		701366	
Landing value (EUR)	Not confidential	6386717484	16.4	6070217305	15.4	7044002176	15.1	6546426234	16.8	7322575618	12.0	6860212431	11.8	6202854627	12.6	6633286554	14.3
	Confidential	1251342524		1105753043		1254998275		1323199358		998031159		915188911		893444694		1105993995	
Discards tonnes	Not confidential	288601	3.5	235444	7.1	224442	5.8	206160	5.0	244234	4.0	191014	3.7	142658	4.0	218936	4.8
	Confidential	10464		18115		13822		10875		10293		7431		5912		10988	

Table 3.1.2.3 below shows the total number of records marked as confidential by countries and confidentiality options in Table A for period 2016 to 2020 inclusive.

Table 3.1.2.3: Total number of records marked with the confidentiality options for period 2016-2020

Member States	A	N	V
BEL	14 362	10 214	
BGR		4 582	
CYP		11 322	
DEU	202		16 592
DNK	115 482	48 665	
ENG		185 232	
ESP	332 517	135 594	
EST		4 658	
FIN	2 734	6 450	
FRA	57 259	754 501	
GBG		726	
GBJ		900	
GRC		22 663	
HRV		62 164	
IOM		967	
IRL	59 389	22 009	
ITA		161 274	
LTU	1 091	1 368	
LVA	387	3 776	
MLT		12 048	
NIR		12 542	
NLD	13 396	9 312	
POL	711	10 404	
PRT	184 656	69 584	
ROU		969	
SCO		60 386	
SVN		5 467	
SWE		69 493	

In Table 3.1.2.4 below, the sub-regions where more than 50 percent of the **weight and value of landings** are marked as confidential are listed. Observations are based on data in Table A. Comparing the areas where data of confidential coverage with over 50 percent, provided in tables 3.1.2.4 and of similar data tables from previous years, published in STECF 19-11 report, show only few areas (e.g 27.12, 41.2, etc.) were the high percentages (>50%) matched. No continued patterns were observed over the period 2015-2018 and compared to 2020.

Table 3.1.2.4: Areas where confidential data exceed 50 percent of total by **weight and value of landings** in 2020.

Areas	% of value of landings which are confidential in 2020 (>50%)	% of weigth of landings which are confidential in 2020 (>50%)
27.12	92%	96%
41.2		57%
47.1		53%
48.6	100%	100%
57.2	100%	57%
57.3	100%	100%
57.4	100%	100%
77	73%	90%
88.1	100%	100%
21.1A	100%	100%
21.1B	100%	100%
21.1C	100%	100%
21.1D	100%	100%
21.4V	100%	100%
27.1.A		52%
27.1.B	53%	
27.14.B	91%	
27.3.D.24	55%	
27.5.B		52%
27.8.E	92%	91%
34.1.3		93%
34.3.1		71%
34.3.5	100%	
47.D	100%	100%
GSA11.2	74%	61%
GSA12	91%	88%
GSA15	70%	
GSA2		59%
GSA4		70%

Figures 3.1.2.1 and 3.1.2.2 below show the percentage of the data submitted in tables I and H that have been marked as confidential by region, gear type and year.

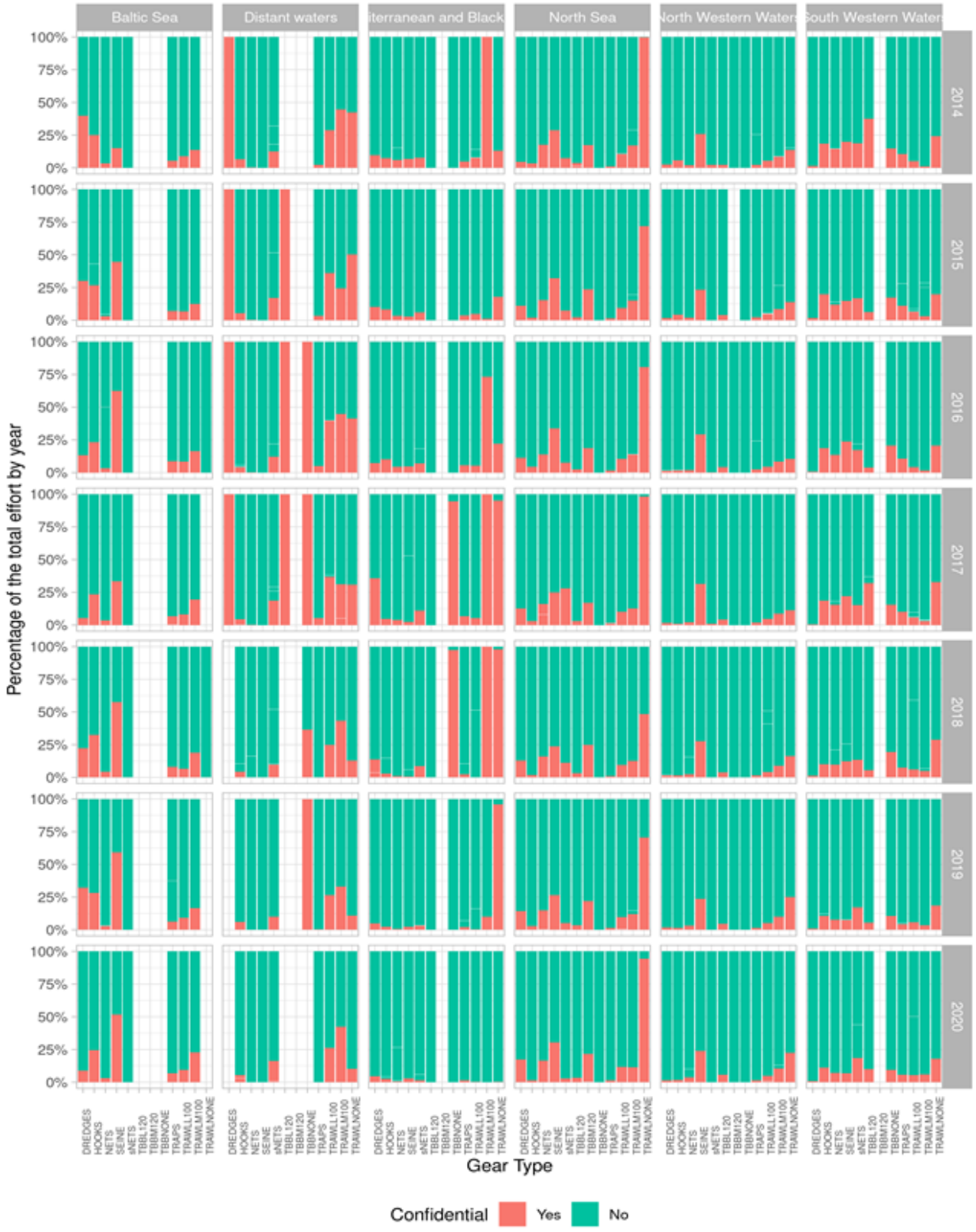


Figure 3.1.2.1: Percentage of effort (fishing days) from table I (effort by rectangle) marked as confidential (red bars) and not confidential (green bars) by region, gear type and year for the period 2014-2020

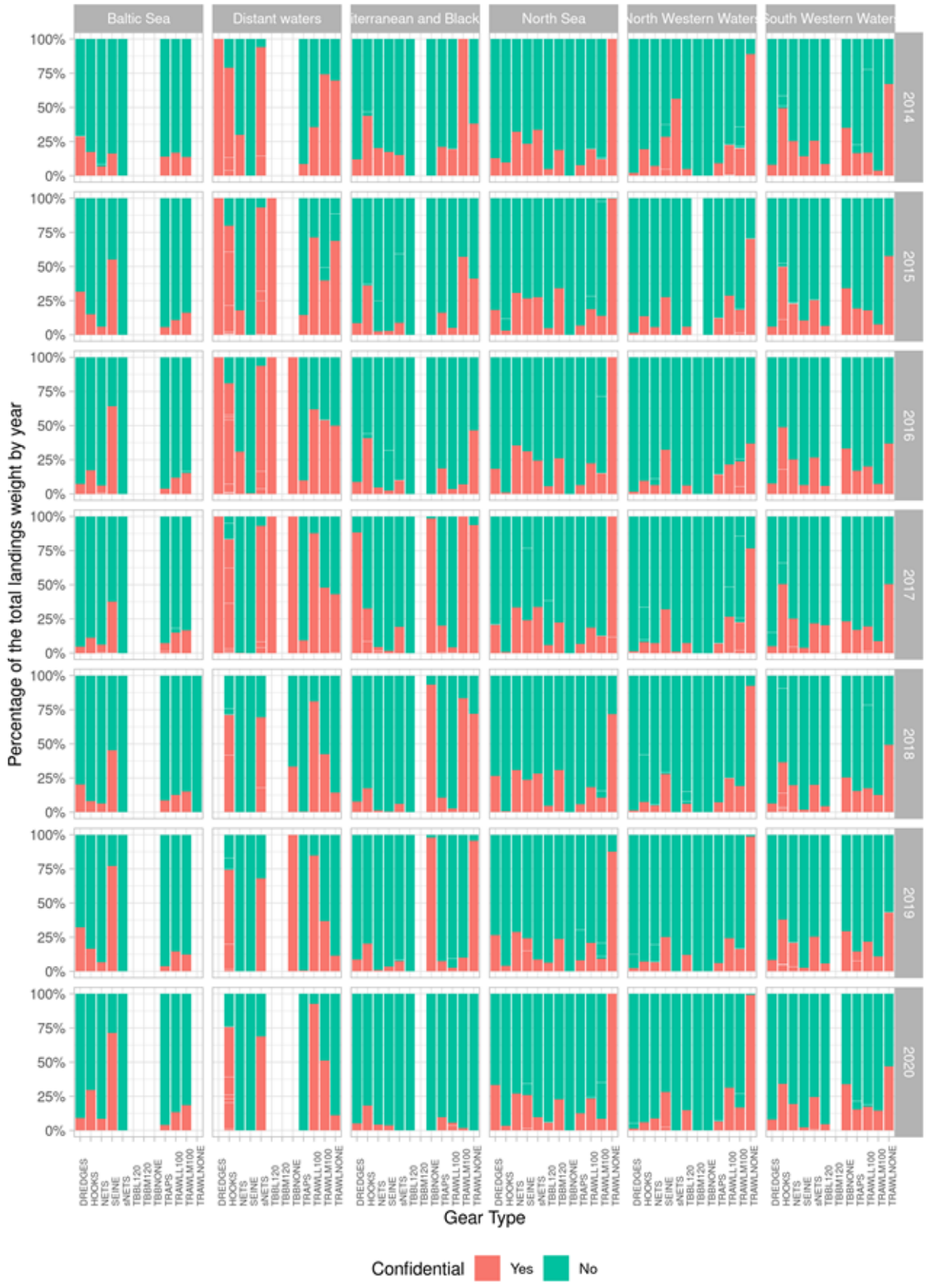


Figure 3.1.2.2: Percentage of landings weight from table H (landings by rectangle) marked as confidential (red bars) and not confidential (green bars) by region, gear type and year for the period 2014-2020

5.1.3 Metier definitions used by MS

The métier code is requested in the FDI data call tables A, G, H and I. For table A, 454 different métier codes were uploaded for the 2019 data in response to the 2020 FDI data call. In appendix 7 of the FDI data call, the métier is defined and the structure of the code is specified. Furthermore, a list of currently accepted codes *(approved by the RCGs)* is provided on the data submission website. However, while the métier codes are uniquely specified according to criteria such a mesh-size and species combinations, the choice of métier by Member States may not be consistent. Consequently, there is a need to standardize and harmonize the way Member States provide métier codes to result in a more standardized dataset. Furthermore, it should be noted that the mesh size ranges requested in the same tables and defined in appendix 6 of the data call are not in line with the list of métier codes, which could lead to some misunderstandings and inaccuracies.

In response to the request prior to the EWG 21-10 FDI meeting, MS prepared a description of the criteria used to allocate fishing activity to metiers. **All MS are uploading métier codes for the data call corresponding to the code list from the data call, which has been approved by the RCGs**. Additional information provided to the EWG by Member States on data sources used 1) by large-scale fishing fleets where logbooks are available according to the EU Control Regulation (Council Regulation (EC) No 1224/2009 of 20 November 2009) and 2) by small-scale fishing fleets (vessels <10 m or <8 m in the Baltic) where the EU Control Regulation does not require logbooks, are compiled in Table 3.1.3 below together with the metric used when assigning the target species assemblage group in the métier code (e.g. DEF – Demersal fish, CRU – Crustaceans, SPF – Small pelagic fish). Finally, further information regarding the methodology in place in Member States to calculate métier reported during the EWG 21-10 meeting are given in Table 3.1.3.1.

For the **large-scale fishing fleets**, métier codes are mostly assigned using logbook information, but some countries also combine with other data sources, e.g. sales notes, sampling data, scientific census survey. For assigning métiers to the **small-scale fishing fleets**, there is variation in the data sources used and, in some cases, strong assumptions are applied due to the lack of relevant data *(e.g. small scale fishing fleets where only sales note are available)*. The most common data sources available are small scale fleets-specific declarations *(e.g. monthly fishing forms, coastal logbooks …)* collected in a census approach when some Member States use similar data as large scale fleets *(esp. logbooks)* and others have only access to the sales notes, or sampling data. Furthermore, some Member States combine different datasets *(sales notes, fleet register, expert' knowledge, complementary surveys …)* in order to improve their métier estimation and/or confirm or enhance the assumptions applied. In cases when small scale fleets operate in widely spread regions, the sources and data collection methodology used by Member States varies. The most common metrics in assigning the **target species assemblage** group are weight or value of landings and in a few cases, these are recorded directly in logbooks.

Table 3.1.3.1: Data sources used for assigning métiers for large- and small-scale fisheries, and metrics used for assigning target species assemblage group.

Country	**Data source large-scale fleets**	**Data source small-scale fleets**	**Metrics (weight or value) for assigning target species assemblage code**
Belgium	Logbooks	NA (no vessels < 10 m)	Métier codes applied directly from the

Country	Data source large-scale fleets	Data source small-scale fleets	Metrics (weight or value) for assigning target species assemblage code
			logbooks. If exceptionally the target species has to be determined then this is done by weight.
Bulgaria	Logbooks	Logbooks	Weight
Croatia	Logbooks	daily records in fishing reports	NA – métier codes mapped to national fishing gear codes
Cyprus	Logbooks	Sales notes	Weight
Denmark	Logbooks, sales notes	Sales notes, fleet register. Some cases of MIS_MIS	Value
Estonia	Logbooks	Logbooks	Weight
Finland	Logbooks	Monthly coastal fishing journal (for non quota species) and landing declarations of coastal vessels under 10 m (for quota species)	Weight
France	Declarative forms (logbooks) combined with sales note via the cross-validation tools 'SACROIS'. Métier algorithm combine information *(esp. dominant species or assemblage of species and declared gear)* coming from the declarative forms with the scientific census survey of annual fishing activity calendars of the vessels.	Depending of the fishing fleets segment. 1) for NAO and MEDS' SSF, same algorithm than LSF applied on the basis of the SSF monthly declarative forms *(no logbooks available)*. 2) for Other Regions' SSF, information on métier are directly derived/estimated from the applied on-site sampling survey *(catch assessment survey).*	Value Metier information is also directly available in the comprehensive scientific census survey of annual fishing activity calendars of the vessels and in the on-site sampling survey applying in Other regions for SSF.
Germany	Logbooks	Trip register, fleet register, sales/landings notes on a monthly basis	Weight, except in the case of Nephrops where the target species is determined by value.
Greece	Logbooks	Sampling data	Weight and Value
Ireland	Logbooks	Sales notes, MIS_MIS very common	Weight
Italy	Logbooks integrated with sampling data when needed	Sampling data	Weight
Latvia	Logbooks	Coastal logbooks (monthly reports)	Metier codes applied based on gear code and mesh size provided in logbooks. Weight.
Lithuania	Logbooks	2019 < monthly	Weight

Country	Data source large-scale fleets	Data source small-scale fleets	Metrics (weight or value) for assigning target species assemblage code
		declarative form 2019 >= Logbooks	
Malta	NA	NA	NA
Poland	Logbooks	Monthly declarative form	Weight
Romania	NA	NA	NA
Slovenia	Logbooks	Logbooks	Weight
Spain	Logbooks and sales notes	Sales notes	Weight
Portugal	Logbooks	Sales Notes, Fishing Permissions, questionnaires	Vessels without logbooks: weight and value Vessels with logbooks: weight
The Netherlands	Logbooks	Logbooks	Weight
United Kingdom	Logbooks and sales notes	Sales notes and declarative form in Scotland.	Weight and Value. Value was used for high value, lower volume species, principally cephalopods and other molluscs and crustaceans.

Historical evolution of métier definitions

STECF-17-12 noted "*There is considerable utility of holding data by métier level 6 components. However, it is clear that there needs to be a consistency in the description of métiers*." and that "*very few métiers used consistently across Member States*". A purpose of the métier codes is to make codes describing the fisheries used across MS comparable.

In 2018, the "DCF Métier Workshop" looked deeply at the methods used to assign métier codes to transversal data, and a detailed description of methods applied by MS can be found in the 2018 report of the Workshop on Metier Issues. In addition, definitions and best practices were discussed.

The workshop has been followed up by RCG intersessional subgroups (RCG Baltic & NANSEA) on Metier Issues in 2019-2021 with following outcomes:

- Suggestion on new standardized and harmonized list of métier codes, which was approved by RCG's in 2020 and in the September 2020 Liaison meeting, it was agreed by the NCs that the new codes for métiers and reference lists can be used and implemented by the MS. Work has been done to include relevant selective devices in the codes. A table links between new and old codes (in cases that a mesh size range has been split up, a choice has been taken to link to one of them).
- Reference lists:
    - Reference species list on how to group species
    - Reference area list
    - Reference gear list
- Script that can assign métier codes using a specified data input format. It also has functionalities 1) to propose an estimate of métiers where all needed information are not available and 2) to refine the "rare" métiers firstly assigned by the general algorithm focusing on the year*vessel main métiers in order to limit the multiplication of métiers calculated

- Manual explaining the background, script, input format and reference lists
- GitHub repository (RCGs/Metiers at master · ices-eg/RCGs (github.com)) where all the material are available (reports, métier list, reference lists, script, manual)

The plan for implementation agreed by the ISSG (ICES Intersessional Sub Group) on Métier issues is that the new codes should be requested for the 2021 RDBES (Regional Data Base and Estimation System) test data call for the fishing activity data compiled in the tables CE (fishing effort) and CL (landings by species) for all fisheries. This ensures that MS answering the RDBES test data call have time for implementing the new métier codes. In 2022 the ISSG on Metier issues suggest that the new codes can be requested for other data calls (STECF FDI, ICES VMS/Logbooks, ICES WGBYC).

The ISSG on Métier issues suggest that it will continue in 2021/2022 supporting the implementation where needed, evaluating the need for new codes and assisting MS in implementing the script.

Until now, the RCG ISSG on Métier Issues has had the main focus on the Baltic Sea, North Sea and Eastern Arctic. Codes for the Mediterranean and Black Sea have been inserted into the list, but collaboration with the RCG MED&BS is encouraged. Métier codes for the MED&BS has been developed by RCG MED&BS, and might be updated; this could be done in collaboration with the RCG ISSG on Métier Issues. This can be discussed in the RCG MED&BS 2nd week of September.

There are several advantages for changing to the new codes:

- **Harmonized codes between regions**. An example is that in table A in 2019 different codes are requested for different regions for the DRB_MOL métier: DRB_MOL_>0_0_0, DRB_MOL_0_0_0. In the new codes this is harmonized to: DRB_MOL_>0_0_0.
- **Not overlapping mesh size ranges**. An example is that in 27.3.D.25 both the codes OTM_SPF_16-104_0_0 and OTM_SPF_16-31_0_0 have been uploaded to the FDI table A for 2019.
- Common reference tables to e.g. group species codes in to species groups based on the FAO ASFIS code list.
- The métier codes will hopefully be harmonized with other data calls (ICES RDBES, VMS/Logbooks, WGBYC data calls).
- It increases transparency and assist in the transition to RDBES in the future

The disadvantages of changing to the new codes include a workload for the MS:

- MS need to implement and apply the new code lists for their data, also back in time. If they answer the RDBES test data call, they will also need to implement it for that.
- The data series would need to be resubmitted
- As some métier codes have been split up in to smaller mesh size ranges on level 6, there might be further partitioning of the discards in the table A

National implications in relation to the biological data depends on how the MS is using métiers in their raising procedures. Following EWG 21-10 and prior to EWG 21-12 and **MS were requested to consider the implication for their country of changing to the new métier codes and report back during EWG 21-12 at the FDI meeting in September. At the same time, the need to discuss the métier list proposed by the RCG ISSG on Metier issues was stressed.**

Based on such feedback, the EWG discussed whether the métier list proposed by the RCG ISSG on Metier issues should be used for the FDI data call in 2022. The time of the meeting was before the deadline of the ICES RDBES test data call for 2018-2020 data for all fisheries, so the use of the new métier codes had not been evaluated yet. Therefore, the EWG considers that for the FDI data call in 2022, it should be made possible to upload new métier codes as proposed by the RCG ISSG on Métier issues, but also still be possible to upload the old métier codes.

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

According to the FDI data call format, information on spatial landings and spatial effort (tables H and I) should be provided using either c-square notation at 0.5*0.5 degrees resolution or coordinates of the centre of a rectangle together with a rectangle type ('05*05', '05*1', '1*1', '5*5'). After reviewing countries' methodologies used to prepare FDI data, it turned out that the majority of Member States provide data using coordinates of the centre of a rectangle together with a rectangle type. Only a few countries provide data using c-square notation which is prepared using VMS data. The most common approach is to use the information on a rectangle (e.g., ICES, GFCM) which is registered in logbooks or which can be determined from coordinates registered in logbooks. There are cases in the Mediterranean region where VMS data is used to assign a rectangle for a part of the fleet which is covered by VMS system. Moreover, VMS data is widely used by most of the countries for a validation of rectangles and areas registered in logbooks. The methods used by different Member States are summarised in Table 3.1.4.1.

Table 3.1.4.1 Methodologies used to provide spatial data in the FDI data call submissions.

Country	Methodologies used to provide spatial landings/effort data in tables H and I of the FDI data call (concerns past submissions)					
	Spatial data notation used in FDI data: rectangle / c-square / rectangle and c-square	Source of spatial information for the **large-scale fleet**: logbooks / VMS / logbooks+VMS	Is the **small scale fleet** data included?: yes / no / not applicable	Source of spatial information for the **small-scale fleet**: official declarative forms / approximation / off. decl. forms or approx.	Method used for the approximation of fishing location of the **small-scale fleet**	Comments
Belgium	rectangle	logbooks	not applicable			The Belgian fleet has no registered fishing vessels of < 10m LOA
Bulgaria	rectangle	logbooks+VMS	yes	official declarative forms		Only in case the rectangle was not filled by the owner of the small-scale fleet vessel, the catch was allocated based on the landing port
Croatia	rectangle	logbooks+VMS	yes	official declarative forms		In case coordinates are not available, GFCM statistical rectangles are translated from Croatian fishing subzones on the basis of percentage of catch in each Croatian fishing subzone.
Cyprus	rectangle	logbooks	yes	approximation	Based on the port of landings	
Denmark	rectangle	logbooks	yes	approximation	Main rectangle by harbour, gear type and vessel length group. If this doesn't exist then rectangle closest to harbour.	For the 2021 data call, ICES rectangles from Danish vessels not reporting logbooks have been estimated.
Estonia	rectangle	logbooks	yes	official declarative forms		
Finland	rectangle		yes	official declarative forms	Fishing location is registered in the landing	The catch and effort of small-scale fleet is reported by official coastal fishing journal or

Country	Methodologies used to provide spatial landings/effort data in tables H and I of the FDI data call (concerns past submissions)					
	Spatial data notation used in FDI data: rectangle / c-square / rectangle and c-square	Source of spatial information for the **large-scale fleet**: logbooks / VMS / logbooks+VMS	Is the **small scale fleet** data included?: yes / no / not applicable	Source of spatial information for the **small-scale fleet**: official declarative forms / approximation / off. decl. forms or approx.	Method used for the approximation of fishing location of the **small-scale fleet**	Comments
					declaration.	landing declaration.
France	rectangle and c-square	logbooks+VMS	yes	off. decl. forms or approx. + on-site sampling		Spatial information is completed by the on-site sampling for fishing fleets not covered by the declarative data (logbooks, monthly declarative forms)
Germany	rectangle	logbooks	yes	official declarative forms		
Greece	rectangle	logbooks+VMS	no			Spatial effort data concerning SSF will be uploaded in 2021. Spatial landings allocation method is under evaluation.
Ireland	rectangle	logbooks	yes	approximation	Based on the port of landings	Where VMS is not available, centre of declared ICES division is provided. Usually close of port of landings
Italy	rectangle	logbooks+VMS	no			For the 2021 data call, spatial landings allocation method for SSF is under evaluation.
Latvia	rectangle	logbooks	yes	official declarative forms		
Lithuania	rectangle	logbooks	yes	official declarative forms		
Malta						No information available
The Netherlands	rectangle	logbooks	yes	official declarative forms		In 2019 data part of the SSF was not covered
Poland	rectangle	logbooks+VMS	yes	official declarative forms		
Portugal	c-square	logbooks	yes	approximation	Based on the port of landings	
Slovenia	rectangle	logbooks	yes	official declarative forms		
Spain	rectangle	logbooks+VMS	yes	official declarative forms or approx.	Based on the port of landings	When there is no congruent statement in the logbook, VMS is used to check this (in cases where vessels have VMS).
Sweden	rectangle	logbooks	yes	official declarative forms		
United Kingdom	rectangle	logbooks+VMS	yes	official declarative forms + approximation	Estimates of associated fishing effort entered alongside sales	VMS information is only used for the large-scale fleet when ICES rectangle information is unavailable such as for

Country	Methodologies used to provide spatial landings/effort data in tables H and I of the FDI data call (concerns past submissions)					
	Spatial data notation used in FDI data: rectangle / c-square / rectangle and c-square	Source of spatial information for the **large-scale fleet**: logbooks / VMS / logbooks+VMS	Is the **small scale fleet** data included?: yes / no / not applicable	Source of spatial information for the **small-scale fleet**: official declarative forms / approximation / off. decl. forms or approx.	Method used for the approximation of fishing location of the **small-scale fleet**	Comments
					note or declarative forms used for Scottish vessels.	the UK distant waters fleet.

Another subject of interest was the inclusion of small-scale fleet data in spatial landings and spatial effort tables of the FDI database. As shown in Table 3.1.4.1, the majority of countries include small scale fleet data in their spatial data submissions. The fishing location requested in FDI spatial tables is primarily obtained from official declarative forms which are mandatory in many Member States. In other countries where declarative forms do not include information on fishing location on a desired resolution or where such declarative forms are not available, an approximation of spatial information or on-site sampling is applied. The most common approximation method is based on the port of landings.

It should be emphasized that the importance of spatial data for end-users constantly increases. It is recommended for Member States to use VMS data as far as possible to provide spatial information at high resolution. It is also important to include small scale fleet spatial data in the FDI submissions. In the case when detailed spatial information is not available in official declarative forms, countries are encouraged to use approximation methods to determine a rectangle.

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

Several meetings, research projects and workshops have dealt with the small scale fleet (SSF) data collection issue during the last 15 years, among them it could be mentioned: *Workshop on Small-Scale Fisheries, Kavala (Greece), 2005, Small-Scale Coastal Fisheries in Europe, research project (No FISH/2005/10), 2007, DCF Workshop on Common understanding and statistical methodologies to estimate/re-evaluate transversal data in small-scale fisheries, Nantes (France), 2013, ICES Working group on commercial catches (WGCATCH),annual working group since 2015, 2nd DCF Workshop on Transversal Variables, Nicosia (Cyprus), 2016, fishPi and fishPi² research projects, 2016 and 2019, PGECON subgroup DCF workshop on small scale fisheries, The Hague (Netherlands), 2017, CABFishMAN EU Interreg Atlantic Area project since 2019.*

All these works concluded that the small-scale fleet is an important component of EU fishing fleet and that as a minimum, it is essential to estimate the fishing activities of SSF in terms of fishing effort, weight and value of catches. Also, enduser needs on the spatial distribution of SSF activities are increasing, e.g., for Marine Spatial Planning purposes. The importance of SSF, how much they can contribute to landings and effort in some areas and how they can be of major concern in some cases/areas for stock assessment, fishery spatial management, and/or socio-economic studies has been documented in these outputs. Unfortunately, all these groups noted also that data from this fleet segment are often underreported and difficulties arise to have access to this information. In 2015 ICES WGCATCH SSF subgroup concluded that: *'SSF are important in nearly all countries (no particular north/south distinction) but seemed to be trapped in a vicious cycle where due to incompleteness and lower quality of existing data on this component, systematic lower importance was assigned to it relative to larger scale fleets*'.

As an illustration, the following graphics 3.1.5.1 & 3.1.5.2 represent by country and supra region NAO (North Atlantic Ocean) and MBS (Mediterranean and Black Sea)[3] the number of SSF' active vessels by vessel length ranges reported in the FDI data call on the basis of the data available in the FDI table J. It highlighted the importance of this segment in nearly all countries *(often counting for more than 2/3 of the total fleet)*. Belgium is the only country with no SSF vessels *(no vessels under 10 meters length)* recorded in its national fishing fleet register.

[3] For the other regions, France is the only member states with SSF vessels *(French overseas territories' vessels, outermost regions).*

Figure 3.1.5.1 Number of active vessels reported in FDI data call by country and vessel length ranges for 2019 and the supra-region NAO - FDI table J.

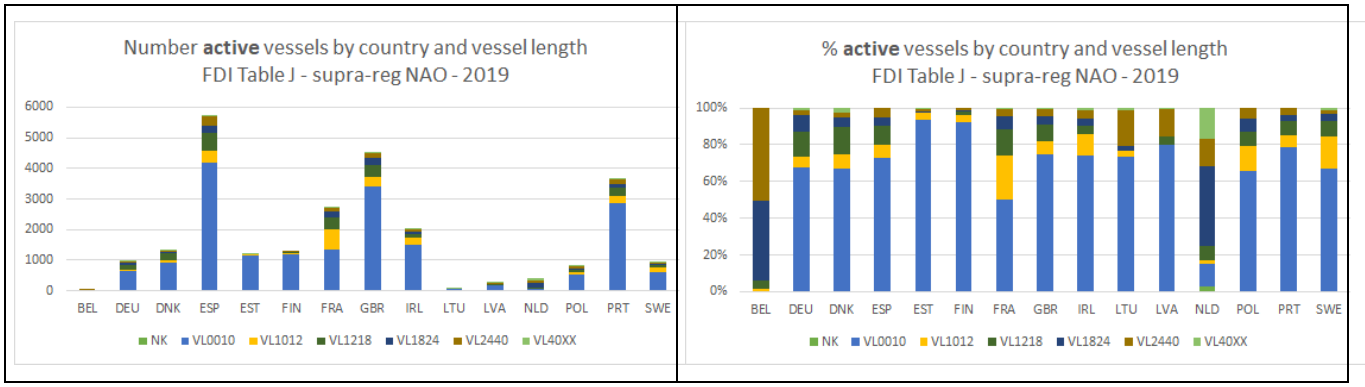
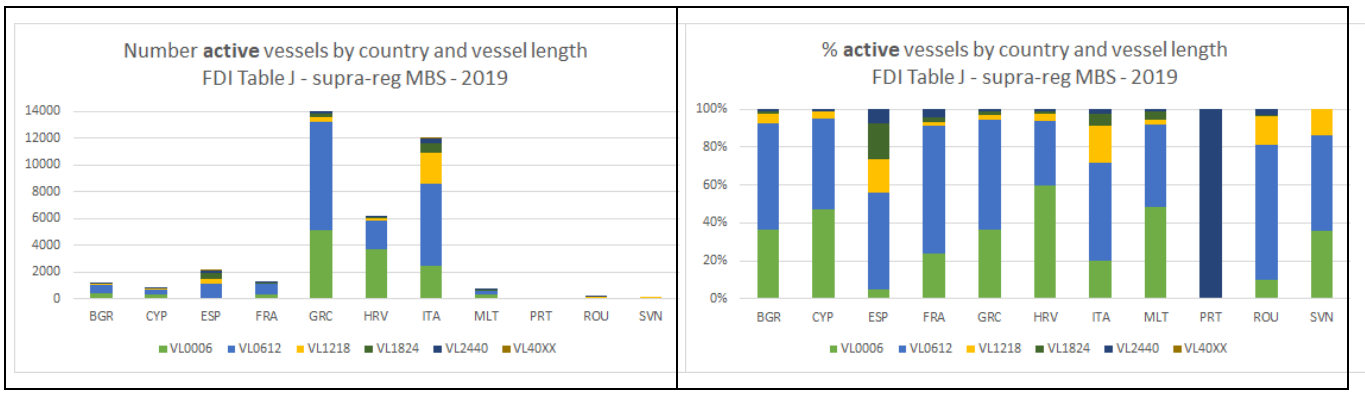


Figure 3.1.5.2 Number of active vessels reported in FDI data call by country and vessel length ranges for 2019 and the supra-region MBS - FDI table J.



To provide an overview by Members States of the coverage and methods used to estimate landings and effort data for vessels <10m in order to respond to FDI data calls, a series of Member State –specific presentations were given by EWG participants. Presentations were completed and information was shared by experts from 20 Members' States and resulted in an overview by country of 1) the source(s) of data crossed to provide SSF (less than 10m vessels, i.e. no logbooks vessels) fishing activity data estimates (landings by species and fishing effort data by vessels, quarter, gear/métier and area) in answer to the FDI datacall, 2) the methodologies and principal assumptions applied for this purpose and 3) first informations about data quality/coverage. This information is summarized by country in the table 3.1.5.1 below. Biological data (discards and length/age catches distribution estimates) were not part of this exercise and are not presented in this table (will be considered as a future task for the group).

Table 3.1.5.1. Source of data and methodologies applied by Member states in order to estimate SSF' *(less than 10m, no logbooks vessels)* fishing activity data *(landings by species and fishing effort data by vessel, quarter, gear/metier and area)* are presented in the table below. Also the different assumptions and methodologies applied to answer FDI data call and first comments on data quality/coverage are presented.

Biological data *(discards and catches length/age estimates)* are not considered in this table.

Country	**Source of data**	**Data collection type**	**'paper' or e-declaration**	**Mandatory requirement**	**Level of data available**	**Data reported in answer FDI datacall** **(eventual issues/approximation highlighted in bold)**	**Data quality/coverage' information/comments**	**Comments**
Belgium	NA – The Belgium fleet has no registered fishing vessels of <10m LOA.							
Bulgaria	Logbooks + sales notes, landing declarations and VMS data	Census	'paper'	According to the Bulgarian legislation, all vessels are obliged to fulfil logbooks, sales notes and landing declarations	Fishng trip declaration	Cross-checking/validation of the declarative data with sales notes/landings declaration. VMS data are used to define the GFCM squares. Data available for <10m' vessels are similar with data available for >10m' vessels *(logbooks information + sales notes and landing declarations).* All the necessary information *(landings by species and fishing effort by vessel, fishing trip, gear, area …)* to answer FDI datacall are obtained/derived from these sources of information.		
Croatia	Logbooks *(for all vessels under management plans, 99% of the landings)* or *(for the other vessels)* SSF specific declarative forms (fishing reports) + VMS data + Sales notes	Census	'paper' e-declaration *(mobile catch report and e-logbooks)* introduced in 2019	Catch reporting in Croatia is mandatory for all commercial fishing vessels *(they could not access to the market without catch reports).* VMS devices on all authorized vessels.	Fishing trip declaration *(logbooks)* or Daily declaration *(fishing reports)*	Landings by species and fishing effort data directly available by vessel, fishing trip/day, gear and area in the declarative forms. VMS data are used to improve the spatialization of the fishing activity data *(by specific Croatian fishing subzones converted into GFCM statistical rectangles)*. Sales notes are used to estimate average prices and value of landings.		
Cyprus	Sales notes Landings	Census	'paper'	Mandatory requirement to provide sales note or landings declaration	Sales event declaration *(sales note)*	Two categories of licences for the small-scale vessels: 1) full or part time vessels with licenses A&B,		

Country	Source of data	Data collection type	'paper' or e-declaration	Mandatory requirement	Level of data available	Data reported in answer FDI datacall **(eventual issues/approximation highlighted in bold)**	Data quality/coverage' information/comments	Comments
	declarations			*(depending of the license' vessel)*	Yearly declaration *(landings declaration)*	2) limited fishing effort vessels with license C. 1) Licenses A&B' vessels: Sales notes are the basis to answer the FDI data call. Landings data are derived from the sales notes. **Following proxy is used for fishing effort: 1 sales note = 1 fishing day = 1 day at sea. Metier/gear are derived from landings declaration and observers' survey. Landings and effort data are proportionnaly assigned.** 2) License C' vessels: **Same approach but only landings declaration are available.** **Spatial information are not provided for these vessels, only provided for logbooks vessels**.		
Denmark	Sales notes + Fishing fleet register *+ AIS data*	Census	'paper' *Electronic logbooks have been made mandatory for vessels larger than 12 m. – 'paper' logbooks remain for smaller vessels.*	Mandatory requirement to provide sales note	Sales event declaration	**Sales notes** are the **unique source of informat**ion available. **Metier/gear/mesh size are estimated on the basis of "sales notes landings species composition" and "fleet register gear".** **For fishing effort calculation, the following assumptions applied: one sales note = one fishing day = one day at sea.** The fishing area is available in the sales notes data received from the Danish Fisheries Agency.		For recent years, AIS data have become available for SSF from some vessels using it voluntarily. This can be used to get more precise spatial information on geo-localization.
Estonia	SSF specific declarative forms *(Coastal logbooks)*	Census	'paper'	Coastal logbooks are mandatory.	Fishing trip/dayly declaration *(coastal logbooks)* reported monthly	Landings by species and fishing effort data are directly derived from "coastal" logbooks provided by vessel, fishing trip/day, area (ICES rectangles), gear and /species/. For **fishing effort**, it is assumed that **one fishing day = one day at sea**.		Information on landings and effort for small boats is obtained directly from database of the Governmental authorities *(Ministry of Rural Affairs)*.
Finland	SSF specific declarative	Census	'paper'	Catch data are based on census reporting to	Fishing trip/Monthl	Landings by species and fishing effort data directly available by vessel, fishing trip/month, gear and area in		

Country	Source of data	Data collection type	'paper' or e-declaration	Mandatory requirement	Level of data available	Data reported in answer FDI datacall **(eventual issues/approximation highlighted in bold)**	Data quality/coverage' information/comments	Comments
	forms *(monthly coastal fishing journal* (for non quota species) *and landing declarations of coastal vessels under 10 m* (for quota species).			control agency covering all commercial fisheries.	y declaration	the declarative forms.		
France – Atlantic area	SSF specific declarative forms *(monthly declarative forms)* + Sales notes +Geolocalisation data + Annual fishing activity calendar survey	Census	'paper' *Ongoing project to move towards e-declaration*	Mandatory requirement for SSF to provide monthly declarative forms. Annual fishing activity calendar survey part of the French DCF WorkPlan	Daily declaration *(monthly declarative forms)* reported monthly	The definition of all the fishing trips of this fleet with their associated features *(dates, fishing area, métier, gear and mesh size, total weight and value of landings by species)* is based on a cross-validation tool SACROIS of the different available data aiming to provide the best possible fishing statistics data. SACROIS tool present different functionalities implemented each of them through a specific algorithm in order to: 1) consolidate the fishing effort or the fishing area of the trip considered, 2) estimate the value of landings or 3) allocate a single métier to each fishing sequence (more information here: https://sih.ifremer.fr/Debarquements-effort-de-peche/Sacrois	Completeness and reliability of the declarative data calculated via the SACROIS tool are qualified as good quality and sufficient to produce the reference fishing activity' estimates for the SSF French fleet belonging to the North Sea and North Atlantic regions.	SACROIS produce the official reference framework of fishing activity data for regulatory monitoring, data calls, expert's advices and academic research. SACROIS tools fit with the needs identified: 1) to have available a single unique fishing activity data flow validated and qualified to answer all the end-user's requirement (in line with compulsory EU regulations).
France - Mediterrean area	SSF specific declarative forms *(monthly declarative forms)*	Combined	'paper' *Ongoing project to move towards e-declaration*	Mandatory requirement for SSF to provide monthly declarative forms. Annual fishing activity	Daily declaration *(monthly declarative forms)* reported	Id. Atlantic area *(see above)*. All the fishing trips of this fleet with their associated features is based on a cross-validation tool SACROIS of the different available data aiming to provide the best possible fishing statistic data. Nevertheless, for the SSF French fleet belonging to the	Completeness and reliability of the **re-evaluated declarative data** are qualified as good quality and	

Country	Source of data	Data collection type	'paper' or e-declaration	Mandatory requirement	Level of data available	Data reported in answer FDI datacall **(eventual issues/approximation highlighted in bold)**	Data quality/coverage' information/comments	Comments
	+ Sales notes +Geolocalisation data + Annual fishing activity calendar survey			calendar survey part of the French DCF WorkPlan	monthly	Mediterranean, the coverage and precision of their available declarative data *(basically SACROIS data)* is evaluated as insufficient/incomplete to meet the end-user's data needs but are judged sufficient/reliable to estimate the fishing activity data. Consequently, a **re-evaluation methodology** *(on the basis on the annual fishing activity calendars survey)* is applied to calculate the reference fishing activity' estimates for this fleet *(see details in 2018 IFOMC proceedings)*.	sufficient to answer the end-users needs but remain less precise than 'complete' declarative data *(some assumtions applied during the implementation of the re-evaluation methodology).*	
France – Other regions	On-site samplings data of fishing trips *(catch assessment surveys)*. + Annual fishing activity calendar survey	Sampling	'paper' *(survey completed on-site by fishing observers which entered in labs the data into the data base through a dedicated application)*	Catch assessment survey and Annual fishing activity calendar survey part of the French DCF WorkPlan	Fishing trip declarations sampled	For the SSF French fleet belonging to the other regions, the coverage and precision of their available declarative data *(basically SACROIS data)* is evaluated as insufficient/incomplete to meet the end-user's data needs and are judged insufficient and unreliable to estimate the fishing activity data. Consequently, complementary on-site sampling data are collected *(catch assessment survey)* and- calculation of the reference fishing activity' data is estimated on this basis *(see details in 2013 IFOMC proceedings)*.	Completeness and reliability of the **estimated fishing activity data** are qualified as good quality and sufficient to answer the end-users needs but remain less precise than 'complete' declarative data *(sampling theory assumptions applied during the calculation of the estimates).*	The sampling scheme based on the frame activity survey to optimise the spatio-temporal on-site sampling plan. Fishing trips features, effort and catches are sampled directly on-site, on the fishers'come back to the harbour. Raising method based on a post-stratification of the fishing trips. Percentile bootstrap methodology applied to calculate the precision' estimate
Germany	SSF specific declarative	Census	e-declaration	Mandatory requirement in place.	Monthly & Fishing trip	Applied to <10m in North Sea and <8m in Baltic Sea. Landings data by vessel, quarter, gear, area (ICES		

Country	Source of data	Data collection type	'paper' or e-declaration	Mandatory requirement	Level of data available	Data reported in answer FDI datacall **(eventual issues/approximation highlighted in bold)**	Data quality/coverage' information/comments	Comments
	forms *(Landing declarations and Fishing trips register)*				declaration	rectangle) and species are directly derived from landings declaration. Fishing effort data are derived from fishing trips register. **As fishing time and fishing day are not directly available in the fishing trips registers, correction factor to days at sea and time at sea is applied to estimate fishing time and fishing day.**		
Greece	Effort-Landing's assessment survey.	Sampling	Survey conducted through structured questionnaires with the fishers on fishing ports.	Sampling plan detailed in the DCF WorkPlan *(Table 2A).*	Fishing trip sample through a representative number of vessels up to vessel length category and activity level, randomly sampled through gears.	Effort-Landing's assessment survey, based on a temporally, spatially and technically stratified random sampling scheme. Data collected: (i) Effort: Days at sea per month and fishing gear, (ii) Landings: Weight per species per month and fishing gear. Sampling theory applied to estimate the fishing activity data estimates *(with their precision associated, relative sampling error)* required to answer the FDI datacall.	Data quality is assessed following statistical procedures *(more details in Bazigos & Kavadas, 2007).*	
Ireland	Sales notes + Expert' knowledge	Census	Only sales note	Mandatory resquirement in place.	Sales event declaration.	**Sales notes** are the **unique source of informat**ion available. In some cases, expert' knowledge are taken into account to improve the estimates. **Metier/gear/mesh size are often no informed and provided as MIS_MIS.** **Fishing effort data are estimated on the basis of a number of assumptions.** **Fishing area (ICES division) derived from the port of landings; assumptions applied.** **Spatial information are not provided for these vessels, only provided for logbooks vessels**.		

Country	Source of data	Data collection type	'paper' or e-declaration	Mandatory requirement	Level of data available	Data reported in answer FDI datacall **(eventual issues/approximation highlighted in bold)**	Data quality/coverage' information/comments	Comments
Italy	Vessel sampling survey + Sales notes	Sampling	Data are collected using a web based questionnaire developed to carry out the survey.	Sampling plan detailed in the DCF WorkPlan *(Table 2A).* Not obligation to provide logbooks for this fleet segment.	Fishing trip sample – vessel surveyed weekly.	Vessel sampling survey is the prevalent source of information taking into account to answer FDI datacall, sales note data are also used to cross-checks sample data. Sampling theory applied to estimate the fishing activity data estimates *(with their precision associated, relative sampling error)* required to answer the FDI datacall. Around 1000 vessels are surveyed. **Spatial information (by GFCM rectangle) are not estimated until now to answer FDI datacall.**	Full coverage of SSF Data quality is assessed following statistical procedures. Three indicators are available: 1) the achieved sampling rate, 2) the percentage response rate and 3) the coefficient of variation.	
Latvia	SSF specific declarative forms (*Coastal logbooks reported monthly).*	Census	'paper' Since 2021 all commercial vessels are obliged to report e-declaration	According to Latvian legislation all vessels involved in coastal fisheries are obliged to fill in coastal logbooks.	Daily declaration	Total amount of landings and fishing effort reported by vessel, **day**, gear /and species/. **For fishing effort, following assumption is applied: one fishing day = one day at sea.** **Fishing area (ICES rectangle) estimated on the basis of the municipality of landings. One municipality is assigned to one ICES rectangle**.		
Lithuania	<2019 SSF specific declarative forms *(Monthly declarative forms)* >=2019 National logbooks + Sales note	Census	'paper' e-declaration *(mobile app)* in process on a voluntary basis	<10m' vessels are obliged to fulfill logbooks *(declarative forms <2019)*	<2019 Monthly declaration >=2019 Fishing trip declaration	Cross-checking/validation of the declarative data with sales notes. <2019 – Landings reported by vessel, **month**, gear, area (ICES rectangle) and species. **Fishing effort reported by vessel, month and gear.** >=2019 detailed information of landings and fishing effort available on fishing trip level by vessel, gear, area (ICES rectangle) /and species/.	**Data quality checks**: the declarative data with sales notes; observation on unexpected gear type, mesh size range. **Coverage' information:** 100%.	

Country	Source of data	Data collection type	'paper' or e-declaration	Mandatory requirement	Level of data available	Data reported in answer FDI datacall **(eventual issues/approximation highlighted in bold)**	Data quality/coverage' information/comments	Comments
Malta	NA	NA	NA	NA	NA	NA	NA	NA
Poland	SSF specific declarative forms (*Monthly catch reports)*	Census	'paper'	Mandatory to report landings and fishing effort in monthly catch reports for <10m' vessels.	Daily declaration	Total amount of landings and fishing effort reported by vessel, **day**, gear, area (ICES rectangle) /and species/. **Daily catches and fishing effort. Each fishing day is considered as one fishing trip lasting approx. 8 hours at sea.**		
Portugal mainland fleet	Sales notes	Census	'paper'	In Portugal all vessels are obliged to sell fresh fish at the auction market and the weight and value of landings are recorded in sales notes.	Sales event declaration	**Sales notes** are the **unique source of informat**ion available. **Metier/gear/mesh size are estimated on the basis of "sales notes landings species composition" and "fleet register gear".** **For fishing effort calculation, a common approach is used to estimate the fishing days from the sales notes, assuming that 1 sale note corresponds to 1 fishing day and 1 day at sea.** **Fishing area estimated on the basis of the port of landings.**		
Portugal Azores & Madeira Islands	Surveys	Sampling	'paper"	Sampling plan detailed in the DCF WorkPlan *(Table 2A).*	Fishing trip **sample**.	In Madeira Outermost Region, **surveys** are taken with this purpose to 20% of the vessels under 10m. The extrapolation is made according the trip metier as the duration of trips by landing volume is similar for vessels with the same metier. In the Azores Autonomous Region, **surveys** are also taken to a 5-10% of the vessels under 10m, taking account the fishing technique and LOA of the vessel for sampling. The metier is assigned for all trips according the catch composition and the extrapolation is made considering the trip metier.		
Romania	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	Logbooks	Census	'paper'	<10m' vessels are	Fishing trip	Data available for <10m' vessels are similar with data		

Country	Source of data	Data collection type	'paper' or e-declaration	Mandatory requirement	Level of data available	Data reported in answer FDI datacall **(eventual issues/approximation highlighted in bold)**	Data quality/coverage' information/comments	Comments
				obliged to fulfill logbooks	declaration	available for >10m' vessels *(logbooks information)*. All the necessary information *(landings by species and fishing effort by vessel, fishing trip, gear, area …)* to answer FDI datacall are obtained/derived from this source of information.		
Spain	Sales notes	Census	'paper'	Data of vessels less than 10 metres are obtained from sales notes with exceptions with loogbook obligation due to specific regulations.	Sales event declaration.	In general **sales notes** are the **unique source of information** available *(some exceptions due to specific regulation)*. **Metier/gear/mesh size** are **estimated** on the basis of sales notes landings species composition and declared gear or fleet register gear. Fishing effort is calculated according to WKTRANSVERSAL 2. **Fishing area** (ICES rectangle) **estimated** on the basis of the location of landings. Every landing port is assigned to one ICES rectangle.		
Sweden	SSF specific declarative forms *(Monthly fishing journal)*	Census	'paper' journals or e-declaration *(electronic reporting)*.	Mandatory to report landings and fishing effort in monthly fishing journal for <10m' vessels.	Monthly declaration	Total amount of landings reported by vessel, **month**, gear, area (ICES rectangle) and species. **Metier calculated at month' level.** **Total amount of days at sea reported by month and distributed equally / proportionally per vessel by métier/gear/area.**		
The Netherlands	Logbooks	Census	<2018 'paper' >2018 'e-declaration'	Mandatory requirement. The official records *(logbooks)* are used for vessels <10m.	Fishing trip declaration.	**Official data** available for <10m' vessels are similar with data available for >10m' vessels *(logbooks information)*. They are used for landings and effort data for vessels <10m to answer FDI datacall.		
United Kingdom	SSF specific declarative forms (Scotland), sales	Census	'paper' E-declaration on UK Electronic	Mandatory in UK for sales notes to be reported to fisheries authorities.	Sales event declaration *(sales note)* Weekly declaration	Sales note data is collected for all UK vessels. When a sales note related to the activity of a 10 metre and under vessel is entered onto data capture systems, estimates of the associated fishing effort are entered at the same time.	The requirement in the UK is for sales notes for all landings by these smaller vessels to	The use of the data reported on sales notes replaced the historic system of using knowledge of

Country	Source of data	Data collection type	'paper' or e-declaration	Mandatory requirement	Level of data available	Data reported in answer FDI datacall **(eventual issues/approximation highlighted in bold)**	Data quality/coverage' information/comments	Comments
	notes (England)		Reporting System (ERS) is used to submit sales note for larger businesses	Mandatory declarative form for Scottish vessels	forms for Scottish vessels Voluntary submission of paper log books/landing declarations	Scottish 10 metre and under vessels must submit a weekly declarative form of all landings of all species. In addition to sales notes, many 10 metre and under vessels also voluntarily provide logbooks and landings declarations covering their activity. Additionally, those involved in shellfish fishing were required to report in the form of monthly diaries of activity and landings.	be reported to fisheries authorities, and as such the results are regarded as providing a complete and exhaustive source of information. Declarative forms are also mandatory for the Scottish small-scale fleet.	local data collectors on the activity of their local small fleets' usual patterns of effort and evidence of the observed fish landings seen at local fish markets. Recently, electronic catch recording has been introduced for all English and Welsh 10 metre and under flag vessels that fish in UK waters. This data was not used in this data call as the data is currently being monitored

The census approach *(exhaustive collection of fishing activity data through declarative forms)* is the most common approach used by countries to collect data on SSF *(17 countries)*. Only four countries *(France, Greece, Italy and Portugal; some of them for part of their SSF fleet)* are using other approaches *(sampling approach or combined)* to provide SSF fishing activity data as declarative data in these countries are not available *(because there is no obligation in the control regulation[4])* or coverage and precision of this data are insufficient and incomplete and are judged insufficient and unreliable to meet the end-user's data needs *(e.g., DCF requirements)*.

Countries using declarative forms to assess SSF fishing activity data may adopt differening approaches. In some countries the same approach *(logbooks)* for fishing activity data collection as for LSF is used. In other countries, specific declarative forms *(monthly fishing forms, coastal logbooks, fishing reports …)* adapted to the special features of the national SSF fleet but less precise *(daily or monthly declaration)* are applied. Finally, some countries have access only to SSF sales notes. The less detailed information on the SSF fishing trips are available, the more assumptions needed to be applied by Member States to estimate/calculate the fishing activity data. In some cases, when limited information exists to estimate the "métier/gear/mesh size" of the small-scale vessels, data are assigned to the "MIS_MIS" métier. And to estimate small scale fleets fishing effort a lot of countries applied the following assumption: *"(1 sales note) = 1 fishing day = 1 days at sea"*. The same issue applies to spatial information availability for small scale fleet on the basis of these non-detailed data sources. As a result, some countries do not provide any data with precise spatial information for SSF in the spatial tables H *(landings by rectangle)* & I *(effort by rectangle);* see also ToR 1.4 *(section 3.1.4)*.

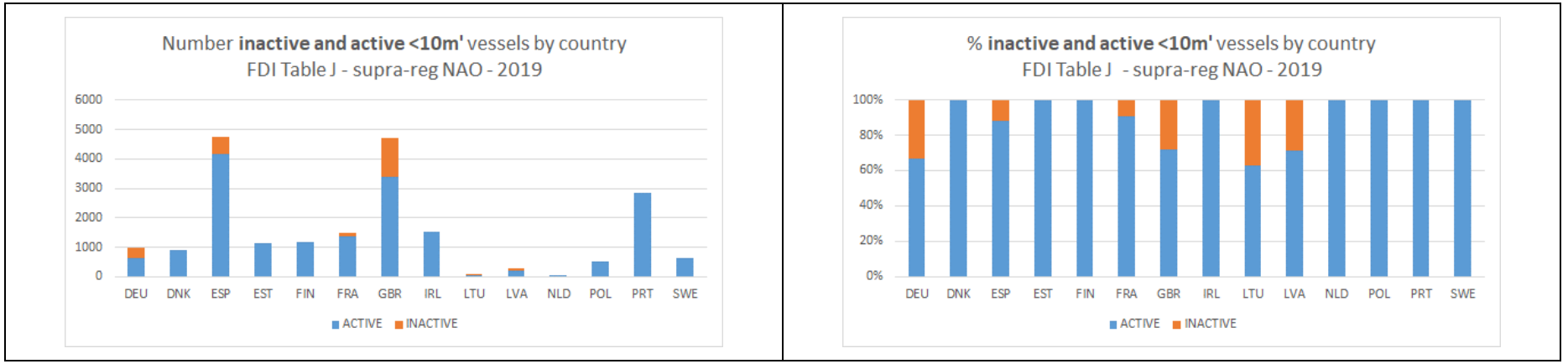
The analysis conducted during the meeting shows that most of the countries have a mandatory requirement for SSF to report fishing activity data. Official declarative data usually reported to the FDI data call are mainly collected under this mandatory requirement. This does not guarantee full coverage of the SSF in the database unless this mandatory requirement is fully monitored *(i.e. without full monitoring some SSF vessels may not follow the mandatory requirement and do not provide any official declarative data while they are active)*. Most countries indicate that data which are not covered, is considered only a minor proportion of the fleet landings, compared to the national landings and fishing effort. Furthermore, the official declarative data quality has to be assessed as well. Some first expert's information/comments about this data quality/coverage are given in the table above.

As an illustration, the following graphics 3.1.5.3 & 3.1.5.4 represent by supra region (NAO (North Atlantic Ocean) and MBS (Mediterranean and Black Sea) [5]) the number of SSF' active and inactive vessels reported in the FDI data call on the basis of the data available in the FDI table J. Such indicator may indeed be used as a mean to assess possible risk of data incompleteness issue especially in case of large percentage of inactive vessels observed.

[4] Control Reg: Article 65, Exemptions from sales notes requirements: the Commission, in accordance with the procedure referred to in Article 119, may grant an exemption from the obligation to submit the sales note to the competent authorities or other authorised bodies of the Member State for fisheries products landed from certain categories of Community fishing vessels of less than10 metres' length overall or for quantities landed of fisheries products not exceeding 50 kg of live weight equivalent by species. Such exemptions may be granted only in cases where the Member State in question has installed an acceptable sampling system, in accordance with Articles 16 and 25.

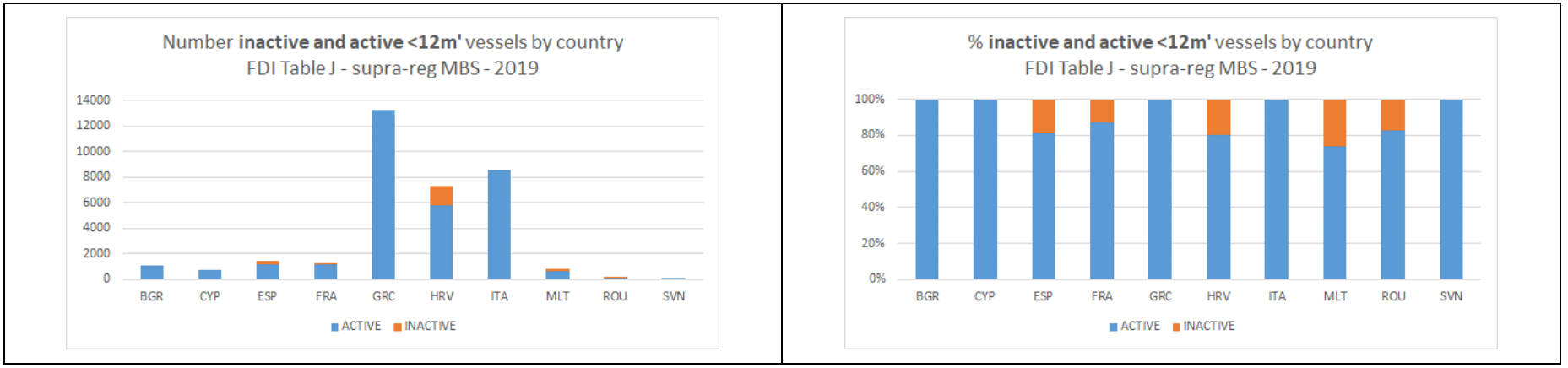
[5] For the other regions, France is the only member states with SSF vessels *(French overseas territories' vessels, outermost regions).*

Figure 3.1.5.3 Number of inactive/active SSF vessels (<10m) reported in FDI data call by country for 2019 and the supra-region NAO - FDI table J*.



* Some Member States do not report inactive vessels during the FDI data call

Figure 3.1.5.4 Number of inactive/active SSF vessels (<12m) reported in FDI data call by country for 2019 and the supra-region MBS - FDI table J.



* Some Member States do not report inactive vessels during the FDI data call

Following this exercise, the group proposed to add in the future national chapter supporting the dissemination of the FDI data *(developed in September' meeting)* a specific section about the SSF data available in response to the FDI data call. It will be the place to highlight some issues about data quality/coverage related to this specific fleet segment and/or to indicate any improvement done in order to monitor these vessels. Reference to the previous table 3.1.5.1 will be allowed if the situation has no changed since.

5.1.6 Covid-19 impacts on the quality of data provided.

In 2020, the Covid-19 pandemic has impacted on data collection by MS. To have a good picture of such impacts in each MS the EWG decided to add a separate sub chapter in the national methodological chapters. A detailed description of the Covid-19 impact for each Member States can be found in of the national chapters (Annex 1). The EWG provided also an overview categorising the impact on their discard sampling and discard estimation in 2020 by quarter in Table 3.1.6.1 below. The possible gradings are "No", "Low", "Medium" and "High". Specific comments were made by some Member States. The EWG notes that around 58% estimated the Covid-19 impact "No" or "Low" for sampling and the estimation of the discards. The effect on the sampling was estimated to be medium and high by 9% and 33% respectively. The effect on the discard estimation were marked medium and high for 24% and 18% respectively.

Table 3.1.6.1 - Overview table by quarter on the Impact of Covid-19 on discard- sampling and estimation for 2020.

Member State	Quarter	Sampling	Estimates	Comments
Belgium	Q1	No	No	
	Q2	No	No	
	Q3	No	No	
	Q4	No	No	
Bulgaria	Q1	No	No	
	Q2	No	No	
	Q3	No	No	
	Q4	No	No	
Croatia	Q1	No	No	
	Q2	Low	No	
	Q3	Low	No	
	Q4	Low	No	
Cyprus	Q1	Low	No	There was no sampling onboard trawlers. Arrangements were made with the owners of trawlers and the crew in order to receive discard samples from them for trips sampled at land.
	Q2	Low	No	There is a closed period for trawlers fishing in Cyprus waters 1st June -7th October.
	Q3	No	No	
	Q4	Low	No	
Denmark	Q1	No	No	
	Q2	High	High	Denmark closed down the 15th of March and no on-board observers were able to work until 15 June.
	Q3	Medium	Medium	As a response to the covid- 19 and alternative sampling strategy was develop without a random selection of vessels and therefore no information on refusal rates.
	Q4	High	Medium	Denmark closed down again in late November and no at sea observers were able to work in the last 1.5 month
Estonia	Q1	No	No	
	Q2	No	No	
	Q3	No	No	
	Q4		No	
Finland	Q1	No	No	Finland adjusted its activities. A special arrangement for working field
	Q2	No	No	labs and office have been in force to ensure the data collection
	Q3	No	No	
	Q4	No	No	

Member State	Quarter	Sampling	Estimates	Comments
France	Q1	Medium	Medium	Sampling program was cancelled in the time period 15th March to 15th May. Consequently, there was some difficulties t calculate biological data estimates for 2020. See more information in the National methodological chapter.
	Q2	High		
	Q3	No		
	Q4	No		
Germany	Q1	No	No	
	Q2	Medium	Medium	Sampling on smaller vessels was reduced (brown shrimp, demersal and flatfish fishery), sampling in pelagic fishery coul be carried out
	Q3	Medium	Medium	Sampling on smaller vessels was reduced (brown shrimp, demersal and flatfish fishery), sampling in pelagic fishery coul be carried out
	Q4	High	Medium	No onboard sampling, Self-sampling was used to get samples where no observer could be taken onboard because of Corona (e.g., in the pelagic fishery, saithe fishery)
Greece	Q1	Low	No	
	Q2	Low	No	
	Q3	Low	No	
	Q4	Low	No	
Ireland	Q1	No	No	A self-sapling scheme was introduced on Irish fishing vessels to replace the at sea sampling during covid. Estimates we still possible in most areas, except the Irish Seas where sampling levels for both port-based and at-sea sampling has been at a low level for Irish Sea stocks. This has been due to limited access to processing facilities, the pattern and number of vessels fishing in the Irish Sea as well as some vessels landing into Northern Irish ports. These issues of low levels of sampling have been exasperated by COVID-19.
	Q2	High	Medium	
	Q3	High	Medium	
	Q4	Medium	Medium	
Italy	Q1	Low	Low	The period of lockdown from March to May 2020 allowed the performance of some activities, but not following the usual procedures. It was not possible for scientific observers to embark onboard fishing vessels. This restriction continued almost in every GSA also after the first lockdown period, given the implementation of social distancing rules. For this reason, the observations onboard were carried out, where possible, using a self-sampling approach, based on the fishermen collaboration to collecting information on discards. The restrictions of COVID _19 pandemic also impacted the activities at the laboratories due to the restrictions for social distancing. In some Institutes these rules halved the possibilities to using laboratories.
	Q2	High	Medium	
	Q3	High	Medium	
	Q4	Medium	Medium	
Latvia	Q1	No	No	
	Q2	No	No	
	Q3	No	No	

Member State	Quarter	Sampling	Estimates	Comments
	Q4	No	No	
Lithuania	Q1	No	No	
	Q2	Low	No	At national level the biological sampling was mostly affected by quota restriction.
	Q3	No	No	
	Q4	No	No	
Malta	Q1	No information provided		
	Q2			
	Q3			
	Q4			
Poland	Q1	No	No	
	Q2	High	High	For some stocks it was not possible to assess the impact of covid-19 pandemic on sampling because of Baltic cod fishery closure in 2020 and also pelagic and demersal fisheries closure in the Baltic from June until August 2020(July in subdivision 24).
	Q3	High	High	For some stocks it was not possible to assess the impact of covid-19 pandemic on sampling because of Baltic cod fishery closure in 2020 and also pelagic and demersal fisheries closure in the Baltic from June until August 2020(July in subdivision 24).
	Q4	High	High	For some stocks it was not possible to assess the impact of covid-19 pandemic on sampling because of Baltic cod fishery closure in 2020.
Portugal Mainland	Q1	High	Medium	Estimates obtained from the reference period 2017-2019. Discard raising procedures used are briefly described in the PRT Methodology Section.
	Q2	High	Medium	
	Q3	High	Medium	
	Q4	High	Medium	
Portugal Azores OMR	Q1	High	High	No Sampling.
	Q2	High	High	No Sampling.
	Q3	High	High	No Sampling.
	Q4	High	High	Sampling occurred, but coverage was very low (26% of total trips planned) due to Covid-19 restrictions and adverse weather conditions. Consequently, number of trips sampled per stratum in the sampling year is not representative.
Romania	Q1	No information provided		
	Q2			
	Q3			
	Q4			
Slovenia	Q1	No	No	Slovenia adjusted its data collection program accordingly to the Covid situation, so no impact on data collection was

Member State	Quarter	Sampling	Estimates	Comments
	Q2	No	No	recorded because of Covid-19.
	Q3	No	No	
	Q4	No	No	
Spain	Q1	High	High	Covid-19 impact and administrative problems
	Q2	High	High	Covid-19 impact and administrative problems
	Q3	Medium	Medium	Covid-19 impact and administrative problems. A part of the observer program was re-established
	Q4	Medium	Medium	Covid-19 impact and administrative problems. A part of the observer program was re-established
Sweden	Q1	No	No	Almost no on-board sampling in Q2-Q4. Self-sampling programs already in place were still running in all quarters.
	Q2	High	High	
	Q3	High	High	
	Q4	High	High	
The Netherlands	Q1	No	No	Demersal and Pelagic discard on board sampling schemes were impacted at different rates (averaged here), the self-sampling scheme went on as planned.
	Q2	Low	Low	
	Q3	Low	Low	
	Q4	Low	Low	
UK England	Q1	No	Low	A co-sampling programme was established in Q3 and Q4, but due to logistical constraints limited number of samples collected, which precluded the use of its data. In Q4 Observer programme was re-instated with strong limitations.
	Q2	High	High	
	Q3	High	High	
	Q4	High	Medium	
UK Northern Ireland	Q1	No information provided		
	Q2			
	Q3			
	Q4			
UK Scotland	Q1	Low	Low	No samples were collected in Q2. Some observer trips were carried out in Q3 and Q4 but covid restrictions meant that observers that few vessels were suitable to take observers and random selection was not used. Discard estimates appea to be in line with previous years but with higher variance due to smaller sample size.
	Q2	High	High	
	Q3	High	Medium	
	Q4	High	Medium	

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

5.2.1 Review methodology proposed to derive detailed Table A and its suitability

This section summarises the results of the work completed during the *ad hoc* contract (Ref STECF 2116 – Ad-hoc contract in support of STECF EWG 21-10: Fisheries Dependent Information) awarded to develop and propose methodology to assemble a detailed Table A, which would combine catch data from Table A, with biological data in Tables C, D, E, F. It was found that it was not possible to merge all information from the catch summary (table A) to the biological tables (C, D, E, F). A number of issues were encountered during the merging process, which resulted in only a part of the biological tables being successfully merged with the catch summary table. `1Sz Db

The main issue centred around the misspecification of the 'domains' by Member States, which resulted in a mismatch between those used in catch summary and the biological tables. In order to be able to merge the catch summary (table A) with the data reported in the tables (C, D, E and F) the Member States should strictly follow the guidelines of the FDI data call when reporting domains.

Methods:

To merge Table A with the biological tables (C, D, E, F), a unique landings/discard ID was created for each row in all the tables (A, C-F):

- ID_Landings - COUNTRY_CODE, YEAR, DOMAIN_LANDINGS, SPECIES;
- ID_Discards - COUNTRY_CODE, YEAR, DOMAIN_DISCARDS, SPECIES.

Data provided for Mediterranean and Black Sea were excluded from this analysis. The code used to produce a detailed table A, and to conduct the analysis of the data provided can be found in the Annex 2. Full details of the issues outlined below was shared with experts during the EWG meetings.

Results:

A number of issues were encountered during the merging process. These issues, the consequences and proposed solutions are detailed below.

- **Partitioning:** Partitioning is the process by which Member States apply the sampling detailed in the biological tables to the catch summary in Table A. The FDI data call required that the total weight of landings (TOTWGHTLANDG) and discard (DISCARDS) provided in table A, must match that of the total value reported in the biological tables (C-F). If TOTWGHTLANDG in table A is provided by quarter, but biological information in tables C-F is provided at an annual level, it is not possible to directly merge this information into one table. Therefore, to successfully merge the tables, biological data were partitioned between all rows related to the given domain. This process required some assumptions to be made. To merge the tables, it is necessary to calculate the proportion of individuals at each length, for each domain in Table A, for which the following formula was used:

$$Proportion_{Landings} = NO\_LENGTH\ (Table\ F) * \frac{TOTWGHTLANDG\ (Table\ A)}{TOTWGHTLANDG\ (Table\ F)}$$

$$Proportion_{Discards} = NO\_LENGTH\ (Table\ D) * \frac{DISCARDS\ (Table\ A)}{DISCARDS\ (Table\ D)}$$

The rows with specific length classes where the number of fishes was less than one individual after partitioning were removed. Further analysis of the results revealed a number of discrepancies. For example, in some instances a high number of fish within length classes were recorded despite the corresponding discard weight being less than 1 kilo.

Member State specific differences in the TOTWGHTLANDG per domain resulted in a mismatch between table A and the biological tables, which meant that the multiple rows in the tables couldn't be merged, this mismatch accounted for approximately 14000 out of 36 million tons. Further investigation showed very low percentage of difference in comparison to TOTWGHTLNDG for selected area and year (difference not higher than 0.19% and only for CECAF area for specific years difference is around 1%).

- **Domain definition:** It became evident during the merging process that Member States did not follow the definition of 'domain', which resulted in a mismatch between those used in catch summary and the biological tables. In order to be able to merge the catch summary (table A) with the data reported in the tables (C, D, E and F) the Member States should strictly follow the guidelines of the FDI data call when reporting domains. Within the data call the domain is defined as:

  "*The group of vessels used to calculate estimates (discards, numbers at age, number at length). A domain may or may not be equivalent to a métier. The purpose of the domain is to link tables C, D, E and F with table A, so domain labels used in Tables C, D, E and F need to be present also in Table A.*"

- **Units of weight -** According to the guidelines of FDI data call biological information can be provided in 'cm' or 'mm' and in 'g' or 'kg'. To facilitate the merging of the tables, data provided in tables D and F were converted into 'mm' and weight into 'g'. During the conversion process a number of errors were identified in the data submitted by Member States. All rows with zero values in column NO_LENGTH (the number in thousands at the specified length) were filtered out as potential mistakes provided by Member States and included into overall list. Therefore, 26,061 of 332.355 rows (**7.8%**) were excluded from the merging process due to errors in the Table D (Table 3.2.1.1).

Table 3.2.1.1. Number of rows excluded in table D due to errors or missing data provided by Member State

Country	All biological information provided as NK	For submitted number of samples length provided as NK	Length units as NK	The number in thousands at the specified length provided as zero	Total	Total submitted	**% rows excluded**
DNK				274	274	28514	**1.0**
ESP				7202	7202	41287	**17.4**
EST	1996		96		2092	2891	**72.4**
FRA		8487		1247	9734	48488	**20.1**
LTU	34		16		50	604	**8.3**
LVA				18	18	1379	**1.3**
NLD				14	14	10313	**0.1**
POL				6	6	1919	**0.3**
SCO			20		20	24595	**0.1**
SWE	171	4172	2308		6651	26931	**24.7**
Total	**2201**	**12659**	**2440**	**8761**	**26061**	**186921**	**13.9**

For table F the same conversion was made and as result, **10.7%** or 81825 rows were filtered out from total of 764060 rows as errors (Table 3.2.1.2).

Table 3.2.1.2. Errors identified in Table F per Member State.

Country	All biological information provided as NK	For submitted number of samples length provided as NK	Length units as NK	The number in thousands at the specified length provided as zero	Total	Total submitted	**%**
DNK				84	84	40763	**0.2**
ENG				24	24	62890	**0.1**
ESP				9077	9077	171670	**5.3**
EST	1877		27	93	1997	6978	**28.6**
FRA		49119		9309	58428	266961	**21.9**
LVA				13	13	5015	**0.3**
NLD				11	11	6258	**0.2**
PRT		35	9544		9579	25988	**36.9**
SWE	2612				2612	18067	**14.5**
Total	**4489**	**49154**	**9571**	**18611**	**81825**	**604590**	**13.5**

- **Rounding of weight -** To check the consistency of data provided by Member States in tables A, D and F, the comparative analysis of provided weight in fields Landings and Discards in all tables was performed. The results of analysis (Table 3.2.1.3 - 3.2.1.4) show again that there are discrepancies between tables in the information provided by Member States. For example, differences in weight of Landings or Discards were due to Rounding errors.
- **Nephrops functional unit -** Due to the absence of NEP_SUBREGION in the domain name it was not possible to fully merge *Nephrops* biological data with Table A. As some functional units traverse number of ICES divisions (i.e FU 2021 stretches across ICES divisions 27.7f and 27.7g), a mismatch could occur with NEP being assigned to one ICES division in the biological tables and another in the catch record of Table A. Therefore, for the purposes of this analysis all rows related to Norway Lobster (NEP) were removed from the merging process and consequent analysis. To resolve this inconsistency, it is recommended that NEP_SUBREGION should be added to the domain name.

There are a number of compounding issues which have resulted in a mismatch and incompatibility between the catch summary table (A) and the biological tables (C-F). This mismatch is mainly being driven by Member States misusing the 'domain' when answering the data call. Summary tables have been provided (Tables 3.2.1.3 - 3.2.1.4) to show the percentage of domains in tables D and F, which match to domains in table A and as a result how many of them could be merged.

Table 3.2.1.3. Number of discards domains from table D which is possible to assemble with similar domains in table A.

Country	FALSE*	TRUE(M)**	TRUE***	Total	Not merged	Merged	Merged (%)
BEL	18	162	6	186	18	168	**90.3**
DEU		865	315	1180		1180	**100.0**
DNK		1359	10	1369		1369	**100.0**
ENG		2222	86	2308		2308	**100.0**
ESP	416	1618	1142	3176	416	2760	**86.9**
EST	16	39	4	59	16	43	**72.9**
FIN		305	217	522		522	**100.0**
FRA	1930			1930	1930		**0.0******
IRL	2222	2595	22	4839	2222	2617	**54.1**
LTU		33	11	44		44	**100.0**
LVA			59	59		59	**100.0**
NIR		563	294	857		857	**100.0**
NLD		540	255	795		795	**100.0**
POL		157	34	191		191	**100.0**
PRT		32		32		32	**100.0**
SCO	90	875	134	1099	90	1009	**91.8**
SWE		1254		1254		1254	**100.0**
Total	**4347**	**12950**	**2603**	**19900**	**4347**	**15553**	**78.2**

*FALSE – the difference in provided value of Landings or Discards is bigger than one tonne; **TRUE(M) – unique domains are the same between tables, but biological information should be partitioned between multiple rows provided in table A;

***TRUE – biological information could be easily merge to table A as there is only one observation of each unique domain;

**** - Based on the latest available data there is no linkage between table D and table A by unique domains for France.

Table 3.2.1.4. Number of landings domains from table F which is possible to assemble with similar domains in table A.

Country	MISMATCH *	FALSE **	TRUE(M) ***	TRUE ****	Total	Not merged	Merged	Merged (%)
BEL	5	21	2	165	193	26	167	**86.5**
DEU			617	1553	2170	0	2170	**100.0**
DNK		91	13	1038	1142	91	1051	**92.0**
ENG	1	63	15	2008	2087	64	2023	**96.9**
ESP		184	1403	3510	5097	184	4913	**96.4**
EST			3	223	226	0	226	**100.0**
FIN			740	441	1181	0	1181	**100.0**
FRA	7216				7216	7216	0	**0.0*****
IRL			69	1190	1259	0	1259	**100.0**
LTU			76	88	164	0	164	**100.0**
LVA			223		223	0	223	**100.0**
NIR			87	1280	1367	0	1367	**100.0**
NLD		244		39	283	244	39	**13.8******
POL			234	842	1076	0	1076	**100.0**
PRT			11	420	431	0	431	**100.0**
SCO	1		7	833	841	1	840	**99.9**
SWE			26	635	661	0	661	**100.0**
Total	**7223**	**603**	**3526**	**14265**	**25617**	**7826**	**17791**	**69.4**

*MISMATCH – biological information can't be merged to table A due to differences in provided fish species codes;

**FALSE – the difference in provided value of Landings or Discards is bigger than one ton;

***TRUE(M) – unique domains are the same between tables, but biological information should be partitioned between multiple rows provided in table A;

****TRUE – biological information could be easily merge to table A as there is only one observation of each unique domain

***** - Based on the latest available data there is no linkage between table F and table A by unique domains for France

****** - Differences in landing weight for the Netherlands between table F and table A result from the raising of the samples to the preliminary estimates of weight WMR receives from RVO, whereas the official logbooks are submitted to the FDI datacall. Furthermore, in some cases there are different assumptions on metiers for table A in comparison to the scientific estimates.

The EWG reviewed the methodology and outputs of the *ad hoc* contract (Ref STECF 2116 – Ad-hoc contract in support of STECF EWG 21-10: Fisheries Dependent Information) awarded to develop and propose methodology to assemble "detailed Table A" from Table A and biological data in Tables C, D, E, F provided by Member States.

The methodology used was found appropriate. However, some modifications to the original used criteria needed to be implemented after discussions during the meeting. One of the main issues encountered was during the merging process between Table A (catch summary) and Tables C, D, E and F (biological tables) due to a mismatch in the Domain definition, which precluded to link the different tables.

Therefore, the EWG recommended a modification and clarification of the Domain definition in the data call to assist the Member countries on defining the domains (See Section 4).

The EWG also recommends that the "detailed Table A" should not be disseminated on the STECF website, but Table A and Tables C, D, E and F to be disseminated in the form that they are submitted. The R codes produced during the *ad-hoc* contracts this year and previous years should be made available on the STECF data dissemination website once adapted to fit the format and structure of the data published in the dissemination website.

5.2.2 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).

The EWG reviewed the methodology and outputs of the *ad hoc* contract (Ref STECF 2116 – Ad-hoc contract in support of STECF EWG 21-10: Fisheries Dependent Information) awarded to propose how to incorporate discards robustness and coverage indicators/information into the dissemination dashboard. Proposed inicators and EWG assessment as well as proposal to change the data call are presented in the text below and Section 4.

There is a growing need to supply measures of confidence for the discard estimates available through the FDI database. These measures will provide a tool for FDI experts to interrogate and evaluate the quality of discard data submitted. The measures will also provide information on the limitations of the dataset for end users such as the Commission, and will reduce the chance of misinterpretation by other end-users after dissemination.

There are a number of methods available for the measurement of discard robustness and coverage which account for statistically sound sampling theory and sampling design. The suggested methods for application are gathered from previous studies conducted by ICES (ICES 2003, 2008, 2010).

Coverage rate and sampling rate

Coverage rate describes the proportion of the population which is sampled, and sampling rate describes the size of the sample achieved. These are broad metrics, relatively easy to calculate, and should be presented along with the indicators of variability. Although the number of samples achieved is currently available in the FDI data call, there is no information on the coverage rate of discard estimates. This information could be obtained with the addition of one column to TABLE C, D, and K.

Specification of the additional information is given in Section 4 – data call improvements.

Robustness

There are two ways to measure robustness; precision and accuracy. Both require very different approaches for estimation and dissemination.

Precision is the estimate of random error is a broad metric, relatively simple to calculate, and useful in the identification of poor sampling. Precision can be estimated using the estimate' relative standard deviation or coefficient of variation (CV); i.e., the estimate' standard deviation divided by the absolute value of the arithmetic mean estimate. Precision can also be estimated by providing the 95% confidence intervals around the estimated values of discards rate (i.e., the estimate is determinate at +/-X%). These metrics incorporates sampling rate, coverage rate (in finite population) and variability of the estimate.

This information could be obtained by additional columns to TABLE C, D, and K.

Specification of the additional information is given in Section 4 – data call improvements.

The EWG acknowledge that these metrics will have different meaning for different sampling plans, i.e., statistically sound sampling verses ad hoc sampling. However, these metrics provide much needed context for any end user of the data set.

Accuracy is the estimation of systematic bias. This is a very informative metric but it is a lot more complex to estimate and disseminate. A possible method of evaluation would be to adapt a score card system previously developed by the ICES workshop on methods to evaluate and estimate the accuracy of fisheries data used for assessment (WKACCU, ICES 2008). The workshop identified several indicators to detect bias in fisheries data. A traffic light score-card (see Table 3.2.2.1) was then developed which rated each indicator as either green (minimal or no risk of bias), yellow (some risk of bias), or red (established sources of bias). The score-card can be used to evaluate the quality of data sources. The WKACCU participants chose the following list of key parameters that should be scored to evaluate potential bias in data used for stock assessment: species identification, landings weight, discard weight, effort, length structure, age structure, mean weight, sex-ratio and maturity stages. For the purposes of FDI we need to only consider the score-card on discard weight (Table A). This card should be adapted to the needs of this EWG.

To avoid the duplication of workload, the EWG suggests to explore the possibility of populating this score-card from data already collated under the DCF (i.e., the annual report). However, it is acknowledged that is a very labour-intensive process and will not form a permanent solution for FDI. It will provide insight into the data available and how it is currently used and disseminated under other data sources. This will help to streamline any future data requests from FDI,

Table 3.2.2.1: Score-cards developed by WKACCU (ICES 2008) to assess bias in discard weights.

C - DISCARDS WEIGHT	NO BIAS	RISK OF BIAS	CONFIRMED BIAS
1 - Sampling allocation scheme	Well designed random sampling	Ad hoc OR opportunistic sampling	No sampling
2 - Raising variable	No raising factor needed OR follow accepted raising procedure	Any other situation	No raising factor when needed
3 - Size of the catch effect	Well designed random sampling	Any other situation	Checked and problem not corrected
4 - Damaged fish discarded:	No partial fish	Any other situation	Problem not corrected
5 - Non response rate:	High response rate/low refusal rate (figure needed)	Any other situation	Low response rate/high refusal rate
6 - Temporal coverage	Documented and OK	Any other situation	Documented and not OK
7 - Spatial coverage	Documented and OK	Any other situation	Documented and not OK
8 - High grading	no High grading OR High grading estimated	Any other situation	High grading existing but not estimated
9 - Slipping behaviour	no slipping OR slipping estimated	Any other situation	Slipping existing but not estimated
10 - Management measures leading to discarding behaviour	management not leading to impact discards behaviour OR impact corrected	Any other situation	Strong management leading to discarding and limited at sea sampling
11 - Working conditions:	good conditions OR conditions not ideal but compensated for	Any other situation	Difficult conditions and not compensated for
12 - Species replacement:	no occurrence OR corrected	Any other situation	Occurrence and not corrected
Final indicator	All green	List of potential bias	List of confirmed bias

Finally, some estimates of discard quality and sampling schemes are already captured in Table B of the FDI data call. This table provides information in the refusal rates of the probability-based sampling schemes. The group concluded that this information should be disseminated to the public, as it contains valuable information about the current data collection processes. It was also suggested that perhaps for the 2022 data call (which calls for 2021 data) we should allow the inclusion of self-sampling schemes on fishing vessels. But concerns were raised about how meaningful the addition of self-sampling is in relation to the rest of the data set as it may not be comparable to other refusal rates.

Reference:

ICES. 2003. Workshop on Discard Sampling Methodology and Raising Procedures Danish Institute for Fisheries Research, Charlottenlund, Denmark.2 – 4 September, 2003. Final Report. The ICES Planning Group on Commercial Catch, Discards and Biological Sampling (PGCCDBS).

ICES. 2008. Report of the Workshop on Methods to Evaluate and Estimate the Accuracy of Fisheries Data used for Assessment (WKACCU), 27–30 October 2008, Bergen, Norway.

ICES. 2010. Report of the Workshop on methods to evaluate and estimate the preci-sion of fisheries data used for assessment (WKPRECISE), 8-11 September 2009, Co-penhagen, Denmark. ICES CM 2009/ACOM:40. 43 pp.

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

Mediterranean and Black Sea Member States are requested to send fishing activity and biological data to DGMARE through 2 different data calls (FDI and MED&BS). Over the last years, the 2 data calls have been harmonized in terms of content so that Med&BS MSs are not requested to send the same information twice in the same period of the year with different formats (see Table 3.2.3.1)

Table 3.2.3.1 *- Current provisions of fisheries data to DGMARE*

Variables	FDI	Med&BS
Effort by fleet segment and by métier	Table G	no
Capacity by fleet segment and by gear type	Table J	no
Effort by GFCM grid	Table H	no
Landings by GFCM grid	Table I	no
Landings (weight and value) by fleet segment and by métier	Table A	no
Discards by métier/species, by length and by age	no	Table A, C
Landings by métier/species, by length and by age	no	Table A, B

Nevertheless, DGMARE considers the need to rationalize the FDI database that was developed to support the management of fishing effort management regimes and the transition to area-based multi-annual plans (as reported in the official data call letter from DGMARE to MS). The process is towards the establishment of a pan-European database including data for all the fisheries regions, while at the moment biological data from the Mediterranean and the Black Sea are the only ones not present in the FDI database.

Within this context, the EWG is requested to discuss a possibility to transpose the biological data stored in the Mediterranean and Black Sea database into the FDI format/database.

The EWG considers that the STREAM regional project[6], deeply analysed the standard formats of the data calls. The project developed auxiliary scripts for the conversion of datasets into the relevant formats for the data transmission (project deliverable 3.2). In particular, three sets of scripts have been developed in R language aimed at producing some of the tables needed for the main Data Calls: DG MARE Med&BS, GFCM/DCRF and DG MARE FDI, starting from the RCG and SDEF format. Figure 3.2.3.1 schematizes how the 4 developed auxiliary scripts work, into 4 steps.

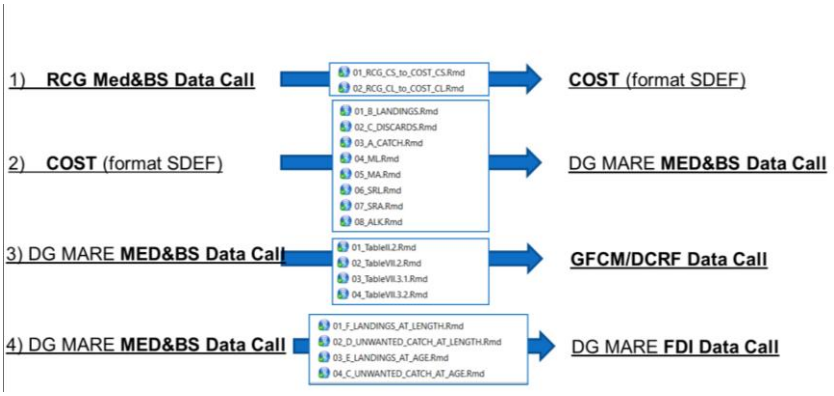


Figure 3.2.3.1 *– Schematic representation of the different steps for converting the RCG Med&BS format in the other foreseen formats (from STREAM deliverable 3.2).*

Regarding step 4 (from MED&BS data call to FDI data call), the conversion routines take into account the format required by the FDI Data Call of 2019. Specifically, the R tools developed within this task allows creating the following FDI tables:

- Table C. Discard biological data (age based)
- Table D. Discard biological data (length based)
- Table E. Landings biological data (age based)
- Table F. Landings biological data (length based)

The details of the routines and the steps in the conversion process are described in the STREAM deliverable 3.2. It has to be considered that only tables C, D, E and F of the FDI could be produced starting from the Med&BS data call format (where data are reported by métier and not by fleet segment, therefore table A/FDI cannot be derived).

EWG considers that these tools are an important starting point to allow the transposition of the biological data from Mediterranean and Black Sea data call into the FDI format/database.

However, some issues have to be taken into account, as described in the following paragraphs.

Inconsistencies/issue in Data Call definition/time series

EWG compared formats of Tables C, D, E and F included in the FDI data call, and Tables A, B and C included in the Med&BS data call and discussed inconsistencies in descriptions of the fields included in both data calls (presented in Table 3.2.3.2).

[6] Project results are available at: https://datacollection.jrc.ec.europa.eu/mare-2016-22-strengthening-regional-cooperation

Table 3.2.3.2. - Inconsistencies in field descripters between the FDI and Med&BS data calls

Data call specifications	FDI	Med&BS	Issues
Group of fishing trips used to calculate estimates	DOMAIN_LANDINGS	ID and separate columns for QUARTER, VESSEL_LENGTH, GEAR, MESH_SIZE_RANGE, FISHERY, AREA	ID should correspond to DOMAIN_LANDINGS in order to link biological data from the Med&BS to data provided in Table A of the FDI. Specifications of ID and DOMAIN_LANDINGS are not the same.
Vessel length	MS can input "all" if all vessel lengths are included.	On regional level in Med&BS it was agreed not to provide biological parameters by vessel length categories since biological sampling is carried out according to metiers.	No issues.
Species complex targeted by specific gears	TARGET_ASSEMBLAGE defined in Appendix 5 - 19 target assemblages + NK (not known). The FDI target assemblage list does not include BFTE and INACTIVE codes which are present in Med&BS list.	FISHERY defined in Appendix 1.5 - 20 fisheries + NA (not applicable/available). The fishery code list does not include DES code which is included in FDI target assemblage list.	Inconsistent codification. Discrepancy between descriptions for DEF code.
Species	List of species not specified in the FDI (Appendix 12 refers to most recent FAO list + OTH code).	Species specified in Appendix 1.7 of Med&BS data call (only “important” species – in total 64 species requested in 2021).	Missing information on certain species which are not requested in Med&BS data call, most importantly large pelagic species (assessed under ICCAT, therefore not requested in Med&BS data call)
Quality indicators	Number of samples, Number of measurements (for length, age), Age measurement proportion	Number of samples discards, Number of measurements (for length, age, discard)	It should be explored which quality indicators are relevant and useful. It is not clear whether same information is required on number of samples related to discards. In Med&BS additional information can be provided in columns SPECON and COMMENTS.
Biological data	Provided by domain. Min, max, mean Length, No Length Age, No Age	Provided by fishery or metier. Min, max, mean Presented in age and length classes	It is not clear whether biological data provided by metiers in Med&BS can be linked to FDI domains. Biological data in Med&BS is requested according to age and length classes.

EWG investigated the alignment of codes used to define fisheries in the two data calls according to data call specifications in 2021 and compared results to coding lists in previous data calls (based on the output of STREAM regional project ("communication table between code foreseen in the specifications of the two different data calls") as shown in Table 3.2.3.3.

It may be relevant to investigate whether the changes in coding lists had an effect on the aggregation of data. If this is not the case, the codes can be easily mapped to current codes. EWG considered as well that the relevant RCGs should analyse how Member States assign target assemblages to different fisheries. Different classification of target assemblages performed by Member States may have an effect on the comparisons of data at regional level.

Table 3.2.3.3. Communication table between fishery and target assemblage (TA) codes used in Med&BS and FDI

Med&BS FISHERY codes in previous data calls	FDI TA codes in 2021	Med&BS FISHERY codes in 2021	TA in draft EUMAP 2022> (version April 2021)	Notes
ANA	ANA	ANA	Anadromous species (ANA)	No issues.
BFTE	/	BFTE		BFTE missing in FDI and not included in new draft EUMAP. However, this is not considered to be an issue, because LPF can be properly used for bluefin tuna
CAT	CAT	CAT	Catadromous species (CAT)	No issues.
CEP	CEP	CEP	Cephalopods (CEP)	No issues.
CRU	CRU	CRU	Crustaceans (CRU)	No issues.
DEF	DEF	DEF	Demersal species (DEF)	Since DES is not included in Med&BS 2021 data call, some MS will report previous DEMSP under DEF in Med&BS in 2021, and keep the DES code in the FDI data call which leads to misalignment of dana reported under the two data calls.
DEMSP	DES	/	Benthic species (DES)	In previous data calls DEMSP was used which is in correlation to the DES code in the FDI in 2021. DES is included in new draft EUMAP but description is changed to "benthic species".
DWS	DWS	DWS	Deep-water species (DWS)	No issues.
FIF	FIF	FIF	Finfish (FIF)	No issues.
FWS	FWS	FWS	Freshwater species (FWS)	No issues.
GLE	GLE	GLE	/	GLE is not included in draft EUMAP.
INACTIVE	only for table J	INACTIVE	/	INACTIVE code is not relevant in both data calls
LPF	LPF	LPF	Large pelagic fish (LPF)	No issues.
MCD	MCD	MCD	Mixed crustaceans and demersal (MCD)	No issues.
MCF	MCF	MCF	Mixed cephalopod and demersal (MCF)	No issues.
MDD	MDD	MDD	Mixed deep-water species and demersal (MDD)	No issues.
/	MIS	MIS	Miscellaneous (MIS)	No issues.
MOL	MOL	MOL	Molluscs (MOL)	No issues.
MPD	MPD	MPD	Mixed pelagic and demersal (MPD)	No issues.
SLP	SLP	SLP	/	SLP (Small and large pelagic fish) is not included in new draft EUMAP.
SPF	SPF	SPF	Small pelagic fish (SPF)	No issues.
-1	NK	NA	/	Small inconsistency.
OATF	/	/	/	OATF (Other activity than fishing) excluded from 2021 data calls, and not included in draft EUMAP

EWG considered that, due to inconsistencies described in Table 2, presently it is not straightforward to transpose biological data from Med&BS data call to FDI formats. In addition, in 2021 FDI data call the Med&BS Member States can provide NK in domain columns in FDI Table A (this information could potentially serve as a link between biological data and data provided in table A).

In case eventually Med&BS biological data will be linked with FDI data, there are several preconditions that should be solved before the launch of DG MARE data calls. Following procedures are suggested before DG MARE data calls launch:

- Create one code list for both data calls (according to new EUMAP). For example, fishery codes and their descriptions in Med&BS and target assemblage codes in FDI should be the same and in line with what is requested in the EUMAP.
- In the framework of relevant RCGs Member States should analyse how target assemblages are assigned to different fisheries in each Member State and, based on agreed criteria, harmonize how the target assemblage should be associated with the metier and target assemblage codes and presented in Annual Work Plans and Med&BS and FDI data calls.
- Perform a test in transposing historic data provided in the Med&BS data call to the FDI data call format and eventually make any necessary changes in FDI data call formats.
- Data used for stock assessment models needs to be taken into account, and any suggested changes in data call formats should not have an influence on data used in Med&BS stock assessment models.

Coverage of MED&BS data call and FDI da call

The EWG investigated the differences in the species lists in FDI and Med&BS data call. For more precise analysis two exercises were done - 1 for the Mediterranean Sea and 1 for the Black Sea.

According to the official 2019 data provided under the FDI data call 2020, the weight and value of 616 species was reported by the Mediterranean countries. In Annex 1 - Data call specifications of the Med&BS data call 51 species were listed. These 51 species represented 73% in terms of weight and 68% of the value of all species provided under the FDI Data call by the Mediterranean countries.

The same comparison was done for the Black Sea and the results are that the list of species from Annex 1 - Data call specifications of the Med&BS data call cover 95% of the weight and 82% of the value reported by the Black Sea's countries in the FDI Data call.

Another comparison was done between the EU MAP Table 1A species and the list of species from the Med&BS Data call, which showed that for the Black Sea all the species from table 1A are listed in the data call specifications except HOM - *Trachurus trachurus*, but it is not an issue, because neither Romania nor Bulgaria had landings of HOM.

For the Med 5 species listed in EU MAP Table 1A are not listed in the Med&BS Annex 1/data call specifications/ - 4 of them (AVX, BIL, CLV, FIM) have landings provided under the FDI data call and 1 species (CFW) was not reported from any of the Mediterranean countries. The landings of the 4 species represent 0.02% of all landings and 0.15% of the value reported under the FDI data call 2020.

In addition, if the biological information is imported from Mediterranean and Black Sea data call into the FDI format/database it is necessary to consider that the biological information of large pelagics (*Thunnus thynnus*, *T. alalunga*, *Xiphias gladius*, etc) is not included in the Med data call. Highly migratory species are assessed by the International Commission for the Conservation of Atlantic Tuna (ICCAT) and MS are requested to send biological data to ICCAT every year through ad hoc protocols.

Quality checks

Data sent in the MED&BS data calls are first validated by MS. The STREAM project provided criteria and R scripts to perform quality checks at the national level (project deliverable 6.1). Then, the EWGs on stock assessment perform very deep and detailed checks for the stocks to be assessed (in 2021 an additional EWG (21-02) checked and assembled Length Frequency Distribution (LFD) data for the stocks identified as target for assessment activities in 2021).

Regarding the FDI database, the quality checks on biological data mainly refer to coverage issues and comparisons with table A. If MED&BS database will be transposed in the FDI, the biological data from the Med&Bs will be subject to these additional quality checks even if, in case some errors are detected, they cannot be corrected by the MS because the Med&BS data is already closed at the time of the FDI meeting. This issue is relevant in case FDI data (including the biological tables) will be published though the JRC data dissemination tool.

Final remarks

The EWG considered that the transfer of the biological data from the Mediterranean and Black Sea data call into the FDI format/database is technical feasible and some tools have been already developed by the STREAM project. The coverage of the MED&BS data call in terms of stocks is also very high, apart from the fact that biological data of large pelagics are not requested in the Med&BS data call and therefore they should be derived from other data provisions if it is intended to populate the FDI database with all the biological data collected by MS.

However, the EWG pointed out several inconsistencies/issues in the format of the 2 data calls that should be evaluated and solved. In this regard, EWG 21-10 suggested to perform a trial on data transfer procedures to be presented at the next FDI meeting in September.

Apart from technical issues, it should also be considered the need to inform MS on the transfer of the biological data from Mediterranean and Black Sea data call into the FDI format/database by including an informative note in the official data call letters.

References

M.T. Facchini, I. Mantzouni, I. Thasitis, *Updated RCG Med&BS-LP standard format and code lists and identification of possible solution for data storage system*, processing and analysis of the data at regional level, deliverable 3.2 STREAM project (MARE/2016/22 – SI2.770115). 46 pag.

Isabella Bitetto, Alessandro Ligas, George Tserpes and Maria Teresa Spedicato, *Compilation and classification of quality checks at the national level*, deliverable 6.1 STREAM project (MARE/2016/22 – SI2.770115). 64 pag.

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

The EWG analysed the consistency of the activity data between the two sources – AER and FDI data set. For this task, AER data sets published on the STECF website (https://stecf.jrc.ec.europa.eu/reports) were compared with data submitted (2017 and 2018) to FDI database during 2020 data call. The data analysis showed an improvement in data codification between both data calls and consistency between different data sets with the same information, however some discrepancies between the data sets remain. Most of the data inconsistencies identified are due to: timing in data exports to answer the data call, possibility to report to FDI confidential data (that is not available in AER) and due to the clustering of fleet segments used in AER data set.

Two EWGs have already done a first attempts: the STECF 20-11 on Balance Capacity and the STECF 21-02 on Methods for Supporting Stocks Assesments in the Mediterranean. For the first one (STECF 20-11), the analysis was a preliminary one with an ad-hoc contract focused on the landings weight and values for Belgium and Italy.

The discrepencies noticed 'may be in part due to confidentiality reasons, where sensitive economic data (including landings' value) are reported by clustered fleet segments only. Some of the data could also be slightly different because of the early economic data call in February. Some of the data submitted in February are provisional and Member States correct them.

In the second one (STECF 21-02), an analysis compared landings values for Mediterranean countries submitted under 3 separate data calls: AER, FDI and Med and Black Sea. Landings reported for Several GSAs and species are not consistent. However, the graphs presented in the STECF 21-02 report could help the MS to correct the differences. The EWG compared the data calls by countries and GSA.

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

The total number of vessels and fleet segments on country level was compared between FDI and AER data sets for the period 2017-2018.

Fleet segments in the capacity file

When analysing the number of fleet segments reported in both data calls, the difference in number of fleet segments is relatively small and can be explained e.g. by reporting inactive vessels to AER and not reporting them to FDI (e.g. Belgium, Bulgaria, Cyprus, Spain, Estonia, Finland, Greece, Ireland, Italy, Netherlands, Poland, Portugal, Slovenia and Sweden are not reporting inactive vessels to the FDI). Clustering of fleet segments for AER data calls could also explain some differences, e.g. for Denmark.

The number of fleets found in the capacity templates of FDI and AER data calls in 2017-2018, without Inactive fleet segments are provided in Figure 3.3.1.2.

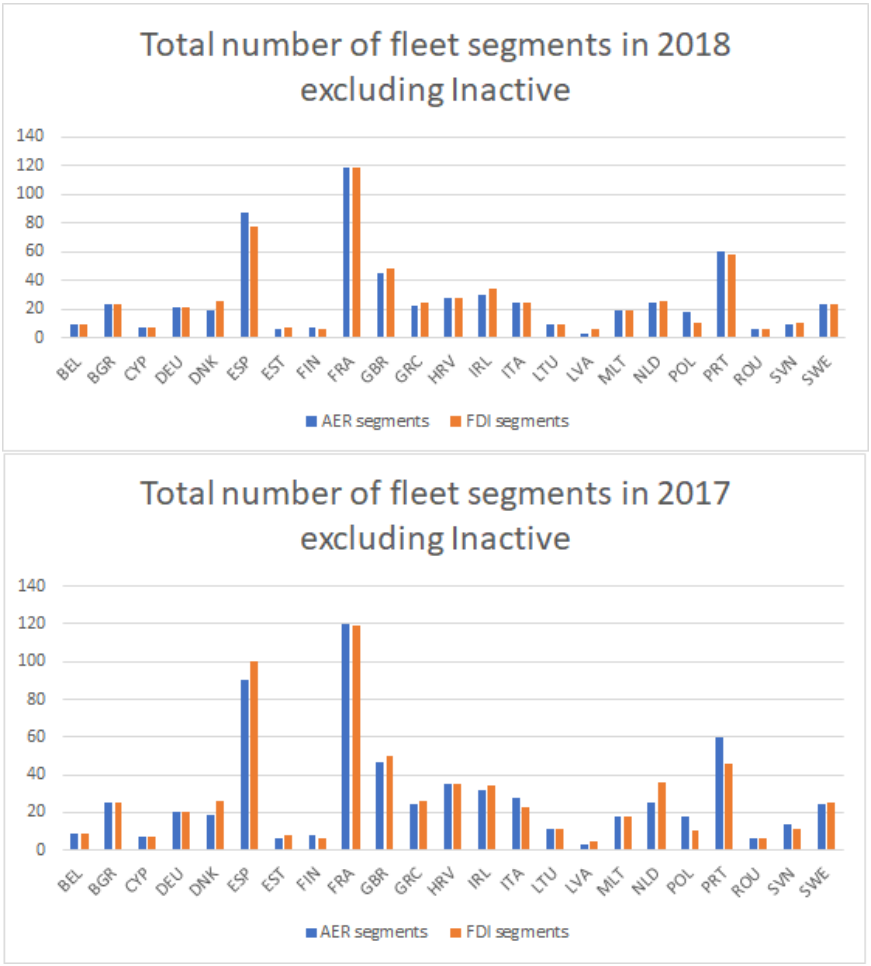
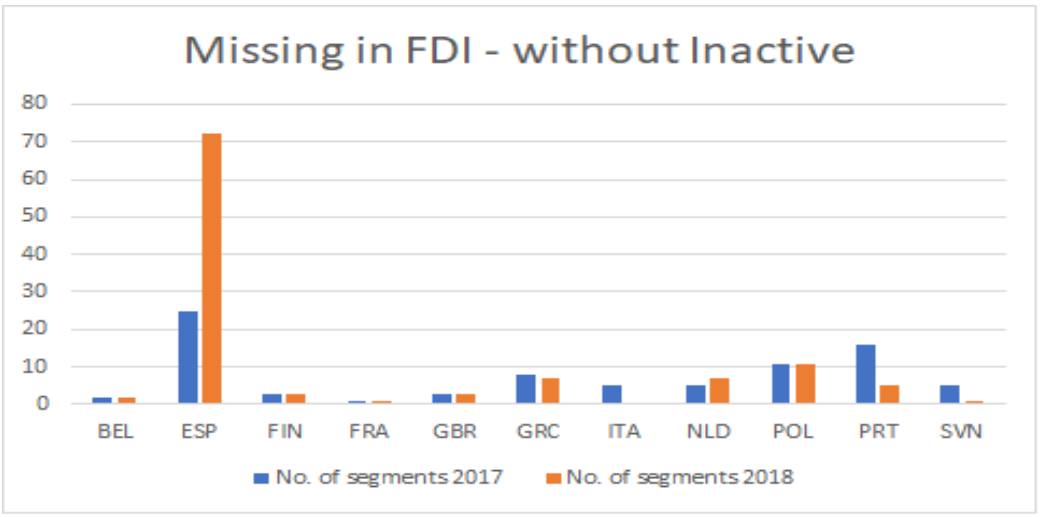


Figure 3.3.1.2. Number of fleets found in the capacity templates of FDI and AER data calls in 2017-2018, without Inactive fleet segments.

When comparing the fleet segments defined in the two data calls there are certain inconsistencies in the data provided in the capacity table (see Figure 3.3.1.3) during the FDI and AER data calls. This inconsistency is mainly driven by the difference in fleet segments names used when providing data to different data calls. In some cases geo indicator codes were not consistent between data calls, e.g. in case of Spain most of inconsistencies are driven by difference in reporting geo indicators codes.



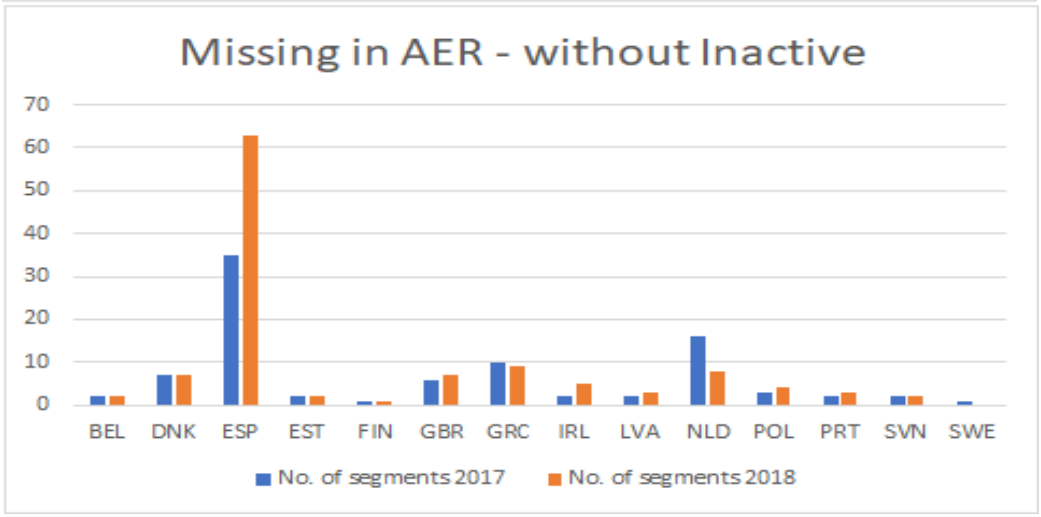


Figure 3.3.1.3. Number of fleet segments identified in the capacity templates, which are not matched in one of the data calls (inactive fleet segments are excluded).

Number of vessels in the capacity files

The total number of vessels on country level was compared between AER and FDI data sets for the period 2017-2018. Figure 3.3.1.4 shows that majority of countries provide comparable data sets. For 2017, Portugal, Spain and Finland stand out the most and Portugal and Finland for 2018. One of the reasons for inconsistency of data is the absence of data on inactive vessels in the FDI data sets.

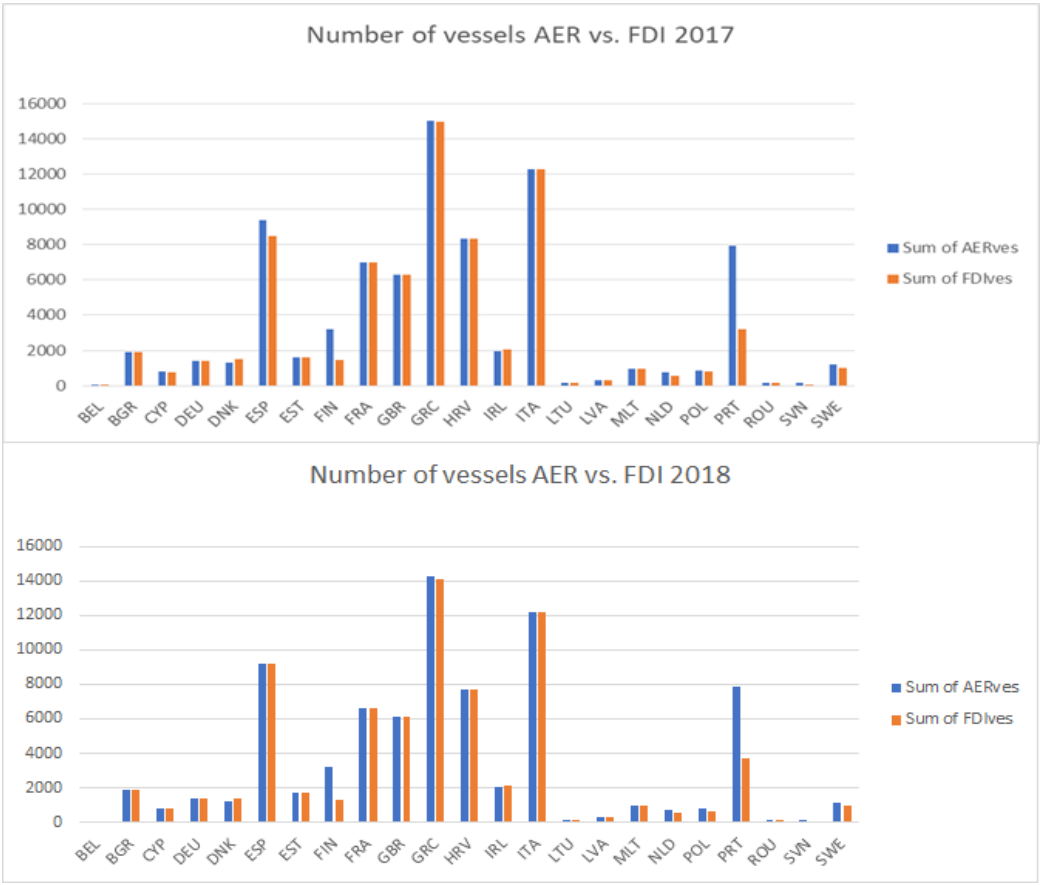


Figure 3.3.1.4 Differences in total number of vessels between FDI and AER data sets

For Portugal the difference in the number of vessels is due to the inactive vessels. Portugal has a large number of inactive vessels (around 54% of the fleet) which are not reported in the FDI data call.

In Spanish case, FDI 2017 and 2018 has been updated to the EU-MAP format, so "effort-gear" and "effort-FAO" tables are not available. Spanish comment: ''We consider this issue is not going to affect to the effort comparison, as effort can be added , but we have considered it is important to point out. Regarding the discrepancy observed, missing data has been detected for 2017 FDI, this problem affects the capacity, effort and landing variables in 2017 FDI. It is expected to be corrected this year in the new FDI submission''.

Table 3.3.1.1 summarises the differences or the match by countries in both data sets. In case of 7 countries (Bulgaria, Croatia, Germany, Denmark, Latvia and Malta) the total number of vessels and segments provided in FDI and AER was exactly the same. Portugal, Greece, Italy, Finland and Spain stand out the most in terms of vessel numbers and Spain and Portugal by segments in the both 2017 and 2018. Some of the discrepancies occurred due to inconsistencies in Geo indicator reporting in FDI and AER data submissions. Other inconsistencies relate to the absence of data on inactive vessels in the FDI data sets. In most cases different institutions or personnel are involved in generating FDI and AER data sets within each Member State.

Table 3.3.1.1. Differences in total numbers of vessels, segments and numbers of active vessels reported by Member State in the FDI and AER data submissions.

Country	2017	2018

	Discrepancy in segments number	Discrepancy in vessels numbers	MS provided INACTIVE segments in FDI (y/n)	Discrepancy in segments number	Discrepancy in vessels numbers	MS provided INACTIVE segments in FDI (y/n)
Belgium	5	8	No	5	6	No
Bulgaria	0	0	Yes	0	0	Yes
Cyprus	4	64	No	4	37	No
Croatia	0	0	Yes	0	0	Yes
Denmark	0	0	No	0	0	No
Estonia	1	2	No	4	488	No
Finland	6	1763	No	7	1929	No
France	1	6	Yes	1	6	Yes
Germany	0	0	Yes	0	0	Yes
Greece	13	10899	No	12	10096	No
Ireland	5	638	No	5	674	No
Italy	12	1158	No	7	1006	No
Latvia	0	0	Yes	0	0	Yes
Lithuania	1	5	Yes	1	4	Yes
Malta	0	0	Yes	0	0	Yes
Poland	16	80	No	15	69	No
Portugal	32	4754	No	21	4204	No
Romania	0	0	Yes	0	0	Yes
Slovenia	9	99	No	5	61	No
Spain	41	1178	No	87	8456	Yes
Sweden	5	298	No	5	288	No
The Netherlands	11	401	No	13	384	No
United Kingdom	3	3	Yes	3	3	Yes

Some discrepancies had been highlighted by experts during the meeting and appear due to different definitions of the fleet population (whether a snap shot of active vessels from a single date is used or whether the activity of any vessel active at any point in the year is used).

The group aggreed that the FDI data call guidance is not clear enough. That causes misunderstanding when applying economic fleet segment definitions during the FDI data call and some inconsistencies. The EWG suggested changes to the future data call to make sure consistant definitions and guidance are used during both data calls.

The EWG stresses the need for Member States to address and resolve the issues found during the meeting. The issues that stood out the most have been reported in the online DTMT (https://datacollection.jrc.ec.europa.eu/dtmt).

Fleet segments defined in landings data sets

In the next step, the numbers of fleet segments defined in landings reports was analyzed for the years 2017 and 2018. Figure 3.3.1.5 shows that the vast majority of fleet segments are present in both data sets. However, a small proportion of fleet segments is not reported in both data sets. The discrepancy is due to the clustering of segments. In the AER data, value and weight of landings might be clustered due to confidentiality reasons, therefore

there can be more fleet segments reported in FDI data call that requires to report all data unclustered. Figure 3.3.1.6 presents the fleet segments at MS level with reported landings in the two data calls. The differences are mainly due to clustering of the segments in AER. Greece was excluded for 2017 comparison due to the missing landings data in FDI data call.

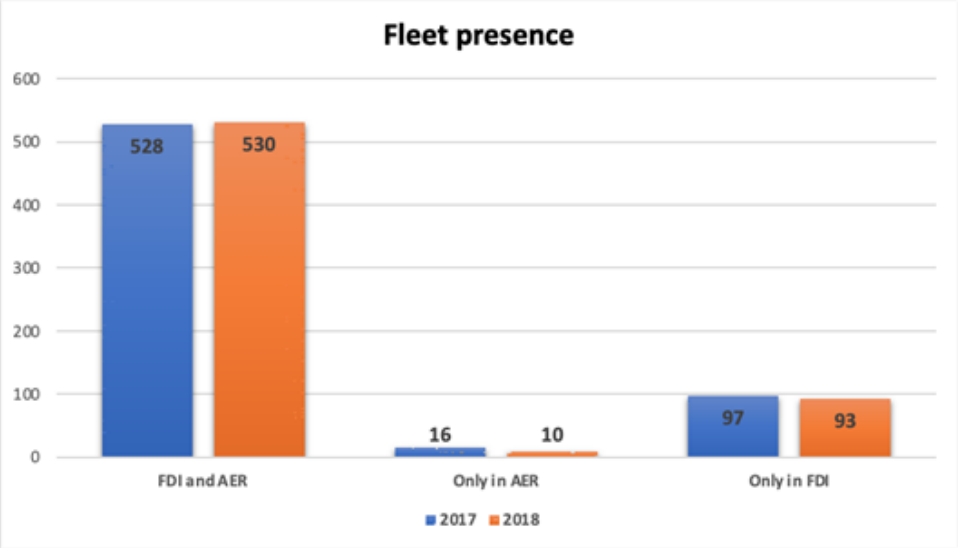
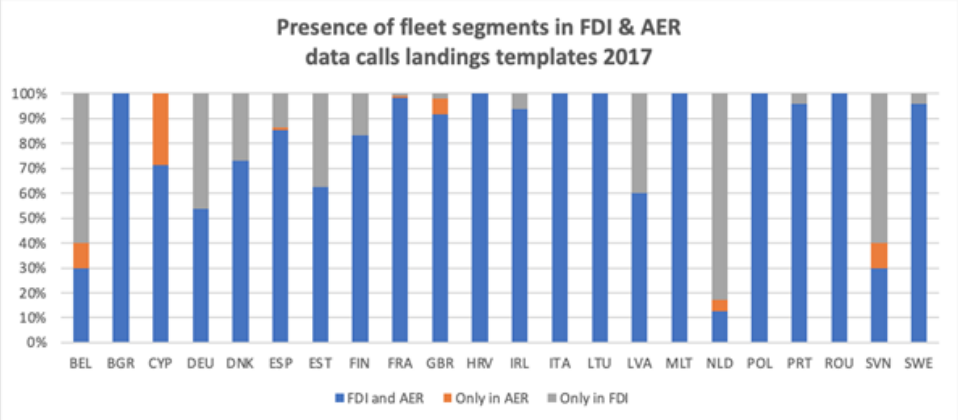


Figure 3.3.1.5. Number of fleets identified in landings data sets of FDI and AER data call in 2017-2018.



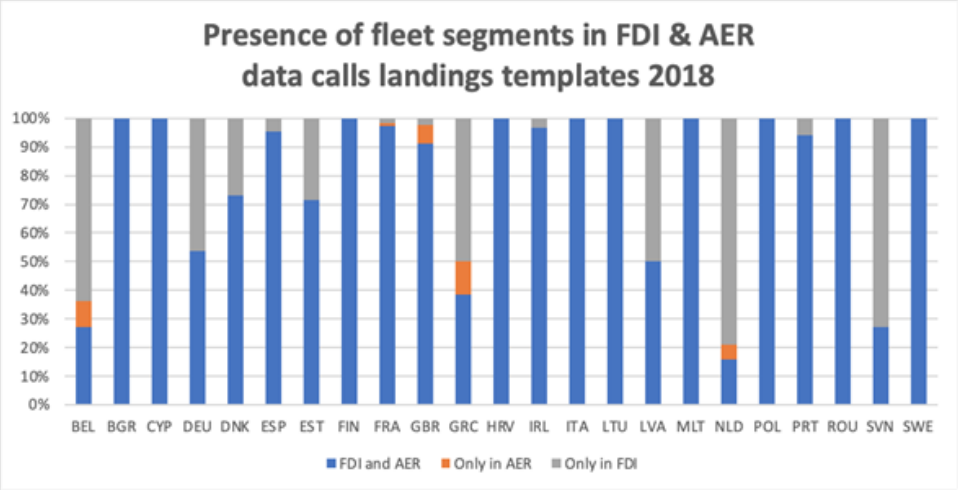


Figure 3.3.1.6. Mapping presence of fleet segments in FDI & AER data calls landings templates for 2017-2018

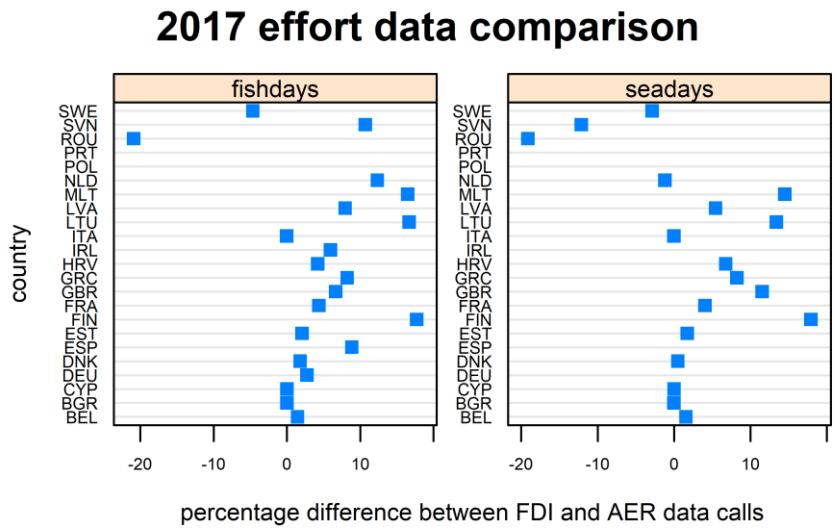
3.3.2. Compare sums of effort (days at sea) and landings (tonnes and values) between FDI and the dataset from the Fleet socio-economic data call.

a. Country level comparison

Effort

Effort data for the fleet economic data call are provided in 3 different effort templates at different levels of aggregation. For the comparison between data calls, fishing days were used from the 'effort gear' template and days at sea were taken from the 'effort FAO' template. For the purpose of this analysis a percentage difference was calculated as ((dataFDI – dataAER)/data(AER)*100). Therefore, results below 0 show cases when the sum of data provided for the new-FDI data set was lower than the sum of data provided for the AER data set.

The results for 2017 show that, in general, consistency between different data sets with the same information, however some discrepancies between the data sets remain. The difference greater than +-5% between data sets from the two calls was for 14 MS in the case of fishing days and for 8 MS in the case of sea days (Figure 3.3.2.1). Within AER data sets 5 MS did not provide data on number of seadays, while there were 2 such countries in terms of fishing days.



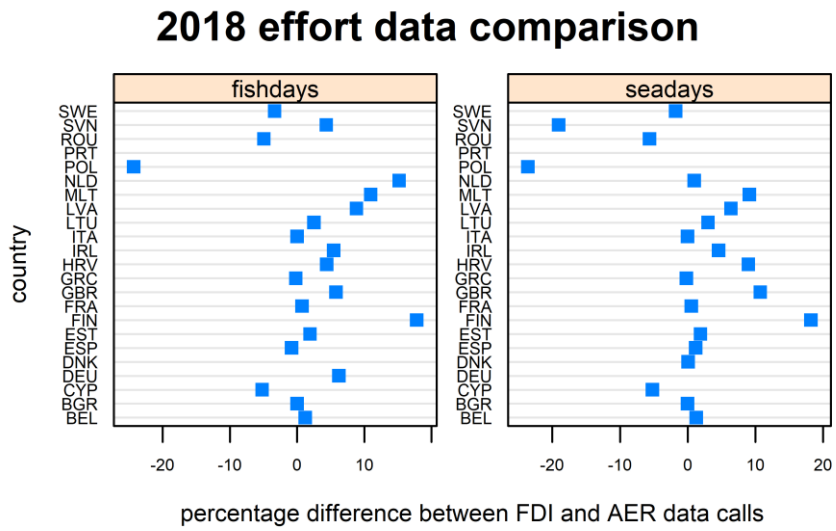


Figure 3.3.2.1. Effort data submitted to FDI and AER data calls by MS, 2017-2018.Differences in effort between FDI and AER data sets, expressed as a percentage difference, for both 2017 and 2018 year.

The results for 2018 show that, in general, consistency between different data sets with the same information exist, however, some discrepancies between the data sets remain. The difference greater than +-5% between data sets from the two calls is shown for 11 MS in the case of fishing days and for 8 MS in the case of sea days (Figure 3.3.2.2). Within AER data sets 2 MS did not provide data on seadays and fishdays.

In case of Poland the difference in fishing days and days at sea in 2018 between FDI and AER datasets is related to the changes in the national fisheries legislation which was in force in the period from 13.07.2017 until 31.12.2018. According to the Polish national legislation, captains of vessels less than 8m in length do not report their catches. This part of the fleet has a relatively high effort in fishing days and days at sea, while catches are very low compared to the rest of the fleet. For the AER data call it was possible to estimate the effort of <8m vessels. However, the effort of <8m vessels could not be calculated at the resolution requested by the FDI data call. As mentioned, the legislation is no longer in force, the difference in fishing days and days at sea between FDI and AER datasets should not arise in other years.

Landings data comparison

The analysis also compared data on value and weight of landings of national fishing fleets.

For landings at the country level in 2017, the difference between two data sets greater than +-5% was for 8 MS in case of value of landings and for 6 MS in case of weight of landings, (Figure 3.3.2.3). A similar situation can be observed in 2018 with 9 MS in case of value of landings and 6 MS in case of weight of landings.

The difference in Weight and Values of landings for some EU Member States (e.g. Latvia, Estonia, Germany) is related to not providing information about distant fishing fleet in Annual Economic report due to confidentiality reasons.

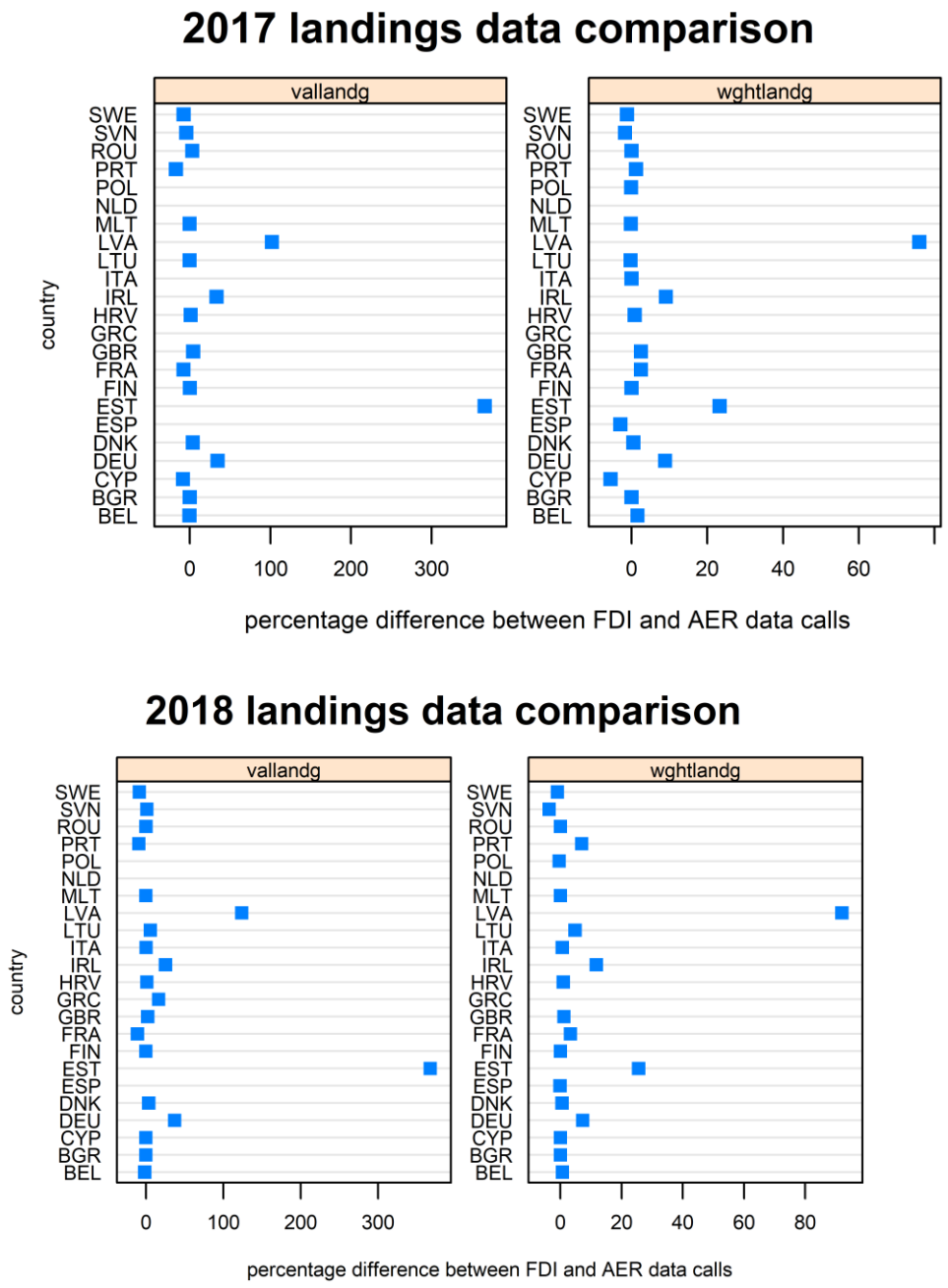


Figure 3.3.2.3. Comparison in value and weight of landings between FDI and AER data sets, 2017-2018

b. Fleet level comparison

To check the consistency of indicators provided at fleet segment level, the EWG made effort and value and weight of landings comaprisons by fleet segments

Effort: days at sea

The overall days at sea provided by fleet segments were sompared between two datat calls. Results of the comparison is presented in the Figure 3.3.2.4.

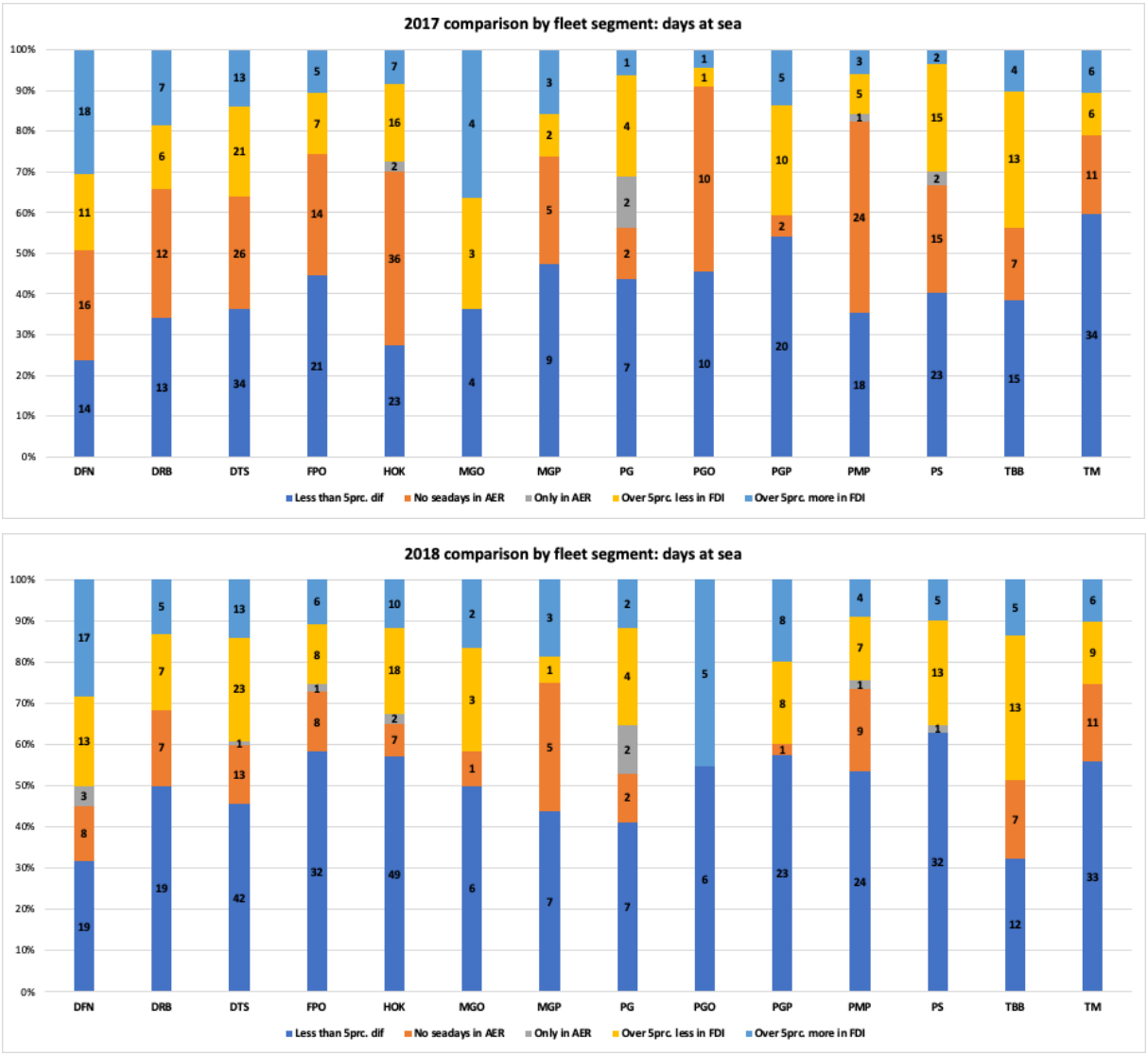


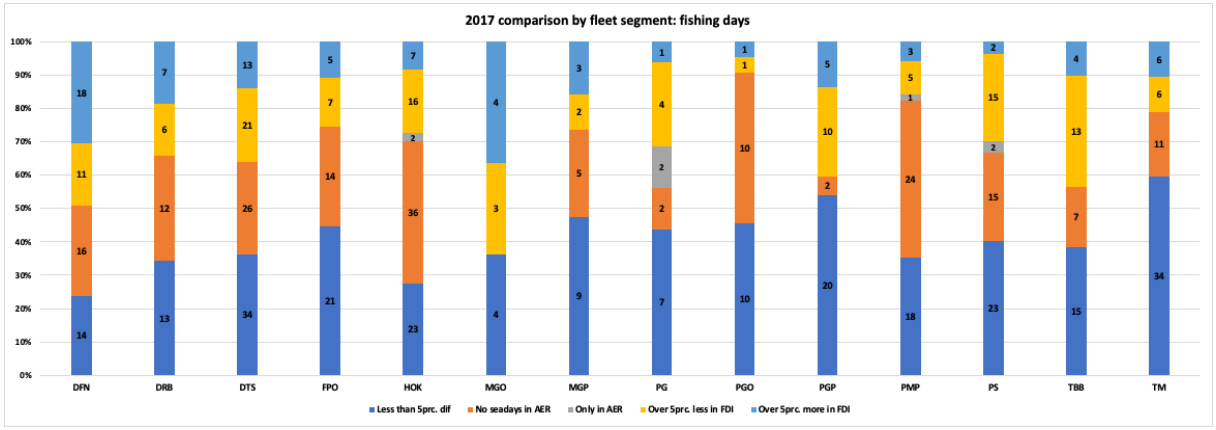
Figure 3.3.2.4 - Comparison by fleet segment for days at sea in 2017 and 2018

For most of the European fleets, the correspondence between FDI and AER data calls had improved (2017 to 2018). In 2018, days at sea for 9 fleets out of 14, matched (more than 50% of the fleet considered) (figure 3.3.2.4.). However, discrepancies were always noticed especially for TBB and DFN fleet segments. The case of PGO is special with 50% of the segment which had difference less than 5% and around 50% of the fleet which had more than 5% difference.

Moreover, the majority of the segments (12 of 15) had a share of "days at sea" only in FDI data call. The main explanation is that all data in FDI provided unclustered, while providing effort to AER data call some MS might be using clustering.

Effort: Fishing days

The differences between AER and FDI data calls for fishing days variable were quite similar in 2017 and 2018 (figure 3.3.2.5.). For 12 of 15 fleet segments, "fishing days" were provided only in FDI data call and not in AER data call due to the same reason as for days at sea.



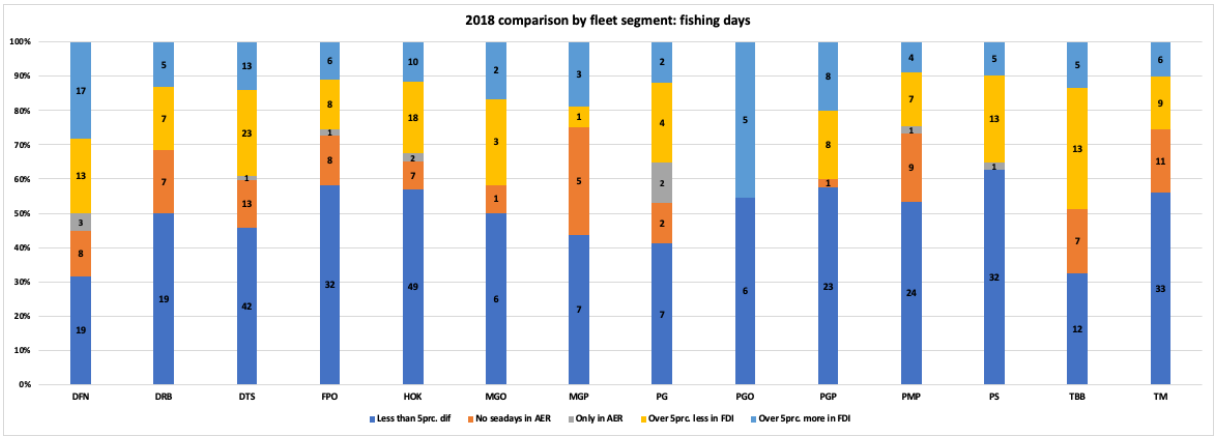
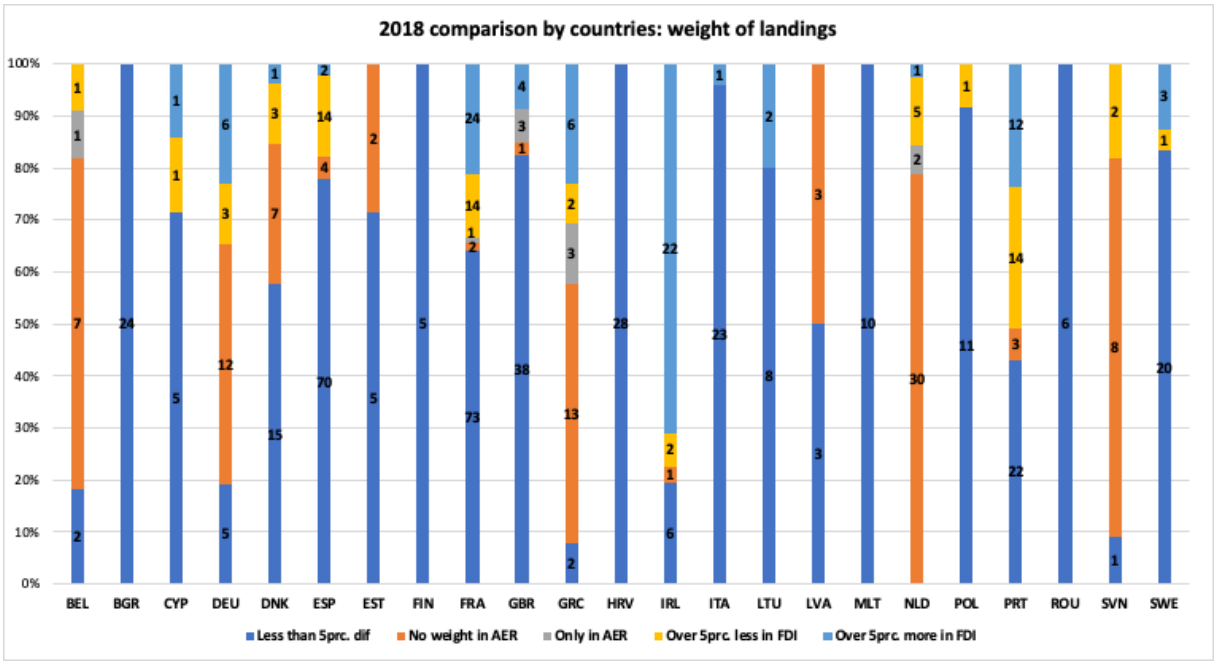


Figure 3.3.2.5. - Comparison by fleet segment for fishing days in 2017 and 2018

Weight of landings

The figure 3.3.2.6. shows consistency of the data provided per fleet segment by MS for 2018 data. For the weight of landings there are 6 MS with small discrepancies, of less than 5% between the two data sets. The same is true with regard to the value of landings (same 6 MS).



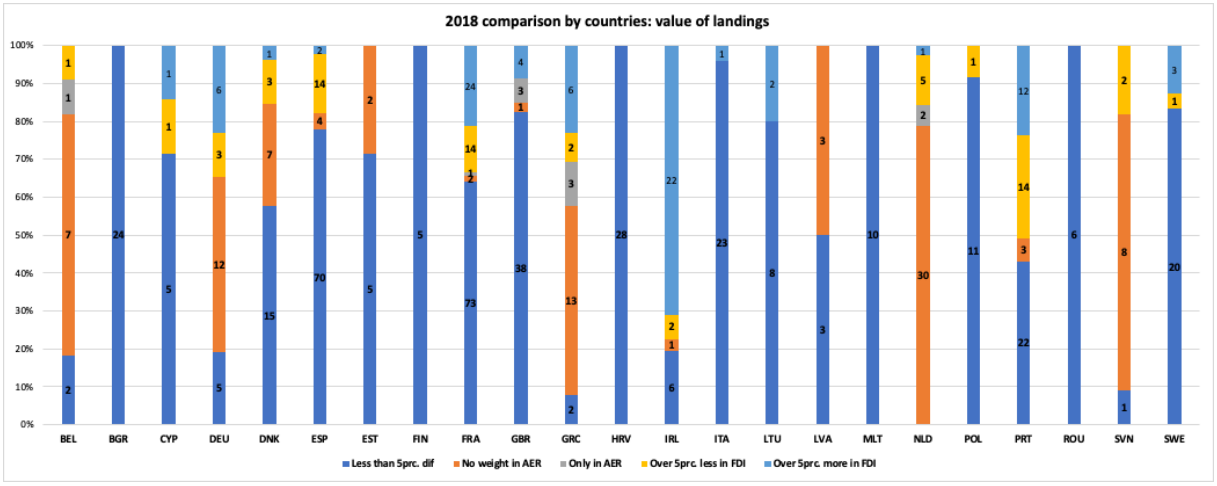


Figure 3.3.2.6. Comparability of landings data at fleets segment level between FDI and AER data calls, 2018-2019.

c) Comparison at the level of gear type within the fleet segment

One of the tasks was also to 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 Gear type within fleet segment. In this case, it should be noted that the gear type data in the AER data set is based on a voluntary basis. This is the main reason for the lack of this data in the economic dataset, which makes such an analysis unfeasible.

Taking into account comparability issues of the FDI and fleet economic (AER) data calls presented above, The EWG considered that MS should dedicate more effort to improve national coordination during preparation of data for the FDI and AER data calls, especially in the field of definitions of inactive vessels, clustering procedures, allocation of vessels to the fleet segments and when providing landing and effort data by fleet segments and metiers.

Since more than 10 MS had issues on comparability of FDI and AER data, a coordinated approach at EU level may also be important, as it proved successful at resolving issues on transversal data in the past.

In coordination with the JRC, in 2015 and 2016 PGECON organized two Workshops on transversal variables (Zagreb, 2015 and Nicosia, 2016), which focused on methods to calculate days at sea and fishing days. This focused approach proved successful in harmonizing methodologies on transversal data and is referenced as relevant methodology in the FDI data call specifications.

Taking into account the above, the EWG suggests that RCGs consider such a focused approach and organizes in coordination with the JRC, and in line with the work carried out in ISSG on Metier Issues, a workshop aimed at exploring how MS allocate vessels, landing and effort to fleet segments and metiers for the FDI and AER data calls, and to harmonize different approaches, in accordance with DCF definitions on variables and data call specifications.

5.4 Review and document completeness of the data set and feedback from Member States on approaches used and problems encountered in responding to the data call

5.4.1 As a matter of priority, the EWG is requested to ensure that all unresolved data transmission (DT) issues encountered prior to and during the EWG meeting are

reported on line via the Data Transmission Monitoring Tool (DTMT) available at https://datacollection.jrc.ec.europa.eu/web/dcf/dtmt. Such issues should be reported in full within 2 weeks of the end of the EWG

The data provided by Member States in response to the 2021 FDI data call and incorporated into the FDI database hosted by the JRC, represents the most comprehensive fishery-dependent data set currently available for the EU fishing fleet for the years 2015-2020. Nevertheless, during compilation and checking of such data, numerous issues have been identified. The EWG reviewed such issues and in accordance with the DTMT guidance, unresolved Member State-specific issues were entered into the DTMT.

The EWG also extracted from the online DTMT, those issues raised in response to the 2020 FDI data call that had been marked for follow-up. The aim of doing so was to investigate whether such issues had been satisfactorily resolved. However, it became clear that the EWG was unable to definitively determine whether the issues had been resolved in all cases. Nevertheless, based on the information available, it appears that all issues marked for follow up had been successfully resolved.

The issues marked for follow-up and the explanation as to how they have been resolved, will be transmitted to DG MARE via the JRC STECF Secretariat. However, the approach taken by the EWG is not optimal and DG MARE may wish to consider how best the assessment of follow-up actions can be incorporated within the DTMT tool.

Spatial data

The enormous number of spatial data records submitted in response to the FDI data call almost inevitably results in a variety of data errors being detected. Such errors primarily concern misspecification of geocoordinates and their impacts on the overall utility of the FDI database in most cases are minor. Nevertheless, Member States will wish to be aware of such errors which are listed in one excel workbook attached to this report as annex (Annex 3: Catalogue of errors in spatial data records for landings (Table H) and effort (Table I) submitted by Member States in response to the 2021 FDI data call). To ensure that Member States are aware of any spatial data errors, a single record has been inserted in the DTMT for each relevant Member States so that they can correct such errors and take steps to ensure they do not occur in future.

5.4.2 Review outputs of ad hoc contract that provides the catches, landings and discards, at a level of aggregation corresponding to the fleet, area and gear type as specified in each exemption of each discard plan for 2022

The EWG reviewed the outputs of the ad hoc contract (#2145) awarded to provide catches, landings and discards (catch fractions), at a level of aggregation corresponding to the fleet, area and gear type as specified in each anticipated exemption of each discard plan for 2022.

Additionally, the EWG is asked to assess and if possible, provide percentages of discards estimates below and above MCRS at a level of aggregation corresponding to the fleet, area and gear type as specified in each exemption of each of the discard plans for 2022.

The EWG observes that the methodology used is appropriate although in a number of cases, the estimates from exemptions were based on a small number of discard samples only or in the absence of any appropriate samples, the estimates were derived using extrapolation (so-called 'fill-ins').

Therefore, EWG reiterates also the observation by EWG 20-10 and EWG 19-11 that the discards are estimated from sampling plans that are not designed to answer these specific exemption questions and to provide estimates at such a detailed level. Discards estimates partitioned provided in table A are of major importance for the EWG to calculate exemptions but the EWG also reiterates the conclusion of earlier EWGs which emphasize the limited meaningfulness behind any partitioned estimates ('estimates will likely not be statistically

sound and may be biased because for example of the need to assume equal discard rates among the disaggregated levels contained within the retained strata'). Furthermore, in order to 'fill-in' estimates for fleets that are not sampled for discards, the available sample data are aggregated across strata. As a result, in doing so, many untested assumptions have to be made, such as Member State-specific variation in species naming (i.e., HOM/JAX), and spatial aggregations (i.e. *Nephrops* Functional Units). Consequently, the estimated discards cannot be considered robust.

Recognising that estimates for different catch fractions for exemptions to the Landing obligation are required by DG MARE for planning purposes, the EWG has attempted to provide such estimates for different exemptions However, EWG was not able to provide catch fractions for exemptions containing operation-specific conditions such as engine power (kW), tow duration (≤90 mins) and proximity to the shore (within 12 nautical miles), as such information is not available in the FDI database.

Member State-specific catch fractions were provided for the majority of anticipated 2022 exemptions. Two sets of estimates were computed; i) estimates for exempted fleets for which discard sample data were provided and ii) estimates for exempted fleets for which no sample data were available, so-called 'fill-ins'. A rudimentary, but much-needed measure of quality and sampling coverage was computed for the discard estimates ('% of total landings'). The value for '% of total landings' represents the weight of landings from which the discard samples were taken, divided by the total landings from the fleet operating under each exemption.

The results are presented in section 3.5.2. Although the table of results provides the requested descriptions of discarding by exemption, in some cases, such estimates may at best be imprecise or may not be representative of the true level of discards of the fleets fishing under each particular exemption.

5.4.3 Review data quality checks and produce National methodological chapters

While the EWG recognises that it is the responsibility of Member States to provide checked and validated data, issues are inevitable e.g., misinterpretation of the data call, coding misspecification between different databases in Member States and simple human error. To counter these issues the JRC have implemented a number of automatic checks. which were made available to experts two weeks after legal deadline (14 of July). The combination of this tool and extended period allowed for corrected data uploads (30th of August, operational deadline), reduced time required to correct data during the STECF EWG 21-12 meeting.

Quality assurance of the data help in the FDI database is provided by the experts who attend the meeting. Experts attending the meeting conduct these essential additional checks, which are time consuming and have compromised the ability of the EWG to address other essential TOR's. Ideally, the EWG should have a dedicated meeting, restricted to checking the integrity of the database, that should not include any requests for advice.

The EWG recommends that a methodology meeting be held every second year. These methodology meetings form an essential pillar to the functioning of this EWG as they facilitate the development of methods used to answer the data call and check quality of the data. These key methodology meetings have vastly improved the quality of the data (and subsequent advice), and significantly reduced the time required for data checking during the advice meeting. Despite these vast improvements there remains much work to be done to develop these methods and guarantee the continued quality of the FDI database. These methodology meetings also provide a space in which historical data can be explored and interrogated for stability and consistency across years. This feature of the meeting will become increasingly important as FDI requests more historical years in future data calls (pre 2014).

Member States sections on Methodology, Data availability, Coverage, Problems encountered and other comments related to data submitted to FDI data call are listed in Annex 1.

5.5 Provide landings and discards data for exemptions in discard plans based upon the previous work and method established in STECF EWG 20-10:

5.5.1 STECF is asked to provide figures for landings and discards in 2020, at a level of aggregation corresponding to the fleet, area and gear type as specified in each exemption of each of the discard plans for 2022. Where there is insufficient discard data for the above task, the STECF is asked to provide estimated catches (landings + discards) for 2020, if possible and enough data provided during data call.

Discard estimates by exemption – (General – Methodology – Shortcomings – Extraction procedure)

General Conclusions

While the EWG attempted to provide discard estimates for each anticipated exemption for 2022 discard plans, it was not feasible to produce such estimates for exemptions that requires information that does not currently exist in the FDI database e.g., detailed trip and vessel level information (i.e., distance fished from shore and vessels engine power) which do not currently exist in the FDI database. Therefore, exemptions were characterised in four groups; yes, yes/partial, partial or no, based on the feasibility of the EWG to extract the relevant data. All the data extracted is presented in the Tables 1-12 of the Annex 4. In the case of yes/partial data extraction did not fully take into account the MCRS, however available MCRS data is extracted in separate Table 13 that is part of the Annex 4. In case of partial data extraction, the part of exemptions which could not be extracted from the data set are highlighted in bold red in the summary table below. All results under this ToR must be interpreted with caution, taking into account the shortcomings listed below.

Methodology and Shortcomings

The EWG based the calculation of the discards by exemption on estimates available in Table A. These estimates are the result of the partitioning *(done by Member State, following the conclusion of the STECF EWG 17-12)* of discard estimates available in Tables C&D into the detailed disaggregated levels specified in the Table A of the FDI data call (see also Table 3.1.1 for Member States specific data sources used during the 2021 FDI data call).

The variable "Domain discards" is used to link the discard estimates in tables C&D to Table A. The domain is defined by the Member State, and its structure describes the raising procedure and sampling design used by Member States to estimate discards. The EWG stresses that the partitioned estimates may not be reliable estimates of the true discards, since differences in discard rates may occur within a domain.

The EWG has attempted to provide an estimate of different catch fractions for fleets that are likely to take advantage of anticipated exemptions from the landing obligation in 2022, based on data provided for 2020. The following shortcomings have to be taken into account to avoid misinterpretation of results:

1. The EWG notes that the data call asked for scientific estimates of discards (see also Table 3.1.3 for Member States specific data sources used during the 2021 FDI data call). The estimated values based on scientific sampling programs are uncertain (and potentially biased) and do not constitute an official estimate like landings reported in logbooks. Therefore, any estimate provided under ToR5 for discards of species under the landing obligation cannot be interpreted as discards for control purposes of de-minimis exemptions.

2. The EWG further notes that providing reliable and robust estimates of catches, i.e., landings and discards for fleets that are granted exemptions from the landing obligation is problematic. For many of these fleets, estimates are unavailable, because Member States

are not obliged to sample these metiers according to the national DCF sampling plans. For those fleets where discards have been sampled, the achieved sampling coverage is often much lower than required to provide a robust estimate of the true discard fractions at the level of disaggregation requested by FDI. In general, the sampling programs under the DCF are designed to inform assessments of stocks and not provide discard information in the highly disaggregated format requested in the FDI data call. Alternatively, official logbook information could be used. However, for most Member States and fisheries, the records of unwanted catch fractions (discards + BMS landings) in logbooks are believed to be an unreliable source of information. To improve the situation, Member States may have to find ways to improve compliance and may have to adapt their national sampling programs especially incases where they have a larger amount of landings under a certain exemption, but no discard information.

To provide estimated catch fractions for fleets that have not been sampled requires extrapolation of discard rates (also called fill-ins) from other fleets which may not be representative of the catch composition of the unsampled fleets, because of differences in fishing patterns (where, when and how the fleets fish), target species, catch quota and differences in species and size selectivity etc. The fill-in procedure can result in highly unrealistic discard estimates, especially when discard rates from fleets with very low landings of bycatch species are used to fill-in discard rates for fleets where the same species is targeted and landed in larger amounts. The issue becomes especially relevant when the sampled catch fractions of a particular fleet or fleets relate to only a small proportion of the total catch of the same species by all fleets involved in a fishery. A specific problem arises if landings are zero. In such cases standard raising routines applied by member states may not deliver reliable discard estimates (see also Table 3.1.1 for Member States specific data sources used during the 2021 FDI data call). In principle, there is scope for the EWG to use its expert judgement to determine whether the catch fraction estimates from sampled fleets are likely to be representative of the catches for other fleets. However, in practice, such an assumption may be erroneous because, influence of factors, such as differences between the fleets in fishing pattern, timing of fishing and quota availability are not always known by the EWG. Hence the EWG considers that extrapolating catch fraction estimates for one fleet or fleets to other fleets simply to generate fleet-specific estimates needs to be carefully considered.

Therefore, the EWG has adopted the following selection criteria:

For all areas apart from the Mediterranean Sea (outside area 37)

year, quarter, species, sub_region, gear_type, mesh_size_range, target_assemblage, specon_tech

For the Mediterranean Sea (area 37)

year, quarter, species, sub_region, metier, specon_tech

In more detail, the following procedure and equations were used:

Let the following notation be: D=discards, L= landings, *snf* = national fishery with a discard estimate from 0 to X, *unf* = non-sampled fishery without discard information.

The available landings and discards are aggregated (summed) over fisheries

- for all areas apart from the Mediterranean Sea, by year, quarter, species, sub_region, gear_type, mesh_size_range, target_assemblage, specon_tech
- for the Mediterranean Sea, by year, quarter, species, sub_region, metier, specon_tech

and mean discard rates DRare calculated:

$$DR = \frac{\sum_{snf} D_{snf}}{\sum_{snf} (L_{snf} + D_{snf})} \quad \text{if} \quad D_{snf} \geq 0 \quad \text{and with} \quad L_{snf} + D_{snf} > 0$$

Fisheries specific discard amounts are then calculated if no discard information is available by

$D_{unf} = \frac{L_{unf} \cdot DR}{(1-DR)}$ where D_{unf} is null (empty)

Fisheries without any quantitative discard information, i.e., no average DR could be estimated, remain without any discard estimation.

UK data were excluded from the calculations for the exemptions in the 2022 discard plans, as well as the fill-in procedure. For 2020, the data submitted in response to the data call, excluding UK data, amounted to 3,974,393 tonnes of landings, whereof 21% (827,214 tonnes) had associated discard estimates. 366,007 tonnes (9%) had a discard estimate of zero. Total landings, including the UK, amounted to 4,602,473 tonnes of landings, 19% of which (893,348 tonnes) were reported with associated discard estimates. 432,114 tonnes (9% of the total reported landings including UK) had discard estimates of zero. Despite the substantial issues mentioned above and the relatively low proportion of landings with associated discard estimates, the EWG took the decision to provide the discard information for each exemption in 2 separate formats: with and without fill-ins. In most cases, the fill-ins do not add a substantial amount of discard information or increase the coverage substantially. This again highlights the general issue that for several fisheries under exemptions, data from sampling was not sufficient to provide discard estimates, largely because observer programs undertaken under DCF national sampling programs are not designed to specifically sample fisheries under exemption or are anticipated to avail of a proposed exemption. To provide information about the accuracy of the discard's estimates reported and fill-ins, the coverage as percentage of landings with discards is provided in the data Tables (Annex 4).

3. The EWG notes that given the aggregation level of the data in the FDI database, it was not possible to filter the database to the exact fishing tactic specified for all the exemptions. For example, the mesh size categories specified in the FDI database do not always match those defined in certain exemptions. Also, area definitions in exemptions were sometimes too detailed (e.g., areas up to a certain longitude or latitude) to match with the aggregation level of the FDI database.

4. The EWG notes that it was sometimes unclear which gear types are under a certain exemption. Especially gear codes not allowed in the FDI data call, or very generic codes, are open for interpretation. Exemptions not mentioning specific gear codes are also problematic in this respect. The EWG further notes that the legal text defining the exemptions in the discard plans was difficult to interpret for some exemptions. It was not always clear if, for example, specified time periods refer to limits of the exemption itself or is simply describing when specific gears are allowed (e.g., new text for 2020/2014 Article 6.1 c ii).

5. The EWG further notes that all shortcomings in data quality and coverage identified under other ToRs, including issues related to the covid-19 pandemic, also apply to this TOR.

Extraction procedure

Information, related to certain exemptions was extracted in following steps:

1. All exemptions and their definitions were translated to FDI database codes (see Tables 3.5.2.1 - 3.5.2.5 for the list of FDI codes associated with exemptions);
2. Exceptions and their parts which contained information that could not be found in the FDI data call (i.e distance fished from shore, vessel engine power) are highlight in bold red in the summary tables (Tables 3.5.2.1 - 3.5.2.5). Those marked in bold red were either not estimated or estimated using partial data while ignoring missing information.
3. The data for each exemption were extracted from both the FDI database and the database with fill-ins using codes described in the Tables 3.5.2.1-3.5.2.5;
4. The information was summarised in two main formats:

a. Tables with landings and discards reported by MS and estimated for the fleets under exemptions (Annex 4, Tables 1-8)

b. Tables with FDI data reported and filled in aggregated by species and subregions (Annex 4, Tables 9-13)

In both sets of tables there are following columns:

- 'Total weight of landings, tonnes ' – total landings recorded in FDI database for particular exemption and species;
- Discards (with or without fill-inns) – weight of discards reported to FDI and estimated using fill-ins;
- Landings with discards reported/estimated – weight of landings associated with discards provided/estimated;
- 'Coverage % of total landings reported' - percentage of total weight of landings for which associated discard estimates data were reported under the FDI data call and estimated using fill-ins.
- Discard rate, % - calculated as discards divided by catch as %.

In all Annex 4 Tables the following abbreviations are used:

- c – data reported as confidential during the data call, if there are more than 4 métiers which are reported by a Member State as confidential, the data are considered not to be confidential after aggregation, as there would be no possibility to attribute the aggregate catches to identify individual vessels;
- n.a. – not available.

5.5.2 Discard estimates by exemption

The estimated discards for fleets likely to make use of anticipated exemptions to the landing obligation in 2022, the details of the anticipated exemptions and associated data availble are given for each region in sections 3.5.2.1 to 3.5.2.5 and in Annex 4 Tables 1-13.

5.5.2.1 Baltic Sea region

Table 3.5.2.1: The anticipated exemptions for discard plans for 2022 in the Baltic Sea region and the related FDI codes.

	2022													
	Exzmption Articla	Area	Possible or not	Fishing Techniques	Gear code	FDI gear code	Mesh size	Mesh size FDI	Vessel lenght	SPECON	arget Assemblag	Species	Species codes	Procent/MCRS
Survivability	*2018/211,Art3.1*	Baltic (IIIb-d)	Yes	trap nets-creels/pots-fyske nets-pound nets		FPO-FYK-FPN	All	All	All			Salmon	SAL	-
	2018/306	Baltic (IIIb-d)	Yes	trap nets-creels/pots-fyske nets-pound nets		FPO-FYK-FPN	All	All	All			Plaice	PLE	-
*MCRS**	*2018/211,Art3(2)*	Baltic (IIIb-d), 27.3.d.25-27.3.d.30 and 27.3.d.32	**Partly**			All	All	All	All			Salmon	SAL	60cm
		Baltic (IIIb-d), 27.3.d.31	**Partly**			All	All	All	All			Salmon	SAL	50 cm
	2018/306	Baltic (IIIb-d)	**Partly**			All	All	All	All			Cod	COD	35 cm
	2018/306	Baltic (IIIb-d)	**Partly**			All	All	All	All			Plaice	PLE	25 cm

* MCRS are partly because the extraction is not split up by lenght.

5.5.2.2 North Sea region

Table 3.5.2.2: The anticipated exemptions for discard plans for 2022 in the North Sea region and the related FDI codes.

		2022 - Part 1														
	Exemption Article	Area	Description	Possible or not	Fishing Techniques	Gear code	Below MCRS or not	FDI gear code	Mesh size	Mesh size FDI	Vessel lenght	SPECON	Target Assemblage	Species	Species codes	Procent/MCRS
Deminimis	*DR-2020/2014 Art.11.1*	IIa-IIIa-IV	De minimis exemption for fishing vessels using trammel nets and gill nets (GN-GNS-GND-GNC-GTN-GTR-GEN-GNF) in 2a, 3a and 4	Partly/Yes	Trammel nets and gill nets	GN-GNS-GND-GNC-GTN-GTR-GEN-GNF		GND-GNS-GNC-GTR-GTN	All	All	All		All	Sole	Sol	3%
	DR-2020/2014 Art.11.2	IV	De minimis exemption for fishing vessels using TBB gear 80-119 mm with Flemish panel in the Union waters of ICES subarea 4	Partly/Yes	Beam trawls	TBB	Yes Sole: 24 cm	TBB	80-119	80D100-100D110-110D120	All	TBBFP	All	Sole	SOL	5%
	DR-2020/2014 Art.11.3	IIIa	Fish bycatch caught in Noway lobster fishery with bottom trawls 70 mm or greater, sorting grid with max 35 mm in Union waters of ICES division 3a	Partly/Yes	Bottom trawls	OTB-OTT-TBN	Yes sole: 24cm - haddock: 27cm - whiting: 23cm - cod: 30cm - saithe: 30cm - hake: 30cm	OTB-OTT-PTB	70S90, 80D100	70S90	All	GRID35	CRU	Sole-haddock-whiting-cod-saithe and hake	SOL-HAD-WHG-COD-POK-HKE	4 % of the total annual catches of Nephrops-common sole-haddock-whiting-Northern prawn-cod-saithe and hake
	DR-2020/2014 Art.11.4	IIIa	Fish bycatch caught in Northern prawn trawl fishery with sorting grid-with unblocked fish outlet in Union waters of ICES division 3a	Partly/Yes	Bottom trawls	OTB-OTT	Yes sole: 24cm - haddock: 27cm - whiting: 23cm - cod: 30cm - plaice: 27cm - saithe: 30cm - herring: 18cm	OTB-OTT	>35	32D80	All	GRID19	CRU	sole-haddock-whiting-cod-saithe-plaice-herring-Norway pout-greater silver smelt-blue whiting	SOL-HAD-WHG-COD-POK-PLE-HER-NOP-ARG-ARU-ARY-WHB	5 % of the total annual catches of Norway lobster-common sole-haddock-whiting-cod-saithe-plaice-Northern prawn-hake-Norway pout-Argentina spp.-herring and blue whiting
	DR-2020/2014 Art.11.5	IIIa	Whiting caught in bottom trawls 90-119 mm with SELTRA panels and bottom trawls with a mesh size of 120 mm and above in Union waters of ICES division 3a	Partly/Yes	Bottom trawls	OTB-OTT-TBN-PTB	Yes whiting: 23cm	OTB-OTT-PTB	90-119	80D100-100D110-110D120	All	SELTRA	All	Whiting	WHG	2% of the total annual catches of Nephrops-cod-haddock-whiting-saithe-common sole-plaice and hake
									>=120	120DXX	All					
	DR-2020/2014 Art.11.6	IV	Plaice by-catches in the Nephrops trawl fishery in combination with a technical measure (use of SepNep) in the Union waters of ICES subarea 4	Yes	Bottom trawls		Yes plaice: 27 cm	OTB-OTT-PTB	80-99	80D100	All	SEPNEP	CRU	Plaice	PLE	3 % of the total annual catches of saithe-plaice-haddock-whiting-cod-Northern prawn-sole and Nephrops
	DR-2020/2014 Art.11.7	IVb-IVc	By-catches in the brown shrimp fishery with beam trawls in the Union Waters of ICES divisions 4b and 4c	Yes	Beam trawls	TBB	No	TBB		16D32	All		CRU	All species subject to catch limits	USK-HER-COD-LEZ-MON-ANF-MNZ-ANK-HAD-WHG-HKE-WHB-WIT-LEM-BLI-LIN-PLE-POL-POK-TUR-BLL-GHL-MAC-SOL-SPR-HOM-JAX-NOP-ARG-ARU-NEP-PRA-JAD-JDP-RJA-RJB-RJC-RJE-RJF-RJG-RJH-RJI-RJM-RJN-RJO-RJR-RJU-RJY-SKA-TTO-TTR-SRX-RAJ-RJK	6 % of the total catch for **all species subject to catch limits** in those fisheries
	DR-2020/2014 Art.11.8	IV	Ling (Molva molva) for vessels using bottom trawls (OTB,OTT,PTB) with mesh size greater than 120 mm in the Union Waters of ICES subarea 4	Partly/Yes	Bottom trawls	OTB-OTT-PTB	Yes ling: 63 cm	OTB-OTT-PTB	>=120	120DXX	All		All	Ling	LIN	3 % of the total annual catches of ling
	DR-2020/2014 Art.11.9	IVc	Whiting and cod for the vessels using bottom trawls or seines (OTB-OTT-SDN-SSC) of mesh size 70-99mm (TR2) in the Union Waters of ICES division 4c	Partly/Yes	Bottom trawls-demersal seines	OTB-OTT-SDN-SSC	Yes whiting: 27 cm - cod: 35 cm	OTB-OTT-SDN-SSC	70-99	70S90-80D100	All		All	Whiting-cod	WHG-COD	5%-maximum of 2% can be used for cod
	DR-2020/2014 Art.11.10	IVa-IVb	Whiting and cod for the vessels using bottom trawls or seines (OTB-OTT-SDN-SSC) of mesh size 70-99mm (TR2) in the Union Waters of ICES division 4a and 4b	Partly/Yes	Bottom trawls or seines	OTB-OTT-SDN-SSC	Yes whiting: 27 cm	OTB-OTT-SDN-SSC	70-99	70S90-80D100	All		All	Whiting	WHG	4%

Table 3.5.2.2 (continued): The anticipated exemptions for discard plans for 2022 in the North Sea region and the related FDI codes.

		2022 - Part 2														
	Exemption Article	Area	Description	Possible or not	Fishing Techniques	Gear code	Below MCRS or not	FDI gear code	Mesh size	Mesh size FDI	Vessel lenght	SPECON	Target Assemblage	Species	Species codes	Procent/MCRS
Deminimis	*DR-2020/2014 Art.11.11*	IV	Whiting caught by beam trawls 80-119 mm in the Union Waters of ICES subarea 4	Partly/Yes	Beam trawls	TBB	Yes whiting: 27 cm	TBB	80-119	80D100-100D110-110D120	All		All	Whiting	WHG	2% of catches of plaice and sole
	DR-2020/2014 Art.11.12	IVb-IVc (only south of 54°N)	De minimis exemption for fishing vessels using pelagic trawlers up to 25 m and mid-water trawls (OTM-PTM) in 4b and 4c **south of 54 degrees** north	**Partly**	Pelagic trawls, midwater trawls (up to 25m)	OTM-PTM	No	OTM-PTM	All	All	VL0010-VL1012-VL1218-VL1824	All	All	Herring-horse mackerel-mackerel-whiting	HER-HMM-JAX-HOM-HMC-HMZ-HMG-TUZ-MAC-WHG	1% of the total catches of herring-horse mackerel-mackerel-whiting
	DR-2020/2014 Art.11.13	IIIa-IV	Fish bycatch caugt in demersal mixed fishery with trawl (OTB-OTM-OTT-PTB-PTM-SDN-SPR-SSC-TB-TBN) with mesh obove 80 mm **and** caught in Northern prawn trawl fishery with sorting grid (19mm) or device above 35 mm in ICES division 3a and ICES subarea 4	Yes	Trawls	OTB-OTM-OTT-PTB-PTM-SDN-SPR SSC-TB-TBN	No	OTB-OTT-PTB-SDN-SSC-OTM-PTM-SPR	>80	80D100-100D110-110D120-120DXX	All		All	Sprat-sandeel-Norway pout-blue whiting	SPR-SAN-NOP-WHB	1 % of the total annual catches made in mixed demersal fishery and fishery for Northern prawn
								OTB-OTT	>35	32D80	All	No SPECOM*	CRU			
	DR-2020/2014 Art.11.14	IV	Ling (Molva molva) for vessels using longlines (LLS) in ICES subarea 4	Partly/Yes	Longlines	LLS	Yes ling: 63 cm	LLS			All			Ling	LIN	3 % of the total annual catches of ling
	DR-2020/2014 Art.11.15	IVb-IVc	Horse mackerel in demersal mixed fishery using bottom trawls (OTB-OTT-PTB) with a mesh size 80-99mm (TR2) in ICES divisions 4b and 4c	Yes	Bottom trawls	OTB-OTT-PTB	No	OTB-OTT-PTB	80-99	80D100	All			Horse mackerel	HOM-JAX-HMG	6% of the total annual catches of horse mackerel
	DR-2020/2014 Art.11.16	IVb-IVc	Mackerel in demersal fishery with bottom trawls (OTB-OTT-PTB) of mesh size 80-99mm (TR2) in ICES divisions 4b and 4c	Yes	Bottom trawls	OTB-OTT-PTB	No	OTB-OTT-PTB	80-99	80D100	All			Mackerel	MAC	6% of the total annual catches of mackerel
	DR-2020/2014 Art.11.17	IV	Blue whiting in **industrial pelagic trawler fishery** in ICES subarea 4	**Partly**	Pelagic trawl		No	OTM-PTM		All	All		SPF-SLP	Blue whiting	WHB	5 % of the total annual catches of blue whiting

* This exemption (Art.11.13) only includes the part of the Northern prawn fishery that does not have a SPECON. The SPECON "GRID19" refers to Northern prawn trawls with a sorting grid and an unblocked fish outlet, i.e. the fish retention device is absent/inactive, while the combination of sorting grid-fish retention device does currently not have a SPECON. (The Northern prawn fishery with "GRID19" is included in Art.11.4 for some of the species included in this exemption).

Table 3.5.2.2 (continued): The anticipated exemptions for discard plans for 2022 in the North Sea region and the related FDI codes.

		2022 - Part 3													
	Exemption Article	Area	Description	Possible or not	Fishing Techniques	Gear code	Below MCRS or not	FDI gear code	Mesh size	Mesh size FDI	Vessel lenght	SPECON	Target Assemblage	Species	Species codes	Procent/MCRS
Survivability	*DR-2020/2014 Art.3.1.a*	IIa-IIIa-IV	Nephrops caught using pots	Yes	Pots	FPO	No	FPO	NA	NA	All			Norway lobster	NEP	-
	DR-2020/2014 Art.3.1.b.i & ii	IIa-IIIa-IV	Nephrops caught by bottom trawls with a cod end larger than 80mm or 70mm with selective grid 35mm	Yes	Bottom trawls	OTB-OTT-TBN	No	OTB-OTT-PTB	>80	80D100-100D110-110D120-120DXX	All	All	All	Norway lobster	NEP	-
									>70	70S90	All	GRID35				
	DR-2020/2014 Art.4.1&2	IVc	Survival exemption for 'undersized' common sole (sole less than MCRS of 24cm) caught by 80-99mm otter trawl gears in ICES division 4c **within 6 nautical miles of coasts-albeit outside identified nursery areas**; vessellengt max 10 m and **max engine power of 221 kw, depth less 30 m and tow duration less then 1:30 hours**	**Partly**	Otter trawls	OTB	Yes Sole: 24 cm	OTB	80-99	80D100	VL0010		All	Sole	SOL	-
	DR-2020/2014 Art.5	IIIa-IV	Survivability of fish by-catches in pots and fyke nets in the Union waters of ICES division 3a and ICES subarea 4	Yes	Pots and fyke nets	FPO-FYK	No	FPO-FYK	NA	NA	All		All	All TAC-species	**Area IV**: USK-HER-COD-LEZ-MON-ANF-MNZ-ANK-HAD-WHG-HKE-WHB-WIT-LEM-BLI-LIN-PLE-POL-POK-TUR-BLL-GHL-MAC-SOL-SPR-HOM-JAX-NOP-ARG-ARU-NEP-PRA-JAD-JDP-RJA-RJB-RJC-RJE-RJF-RJG-RJH-RJI-RJM-RJN-RJO-RJR-RJU-RJY-SKA-TTO-TTR-SRX-RAJ-RJK **Area IIIa**: USK-HER-COD-HAD-WHG-HKE-WHB-BLI-LIN-PLE-POL-POK-MAC-SOL-SPR-NOP-ARG-ARU-NEP-PRA-RJK-RAJ-SRX-SKA-JAD-JDP-RJA-RJB-RJC-RJE-RJF-RJG-RJH-RJI-RJM-RJN-RJO-RJR-RJU-RJY-TTO-TTR	-
	DR-2020/2014 Art.6.1.a	IIIa-IV	Catch and by-catch of plaice by vessels using nets (GNS-GTR-GTN-GEN) in Union waters of ICES devision 3a and subarea 4	Yes	Nets	GNS-GTR-GTN-GEN	No	GNS-GTR-GTN	All	All	All		All	Plaice	PLE	-
	DR-2020/2014 Art.6.1.b		Catch and by-catch of plaice by vessels using Danish seines in Union waters of ICES devision 3a and subarea 4	Yes	Danish seine	SDN	No	SDN		All	All			Plaice	PLE	-
	DR-2020/2014 Art.6.1.c.i		Catch and by-catch of plaice by vessels using bottom trawls (OTB-PTB) of mesh sizes ≥ 120 mm in Union waters of ICES devision 3a and subarea 4	Yes	Bottom trawls	OTB-PTB	No	OTB-OTT-PTB	>=120	120DXX	All		All	Plaice	PLE	-
	DR-2020/2014 Art.6.1.c.ii	IIIa	Catch and by-catch of plaice with bottom trawls (OTB-PTB) with mesh size 90-119 mm with Seltra panel **or in sub-division Kattegat (1 Oct-31 Dec)**, targetting flatfish or roundfish in Union waters of ICES division 3a	Partly	Trawls	OTB-PTB	No	OTB-OTT-PTB	90-119	80D100-100D110-110D120	All	SELTRA in 3.a.20, SELTRA and No specon in 3.a.21	All	Plaice	PLE	-
	DR-2020/2014 Art.6.1.c.iii	IV	Catch and by-catch of plaice with bottom trawls (OTB-PTB) with mesh size 80-119 mm targetting flatfish or roundfish in the Union waters of ICES subareas 4	Yes	Trawls	OTB-PTB	No	OTB-OTT-PTB	80-119	80D100-100D110-110D120	All		All	Plaice	PLE	-

Table 3.5.2.2 (continued): The anticipated exemptions for discard plans for 2022 in the North Sea region and the related FDI codes.

		2022 - Part 4													
	Exemption Article	Area	Description	Possible or not	Fishing Techniques	Gear code	Below MCRS or not	FDI gear code	Mesh size	Mesh size FDI	Vessel lenght	SPECON	Target Assemblage	Species	Species codes	Procent/MCRS
Survivability	*DR-2020/2014 Art.7.1.a*	IIa-IV	Survival exemption for plaice below MCRS caught by 80-119mm beamtrawl gears (BT2) in ICES devision 2a and Ices subarea 4 with **flip-up rope or Benthos release panel (BRP) - engine >221 kW**	**Partly**	Beam trawls	TBB	YesPlaice: 27 cm	TBB	80-119	80D100-100D110-110D120	All		All	Plaice	PLE	-
	DR-2020/2014 Art.7.1.b	IIa-IV	Survival exemption for plaice below MCRS caught by 80-119mm beamtrawl gears (BT2) in ICES division 2a and ICES subarea 4 **implementing the roadmap for the Fully Documented** Fisheries	**No (included in DR-2020/2014.Art.7.1.a)**	Beam trawls	TBB	YesPlaice: 27 cm	TBB	80-119	80D100-100D110-110D120	All		All	Plaice	PLE	-
	DR-2020/2014 Art.7.2	IIa-IV	Survival exemption for plaice below MCRS caught by 80-119mm beamtrawl gears (BT2) in ICES division 2a and Ices subarea 4 with **engine <221 kW or less then 24m in twelve miles zone and tow duration less than ninety min.**	**No**	Beam trawls	TBB	YesPlaice: 27 cm	TBB	80-119	80D100-100D110-110D120	All		All	Plaice	PLE	-
	DR-2020/2014 Art.8	IV	Survival exemption for turbot caught by beam trawls with a cod end larger than 80mm in Union waters of ICES subarea 4	Yes	Beam trawls	TBB	No	TBB	>80	80D100-100D110-110D120-120DXX	All		All	Turbot	TUR	-
	DR-2020/2014 Art.9	IIa-IIIa-IV	skates and rays caught by all fishing gears in the Union waters of the North Sea (ICES divisions 2a,3a and subarea 4)	Yes	All	All	No	All	All	All	All		All	Skates and rays	JAD-JDP-RJA-RJB-RJC-RJE-RJF-RJG-RJH-RJI-RJM-RJN-RJO-RJR-RJU-RJY-SKA-TTO-TTR-SRX-RAJ-RJK	-
	DR-2020/2014 Art.10	IIa-IIIa-IV	Survival exemption for mackerel and herring in purse seine fisheries in the Union waters of the North Sea (ICES divisions 2a,3a and subarea 4) **with several operational measures**	**Partly**	Purse seine		No	SDN-SPR-SSC-SV-PS	All	All	All		All	Mackerel-herring	MAC-HER	-

5.5.2.3 North Western Waters

Table 3.5.2.3: The anticipated exemptions for discard plans for 2022 in the North Western Waters region and the related FDI codes.

		2022 - part 1													
	Exemption Article	Area	Possible or not	Fishing Techniques	Gear code	Below MCRS or not	FDI gear code	Legislation mesh size	Mesh size regulation	Vessel lenght	SPECON	Target Assemblage	Species	Species codes	Procent/MCRS
Deminimis	2020/2015 Article 13.1.a	VIIb-k	yes	Bottom trawls , Seines	OTB-OTT-OT-PTB-PT-SSC-SDN-SPR-SX-SV-TBN-TBS-TB-TX	No	OTB-OTT-PTB-SDN-SPR-SSC-SV-SB	>80	80D100-100D110-110D120 -120DXX	All	All	All	Whiting	WHG	5
			yes	Pelagic trawls	OTM-PTM	No	OTM-PTM	All	All	All	All	All	Whiting	WHG	5
			yes	Beam trawl	BT2	No	TBB	80-119	80D100-100D110-110D120	All	All	All	Whiting	WHG	5
	2020/2015 Article 13.1.b	VIId-g	yes	Trammel and gill nets	GN-GNS-GND-GNC-GTN-GTR-GEN-GNF	No	GND-GNS-GNC-GTR-GTN	All	All	All	All	All	Sole	SOL	3
	2020/2015 Article 13.1.c	VIId-h	yes	Beam trawl	TBB	No	TBB	80-119	80D100-100D110-110D120	All	TBBFP	All	Sole	SOL	3
	2020/2015 Article 13.1.d.i	VIIb-c and VIIe-k	**Partly**	Bottom trawls , Seines, **less then 30% Nephrops**	OTB-OTT-OT-PTB-PT-SSC-SDN-SPR-SX-SV-TBN-TBS-TB-TX	No	OTB-OTT-PTB-SDN-SPR-SSC-SV-SB	>100	100D110-110D120 -120DXX	All	All	All	Haddock	HAD	5
	2020/2015 Article 13.1.d.ii		**Partly**	Bottom trawls , Seines, **more then 30% Nephrops**		No	OTB-OTT-PTB-SDN-SPR-SSC-SV-SB	>80	80D100-100D110-110D120 -120DXX	All	All	All	Haddock	HAD	5
	2020/2015 Article 13.1.d.iii		yes	Beam trawl with Flemish panel	TBB	No	TBB	>80	80D100-100D110-110D120 -120DXX	All	TBBFP	All	Haddock	HAD	5
	2020/2015 Article 13.1.e	VIIa	Partly/Yes	Beam trawl, targetting brown shrimp with mesh size equal to or greater than 31 mm	TBB	Yes plaice: 27 cm - whiting: 27 cm	TBB	>31	32D80-70D80-80D100-100D110-110D120 -120DXX	All	All	CRU	Plaice	PLE	0.85
													Whiting	WHG	0.15
	2020/2015 Article 13.1.f	VIIb-c and VIIf-k	yes	Bottom trawls	OTT-OTB-TBS-TBN-TB-PTB	No	OTB-OTT-PTB	All	All	All	All	All	Boarfish	BOR-BOC-ZAC-ZAI-EVI-PZH-RIG-SWH-ENV-EMV-ZAL	0.5
	2020/2015 Article 13.1.g	VII	Partly/yes	Beam trawl	BT2	Yes Megrim: 20 cm	TBB	80-119	80D100-100D110-110D120	All	All	All	Megrim	MEG-LDB-LEZ	4
	2020/2015 Article 13.1.g.i	VIIf-g, **specific parts** of 7h	**Partly**	Bottom trawls, more 55% whiting or 55% anglerfish, hake or megrim combined	OTT-OTB-TBS-TBN-TB-PTB-OT-PT-TX	Yes Megrim: 20 cm	OTB-OTT-PTB	70-99	80D100-70D80	All	All	All	Megrim	MEG-LDB-LEZ	4
	2020/2015 Article 13.1.g.ii	VIIa-e, **other specific parts** of 7h, VIIk	**Partly**	Bottom trawls **and outside areas as above**	OTT-OTB-TBS-TBN-TB-PTB-OT-PT-TX	Yes Megrim: 20 cm	OTB-OTT-PTB	70-99	80D100-70D80	All	All	All	Megrim	MEG-LDB-LEZ	4

Table 3.5.2.3 (continued): The anticipated exemptions for discard plans for 2022 in the North Western Waters region and the related FDI codes.

		2022 - part 2													
	Exemption Article	Area	Possible or not	Fishing Techniques	Gear code	Below MCRS or not	FDI gear code	Legislation mesh size	Mesh size regulation	Vessel lenght	SPECON	Target Assemblage	Species	Species codes	Procent/MCRS
Deminimis	2020/2015 Article 13.1.h	VIIa	yes	Beam trawl with Flemish panel	BT2	No	TBB	80-119	80D100-100D110-110D120	All	TBBFP	All	Sole	SOL	3
	2020/2015 Article 13.1.i	Vb-VI	**Partly (0.6% of catches from all gears)**	Bottom trawls	OTT-OTB-TBS-TBN-TB-PTB-OT-PT-TX	No	OTB-OTT-PTB	>100	100D110, 110D120, 120DXX	All	All	All	Great silver smelt	ARG-ARU-ARY	0.6
	2020/2015 Article 13.1.j	VI and VIIb-k	yes	Bottom trawls , Seines, beam trawls	OTB-OTT-OT-PTB-PT-SSC-SDN-SPR-SX-SV-TBB-TBN-TBS-TB-TX	No	OTB-OTT-PTB-SDN-SPR-SSC-SV-SB-TBB	All	All	All	All	All	Horse Mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	3
	2020/2015 Article 13.1.k		yes	Bottom trawls , Seines, beam trawls	OTB-OTT-OT-PTB-PT-SSC-SDN-SPR-SX-SV-TBB-TBN-TBS-TB-TX	No	OTB-OTT-PTB-SDN-SPR-SSC-SV-SB-TBB	All	All	All	All	All	Makerel	MAC	3
	2020/2015 Article 13.1.l	VIa	**Partly**	Bottom trawls, with one of the following selective gears: **square mesh panel 300 mm; 200 mm and vessel > 12 m;** Seltra panel; Sorting grid 35 mm; CEFAS-netgrid;Flip-flap trawl	OTT-OTB-TBS-TBN-TB	Yes Haddock: 30 cm	OTB-OTT-PTB	<119	32D70 - 70D80 - 80D100-100D110-110D120	All	GRID35-TBBFP-SELTRA-NETGRID-SEPNEP	All	Haddock	HAD	3
	2020/2015 Article 13.1.m	Vb-VI-VII	yes	Industrial pelagic trawls		No	OTM-PTM	All	All	All	All	All	Blue whiting	WHB	5
	2020/2015 Article 13.1.n	VII	yes	midwater pair trawl	PTM	No	PTM	All	All	All	All	All	Albacore tuna	ALB	
	2020/2015 Article 13.1.o	VIId	yes	Pelagic trawls, midwater trawls (up to 25m)	OTM-PTM	No	OTM-PTM	All	All	VL0010-VL1012-VL1218-VL1824	All	All	Mackerel	MAC	1
			yes									All	Horse Mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	
			yes									All	Herring	HER	
			yes									All	Whiting	WHG	

Table 3.5.2.3 (continued): The anticipated exemptions for discard plans for 2022 in the North Western Waters region and the related FDI codes.

		2022 - part 3													
	Exemption Article	Area	Possible or not	Fishing Techniques	Gear code	Below MCRS or not	FDI gear code	Legislation mesh size	Mesh size regulation	Vessel lenght	SPECON	Target Assemblage	Species	Species codes	Procent/MCRS
Survivability	2020/2015 Article 3.1.a	VI-VII	Yes	Pots,traps,creel	FPO-FIX-FYK	No	FPO-FPN-FYK	All	All	All	All	All	Norway Lobster	NEP	-
	2020/2015 Article 3.1.b	VII	Yes	Bottom trawls	OTT-OTB-TBS-TBN-TB-PTB-OT-PT-TX	No	OTB-OTT-PTB	>100	100D110, 110D120, 120DXX	All	All	All	Norway Lobster	NEP	-
	2020/2015 Article 3.1.c	VII	**Partly**	Bottom trawls, with one of the following selective gears: **square mesh panel 300 mm; 200 mm and vessel > 12 m**; Seltra panel; Sorting grid 35 mm; **100 mm cod-end, dual cod-end < 90 mm/300 mm**	OTT-OTB-TBS-TBN-TB-PTB-OT-PT-TX	No	OTB-OTT-PTB	70-99	70D80-80D100	All	GRID35-TBBFP-SELTRA-NETGRID-SEPNEP-T90	All	Norway Lobster	NEP	-
	2020/2015 Article 3.1.d	VIa - **within 12 NM**	**No**	Otter trawls	OTT-OTB-TBS-TBN-TB-PTB-OT-PT-TX	No	OTT-OTB-OTM	80-110	80D100,100D110	All	All	All	Norway Lobster	NEP	-
	2020/2015 Article 3.2	Celtic protection zone (BSA)	**Partly**	Bottom trawls, with one of the following selective gears: **square mesh panel 300 mm; 200 mm and vessel > 12 m**; Seltra panel; Sorting grid 35 mm; **100 mm cod-end, dual cod-end < 90 mm/300 mm**	OTT-OTB-TBS-TBN-TB-PTB-OT-PT-TX	No	OTB-OTT-PTB	70-99	70D80-80D100	All	GRID35-SELTRA-NETGRID-SEPNEP-T90	All	Norway Lobster	NEP	-
	2020/2015 Article 3.3	VIIa	Partly	Bottom trawls, with one of the following selective gears: **square mesh panel 300 mm; 200 mm and vessel > 12 m**; Seltra panel; Sorting grid 35 mm; CEFAS-netgrid;Flip-flap trawl							GRID35-TBBFP-SELTRA-NETGRID-SEPNEP	All			
	2020/2015 Article 4.1.a,b	VIId	No	Otter trawls, **within 6 nautical miles, max power 221kW, max 10 m, depth 30m, duration 1:30 h**	OTT-OTB-TBS-TBN-TB-PTB-OT-PT-TX	Yes: sole 24 cm	OTT-OTB-OTM	80-99	80D100	VL0010	All	All	Sole	SOL	-
	2020/2015 Article 5	VI-VII	Yes	All	All	No	All	All	All	All	All	All	Skates & rays	SRX-JAD-JDP-RJA-RJB-RJC-RJE-RJF-RJG-RJH-RJI-RJM-RJN-RJO-RJR-RJU-RJY-SKA-TTO-TTR	-
	2020/2015 Article 6.1.a	VIId-VIIg	Yes	Trammel nets	GTR-GTN-GEN-GN	No	GND-GNS-GNC-GTR-GTN	All	All	All	All	All	Plaice	PLE	-
	2020/2015 Article 6.1.b		Yes	Otter trawls	OTT,OTB,TBS,TBN,TB,PTB,OT,PT,TX	No	OTT-OTB-OTM	All	All	All	All	All	Plaice	PLE	-
	2020/2015 Article 6.1.c	VIIa-VIIg	**Partly**	Beam trawl, **max power 221 kW**, flip-up or bentic panel	TBB	No	TBB	All	All	All	SELTRA-GRID35	All	Plaice	PLE	-
	2020/2015 Article 6.1.d	VIIa-VIIg	**Partly**	Beam trawl, **max power 221 kW**, or max 24m, **within 12 nm, duration 1:30 h**	TBB	No	TBB	All	All	All	All	All	Plaice	PLE	-
	2020/2015 Article 6.1.e	VIId	Yes	Danish seines	SDN	No	SDN	All	All	All	All	All	Plaice	PLE	-
	DA 2021/xxx Article 6.1.f	VIIb-k	Yes	Seines	SSC	No	SSC	All	All	All	All	All	Plaice	PLE	-
	2020/2015 Article 7	V (excl Va)-Vb-VI-VII	Yes	Pots,traps,creel	FPO-FIX-FYK	No	FPO-FPN-FYK	All	All	All	All	All	All	All	-
	2020/2015 Article 8	VI	Yes	Purse seine with several operational measures		No	SDN-SPR-SSC-SV	All	All	All	All	All	Mackerel-herring	MAC-HER	-

5.5.2.4 South Western Waters

Table 3.5.2.4: The anticipated exemptions for discard plans for 2022 in the South Western Waters region and the related FDI codes.

		2022 part 1												
	Exemption Article	Area	Possible or not	Fishing Techniques	Gear code	FDI gear code	Mesh size	Mesh size FDI	Vessel lenght	SPECON	Target Assemblage	Species	Species codes	Procent/MCRS
Deminimis	*2020/2015 Article 14.1.a*	VIII-IX	yes	Trawls and seines	OTM-PTM-OTT-OTB-PTB-OT-PT-TBN-TBS-TX-SSC-SPR-TB-SDN-SX-SV	OTT-OTB-PTB-OTM-PTM-SDN-SPR-SSC-SV-SB	All	All	All	All	All	Hake	HKE	5
	2020/2015 Article 14.1.b	VIIIa-VIIIb	yes	Pelagic trawls, beam and bottom trawls	OTM-PTM-TBB-OTB-OTT-PTB-TBN-TBS-TBB-OT-PT-TX	OTM-PTM-TBB-OTB-OTT-PTB	All	All	All	All	All	Sole	SOL	5
	2020/2015 Article 14.1.c		yes	Trammel and gill nets	GNS-GN-GND-GNC-GTN-GTR-GEN	GNS-GND-GNC-GTN-GTR	All	All	All	All	All			3
	2020/2015 Article 14.1.d	X	yes	Hooks and lines	LHM-LHP-LLD-LLS	LHM-LHP-LLD-LLS	All	All	All	All	All	Alfonsinos	ALF-BRX	5
	2020/2015 Article 14.1.e	VIII-IX	yes	Beam trawls, bottom trawls and seines	OTB-OTT-PTB-TBN-TBS-TBB-OT-PT-TX-SSC-SPR-SDN-SX-SV	TBB-OTT-OTB-PTB-SDN-SPR-SSC-SV-SB	All	All	All	All	All	Horse Mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	5
	2020/2015 Article 14.1.f	VIII-IX-X-CECAF 34.1.1-34.1.2-34.2.0	yes	Gillnets	GNS-GND-GNC-GTN-GTR	GNS-GND-GNC-GTN-GTR	All	All	All	All	All			3
	2020/2015 Article 14.1.g	VIII-IX	yes	Beam trawls, bottom trawls and seines	OTB-OTT-PTB-TBN-TBS-TBB-OT-PT-TX-SSC-SPR-SDN-SX-SV	TBB-OTT-OTB-PTB-OTM-PTM-SDN-SPR-SSC-SV-SB	All	All	All	All	All	Mackerel	MAC	5
	2020/2015 Article 14.1.h	VIII-IX-CECAF 34.1.1-34.1.2-34.2.0	yes	Gillnets	GNS-GND-GNC-GTN-GTR	GNS-GND-GNC-GTN-GTR	All	All	All	All	All	Mackerel	MAC	3
	2020/2015 Article 14.1.i	VIII-IX	yes	Beam trawls, bottom trawls and seines	OTB-OTT-PTB-TBN-TBS-TBB-OT-PT-TX-SSC-SPR-SDN-SX-SV-SB	TBB-OTT-OTB-PTB-OTM-SDN-SPR-SSC-SV	All	All	All	All	All	Megrim	MEG-LDB-LEZ	5
	2020/2015 Article 14.1.j		yes	Gillnets	GNS-GND-GNC-GTN-GTR	GNS-GND-GNC-GTN-GTR	All	All	All	All	All			4
	2020/2015 Article 14.1.K		yes	Pelagic trawls, beam, bottom trawls and seines	OTM-PTM-TBB-OTB-OTT-PTB-TBN-TBS-TBB-OT-PT-TX-SSC-SPR-SDN-SX-SV	OTM-PTM-TBB-OTB-OTT-PTB-SDN-SPR-SSC-SV-SB	All	All	All	All	All	Anglerfish	MON-ANK-ANG-MVA-MVO-MVJ-MVN-MNZ-LHS-LHU-KZZ-IDZ-IVV-ANF	5
	2020/2015 Article 14.1.L		yes	Gillnets	GNS-GND-GNC-GTN-GTR	GNS-GND-GNC-GTN-GTR	All	All	All	All	All			4

Table 3.5.2.4 (continued): The anticipated exemptions for discard plans for 2022 in the South Western Waters region and the related FDI codes.

		2022 part 2												
	Exemption Article	Area	Possible or not	Fishing Techniques	Gear code	FDI gear code	Mesh size	Mesh size FDI	Vessel lenght	SPECON	Target Assemblage	Species	Species codes	Procent/MCRS
Deminimis	*2020/2015 Article 14.1.m*	VIII	yes	Pelagic trawls, beam, bottom trawls and seines	OTM-PTM-TBB-OTB-OTT-PTB-TBN-TBS-TBB-OT-PT-TX-TM-SSC-SPR-SDN-SX-SV	OTM-PTM-TBB-OTB-OTT-PTB-SDN-SPR-SSC-SV-SB	All	All	All	All	All	Whiting	WHG	5
	2020/2015 Article 14.1.n		yes	Gillnets	GNS-GND-GNC-GTN-GTR	GNS-GND-GNC-GTN-GTR	All	All	All	All	All			4
	2020/2015 Article 14.1.o	VIII-IX	yes	Beam trawls, bottom trawls and seines	OTB-OTT-PTB-TBN-TBS-TBB-OT-PT-TX-SSC-SPR-SDN-SX-SV	TBB-OTT-OTB-PTB-OTM-PTM-SDN-SPR-SSC-SV-SB	All	All	All	All	All	Anchovy	ANE	5
	2020/2015 Article 14.1.p	**IXa in Gulf of Cadiz**	**No**	Beam trawls, bottom trawls and seines	OTB-OTT-PTB-TBN-TBS-TBB-OT-PT-TX-TB-SSC-SPR-SDN-SX-SV	TBB-OTT-OTB-PTB-OTM-PTM-SDN-SPR-SSC-SV-SB	All	All	All	All	All	Red seabream	SBR	5
	2020/2015 Article 14.1.q	**IXa in Gulf of Cadiz**	**No**	Beam trawls, bottom trawls and seines	OTB-OTT-PTB-TBN-TBS-TBB-OT-PT-TX-TB-SSC-SPR-SDN-SX-SV	TBB-OTT-OTB-PTB-OTM-PTM-SDN-SPR-SSC-SV-SB	All	All	All	All	All	Sole	SOL	1
	2020/2015 Article 14.1.r	VIII	**Partly(Surimi base)**	Industrial pelagic trawl fishery using midwater trawls and midwater pair trawls	OTM-PTM	OTM-PTM	All	All	All	All	SPF-SLP	Blue whiting	WHB	5
	2020/2015 Article 14.1.s		yes	Midwater trawls and midwater pair trawls	OTM-PTM	OTM-PTM	All	All	All	All	All	Albacore tuna	ALB	5
	2020/2015 Article 14.1.t		yes	Pelagic trawls	OTM-PTM	OTM-PTM	All	All	All	All	All	Anchovy	ANE	4
	2020/2015 Article 14.1.t						All	All	All	All	All	Mackerel	MAC	
	2020/2015 Article 14.1.t						All	All	All	All	All	Horse Mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	
	2020/2015 Article 14.1.u	VIII-IX-X-CECAF 34.1.1-34.1.2-34.2.0	yes	Purse seines	PS	PS	All	All	All	All	All	Anchovy	ANE	1
	2020/2015 Article 14.1.u		yes		PS	PS	All	All	All	All	All	Mackerel	MAC	4
	2020/2015 Article 14.1.u		yes		PS	PS	All	All	All	All	All	Horse mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	

Table 3.5.2.4 (continued): The anticipated exemptions for discard plans for 2022 in the South Western Waters region and the related FDI codes.

		2022 part 3												
	Exemption Article	Area	Possible or not	Fishing Techniques	Gear code	FDI gear code	Mesh size	Mesh size FDI	Vessel lenght	SPECON	Target Assemblage	Species	Species codes	Procent/MCRS
Survivability	*2018/188 Article 2*	VIII-IX-X-CECAF 34.1.1-34.1.2-34.2.0	no	Artisanal purse seine	-	SB	All	All	All	All	All	Anchovy	ANE	-
	2018/188 Article 2		no		-	SB	All	All	All	All	All	Horse Mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	-
	2018/188 Article 2		no		-	SB	All	All	All	All	All	Jack Mackerel	JAA	-
	2018/188 Article 2		no		-	SB	All	All	All	All	All	Mackerel	MAC	-
	2020/2015 Article 9	VIII-IX	yes	Bottom trawls	OTB-OTT-PTB-TBN-TBS-TBB-OT-PT-TX	OTB-OTT-PTB-OTM-PTM-TBB	All	All	All	All	All	Norway Lobster	NEP	-
	2020/2015 Article 10.1	VIII-IX	yes	All	-	All	All	All	All	All	All	Skates & rays	SRX-JAD-JDP-RJA-RJB-RJC-RJE-RJF-RJG-RJH-RJI-RJM-RJO-RJR-RJU-RJY-SKA-TTO-TTR	-
	2020/2015 Article 10.4.a	VIII-IX	yes	Trammel nets	-	GNS-GND-GNC-GTN-GTR	All	All	All	All	All	Cukoo ray	RJN	-
	2020/2015 Article 10.4.b	VIII	yes	Bottom trawls		OTB-OTT-PTB-OTM-PTM-TBB	All	All	All	All	All	Cukoo ray	RJN	-
	2020/2015 Article 11	IXa	No	Artisanal gear voracera	-	SB	All	All	All	All	All	Red seabream	SBR	-
		VIII-IXa-X	yes	Hooks and lines	LHM-LHP-LLD-LLS	LHM-LHP-LLD-LLS-LTL	All	All	All	All	All	Red seabream	SBR	-
	2020/2015 Article 12	VIII-IX-X-CECAF 34.1.1-34.1.2-34.2.0	No	Purse seine with net not fully taken on board	PS	SDN-SPR-SSC-SV	All	All	All	All	All	Anchovy- horse mackerel - mackerel	ANE-HMM-JAX-HOM-HMC-HMZ-HMG-TUZ-MAC	-

5.5.2.5 Mediterranean Sea

Table 3.5.2.5: The anticipated exemptions for discard plans for 2022 in the Mediterranian Sea region and the related FDI codes.

		2022 - Part 1									
	Exemption Article	Area	Possible or not	Fishing Techniques	Gear code	FDI gear code	Mesh size	Vessel lenght	Species	Species codes	Procent/MCRS
Deminimis	*DA 2021/xxx, Adriatic and south-eastern Med - Article 3 (a) i*	Adriatic Sea (GSA17-GSA18)	yes	bottom trawls		OTB-OTT-PTB	All	All	Hake	HKE	5
			yes				All	All	Mullets	MUT-MUX-MUM	
	DA 2021/xxx, Adriatic and south-eastern Med - Article 3 (a) ii		yes	Gill nets and and trammel nets	GNS-GN-GND-GNC-GTN-GTR-GEN	GND-GNS-GNC-GTR-GTN	All	All	Hake	HKE	1
			yes				All	All	Mullets	MUT-MUX-MUM	
	DA 2021/xxx, Adriatic and south-eastern Med - Article 3 (a) iii		yes	Rapido	TBB	TBB	All	All	Hake	HKE	1
			yes				All	All	Red mullet	MUT-MUX-MUM	
	DA 2021/xxx, Adriatic and south-eastern Med - Article 3 (a) iv		yes	bottom trawls		OTB-OTT-PTB	All	All	Sole	SOL	3
	DA 2021/xxx, Adriatic and south-eastern Med - Article 3 (a) v		yes				All	All	European seabass	BSS	5
			yes				All	All	Annular seabream	ANN	5
			yes				All	All	Sharpsnout seabream	SHR	5
			yes				All	All	White seabream	SWA	5
			yes				All	All	Two-banded seabream	CTB	5
			yes				All	All	Groupers	GPW-EPA-EFB-EFY-GPS-EFN-EPR-EFW-EFK-EFE-EFJ-EFH-EPF-ENI-EPK-EPY-ESE-ELD-EED-EEF-EEA-EEV-EEL-EEG-EEU-EEI--EEE-EEX-EET-EEB-EEN-EES-EEM-EEC-EEJ-MAR-GPD-EER-GPR-EEP-EEY-ELG-EFV-EEK-EEQ-EFQ-EPV-EIF-EFX-GPX-EIT-EPZ-GPN-EPT-EIR-EIU	5
			yes				All	All	Striped seabream	SSB	5
			yes				All	All	Spanish seabream	SBA	5
			yes				All	All	Red seabream	SBR	5
			yes				All	All	Common pandora	PAC	5
			yes				All	All	Common seabream	RPG	5
			yes				All	All	Wreckfish	WRF	5
			yes				All	All	Gilthead seabream	SBG	5
			yes				All	All	Deepwater rose shrimp	DPS	5

Table 3.5.2.5 (continued): The anticipated exemptions for discard plans for 2022 in the Mediterranian Sea region and the related FDI codes.

		2022 - Part 2									
	Exemption Article	Area	Possible or not	Fishing Techniques	Gear code	FDI gear code	Mesh size	Vessel lenght	Species	Species codes	Procent/MCRS
Deminimis	*DA 2021/ xxx , Adriatic and south-eastern Med - Article 3 (a) vi*	Adriatic Sea (GSA17-GSA18)	yes	Gill nets and and trammel nets	GNS-GN-GND-GNC-GTN-GTR-GEN	GND-GNS-GNC-GTR-GTN	All	All	European seabass	BSS	3
			yes				All	All	Annular seabream	ANN	3
			yes				All	All	Sharpsnout seabream	SHR	3
			yes				All	All	White seabream	SWA	3
			yes				All	All	Two-banded seabream	CTB	3
			yes				All	All	Groupers	GPW-EPA-EFB-EFY-GPS-EFN-EPR-EFW-EFK-EFE-EFJ-EFH-EPF-ENI-EPK-EPY-ESE-ELD-EED-EEF-EEA-EEV-EEL-EEG-EEU-EEI--EEE-EEX-EET-EEB-EEN-EES-EEM-EEC-EEJ-MAR-GPD-EER-GPR-EEP-EEY-ELG-EFV-EEK-EEQ-EFQ-EPV-EIF-EFX-GPX-EIT-EPZ-GPN-EPT-EIR-EIU	3
			yes				All	All	Striped seabream	SSB	3
			yes				All	All	Spanish seabream	SBA	3
			yes				All	All	Red seabream	SBR	3
			yes				All	All	Common pandora	PAC	3
			yes				All	All	Common seabream	RPG	3
			yes				All	All	Wreckfish	WRF	3
			yes				All	All	Sole	SOL	3
			yes				All	All	Gilthead seabream	SBG	3

Table 3.5.2.5 (continued): The anticipated exemptions for discard plans for 2022 in the Mediterranian Sea region and the related FDI codes.

		2022 - Part 3									
	Exemption Article	Area	Possible or not	Fishing Techniques	Gear code	FDI gear code	Mesh size	Vessel lenght	Species	Species codes	Procent/MCRS
Deminimis	*DA 2021/ xxx , Adriatic and south-eastern Med - Article 3 (a) vii*	Adriatic Sea (GSA17-GSA18)	yes	Hooks and lines	LHP-LHM-LLS-LLD-LL-LTL-LX	LHM-LHP-LLD-LLS	All	All	European seabass	BSS	1
			yes				All	All	Annular seabream	ANN	1
			yes				All	All	Sharpsnout seabream	SHR	1
			yes				All	All	White seabream	SWA	1
			yes				All	All	Two-banded seabream	CTB	1
			yes				All	All	Groupers	GPW-EPA-EFB-EFY-GPS-EFN-EPR-EFW-EFK-EFE-EFJ-EFH-EPF-ENI-EPK-EPY-ESE-ELD-EED-EEF-EEA-EEV-EEL-EEG-EEU-EEI--EEE-EEX-EET-EEB-EEN-EES-EEM-EEC-EEJ-MAR-GPD-EER-GPR-EEP-EEY-ELG-EFV-EEK-EEQ-EFQ-EPV-EIF-EFX-GPX-EIT-EPZ-GPN-EPT-EIR-EIU	1
			yes				All	All	Striped seabream	SSB	1
			yes				All	All	Spanish seabream	SBA	1
			yes				All	All	Common pandora	PAC	1
			yes				All	All	Common seabream	RPG	1
			yes				All	All	Wreckfish	WRF	1
			yes				All	All	Sole	SOL	1
			yes				All	All	Gilthead seabream	SBG	1
	DA 2021/ xxx , Adriatic and south-eastern Med - Article 3 (a) viii		yes	bottom trawls		OTB-OTT-PTB	All	All	Anchovy	ANE	5
			yes				All	All	Sardine	PIL	5
			yes				All	All	Mackerel	MAC	5
			yes				All	All	Horse Mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	5

Table 3.5.2.5 (continued): The anticipated exemptions for discard plans for 2022 in the Mediterranian Sea region and the related FDI codes.

		2022 - Part 4									
	Exemption Article	Area	Possible or not	Fishing Techniques	Gear code	FDI gear code	Mesh size	Vessel lenght	Species	Species codes	Procent/MCRS
Deminimis	DA 2021/ xxx , Adriatic and south-eastern Med - Article 3 (b) i	South-eastern Mediterranean Sea (GSA14-GSA15-GSA16-GSA19-GSA20-GSA21-GSA22-GSA23-GSA24-GSA25-GSA26-GSA27)	yes	bottom trawls		OTB-OTT-PTB	All	All	Hake	HKE	5
			yes				All	All	Mullets	MUT-MUX-MUM	
	DA 2021/ xxx , Adriatic and south-eastern Med - Article 3 (b) ii		yes	Gill nets and and trammel nets	GNS-GN-GND-GNC-GTN-GTR-GEN	GND-GNS-GNC-GTR-GTN	All	All	Hake	HKE	1
			yes				All	All	Mullest	MUT-MUX-MUM	
	DA 2021/ xxx , Adriatic and south-eastern Med - Article 3 (b) iii		yes	bottom trawls		OTB-OTT-PTB	All	All	Deep-water rose shrimp	DPS	5
	DA 2021/ xxx , Adriatic and south-eastern Med - Article 3 (b) iv		yes				All	All	European seabass	BSS	5
			yes				All	All	Annular seabream	ANN	5
			yes				All	All	Sharpsnout seabream	SHR	5
			yes				All	All	White seabream	SWA	5
			yes				All	All	Two-banded seabream	CTB	5
			yes				All	All	Groupers	GPW-EPA-EFB-EFY-GPS-EFN-EPR-EFW-EFK-EFE-EFJ-EFH-EPF-ENI-EPK-EPY-ESE-ELD-EED-EEF-EEA-EEV-EEL-EEG-EEU-EEI--EEE-EEX-EET-EEB-EEN-EES-EEM-EEC-EEJ-MAR-GPD-EER-GPR-EEP-EEY-ELG-EFV-EEK-EEQ-EFQ-EPV-EIF-EFX-GPX-EIT-EPZ-GPN-EPT-EIR-EIU	5
			yes				All	All	Striped seabream	SSB	5
			yes				All	All	Spanish seabream	SBA	5
			yes				All	All	Red seabream	SBR	5
			yes				All	All	Common pandora	PAC	5
			yes				All	All	Common seabream	RPG	5
			yes				All	All	Wreckfish	WRF	5
			yes				All	All	Gilthead seabream	SBG	5
			yes				All	All	Norway lobster	NEP	5
			yes				All	All	Sole	SOL	5

Table 3.5.2.5 (continued): The anticipated exemptions for discard plans for 2022 in the Mediterranian Sea region and the related FDI codes.

		2022 - Part 5									
	Exemption Article	Area	Possible or not	Fishing Techniques	Gear code	FDI gear code	Mesh size	Vessel lenght	Species	Species codes	Procent/MCRS
Deminimis	*DA 2021/xxx , Adriatic and south-eastern Med - Article 3 (b) v*	South-eastern Mediterranean Sea (GSA14-GSA15-GSA16-GSA19-GSA20-GSA21-GSA22-GSA23-GSA24-GSA25-GSA26-GSA27)	yes	Gill nets and and trammel nets	GNS-GN-GND-GNC-GTN-GTR-GEN	GND-GNS-GNC-GTR-GTN	All	All	European seabass	BSS	3 (if species less than 25% of total landings = 5)
			yes				All	All	Annular seabream	ANN	3 (if species less than 25% of total landings = 5)
			yes				All	All	Sharpsnout seabream	SHR	3 (if species less than 25% of total landings = 5)
			yes				All	All	White seabream	SWA	3 (if species less than 25% of total landings = 5)
			yes				All	All	Two-banded seabream	CTB	3 (if species less than 25% of total landings = 5)
			yes				All	All	Groupers	GPW-EPA-EFB-EFY-GPS-EFN-EPR-EFW-EFK-EFE-EFJ-EFH-EPF-ENI-EPK-EPY-ESE-ELD-EED-EEF-EEA-EEV-EEL-EEG-EEU-EEI--EEE-EEX-EET-EEB-EEN-EES-EEM-EEC-EEJ-MAR-GPD-EER-GPR-EEP-EEY-ELG-EFV-EEK-EEQ-EFQ-EPV-EIF-EFX-GPX-EIT-EPZ-GPN-EPT-EIR-EIU	3 (if species less than 25% of total landings = 5)
			yes				All	All	Striped seabream	SSB	3 (if species less than 25% of total landings = 5)
			yes				All	All	Spanish seabream	SBA	3 (if species less than 25% of total landings = 5)
			yes				All	All	Red seabream	SBR	3 (if species less than 25% of total landings = 5)
			yes				All	All	Common pandora	PAC	3 (if species less than 25% of total landings = 5)
			yes				All	All	Common seabream	RPG	3 (if species less than 25% of total landings = 5)
			yes				All	All	Wreckfish	WRF	3 (if species less than 25% of total landings = 5)
			yes				All	All	Gilthead seabream	SBG	3 (if species less than 25% of total landings = 5)
			yes				All	All	Sole	SOL	3 (if species less than 25% of total landings = 5)
			yes				All	All	Lobster	LBE	3 (if species less than 25% of total landings = 5)
			yes				All	All	Crawfish	VLO-PCC-RCW	3 (if species less than 25% of total landings = 5)

Table 3.5.2.5 (continued): The anticipated exemptions for discard plans for 2022 in the Mediterranian Sea region and the related FDI codes.

		2022 - Part 6									
	Exemption Article	Area	Possible or not	Fishing Techniques	Gear code	FDI gear code	Mesh size	Vessel lenght	Species	Species codes	Procent/MCRS
Deminimis	*DA 2021/xxx , Adriatic and south-eastern Med - Article 3 (b) vi*	South-eastern Mediterranean Sea (GSA14-GSA15-GSA16-GSA19-GSA20-GSA21-GSA22-GSA23-GSA24-GSA25-GSA26-GSA27)	yes	Hooks and lines	LHP-LHM-LLS-LLD-LL-LTL-LX	LHM-LHP-LLD-LLS	All	All	European seabass	BSS	3
			yes				All	All	Annular seabream	ANN	3
			yes				All	All	Sharpsnout seabream	SHR	3
			yes				All	All	White seabream	SWA	3
			yes				All	All	Two-banded seabream	CTB	3
			yes				All	All	Groupers	GPW-EPA-EFB-EFY-GPS-EFN-EPR-EFW-EFK-EFE-EFJ-EFH-EPF-ENI-EPK-EPY-ESE-ELD-EED-EEF-EEA-EEV-EEL-EEG-EEU-EEI--EEE-EEX-EET-EEB-EEN-EES-EEM-EEC-EEJ-MAR-GPD-EER-GPR-EEP-EEY-ELG-EFV-EEK-EEQ-EFQ-EPV-EIF-EFX-GPX-EIT-EPZ-GPN-EPT-EIR-EIU	3
			yes				All	All	Striped seabream	SSB	3
			yes				All	All	Red seabream	SBR	3
			yes				All	All	Spanish seabream	SBA	3
			yes				All	All	Common pandora	PAC	3
			yes				All	All	Common seabream	RPG	3
			yes				All	All	Wreckfish	WRF	3
			yes				All	All	Hake	HKE	3
			yes				All	All	Gilthead seabream	SBG	3
	DA 2021/xxx , Adriatic and south-eastern Med - Article 3 (b) vii		yes	Bottom trawls		OTB-OTT-PTB	All	All	Anchovy	ANE	5
			yes				All	All	Sardine	PIL	5
			yes				All	All	Mackerel	MAC	5
			yes				All	All	Horse Mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	5

Table 3.5.2.5 (continued): The anticipated exemptions for discard plans for 2022 in the Mediterranian Sea region and the related FDI codes.

		2022 - Part 7									
	Exemption Article	Area	Possible or not	Fishing Techniques	Gear code	FDI gear code	Mesh size	Vessel lenght	Species	Species codes	Procent/MCRS
Deminimis	*161/2018 Article 3(1) Annex I (1) with ammended 2012/2020*	Western Mediterranean Sea (GSA1-GSA2-GSA5-GSA6-GSA7-GSA8-GSA9-GSA10-GSA11.1-GSA11.2-GSA12)	yes	pelagic midwater trawls	OTM-PTM	OTM-PTM	All	All	Anchovy	ANE	5
			yes	pelagic midwater trawls	OTM-PTM	OTM-PTM	All	All	Sardine	PIL	
			yes	pelagic midwater trawls	OTM-PTM	OTM-PTM	All	All	Mackerel	MAC	
			yes	pelagic midwater trawls	OTM-PTM	OTM-PTM	All	All	Horse Mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	
	161/2018 Article 3(1) Annex I (2) with ammended 2012/2020		yes	pelagic purse seines	PS	PS	All	All	Anchovy	ANE	
			yes	pelagic purse seines	PS	PS	All	All	Sardine	PIL	
			yes	pelagic purse seines	PS	PS	All	All	Mackerel	MAC	
			yes	pelagic purse seines	PS	PS	All	All	Horse Mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	
	161/2018 Article 3(1) Annex II (1) with ammended 2012/2020	South Eastern Mediterranean Sea GSA15 GSA16 GSA19 GSA20 GSA22 GSA23, GSA25	yes	pelagic midwater trawls	OTM-PTM	OTM-PTM	All	All	Anchovy	ANE	5
			yes	pelagic midwater trawls	OTM-PTM	OTM-PTM	All	All	Sardine	PIL	
			yes	pelagic midwater trawls	OTM-PTM	OTM-PTM	All	All	Mackerel	MAC	
			yes	pelagic midwater trawls	OTM-PTM	OTM-PTM	All	All	Horse Mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	
	161/2018 Article 3(1) Annex II (2) with ammended 2012/2020	South Eastern Mediterranean Sea GSA 25	yes	pelagic purse seines	PS	PS	All	All	Anchovy	ANE	5
			yes	pelagic purse seines	PS	PS	All	All	Sardine	PIL	
			yes	pelagic purse seines	PS	PS	All	All	Mackerel	MAC	
			yes	pelagic purse seines	PS	PS	All	All	Horse Mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	
	161/2018 Article 3(1) Annex III (1) with ammended 2012/2020	Adriatic Sea (GSA17-GSA18)	yes	pelagic midwater trawls	OTM-PTM	OTM-PTM	All	All	Anchovy	ANE	5
			yes	pelagic midwater trawls	OTM-PTM	OTM-PTM	All	All	Sardine	PIL	
			yes	pelagic midwater trawls	OTM-PTM	OTM-PTM	All	All	Mackerel	MAC	
			yes	pelagic midwater trawls	OTM-PTM	OTM-PTM	All	All	Horse Mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	
	161/2018 Article 3(1) Annex III (2) with ammended 2012/2020	Adriatic Sea (GSA17)	yes	pelagic purse seines	PS	PS	All	All	Anchovy	ANE	
			yes	pelagic purse seines	PS	PS	All	All	Sardine	PIL	
			yes	pelagic purse seines	PS	PS	All	All	Mackerel	MAC	
			yes	pelagic purse seines	PS	PS	All	All	Horse Mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	

Table 3.5.2.5 (continued): The anticipated exemptions for discard plans for 2022 in the Mediterranian Sea region and the related FDI codes.

		2022 - Part 8								
	Exemption Article	Area	Possible or not	Fishing Techniques	Gear code	FDI gear code	Mesh size	Vessel lenght	Species	Species codes	Procent/MCRS
Deminimis	*161/2018 Article 3(2) Annex IV with ammended 2012/2020*	Malta Island and South of Sicily (GSA15-GSA16)	yes	pelagic midwater trawls	PS	PS	All	All	Anchovy	ANE	3
			yes	pelagic midwater trawls	PS	PS	All	All	Sardine	PIL	
			yes	pelagic midwater trawls	PS	PS	All	All	Mackerel	MAC	
			yes	pelagic midwater trawls	PS	PS	All	All	Horse Mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	
	161/2018 Article 3(2) Annex V with ammended 2012/2020	Southern Agean Sea and Crete Island (GSA22-GSA23)	yes	pelagic midwater trawls	PS	PS	All	All	Anchovy	ANE	3
			yes	pelagic midwater trawls	PS	PS	All	All	Sardine	PIL	
			yes	pelagic midwater trawls	PS	PS	All	All	Mackerel	MAC	
			yes	pelagic midwater trawls	PS	PS	All	All	Horse Mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	
	161/2018 Article 3 (2) Annex VI with ammended 2012/2020	Southern Adriatic Sea and Ionian Sea (GSA18-GSA19-GSA20)	yes	pelagic purse seines	PS	PS	All	All	Anchovy	ANE	3
			yes	pelagic purse seines	PS	PS	All	All	Sardine	PIL	
			yes	pelagic purse seines	PS	PS	All	All	Mackerel	MAC	
			yes	pelagic purse seines	PS	PS	All	All	Horse Mackerel	HMM-JAX-HOM-HMC-HMZ-HMG-TUZ	
	DA 2021/xxx, western Med - Article 4 (a)	Western Mediterranian Sea (GSA1-GSA2-GSA5-GSA6-GSA7-GSA8-GSA9-GSA10-GSA11.1-GSA11.2-GSA12)	yes	Bottom trawls		OTB-OTT-PTB	All	All	Hake	HKE	5
			yes				All	All	Mullets	MUT-MUX-MUM	
	DA 2021/xxx, western Med - Article 4 (b)		yes	Gill nets and and trammel nets		GND-GNS-GNC-GTR-GTN	All	All	Hake	HKE	1
			yes				All	All	Mullest	MUT-MUX-MUM	
	DA 2021/xxx, western Med - Article 4 (c)		yes	Bottom trawls		OTB-OTT-PTB	All	All	European seabass	BSS	5
			yes				All	All	Annular seabream	ANN	
			yes				All	All	Sharpsnout seabream	SHR	
			yes				All	All	White seabream	SWA	
			yes				All	All	Two-banded seabream	CTB	
			yes				All	All	Groupers	GPW-EPA-EFB-EFY-GPS-EFN-EPR-EFW-EFK-EFE-EFJ-EFH-EPF-ENI-EPK-EPY-ESE-ELD-EED-EEF-EEA-EEV-EEL-EEG-EEU-EEI--EEE-EEX-EET-EEB-EEN-EES-EEM-EEC-EEJ-MAR-GPD-EER-GPR-EEP-EEY-ELG-EFV-EEK-EEQ-EFQ-EPV-EIF-EFX-GPX-EIT-EPZ-GPN-EPT-EIR-EIU	
			yes				All	All	Striped seabream	SSB	
			yes				All	All	Spanish seabream	SBA	
			yes				All	All	Red seabream	SBR	
			yes				All	All	Common pandora	PAC	
			yes				All	All	Common seabream	RPG	
			yes				All	All	Wreckfish	WRF	
			yes				All	All	Sole	SOL	
			yes				All	All	Gilthead seabream	SBG	
			yes				All	All	Deepwater rose shrimp	DPS	

Table 3.5.2.5 (continued): The anticipated exemptions for discard plans for 2022 in the Mediterranian Sea region and the related FDI codes.

		2022 - Part 9								
	Exemption Article	Area	Possible or not	Fishing Techniques	Gear code	FDI gear code	Mesh size	Vessel lenght	Species	Species codes	Procent/MCRS
Deminimis	DA 2021/xxx, western Med - Article 4 (d)	Western Mediterranian Sea (GSA1-GSA2-GSA5-GSA6-GSA7-GSA8-GSA9-GSA10-GSA11.1-GSA11.2-GSA12)	yes	Gill nets and and trammel nets		GND-GNS-GNC-GTR-GTN	All	All	European seabass	BSS	3
			yes				All	All	Annular seabream	ANN	
			yes				All	All	Sharpsnout seabream	SHR	
			yes				All	All	White seabream	SWA	
			yes				All	All	Two-banded seabream	CTB	
			yes				All	All	Groupers	GPW-EPA-EFB-EFY-GPS-EFN-EPR-EFW-EFK-EFE-EFJ-EFH-EPF-ENI-EPK-EPY-ESE-ELD-EED-EEF-EEA-EEV-EEL-EEG-EEU-EEI--EEE-EEX-EET-EEB-EEN-EES-EEM-EEC-EEJ-MAR-GPD-EER-GPR-EEP-EEY-ELG-EFV-EEK-EEQ-EFQ-EPV-EIF-EFX-GPX-EIT-EPZ-GPN-EPT-EIR-EIU	
			yes				All	All	Striped seabream	SSB	
			yes				All	All	Spanish seabream	SBA	
			yes				All	All	Red seabream	SBR	
			yes				All	All	Common pandora	PAC	
			yes				All	All	Common seabream	RPG	
			yes				All	All	Wreckfish	WRF	
			yes				All	All	Sole	SOL	
			yes				All	All	Gilthead seabream	SBG	
	DA 2021/xxx, western Med - Article 4 (e)		yes	Hooks and lines		LHM-LHP-LLD-LLS	All	All	European seabass	BSS	1
			yes				All	All	Annular seabream	ANN	
			yes				All	All	Sharpsnout seabream	SHR	
			yes				All	All	White seabream	SWA	
			yes				All	All	Two-banded seabream	CTB	
			yes				All	All	Groupers	GPW-EPA-EFB-EFY-GPS-EFN-EPR-EFW-EFK-EFE-EFJ-EFH-EPF-ENI-EPK-EPY-ESE-ELD-EED-EEF-EEA-EEV-EEL-EEG-EEU-EEI--EEE-EEX-EET-EEB-EEN-EES-EEM-EEC-EEJ-MAR-GPD-EER-GPR-EEP-EEY-ELG-EFV-EEK-EEQ-EFQ-EPV-EIF-EFX-GPX-EIT-EPZ-GPN-EPT-EIR-EIU	
			yes				All	All	Striped seabream	SSB	
			yes				All	All	Spanish seabream	SBA	
			yes				All	All	Common pandora	PAC	
			yes				All	All	Common seabream	RPG	
			yes				All	All	Wreckfish	WRF	
			yes				All	All	Sole	SOL	
			yes				All	All	Gilthead seabream	SBG	

Table 3.5.2.5 (continued): The anticipated exemptions for discard plans for 2022 in the Mediterranian Sea region and the related FDI codes.

		2022 - Part 10									
	Exemption Article	Area	Possible or not	Fishing Techniques	Gear code	FDI gear code	Mesh size	Vessel lenght	Species	Species codes	Procent/MCRS
Survivability	*DA 2021/xxx, western Med - Article 3 (a)*	Western Mediterranean Sea (GSA1-GSA2-GSA5-GSA6-GSA7-GSA8-GSA9-GSA10-GSA11.1-GSA11.2-GSA12)	Yes	Mechanised dredges	HMD	HMD	All	All	Scallop	SJA	-
	DA 2021/xxx, western Med - Article 3 (b)		Yes	Mechanised dredges	HMD	HMD	All	All	Carpet clam	VEN	-
	DA 2021/xxx, western Med - Article 3 (c)		Yes	Mechanised dredges	HMD	HMD	All	All	Venus shells	CLV	-
	DA 2021/xxx, western Med - Article 3 (d)		**Partly**	bottom trawls (**from January-June and September-December**)	OTB, OTT, PTB, TBN, TBS, TB, OT, PT, TX	OTB-OTT-PTB	All	All	Norway Lobster	NEP	-
	DA 2021/xxx, western Med - Article 3 (e)		Yes	pots and traps	FPO, FIX	FPO-FPN-FYK	All	All	Norway Lobster	NEP	-
	DA 2021/xxx, western Med - Article 3 (f)		Yes	hooks, lines	LHP, LHM, LLS, LLD, LL, LTL, LX	LHM-LHP-LLD-LLS	All	All	Red Seabream	SBR	-
	DA 2021/xxx, western Med - Article 3 (g)			nets,pots and traps	GNS, GN, GND, GNC, GTN, GTR, GEN, FPO, FIX	GND-GNS-GNC-GTR-GTN-FPO-FPN-FYK	All	All	Lobster	LBE	-
	DA 2021/xxx, western Med - Article 3 (h)		Yes	nets,pots and traps	GNS, GN, GND, GNC, GTN, GTR, GEN, FPO, FIX	GND-GNS-GNC-GTR-GTN-FPO-FPN-FYK	All	All	Crawfish	VLO-PCC-RCW	-

5.5.3 STECF is asked to assess and if possible, provide percentages of discards estimates below and above MCRS at a level of aggregation corresponding to the fleet, area and gear type as specified in each exemption of each of the discard plans for 2022

Estimation of the percentage of fish above and below MCRS

Estimaton method and assumptions

As for the previous reports, estimation of the proportion of fish above and below the MCRS by species, country, métier, year was done merging tables A, D and F using the fields *domain_discards* and *domain_landings*.

In Table A, if a métier has been sampled for landings it has a *domain_landings* associated and the length structure of the landings is displayed in table F, respectively, if discards have been sampled, a *domain_discards* is associated and the length structure of the discards displayed in table D.

Discard and Landings length structure are then provided by domain and the spatial/temporal resolution of these domains are country/fishery dependent and relates to the national sampling programs. Domains were created to reflect the sampling programs of the countries and to provide the best scientific information about the length structure of the landings/discards. In most of the cases a domain will then aggregate métier and/or areas and/or quarter and/or mesh sizes from tables A. Values in column *totwghtlandg* and *discards* of table A are then expected to be lower than *totwghtlandg* and *discards* in table D and *totwghtlandg* in table F as they can encompass several lines in table A.

The main and strong assumption made in the following calculations is that the length structure of landings and discards for each métier in table A will be the length structure of the landings of the associated domain in table F and the length structure of the discards of the associated domain in table D.

However, the landings and discards tonnages reported in table A are the reference figures from which the percentage above and below MCRS shoud be computed.

The computation of the numbers above and below MCRS by Country, Year, Area, and métier can be divided in the following steps:

1. compute the proportion of fish [in number and weight] at length for a standardized unit of landings in table F and a unit of discard in table D by Country, Year, Domain, nep_sub_region and species
2. Merge the table A and D and F based on Country, Year, Domain, nep_sub_region and species
3. Compute weights at length discarded/landed: multiply the *totwghtlandg* by these proportions at length of landings for each corresponding strata in table A [and respectively *discards* by the proportions at length of discards]
4. Define if the length is under or above the MCRS using the reference tables [by species/area]
5. sum the weight/numbers of fishes under and above MCRS and the fraction for which no length structure is available over "country_code", "year","Area","metier","species", "testMCRS"

As not all métiers in Table A are associated to a domain, the total length structure of the catches cannot be computed and conclusions depend upon the number of domains provided and the number of samples in each domain and their representativeness. **A "quality"**

column is added to the export files computing the percentage of landings and discards in table A covered by landings length samples in table D and discards length samples in table F. In fact, the merge of Country, Year, Area, and métier might cover several lines in table A for which some might have domains [landings and discards] associated and other might not have domains associated. A full sampling landing coverage [100%] will then mean that all lines in table A for a given Country, Year, Area, and métier strata had domain associated in table F [i.e., table D for discards]. Conversely, a value under 100% in landing [i.e., discard coverage] means that some lines aggregated had no domain associated in table F [i.e., table D].

Step 1: compute the proportion of fish [in number and weight] at length for a standardized unit of landings in table F and a unit of discard in table D

Table F:

$$WeightLandings_{country,year,domain,species,l} =$$

$$\frac{meanweight_{country,year,domain,species,l} * Number_{country,year,domain,species,l}}{\sum_l meanweight_{country,year,domain,species,l} * Number_{country,year,domain,species,l}}$$

$$NumberLandings_{country,year,domain,species,l} = \frac{Number_{country,year,domain,species,l}}{\sum_l Number_{country,year,domain,species,l}}$$

Table D:

$$WeightDiscards_{country,year,domain,species,l} =$$

$$\frac{meanweight_{country,year,domain,species,l} * Number_{country,year,domain,species,l}}{\sum_l meanweight_{country,year,domain,species,l} * Number_{country,year,domain,species,l}}$$

$$NumberDiscards_{country,year,domain,species,l} = \frac{Number_{country,year,domain,species,l}}{\sum_l Number_{country,year,domain,species,l}}$$

Step 2: Compute weights at length discarded/landed

Merge Table A and D by Country, year and domain discard [table AD]:

$$DistribLengthbyWeightLandings_{country,year,domain,species,l} = WeightLandings_{country,year,domain,species,l} * totwghtlang_{country,year,domain,species}$$

$$DistribLengthbyNumberLandings_{country,year,domain,species,l} = NumberLandings_{country,year,domain,species,l} * totwghtlang_{country,year,domain,species}$$

Merge Table A and F by Country, year and domain landings [table AF]:

$$DistribLengthbyWeightDiscardss_{country,year,domain,species,l} = WeightDiscardss_{country,year,domain,species,l} * discards_{country,year,domain,species}$$

$$DistribLengthbyNumberDiscardss_{country,year,domain,species,l} = WeightDiscardss_{country,year,domain,species,l} * discards_{country,year,domain,species}$$

Step 3: Define if the length is under or above the MCRS

Merge tables AD and AF and MCRS reference table and define if lengths are under or above MCRS

Step 4: Compute the proportion above and under MCRS

$$PercentageLandings \in weightAboveMCRS_{country,year,met,species} = \frac{\sum_{l>MCRS} DistribLengthbyWeightLandings_{country,year,met,specie,l}}{\sum_{l} DistribLengthbyWeightLandings_{country,year,met,specie,l} + \sum_{l} DistribLengthbyWeightdiscards_{country,year,met,specie,l}}$$

$$PercentageLandings \in weightUnderMCRS_{country,year,met,species} = \frac{\sum_{l<MCRS} DistribLengthbyWeightLandings_{country,year,met,specie,l}}{\sum_{l} DistribLengthbyWeightLandings_{country,year,met,specie,l} + \sum_{l} DistribLengthbyWeightdiscards_{country,year,met,specie,l}}$$

$$PercentageDiscards \in weightAboveMCRS_{country,year,met,species} = \frac{\sum_{l>MCRS} DistribLengthbyWeightDiscards_{country,year,met,specie,l}}{\sum_{l} DistribLengthbyWeightLandings_{country,year,met,specie,l} + \sum_{l} DistribLengthbyWeightdiscards_{country,year,met,specie,l}}$$

$$PercentageDiscards \in weightUnderMCRS_{country,year,met,species} = \frac{\sum_{l<MCRS} DistribLengthbyWeightDiscards_{country,year,met,specie,l}}{\sum_{l} DistribLengthbyWeightLandings_{country,year,met,specie,l} + \sum_{l} DistribLengthbyWeightdiscards_{country,year,met,specie,l}}$$

met: metier in table A

domain: either *domain_discards* when computing discards numbers at length or *domain_landings* when computing landings numbers at length.

l: length

Example:

Figures 3.5.3.1 illustrate the distribution of the catches in table A by category (Landings/Discards Above/Under MCRS or without length samplings) for the Belgian fleets fishing in the North Sea with Beam Trawl using a mesh size between 70 and 99 mm between 2014 and 2020.

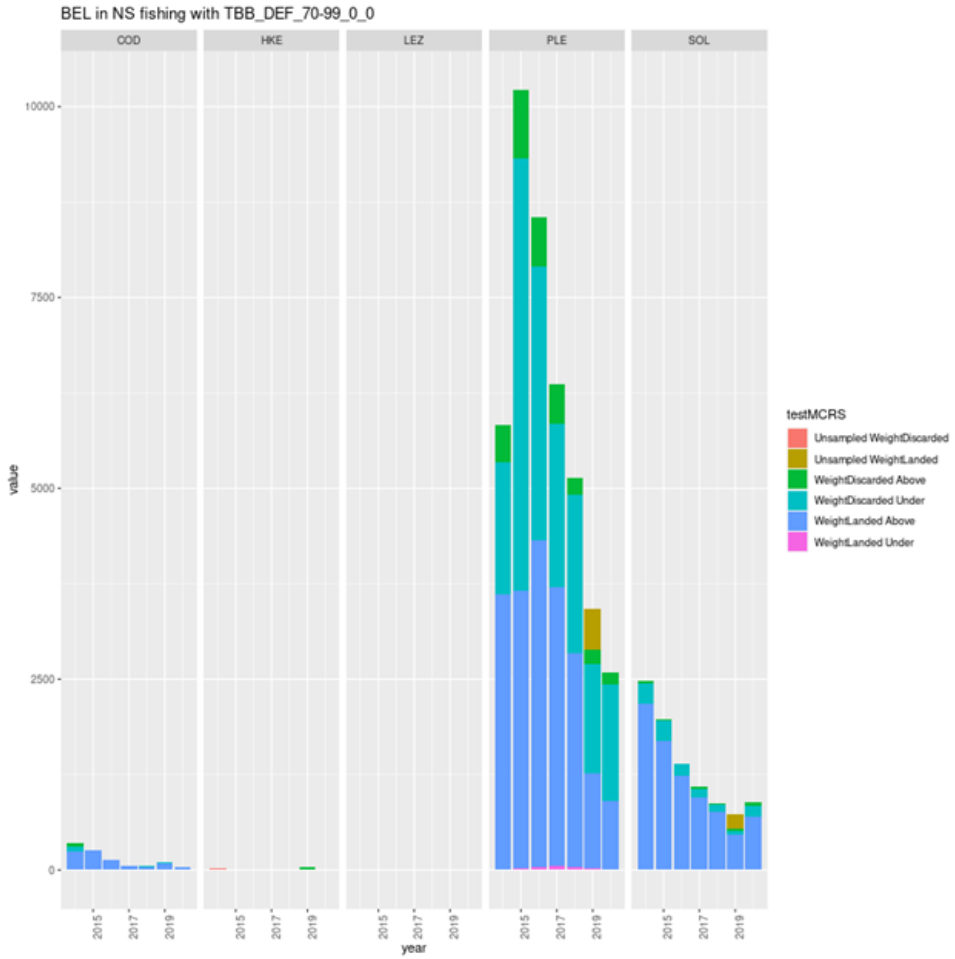


Figure 3.5.3.1 - Repartition of the catch [from table A] for the Belgian fleet using mesh size between 70 and 99 mm.

Estimation of the percentage of fish above and below MCRS by exemption

This year, the calculation of the percentage of fish caught above or below the MCRS was extended to exemptions. There were several methods of calculation tested during the meeting:

1. Summarising the calculations done using the method above by exemption;
2. Summarising detailed Table A created as a result of the ad hoc contract developed and presented in the chapter 3.2 by exemption.

The analysis showed that the second option, due to very strict quality checks, reduces the number of estimates that might be analysed for relevant exemptions. Furthermore, there were some issues related to units of measurment in the data submitted by MS. Therefore, the methodology based on shares of discards < and > MCRS calculated using biological Table D and applied to the discards provided in Table A was used to provide the final results.

Due to inconsistency of some data sampled for discards (Table D) and landings (Table F) (e.g. within the same record in Table A discards were sampled, while landings were not), biological data for landings were not used in calculations. That ensured the same coverage of landings and discards per record.

In line with the Annex 4 Tables 1-12 and extract of data for exemptions, MCRS data is presented in Table 13 of Annex 4 by exemptions, species and countiries, showing the time series of data for 2017-2020 where possible.

The discards < MCRS % per exemption were calculated as sum of estimated discards < MCRS within the exemption divided by sum of corresponding catch per exemption and Table A records.

Results

It was only possible to extract data for the exemptions with the available biological data. Corresponding total discads and % of discards below MCRS per exemption and country in 2017-2020 are provided in Table 13 of Annex 4.

Note that, where exemptions relate to multiple species, the percentages for each species above and below MCRS relate to the catch of that species only and not to the total catch of all species concerned in the exemption.

As in previous years, the results of calculations for landings and discards < and > MCRS per Member States and metier are presented in Annex 5 of this report.

5.6 Produce dissemination tables and maps of spatial effort and landings by c-squares

5.6.1 Discuss results of TOR 2.1 and 2.2 of the EWG 21-10 and agree the format of the table A and biological data (FDI Tables C, D, E and F) to be publicly disseminated in the future.

Biological data (Tables C, D, E, F)

This EWG recommends that the biological tables are disseminated in the form that they are submitted. Next year an R script can be prepared and made available on the STECF data dissemination website once it is adapted to fit the format and structure of the data published in the dissemination website. This process would require disseminating Domain Landings and Discards in Table A. The EWG notes that biological estimates for data poor species, where sampling levels are low, must be interpreted with caution. The addition of metrics around coverage and robustness which may be available next year will help with this process. Before disseminating the biological data (C, D, E and F) any record without a corresponding length or age measurement should be deleted (i.e., NO_LENGTH = 0 or NK should be removed).

Prior to dissemination of the biological data with the script, the final outputs should be shared with the national correspondents seeking for their approval to publish the data for the first time. Afterwards publication of the data should be mentioned as part of the data call informing MS about intended use of the data.

Refusal rates (Table B)

The EWG recommends to disseminate Table B as submitted by Member States. This table contains refusal rates estimated by Member States from statistically sound sampling frames. This table mainly relates to the at-sea sampling programmes. This should be disseminated with some guidance on what the table contains, i.e references and links to the definitions in the data call, and the methodologies used to derive data which can be found in

the national chapters in the report. It is important that we highlight the qualitative nature of this data.

From the 21 countries that submitted Table B – Refusal rates, 16 had provided refusal rates for all or partial years of the data call (2014-2020). Only Germany (DEU), Denmark (DNK) and Latvia (LVA) provided data for the whole times series. Estonia (EST), Lithuania (LTU) and Slovenia (SVN) have provided some information, such as sample frames, number of vessels, number of trips and coverage, but no refusal rates. While Italy (ITA) and Romaina (ROU) although submitted the table, no information was provided. Most coutries showed a wide range of refusal rates between the different sampling frames, varying between 0 and 1 for some countries (e.g Germany, Malta, Portugal). On the other hand, Bulgaria, Finland and Latvia have registered zero or very low refusal rates for their national sample frames. Table 3.6.1.1 – Summary of the data provided in Table B – Refusal rates, between 2014 and 2020. Range of refusal rates showed as minimum and maximum refusal rates between sampling frames within year. Only countries that have submitted refusal rates at least in one year are included in the table. Where no data is presented, means that no data was provided or provided as "NK".

Table 3.6.1.1 – Overview by Member State of the number of sampling frames, number of records with refusal rates and the range of refusal rates for the period 2014-2020

Country		2014	2015	2016	2017	2018	2019	2020
BEL	Number of sampling frames	--	2	2	2	--	--	--
	Number of records with Refusal rates	--	1	1	1	--	--	--
	Range Refusal rates	--	0.35 -0.35	0.29-0.29	0.23-0.23	--	--	--
BGR	Number of sampling frames	--	--	--	--	4	4	4
	Number of records with Refusal rates	--	--	--	--	1	1	1
	Range Refusal rates	--	--	--	--	0 - 0	0 - 0	0 - 0
CYP	Number of sampling frames	--	2	2	2	2	1	1
	Number of records with Refusal rates	--	1	1	1	1	1	1
	Range Refusal rates	--	0.43-0.43	0.43-0.43	0 - 0	0 - 0	0 - 0	0 - 0
DEU	Number of sampling frames	9	9	9	9	9	9	9
	Number of records with Refusal rates	7	7	6	7	7	5	7
	Range Refusal rates	0 - 0.54	0 - 0.53	0 - 0.78	0 - 0.8	0 - 0.8	0 - 0.49	0 - 0.55
DNK	Number of sampling frames	7	7	7	6	6	6	--
	Number of records with Refusal rates	6	7	5	6	5	6	--
	Range Refusal rates	0 - 0.34	0.04 -	0.05 -	0.03 -	0 - 0.2	0 - 0.25	--

Country		2014	2015	2016	2017	2018	2019	2020
			0.29	0.26	0.55			
ENG	Number of sampling frames	--	--	--	12	12	12	--
	Number of records with Refusal rates	--	--	--	11	11	9	--
	Range Refusal rates	--	--	--	0.22 - 0.66	0.13 - 0.52	0.11 - 0.36	--
ESP	Number of sampling frames	--	--	5	5	5	5	5
	Number of records with Refusal rates	--	--	2	5	4	4	4
	Range Refusal rates	--	--	0.23 - 0.33	0.21 - 0.45	0.19 - 0.31	0.11 - 0.38	0.06 - 0.5
FIN	Number of sampling frames	--	--	--	--	1	14	17
	Number of records with Refusal rates	--	--	--	--	1	1	2
	Range Refusal rates	--	--	--	--	0 - 0	0 - 0	0 - 0.05
FRA	Number of sampling frames	--	--	--	--	--	--	20
	Number of records with Refusal rates	--	--	--	--	--	--	12
	Range Refusal rates	--	--	--	--	--	--	0 - 0 .25
IRL	Number of sampling frames	--	--	--	--	3	4	3
	Number of records with Refusal rates	--	--	--	--	3	4	3
	Range Refusal rates	--	--	--	--	0.26 - 0.55	0.28 - 0.39	0.45 - 0.67
LVA	Number of sampling frames	4	4	4	4	4	4	4
	Number of records with Refusal rates	1	1	1	1	1	1	1
	Range Refusal rates	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
MLT	Number of sampling frames	--	--	5	3	4	5	4
	Number of records with Refusal rates	--	--	5	3	3	3	2
	Range Refusal rates	--	--	0 - 0.9	0.2 - 0.7	0 - 0.5	0 - 0.67	0 - 0.5
POL	Number of sampling frames	--	--	--	15	15	15	6

Country		2014	2015	2016	2017	2018	2019	2020
	Number of records with Refusal rates	--	--	--	5	9	9	6
	Range Refusal rates	--	--	--	0 - 1	0 - 1	0 - 1	0 - 0.77
PRT	Number of sampling frames	--	--	--	6	6	6	--
	Number of records with Refusal rates	--	--	--	5	6	6	--
	Range Refusal rates	--	--	--	0.03 - 1.00	0.04 - 1.00	0.13 - 1.00	--
SCO	Number of sampling frames	--	--	5	5	5	8	7
	Number of records with Refusal rates	--	--	5	5	3	7	5
	Range Refusal rates	--	--	0.04 - 0.22	0 - 0.27	0.04 - 0.19	0 - 0.24	0 - 0.33
SWE	Number of sampling frames	--	--	43	42	48	51	47
	Number of records with Refusal rates	--	--	13	3	4	2	1
	Range Refusal rates	--	--	0 - 0.62	0 - 0.2	0 - 0.25	0 - 0.2	0

5.6.2 Calculate coverage of confidential data (as proposed by EWG 21-10 Tor 1.2)

The criteria to define confidential cells, used by Member States, are addressed in section 3.1.2. The coverage of confidential data are presented in Table 3.1.2.2 (see section 3.1.2) for some key variables based on the data submitted by each MS in response to the 2021 FDI data call. The EWG also listed the sub-regions where more than 50 percent of the weight and value of landings are marked as confidential (Table 3.1.2.4).

Overview Figures 3.1.2.1 and 3.1.2.2 show the percentage of the data submitted in tables I and H that have been marked as confidential by region, gear type and year for the period 2014-2020.

The EWG considers that the dissemination of EWG outputs in form of data sets of capacity, catches and effort tables should stay as stated in recommendation of the FDI EWG in 2019 (STECF 19-11):

"•Data that are aggregated across Member States can be published without removing the data marked as confidential as it will be impossible to isolate the confidential data.

• When publishing data at Member State level, data marked as confidential by the Member State in question should be redacted. "

5.6.3 If GIS technical skills are available in the EWG, produce maps of effort and landings by c-square (to be inserted in the EWG report) for the following regions (as defined in COM-2016-134 for areas other than 'distant waters') and major gear types (as defined in appendix 4 of the data call):

a) Baltic; North Sea; North Western Waters; South Western Waters; Mediterranean and Black Sea; Distant waters[7]

b) Trawls (except beam trawls) with mesh < 100mm; trawls (except beam trawls) with mesh ≥ 100mm; beam trawls with mesh < 120mm; beam trawls with mesh ≥120mm; seine nets; gillnets and entangling nets; dredges; hooks and lines; surrounding nets; pots and traps.

Data and methods

The first step of the spatial data analysis was to ensure that data are in the correct format and information provided is consistent across variables.
According to the FDI data call specification, spatial data on landings and effort (Tables H and I) must be submitted using one of the following notations:

- C-square code at 0.5x0.5 degree resolution, or:
- Latitude and longitude of the center of the rectangle together and its dimensions in decimal degrees:
  - *0.5*0.5,* corresponding to a c-square,
  - *0.5*1,* corresponding to an ICES rectangle,
  - *1*1* for ICCAT squares,
  - *5*5* for IOTC squares.

For future FDI data calls and to ensure consistency of sparial data provision by Member States, the variables ***rectangle_lon*** and ***rectangle_lat*** should be renamed respectively to ***lon*** and ***lat*** and should be reported using two decimal figures.

In order to account for the different geographical formats allowed, the geographical data validation process adopted last year was implemented and documented in a series of scripts made available to the experts during and after the working group. The geographical data validation process includes three basic checks:

a. Some countries provided records containing both the **c-square code and coordinates**, the validation routine checked the compliance of c-squares notation with the geographical coordinates submitted.
b. Other countries reported **only c-square notation**; these records were verified against a list of all valid 0.5x0.5 c-square codes.
c. A third type of check was applied on records that contained **only coordinates and the type of rectangle.** The validation routine for these records calculated the remainder of the division and verified that the coordinates indicated were the geographical center of the rectangle/square indicated in the rectangle type field.

The expert working group recommends including the above-mentioned data validation checks in the FDI data call uploading tool. Additional checks identified erroneous records that were misspecified (not global coordinates) or were land-based coordinates. To perform the point in polygon operation needed to identify points on land, a new c-square data set

[7] Defined here as waters not covered by the areas previously listed.

indicating the type of c-square (sea, land, and coast) was created and made available during the working group. The expert working group recommends incorporating the enriched c-square dataset in the FDI database and advise that all the datasets and scripts used in the checks are published on the data collection website and/or in the *Geodata* section of the EU Master data Register for fisheries.

After the preliminary spatial checks, the subgroup identified the need to visualise the spatial effort and landings data during the EWG. Visual inspection through mapping will facilitate EWG experts in identifying less evident spatial issues like swapped coordinates, sub regions and supra_region mismatch.

Considering the volume and confidentiality of the data coupled with different level of aggregations needed for visual inspection, the expert working group recommends a server-based architecture hosted on the JRC's secure network be created. Access to the server and publishing rights (to deploy own data analysis to the server) should be restricted to the invited experts to the EWG and relevant Commission staff (e.g., JRC personnel) and should be limited to the duration of the working group.

The geographical data validation process highlighted an overall improved quality of the spatial data submitted with only 0.71% of invalid records for Table I and 0.61% invalid records for Table H. After the invalid records were omitted, the spatial data sets were created by aggregating the individual records of Table I and Table H at the following level:

Country, Year, Quarter, Macro-gear, Confidentiality, Specon, Sub region, Fishing zone, ICES Rectangle, value (effort/landings) and c-square code

The aggregated spatial landings and spatial effort data sets were cleaned of all records where there was no indication of the Sub-region and where the unit of measurement for landings was incorrect.

The EWG notes that when viewing the results of spatial analysis, it is important to note that data submissions for the Mediterranean and Black Sea was mandatory for the years 2017 - 2019 but voluntary for 2015 and 2016.

A comprehensive catalogue of maps depicting fishery-dependent spatial data is given in Annex 6.

A selection of maps depicting effort by main Fishing Region are given in Figures 3.6.3.3. and by macro-gear type are given in Figures 3.6.3.4.

A selection of maps landing by main Fishing Region are given in Figures 3.6.3.5. and by macro-gear type are given in Figures 3.6.3.6.

Additional spatial dara checks

During the work of the EWG in 2021, a new type of spatial data check was introduced, which was initially intended to indicate problems with an incorrect unit of measurement of landings. The idea was to merge spatial landings and spatial effort tables (tables H and I) and calculate a catch per unit of effort as a total landings weight divided by total number of fishing days. The first issue was noticed while summarizing effort data and was related to duplicated records. There were 4391 duplicated rows, which is ca. 0.5% of the total number of rows in table I. Landings of all species from table H were summarized and then merged with effort data. The key used to merge the data consisted of all available variables. As a result, almost 90% of records were successfully merged. Based on the combined dataset, a series of plots showing CPUE were prepared. The plots allowed to identify outliers in cpue, which might be related to the problem with units used for landings weights. However, having analysed the data connected with outliers, other data issues have been identified,

which are mainly related to effort values. In some cases, effort was very low, e.g., 0.00001 fishing day. The other case is when effort provided in table I was equal to zero, which might result from rounding of values done by data submitters. Other outliers of cpue might come from differences in methodologies used by counties to allocate landings and effort to rectangles. For effort and landings data, which could not be merged, another type of analysis was performed in order to find an explanation. It turned out, that in many cases effort and landings could not be merged because of discrepancies of codes used in columns: SPECON_TECH, DEEP, MESH_SIZE and METIER between the two tables. When excluding these columns from the merging key, the number of merged data improves. Therefore, it should be mentioned that for unmerged data, effort corresponding to landings is not missing, but there is a mismatch in the above-mentioned columns. Figures 3.6.3.1 and 3.6.3.2 show example plots of calculated cpue from the entire dataset covering years 2014-2020. In order to make the plot more readable, countries with the highest outliers were excluded. Plots showing cpue by vessel length categories and countries are available in Annex 7.

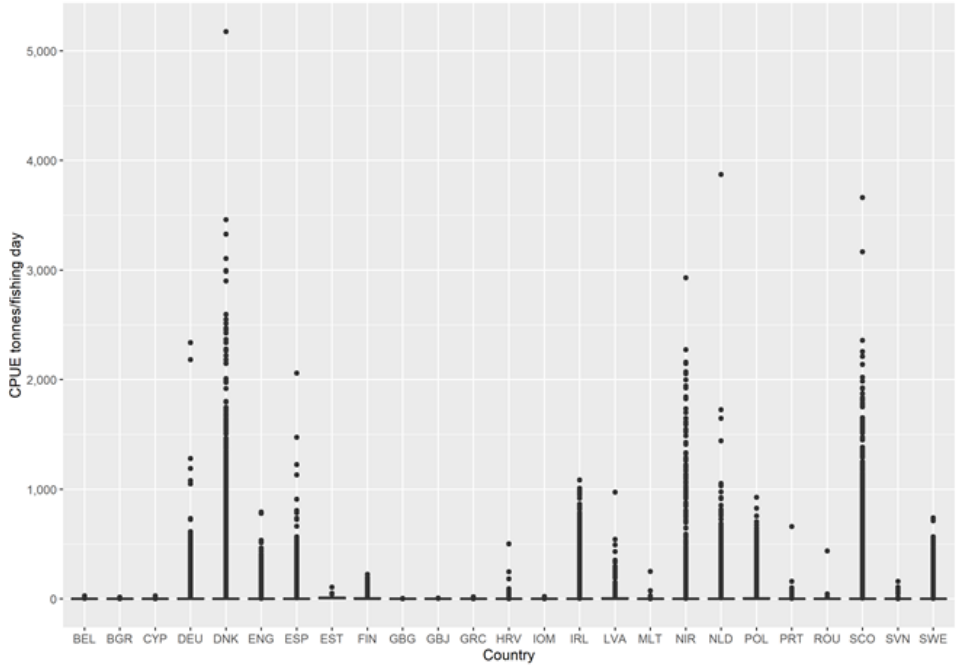


Figure 3.6.3.1: CPUE by country

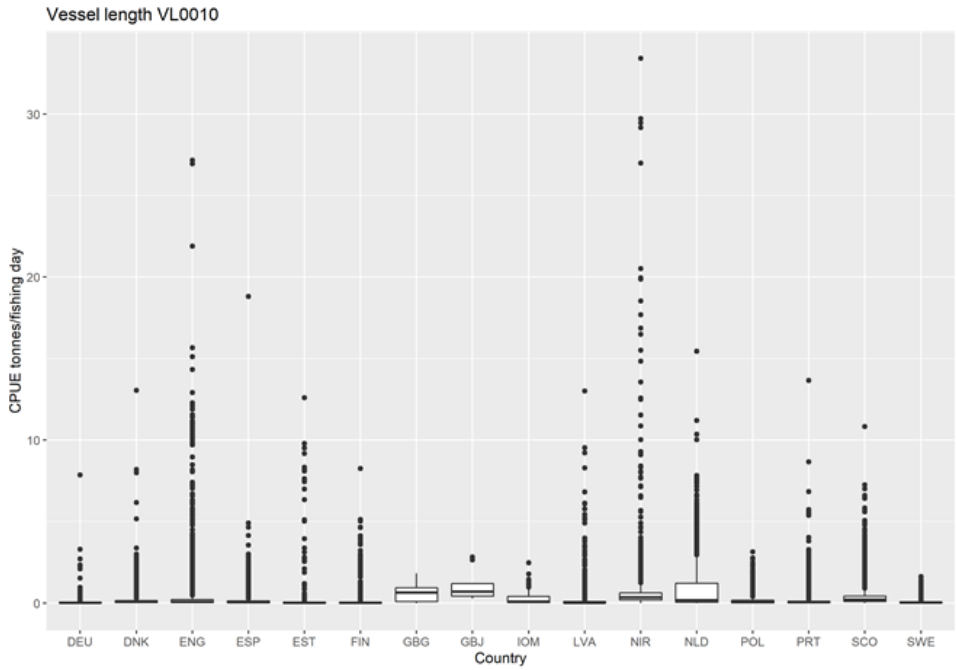
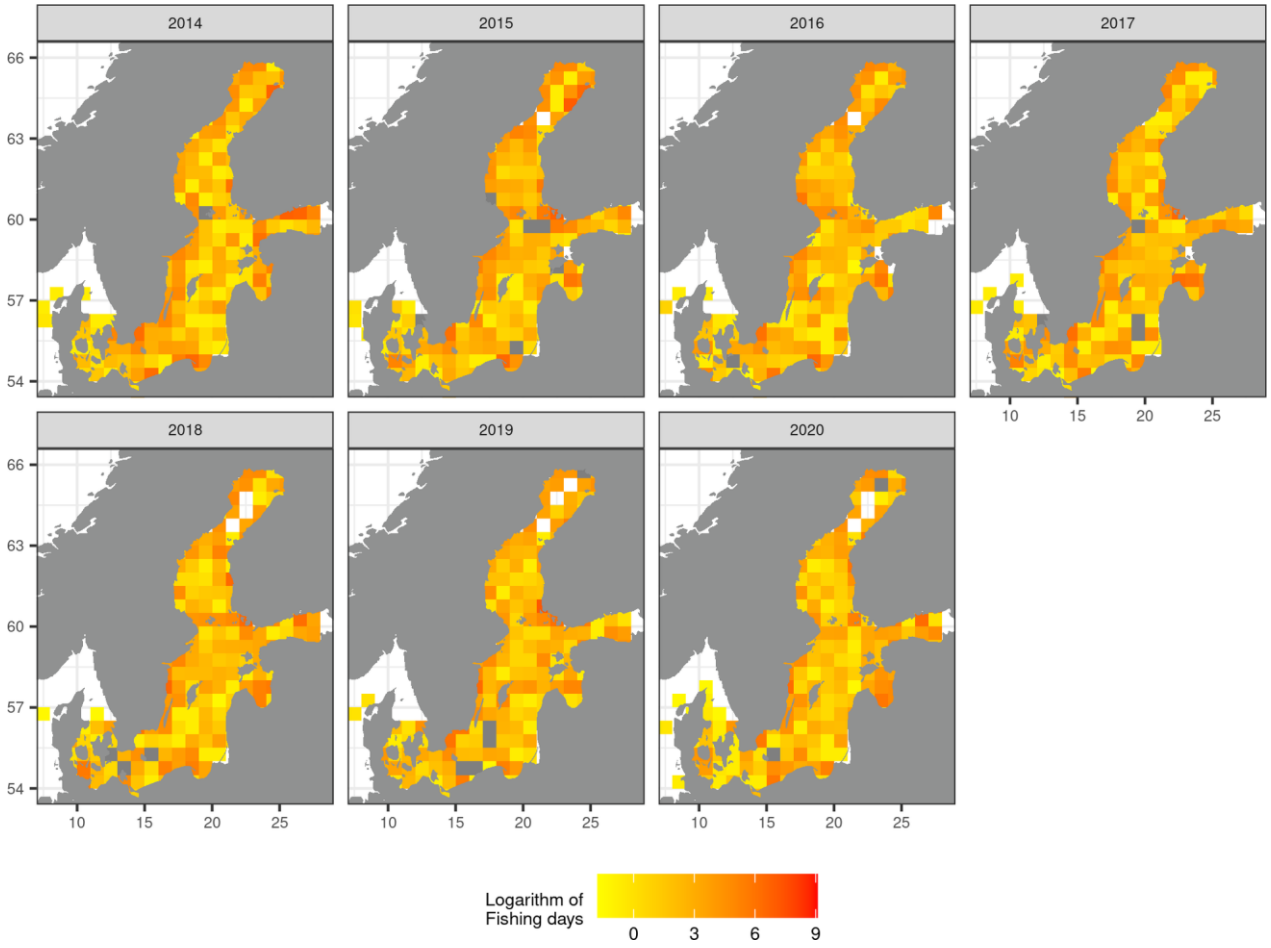


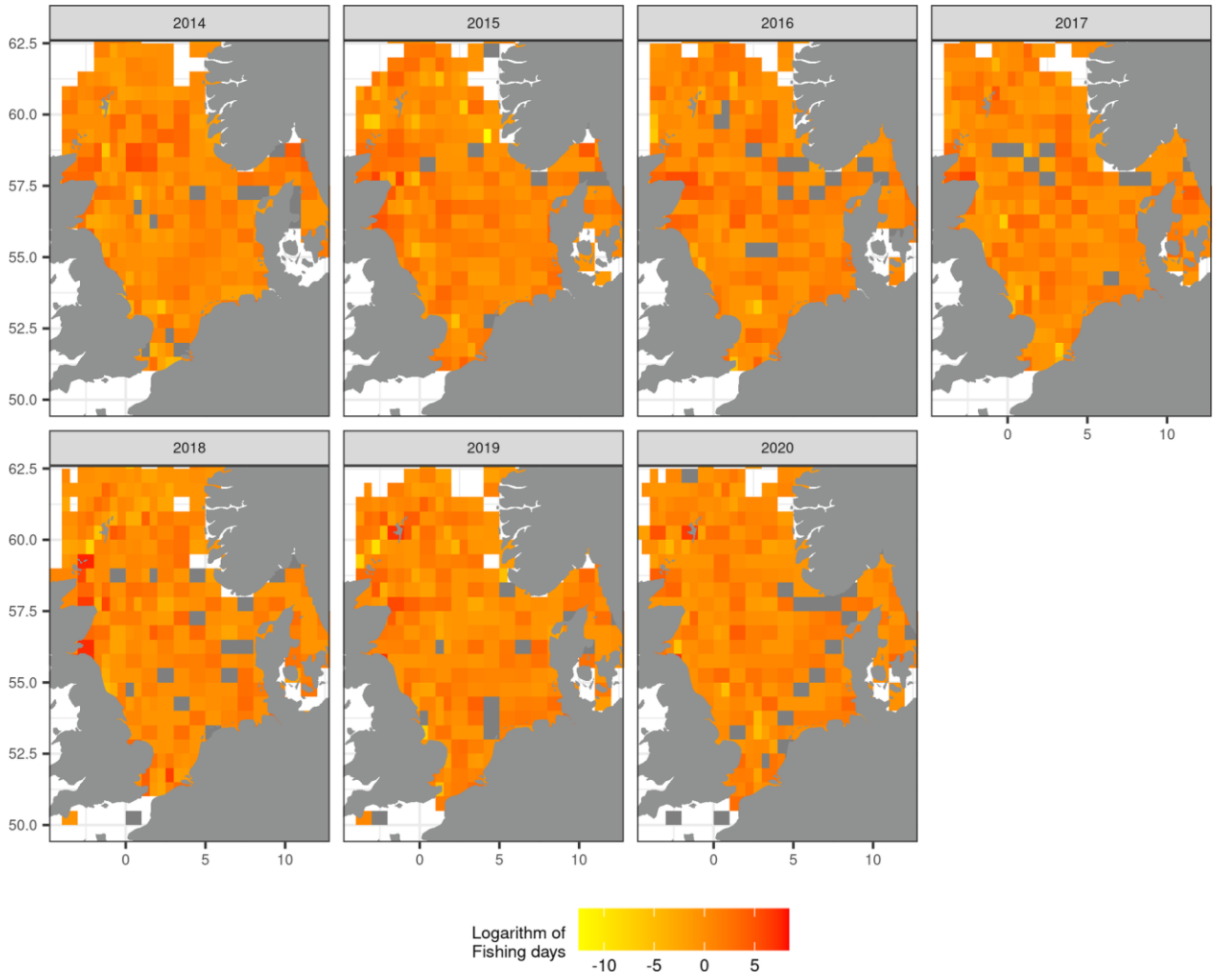
Figure 3.6.3.2: CPUE by country for vessel length category VL0010

Figure 3.6.3.3: *Spatial effort maps by main fishing zones*

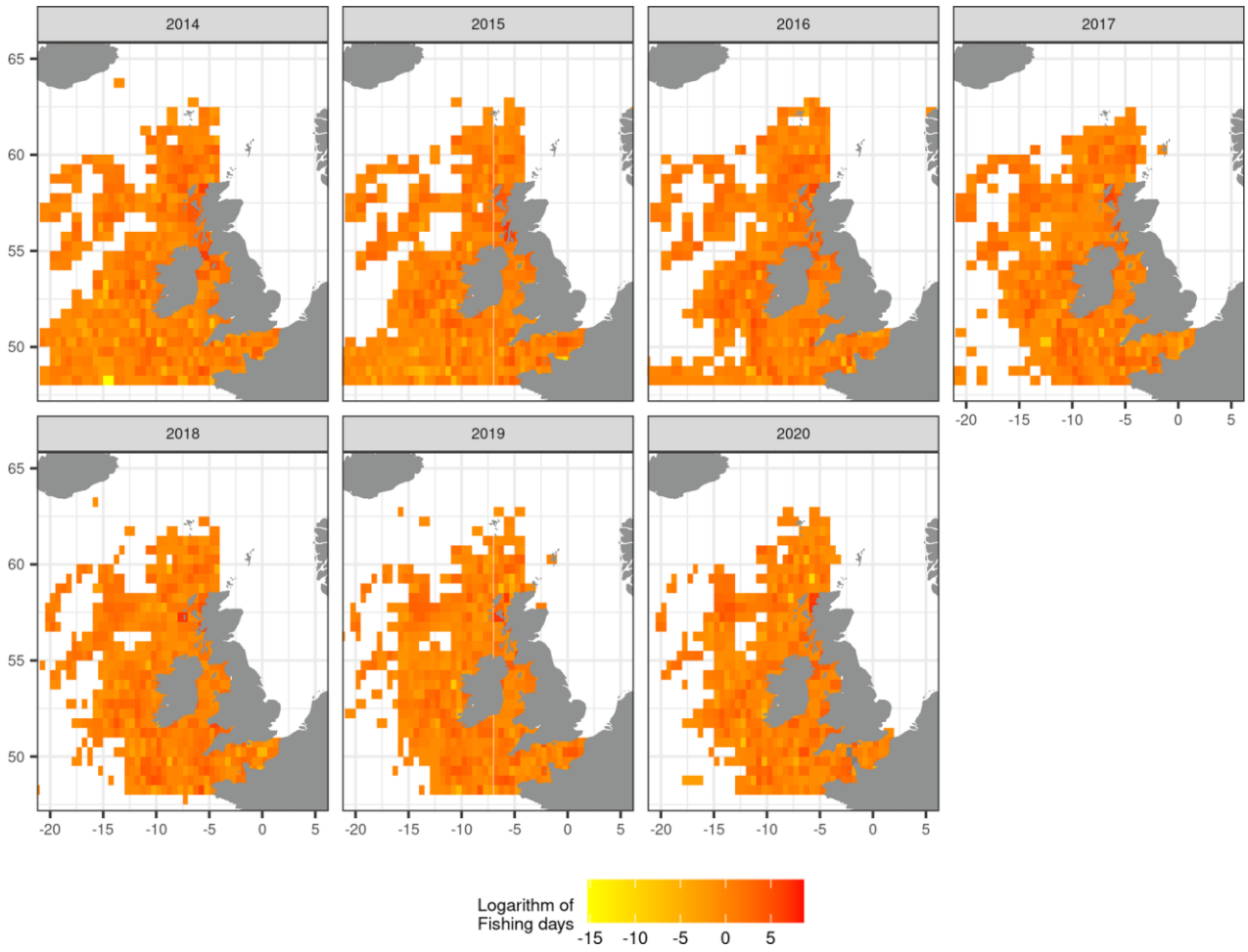
a) Baltic Sea



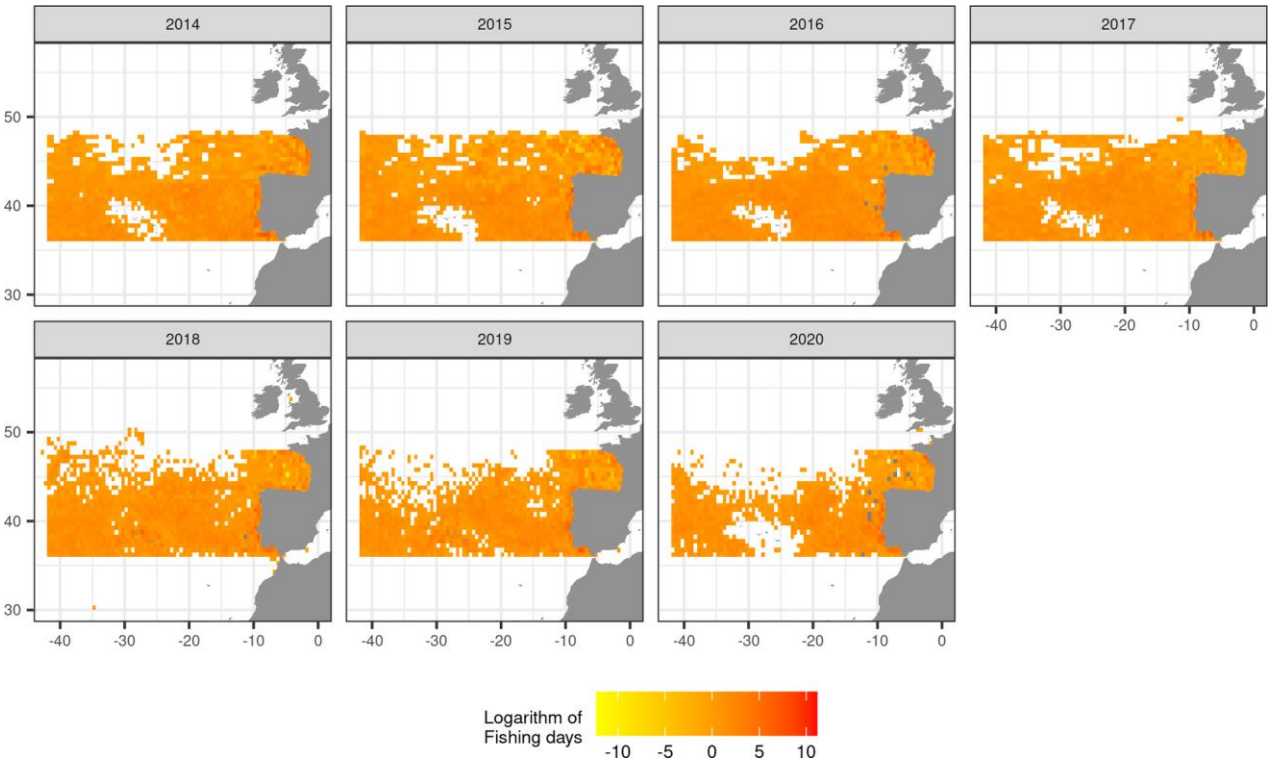
b) North Sea


2014
2015
2016
2017
2018
2019
2020
62.5
60.0
57.5
55.0
52.5
50.0
0
5
10
Logarithm of
Fishing days
-10
-5
0
5

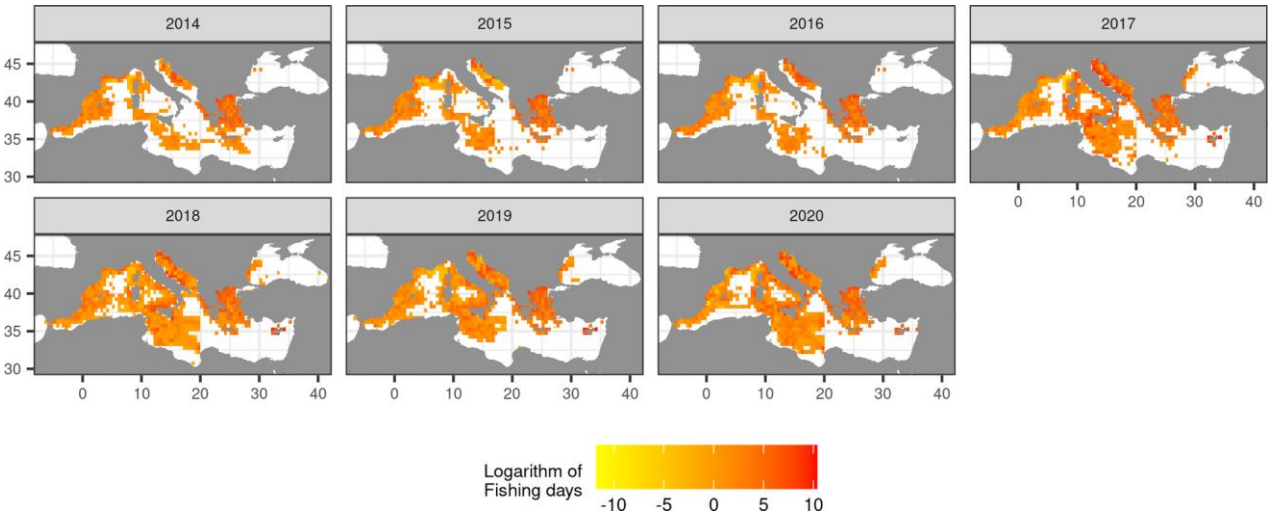
c) North Western Waters



d) South Western Waters



e) Mediterranean and Black Sea



f) Distant Waters

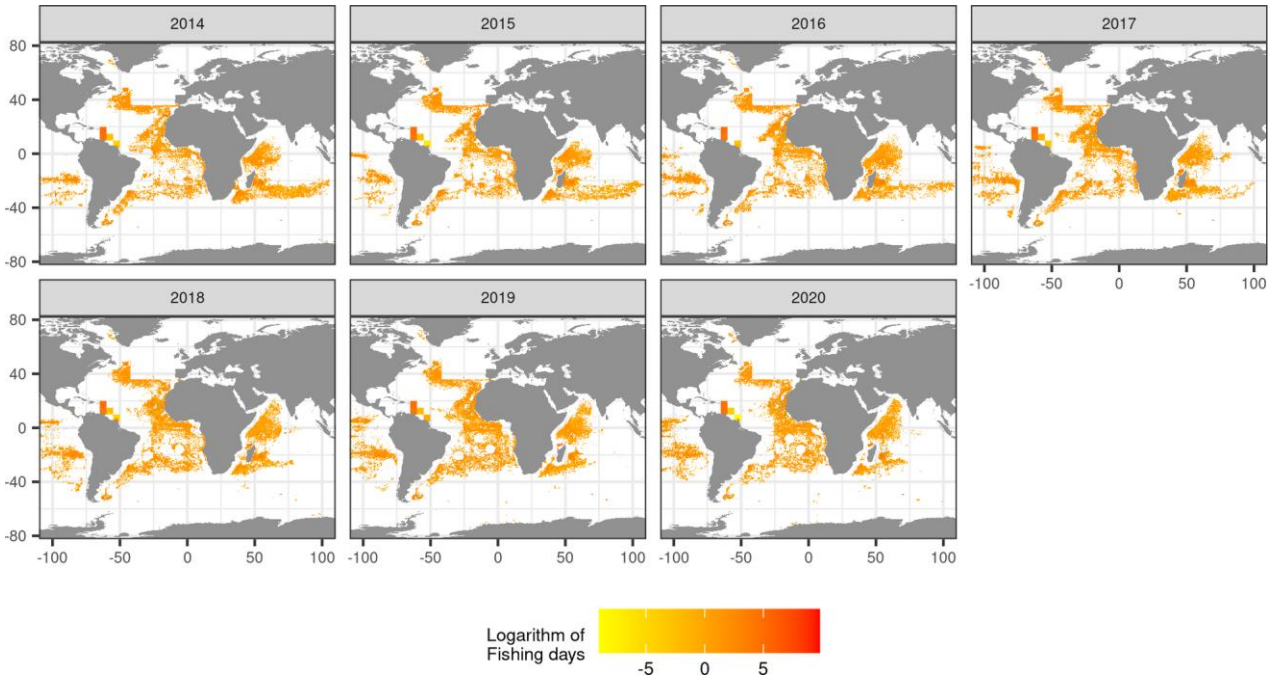
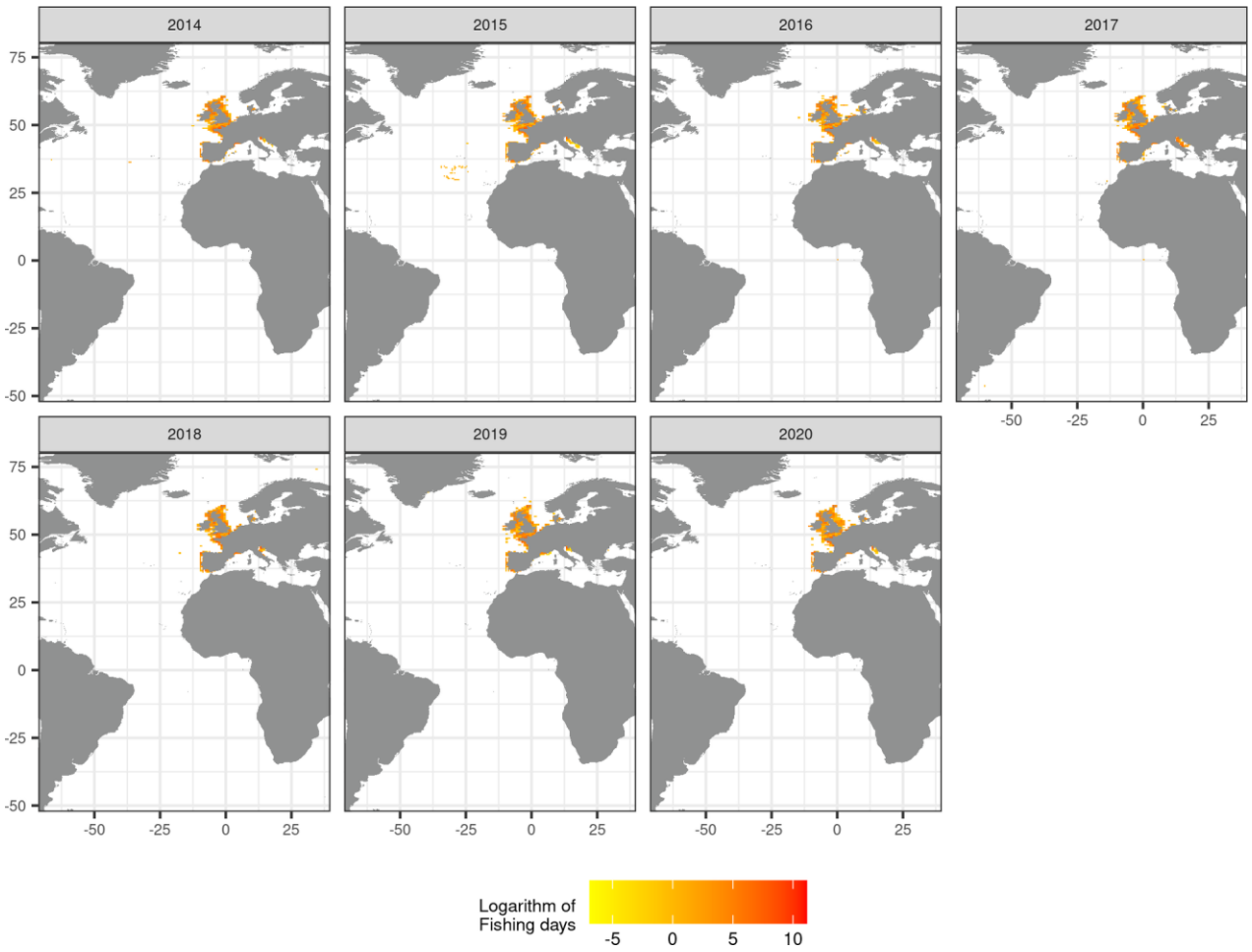
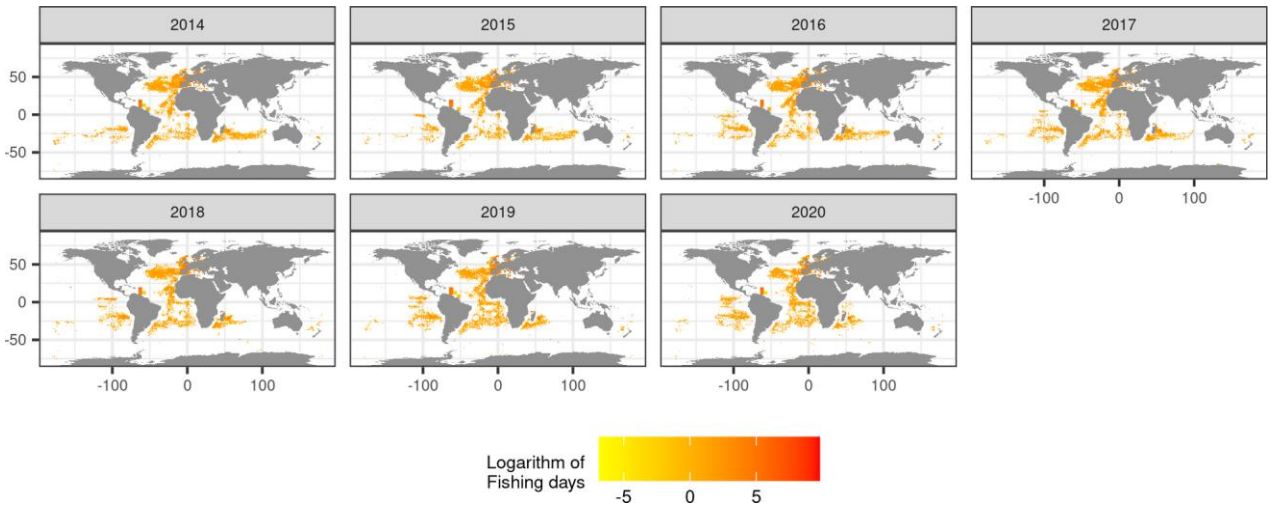


Figure 3.6.3.4: *Spatial effort maps by main gear types*

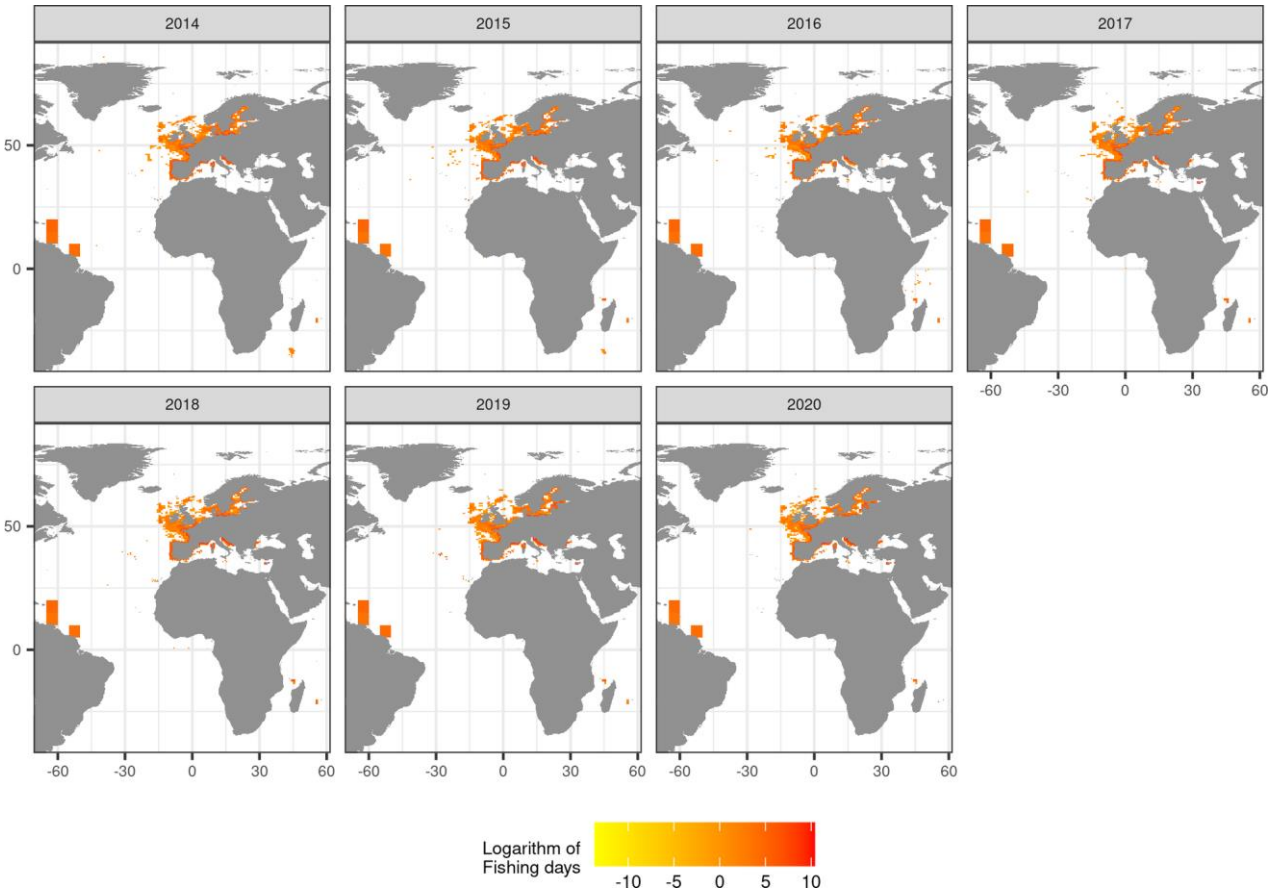
a) Dredges



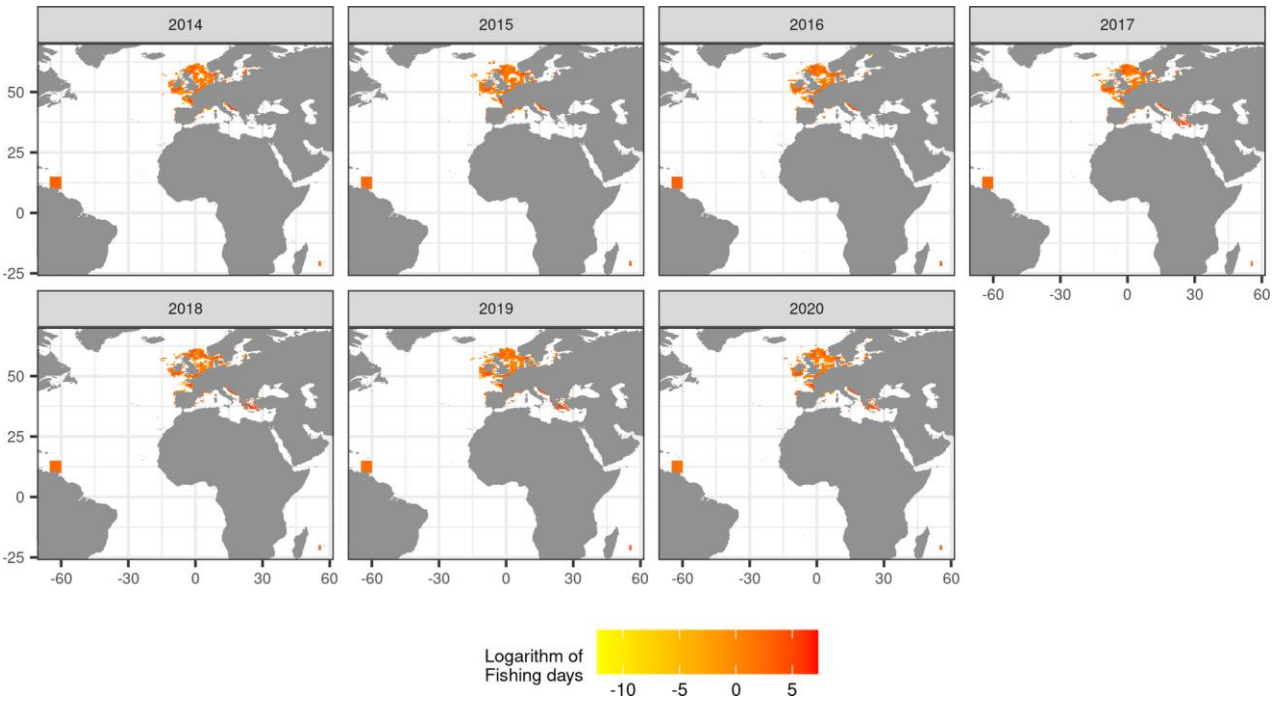
b) Hooks



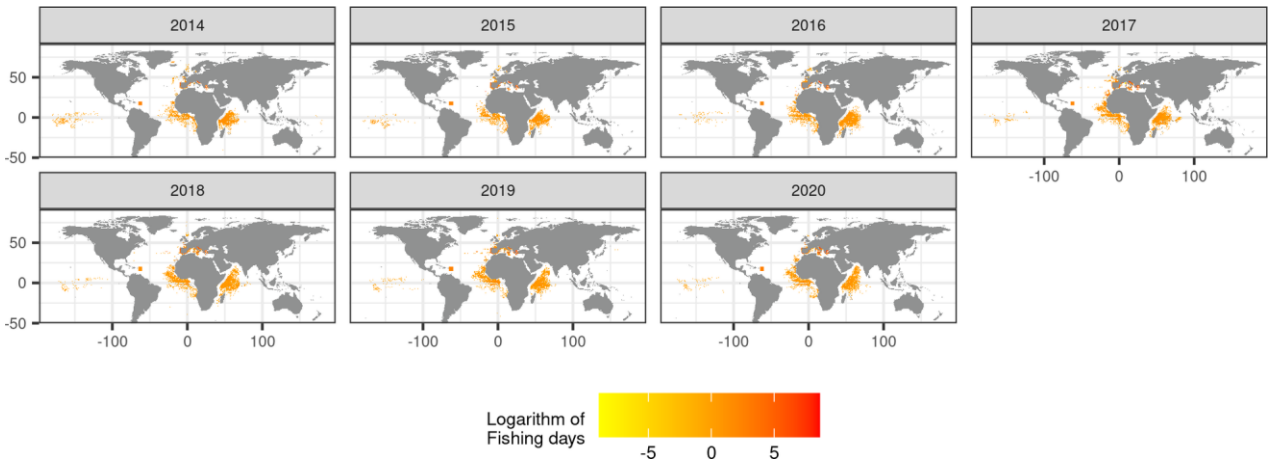
c) Nets



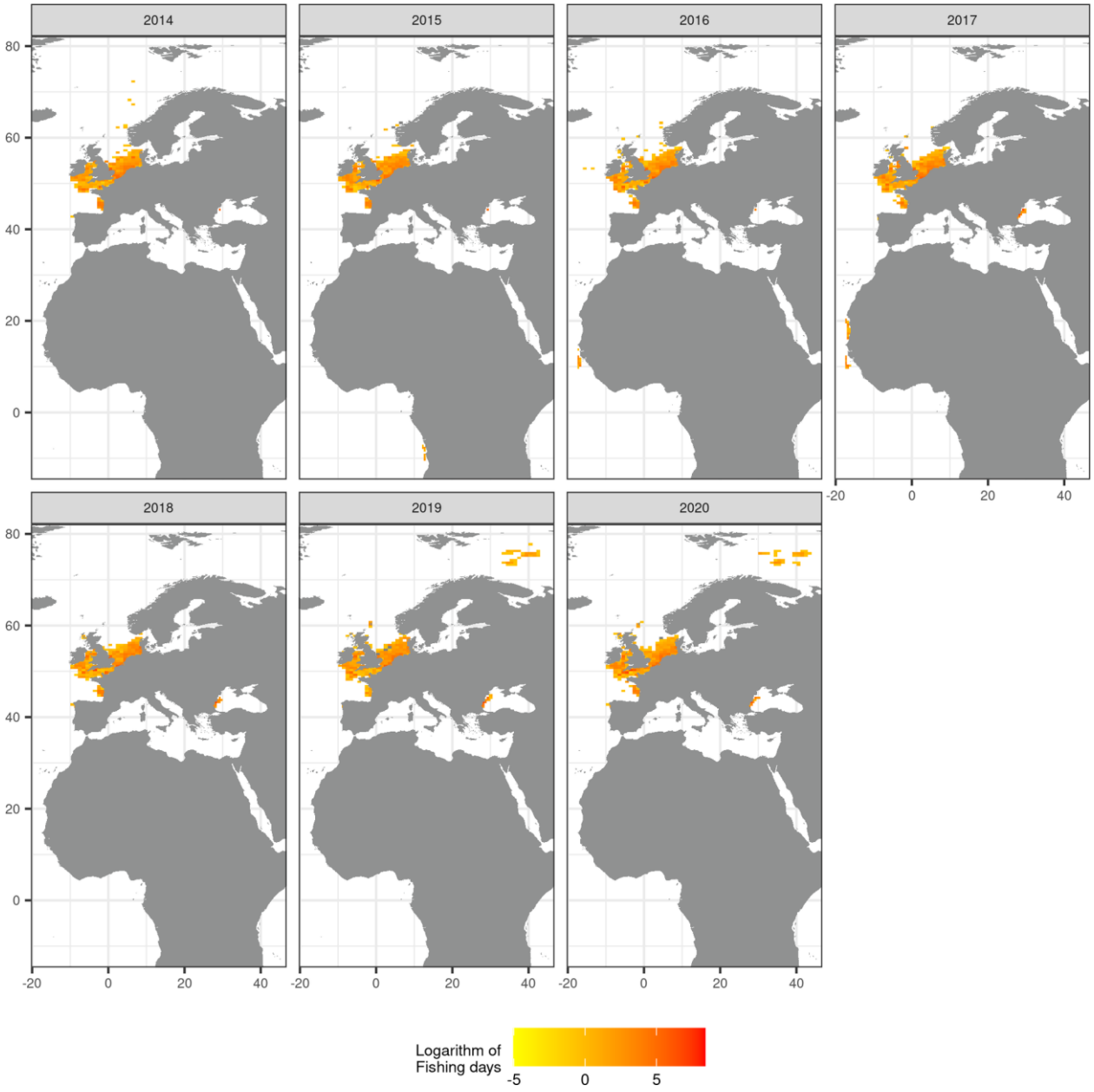
d) Seines



e) Surrounding nets

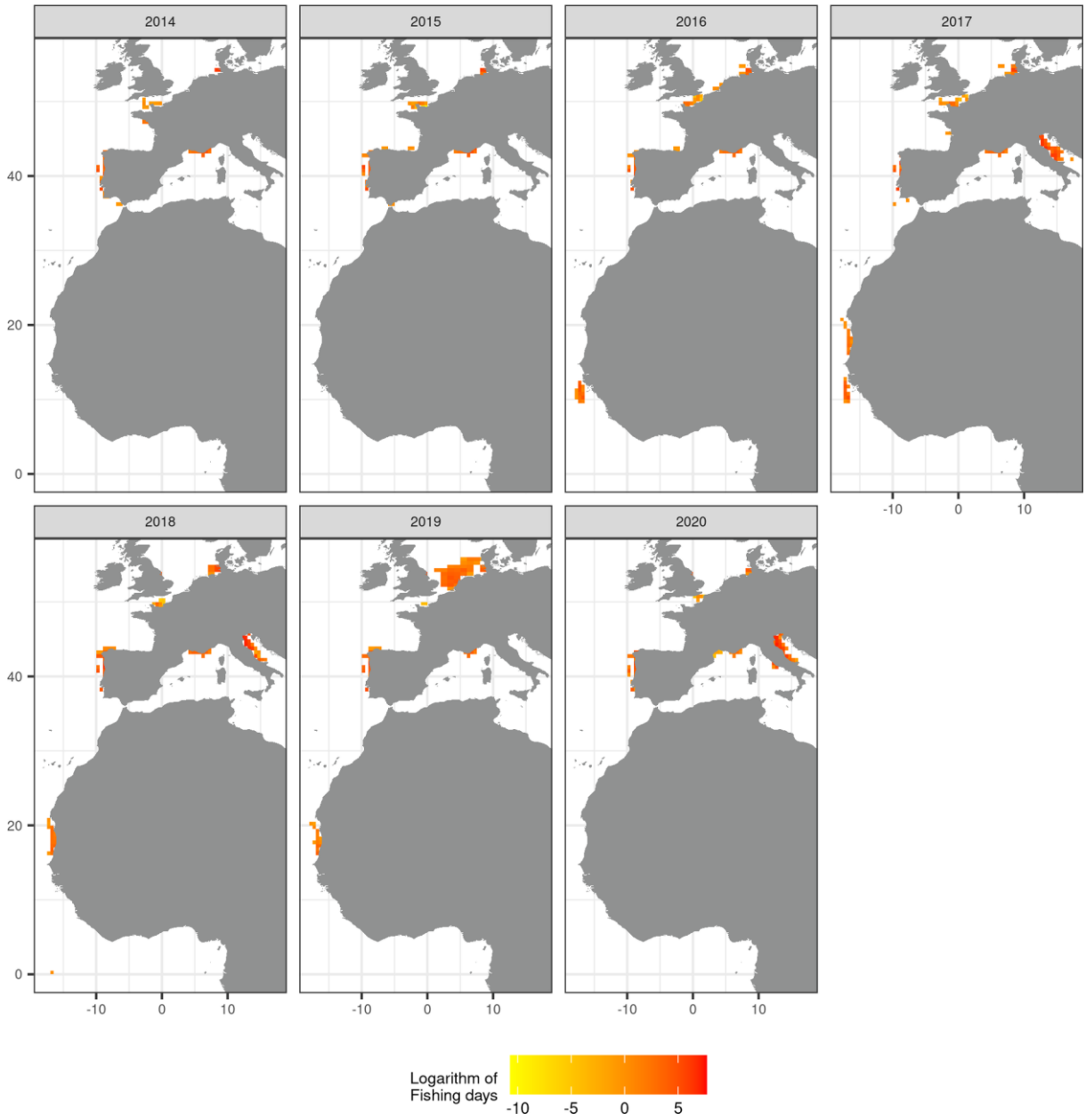


f) Beam trawlers with less than 120mm mesh size

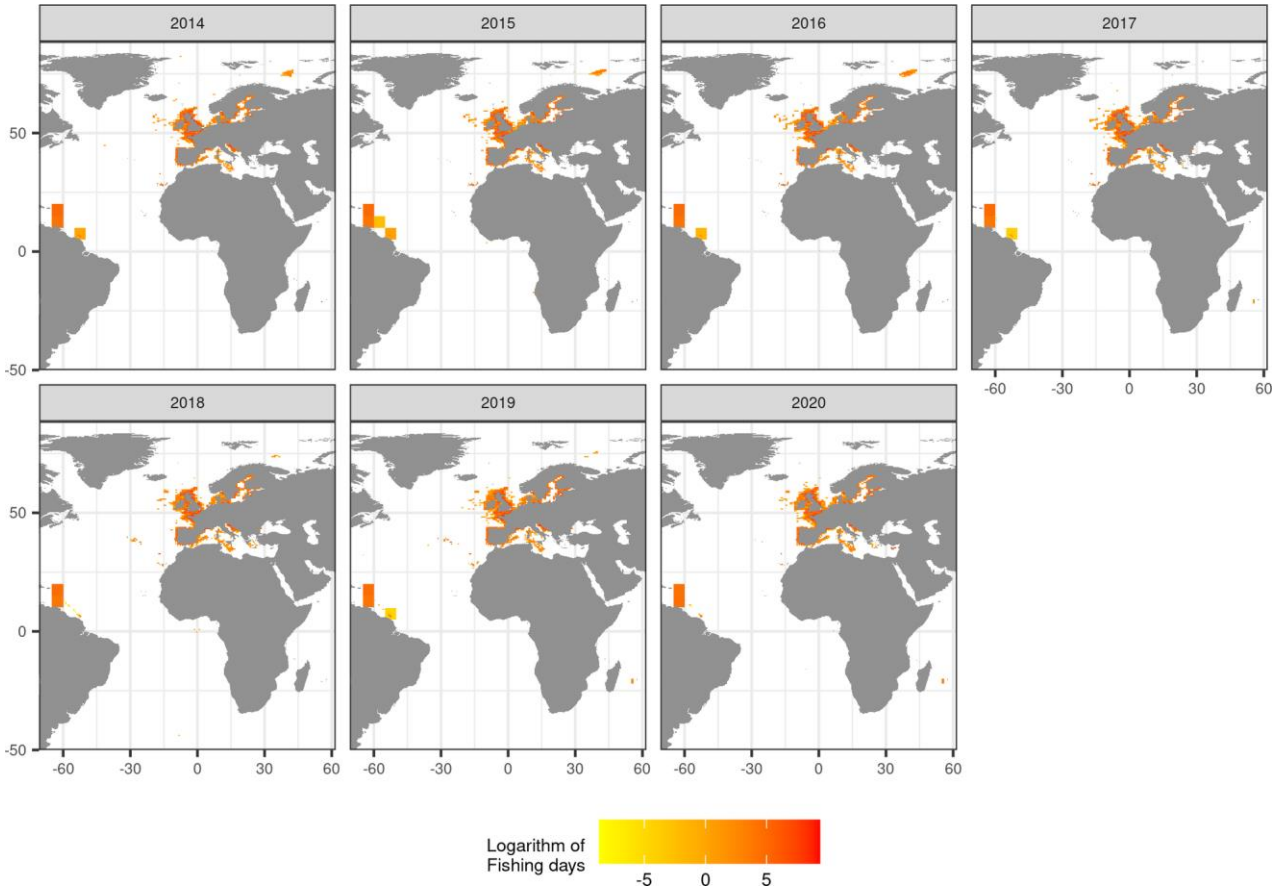


g) Beam trawlers with more than 120mm mesh size

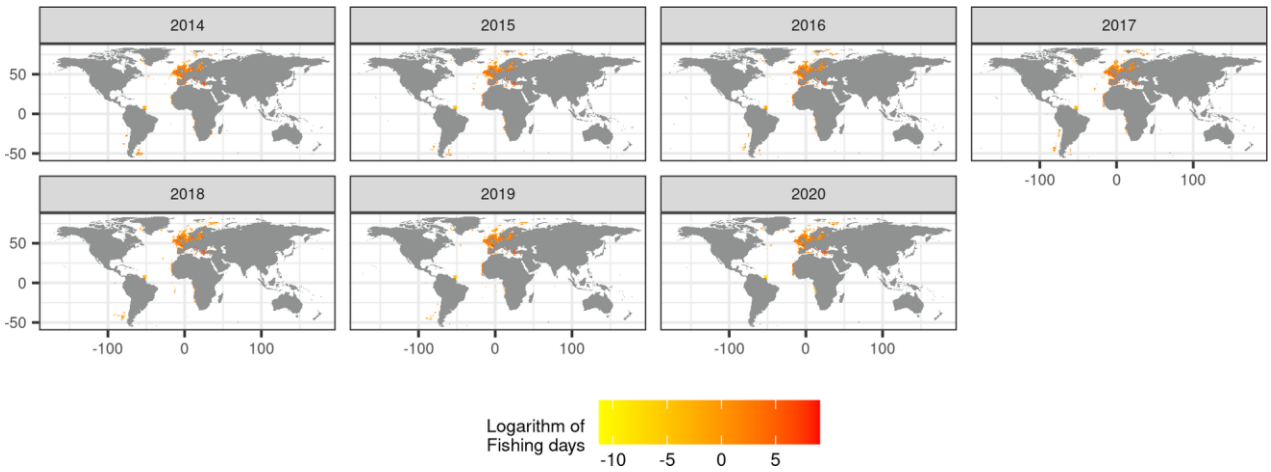
h) Beam trawlers with unknown mesh size



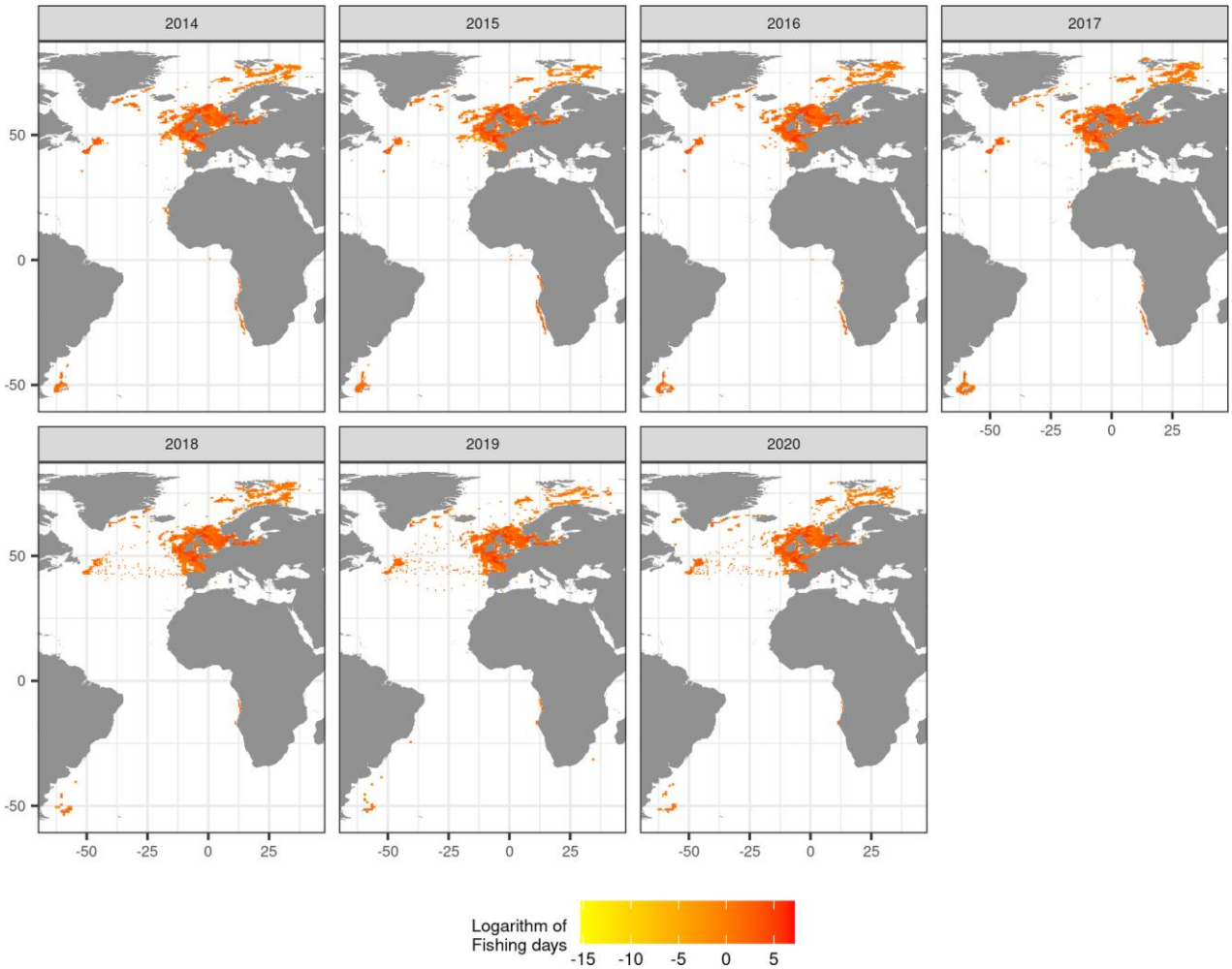
i) Traps


2014
2015
2016
2017
2018
2019
2020
50
0
-50
-60
-30
0
30
60
Logarithm of
Fishing days
-5
0
5

j) Trawlers with less than 100mm mesh size



k) Trawlers with more than 100mm mesh size



l) Trawlers with unknown mesh size

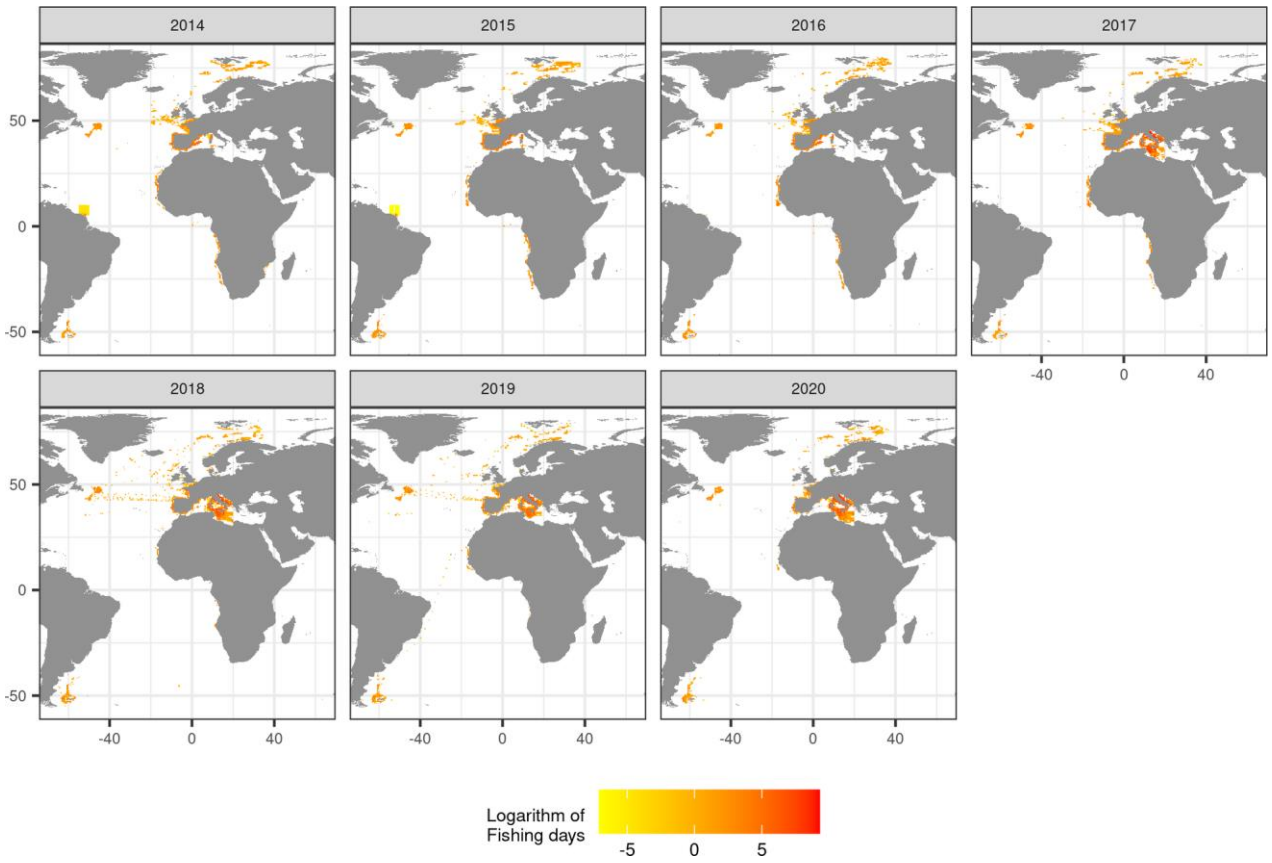
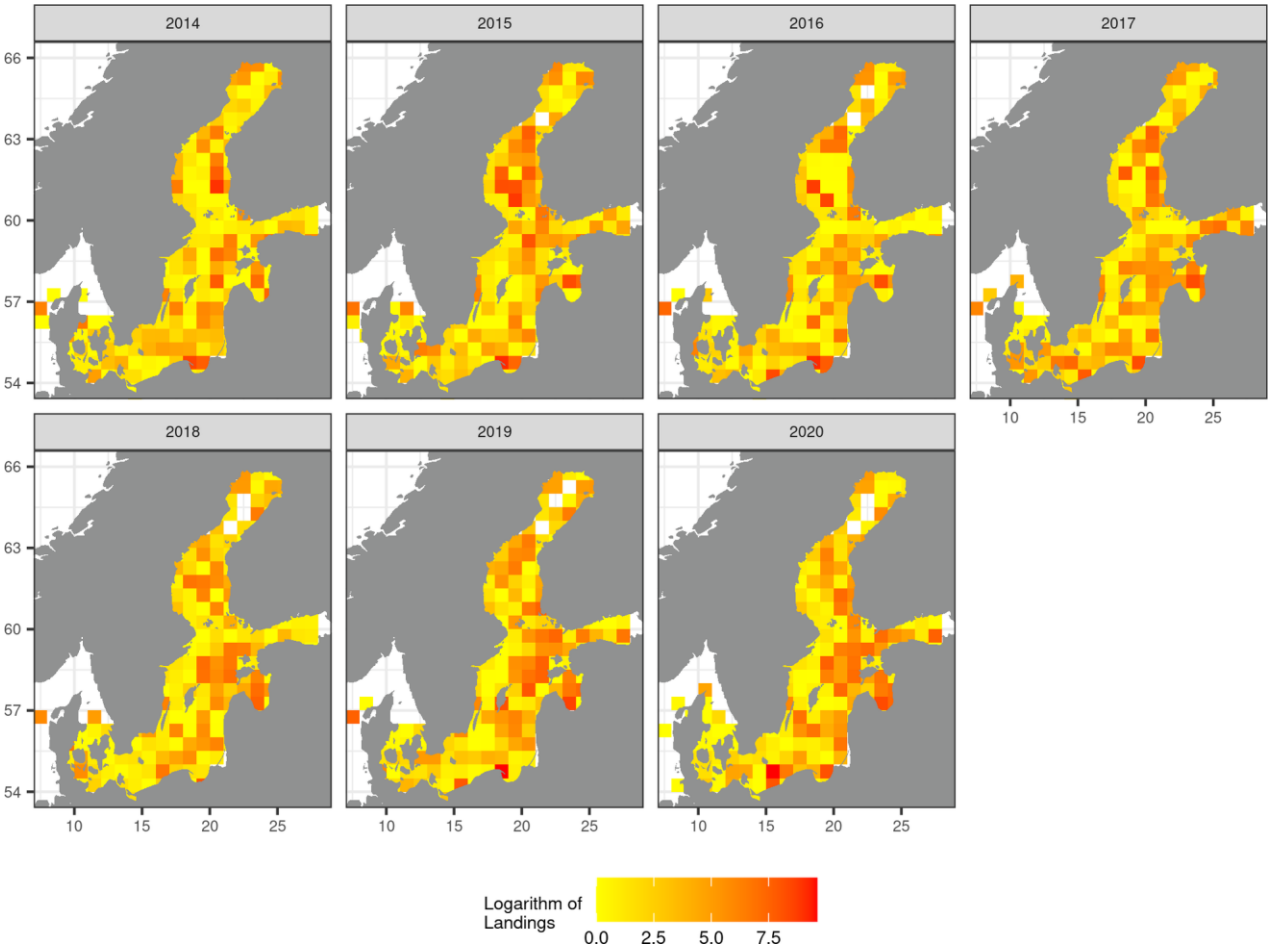
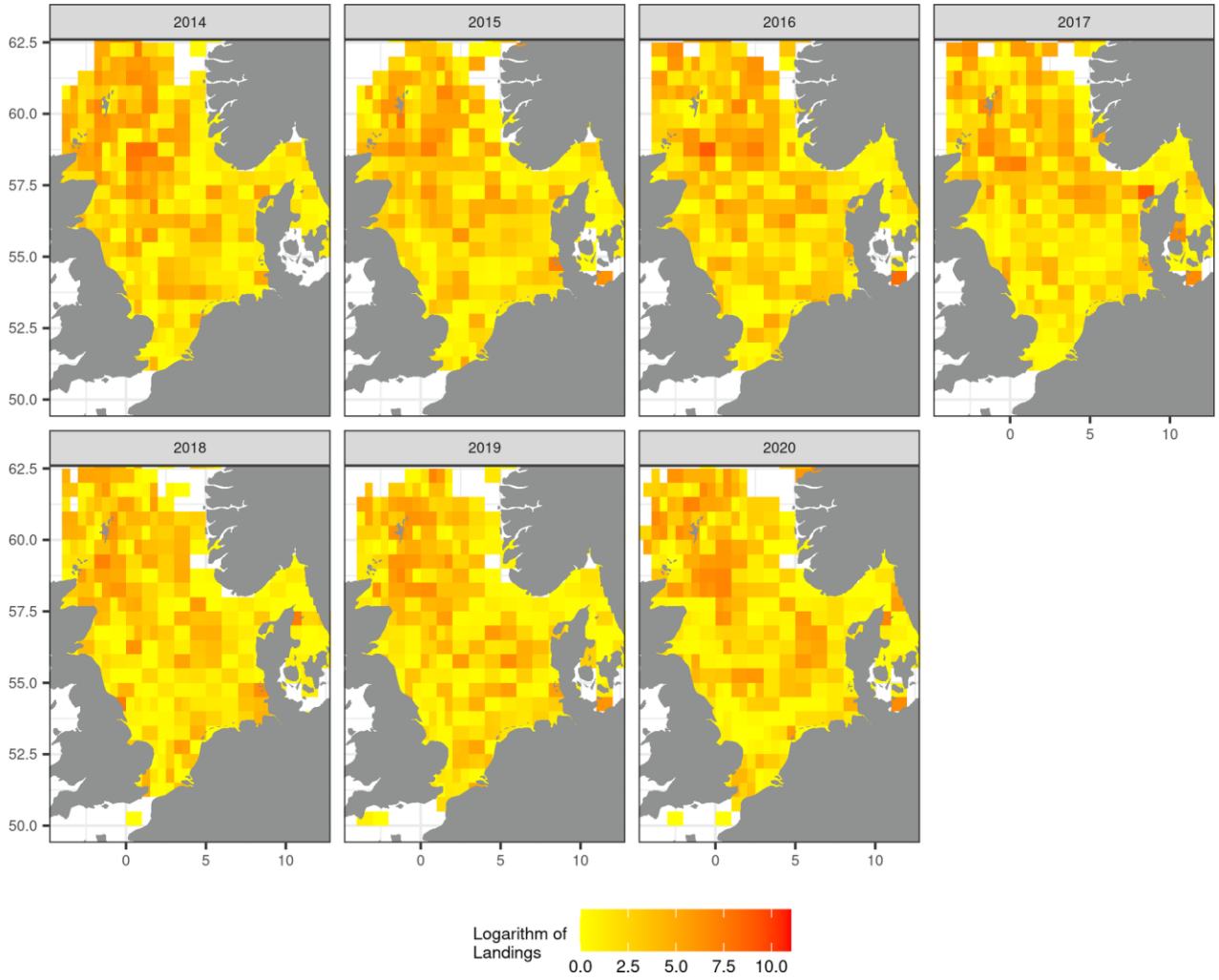


Figure 3.6.3.5: *Spatial landings maps by main fishing region*

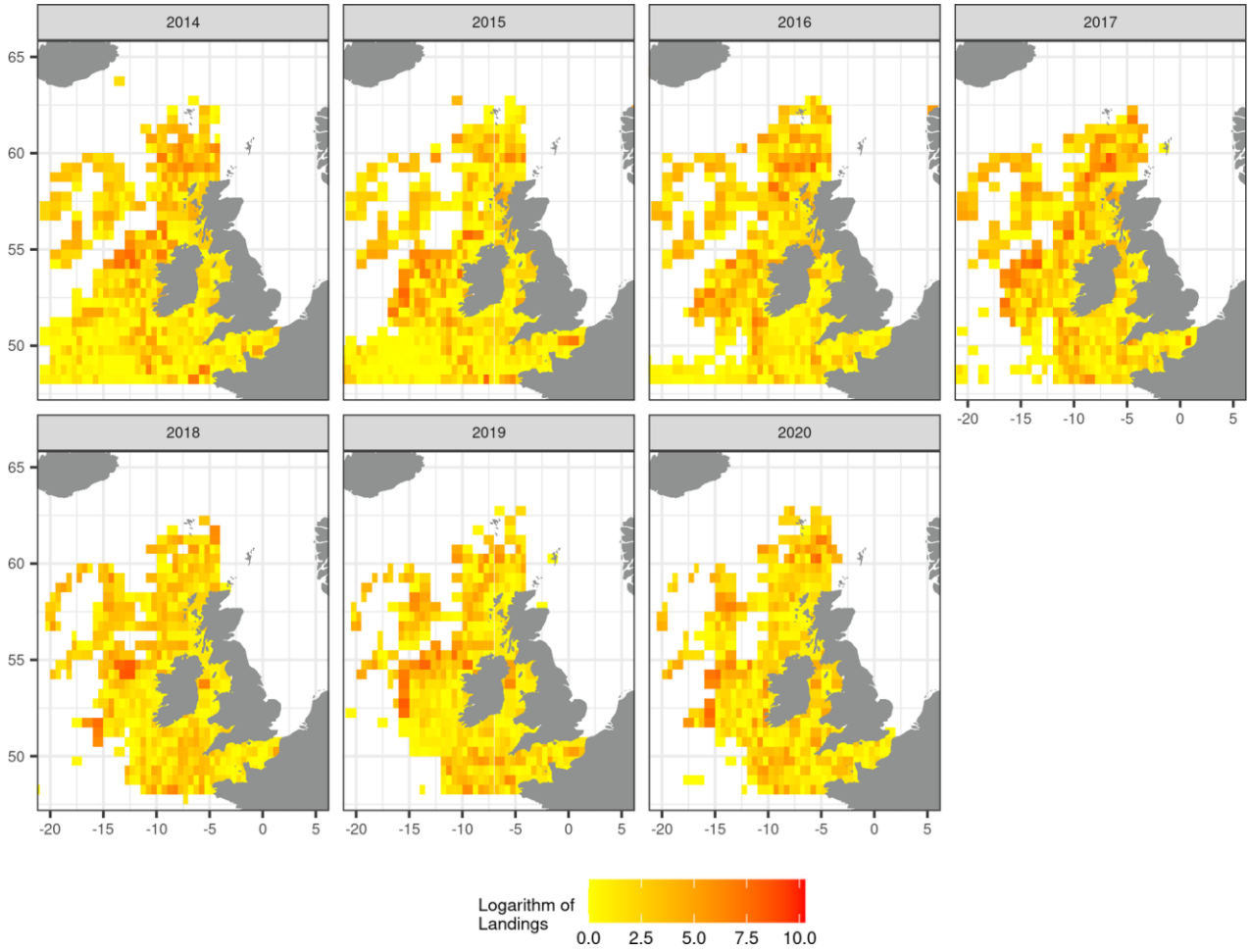
a) Baltic Sea



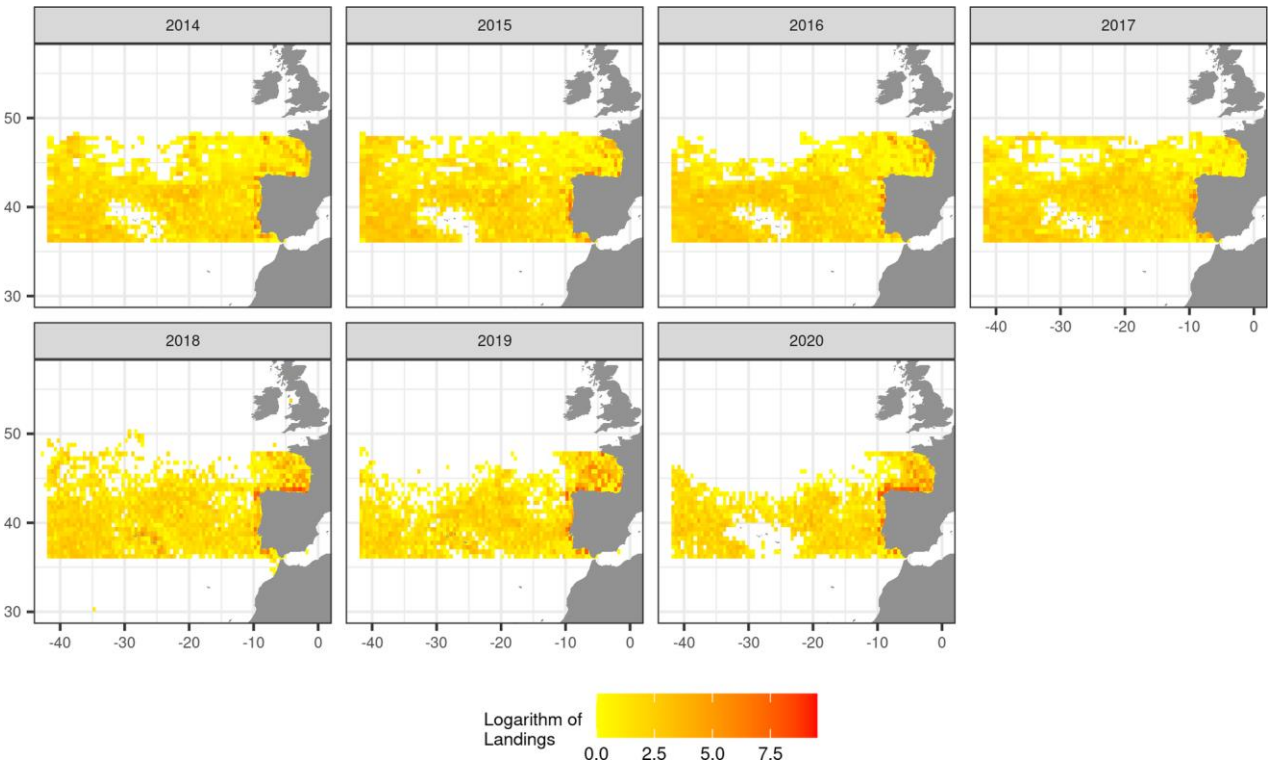
b) North Sea


2014
2015
2016
2017
2018
2019
2020
62.5
60.0
57.5
55.0
52.5
50.0
0
5
10
Logarithm of Landings
0.0
2.5
5.0
7.5
10.0

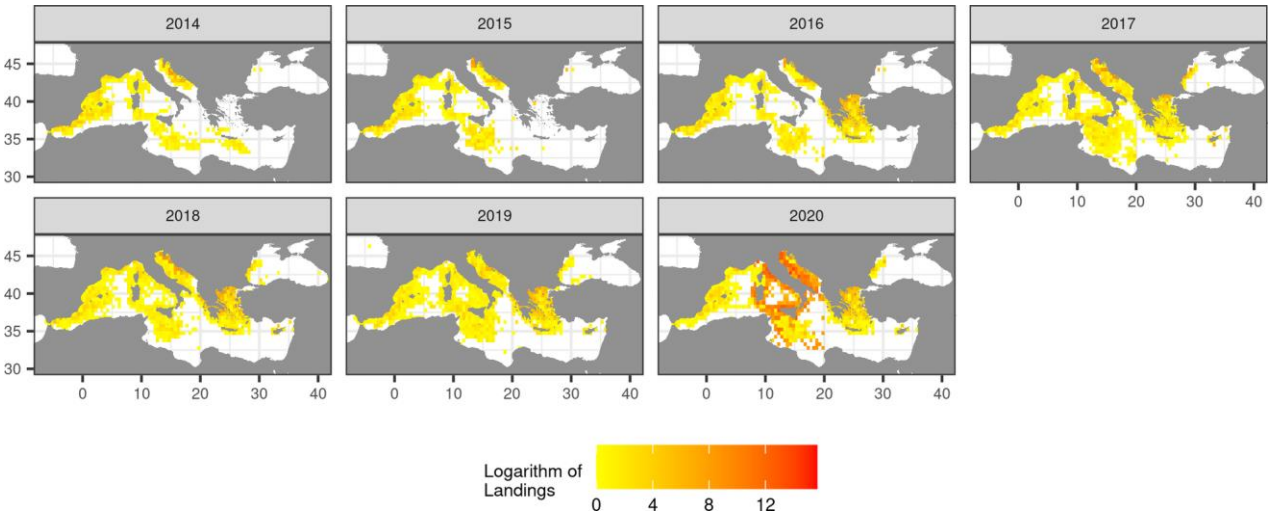
c) North Western Waters



d) South Western Waters



e) Mediterranean and Black Sea



f) Distant waters

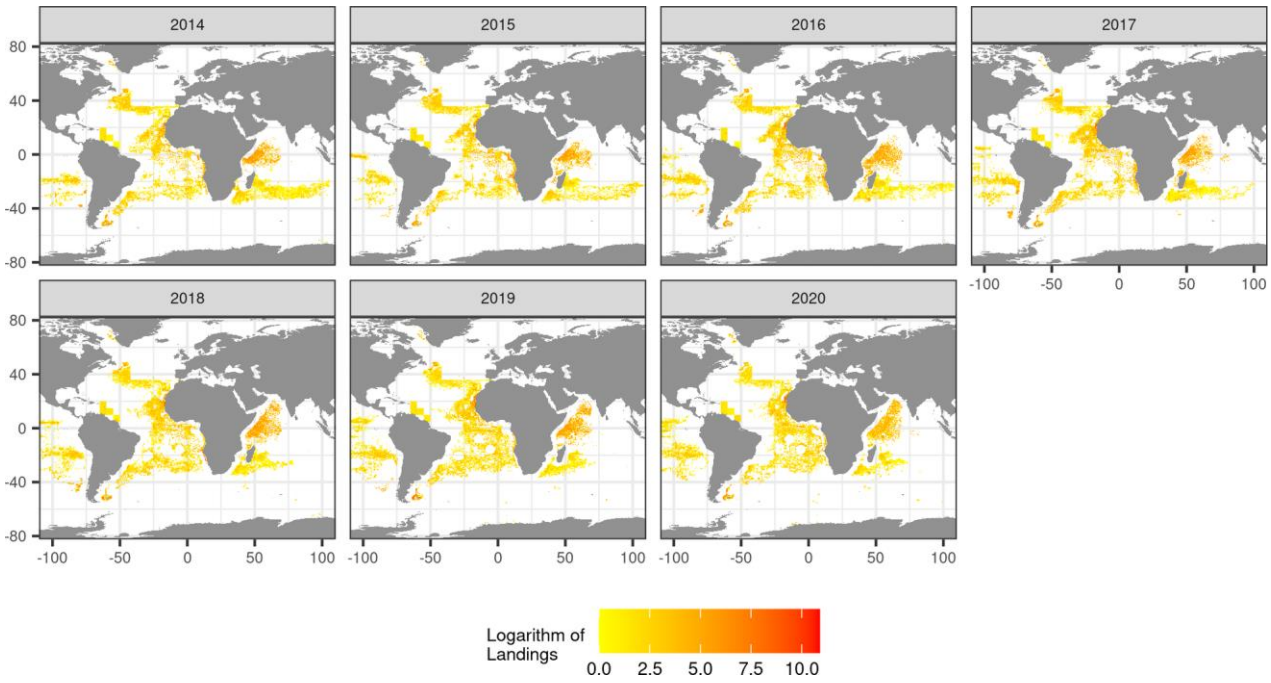
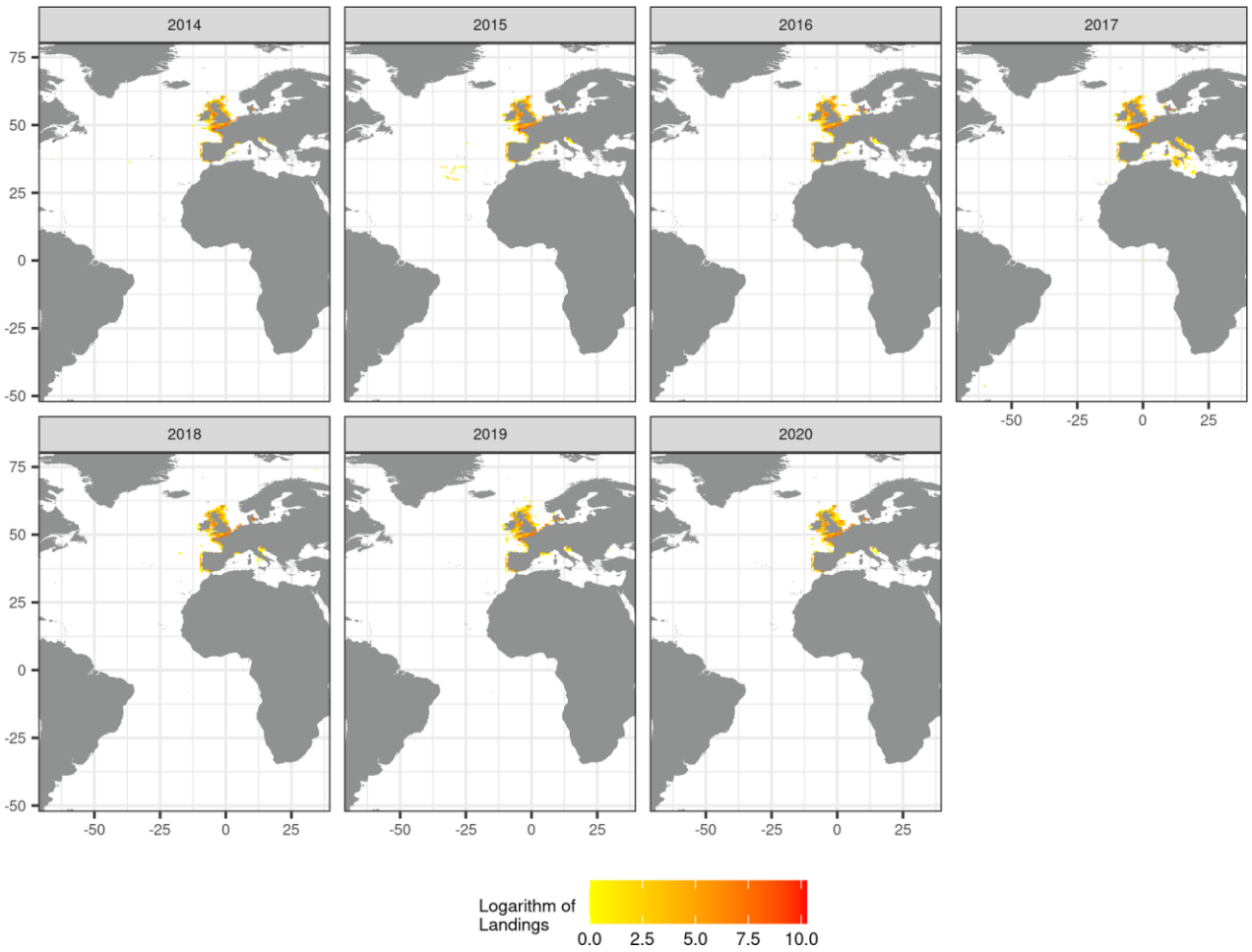
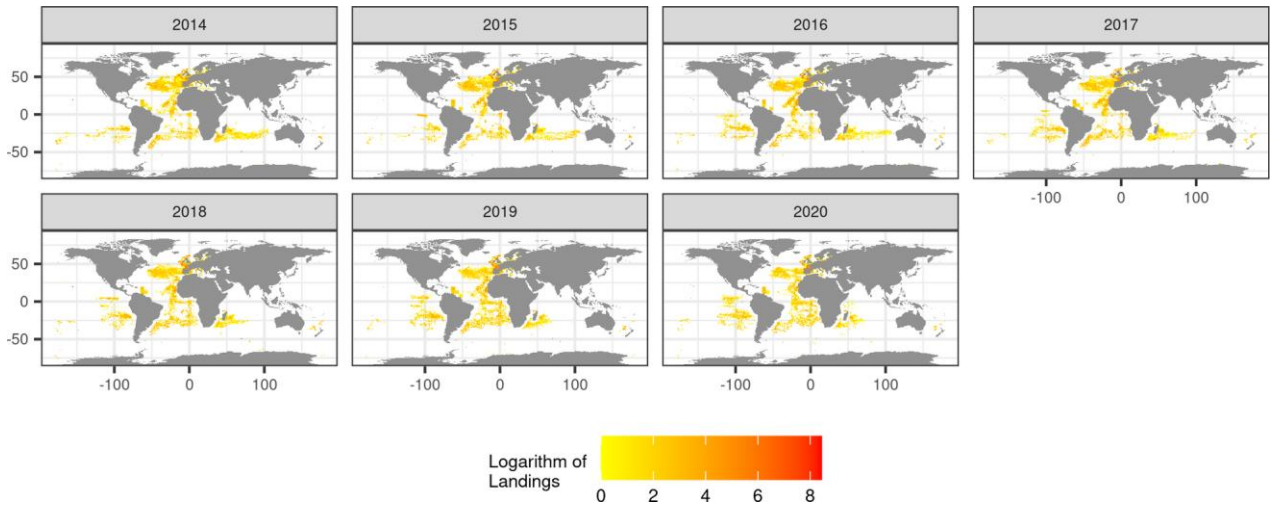


Figure 3.6.3.6: *Spatial landings maps by main gear types*

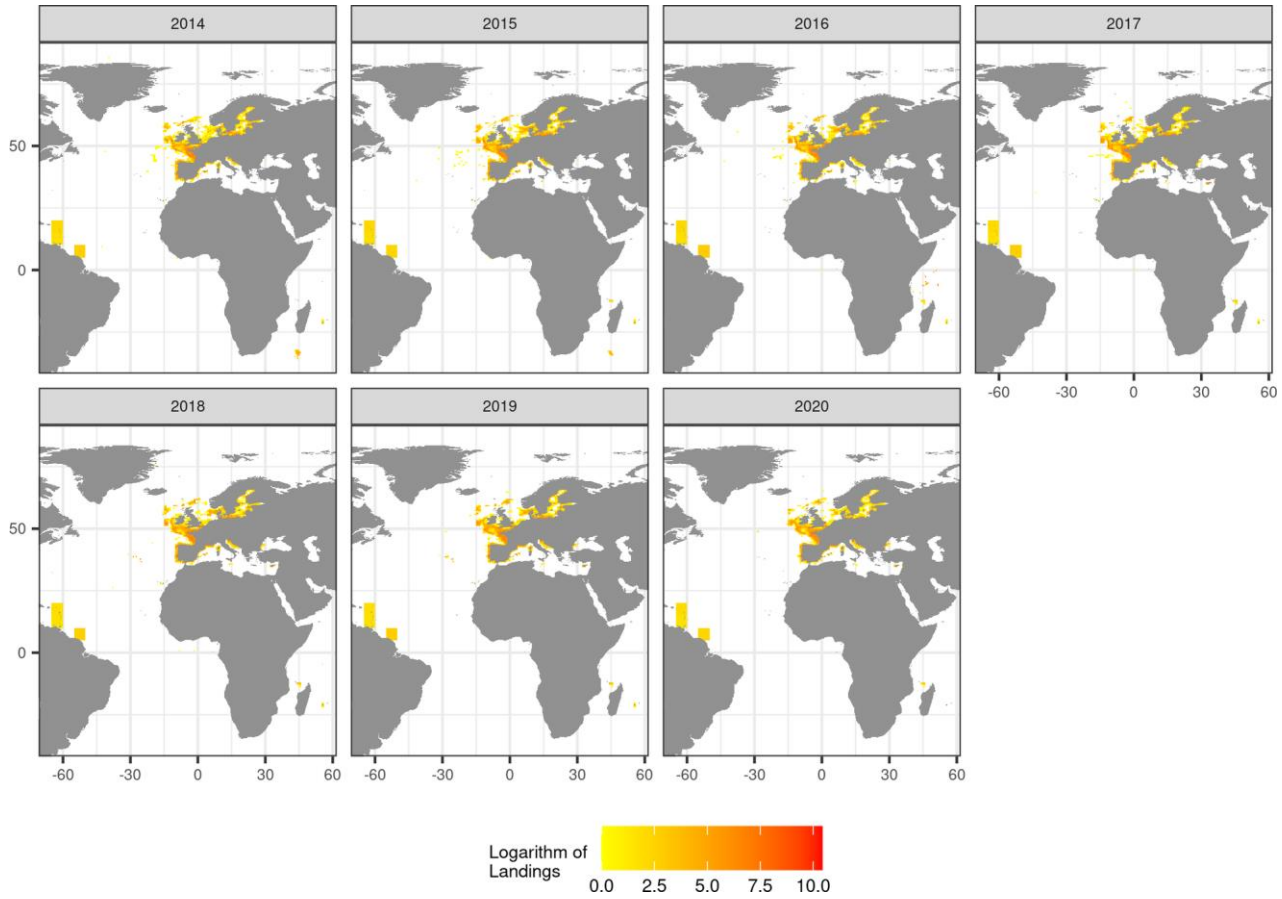
a) Dredges



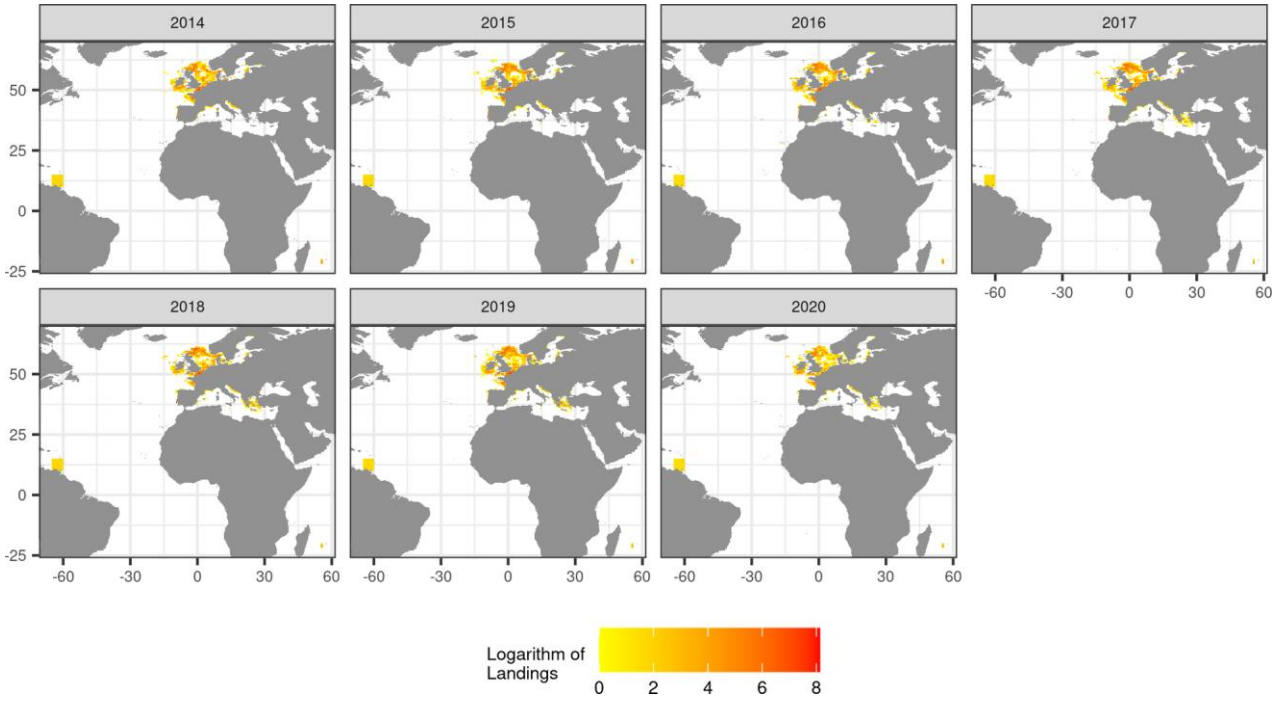
b) Hooks



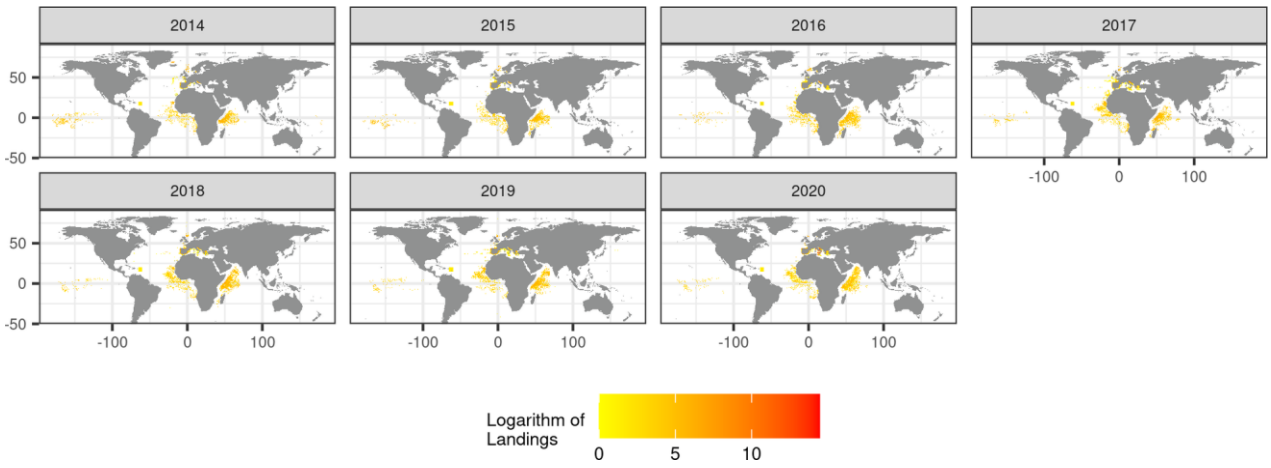
c) Nets



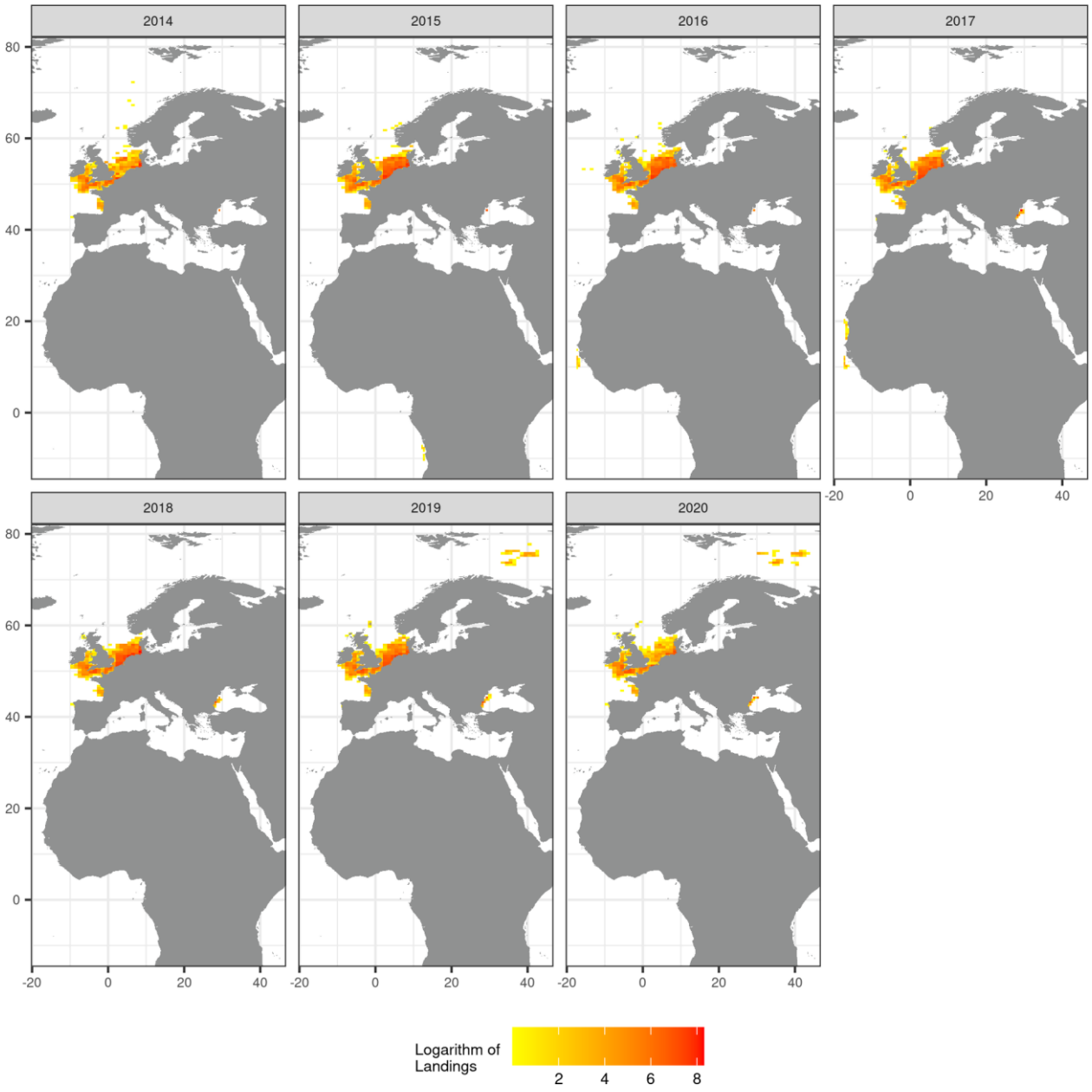
d) Seines



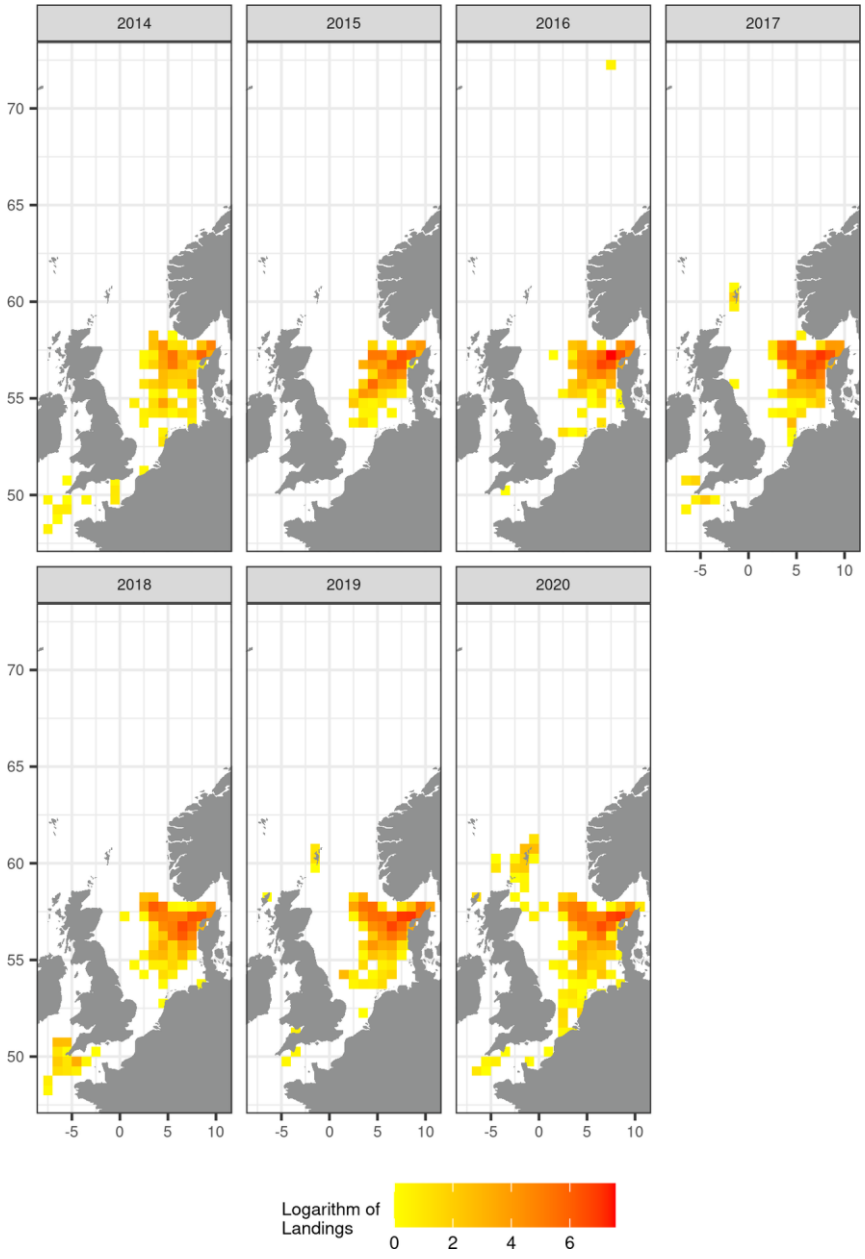
e) Surrounding nets



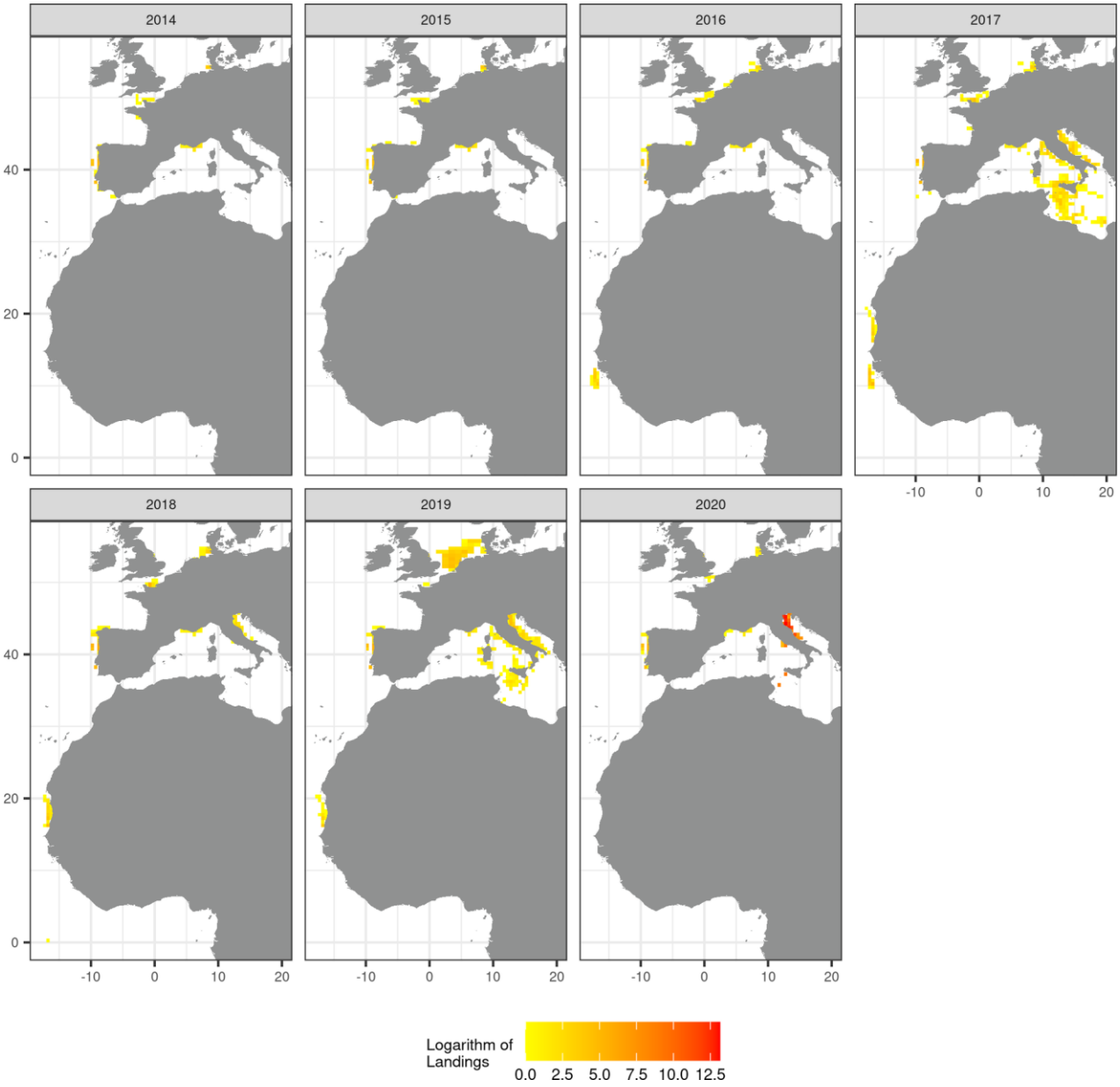
f) Beam trawlers with less than 120mm mesh size



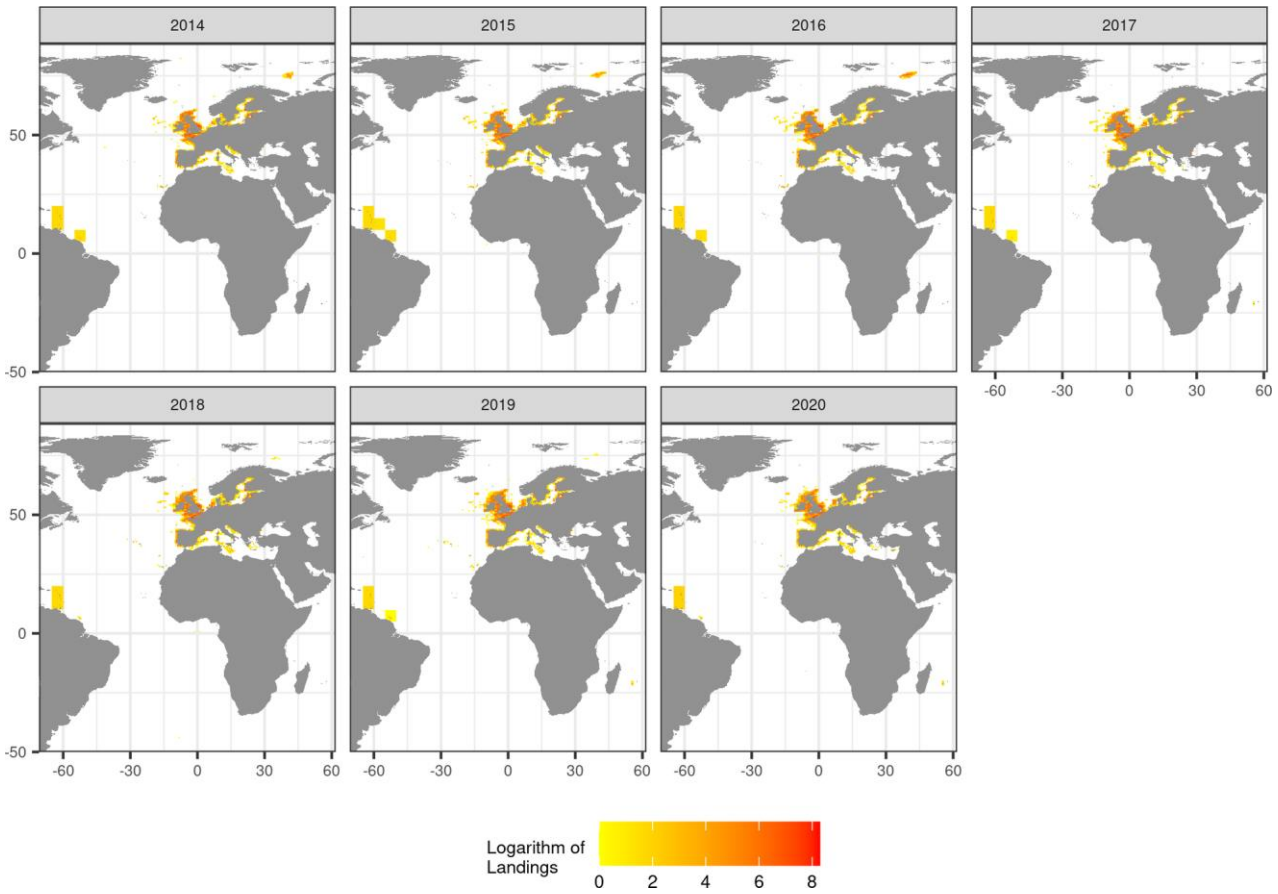
g) Beam trawlers with more than 120mm mesh size



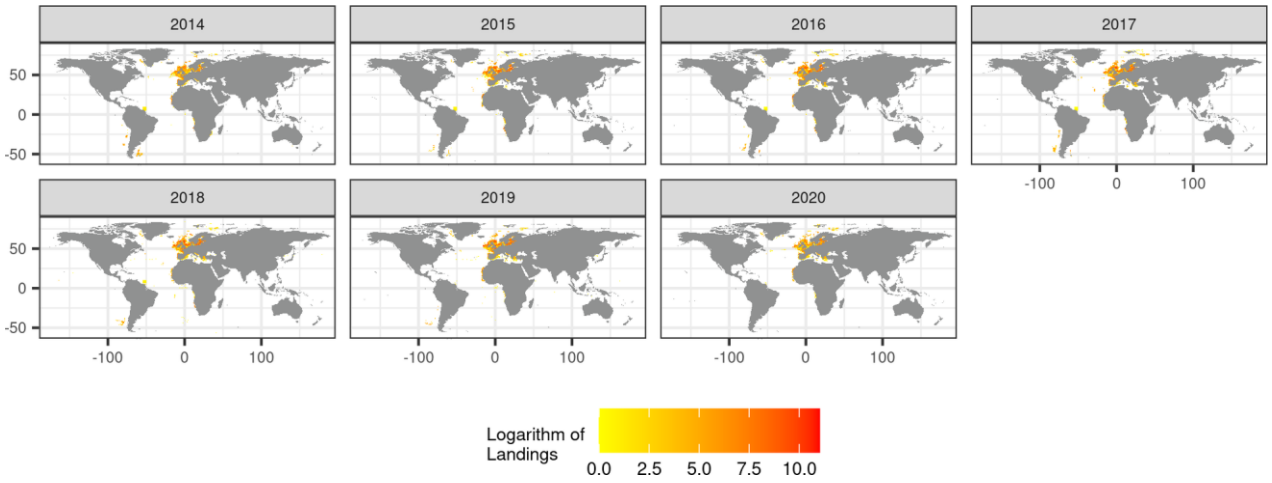
h) Beam trawlers with unknown mesh size



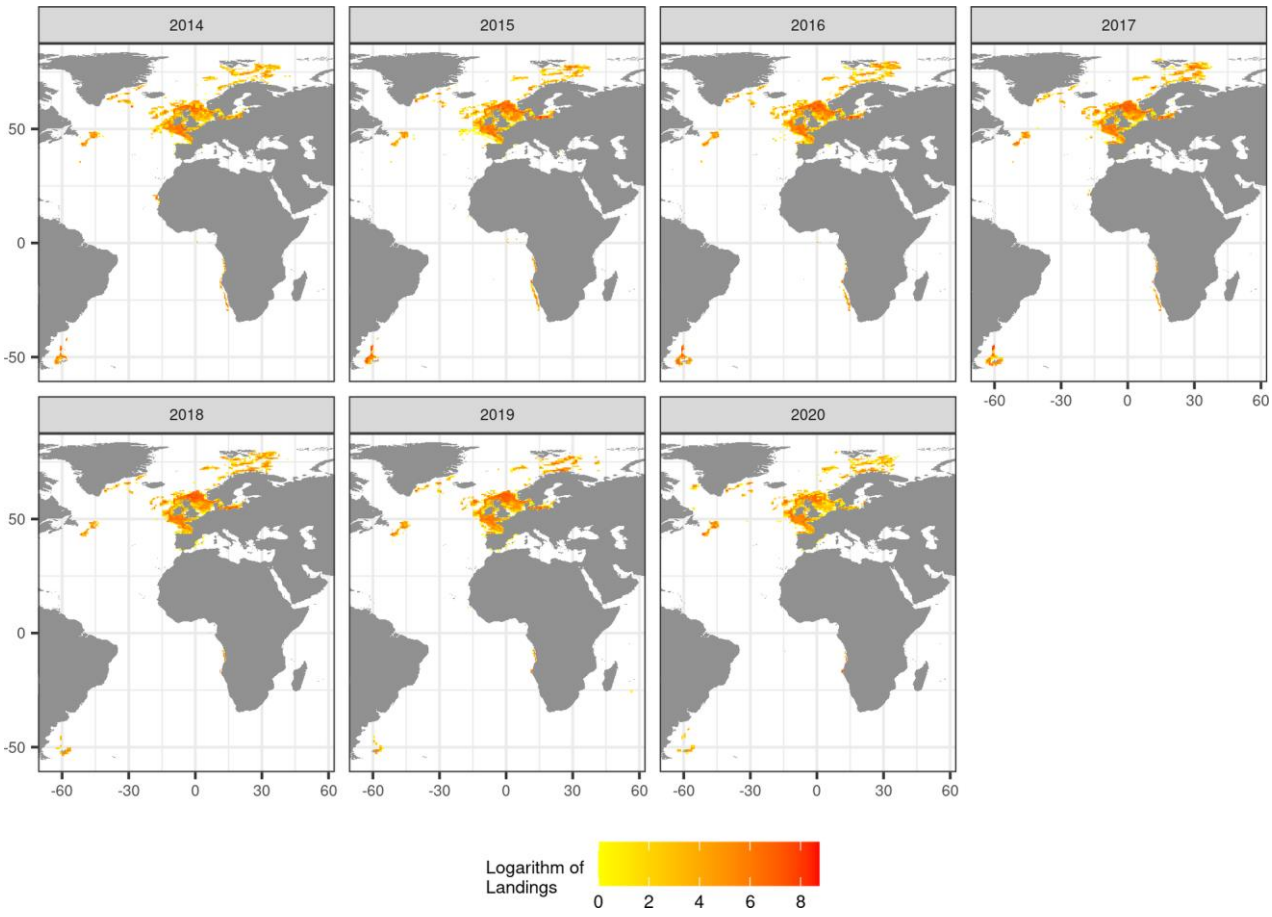
i) Traps


2014
2015
2016
2017
2018
2019
2020
50
0
-50
-60
-30
0
30
60
Logarithm of Landings
0
2
4
6
8

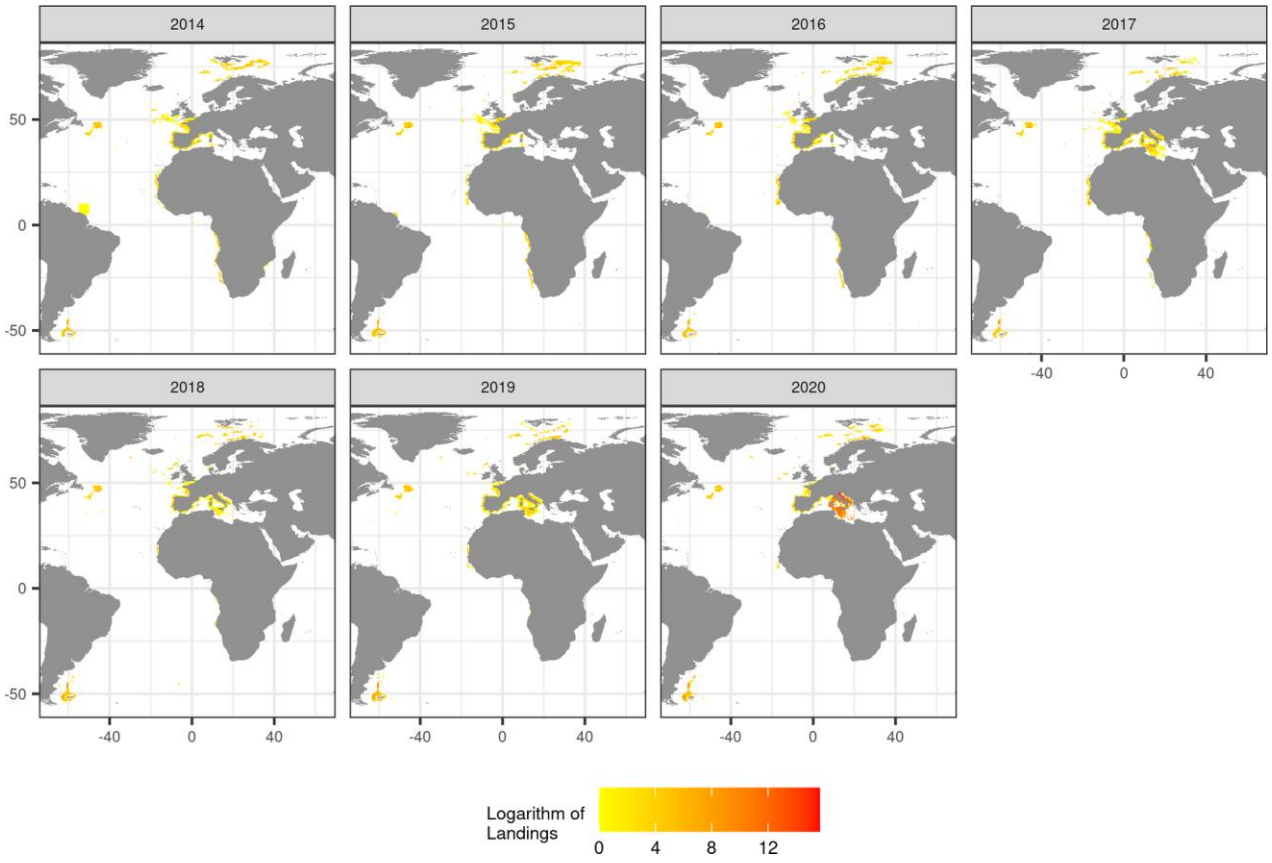
j) Trawlers with less than 100mm mesh size



k) Trawlers with more than 100mm mesh size



l) Trawlers with unknown mesh size



6 PROPOSALS TO IMPROVE FUTURE DATA CALLS

The FDI expert working group discussed and proposed updates to the data call, methodological issues and guidelines to improve future data calls. The outcomes of those discussions are summarized in this section.

Proposed updates to DOMAINS DEFINITIONS (Appendix 8 in data call)

To improve this matching process, it is recommended that NEP_SUB_REGION be defined within the domain name. This would allow for improved linkages between Table A and the biological tables. If this is successful then in years to come, we could remove NEP_SUB_REGION column from the biological tables. But for now, we recommend keeping this column so that the experts have the ability to quality control and verify any changes to the domain names made in 2022. This change would require the following alterations to the data call:

Definitions (pg 1)

> Domains: In 2022 there is a change to the domain name to incorporate information on *Nephrops* and NEP_SUB_REGION (see appendix 8). A domain refers to the group of vessels used to calculate estimates (discards, numbers at age, number at length). A domain may or may not be equivalent to a métier. The purpose of the domain is to link tables C, D, E and F with table A, so domain labels used in Tables C, D, E and F need to be present also in Table A. For Mediterranean and Black Sea regions in table A, the domains can be always set equal to 'NK'.

Appendix 8 (pg22):

Refined definition, where sub_region is replaced by region-

> country_quarter_**region**_gear type_target assemblage_mesh size range_selective device_mesh size range of the selective device_vessel length_species_commercial category

Followed by an explanation of

> **Region:**
>
> When reporting *Nephrops* specify NEP_sub_region:
>
> **NEP_SUB_REGION:** Functional Units (FUs) according to the list in Appendix 9; 'NK' if not known or 'NA' if not applicable. This variable is asked only for *Nephrops norvegicus* catches.
>
> All other species specify SUB_REGION:
>
> **SUB_REGION:** if the domain covers the whole supra-region, or not known sub-regions within a supra-region, use the supra-region code; otherwise use sub-region code(s) according to the code list in Appendix 9.

Proposed updates to Tables C and D

To add information on the coverage rate of discard estimates, additional columns are recommendted to be added to TABLES C, D, and K:

TOTAL_TRIPS*: The total number of trips that relate to domain; a number should only be given only if it relates to this domain, otherwise use 'NK'.*

We also recommend the renaming of the following variable in the biological tables:

NO_SAMPLES: *The number of trips that relate to discards; a number should be given only if it relates to this domain, otherwise use 'NK'.*

To this:

TOTAL_SAMPLED_TRIPS*: The total number of sampled trips that relate to domain; a number should only be given only if it relates to this domain, otherwise use 'NK'.*

DISCARD_CV*: the coefficient of variation of the estimate based on the sample available for the strata considered (i.e., DOMAIN_DISCARDS) and the sampling design. This is calculated for the weight of discards, and is reported as a rate <1.* Mandatory. NK if not known.

DISCARD_CI_UPPER*: the upper confidence limit of the estimate based on the strata sampled (i.e., DOMAIN_DISCARDS), 95% confidence interval (i.e., the confidence interval that allows us to be 95% confident that the real value is contained into; is between the upper and the lower confidence limit), supplied in weight.* Mandatory. NK if not known.

DISCARD_CI_LOWER*: the lower confidence limit of the estimate based on the strata sampled (i.e., DOMAIN_DISCARDS), 95% confidence interval (i.e., the confidence interval that allows us to be 95% confident that the real value is contained into; is between the upper and the lower confidence limit), supplied in weight.* Mandatory. NK if not known.

Proposed updates to Table B

It was unclear if some Member States did not submit a Table B because they did not have a probalistic sampling scheme or because they did not want to share their data. Therefore, to provide clarity, the first sentence of this table should be changed to:

Member States should only submit data to this table if their sampling design can be considered a probability-based vessel selection design[2]. In the absence of a probability-based vessel selection design please submit 'NK'

Proposed updates to Appendix 3

EWG considered that 2022 FDI data call should be amended to more clearly define fishing techniques (FISHING_TECH) and how they should be allocated to individual vessels as it has been misunderstood by a number of Member States. The following text should be provided above the table in this appendix:

*The fishing technique should align with that defined in the EUMAP legislation (*Commission Delegated Decision (EU) 2021/1167 of 27 April 2021) *provided by a Member State to the STECF AER data call. This definition requires that a vessel has a single fishing technique assigned to it for a year and relies on the correct identification of the main fishing activity during the year. An inactive vessel is defined as a vessel that has* ***not*** *been engaged in any fishing operation for at least one day in a calendar year.*

It should also made clear that all vessels (active and inactive) should be reported in the Table J of the FDI data call.

7 CONTACT DETAILS OF EWG-21-10 AND EWG 21-12 PARTICIPANTS

Information on EWG participant's 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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8 LIST OF BACKGROUND DOCUMENTS

Scientific, Technical and Economic Committee for Fisheries (STECF) – Fisheries Dependent Information (STECF-16-20); Publications Office of the European Union, Luxembourg; EUR 27758 EN; doi:10.2788/502445

Scientific, Technical and Economic Committee for Fisheries (STECF) – Fisheries Dependent Information (STECF-17-12); Publications Office of the European Union, Luxembourg; EUR 29204 EN; doi:10.2760/094412

Scientific, Technical and Economic Committee for Fisheries (STECF) – Fisheries Dependent Information (STECF-18-11); Publications Office of the European Union, Luxembourg; EUR 28359 EN; doi:10.2760/696153

Scientific, Technical and Economic Committee for Fisheries (STECF) – Fisheries Dependent Information (STECF-19-11); Publications Office of the European Union, Luxembourg; EUR 28359 EN; doi:10.2760/230618

Scientific, Technical and Economic Committee for Fisheries (STECF) – Fisheries Dependent Information (STECF-20-10); Publications Office of the European Union, Luxembourg; EUR 28359 EN; doi:10.2760/61855

9 ANNEXES

Annex 1. Member States sections on Methodology, Data availability, Coverage, Problems encountered and other comments

1. BELGIUM

1.1 Methodology

QUARTER and YEAR are based on the trip return date.

For the VESSEL_LENGTH, the length overall is related to the fleet throughout the year and not to the fleet on the 1st of January.

FISHING_TECH of a vessel for a certain year was determined based on the highest fishing days recorded for a certain gear.

Table B:

In 2015-2017 the Belgian catch sampling schemes moved from a 'métier-based' to a 'statistically sound' sampling scheme in order to apply at random sampling of the trips. Considering the importance of the Belgian beam trawl fleet targeting demersal species, Belgium focusses on the collection of fishery-dependent data for this fleet (both fleet segments). The two fleet segments (TBB_DEF_>221 kW and TBB_DEF_<=221 kW) are treated as two separate strata in the Belgian at sea sampling programme. Catch information (all catch fractions are covered) is obtained through on-board observation or 'at sea sampling'. The primary sampling unit (PSU) is vessel x trip (as a proxy for trip) and a haul (within a trip) is defined as the secondary sampling unit (SSU). Four ILVO observers assure a sampling coverage of on average 1% of all fishing hours (i.e. approximately 40 trips). The sampling effort targets for one year are set at 8 trips for the TBB_DEF_<=221 kW fleet segment and 32 trips for the TBB_DEF_>221 kW fleet segment. A vessel x trip (PSU) for the TBB_DEF_>221 kW fleet segment is selected by means of a random draw from a vessel list (with replacement). Only the vessels that are willing to take observers onboard and those that are suited, from a logistic point of view, to have an observer onboard are included in the vessel list (sampling frame): 19 vessels out of 28 vessels in total. A vessel x trip (PSU) for the TBB_DEF_<=221 kW fleet segment is selected ad hoc. The vessel list (sampling frame) has been steadily decreasing and proved too small to ensure random PSU selection.

The REFUSAL_RATE was calculated as the number of trips of which the vessel skippers (who had been successfully contacted) refused to take an observer on-board divided by the total number of trips of which the vessel skippers were successfully contacted (INDUSTRY_DECLINED/(TRIPS_SAMPLED_ONBOARD + INDUSTRY_DECLINED)).

The NONRESPONSE_RATE was calculated as the number of attempted vessel skipper contacts minus the sampled trips divided by the number of attempted vessel skipper contacts ((TOT_SELECTIONS – TRIPS_SAMPLED_ONBOARD)/ TOT_SELECTIONS).

Within the framework of the ongoing optimization of the at sea sampling design, at the end of 2017, Belgium decided to move away from the random based design and introduced a non-probability-based sampling programme (ad hoc and standard quota sampling) for the TBB_DEF_kW>221 fleet on the first of January 2018.

Table A (discards) and tables C-F:

The biological data on discards, length and age distributions (discards and landings) have been processed to answer the ICES data calls and is based on sampling data from the at-sea observer programme conducted under the DCF. The thresholds applied for submitting

biological data (discard quantity and length distributions (discards and landings)) are listed in table 1.1.1 and were updated through time. For the 2018 data call, an additional criteria of at least 50 age measurements was applied for the submission of age distributions.

Domains have been defined, corresponding to the sampling programme. For species that have corresponding landings by quarter, vessel length group and/or metier within the same discards domain, the annual estimates of discard ratio (discards/catch) have been applied to those landings to calculate the DISCARDS by quarter, vessel length group and metier (table A). Discard data from the logbooks were not used.

Table 1.1: Thresholds for providing biological data

Data	Variable	Sampled								
2018-2019	discard quantity	2	and	65						
		2			and	>=70 kg landings sampled weight or total weight				
		2					and	>= 20 kg discards sampled weight or total weight		
	discards length distribution	2	and	65						
		2			and	>=70 kg landings sampled weight				
		2			and	>= 20 kg discards sampled weight	and	discard ratio < 0.2		
		2			and	>= 20 kg discards sampled weight			and	>= 100 length measurements
	landings length distribution	2	and	65						
		2			and	>=70 kg landings sampled weight				
		2			and	>= 20 kg discards sampled weight	and	>=100 length measurements		
		2			and	>= 20 kg discards sampled weight			and	discard ratio >=0.2
2020	discard quantity	2	and	65						
		2			and	>=70 kg landings sampled weight or total weight				
		2					and	>= 20 kg discards sampled weight or total weight		
	discards length distribution	2	and	65	and	>=30 discard length measurements				
		2			and	>=70 kg landings sampled weight	and	>=30 length measurements		
		2			and	>= 20 kg discards sampled weight	and	discard ratio < 0.2		
		2			and	>= 20 kg discards sampled weight			and	>=30 length measurements
	landings length distribution	2	and	65						
		2			and	>=70 kg landings sampled weight				
		2			and	>= 20 kg discards sampled weight	and	>=100 length measurements		
		2			and	>= 20 kg discards sampled weight			and	discard ratio >=0.2

Table A (landings) and table H:

TOTWGHTLANDG and TOTVALLANDG are based on combined information of logbook data and sale slips. The actual landed weight and value are split according to the logbook information on hours fished in the respective rectangles.

Table G and table I:

TOTSEADAYS, TOTFISHDAYS (table G) and EFFECTIVE_EFFORT (table I) were calculated using the 'fecR' package. TOTKWDAYSATSEA and TOTKWFISHDAYS and calculated as respectively days at sea and fishing days multiplied by the power of the vessel in kilowatts at the trip landing date and area. Same approach for calculating TOTGTDAYSATSEA and TOTGTFISHDAYS with the gross tonnage of the vessel. The engine power and gross tonnage are related to the fleet throughout the year and not to the fleet on the 1st of January.

For the calculation of HRSEA, the total hours at sea of a trip was split proportionally to the days at sea, over the areas where fishing activity was recorded for that trip.

Table J:

To determine TOTKW, TOTGT, AVGAGE and AVGLOA, the fleet was not considered on the 1st of January. The most recent vessel configuration throughout the year was selected.

PRINCIPAL_SUB_REGION of a vessel for a certain year was determined based on the highest fishing days recorded for a certain fishing area.

1.2 Data availability

The data was finalised and available by the data call deadline.

1.3 Coverage

General comments:

Belgium provided fleet specific landings data for the period 2014-2020 derived from official logbook databases for all vessels ≥10 meters. The data covers all areas in which the Belgian fleets are active and conform to the requested aggregation. Information on misreporting has been taken into account for sol.27.7d and sol.27.7h-k . Gear types such as trammels and seine nets are missing mesh size information. The beam trawl fleet targeting demersal fish with an engine power smaller or equal to 221 kW was not randomly sampled and therefore no refusal rate was calculated. Since 2018 the sampling strategy changed and all the vessels were selected ad hoc, therefore no information on refusal rate was available. Belgium provided effort data for the period 2014-2020 for all relevant areas where the Belgian fleets are operational.

Data were marked as CONFIDENTIAL if the data relate to less than 3 vessels. Values in the fields TOTWGHTLANDG and TOTVALLANDG in table A and table H were both considered as confidential when the criteria of < 3 vessels was met.

Comparison with EUROSTAT data:

Landings

Overall the 'total weight landed' reported in the FDI data set is comparable with the landings uploaded to EUROSTAT. Some differences can be explained by the misreporting of sole in area 7d, 7h and 7j that were taken into account in the FDI data set but not in the EUROSTAT data set. Furthermore for 2019, no below minimum reference size landings or industrial bycatch was included in the FDI data set.

The difference between the two data sets is the largest in 2018 (591 t) compared to the other years (54 - 375 t). It appears that some species are double counted in EUROSTAT and that this was not corrected in the 2018 data. Half of the landings of Octopus spp (FAO code: OCZ) reported in EUROSTAT were also reported as Octopus vulgaris (FAO code: OCC), whereas in the FDI data set only Octopus spp were reported. This double counting also applies to a part of the Trachurus spp (FAO code: JAX) landings versus Trachurus trachurus (FAO code: HOM).

There is also a substantial difference in the reporting of the 2018 Crangon crangon (FAO code: CSH) landings between the FDI data (1576.1 t) and the EUROSTAT data (1412.9 t). This is due to the 'many to many' relationships between trips and sales that were incorrectly processed in the EUROSTAT output.

As in 2016 and 2017, there was also a smaller amount of Raja spp. (FAO code: SKA) reported in 2018 under the FDI data call (12.34 t in 2016, 1.31 t in 2017 and 4.57 t in 2018) compared to the EUROSTAT landings (66.7 t in 2016, 142.8 t in 2017 and 79.6 t in 2018). For the landings of rays by species, no substantial difference could be recorded in 2016 and 2017, whereas the 2018 EUROSTAT output of some ray species is much higher (e.g. Raja montagui (FAO code: RJM)). The same applies for the recording of Triglidae (FAO code: GUX) in 2018. In the EUROSTAT data set contains GUX whereas the FDI data set has only recordings of gurnards by species. Moreover those landings by species in the FDI data set are smaller than the landings of gurnards by species in the EUROSTAT data set. In the FDI data set Loligo species are recorded as SQS or SQR, whereas in the EUROSTAT data set additionally SQC and SQZ are present.

There's a different FAO code used for reporting anglerfish landings in the FDI data set versus the EUROSTAT data set. In the EUROSTAT data all landings of anglerfish are reported as 'ANF' whereas in the FDI data, the FAO code is different according to the stock.

The landings in ICES area 27.4.a, 27.4.b, 27.4.c (stock anf.27.3a46) and 27.7.a (no stock defined for this area) are reported as 'ANF'. The landings in ICES area 27.7.d, 27.7.e, 27.7.f, 27.7.g, 27.7.h, 27.8.a and 27.8.b are reported as 'ANK' (stock ank.27.78ab) or 'MON' (stock mon.27.78ab). The sum of the landings of ANF, ANK and MON in the FDI data set (1000 t in 2014, 1118 t in 2015, 1450 t in 2016, 1597 t in 2017, 1086 in 2018 and 1200 in 2019) matches with the total landings of ANF in the EUROSTAT data set (993 t in 2014, 1104 t in 2015, 1433 t in 2016, 1578 t in 2017, 1091 in 2018 and 1192 in 2019). The BSA landings should be excluded from the FDI data set to sum up the landings for anglerfish, as the EUROSTAT data set doesn't cover the BSA area.

Number of vessels

The number of vessels in table J of the FDI data set is less than the number of vessels reported in the EUROSTAT data set. For capacity, although the regulation states that the population is the fleet on the 1st of January, the most recent vessel configuration throughout the year was selected. This might explain the minor difference in the number of vessels.

Comparison with AER data:

For the AER data call, the fleet was not considered on the 1st of January. The most recent vessel configuration throughout the year was selected to determine kWDays, GTDays, kWFishDays and GTFishDays. For the FDI data call, the engine power and gross tonnage are related to the fleet throughout the year.

For the AER data call, the days at sea and fishing days calculation algorithm is analogues to the one applied by the fecR package. However, the calculated days at sea for a trip are split proportionally to the hours at sea over the ICES areas on which hours at sea were registered. Whereas in the fecR algorithm, the calculated days at sea for a trip is split equally over dates on which fishing occurs and the effort for each fishing date is split equally over the fishing activity on that date. For active gears in the AER data call, each fishing date has 1 fishing day that is split proportionally to the fishing hours over the ICES areas on which fishing occurs. Whereas in the fecR algorithm, each fishing date has 1 fishing day that is split equally over the ICES areas on which fishing occurs. The passive gears are treated equally. So, the total days at sea and fishing days in the FDI data set matches with the totals in the AER data set but the distribution by area is different

Overall, the 'total weight landed' reported in the FDI data set is comparable with the landings provided in response to the AER data call. Some differences can be explained by the misreporting of sole in area 7d, 7h and 7j that were taken into account for the FDI data call but not for the AER data call. Furthermore for 2019 and 2020, no below minimum reference size landings or industrial bycatch was included in the FDI data set.

1.4 Problems encountered

The Belgian at sea sampling programme was not hampered by the COVID-19 pandemic in 2020.

1.5 Other comments if relevant

No other comments.

2 BULGARIA

2.1 Methodology

The methodology used for the data collection and data processing for the FDI data call was not changed compared to previous years and it is the same for all DCF data calls. For the calculation of transversal variables the data is extracted from the database administrated by the Executive agency for fisheries and aquaculture containing fleet register, logbooks,

landing declarations, sales notes, etc. Based on the data from logbook are calculated the number of fishing trips, days at sea, fishing days and hours at sea.

Estimation procedures were not used because the sampling strategy in Bulgaria is census and data was available for each vessel. All fishermen in Bulgaria are obliged to use fishing logbook based on the Bulgarian legislation and there is no difference between small scale fleet and the large scale fleet.

There are no derogations, which are applicable to Bulgaria.

Refusal rate

The Bulgarian sampling design is considered probability based vessel selection design. The refusal rate is calculated as a proportion of vessel skippers who denied access to the observer to go on the board of the vessel. If the skipper does not answer his phone, it is not marked as a refusal.

2.2 Data availability

All transversal variables needed for the preparation of capacity, landings and effort tables are available at the end of January for the previous year. All the tables for the data call were submitted before the deadline.

2.3 Coverage

The data provided in the data call covered all vessels fishing under Bulgarian flag in the Black Sea during the reference period. There are no gaps in the data collection or data submission.

General comments

Bulgaria continued to use a census sampling strategy, so the provided data covers the whole Bulgarian fleet, which operates only in the Black Sea. The data by rectangle is derived from VMS data for large scale fleet, vessels with active gears <12m and vessels which owned turbot quota, because they are obliged to use VMS. For the vessels under 12 m with passive gears, the rectangle from the landing declaration was used and only in case the rectangle was not filled by the owner of the vessel, the catch was allocated based on the landing port.

Comparison with Eurostat data.

The number of vessels from the FDI datacall is slightly higher than the Eurostat data (3 vessels more for 2019) because the data for Eurostat is from 31st of December, while the data for FDI is for the vessels from the whole year (for example if a vessel was active during the year it is included in the number of vessels, even if it is out of the fishing register at 31st of December due to a permanent cessation or other change in the status). Also, very negligible difference of 70 grams is noted in regards to the landed fish for 2019 due to the rounding of numbers.

Publication of confidential data

The data provided in this data call is not considered as confidential because the value of the sales is calculated as the landings are multiplied by the average price per species from the sales notes for the whole fleet.

2.4 Problems encountered

Problems related to data collection

The only pending problem concerning the preparation of the data call was related to the data processing. The data for tables of spatial landings and spatial effort are stored in two different databases - the catch/landing/effort data are in one database and the VMS data is in another database. The data sets used for the preparation of Table H and Table I were prepared manually by combining the information from both databases. Measures have been taken to link the two databases, but the changes in the databases took more time than expected.

Problems related to data submission

There were no problems related to data submission and the main reason for this was the possibility to use the data validation tool, which facilitated the reporting process.

2.5 Other comments if relevant

COVID-19 did not affect the collection or reporting of data in Bulgaria.

The provided data for the discards is from the official data sources and from the scientific observations onboard of fishing vessels.

The de-minimis is not applicable for Bulgaria. The only survivability exemption is defined in the Commission Delegated Regulation EU) 2017/87 of 20 October 2016 establishing a discard plan for turbot fisheries in the Black Sea. The regulation was applicable for the period 1 January 2017 to 31 December 2019.

3 CROATIA

3.1 Methodology

Data collected and derogations (if applicable)

1. No derogations are used for data on fishing activities (catch, landings, discard, effort) and capacity.
2. Data collection on biological variables is based on the metier approach as agreed within the RCG Med&BS and specified under the National Data Collection Programme.

Estimation procedures

No estimation procedures are being used for reporting on landing, discard and effort data. Data on landing, discard and effort data is collected on a census basis from the entire fishing fleet. For vessels below 10m LoA using passive gears a monthly fishing report is applicable in which case fisherman report data for each fishing trip. Data for landing value is estimated using average prices from sales notes. Biological estimates are made on the basis of official landings and discard data and are reported within the Med&BS data call.

For certain species fisherman report landing data on genus level (*Eledone spp* and *Trachurus spp*), therefore landing data in the FDI data call is reported as such since biological data for Med&BS is no longer included. However, biological data on species level for those species is estimated on the basis of commercial sampling data and detailed analysis of landing during monitoring of metiers, including the following species: *Eledone cirrhosa*, *Trachurus trachurus*, *Eledone moschata* and *Trachurus mediterraneus*. Data on species level is reported for the Med&BS data call.

In case no VMS data is available (for vessels <12 m using passive gears), spatial data is estimated on the basis of data reported in logbooks and fishing reports on Croatian fishing

zones. For this purpose, specific mapping procedures are developed within the database to produce data according to GFCM statistical rectangles.

Discard calculation

Official discard data is used. Since Croatia has a census-based data collection on catch reporting – there are no exemptions on data reporting, the entire fishing fleet is obligated to report all data. Therefore, discards are provided according to official data reported in logbooks and fishing reports (for vessels <10m using passive gears).

Calculation of effort (following joint methodology or not).

All effort calculation procedures are implemented in SQL following the logic agreed within the WS on Transversal variables of Zagreb (2015) and Nicosia (2016) that proposed a harmonized approach to associate days at sea to the gear. Although the same logic is used to calculate effort for all data calls, depending on the data aggregation levels the results may differ slightly (economic fleet segment, FDI domain, metier level 6; temporal and geographic stratification).

Specific indicators (e.g. refusal rate)

Currently refusal rate is not recorded.

3.2 Data availability

All the data was finalised and available by the data call legal deadline. Data was provided for 2014-2019 and preliminary data for 2020.

3.3 Coverage

The data provided in the data call covered all Croatian fishing vessels during the reference period. There are no gaps in the data collection or data submission.

General comments

In regards to landing and effort data according to vessel length categories, as is described in the Croatian Annual Work Plan for Data Collection sampling and reporting of biological data is done on a métier level in line with LM 2018 Recommendation 9 - Merging of length classes which states the following "The RCMMed&BS-LP group recalled that sampling for the collection of biological data should be statistically planned and designed, so as to avoid problems of under-sampled and non-sampled strata or domains requiring imputation of missing data. Following this issue, the procedures adopted should lead to the optimum stratification of sampling for reducing bias and variance, and should draw on previous experience elsewhere in defining, for example, the métiers. The definition of the metier does not include vessel length classes. EU Decision 1251/2016 under Chapter III (data requirements), paragraph 2(a) requested catch data at the aggregation level 6 (corresponding to mesh size). However, metiers may be linked with fleet segments based on vessel length classes, as it is presented in Table 2 of the EU-Decision 1251/2016. In order to optimize the sampling programmes, RCM MED&BS-LP considers the possibility to include length classes (LOA) as defined in Table 2 of the Commission Decision 1251/2016 and to merge different classes of the LOA for sampling purpose.". According to this agreement and data call specifications in 2021, data for the Med&BS data call in 2021 was provided on the level of metiers, and for FDI on the level of fleet segments. However, it needs to be noted that the data provided to the FDI data call cannot eventually be easily linked with biological dataset, because it does not correspond to sampling units (métiers).

<u>Wghtlandg vs Vallandg (Data with Totwghtlandg > 0 and Totvallandg = 0 (in table A))</u>

In the case of Bluefin tuna caught in purse seine fisheries, the reported landing value iz zero. Namely, all PS-BFT catch is transferred to cages for farming purposes, therefore there is no landing value as the total catch is not landed. There is no landing value as all income related to PS-BFT catch is realized by the BFT farms (BFT catching vessels are owned by the farms).

FDI data call 2021: Wghtlandg vs Vallandg

Data with Totwghtlandg > 0 and Totvallandg = 0 or = NK (in table A).

Country	Year	Quarter	Species	Vessel Length	Fishing Tech	Gear Type	Target Assemblage	Mesh Size Range	Sub Region	EEZ Indicator	Geo Indicator	Nephrops sub region	Deep	Specon Tech	Totwghtlandg	Totvallandg
HRV	2014	2	BFT	VL1824	PS	PS	LPF	40SXX	GSA17	NA	NGI	NA	NA	NA	58.920	0
				VL2440	PS	PS	LPF	40SXX	GSA17	NA	NGI	NA	NA	NA	318.941	0
	2015	2	BFT	VL1824	PS	PS	LPF	40SXX	GSA17	NA	NGI	NA	NA	NA	24.931	0
				VL2440	PS	PS	LPF	40SXX	GSA17	NA	NGI	NA	NA	NA	412.804	0
	2016	2	BFT	VL1824	PS	PS	LPF	40SXX	GSA17	NA	NGI	NA	NA	NA	86.640	0
				VL2440	PS	PS	LPF	40SXX	GSA17	NA	NGI	NA	NA	NA	349.428	0
	2017	2	BFT	VL1824	PS	PS	LPF	40SXX	GSA17	NA	NGI	NA	NA	NA	92.910	0
				VL2440	PS	PS	LPF	40SXX	GSA17	NA	NGI	NA	NA	NA	493.724	0
	2018	2	BFT	VL1824	PS	PS	LPF	40SXX	GSA17	NA	NGI	NA	NA	NA	73.292	0
				VL2440	PS	PS	LPF	40SXX	GSA17	NA	NGI	NA	NA	NA	605.408	0
	2019	2	BFT	VL1824	PS	PS	LPF	40SXX	GSA17	NA	NGI	NA	NA	NA	74.514	0
				VL2440	PS	PS	LPF	40SXX	GSA17	NA	NGI	NA	NA	NA	570.691	0
		3	BFT	VL2440	PS	PS	LPF	40SXX	GSA17	NA	NGI	NA	NA	NA	104.595	0
	2020	2	BFT	VL1824	PS	PS	LPF	40SXX	GSA17	NA	NGI	NA	NA	NA	138.728	0
				VL2440	PS	PS	LPF	40SXX	GSA17	NA	NGI	NA	NA	NA	645.178	0
		3	BFT	VL2440	PS	PS	LPF	40SXX	GSA17	NA	NGI	NA	NA	NA	45.557	0

Landings vs Discards (table A) (Comparison of Totwghtlandg and Discards in table A: cases where Discards>Totwghtlandg)

Provided data is in accordance with data provided in the logbooks and fishing reports (Croatia applies a census-based data collection scheme for catch reporting).

Some very small inconsistencies were marked in the data quality check mostly due to rounding of numbers, and procedures of partitioning of spatial data.

Comparison with Eurostat data.

No significant differences.

Number of vessels reported in in the capacity table corresponds to the population of vessels according to the DCF and includes all vessels in the fleet register during the year, while EUROSTAT data refers to the number of vessels on 31st December. The biggest difference if in the number of vessels reported for EUROSTAT for 2014 which included non-commercial small-scale artisanal fishing fleet (not included in the DCF population of vessels).

Minor differences in the provided landings weight and value. However, these differences are negligible and refer to species which are not so commercially important.

Publication of confidential data.

No confidentiality issues.

3.4 Problems encountered

Problems related to data collection

No major issues.

Problems related to data submission

No major issues.

Croatia is unable to report landing data for certain gears (HAR, MIS – "other" gears) for which landings and effort are not included in the FDI data call. Namely, MIS and HAR gear codes (OTH - other gears) are not foreseen by Appendix 4 and are not allowed for upload therefore the corresponding landing and effort data is not provided. In addition, it is not possible to include this data under NK gear code ("unknown"), because according to Appendix 6, the NA mesh size code is not valid for NK gear code. Although this part of the catch/effort is negligible, this is also the reason for the small differences between data provided for FDI data call and EUROSTAT data.

Significant numbers of duplicate rows were recognized by the Data Validation tool (DVT) in previous years when biological data was reported, mostly for DRB and FPO gear types. At national level these gears are disaggregated according to mesh size. At the same time, DVT does not allow input of mesh size range for these tools and it should be replaced by "NA" as it is stated in Appendix 7. The results of this procedure is recognition of the rows as duplicates. This false recognition of duplicates could seriously affect further analysis of data. In order to resolve this situation further consultation should be done.

Covid related issues

The closure of fish markets and restaurants and a number of restrictions imposed to curb the spread of the coronavirus had an effect on first sale of demersal species. Prices of most important demersal species decreased in 2020, as placement of fresh fish products in restaurants and local markets, where highest prices are achieved, was diminished. In addition, export of demersal fish and cephalopods to Italy where fishers achieve higher fish prices than on domestic market was not possible for the greater part of the year. Purse seine fishery was not as affected with the pandemic.

There is no effect regarding discard sampling, since data is submitted according to logbooks.

3.5 Other comments if relevant

The structure of the FDI data call should be adjusted because the information on discard provided in table A should be reported by biological sampling units (metiers) – in this case information provided in the fishing technique and vessel length columns does not correspond to economic fleet segments (determined on the basis of gear use dominance criteria), and cannot be used to link economic data.

4 CYPRUS

4.1 Methodology

Landings weight data

Landings weight data are collected from bottom trawlers involved in demersal fishery in GSA25, and for fleet segments that are not required to use logbooks. The aim is to compare data collected with data recorded under Control Regulation for the same trips. Discrepancies are recorded and relevant correction factors are performed (e.g. % of under-reporting, misidentified species). For vessels using polyvalent passive gears only (0-6m, 6-12m), landings data are collected by métier, and estimation is made on the percentage of landings assigned to each métier. The percentage is then raised to the total landings, allowing the estimation of landings by species by métier.

Effort data

The collection of effort data concerns vessels using polyvalent passive gears only (0-6m, 6-12m), for most of which the only information derives from sales notes. Sales notes are used as a proxy for fishing days, which are considered equivalent with days-at-sea, fishing trips and fishing operations. With the collection of effort data by métier, estimation is made on the % of fishing days assigned to each métier. In case during a fishing day more than one métier is exercised, one fishing day is assigned to each of the métiers exercised by the vessel. The percentage is then raised to the total number of fishing days, allowing the estimation of fishing days by métiers.

Based on data collected on length of nets, number of hooks and number of pots, an average value of these variables is estimated by métier, and it is raised to the total number of fishing days by métier.

Value of landings

The value of landings is estimated by species, by fleet segment and by metier. For each fleet segment, the average price of species is estimated at metier level, by multiplying the average price with the landings assigned to each metier exercised by the fleet segment. In cases of landings at foreign ports, average prices are estimated separately. The total value of landings are estimated with aggregating the value of landings of each fleet segment.

Average price

For estimating average prices, data on prices are collected. For species landed in more than one commercial category, average prices correspond to each commercial category, and the

estimated average price is their weighted average. It is noted that there are no auction markets in Cyprus, and prices of fish sold to fishmongers are 'fixed' for all vessels.

4.2 Data availability

Cyprus data were provided on time and in accordance with the required formats.

4.3 Coverage

The data provided cover all Cyprus commercial fishing fleet, which operates in the Mediterranean Sea. The tables for Cyprus cover all the requested time series and all the métiers. Data were calculated and provided in the same way as for economic data call.

The quality checks provided in the tableau does not highlight any incorrect data and/or inconsistencies among the data provided in the different tables requested by the data call for the year 2020.

The few cases of average length of vessels not compatible with the vessel length code (table J) are not to be considered as an issue because they are due to clustering of some vessels for confidentiality and statistical reasons.

Comparison with Eurostat data.

There is no difference between Eurostat data and FDI data call data for the year 2020 besides the number of the vessels. The number of vessels in Table J of the FDI data set is lower than the number of vessels reported in EUROSTAT data set. The reason for this difference though is that the number of vessels in FDI represents only the active vessels whereas in EUROSTAT it represents the active and inactive vessels.

As for the landings data differences between the FDI data set and the one in EUROSTAT exist for previous years than 2020 and specifically for 2014,2016 and 2017.

4.4 Problems encountered

No problems encountered in the preparation of the files.

However, it should be noted that due to the COVID-19 pandemic measures, during 2020 there was no sampling onboard on trawlers, considering also that the trawling season was closed when the epidemiological situation allowed the onboard sampling of other sampled metiers during summer and early autumn. Arrangements were made with the owners of trawlers and the crew in order to receive discard samples from them for trips sampled at land. COVID-19 pandemic safety measures did not influence sampling of demersal fishery with passive gears (LS_PG_DEF) all year round, since sampling is performed at landing sites, in open space.

4.5 Other comments if relevant

No other comments.

5 DENMARK

5.1 Methodology

Denmark has a database for transversal data, where sales notes data are merged with logbook data by trip and species, and information from the fleet register and métier codes are added. Landings weight and value of landings are based on sales notes, while information on gear and ICES rectangle are from logbooks. For industrial fisheries targeting e.g. sprat, sandeel and norway pout, until April 2020, the main species have been reported in the logbooks but there might also be a small amount of other species in the landings. Samples have been taken to find the species composition of the landing by area, ICES

rectangle, month and target species. This was done by the Danish Fisheries Agency, and the species composition was applied to official landings and reported in the FDI data call. After April 2020, the species composition from industrial landings has to be declared in sales notes.

Information on fishing technique (FISHING_TECH) allocated for each vessel is provided by Statistics Denmark that has defined it for the STECF fleet economic data call.

Vessels less than 10 m oal (8 m oal in the Baltic) are not required to report logbooks. For these vessels, sales notes are reported for each landing. Using the species composition for these trips and the gear reported in the fleet register, a procedure has been developed to estimate métiers, gear and mesh size range. Similarly, a procedure has been developed to estimate the ICES rectangle for the vessels not reporting logbooks, where the main ICES rectangle is found by harbor, gear type and vessel length group. If there is no similar fisheries where the rectangle is reported from a harbor, the ICES rectangle closest to the harbor is used.

The SPECON codes "GRID35" and "SELTRA" are based on logbook registrations on selection panels in areas 27.3.a.20 and 27.3.a.21. In the Baltic, BACOMA and T90 are not registered in logbooks and therefore these codes are not reported in the FDI data call.

The biological data on unwanted catches, length and age distributions have been processed to output to both ICES data calls and the FDI data call and is based on sampling data from two sampling programs: the at-sea observer programme and the at-market sampling programme conducted under the DCF. Domains have been defined, corresponding to the sampling programmes and are inserted in Table A. Discards are estimated based on the at-sea sampling data, except for the métiers with CCTV (_FDF), where the logbooks are used. In table A, the unwanted catches are partitioned by total landings of all species within the same year, quarter, vessel length group, métier, discards domain and sub region. If there is no samples of unwanted catches within that aggregation, the code "NK" is inserted.

There can be lines with discards but no landings, this is often species that have a very low commercial value. In some cases there are length measurements for species (table D and F) where there is no age reading (table C and E).

Landings below minimum conservation reference size (BMS landings) are found from sales notes and landing declarations and added to the total landings. There can be BMS landings with zero landings value if they are not sold.

Effort calculations are based on the principles agreed at the 2nd workshop on transversal variables in Nicosia 2016, but implemented in SAS. For vessels without logbooks, the effort calculation is based on sales notes where a trip (vessel-id + landing date) is assigned one day at sea and one fishing day.

Table B

In Denmark, the sampling design of the commercial sampling has since 2011 had a gradual change from an ad-hoc sampling programme to a statistically sound sampling (4S) in the observer programme where trips/vessel are the primary sampling unit within some pre-defined fleet lists. The vessel list have been selected according to the home harbour and the main gear type (fleet group) and each list accounts of unique vessels based on the fishery from the previous year, meaning that the same vessel cannot be present in more than one list. If a vessel is selected from one list and is conducting another fishery that is still part of the observer program, the trip is still conducted. If the vessel is conducting a fishery presently not included in the observer program the trip is not selected. Presently Denmark has applied six fleet lists (sampling frames) for the at sea observer programme with a similar selection design however, with different target species. The vessel list are presently covering:

- Lyngby, Trawler/Seiner (OTB-SDN: SD 25-32)
- Lyngby, trawler/Seiner (OTB-SDN: SD 21-24)

- Hirtshals, Trawler/Seiner Skagerrak/ Kattegat (OTB-SDN: SD 20-21)
- Hirtshals, Trawler/Seiner North Sea (OTB-SDN: SD IV)
- Hirtshals, Skagerrak and North Sea – shrimp fishery (OTB_CRU: SD 20- IV)
- Lyngby , Beam trawler, North Sea brown shrimp (TBB: IV)

Effort allocation (observer trips) between the vessel lists are based on the total effort available allocated according to the numbers of trips in each vessel list group. A minimum number of 2 trips have been incorporated by each stratum. Each vessel list is stratified by quarter. Each vessel on a given list has equal change of being selected.

As the vessels are randomly selected in a database based on last year's fishery, large changes in fishing pattern between years can affect the sampling in a given year. When a vessel is selected for an observer trip the vessel has to be contacted by the observer and asked for participation on the next conducted fishing trip. The fishermen answers are recorded according to recommendations in the ICES SGPIDS3 report and refusal rates calculated for each vessel list.

The 15 of March 2020 Denmark closed down in response to the covid pandemic. As a consequence the observer at sea program was closed down from mid March to late June and again from late November and the rest of the year. In the middle period the random selection of vessels was put on a break and each observers got a restricted vessel list with a number of vessels where we normally had a positive fisherman response, and refusal rates are therefore not obtainable in 2020.

5.2 Data availability

Transversal data (logbooks, sales notes, fleet register) are transferred from the Danish Fisheries Agency to DTU Aqua every night. Some errors may be corrected in the data from a previous year, but that is mainly done during the first quarter, so the data were available by the data call deadline. The processing of the biological data need to be finalized before the ICES data call and stock assessments, during the spring.

5.2 Coverage

All landings and effort data from the Danish fleet during the period 2014-2020 is submitted in the data call.

5.2.1 Data checks

The data have been checked using the FDI tableau data checking tools. In some cases, there are minor inconsistencies in the numbers between tables, but this is normally due to rounding issues.

In some cases, the weight of landings by species is larger than zero, but the value of landings equals zero. Zero values are often connected to bycatches, and often in fishery for industrial use. Here it cannot be used in the main fishmeal production (maybe, because the size does not fit into the production), and the storage results in a very poor quality making it unfit for most other uses. Actually, it can lower the price if the entire landing if the bycatch rate is too high. Therefore, the 'buyer' does the vessel a kind of favour by taking the by-catch at a price=0. 0-values also occur in connection to foreign buyers where the sales-note lack a price. The Danish authorities try to obtain it from the buyer, but the rate of success is fluctuating. The cases with zero value of landings, but a landed weight can also be caused by BMS landings (landings below minimum reference size) that is not sold.

5.2.2 Confidentiality

If there are less than three vessels in the aggregation level in tables A, G, H and I, they are marked as confidential with A (all values are confidential), otherwise the confidential field is marked with N.

5.3 Problems encountered

Covid-impacts on the biological sampling

The scientific sampling of landings and discards of the commercial fishery was cancelled in the time period March 13 to 1.6 2020. Hereafter, DTU Aqua resumed the observer activity. When the observer activity was resumed it was not with the random selection method (as was the former setup) but with a list were every observer had a separate list of vessels to contact to avoid to many different contacts. Also the control activity was canceled in a time period from the March 13 to April 28. Further, the Fishery control agency has been used for other work in connection to Covid and has therefore been at a lower level than planned. Again in late November Denmark closed down and the scientific observer programs at sea was canceled the rest of the year.

5.4 Other comments if relevant

No other comments.

6 ESTONIA

6.1 Methodology

Data collected and derogations

Official Information on landings/catches and effort by species, areas, gear types and mesh size was obtained from the Estonian Fisheries Information System (EFIS). EFIS compiles all logbook information as well as information on prices, sales etc. Fisheries data collection takes place according to EU-MAP methodology and no derogations have been applied. Estonian fishing fleet is operating mainly in the Baltic Sea and to a limited extent also in the Northern Atlantic.

Estonian fishing fleet in the Baltic Sea consists of pelagic trawlers targeting sprat and herring, and of small boats operating in coastal fishery of herring (with fixed pound and trap nets) and of other species, incl. freshwater fish taken with trap-nets and gillnets. The discarding is prohibited in Estonia by law and may only occur in very limited scale (if any) e.g. in case of catches of below MCRS fish in coastal fishery (salmon and perch). No discarding takes place in trawl fishery. The official discard information from logbooks are provided in the dataset.

In case of collection of biological data the minimum threshold of 100 fish for length measurements and 50 specimens for age measurements are applied in sampling of pelagic fleets and in sampling of herring in coastal fishery. No threshold is applied in sampling of coastal small - scale fishery.

All effort calculations are performed using the logbook information and landing declarations. No R script has been used in effort calculations.

For fleet segments landing values were estimated based on prices derived from sales slips multiplying by weight from landing declarations.

6.2 Data availability

All requested information was provided by the FDI data call deadline.

6.3 Coverage

Provided data covers all Estonian commercial fishing fleet, which operates in Baltic Sea and in the Northern Atlantic. Information about recreational fishery in Baltic Sea were not provided. No refusals in obtaining biological samples and other relevant information from the selected fishing vessels were reported in 2014-2020.

General comments

Discrepancies described in the table "Wghtlandg vs. Vallandg" of JRC Data checking facility, were mostly caused by the lack of information on first sale prices of some fresh water species in the coastal small-scale fishery (using small boats under 10 m) . The same applies for the information on landings from the North-western Atlantic (vessels over 40 m).

Discrepancies described in the table "Wghtlandg vs. Discards": since, correct official information has been uploaded, the MS is not considering issue here.

Discrepancies found in SOP (Table E) "Totwghtlandg"and SOP (numbers * mean weights at age) and SOP (Table C) "Discards [tonnes] and the sum of products [tonnes] = no age [number in thousand]*mean weight [kg] are very minor and stem probably from rounding.

Discrepancies between Spatial effort vs Effort- may be caused by the fact that in some cases the vessel is fishing in several statistical rectangles during the same trip, causing thus differences in effort values between the tables of different level of resolution.

Discrepancies between Spatial Landings vs. Landings: The difference is mostly less than 1 kg and stem from rounding.

Discrepancies between Spatial Landings vs. Spatial effort: This is the problems of coastal small-scale fishery of 2014-2018 when the respective info on effort was not available.

Length and weight units in tables D, F and F: may be caused by misinterpretation of the guidelines where both cm/mm and kg/g are accepted. In different species the different units are usually applied.

Discrepancies in discard figures in Tables A, C and D for one domain in 2018: the issue was created due to the typo (comma/dot-issue). The problem was solved during the EWG.

On overall, most of the requested by FDI Data Call information was available and presented except the effort information for the small (under 10m) boats in coastal fisheries.

Comparison with Eurostat data.

Landings and capacity data provided was very close to the information reported to Eurostat. The observed minor differences in vessel numbers may be explained with the counting of inactive vessels in Eurostat dataset.

All information provided by the Member State during the FDI data call is regarded as not confidential.

6.4 Problems encountered

Member state encounters persistent problems in obtaining effort information from the small, under 10 m boats operating with passive gears (coastal fisheries). In case of the small

boats only information of Sub-region level is available. The scarcity of respective information prevents presenting the effort estimates by the statistical rectangles.

Additionally, obtaining of the value estimates for the long distant fleet, what lands outside of Estonia is complicated.

COVID issues

Estonia did not experience any problems in performing fish sampling at sea or harbours or in access to the requested economical information due to the COVID pandemic in 2020.

6.5 Other comments if relevant

No other comments.

7 FINLAND

7.1 Methodology

Commercial marine fishery statistics comprise information on the number of commercial marine fishermen, the volume and value of the catch and the spatial distribution of the catch and fishing effort. The data are based on periodic catch declarations by commercial fishermen. Everyone engaged in commercial marine fishery in Finland is obliged to provide catch declaration. Captains of vessels that are at least 10 meter in length are using the EU log-book to submit catch data for the monitoring authority. Fishers using a vessel less than 10 meter in length submit the data by a coastal fishing journal that is aggregated by a month. However, he is applying a landing declaration if he is catching salmon, sprat, cod or herring (more than 50 kg of herring per day).

Estimation procedures (in case something been used, e.g. estimation of landings and effort for the small scale fleet)

Estimation procedures haven't been used. The statistics are compiled based on the assumption that everyone engaged in commercial fishing in the sea areas has complied with the statutory obligations and submitted catch reports.

Unwanted catch calculation

Nominal catch refers to the catch landed by fishermen or transshipped at sea. For statistical purposes, this is reported in kilograms live weight, i.e. the weight of ungutted fish. Discards, for example fish damaged by seals, are not included in the nominal catch. The major cause for discarding in the Finnish commercial marine fishery is damage caused by seals, cormorants and other predatory species on the fish trapped or entangled in the fishing gear. Discards are not included in the landings data.

In the revision process at the STECF it has been highlighted that in the Landings vs Discards (table A), Comparison of Totwghtlandg and Discards, there are cases where Discards>Totwghtlandg. We confirm that these data are correct.

Calculation of effort (following joint methodology or not). Tell us if R script have been used or its logics been implemented in SQL or other software.

The number of units of fishing gear in any spatial statistical unit is calculated as the sum of fisherman-specific highest number of units of gear simultaneously deployed in the area. The number of fishing days is the total number of fishing days of all fishermen for the corresponding gear, regardless of there was any catch being reported. Fishing gear is deployed for a variety of duration and also the number of gears varies. This variation is taken into account in fishing gear days (trap net, gillnet and trawl days), for example five days of fishing with ten nets totals fifty net days.

Specific indicators (e.g. refusal rate)

Information of refusal rates was not collected

7.2 Data availability

All the data was finalised and available by the data call deadline.

7.3 Coverage

General comments

Spatial landings vs landings
In table A the catch data of a single fishing trip are missing in the submitted data in 2015, catch of cod (475 kilogram) and flounder (25 kg) was neglible.

Spatial landings vs Spatial effort, Spatial effort vs effort
If the vessel has fished in several rectangles on the same day, the fishing day has been allocated to the rectangle from which the most catch was taken. Therefore, the data contains some catch data per rectangle without fishing days. For the same reason, the fishing days per rectangle and the fishing days per ices-subdivision differ slightly. In the future, the calculation will be refined in this regard.

Discards (tables A,C,D), Totwghtlandg (tables A,C,D), Totwghtlandg (tables A,E,F).
The highlighted minor discrepancies are outcome of the rounding.

Avg Length Vessels
In vessels segment TM VL1218 there are some vessels, which are less than 12 meters. Additionally, there are vessels in segment TM VL1824 which are over 24 meters. Consequently, in some ICES subdivisions, the mean vessel length is shorter or longer than what the segment name indicates.

Wghtlandg vs Discards
Discards are not included in the landings data. There are observations with discards but no catch.

Wghtlandg vs Vallandg
In 2014 data includes an observation of one kilogram catch of vendace, which hasn't got any value. The value should be 2.3 €.

Provide general comments related to data coverage, explain why data is missing (in case something is missing)

Nothing is missing.

Comparison with Eurostat data.

Provide any relevant comments regarding comparability of the data set provided (landings and capacity) with Eurostat data. Explain reasons for difference in case there is any difference.

FDI data call data is the data concerning Finnish marine commercial fishery. Eurostat catch data includes both commercial and recreational catch by species and subdivisions.

Publication of confidential data

Data call material includes confidential information, which is marked by 'Y' in confidential-column. It is therefore forbidden to reveal or publish these data outside the original purpose, i.e. the FDI data call.

7.4 Problems encountered

Problems related to data collection

COVID-19 has not caused noticeable deviations in FDI data collection, including data availability, processing and transmission in Finland in 2020. Also effect of pandemic to fishing effort, landings and sampling processes have been negligible. In order to ensure

data transmission, precautionary actions, such as substitute system for personnel responsible for data transmission have been prepared. Also special arrangement for work in field, labs and office have been in force since the start of the pandemic.

Problems related to data submission

None

7.5 Other comments if relevant

No other comments.

8 FRANCE

8.1 Methodology

In accordance with the French DCMAP working plan 2021-2022, the French data submission for this data call is based on the following sources of information:

French fleet register (vessel characteristic (length overall, kilowatt, gross tonnage, age of the vessel), geographical indicator, total number of vessels)

Annual fishing activity calendars survey[1] (active/inactive vessels, typological classification of vessels by fleet/fishing technique, fishing area, métier, supra-region)

Logbooks *(over 10m'vessels)* and **monthly declarative forms** *(coastal logbooks, less 10m' vessels, declarative forms adapted to the special features of the small-scale coastal fisheries)* (total weight of landings by species, fishing effort (number of trips, days at sea, fishing days and hours at sea), fishing area, gear and mesh size)

Sales note data (total weight and value of landings by species)

Geolocalisation data *(inc. VMS data)* (fishing effort (number of trips, days at sea, fishing days and hours at sea), fishing area)

Complementary on-site sampling of trips[2] *(catch assessment survey)* (total estimates of weight and value of landings by species, fishing effort estimates (number of trips, days at sea and fishing days), fishing area, métier)

At-sea *(vessel' fishing trip sampling)* **and on-shore** *(port-sampling)* **scientific observer sampling data** (discards estimates, length and age distributions)

The definition of the reference fleet population follow the definition of Commission decision 2016/1251 *(any vessel registered on 31 december or which has fished at least one day in the year up to 31 december)* in order to have a comprehensive view of the fishing activity applied during the year.

Complementary on-site sampling of trips (catch assessment survey) are collected for the **French fishing fleet less than 12 meters length operating in the following regions: French Guiana (GF), Guadeloupe (GP), Martinique (MQ), La Réunion (RE), Mayotte (YT) and Mediterranean continental area until 2018** where the coverage and precision of the available declarative control regulation data is evaluated as insufficient/incomplete to meet the end-users data needs *(e.g. DCF requirements)* and are judged insufficient and unreliable to estimate fishing activity data. Their reference fishing activity' estimates *(total estimates of weight and value of landings by species and fishing effort (number of trips, days at sea, fishing days), fishing area and metier)* are then calculated on this basis.

For the French fishing fleets less than 12 meters length operating in the supra-region Mediterranean *(since 2019)* for which the coverage and precision of their available declarative control regulation declarative data is evaluated as insufficient/incomplete to meet the end-users data needs *(e.g. DCF requirements)* but are judged sufficient and

reliable to estimate their fishing activity data ; a **re-evaluation methodology on the basis of the annual fishing activity calendars survey** is applied to calculate their reference fishing activity' estimates *(details about the re-evaluation methodology applied is described in the 9th IFOMC proceedings p°105-108, https://ifomcvigo.com/wp-content/uploads/2018/08/proceedings-9th-ifomc.pdf)*

Some **specificities** applied for two particular fishing fleets: **"Mediterranean Bluefin Tuna Purse Seiners"** and **"Tropical Tuna Purse Seiners and Longliner"** but source of information are very similar, differences being related to the database holding the information and the way to process the data.

Finally and for all the other French fleets, the definition of all the fishing trips with their associated features *(dates, fishing area, métier, gear and mesh size, total weight and value of landings by species)* is based on a **cross-validation tool: SACROIS**[3] **of the different available declarative data**.

Based on that, fishing capacity and activity' estimates could be calculated for the whole of the reference population *(French fleet register including overseas fisheries, long distance fisheries and small-scale fleets)*. They are conform to the requested aggregation *(by year, quarter, vessel length classes, fishing technique, supra-region, gear and mesh size, metier and fishing area)* and cover all the areas where French vessels are operated.

This process allow to estimate value of almost every landings, only few species/fleets do not have value assigned *(regarding the result of the "Wghtlandg vs Vallandg" data check)***. The two principal fleets without value assigned are the French tropical purse seine fishery and the Guiana shrimp trawlers. The principal specie without value assigned correspond to the landings reported under the OTH** *(Other species)* **codification** *(i.e the few landings not allocated to a specific specie)***.**

Fishing effort estimates *(number of trips, days at sea, fishing days and hours at sea)* have not been calculated by using the generic R script provided for this data call as is not suitable for vessels without logbooks and for vessels outside FAO area 27 *(need to have ICES rectangle)*. Nevertheless, the common joint methodology developed during the 2nd transversal variables workshop was implemented on French data *(development of an adapted R script)* in order to calculate the estimates and answer the data call.

Discards and length/age distributions estimates have been calculated based on the scientific observer sampling data *(at-sea and on-shore sampling program)*. The declared unwanted catch data from logbooks were not used.

Spatial distribution asked in the tables H *(landings by rectangle)* & I *(effort by rectangle)* are derived from the SACROIS data which are spatialized at the most disaggregated spatial level available in the declarative data *(logbooks, monthly declarative forms)* and the vessel' activity calendar survey *(e.g. ICES rectangles and sub-rectangles for FAO 27)*. They have been completed for geolocalised vessels *(inc. VMS' vessels)* to provide spatial information at C-square level at 0.5*0.5 degree resolution. Spatial information is completed by the on-site sampling data for fishing fleets not covered by the SACROIS data.

Landings length/age distribution estimates are provided for "French tropical tuna purse seine fishery" following the domain definition asked in the data call and giving the possibility to link the tables EF with table A for these fisheries. **Discards estimates** for this fishery are also provided in table A disaggregated at the level of disaggregation requested. Discards estimates disaggregated are as well provided for the Mediterranean fisheries table A *(for which biological data estimates are not requested in FDI datacall)*. These estimates are issued from the scientific estimates calculated in respect with the sampling design.

For Atlantic fisheries, the process is more complex. **Discards and length/age distribution estimates** are calculated following specific strata definition in space, time and metier in respect with the sampling design. They are estimated after a post-stratification process where metier, fishing area and quarter could be aggregated in order to maximize the number of samples per stratum and provide the most complete information possible for a given stock *(i.e. level of disaggregation available is determined by the number of samples).* Additionally, strata definitions are annually specific for each stock assessed

following ICES WG practice in term of labelling[4]. This complex process, applied annually specifically by stock *(based on expert' analysis),* implies strong difficulties to provide discards estimates at the level of disaggregation asked in table A and struggles also to provide biological data estimates strictly following the domain definition requested in the FDI data call avoiding having the link available between table A and tables CDEF *(it is linked with the level of disaggregation to which fishing activity data are available in table A)*.

Nevertheless, a domain *(following as far as possible the domain definition detailed in the Appendix 8)* has been associated to each of the validated biological estimates calculated by expert (*e.g. by ICES stock assessor)* and submitted in the tables C-D-E-F following the strata they retained to extrapolate the sample *(e.g. submitted ICES strata)*. **This has the benefit to provide** *(in tables C-D-E-F)* **only approved biological data estimates.**

Strata have been re-coded in order to follow as far as possible the domain definition requested but, in most cases, do not reflect all the métiers/fishing area aggregated in order to build the strata. **Consequently, it is not possible to use straight the domain definition available in tables C-D-E-F to link biological data estimates provided in these tables with information about fishing activity available in table A.** This has to be improved for the future data call.

Finally, the partitioning of discards estimates available in tables C-D-E-F *(according to strata used to calculate the estimates)* into detailed categories asked in table A was also requested by the FDI data call following the conclusion of the STECF Expert Working Group 17-12 which nevertheless, and in the same time, emphasizes the limited meaningfulness behind any partitioned estimates *('estimates will likely not be statistically sound and may be biased because for example of the need to assume equal discard rates among the disaggregated levels contained within the retained strata')*. **Regarding that discards information available in table A are of major importance for the EWG and nevertheless the issues raised above, discards estimates partitioned were provided in table A based on the methodology described below. Nevertheless, it is reemphasized here that approved discards estimates could be only found in tables C-D.**

The methodology followed for partitioning the discards estimates at the level of disaggregation asked in table A is: 1) aggregation of the discards estimates available in table C by year, quarter, sub_region, gear_type and species, 2) sum of landings provided in table A by year, quarter, sub_region, gear_type and species and calculation of the landings percentage for each of the concatenated row and 3) discards estimates partitioned by row proportionately to the landings using the values calculated in 1 & 2 (total discards * landings percentage). This allow to disaggregate into table A almost 80% of the discards scientific estimates provided in tables C-D.

Table B *(refusal rate)* has been provided for the first time this year. Only year 2020 has been provided for this first year. A specific data extraction and processing of the information available in the website dedicated to presenting and monitoring the sampling plan has been done. The results of the French on-board random sampling program *(i.e. ObsMER French statistical on-board sampling program)* are presented for the different strata retained in the national DCF workplan under the same codification *(see national DCF workplan available on the JRC website[5])*. For the different variables asked, the information provided are the following:

- REFUSAL_RATE: Number of vessels/fishermen contacted refusing on-board sampling/ (Total number of attempted contacts – number of unreachable vessels/fishermen)
- COVERAGE_RATE: Number of unique vessels sampled / Number of vessels in the stratum
- NONRESPONSE_RATE: Number of vessels/fishermen contacted not successful *(no fishing trip sampled after the contact)*/ Total number of attempted contacts
- VESSELS_FLEET: Number of total vessels in the stratum *(be aware that a vessel could be in different stratum, double counting)*
- TRIPS_FLEET: Number of total fishing trips recorded in the stratum

- TRIPS_SAMPLED_ONBOARD: Number of total fishing trips sampled in the stratum
- UNIQUE_VESSELS_SAMPLED: Number of unique vessels sampled in the stratum
- UNIQUE_VESSELS_CONTACTED: Number of unique vessels/fishermen contacted
- NOT_AVAILABLE: Number of unique vessels in the stratum with no possibility to go on-board *(administrative refusal or 2020 covid specific refusal)*
- NO_CONTACT_DETAILS: Information not available at this level of precision, information included in the next variable
- NO_ANSWER: Number of vessels with no contact information available or that have not answer to the contact
- OBSERVER_DECLINED: Information not available
- INDUSTRY_DECLINED: Number of vessels/fishermen contacted refusing on-board sampling
- TOT_SELECTIONS: Total number of fishermen/vessels with contact information available.

Until now, very few data have been highlighted as being confidential. It concerned only long distance fisheries (Tropical tuna purse seine fisheries) and Mediterranean Bluefin tuna fisheries as there are very specific and relate to very few vessels. However, there are many issues related to these data where certain lines *(especially the lines for the spatial information which are highly disaggregated)* hold information for less than 3 vessels. So for the other fisheries, a further check will be needed to identify the lines concerned and decide if they have to be marked as confidential or not. It will be planned for the next year data call. In addition, often not all variables are regarded as being problematic. For example, information on the value of landings or discards is much more sensitive than landings.

8.2 Data availability

Complete French data have been uploaded before the deadline of the data call also taking into account the different checks done during the upload process. Some adjustments of the data have been done before the operational deadline and one table has been re-upload during the first two days of the EWG taking into account the data checks carried out on the data provided during the FDI call and available online at https://datacollection.jrc.ec.europa.eu/data-analysis/fdi. The current data can be regarded as final given current knowledge. However, data could be improved/completed before next data call *(taking also into account the minor remaining issues highlighted in the data checks carried out this year)* and in this case they will be re-upload for the next year data call.

8.3 Coverage

French data available in the FDI database for 2014, 2015, 2016, 2017, 2018, 2019 and 2020 cover all the French fleets including overseas fisheries, long distance fisheries and small scale fleets.

Up to now, no upload facility is given for data where area information *(at the sub-region level)* is missing. Few French fishing statistics data *(less than 0.5%)* have area information available only at the FAO area level. These data are therefore missing in the FDI new database.

Considering the spatial distribution tables H&I *(landings and specific effort data by rectangle/c-squares)*, **spatial data have been submitted for all the fleets considering the finest spatial distribution available including C-square level for geolocalized vessels.** Some assumptions have been considered to provide all the data at the level asked in the data call *(e.g. GFCM squares in FAO zone 37)* by proportionally distributing the available spatial data *(especially for non geolocalised vessels for which some of the data could be only available at a more aggregated spatial resolution)* but only as long as it was acceptable. For example, for fleets operating in FAO zone 27, some fishing activity data *(~1% in landings)* have only area information available at the sub-region level *(e.g. ices*

division, no ices rectangle available) and could not be derived at the finer spatial resolution asked. As a consequence, spatial distribution tables are not fully consistent with data provided in the tables A and G *(total fishing effort and landings by species figures could differ)*, but it remains negligible.

Comparison with Eurostat data.

Minor differences occurred between FDI data and Eurostat likely caused by differences in time and completion status of available data when the estimates were provided. Mainly, species and areas reported in Eurostat are available in the FDI database and vice versa.

Nevertheless, some issues could occur on the codification of species used that could differ between the two database *(as an example in 2016, 'ANF- Lophiidae' is used for EUROSTAT when 'MNZ- Lophius spp' was used for FDI)*.

8.4 Problems encountered

Covid-impacts on the biological sampling

The scientific sampling of landings and discards of the commercial fishery has been impacted by the Covid-19 sanitary crisis. Sampling program was cancelled in the time period 15th March to 15th May. Some alternative ways to collect nevertheless some data have been tested/implemented *(self-sampling, purchases of fishes …)* to minimize the gap but with more or less success. Finally on-shore and on-board sampling data available for 2020 have been affected by this situation and some biological estimates could not be calculated for 2020. That's the reason why there is less estimates available in 2020. Furthermore, for some estimates combination of strata has to be done to balance this lack of data. Finally, it is the best scientific biological data estimates regarding this lack of data that have been provided in the tables CDEF in response to the FDI data call.

8.5 Other comments if relevant

No other comments.

[1] **Annual fishing activity calendar survey covers the whole of the reference population** in all the supra-regions where French vessels operated *(French fishing fleet register' vessels (FPC) including overseas fisheries, small-scale coastal fleets also vessels not cover by available control regulation declarative data)*. The survey is conducted by fishing observers *(observers' network of the Ifremer Fisheries Information System)* yearly in France on the basis of preliminary documentation provided by available control regulation declarative data *(fleet register, logbooks, monthly declarative forms, sales note data, geolocalisation data)* and take place every year in the first month of the year on the previous year. It is particularly instructive for the small-scale coastal fisheries, where catches and effort data are often incomplete.

It aims at characterizing each year the inactivity or activity of all the vessels each month of the year and, in the latter case, the metiers practiced *(metier is defined as the use of a gear to target one or several species)* and the main fishing areas with the corresponding range of operation *(distance to the coast of the fishing operation)*. In addition, fishing activity calendar identified each month the main port of exploitation, the number of fishermen on board and the number of days at sea and fishing days. The aim of collecting data about the activity of each vessel is to have a minimum but exhaustive information on the vessels, to have a complete picture of the whole fleet in terms of gears used and fishing activity, at least at a monthly scale.

Such surveys provide information on the part of fishing activity not included in available declarative data *(completeness check)* and also the basis, if necessary, to re-evaluate available fishing activity data estimates (*in case of incomplete data)*. They constitute also an input each year for the typological classifications of vessels by fleet and a description of their metiers which in return makes also possible the definition of sampling plans to structure the routine data collection actions. They are also used to allocate metiers to each fishing trip and constitute the exhaustive basis for doing estimation based on the complementary on-site sampling data. Finally, some passive gears characteristics information are also collected during the survey with a minimum of 5% of the French fleet surveyed.

Detailed information about the survey could be found in the following document: *ICES CM 2008/K:12 "From fleet census to sampling schemes: an original collection of data on fishing activity for the assessment of the French fisheries." - Patrick BERTHOU, Olivier GUYADER, Emilie LEBLOND, Sébastien DEMANECHE, Fabienne DAURES, Claude MERRIEN, Patrick LESPAGNOL - https://www.ices.dk/sites/pub/CM%20Doccuments/CM-2008/K/K1208.pdf.*

[2] The fishing trips landings observation programme is based on a sampling plan adapted to each monitored region and based on the frame survey *(Annual fishing activity calendar survey)* useful to optimise the strategy of the spatio-temporal on-site sampling plan. It aim also to cover at best and regarding the aimed estimates accuracies, the variability of catches and fishing effort between "metiers", "fishing areas" or "seasonality" by optimising the expendable sampling effort. In order to optimise the accuracy of the ObsDEB estimates, a random stratified *(vessels are stratified into fleets)* telephone survey is also conducted in parallel *(when it is appropriate, i.e. in Martinique and Guadeloupe)* aimed at estimating the fishing activity calendar at a finer

scale. This allows a better allocation of sampling effort and a better allocation of fishing vessels in the strata. In Guadeloupe, exhaustive fuel consumption per vessel is also used to consolidate total fishing effort estimation.

The sampling of fishing trips is conducted by fishing observers *(observers' network of the Ifremer Fisheries Information System in the Outermost regions)* throughout the year following the sampling scheme. For each fishing trip sampled directly on-site *(when the fishers come back to the harbour)*, the observer reconstructs with the fishers the course of the trip *(fishing effort, gear used and fishing ground location, landings by species and associated costs)*, and the number of fishing trips per gear/metier for the past week *(weekly activity calendar to estimate fishing effort i.e. number of fishing trips operating during the year by metier)*. The monitoring of the statistical protocol applied guarantees the statistical representativeness of the samples of fishing trips obtained and allow the statistical theory of sampling to be applied to the calculation of effort and landings estimators and their associated accuracies. The sampling rate aim to cover 5% *(in order to guarantee the calculation of confidence interval estimates with an acceptable sampling error)* of all the fishing trips of the fleets monitored with the exception of the fleets operating in French Guiana *(regarding their specificities)* where the protocol is slightly different and globally almost 50% of the fishing trips are surveyed. The raising method is based on the statistical theory and a post-stratification of the fishing trips and weekly calendar sampled by group of metier. Percentile bootstrap methodology is used to calculate the associated estimates accuracies. McCarthy and Snowden method is applied to define the size of the bootstrap samples in order to take into account the "finite population correction".

Detailed information about the survey could be found in the following document: *Demanèche, S., Berthou, P., Blanchard, F., Cornou, A.S., Daures, F., Deporte, N., Guyader, O., Lespagnol, P., Reynal, L. 2013. Methodological issues to estimate catches and fishing effort of small-scale fisheries by sampling fishing trips on-site. Proceedings of the 7th International Fisheries Observer & Monitoring Conference, 8-12 April 2013, Viña del Mar, Chile (p°60–62).* https://ifomcvigo.com/wp-content/uploads/2017/03/7th-ifomc-proceedings-vina-del-mar.pdf

[3] **SACROIS** *(http://sih.ifremer.fr/Description-des-donnees/Les-donnees-estimees/SACROIS)* is a cross-validation tool for the fisheries statistics, aiming at providing the best possible fishing statistics data by cross-checking available data from the different declarative control regulation sources, as demanded in article 145 of the EU control Regulation (EC Reg. 404/2011). The application is crossing information, at the most disaggregated level, from the fishing fleet register, logbooks and coastal logbooks, sales notes data, geolocalisation data and the scientific census of annual fishing activity calendars, in order to build the most accurate and complete dataset compiling French fleet' fishing trips with their associated features *(dates, fishing area, metier, gear and mesh size, total weight and value of landings by species)*. The application verifies and controls the different sources of data, with the aim of displaying validated and qualified landings per species and effort data series. The application provides also several quality indicators and evaluates the completeness of the data flows. A specific algorithm is included into SACROIS to estimate the value of landings based on sales note data available *(sometimes directly deducted from them)* or estimation of an average price. SACROIS include also the allocation of a single metier to a fishing trip *(see detailed methodology explained in 'Anonymous, DCF metier workshop report, 2018', Annex5 p°75 - 87 https://datacollection.jrc.ec.europa.eu/documents/10213/891027/2018_Workshop_DCF+Metiers.pdf/6b928c8a-c2ac-4507-840c-98155e0f07d9?version=1.0)*.

[4] As an example, for the sole stock in 27.7.d and for the ICES data call in 2018, the OTB_DEF_70-99_0_0 metier submitted in Intercatch encompass the following declared metier: OTB_CEP_70-99_0_0, OTB_DEF_70-99_0_0, OTB_MOL_70-99_0_0, OTB_SPF_70-99_0_0, OTT_CEP_70-99_0_0, OTT_CRU_70-99_0_0 and OTT_DEF_70-99_0_0.

[5] https://datacollection.jrc.ec.europa.eu/wp/2020-2021?p_p_id=110_INSTANCE_VXyg0nSGejEq&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-2&p_p_col_count=1&_110_INSTANCE_VXyg0nSGejEq_struts_action=%2Fdocument_library_display%2Fview_file_entry&_110_INSTANCE_VXyg0nSGejEq_redirect=https%3A%2F%2Fdatacollection.jrc.ec.europa.eu%2Fwp%2F2020-2021%3Fp_p_id%3D110_INSTANCE_VXyg0nSGejEq%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-2%26p_p_col_count%3D1&_110_INSTANCE_VXyg0nSGejEq_fileEntryId=1284109

9 GERMANY

9.1 Methodology

country	year	sample_frame	refusal_rate	coverage_rate	nonresponse_rate	vessels_fleet	trips_fleet	trips_sampled_onboard	unique_vessel_sampled	unique_vessels_contacted	not_available	no_contact_details	no_answers	observer_declined	industry_declined	succes_rate	tot_selections
DEU	2015	OTB_DEF (27.1, 27.2)	0.50	0.13	0.89	4	8	1	1	3	NK	0	7	0	1	0.50	NK
DEU	2015	OTB_DEF (27.4.a, 27.4.b, 27.4.c)	0.11	0.02	0.88	27	376	8	7	7	NK	10	46	2	1	0.89	NK
DEU	2015	OTB_DEF (27.14.b, 21.1.c)	0.00	0.10	0.82	4	21	2	2	4	NK	0	8	1	0	1	NK
DEU	2015	TBB_DEF (27.4.b, 27.4.c)	0.20	0.01	0.88	9	366	4	3	3	NK	3	23	2	1	0.8	NK
DEU	2015	TBB_CRU (27.4.b)	0.36	0.00	NK	171	13154	7	4	7	NK	NK	28	0	4	0.64	NK
DEU	2015	OTM_SPF (27.2.a, 27.4.a, 27.4.b, 27.6.a, 27.7.b-k, 27.8.a)	0.00	0.15	0.59	6	72	11	3	4	NK	0	16	0	0	1	NK
DEU	2016	OTB_DEF (27.1, 27.2)	0.00	0.33	0.67	4	3	1	1	2	NK	0	2	0	0	1	NK
DEU	2016	OTB_DEF (27.4.a, 27.4.b, 27.4.c)	0.45	0.02	0.91	20	281	6	4	7	NK	8	47	0	5	0.55	NK
DEU	2016	OTB_DEF (27.14.b, 21.1.c)	0.00	0.10	0.67	4	20	2	2	4	NK	0	4	0	0	1	NK
DEU	2016	TBB_DEF (27.4.b, 27.4.c)	0.00	0.01	0.71	12	386	4	3	2	NK	3	7	0	0	1	NK
DEU	2016	TBB_CRU (27.4.b)	0.50	0.00	NK	170	12631	7	5	12	NK	NK	35	0	7	0.5	NK
DEU	2016	OTM_SPF (27.2.a, 27.4.a, 27.4.b, 27.6.a, 27.7.b-k, 27.8.a)	0.00	0.15	0.38	6	68	10	2	4	NK	0	6	0	0	1	NK
DEU	2017	OTB_DEF (27.1, 27.2)	0.00	0.29	0.60	5	7	2	1	2	NK	0	3	0	0	1	NK
DEU	2017	OTB_DEF (27.4.a, 27.4.b, 27.4.c)	0.14	0.02	0.87	22	282	6	4	7	NK	8	30	1	1	0.86	NK
DEU	2017	OTB_DEF (27.14.b, 21.1.c)	0.00	0.06	0.88	5	16	1	2	4	NK	0	7	0	0	1	NK
DEU	2017	TBB_DEF (27.4.b, 27.4.c)	0.00	0.01	0.60	8	357	4	3	3	NK	2	4	0	0	1	NK
DEU	2017	TBB_CRU (27.4.b)	0.44	0.00	NK	169	12285	5	4	8	NK	NK	41	0	4	0.56	NK
DEU	2017	OTM_SPF (27.2.a, 27.4.a, 27.4.b, 27.6.a, 27.7.b-k, 27.8.a)	0.17	0.10	0.55	6	52	5	4	4	NK	0	5	0	1	0.83	NK
DEU	2018	OTB_DEF (27.1, 27.2)	0.00	0.22	0.50	4	9	2	2	2	NK	0	2	0	0	1	NK
DEU	2018	OTB_DEF (27.4.a, 27.4.b, 27.4.c)	0.17	0.02	0.84	20	232	5	5	6	NK	7	18	1	1	0.83	NK
DEU	2018	OTB_DEF (27.14.b, 21.1.c)	0.00	0.14	0.63	4	21	3	2	2	NK	0	5	0	0	1	NK
DEU	2018	TBB_DEF (27.4.b, 27.4.c)	0.50	0.01	0.79	8	373	3	2	3	NK	2	6	0	3	0.5	NK
DEU	2018	TBB_CRU (27.4.b)	0.27	0.00	NK	170	12586	8	5	6	NK	NK	26	0	3	0.73	NK
DEU	2018	OTM_SPF (27.2.a, 27.4.a, 27.4.b, 27.6.a, 27.7.b-k, 27.8.a)	0.00	0.13	0.50	5	24	3	4	3	NK	0	3	0	0	1	NK
DEU	2019	OTB_DEF (27.1, 27.2)	0.00	0.11	0.50	2	9	1	1	2	NK	0	1	0	0	1	NK
DEU	2019	OTB_DEF (27.4.a, 27.4.b, 27.4.c)	0.44	0.02	0.89	15	267	5	3	4	NK	7	29	0	4	0.56	NK
DEU	2019	OTB_DEF (27.14.b, 21.1.c)	0.00	0.16	0.70	4	19	3	2	2	NK	0	7	0	0	1	NK
DEU	2019	TBB_DEF (27.4.b, 27.4.c)	0.33	0.01	0.85	8	462	4	4	4	NK	0	20	0	2	0.67	NK
DEU	2019	TBB_CRU (27.4.b)	0.33	0.00	NK	166	9748	6	4	7	NK	NK	17	1	3	0.67	NK
DEU	2019	OTM_SPF (27.2.a, 27.4.a, 27.4.b, 27.6.a, 27.7.b-k, 27.8.a)	0.00	0.14	0.64	5	29	4	1	3	NK	0	7	0	0	1	NK
DEU	2015	Demersal active fisheries, Western Baltic (27.3.c.22, 27.3.d.24)	0.50	0.01	0.61	120	3187	16	14	37	NK	0	9	0	16	0.50	NK
DEU	2015	Demersal passive fisheries, Western Baltic (27.3.c.22, 27.3.d.24)	0.53	0.00	0.58	566	10679	23	17	48	NK	2	4	0	26	0.47	NK
DEU	2015	Demersal active fisheries, Eastern Baltic (27.3.d.24, 27.3.d.25, 27.3.d.26)	0.25	0.08	0.25	17	119	9	6	12	NK	0	0	0	3	0.75	NK
DEU	2016	Demersal active fisheries, Western Baltic (27.3.c.22, 27.3.d.24)	0.62	0.01	0.70	131	2522	22	16	43	NK	0	16	0	36	0.38	NK
DEU	2016	Demersal passive fisheries, Western Baltic (27.3.c.22, 27.3.d.24)	0.51	0.01	0.57	536	9726	54	26	73	NK	5	9	0	57	0.49	NK
DEU	2016	Demersal active fisheries, Eastern Baltic (27.3.d.24, 27.3.d.25, 27.3.d.26)	0.78	0.06	0.79	16	105	6	4	12	NK	0	1	0	21	0.22	NK
DEU	2017	Demersal active fisheries, Western Baltic (27.3.c.22, 27.3.d.24)	0.80	0.01	0.84	96	2182	12	11	37	NK	0	16	0	48	0.20	NK
DEU	2017	Demersal passive fisheries, Western Baltic (27.3.c.22, 27.3.d.24)	0.74	0.00	0.78	478	7785	22	15	65	NK	3	10	0	64	0.26	NK
DEU	2017	Demersal active fisheries, Eastern Baltic (27.3.d.24, 27.3.d.25, 27.3.d.26)	0.57	0.05	0.57	11	55	3	3	7	NK	0	0	0	4	0.43	NK
DEU	2018	Demersal active fisheries, Western Baltic (27.3.c.22, 27.3.d.24)	0.60	0.01	0.69	95	2098	16	10	36	NK	0	12	0	24	0.40	NK
DEU	2018	Demersal passive fisheries, Western Baltic (27.3.c.22, 27.3.d.24)	0.80	0.00	0.83	483	7511	17	13	76	NK	0	14	0	67	0.20	NK
DEU	2018	Demersal active fisheries, Eastern Baltic (27.3.d.24, 27.3.d.25, 27.3.d.26)	0.67	0.06	0.70	13	54	3	3	10	NK	0	1	0	6	0.33	NK
DEU	2019	Demersal active fisheries, Western Baltic (27.3.c.22, 27.3.d.24)	0.41	0.01	0.51	55	2237	23	14	29	NK	0	8	0	16	0.59	NK
DEU	2019	Demersal passive fisheries, Western Baltic (27.3.c.22, 27.3.d.24)	0.49	0.01	0.57	428	7466	39	22	62	NK	7	7	0	37	0.51	NK
DEU	2019	Demersal active fisheries, Eastern Baltic (27.3.d.24, 27.3.d.25, 27.3.d.26)	0.33	0.05	0.50	8	39	2	2	4	NK	0	1	0	1	0.67	NK

The German data submission for this data call is based on the following sources of information:

1. Logbook and Landings data (landings, value, effort, spatial effort and spatial landings, BMS)

2. German fleet register (Number of vessels, Fleet determination etc.)

3. Scientific observer data (Discards, length and age distributions)

Effort has been estimated by using the generic R script provided for this data call. Germany provides information for all vessels with all necessary information reported in logbooks. Vessels <10m in the North Sea and and vessels < 8m in the Baltic do not have an obligation to fill in logbooks. However, for these vessels so called "Monatsmeldungen" were used to provide information on catch and effort where possible.

Discards were estimated based on observer data and not from logbook information as the compliance to the landing obligation was still very different from fishery to fishery until 2020 (last year of the data call). Based on observer data the unwanted catch (BMS + Discards) was raised to discard domain level. From these values the BMS reported in logbooks (and already accounted for under landings) was substracted. In cases where this resulted in a negative value because of the inherent uncertainties in the raised unwanted catch

estimates, a zero discard was assumed. Similarly, because of the often large uncertainties in the unwanted catch estimates, discards >0 must not have happened in reality especially if the values are small. For metiers that were not sampled, a NK for "not known" was provided to allow for JRC raising routines to be used to fill gaps. Cases where there are discards only in the sampling and in addition zero landings in logbooks are not yet taken into account. Germany is working on a methodology that best suits these specific cases also taking into account non-DCF data sources from ongoing research projects to derive useful and realistic discard estimates. Any discard estimate with 100% discard rate is extremely uncertain and great care is needed to avoid unrealistic and misleading numbers.

For the 2021 data call Germany started to highlight value information as confidential. Also all information from areas where only very few German vessels fish (i.e. CECAF, Southpacific, NAFO) were marked as confidential. There are further issues related to the data on spatial effort and landings where certain lines hold information for less than 3 vessels. However, the current level of aggregation in the dissemination tool (i.e. not by country) is appropriate. Germany reserves the right to adapt the cases marked as confidential in case the aggregation levels change in the dissemination tool.

The discard and biological data sampled in a certain domain are used in Table A in a finer disaggregation level. The distribution of total discards at the domain level to the more detailed disaggregation level in table A is done by using the landings information in Table A. Because of this, it needs to be born in mind that discards rates, age and length distributions are assumed to be the same inside a sampling domain although differences may occur in reality.

The length frequency data have been used to calculate the percentage of undersized fish in the landings and discards. Similar to the overall discard rates it needs to be highlighted that this is based on observer data and a limited number of sampled trips. The length frequencies may have been used as being representative in a much wider context. E.g., when a sampled length frequency was only available for quarter 3, maybe it needs to be assumed that it is representative for the whole year. This can introduce a serious bias as fish grow over the year and recruits are often entering the fishery in the third quarter. Therefore, the results have to be interpreted carefully and always in conjunction with information on the sampling coverage.

Currently it is not mandatory to include information on selectivity devices in logbooks. Therefore, it cannot be concluded from the data in all cases whether certain fleets and metiers use a certain selectivity device or not.

Table B

In Germany the sampling program is in between an adhoc and a statistically sound sampling program. Vessels or in many cases POs are contacted randomly within a given sampling frame (see table). Vessels are then selected based on who leaves the port next and is available to take observers onboard. Within a sampling frame, the observer program focuses on fisheries that are most important in terms of catches.

For table B the refusal rate was calculated as: Industry declined/(Industry declined + Trips sampled onboard). Similar to the refusal rate, the non-response rate was calculated as: (no contact details + no answers + observer declined + industry declined)/ (no contact details + no answers + observer declined + industry declined + trips sampled onboard). The column "industry declined" includes cases where industry declined because of valid and invalid reasons.

9.2 Data availability

All requested data were uploaded before the deadline of the data call and were checked by the JRC routines. The current data can be regarded as final given current knowledge.

9.3 Coverage

For the seven years requested all data were provided for all tables before the deadlines. For some metiers with small importance (i.e. trips with mussels as target species) catches were reported but no effort. The metier field makes it likely that for the same trip slightly different allowed codes are used if different people work on different tables (ie. landing vs. effort and spatial landings and spatial effort). On a similar aggregation level, but without using the metier field and instead the columns holding the gear, mesh size and target assemblage information, effort and landings still match.

Comparison with Eurostat data.

Only very minor differences (<1% for EU waters) occurred between FDI data and Eurostat for 2015 and 2016. More differences in landings weight can be seen for 2017 and 2018. These were the years when the German administration introduced its new database. While logbooks were corrected and updated during 2018 and 2019, submissions to Eurostat may not have been updated. Therefore, the FDI data are likely more representative than the Eurostat data for these years. For the year 2019 again only small differences occur.

9.4 Problems encountered

Vessels without logbook data (small vessels u8m in the Baltic and u10m elsewhere) are problematic. A common approach to answer the data call for these vessels where data by fishing trip is not available would be beneficial. An extra table with less details for these vessels could also be an option.

The metier field in its current format is not useful as various codes can be used for one single gear and mesh size combination in a given area. Each country has its own way of handling the metier field and e.g., to identify the thresholds to identify the target assemblage. This makes it difficult to compare between countries but it also creates problems inside the country if different people work on different tables. Further restrictions on metier codes allowed are needed to ensure that all use the same metier definition in the same situation. In general, the metier field could be also deleted as all important information is already provided in the other columns including the target assemblage. However, a more detailed description is needed how to identify target assemblage to harmonise the methodology across countries. For example, it is completely unclear when a trip should be counted as e.g., mixed demersal fish and crustacean trip (MCD).

A comparison between landings from table A and table H reveiled several discrepancies. However, this reflects only a shift between quarters as the person generating table A uses that date of the catch from the logbooks, while the person dealing with table H is using the date from the landings declarations. Both ways are correct (i.e. date of the catch more relevant for biological information and landings date more relevant for economics) and when summed over the year, the landings from both tables are identical. Never the less, a clear guideance on what date to use for FDI would help.

The column "industry declined" currently includes cases where industry declined because of valid and unvalid reasons. The column could be sperated into industry declined and other reasons.

9.5 Impact of Covid on DCF sampling programme in 2020

Germany was able to sample its most important fisheries also during the Covid Pandemic in 2020 although sometimes at a lower frequency. Sampling of less important fisheries (e.g., TR2 fisheries) had to be skipped completely. Some trips were also sampled via self-sampling. Before the Pandemic all data were generated by scientific observers on board.

10 GREECE

10.1 Methodology

Greece has a National Centralize Database (NCD) for storing all the data collected in the framework of the Data Collection Framework (DCF). Confidential data from Vessel Monitoring System (VMS) and Electronic Reporting System (ERS) are provided by the Ministry of Shipping and Island Policy and the Ministry of Rural Development and Food respectively. The primary data are stored in the NCD covering the part of the professional fishing fleet that is obligated to be equipped with a control positioning system and keep ERS. The VMS data are used to estimate the fishing effort from vessels with total length >=15 m (all trawlers and purse seiners are included), the boatseines (that can be operate according to Commission Implementing Regulation (EU) 2017/929) and the vessels having a specific fishing license (large pelagic fishing, small scale fishing vessels (SSF) operating in international waters). The spatial fishing effort is estimated by a predefine cell size (usually 2x2 Km) and by GFCM statistical rectangle according to the FDI data call ANNEX 1, using a methodology proposed by Kavadas et al. 2014 and Maina et al., 2016. For the rest SSF vessels (who are the majority (96%) of the Greek fishing fleet) effort data are collected at the port on monthly basis from a representative number of vessels. Specific routines (written in R) have been constructed to support the analysis, raising and estimation of effort from SSF vessels by major area (according to the Greek DCF sampling scheme, the country has been divided in 12 major areas) and GSA. Concerning the estimation of landings, ERS data are used for trawlers, purse seiners, boatseines, large pelagic fishery and SSF vessels with LOA >12m, given by GFCM statistical rectangle to support the FDI data call. For the rest SSF vessels, landings data are collected at the port on monthly basis from a representative number of vessels. Specific routines (written in R) have been constructed to support the analysis, raising and estimation of the landings from SSF vessels by major area and GSA. Information related to the fleet capacity is provided by the Ministry of Rural Development and Food. Sales data are included in the database collected monthly by questionnaires in the port from SSF vessels. For the rest part of the fishing fleet, sales data are stored in the NCB as they are reported in the ERS. Information on gear and statistical GFCM rectangle are provided by ERS. If there are less than three vessels in the aggregation level in tables A, G, H and I, they are marked as confidential.

The length and age distributions were processed to support MED&BS, FDI and GFCM/DCRF data calls using the at-sea observer's data and the biological sampling data collected in the framework of DCF. Domains have been defined, corresponding to the DCF and are inserted in Table A. Discards Ratio and Discards are estimated based on the at-sea sampling data. In some cases, there are length measurements for species, where there is no age reading.

Landings below minimum conservation reference size are not reported sufficiently in the ERS. This information is collected from the at-sea observer's and the estimated discard ratio is used to support specific calculations requested by the official data calls, on the implementation of landing obligation and for scientific purposes.

10.2 Data availability

All the data was submitted by the FDI data call deadline.

10.3 Coverage

For 2014, the DCF was executed from April to December. Spatial landings are not available because the ERS had not been established. Effort by rectangle for trawlers, purse seiners and SSF vessels with LOA>15m are available from VMS. Due to abnormal execution of DCF in 2015 (was executed the last quarter), only effort data related to the operation of trawlers, purse seiners and SSF vessels with LOA>15m can be used for analysis purposes. The ERS started operating the last quarter of the year. FDI data for the year 2016 is provided for the period March to December, except landings and effort information for trawlers, purse seiners and SSF with LOA>12m are provided for all months. Biological data for 2017 was not provided because the DCF was executed in the last quarter of the year

covering a small area of the Greece. Nevertheless, effort and landings data for trawlers, purse seiners and SSF with LOA>12m are provided for all months. Related to 2018, 2019 and 2020, complete data sets are provided. VMS, logbooks, sales notes, and fleet register data are provided by the Ministry of Shipping and Island Policy and the Ministry of Rural Development and Food Agency. Related to small scale fisheries, data are collected in the framework of DCF.

Due to abnormal execution of the DCF in 2017, landings, discards and value data are missing in Table A. Only spatial landings for trawlers and purse seiners are provided in Table H. Under this condition, no comparisons between FDI and AER can be supported.

For 2014 and 2015, spatial landings data are not provided because the ERS system had not started. Spatial effort was given from VMS. Thus, checking of landings not covered by effort and effort not covered by landings cannot be performed for 2014 and 2015. For years 2016-2020 and for the case where effort not covered by landings, should be noted that the effort is estimated by 2x2Km cell size and then is aggregated to ERS (GFCM) rectangle. There are cases where the fishermen indicate wrong rectangle (usually a neighbour rectangle) resulting in these discrepancies. In general, such cases are not many and the landing and effort values are very small.

Concerning differences in the number of vessels between FDI and ECO should be noted that the number of vessels provided in the FDI (Table J) comes from the National Fleet Register. In ECO, the inactive vessels are estimated and are deducted from the professional fishing fleet. This leads to discrepancies between FDI and ECO.

Different codes used in FDI and ECO data calls in the field "fishing tech" (based on FDI Appendix 3: Fishing technique coding) leaded to discrepancies in the number of fishing vessels, landings and values for the SSF. This does not represent reality. As an example, the code "DFN" was used in ECO, while the code "PG" used in FDI. In the next FDI data call this issue will be harmonized with ECO.

Confidentiality

If there are less than three vessels in the aggregation level in tables A and for field TOTVALLANDG, they are marked as confidential.

Comparison with Eurostat data.

In term of the fishing fleet, no significant differences exist between EUROSTAT and FDI data call. In terms of landings, no comparison can be performed due to irregular execution of DCF in 2015 and 2017 while for 2016, no data is provided by EUROSTAT.

10.4 Problems encountered

No problems were encountered during the data collection or submission process.

10.5 Other comments if relevant

Refusal rates from the at-sea observers have not been reported.

References

Kavadas, S., Barberá, C., Belardinelli, A., Carpi, P., Cataudella, S., Croci, C., et al. (2014). Common methodological procedures for analysis of VMS data, including web-based GIS applications related to the spatial extent and intensity of fishing effort. PERSEUS Project report, ISBN no: 978-960-9798-14-3, pp 40 + annexes.

I. Maina, S. Kavadas, S. Katsanevakis, S. Somarakis, G. Tserpes, S. Georgakarakos (2016). A methodological approach to identify fishing grounds: A case study on Greek trawlers, Fisheries Research, Volume 183, pp 326-339, https://doi.org/10.1016/j.fishres.2016.06.021.

11 IRELAND

11.1 Methodology

The Irish data submission is based on the following sources:

1. Logbook (vessels >10m) and Sales Notes (vessels <=10m) data (wanted catch, value, spatial effort and landings etc.)
2. Fleet register (Number of vessels, Fleet determination etc.)
3. Scientific observer data (discards, length and age distributions)

QUARTER and YEAR defined on the trip return date. FISHING_TECH of a vessel for a certain year was determined based on the highest fishing days recorded for a certain gear. Estimates of discards were raised from the national sampling scheme, for which the strata are defined within the variable DOMAIN_DISCARDS. No estimates of discards were provided for unsampled strata, and were marked as "NK". Only estimated values of discards were provided in table A. Estimates of discards were raised to the fleet level for each year, quarter, gear, area, and species. Fishing effort (hours fished) was used for all species as the auxiliary variable. The discard rate (kg/h) and age composition (where applicable) were then applied across the remaining strata (vessel_length; mesh, fishery; specon_tech) based on the effort (fishing hours) in each of these strata. Discards that were observed to be zero are included. Age and length distributions for landings were estimated from market sampling and at sea sampling programme.

Irish market sampling information is not recorded with mesh size information; where possible this was re-constructed by linking to the logbooks database to the sampled data. The age composition of the landings was estimated for each quarter by gear, area and species (any further disaggregation would violate the sampling design). The age compositions were then assigned to each of the remaining strata (vessel_length; mesh, fishery; specon_tech) based on the reported landings in each of these strata.

Effort was calculated using the fecR package.

In 2021 Ireland provided refusal rates for two separate sampling programs; demersal (DEM) and pelagic (PEL). These refusal rates were calculated using the guidelines set out in SGPIDS 3 (ICES CM 2013/ACOM:56). In 2017, Irelands demersal at-sea catch sampling programme was changed to a 4S programme (statistically sound sampling scheme). This demersal sampling frame consists of Irish registered vessels >10m length using the gear types OTB, SSC, GNS and TBB and with target assemblages DEF and CRU. The sampling frame is stratified temporally (year and quarter) and spatially (based on which ICES areas the majority of their fishing activity occurred in the same quarter in the previous year). This results in 3 vessel lists per quarter (vessels mostly fishing in areas 27.6, 27.7.a and 27.7.b-k). Random selections are then made from these lists and sampling coordinators then try and contact the selected vessels to arrange trips for at-sea observers to sample. Vessels are selected with unequal probability, based on their length and the number of trips they have previously made. No clustering or sub-sampling is used. Refusal rates for the pelagic fleet could only be calculated for the pelagic fleet as this was the first year of a 4s scheme.

11.2 Data availability

Logbook and sales note information was finalised and deemed complete in May 2020. The landings and effort information for vessels >10m is derived from logbooks, whereas for vessels <10m it is derived from sales notes. The effort information for vessels <10m is estimated from sales notes by applying very broad assumptions for certain species/gears. Annual there remains a number of trips of vessels <10m for which effort cannot be estimated.

11.3 Coverage

General comments:

Data was provided for all years requested (2015 – 2019) for all tables before the deadlines. The data covers all areas in which the Irish fleets are active and conform to the requested aggregation. There is no information on misreporting. Data were marked as CONFIDENTIAL if the data relate to less than 3 vessels operating within a fishery. Values in the fields TOTWGHTLANDG and TOTVALLANDG in table A and table H were both considered as confidential when the criteria of < 3 vessels was met.

Specific comments:

- ***Domian name consistency:*** Overall, there was good consistency between table A and tables containing biological samples (Tables C, D, E & F). There were no domain names in the biological tables that could not be matched to metiers in Table A. There are a number of domains in Table A, which have discards for TAC species but no associated landings. Although the majority of these are due to incidents of bycatch species in mixed fisheries, there are a number of whiting (WHG) discard records which should have associated landings. This is due to metier labelling issue at the level of the trip and the sampler, where the fisher records one metier in the electronic logbook and the sampler has recorded another métier. This is considered a minor issue as it effects a very small tonnage of WHG discards <400 over a period of 5 years. At a national level it is planned to address issue using the RCG metier labelling script developed by an RCG subgroup (https://github.com/ices-eg/RCGs/tree/master/Metiers)

- ***Eurostat data comparison***: There is generally good consistency between Irelands FDI submission and the Eurostat extraction. The only major difference is in the vessel numbers, which is because the Eurostat list contains inactive vessels.

- ***Confidentiality***: Ireland considers that any aggregated operation that contains less than three vessels should be marked as confidential. There is a need for the Commission to clarify the legal requirements and methodology, which should be applied in this section. The provision of different levels of confidentiality in this year's data call (all, none, weight and value) helped to improve data availability.

- ***Spatial data:*** There were some minor issues with spatial tables, mostly associated with static fishing gears for vessels under 12meters, which do not have electronic logbooks. It is planned to apply the data checking scripts developed by the spatial subgroup to the data call in 2021. (https://github.com/mauriziogibin/EWG-FDI-MAPPING)***.***

- ***Biological data:*** The length tables (Table D and F) contained a number of duplicated strata, with varying mean weights. This error is artefact of how the data is raised from individual métiers and will be resolved for resubmission to next year's data call. To avoid any impact to this year's MCRS analysis the maximum of the two weights was used.

A number of SOP errors were found in the biological tables that contain age Table C, this is being driven by a unit error in the sample numbers submitted. It could not be fixed within the timeframe of the meeting, but does not affect Table A or other biological tables. This issue will be corrected and included in a resubmission to next year's data call.

- ***Fishing Technique:*** During the working group it was found that Ireland were not accounting for "Inactive" vessels within the FISHING_TECH definition. Therefore there were a larger number of vessels reported in Table J then in the Annual economic report. This process will be improved for next year.

11.4 Problems encountered

No problems were encountered during the submission process.

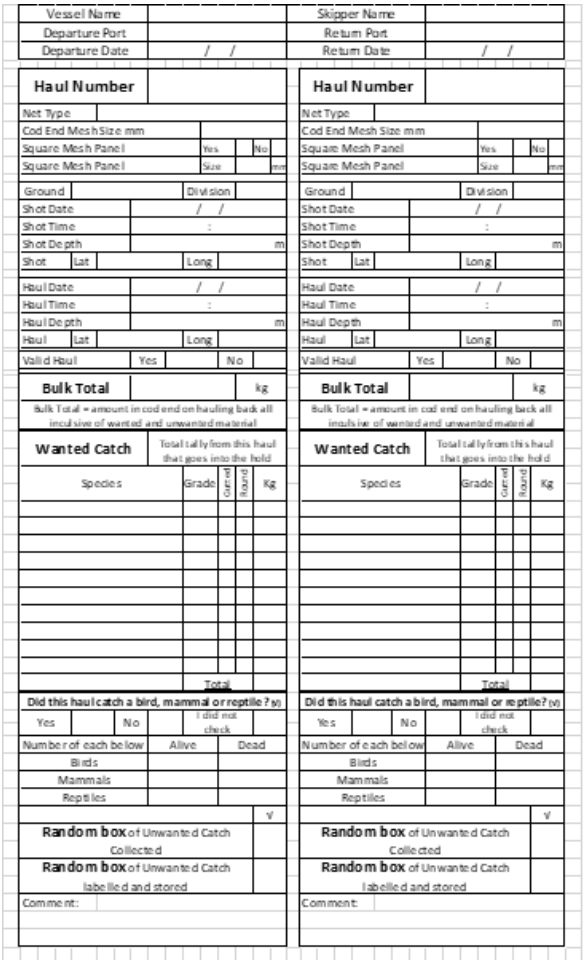
However a number of challenges were met in data collection. In relation to covid 19 there were a number of adaptations to the sampling plan. When Covid19 struck in March 2020 the Marine Institute (MI) at sea sampling aboard commercial vessels was temporarily suspended in the interest of the health and safety of both samplers and the fishing crews.

The temporary suspension has remained since and therefore the MI have not had samplers at sea on commercial trips >18hours since the pandemic started. The MI were able to reinstate at sea sampling on inshore vessels where overnight accommodation is not a requirement and sampling occurs outside on deck, by following Covid H&S advice during the period when the lockdown restrictions were eased in the summer, resulting in a number trips. To mitigate for the loss of at sea sampler coverage the Marine Institute (MI) has worked with the industry and developed an At Sea Self Sampling Programme where the skippers/crews collect data and samples from a subset of the hauls, bring the material ashore where MI staff measure and work up under Covid guidelines. Each vessel is contacted individually by the Fisheries Liaison TL following 4s sampling guidelines selection in advance of a possible trip. On agreeing to participate the skipper is trained via remote training and supplied with a sampling pack pre sailing. Participating skippers record data on haul start & stop positions, date and time, estimate the Bulk catch, record observations on bird, mammal, reptile interaction record by kg /species what catch is wanted and take one random box of Unwanted catch for measurement ashore by our staff (see Fig. xxx). On sailing the participating skipper maintains contact with the Fisheries Liaison TL and quality assurance checks are performed during the trip via WhatsApp. The extra samples coming ashore has resulted in in an increased resource requirement ashore which is offset by the current lack of sea time. This mitigation measure has ensured that MI keeps some direct fisheries dependant data flowing to our process systems and more importantly ensures that the dialogue between the MI and the industry is maintained and developed. This has resulted in over forty trips sampled in 2020 and continues to yield data in 2021.

In 2020 the Marine Institute also set up a self-sampling project with the Irish Tuna Fishery Improvement Project FIP (http://www.irishtunafip.ie/) where the Irish Tuna fleet employed a crew member to self sample data during the Albacore fishery working to MI standard operating procedures. The crew member was trained by the MI and delivered the data to MI for entry/analysis. Whilst this was a successful first season of this joint approach it too fell victim to Covid restrictions as the spread of vessels sampled by the crew member were limited – 4 trips were sampled in 2020 and it is hoped hope to build on this in the coming season (Jun/Jul/Aug). The MI also developed a new FU16 At Sea Self sampling programme to sample Nephrops. The existing programme was heavily dependent on samplers measuring Nephrops at sea and thus had fallen foul of the Covid. A number of vessels undertook this new sampling in Qtr4 2020 and it is expected to build on this in 2021.

For 2021 and 2022 the MI approach to the At Sea Sampling will firstly be influenced by the Covid restrictions as they stand. Whilst under Covid restrictions the MI hopes to expand the At Sea Self Sampling to extra metiers by modifying and developing new protocols and recruiting new vessels to the programme. The beam trawl fleet was noticeable in its absence in the recent at sea dataset and the aim is to increase the dialogue with beam trawl vessel owners to rectify this. The MI aims to build on the partnerships developed with the At Sea Self Sampling and hope that these will translate to fishers accommodating samplers aboard their vessels when it safe to do so in the future. In 2020 a total of 26 vessels participated in the at sea sampling, in Qtr1. 2021 there have been 22 vessels, 11 of which are new to the programme. The At Sea Self Sampling mitigation measure will be re-assed post Covid to assess whether the MI should develop a dual stream of at sea fisheries dependant data 1) from self sampling and 2) from samplers aboard vessels. This approach may also facilitate an increase in vessel availability as the At Sea Self Sampling program is not limited by accommodation aboard vessels.

While Covid restrictions has curtailed the Marine Institute at sea sampling it has also afforded the opportunity to trial new methods of collecting fisheries dependant data at sea for the Irish fleet. The At Sea Self Sampling has brought participating skippers closer to the scientific process and has increased the understanding of the importance of collecting data at sea to specific standards/SOPs. The lessons learned during the Covid response will help inform and develop the Marine Institute future strategy to At Sea Sampling and the collection of fisheries dependant data. Despite the adaptation of the sampling plan, discard estimation was possible is the majority of stocks.Figure 9.4



Vessel Name		Skipper Name	
Departure Port		Return Port	
Departure Date	/ /	Return Date	/ /

Haul Number		Haul Number	
Net Type		Net Type	
Cod End Mesh Size mm		Cod End Mesh Size mm	
Square Mesh Panel	Yes / No	Square Mesh Panel	Yes / No
Square Mesh Panel	Size / mm	Square Mesh Panel	Size / mm
Ground / Division		Ground / Division	
Shot Date	/ /	Shot Date	/ /
Shot Time	:	Shot Time	:
Shot Depth	m	Shot Depth	m
Shot Lat / Long		Shot Lat / Long	
Haul Date	/ /	Haul Date	/ /
Haul Time	:	Haul Time	:
Haul Depth	m	Haul Depth	m
Haul Lat / Long		Haul Lat / Long	
Valid Haul	Yes / No	Valid Haul	Yes / No
Bulk Total	kg	**Bulk Total**	kg
Bulk Total = amount in cod end on hauling back all inclusive of wanted and unwanted material		Bulk Total = amount in cod end on hauling back all inclusive of wanted and unwanted material	
Wanted Catch	Total tally from this haul that goes into the hold	**Wanted Catch**	Total tally from this haul that goes into the hold
Species / Grade / Gutted / Round / Kg		Species / Grade / Gutted / Round / Kg	
Total		Total	
Did this haul catch a bird, mammal or reptile? (y)		**Did this haul catch a bird, mammal or reptile? (y)**	
Yes / No / I did not check		Yes / No / I did not check	
Number of each below	Alive / Dead	Number of each below	Alive / Dead
Birds		Birds	
Mammals		Mammals	
Reptiles		Reptiles	
	√		√
Random box of Unwanted Catch Collected		**Random box** of Unwanted Catch Collected	
Random box of Unwanted Catch labelled and stored		**Random box** of Unwanted Catch labelled and stored	
Comment:		Comment:	

11.5 Other comments if relevant

As with last year the data call was very limited in description of variables and context, as a result there was too much room to interpret, and this could lead to member state specific inconsistencies. Time should be given during the working group to address these issues.

12 ITALY

12.1 Methodology

Capacity, effort and landings data are produced considering all the available information at the most disaggregated level:

• • Fishing fleet register. For vessels less than 10 m, the fishing technique actually used by each vessel is checked in field surveys through the data collectors network used in sample surveys. For vessels > 10 m, the prevalent fishing technique is obtained through cross-checking with the information reported in logbooks.

• Logbooks and landing declarations. Basic and regular checks are implemented on the gear used and on the species caught and landed. These declarative forms are the unique source of information for vessels > 10 m.

• Sales notes data. In addition to fundamental checks on the average price for the species at the highest level of geographical and technical detail, this source of information is also used to validate the data on the quantities landed by species.

• VMS data. The information on the geo localization covers the fleet => 15 meters. In addition to providing information about of the effort distribution, they are used as a control tool for the activity through crossing with the logbook declarations and the sample survey. They can also provide information on the gear used, therefore on the metier.

• Sample survey. It is the prevalent source of information for the fleet < 10 meters; sales notes data are also used to cross-checks sample data. The sample survey is also applied to the fleet > 10 m to integrate the information derived from the Control Regulation if needed.

Specific procedures are applied to verify the information obtained from the different sources, relating to a same variable (gears, days, catch and price for species), with the goal of identifying and validating the actual figures and get an exhaustive picture of the fishery for scientific purposes.

Effort calculations are based on the definitions reported in the EUMAP, ie.:

- day at sea: any continuous period of 24 hours (or part thereof) during which a vessel is present within a defined fishing area and absent from port;

- fishing day: any calendar day at sea in which a fishing activity takes place.

Therefore, based on these definitions, the day at sea is relative to the vessel and includes the time of navigation, while the fishing day is relative to the time of use of a fishing gear.

Data on discards are collected through the protocols and the statistical procedures reported in the Italian Work Plan. In particular, since 2010, RCGMED&BS created a regional view of the discard sampling programme in order to optimize the spatial, time and metiers coverage. RCGMED&BS prepared a complete list of métiers important to sample and provide scientific justification for not sampling certain metiers for discards (see RCGMED&BS 2010 - table 7 page 34, RCM Med&BS 2016- annex IX). The discard estimates presented in the FDI data call reflects this regional sampling agreement. It has also to be considered that the discard sampling program is aimed at providing basic data for stock assessment purpose and not for monitoring LO implementation. Several species under LO (annex III of RegMED)

are caught by artisanal fleets for which there is no obligation to implement a discard monitoring program according to the Italian DCF WP.

In table A, the discards are partitioned by landings within the same *year, quarter, vessel length group, métier, discards domain, sub region and species*. An ad hoc routine in R has been developed. This routine splits the discard volume available at the metier level according to the estimated proportions on production per quarter, métier and fleet segment as reported in table.

The splitting is based on certain assumptions and was accomplished because the sampling scheme for discard estimations is not stratified by fleet segment, but only by metier and quarter, as reported in the work plan for data collection.

Refusal rates

Selection of PSU at each sampling occasion was not fully probability based, because of the limited number of vessels by metier, quarter and geographical subarea (GSA level). There was thus no formal refusal procedure for accepting observers. Observers were accepted on board of the vessels fishing in specific zones of a given GSA on ad hoc basis.

12.2 Data availability

All the data was finalized and available by the data call deadline.

12.3 Coverage

The Italian tables cover all the time series 2014-2020 and all the métiers.

The quality checks provided in the tableau does not highlight any incorrect data and/or inconsistencies among the data provided in the different tables requested by the data call.

The very few cases of average length of vessels not compatible with the vessel length code (table J) are not to be considered as an issue because they are due to clustering of some vessels for confidentiality and statistical reasons. Also, there are some commercial species for which the volume of discards has been reported as higher than landings. But this has not to be considered a data issue because it mainly refers to species with a very low commercial value and which catch is frequently discarded (horse mackerel and Mediterranean horse mackerel, bogue, common pandora, small spotted and black mouth catshark).

Comparison with Eurostat data

Eurostat data are in line with FDI data set.

Confidentiality.

No confidentiality issue.

12.4 Problems encountered

No problems encountered in the preparation of the file.

Impact of Covid on DCF sampling programme in 2020

Collection and processing of effort and landings data were not impacted by the COVID pandemic. On the contrary, discard estimation was affected because sampling onboard on vessels could not be implemented for several weeks and in several ports. Arrangements were made with the owners of vessels and the crew in order to receive discard information and samples from the trips

12.5 Other comments if relevant

No comment.

13 LATVIA

13.1 Methodology

All data on fishing operations e.g., gear, mesh size, area etc. are obtained from official logbooks, which are stored in Integrated Control and Information System for Latvian fisheries (ICIS). These logbooks cover all the areas where Latvian fishing fleet is operating including the small-scale fleet. Information about fleet capacity is synchronised with Latvian Fleet register and is stored in ICIS. Central Statistical Bureau of Latvia (CSB) provides annual average prices per species, based on questionnaire "1-Fishery", which all fishing companies are obliged to fill in.

For small scale fleet effort was calculated as one day at sea is equal to one fishing day, because information in coastal logbooks is provided on daily basis.

Information about discards is based on fishery observer estimations. This category is the part of the catch, which is thrown overboard into the sea.

During the work in the sea on the board of ship or boat in small-scale fishery observer is collecting information from each fishery act by species and catch categories (Landings, BMS and Discards).

All discarded fishes by species are measured and weighted, except in the case when the discard is very large, in that case, a subsample weight is taken. All sub-samples are weighted. The sorting of fish into catch categories is made by the fishers.

All available discards data are calculated for each species, divided by quarters, sub-divisions, gear and fleet segment.

Discard rates are calculated by formula:

$$\text{Discard rate}_{\text{trip,species}} = \text{Discard (kg)}_{\text{trip,species}} \; / \; \text{Landing (kg)}_{\text{trip,species}}$$

After obtaining Discard rate, discard rate is applied to landing of species by quarter, SD, gear and fleet segment.

$$\text{Discard (ton)}_{\text{Time,SD,Fleet segment,Species}} = \text{Discard rate}_{\text{Time,SD,Fleet segment,Species}} \; X \; \text{Landing (ton)}_{\text{Time,SD,Fleet segment,Species}}$$

No thresholds were applied.

R script have been used for effort calculation in case of offshore fishery.

In period of 2014-2020 no refusals to take observers on board were recorded.

Due to the critical state of cod stocks in the Eastern part of the Baltic Sea, the specialized cod fishing was not permitted in 2020. Cod could be kept in the catch only if it is an unavoidable by-catch in other fish fisheries (Baltic Herring, Sprat, Flounder).

In 2020 only few fishing trips targeted flounder were observed to get information about level of discards. Due to high level of cod by-catch in flounder fishery this fishing activity was almost stopped.

In this critical situation with cod stocks, the European Commission has taken supportive measures for fishermen to completely stop cod fishing in areas affected by the cod ban. Latvian fishermen have decided to use this support and decommission their fishing vessels. As a result, OTB fleet segment will not exist in the near future. In Latvian fishery cod and flounder discards are registered only in OTB fleet segment. Thus, if this segment will be eliminated, collection of information on cod and flounder discards becomes very problematic.

13.2 Data availability

Latvian data were provided on time and in accordance with required format. Average prices per species for 2020 were used from 2019. Prices for 2020 could be available in autumn of 2021.

13.3 Coverage

Provided data covers all Latvian commercial fishing fleet, which operates in Baltic Sea, CECAF and NEAFC areas. Due to incompleteness of available information from the CECAF and NEAFC regions for 2014, information about distant fleet for this year is not provided. Information about recreational fishery in Baltic Sea were not provided. Due to confidentiality, information about distant fleet is provided as confidential all other information is provided as not confidential. Data were calculated and provided in the same way as for economic data call.

Comparison with Eurostat data did not show big difference. As information about recreational fishery was not provided, there are small differences in landings values for fresh water species between the two datasets.

13.4 Problems encountered

No problems were encountered related to data collection or related to data submission.

13.5 Other comments if relevant

Latvia annually submits data on herring in SD 27.3.d.28.2 and 27.3.d.28.1 according to the FDI data call and formally combines biological data on two separate herring populations - the population of the Gulf of Riga and the population of the open Baltic. This approach is not only biologically incorrect, but also cannot be used for herring stock assessment and it is absolutely unacceptable for fisheries management. Any analyses using submitted data for herring must be carefully reviewed before making any conclusions.

14 LITHUANIA

14.1 Methodology

Data collected

For all fleet segments by regions the transversal variables is deriving from database system FDIS, which contains the primary data referred to Commission Regulation (EC) No 26/2004 of 30 December 2003 on the Community fishing fleet register in Annex I ,Council Implementing Regulation (EC) No 404/2011 in Annex X and the national legislation contains information regarding the restrictions on national logbook completion for vessels up to 8 metres' length overall. Community fishing vessels up to 12 metres' length overall are obliged to keep a fishing logbook and submit landing declarations. Fishing vessels of 18 metres' length overall or more, the fishing logbook is in electronic form and the landing declarations are submitting electronically. The Lithuanian fleet does not consist of any active vessels with the length class of 12 to 18 meters.

Biological data is collected under the Lithuanian National Programme according to the sampling strategy.

Estimation procedures

For estimating discarded catches have been used two data sources: data collected by observers on board and sampling of releases. The logbook data used for comparison. For flounder discards counted against total landings (by request of WGBFAS), for other species by number of voyages (metodology discrabed in WKSCMFD report). The ratio of discards calculated for landings per trip and multiplied by the total landings per strata.

Data on landings for vessels less than 8 metres length overall was derived from the combination of the monthly declarative forms for the periods until 2018 and since 2019

from the national logbook. All data has been cross-checked with sales notes. Combination of information from sale notes and declarative form provide the key details on the species, presentation, location of landings, weight and value of fish being landed. To approach reliable and high quality of data Lithuania uses a "census" type of declarative form and logbook for vessel. Data derived from national logbook were completing by a company engaged in commercial fishing in the Baltic Sea coastal area. Small scale fleet has daily activity and collected data in the declarative is up until 2018 inclusive, 1 Day at Sea assumed as equivalent to 1 Fishing Day, 1 Fishing trip and 24 hours. For the fishing technique (FISHING_TECH) defining has been applied the same rules as for the fleet economic data call.

For all fleet segments value is estimating based on prices derived from sales notes multiplying by weight from landing declarations.

Spatial data was prepared using "0.5*1" resolution for the Lithuanian fleet in all operating areas. In cases of occurring any missing or incorrect fishing positions recorded in the logbooks fishing activities were identified using the VMS data. For small scaled fleet the fishing area assumed as one statistical rectangle which cover all coastal area.

Methodology for partition of discards from tables C-D to table A.

The discard applied to the landings at each stratum, by species, for each year, quarter, gear, area within a domain_discards. No estimates of discarded catch were provided for unsampled strata and were marked as "NK". If the species doesn't have corresponding landings, the discards are distributed to the aggregation of table A based on the effort. This means that there can be lines with discards but no landings.

No thresholds for submitting biological data were applied.

R script following principles agreed on the 2nd Workshop on Transversal Variables was used for calculations of days at sea and fishing days.

Refusal rates

Sampling programe are contrebuted only on the Baltic Sea region. Sampling programme for the CECAF and SPRFMO regions is carried out according to multilateral agreement. Since 2018 Poland has coordinated the programme for CECAF and sinnce 2017 for SPRFMO. Selection of PSU was not fully probability based in the Baltic Sea region, because of small number of vessels. There were no formal refusals for accepting of observers. Observers were deployed on board of the vessels fishing in open Baltic Sea on ad hoc basis. As such, no specific data was provided in table B.

14.2 Data availability

Transversal data by 1 February and biological data by 1 April are available for previous year.

14.3 Coverage

2014-2020 period submitted data covers all areas requested in the data call and conforms to the requested aggregation, by quarter, area, gear and mesh sizes. Any meaningful data quality issues demanding correction and re-submission of data sets was raised during quality checks. Data set submissions complied with the required deadline dates. In respect of data check reports, TABLE_A,TABLE_C, TABLE_D, TABLE_E, TABLE_F, TABLE_G, TABLE_H and TABLE_I of 2014 and 2020 data were resubmitted due to observed inconsistency of coding in few lines. Any significant discrepancies have been noticed in the data checks of the Lithuanian data.

Comparison with Eurostat data.

Between Eurostat and FDI data calls, some discrepancy in value and landings data might occur with regards to fishing trips which extended over two different years where the landing was presented in the final year. In that case, effort with catch and landed value were provided parcelling by two years for the FDI data call. As for the Eurostat data call, the submission is based on the landing or sales dates. Driver of the difference in vessels

number is that for Eurostat the fleet is considered on a snapshot date, whereas FDI looks at the total fleet in a whole calendar year. Therefore, comparing Eurostat and FDI vessels number like-with-like some small differences were revealed.

Publication of confidential data

Data that considered subject to confidentiality and were flagged in "CONFEDINTIAL" column allows statistical unit vessel to be identified, either directly or indirectly, thereby disclosing individual information. The confidential data can be used for EWG ToRs purposes. Aggregated and/or published data should be on the level, which does not allow any identification of the statistical unit of the Lithuanian fleet.

14.4 Problems encountered

Due to the established measures to alleviate a serious threat to the conservation of the eastern Baltic cod causing most fishing to be stopped, in the second part of 2019 and in 2020 the sampling plan was incomplete. As such, the provision of biological data has not been satisfied. Information between vessels where observers are welcomed and vessels where observers are refused in the Baltic Sea region shall be improved as recently is it not available. In some cases, allocation of metier to trip with no catches was highlighted as issue. There are no general concepts on the target species (or target assemblage) as a definition criterion, nether clarification on target assemblage specification in case of efforts without landings. That could lead to inconsistency between Member States. However, there is intersessional between RCG meetings working group which is working on developing of guidance on target species referring to metier. As such, for next 2022 FDI data call R script will be used for allocation metier to fishing operations. However, there is still a need to improve methodology of metier allocation for small scale fisheries. No problems with data submission were encountered.

14.5 Other comments if relevant

Quota and catch options for cod in the Baltic Sea were historically low in 2020, so the possibility to obtain trips and samples information from the fishery was also reduced. Due to COVID-19-related restrictions, the fishery was shut down for a short period; even when the fishing took place, observers could not enter the vessels. The Lithuanian fleet which operates in the Baltic Sea region, usually obtains small catches on board where the catch size can be adjusted more easily. Therefore, no difficulty of sales and fishing activities continued during the pandemic. Biological sampling was mostly affected by quota restriction than the restrictions for COVID- 19. Based on a multilateral agreement between DEU-LTU-LVA-NLD-POL from 2018 and a multilateral agreement between DEU-LTU-NLD-POL from 2017, Poland has been coordinating the joint sampling program for biological data collection on the board of EU fishing vessels engaged in the fishery for small pelagic fish in the CECAF area (Central-East Atlantic) and in the SPRFMO area (South-East Pacific) respectively. No sampling was conducted in either region in 2020 due to COVID-19 (closed borders, restrictions in people movement, safety issues etc.).

15 MALTA – NO INFORMATION PROVIDED

16 POLAND

16.1 Methodology

Official fisheries data of the Polish fleet from the period 2014-2020 were collected from the database administrated by the Ministry of Agriculture and Rural Development.

Polish fishery is located mainly in the Baltic Sea, therefore sampling effort is concentrated in this area, except one sampling trip per year in the Eastern Arctic. Additionally, Poland is a member of the multilateral agreement to cooperate in the biological data collection on pelagic fisheries in CECAF and SPRMFO waters.

Discards were estimated from trips sampled at sea. Domains used to estimate discards result from the sampling plan applied. For the Baltic Sea the domains consist of quarter, FAO subdivision, gear type, target assemblage, mesh size range (one or more) and are used for all vessel length classes, species and commercial categories. For Eastern Arctic the domains consist of FAO division, gear type, target assemblage, mesh size range and are applied to whole year, all vessel length classes, species and commercial categories.

Fishing effort was calculated following the methodology agreed on DCF Transversal Workshops. The fecR package was not used directly because the national input data has a higher level of spatial aggregation (national sub-polygons of the ICES rectangles in the Baltic Sea). Therefore, the logic of the fecR calculation algorithm was re-implemented in the R environment.

For vessels with length of <10 m the information on the start and end of the trip is not registered. In that case, it is assumed that one fishing day is one fishing trip lasting 8 hours at sea.

Refusal rates were calculated as the number of refusals from vessel owners divided by the number of approaches where the contact was successfully made.

The total value of landings was calculated using an average annual price per species. An average annual exchange rate was used to provide the value in Euro.

Spatial data was prepared using either "0.5*1" or "0.5*0.5" resolution depending on the fishing area and data availability. For FAO area 27 information on ICES rectangle was used if available to identify the coordinates of the "0.5*1" rectangle. In the case of distant waters, VMS data were used to identify coordinates of the fishing location which were then converted to c-squares with a resolution of "0.5*0.5".

Segmentation of the fishing fleet in terms of vessel length classes and fishing technique was carried out in the same way as in the economic data call.

16.2 Data availability

All the data was finalised and available before the data call deadline.

16.3 Coverage

General comments

The data analysis allows to state that all variables seem to be consistent across years. Very few issues have been identified and are described below.

Information on the value of fish landed by the fleet operating outside the Baltic Sea is not available. Additionally, for some minor species in the Baltic Sea the value is not available. There are also records in which the landing weight was so low that the value was rounded to zero.

Comparison with Eurostat data.

The comparison with Eurostat data did not show any significant differences. Unlike FDI data, the number of vessels in the Eurostat data includes inactive vessels which results in a discrepancy between the two data sources.

Publication of confidential data

In the period 2014-2020 Poland had 3-5 vessels fishing outside the Baltic Sea. Due to the national statistical law, it was decided to mark the data about their activity as confidential to avoid the risk of identifying a single vessel.

16.4 Problems encountered

Problems related to data collection

At the beginning of 2017 a new sampling design was implemented in Poland. The major change was a move towards statistically sound sampling and random selection of sampling

units. As a consequence, the refusal rates were provided only for the period 2017 – 2020. In the previous years the sampling design was based on the opportunistic selection of sampling units. Moreover, 2017 was a transitional period between old and new sampling design. Not all contacts to vessel owners were available and as a consequence, many ad-hoc expert trips were done.

Due to covid-19, observer trips at sea were suspended on 18.03.2020. At sea sampling partially resumed on 03.08.2020 but only on vessels less than 12 meters in length. On shore sampling continued without any breaks but a reduction of number of samples was observed. For demersal stocks: cod.27.22-24, cod.27.24-32, fle.27.2425, ple.27.24-32 and tur.27.22-32 it was not possible to assess the impact of covid-19 pandemic on sampling because of Baltic cod fishery closure in 2020 and also pelagic and demersal fisheries in the Baltic closure from June until August 2020(July in subdivision 24). Sampling data on unwanted part of the catch (discards, bms) was less representative or missing in 2020 because of the suspension of at sea sampling which is the major data source on this part fo the catch. In case of pelagic stocks: spr.27.22-32, her.27.20-24 and her.27.25-2932 the impact of covid-19 on sampling was considered to be medium.

Problems related to data submission

No problems with data submission were encountered.

16.5 Other comments if relevant

No other comments.

17 PORTUGAL

17.1 Methodology

In general, Portugal uses multiple data sources: Administration data base (fleet register and licenses), logbooks, sales notes, questionnaires and biological data collected on the basis of the National Programme for Data Collection (DCF/PNAB), under the Data Collection Framework (DCF).

Transversal data are obtained from logbooks and sales notes taking into account the Control Regulation and the National Work Plan. This data are combined to get the more accurate information from both sources when available for the same vessel. Daily routines from established business rules are performed to detect and correct errors push from the data sources to the statistical database. At this time, new processes are being developed in order to improve the errors identification and rectification and thus get more accurate data.

As Landings and Effort are requested at a métier level, Portugal developed a procedure that classifies each trip in a métier. The procedure to allocate the metier follow different methodologies depending on the source used: sales notes and licenses or logbook.

For vessels without logbook, Data Integration software is used to apply all the conditions laid down in an algorithm based on Sales Notes and Fishing Permissions (licenses). As the approach for FDI data call is based on the concept of TRIP, it is assumed that each sale note date of a particular vessel corresponds to one trip. Each trip, observing certain conditions in terms of catch composition, and taking into account the fishing licenses of the vessel, is allocated to a specific métier. In the Madeira outermost region, the métier assignment is also support by questionnaires carried out at the port. A similar procedure is conducted in the Azores. A specific algorithm based on Sales Notes, Fishing Permits, and when available, the Questionnaires carried out at the port was designed. In the first phase, each trip, observing certain conditions in terms of catch composition (Sales Notes), is allocated to a specific métier. The algorithm was designed for traditional single-label classification, so if it detects more than one possible métier, an analysis of the relative contribution of each métier is performed, and the dominant métier prevails. Moreover, each métier is determined by one or a group of target species, and each trip being categorised into only one métier. This algorithm classifies trips based on qualitative criteria using thresholds of

target species' contribution to the catch of each trip. In a second phase, the procedure is validated, taking into account the Fishing Licenses and (when available) the questionnaires.

For vessels with electronic logbook, there is a procedure based in SQL scripts that uses the information recorded in the Electronic Recording and Reporting System (ERS) reports, such as gear, catches and spatial information for each haul in each Fishing Activity Report (FAR). Each trip is classified in terms of date, area, gear, target assemblage, catch composition (species), catch weight and catch sale value. The current version of ERS does not have yet the definition of TRIP connecting all the reports what is a constraint for data analysis. Consequently, on a few trips both sources had to be used which arise some inconsistency between effort and landings and between spatial and non-spatial landings. Nonetheless it was considered the best solution to use the greatest amount of available information. However, a new version is expected to be implemented in the next future in parallel with a new data model on which a data warehouse will be based, allowing an improvement in data quality.

Concerning the spatial information requested, for vessels with logbook, whenever possible, the coordinates reported on the FAR, at the haul level, was used. On a very few trips, it was not feasible to process the fishing activity coordinates, arising inconsistency between spatial and non-spatial information. In the case of vessels without logbooks (small scale fisheries - SSF), coordinates of the landing harbour were considered.

Value of landings

For vessels with logbooks, the value of landings is calculated multiplying the weight of landings by the average price determined for each vessel, specie and fishing area. For SSF, the weight and value of landings are the ones recorded in Sales Notes. All vessels are obliged to sell fresh fish at the auction market.

Discards estimation

Discards values on tables C and D are estimates based on biological sampling and were provided for 27.10.A area and trawlers in 27.9.A.

Regarding discard estimates values for trawlers, these are the values reported to ICES for stocks assessment. In 2015-2019 they were based on data collected from the observers sampling program on-board demersal fish and crustacean trawlers in area 27.9.A. Using the procedure to raise discards from haul to fleet level in the Portuguese trawl fisheries (Jardim and Fernandes, 2013), species with low frequency of occurrence or abundance in discards (i.e., with a large number of zeros in the data set) cannot be reliably estimated at fleet level. The frequency of occurrence and abundance of most species in discards of the Portuguese bottom trawl fleet was below 30%.

In 2020, the commercial sampling in ICES 27.9.a was affected by the COVID-19 pandemic: onboard sampling in Portuguese waters of ICES 27.9.a was suspended in March 2020 and was not resumed in that year. As a result, it was not possible to use the standard discard raising procedure at fleet level to estimate discards (Jardim and Fernandes, 2013). Two different procedures were then used to obtain these estimates, one for the frequently discarded species (more than 30% occurrence in the sampled hauls) where estimates were obtained using the average discards per unit effort (DPUE) (Ton/fishing hours) by quarter, from the period 2017-2019; this average DPUE was then multiplied by the effort (fishing hours) in 2020. An average length distribution by quarter was also obtained using the 2017-2019 periods, and used to derive the length and age distributions for 2020. In the case of species with irregular patterns in discards in the sampling period 2004-2019, standardized discards per unit effort (DPUE) were obtained for that period, and the average value of the 2017-2019 period was multiplied by the total fishing effort of the fleet to obtain annual values of discards. Species with low frequency of occurrence in discards (below 30%) are not reported because discards cannot be reliably estimated (Jardim and Fernandes, 2013).

Consequently, annual trawl discard volumes and length frequencies at the fleet level are only estimated for some species and years.

For the remaining sampled fleets in 27.9.A (GNS_GTR, LLS_DWS, PS_SPF, and TBB_MCD) discards estimation procedures are still being discussed/developed. The main difficulties for their conclusion are related to the multi-gear trips and the need to choose an adequate auxiliary variable (with consistent information from the population) to use in the raising procedures.

Landings by species for the métiers coded as OTB_CRU_>=55_0_0 and OTB_DEF_>=65_0_0 in Tables C and D were the results of aggregation of landings of more than one trawl métier reported in Table A, according to the table below. Discards estimates are reported for the same aggregated métiers, which are the groups covered by the sampling program.

Métier s from Table A - CATCH	**Métier s in Tables C to E (biological data)**
OTB_CRU_55-59_0_0	OTB_CRU_>=55_0_0
OTB_CRU_>=70_0_0	
OTB_DEF_0_0_0	OTB_DEF_>=65_0_0
OTB_DEF_65-69_0_0	
OTB_DEF_>=70_0_0	

In what concerns to discards information provided in Table A, discard values were based on the annual discard estimates for each sampled fleet (OTB_DEF and OTB_CRU), proportionally distributed according to the landings at métier/quarter/vessel_length. This is not the best procedure because OTB discards estimates were raised using effort as auxiliary variable and, for this purpose, we are assuming that landings and discards are correlated, which may not be true.

Regarding sub-region 27.10.A, discards values were estimated based on data collected at the observers sampling program on-board. During 2019, observer coverage included several fleet: handliners, longliners, purse seiners and gillnetters. Each observer covers 100% of the discards by haul/trip (species composition and length), meaning that discards were raised by métier and vessel length segmentation. Length-weight relationships were used to obtain total weight discarded by trip. Raising factor was applied by species, i.e., for each quarter/métier/vessel length/species discards was estimated using weight landed or number of trips, according with the assumption of a species been landed or not, respectively.

Landings and Discards Age and Length data

Length frequency is collected for all species present at landings occurring in ports with at market sampling coverage – concurrent sampling. Depending on the species selected for sampling at laboratory, the frequency on collecting other biological variables such as weight, age, sex and maturity varies in line with National Workplan.

The same approach is conducted regarding at sea sampling concerning all catch fractions at a haul level.

Age data (Tables C and E) were provided only for the species that have age information, which are horse mackerel (HOM), mackerel (MAC), sardine (PIL) and blue-whiting (WHB), in area 27.9.A. Table C contains age information only for WHB, because this is the only aged species present in discards with frequency of occurrence in discards > 30%. Regarding area 27.10.A, no age data was provided (Tables C and E).

Length data (Tables D and F) are provided for all species assessed by ICES and for métiers sampled in areas 27.1.B, 27.2.A and 27.2.B (onboard sampling) and 27.9.A (market and onboard sampling). Table D contains length data for hake and blue-whiting, species in which the frequency of occurrence in discards is higher than 30%, as previously referred. In each DOMAIN_LANDINGS, TOTWGHTLANDG weight was converted in number (dividing by the MEAN_WEIGHT_LANDG) and then distributed by age and/or length, using the proportions of each age or length class in the total distribution. The same procedure was applied for the discards. Refusal rates were recorded regularly since 2017. Concerning area 27.10.A, length data (Table D) are provided for all species from discarded catch fraction (onboard sampling). Table F for the Azores (27.10.A area) was not submitted due to problems related to the remote access to the database since the pandemic disruption (from March onwards) which hampered the completion of updates and changes. As a result, and considering the volume of data to be processed, the length data raising procedures could not be run.

Refusal rates

For onboard sampling in 27.9.A, there are five sampling schemes in the national work plans of 2015-2019: PTS3 - GNS_GTR_DEF (vessel length > 12m), PTS9 - LLS_DWS (vessel length >12m), PTS12 - OTB_DEF (vessel length > 24m), PTS15 - OTB_CRU (vessel length > 12m), PTS18 - PS_SPF (vessel length > 12m), PTS21 - TBB_MCD. For each of the five sampling schemes and each sampling year, the sampling frame includes all active vessels of that métier and vessel length that operated in 27.9.A in the previous year. Vessel selection is random within each métier. As requested, and defined in the 2020 FDI data call:

Refusal - refers to "raw industry refusal" i.e. vessel skippers who, having been successfully contacted, ultimately failed to allow the observer to go on board to obtain the sample;

Non-response – refers to all attempted contacts that ultimately failed to provide a sample, for whatever reason;

No-answer – refers to contact attempts (made by the observers) that, despite the correct contact details, were not successful (i.e. it was not possible to establish contact with skippers or vessel owners);

Observer-declined – refers to contacts where observers declined to go on-board following the availability of skippers or vessel owners;

Industry-declined - skippers or vessel owners declined to accept observers on-board.

At sea sampling in area 27.10.A is not considered to be a probability based vessel selection design. Therefore, refusal rates were recorded but not submitted.

Effort

Logbook information is used to calculate effort (fishing days) by fishing area using SQL scripts. This is a powerful tool for that aim, however, in situations where the trip is not well constructed in the logbook, the estimated effort could not be correct. For SSF, it is assumed that one Sales Note corresponds to one trip and one fishing day.

17.2 Data availability

Portugal has submitted all tables requested before the deadline. It should be remarked that the final output for JRC database submission depends on different institutions involved (including Outermost Regions). This process is very time-consuming once not all data handlers have the same level of access to the data needed neither the same skills. In addition to these difficulties, there is also the fact that the Portuguese fleet is extremely extensive and diverse operating in a spread number of FAO areas.

17.3 Coverage

Data checks

Portugal hasverified all the tableau pages and analysed the quality checks to evaluate potential incorrect data and/or inconsistencies between the data provided. Some inconsistencies between effort and landings and between spatial and non-spatial landings and effort were not solved as they resulted from the uses of different sources of data for different proposes. As already mentioned, it was considered the best solution to use the greatest amount of available information.

The data submitted to FDI data call are mostly consistent with the Eurostat data. The difference observed in terms of the total number of vessels is because the total fleet (including inactive vessels) is reported to Eurostat while for the FDI only active vessels are considered. Some discrepancy between FDI and Eurostat landing data is observed in 2019 suggesting some doble counting in the FDI data call.

In some cases, the total weight of fish discarded from a certain species is higher than the total weight commercialized, this occurs in species with low commercial value, with a ban on landing below the minimum size, and species whose quota has ended.

Due the proximity of the deadline to the vacation period and the labour constrains caused by the COVID-19 outbreak, it was necessary to add some data during the meeting. In the outermost region of the Azores, it's not possible to correctly access the database, which compromises full compliance with the data calls. This problem started in early 2020. At that time, a new contract with a database developer was about to begin when the whole COVID-19 problem happened. Since then, it has not been possible to reinstate the Database developer contract. For the 2020 data, due to the pandemic situation and the lack of personnel (also derived from the pandemic), it was impossible to collate data from both sources, electronic logbooks, and sales notes. In addition, historical data was also compromised, so it was only possible to make available to the Azores the information for 2018 and 2019 since they were the only years accessible in the database with the proper format.

ConfidentialityAll the data that relate to less than 3 vessels were considered Confidential.

17.4 Problems encountered

A large amount of data at a high level of disaggregation, plus the changes from year to year and weak guidelines turns this data call into the most difficult, time-consuming and with the lower rate of confidence in the match between the request and what is delivered. This is a big burden for MS and is not clear if all the information requested is needed.

For effort calculation, logbook information is used to determinate fishing days using SQL scripts. The logbook is a powerful data source for effort estimation; however, there are situations where the end of the trip is not recorded in the logbook and the trip effort cannot be estimated correctly.

The number of fishing days is difficult to estimate for SSF once there are no logbooks for vessels < 10m LOA. A common approach is used to estimate the fishing days from the sales notes, assuming that 1 sale note corresponds to 1 fishing day. Albeit this common approach, in the Azores Autonomous Region, a different pattern among fleet segments is observed as the number of fishing days per sale note is different.

The calculation process for the EEZ indicator is not fully developed so the data submitted may not be entirely correct. For the year 2020, not all trips were classified for the DEEP indicator whereby this indicator should be used with reservations by the end user.

Portugal has submitted a new data set encompassing 2014 to 2020 data from the Mainland and Madeira Autonomous Region. For Azores Autonomous Region it was only possible to resubmit historical data from 2018 and 2019. This led to data for the Azores from 2014 to 2017 being deleted from the FDI database. It was not possible to resubmit the Azores data

from 2015 to 2018 that had been uploaded in the previous data calls since the structure of the tables was not the same as in the 2021 data call.

17.5 Other comments if relevant

Portuguese Experts consider that it is important to arrange a workshop, that could be virtual, for data providers, between the launch of the request and the submission deadline. This could be a place for the data providers to ask for clarifications, to change methodologies, improve the practices to extract data in order to provide the best and on time data to the EWG.

17.6 Impact of Covid on DCF sampling programme in 2020

In 2020, the commercial sampling in ICES 27.9.a was affected by the COVID-19 pandemic: onboard sampling in Portuguese waters of ICES 27.9.a was suspended in March 2020 and was not resumed in that year. As a result, it was not possible to use the standard discard raising procedure at fleet level to estimate discards (Jardim and Fernandes, 2013) and the reference period 2017-2019 was used to obtain discard estimates for 2020.

In the outermost region of the Azores, the COVID-19 pandemic had negative effects on both maintenance and access to the database, which compromised the delivery of the data requested in the data call.

18 ROMANIA – NO INFORMATION PROVIDED

19 SLOVENIA

19.1 Methodology

The metodology used for the data collection for FDI data call combines information from three main resources:

- Loog books,
- Sales notes,
- National surveys.

Fishing activity data (Capacity, effort and landings data) are collected for all vessels active at any point in time of the year. Capacity data are collected for all registered vessels of reference year. Fishing capacity data are part of the Fleet Vessel Register Module of the Slovenian information system InfoRib. The Fleet Register data is integrated with other sources of data in order to obtain data at the level of fleet segments and at the level of métiers. Effort data is collected for all vessels active at any point in time of the reference year. The data is collected from the logbooks. All Slovenian vessels, also those under the 10 meters, are obligated to submit the logbooks. The target populations for the landing data are all vessels from the Slovenian Fleet (also those under 10 meters LOA). The data is collected from the logbooks and sales notes. The data on the quantity of landings is collected from the logbooks, while the price of the fish is collected from the sales notes. On the basis of both kinds of data the value of all landings in Euros per species is calculated and namely for the metiers as well as for fleet segments.

Partition of data is based on on-board sampling programme conducted under the DCF. Discard are available just for those métiers that have been sampled. The discard applied to the landings at each stratum, by species, for each year, quarter, gear, area within a domain

discards. No estimates of discarded catch were provided for unsampled strata, and were marked as "NK".

Spatial data on landings and effort are submitted using Latitude and longitude of the center of the rectangle together and its dimensions in decimal degrees - *0.5*0.5,* corresponding to a c-square. Effort data by rectangle are obtained from the logbooks information. The data by rectangle is derived from logbooks for all of the fleet. The catch was allocated based on the landing port.

19.2 Data availability

Slovenian data were provided on time and in accordance with the required formats.

19.3 Coverage

Slovenia continued to use a census sampling strategy, so the provided data covers the whole Slovenian fleet, which operates only in the Adriatic sea. There are no gaps in the data collection or data submission.

Comparison with Eurostat data.

Data provided to STECF FDI were similar to Eurostat data.

19.4 Problems encountered

No problems encountered in the preparation of the files.

19.5 Other comments if relevant

No other comments.

19.6 Impact of Covid on DCF sampling programme in 2020

No impact on surveys or results.

20 THE NETHERLANDS

20.1 Methodology

Wageningen Marine Research (WMR) provides biological data, length and age distributions for discards and landings. The samples collected from the at-sea and market sampling schemes have been raised for the ICES datacalls and are subsequently transformed to the FDI datacall format. Discards are estimated based on the pelagic and demersal at-sea sampling schemes respectively. For species that have corresponding landings within the same quarter, vessel length group, metier, discards domain and sub region, the discards are distributed to the aggregation of table A depending on the factor used for raising to the population (effort). When discards were not observed a zero value is added in table A as a distinct observation of a corresponding fleet. In the case when there is no sampling coverage, a "NK" (not known) is used.

Effort, days at sea and fishing days, are calculated based on the period between leaving and entering the port (using arrival date to the port and not the catch date). For days at sea the time spent fishing is calculated as hours at sea and is rounded up to whole days. Number of fishing days are the number of unique days spend at sea within a fishing trip. For active fishing gears each day fishing counts as a unique day whereas for passive gears the number of gears is used to calculate the number of fishing days. For example, for a vessel that uses 3 different gillnets the same day the fishing days are calculated as 3 distinct fishing days.

The Netherlands did not provide refusal rates (table B). The occasions where vessels\fishing companies refuse to have an observer on board should be recorded, however, for the monitoring of demersal fisheries the Netherlands uses a reference fleet. Participating fishers sample catch on a regular basis and observers on board validate the self-sampling programme. Refusals are encountered when a vessel is selected for sampling on-board, however, the observer is refused only if the respective vessel does not go on a trip. Dutch pelagic fisheries are owned by 3 fishing companies. The on-board observer sampling

scheme for the discards and the self-sampling scheme for the landings run in close cooperation with these companies.

For the monitoring of passive gear/small scale fisheries, attempts of setting up a system to record refusals rates failed in previous years, and is still the situation. Main reasons were incomplete vessel lists and contact details of fishers.

20.2 Data availability

WMR conducted biological sampling programs under the Data Collection Framework (DCF). Landings and effort information is based on official logbook data, provided by the "RVO", the executive body of the Dutch Ministry of Economic Affairs and Climate Policy.

20.3 Coverage

The Netherlands provided fleet specific landing and effort data for the period 2014-2020. The data covers all areas in which the Dutch fleets are active and conform to the requested aggregation. There is no information on misreporting, although the reliability of the official discard records in the official logbook registration is believed to be questionable and, therefore, not used. Discard estimates were provided for all species caught in fisheries sampled under the Dutch DCF monitoring programme. Within this monitoring programme for discard/catch and biological data a study fleet is used, which sample catch data. The participating group of vessels is representative for the complete demersal Dutch fleet, on the aggregation level of metier, the combination of gear type, target assemblage and mesh size range. Pelagic and passive gear (small scale) fisheries are monitored with an observer programme of which the sampling coverage is limited.

Publication of confidential data

If there are less than three vessels in the aggregation level in tables A, G, H and I, they are marked as confidential (A).

20.4 Problems encountered

Covid related problems regarding the data collection in 2020:

- Pelagic at-sea sampling

Few trips did not take place in Q4 of 2020. The overall effect on the discard estimates is considered to be low.

- Demersal at-sea sampling

Due to the limited space of the demersal vessels, it was not possible to adhere to the distance rules relating to Covid. Therefore, it was not possible for the observer to conduct the sampling for most of the scheduled trips.

- Demersal self-sampling

The sampling took place as planned. There is no effect on the discard estimates.

- Market sampling

There was limited access to the markets during Q1. However, the respective fleets were also affected so the effect on landings estimates is considered to be low.

Problems related to data call

No major problems were encountered related to the data call.

Table A:

The vessel length is not part of the sampling frame, therefore is not included for the fleets that are sampled. However, the vessel length information is included in table H and I for all fleets.

Table I:

Few records with low corresponding weight in table H had zero effort in table I. This is attributed to a rounding error (e.g., rounding down a 0.5 fishing day). This is expected to be corrected in next year's datacall.

Table J:

WMR did not provide the inactive vessels in table J. This is caused because it was unclear in the datacall ANNEX that the inactive vessels were requested. Additionally, the average age of the vessels is not included due to lack of information.

20.5 Other comments if relevant

No other comments.

21 SPAIN

Spain provides data for all the fisheries of the Spanish vessels around the world:

- ICES area: Northeast Atlantic (FAO 27.6-27.9)
- Mediterranean Sea: FAO 37
- CECAF area: Atlantic Eastern Central (FAO 34)
- Tuna fisheries: Atlantic Ocean, Pacific Ocean and Indian Ocean
- Long distance fisheries:
    - Northwest Atlantic (FAO 21)
    - Eastern Arctic (FAO 27.1, 27.2)
    - Northeast Atlantic (27.5, 27.6, 27.12, 27.14)
    - Southwest Atlantic (ATSW-Malvinas), and areas management by next Regional Fisheries Management Organization: SEAFO, SPRFMO, SIOFA, CCAMLR. Spain provides fishing data (landing, effort, etc.) of the fisheries in these areas, but not biological data (métiers, discards, length and age distribution). As an exception, biological data are given for the trawl fleet targeting crustaceans (OTB_CRU_>=40_0_0) and demersal species (OTB_DEF_>=70_0_0) that operates in the FAO 47.1 area.

21.1 Methodology

Spain uses mainly two data sources to collect the fisheries information required by STECF to respond the FDI Data Call:

- Information from Spanish Administration: fleet register, licenses, results of inspections, logbooks, sale notes and data of geographic positioning (Vessel Monitoring System (VMS).
- Scientific information collected on the basis of the National Programme for Data Collection, under the Data Collection Framework.

Biological data (discards, length and age distributions) are obtained from scientific information. Transversal data (landings, effort, capacity, economic value, etc) are obtained from official statements (sales notes, logbooks, VMS, etc).

Métier definition

As landings and effort are requested at a métier level, Spain developed a procedure to categorize logbook and sale note records into métiers (level 6 which included gear type, target assemblage and mesh size and other selective devices). This procedure is split into different methodologies concerning the characteristics of each fishery:

- To the fishing data from ICES area, two successive concatenated methods are applied. In the first place, the metiers of direct assignment based on administrative criteria (census, license ...) and / or geographic. Next, the métiers that require the application of multivariate analysis on the capture profiles of their trips. For this, Clustering Large Application (CLARA) is used.
- In the case of Mediterranean Sea fisheries, rules and thresholds of allocations based on profile of capture are applied.
- In related to CECAF area, Tuna fisheries and long distance fisheries, the logbooks and sale note records are introduced into a métier taking into account: fleet, area, seasonality and target species. For long distance fisheries it is necessary to specify that the allocation is made for each haul, not trip. This is because, as they are, very long trips, they can change gear.

The data sources used for assigning métiers for large scale fisheries are logbook and sales notes and for small scale fisheries only sale notes are used. The metrics used for assigning target species assemblage group is weight.

Discards

Discard information comes by default from scientific observers on board programme by métier. This programme provides discard ratios by stratum (combination of area, quarter, métier and species). Discard ratios (discards/landings) are multiplied by their corresponding landing weights of each row of Table A in order to obtain each row discard weight.

The raising variable in discard estimation is effort (number of trips). However, the partitioning of discards is calculated proportionally to the landings of the same species. Following STECF 21-10 recommendations, the possibility of using the effort to partition discards will be explored.

Total discards with no landings are assigned to one row (per domain and species), but the partitioning of discards is not realized. If the effort is finally used to partition discards, the same method will be applied to partition discards with 0 landings.

Length and age distribution

Landing length distribution and landing age data are obtained from biological sampling which are developed in:

- Fish auctions from all along the Spanish coast.
- Biological sampling of marine organisms from commercial activity which are carried out in different laboratories of the marine research centres.
- Scientific observers on board programme

Discard length distribution and samples to obtain the discard age distributions come from the scientific observer programme.

Length and age distribution are raised by weight to each stratum:

- length by area, métier, quarter and specie
- age by stock, quarter and specie

The number of individuals measured by each length/age class is multiplied by the weight of the catch (landings or discards) of each stratum and divided by the weight of the sample.

Domain definition

The link between Table A and Tables C, D and Tables E, F, is the domain discard and domain landing, respectively.

In previous years, Spain used the definition of domain following the example of the data call Annex. Firstly, the domains were allocated in Table A and later the biological data was adapted to these domains to complete Tables C, D and Tables E, F. Therefore, the domain

landing and domain discard did not match with the sampling unit, and for this reason, some artefacts were produced like for example:

- wrong identification of duplicates in the data base,
- the split of one métier data into several groups,
- the aggregation of data of different métiers in the same group.

It caused problems in regard to coincidences of landing weights between Table A and Tables E and F, and the incorrect processing of the mean weight data.

To avoid these inconsistencies, this year a review of the domain assignment was made. Firstly, the domains will be allocated in Tables C, D and E, F, adapting the domain definition to match stratum used to calculate the length distribution, taking into account the rules established in the data call annex (see appendix 8). The variables defining domain are: Year/quarter, area according to sampling unit and métier.

In the case of age distribution, since the stratum used to calculate them is relative to the stock and not to the métier and area, it is necessary to adapt the age data. If the stock includes several areas, and therefore several domains, the same age distribution will be used for each domain in this area.

The mentioned domain definition will be applied to data 2014-2017. However, due to technical impossibilities, to data 2018, 2019 and 2020, the definition of domain which will be used is the Quarter_sub-region_metier. This problem is expected to be solved by next year. In any case, the problems encountered in previous years and that have been mentioned previously, should have been solved.

Refusal date

Refusal rates of Table B come from the observer programme. Refusal rates collection has been implemented from 2016, therefore no data prior to this year are available. The next year, refusal rates of sampling of Mediterranean fisheries will be included.

Spatial data

The spatial data notation used by Spain to provide the spatial data of landings and effort (Table H and I) is the rectangle.

The source of spatial information for the large scale fleet is a combination of logbook and VMS. When there is no congruent statement in the logbook, VMS is used to check this (in cases where vessels have VMS).

In the case of small scale information, it was included in the FDI data and the source is official declarative forms or approximation. The method used for the approximation is based on the port of landings.

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

The main source of fishing activity data of small scale fleet is the sales notes, except for exceptions due to specific regulations that oblige vessels less than 10 meters to cover the logbook (see more information in Table 3.1.5.1).

21.2 Data availability

Tables for the 2014-2020 time series were loaded before the deadline. Corrected versions of 2018, 2019 and 2020 Tables were uploaded later until September 15th.

21.3 Coverage

The data provided covers all areas in which the Spanish fleets are active and conform to the requested aggregation. The data for 2014 and 2020 have been provided, and the data for 2015-2019 has been uploaded again after review and correction.

Next year the discard data for the CECAF area fisheries will also be delivered.

Confidentiality

The recommended methodology in FDI annex was used: data that relates to less than 3 vessels are considered confidential.

Table A, H if less than 3 vessels in aggregation level then A else N. Table G, I if less than 3 vessels in aggregation level then Y else N.

21.4 Problems encountered

Problems related to the structure of the data call

The overstratified FDI data matrix does not match with the DCF data collection sampling strata, this produces artefacts as for example discard data must be disaggregated by vessel length range producing possibly non representatives values.

Problems related to data submission

Due to the delay in uploading the tables, it was not possible to do a rigorous check of the data. This is a recurrent situation, year by year.

However, using the FDI tableau data checking tools could appreciate that the data of 2014-2017 seem quite correct. In some cases, there are minor inconsistencies in the numbers between tables, but this is normally due to rounding issues. On the other hand, in the biological tables (Table C, D, E and F) and Table H and I of 2018-2020, errors have been found that must be reviewed.

Finally, it should be noted that the discard estimates for 2018 presented in Table A are not correct. This is because the corrected table was not properly uploaded and the error was noted at the end of the group.

21.5 Other comments if relevant

The COVID19 pandemic affected Spain intensely during 2020. All human activities, including marine research, were affected. In relation to fishing activity and marine research, the situation in 2020 was as follows:

- The Spanish Government considered fishing an essential activity. Except for the first months of spring, fishing activity took place with relative normality in EU waters.
- Sampling of the fishing activity at fishing ports and by observers on board suffered important restrictions, but this was not so much because of the pandemic but because of the coincidence in time with an administrative problem of the companies that carry out the sampling. In August the Ministry of Agriculture, Fisheries and Food provided assistance to carry on an important part of the on-board programme during the third and fourth quarter of the year while IEO administrative issues were solved. The sampling at market only could be carried out for 1 month in the whole year. In January 2021 the administrative issues were solved and all sampling programs were resumed and they are working correctly. No major problems expected in 2021 except those related with pandemic restrictions.
- The work in the science labs during the spring (the hardest time of the pandemic) was carried out by teleworking (or had to be postponed). Afterwards, teleworking was combined with physical presence in the labs.

22 SWEDEN

22.1 Methodology

Landings, including BMS landings, were retrieved from logbooks for vessels >=10m LOA and from monthly coastal journals for vessels <10m LOA.

Discards were estimated from the Swedish on-board sampling programme conducted under the DCF. Vessels were randomly selected for sampling with unequal probability, based on the fishing activity in the previous year, within each sampling frame. The selection was carried out without replacement. The sampling frames were based on fishery, area and quarter and are reflected in the "Domain discards" in the FDI data.

The discard estimation (raising) was carried out according to the national sampling schemes. If no estimate could be achieved from sampling, or a stratum was not sampled, no discards were provided. The total discard estimates achieved for each stratum ("Domain discards") were then partitioned to the much more disaggregated format in the STECF data call. The partitioning was done proportionally to the variable used for the raising (landings of target species in the fishery or fishing hours, depending on the fishery). Proportion of landings of the same species was not used for the partitioning of unwanted catch unless the species was a target species. Age distributions for landings were estimated from market sampling data. Age distribution data for discards were collected from the Swedish on-board sampling programme. Length distributions for landings of cod (including BMS landings) and witch flounder were estimated from market sampling data. Length distribution data for other species provided were collected in the Swedish on-board sampling programme. Mean weight at length was, for all species except cod in the Baltic, derived from length-weight relationships based on data collected in surveys (IBTS/BITS) and based on several years data.

Effort was calculated using the fecR package.

Refusal rates were calculated as the industry refusal rates, i.e. proportion of vessels contacted that did not agree to take observers on-board. Non-response rates were calculated as the proportion of vessels contacted that did not provide an observer trip, for different reasons. Most common reasons for a failed trip were that the vessel was not fishing in the desired time period or other logistical reasons such as bad weather conditions. The rates were calculated on a quarterly basis since the sampling frames were constructed by quarter and based on the activity of the vessels in each quarter previous year. No refusal rates could be calculated for 2015. This was partly due to the problems to obtain observer trips, which lead to some ad-hoc sampling (see "Problems encountered"), and partly to inconsistent documentation of the procedure of contacting vessels.

22.2 Data availability

Data was provided by the data call deadline.

22.3 Coverage

Landings data was provided for all species 2015-2020.

Discard estimates were provided for all species caught in fisheries sampled under the Swedish on-board sampling programme 2015-2020, but due to the covid-19 pandemic the discard sampling coverage in 2020 was poor (see "Problems encountered").

Age distribution data for landings was provided for cod, witch flounder, flounder, herring and sprat. Age distribution data for discards was provided for cod, witch flounder, flounder and plaice.

Length distribution data was provided for all fish species sampled under the Swedish on-board sampling programme that met the following criteria:

1. The species was encountered in at least two trips in the stratum
2. A minimum of 20 individuals were measured in the stratum

Effort was provided for all vessels in the Swedish fleet 2015-2020.

Refusal rate was provided for the main sampling frames for 2016-2020, while other parameters in Table B were provided for 2014-2020.

General comments

The covid-19 pandemic had a severe impact on the Swedish discard sampling coverage (see "Problems encountered").

In the current FDI data call BMS landings are requested as part of the "Landings" fraction. BMS landings are rarely, or never, encountered in many sampling programmes and therefore often lack biological information. In order to still be able to provide biological information for landings >MCRS, even if the BMS fraction of the landings could not be sampled, landings >MCRS and BMS landings were given different "Domain landings" and biological information was only provided for the fraction >MCRS. BMS landings of cod could only be sampled for biological information for fisheries in the Baltic Sea since no BMS landings were available for sampling in other areas.

In 2015 the number of on-board sampling trips achieved in the Baltic Sea was not sufficient for estimation of unwanted catch due to very high refusals from the fishery (see "Problems encountered").

In the Swedish on-board sampling programme many species are encountered rarely and/or in very small numbers. No length distribution data has been provided for species for which the sampled number of individuals was considered insufficient for estimation (see above).

Some small landings in Table A have a corresponding value of zero for days at sea and fishing days in Table G (effort).This is a rounding issue; in those cases the vessel used more than one gear/metier/area in one day. The fishing day was then split between the different gears/areas. Since days at sea and fishing days had to be provided in whole days, sometimes they got rounded to zero.

In the last quarter of 2016 Sweden made it compulsory for commercial vessels to accept scientific on-board observers, which is reflected in the refusal rates in Table B.

Comparison with Eurostat data.

Differences between landings data provided to Eurostat and landings data provided to FDI are likely due to the fact that different data sources have been used. Landings provided to Eurostat are retrieved from landing declarations, while landings data provided to FDI are retrieved from logbooks. The reason for logbooks being used for the FDI data call is that the Swedish logbooks contains much more detailed information that the landing declarations. Since Sweden has an extended logbook, information on catches, gears, geographical information, etc. is reported by fishing operation in the logbooks, which allows for a data compilation with as few assumptions as possible. However, in some cases the landings between the data sources differ, especially for pelagic species where the species composition of the catch is estimated in the logbook before landing. Some of the differences are however due to different FAO species codes being used. This is likely the case when a species is missing completely in one of the compared sources (For example, anglerfish was submitted with the FAO code "ANF" (*Lophidae*) to Eurostat and "MON" (*Lophius piscatorius*) to FDI).

Differences between number of vessels provided to Eurostat and the FDI are explained by the fact that only active vessels are included in the data submitted to FDI.

Publication of confidential data

For the submission of FDI data in 2021 no data was considered confidential in the Swedish data set.

22.4 Problems encountered

Problems related to data collection

The covid-19 pandemic had a large impact on the Swedish on-board discard sampling in 2020 and the Swedish discard sampling coverage was severely affected. No on-board observer trips were carried out in quarter two, three and four for most sampling programmes. Sampling programmes relying on self sampling were still carried out during the year, but for most fisheries no discard estimates could be provided for a large part of the year.

In 2015 the Swedish on-board sampling programme failed to collect sufficient unwanted catch data in the Baltic Sea. When the landing obligation was introduced in the Baltic, fishermen refused to take observers and no Swedish discard data could be collected. To support sampling of on-board data, Swedish authorities introduced a new system in late 2016 which made it mandatory for vessels to accept observers.

No refusal rates could be calculated for 2015. This was partly due to the problems to obtain observer trips, which lead to some ad-hoc sampling, and partly to inconsistent documentation of the procedure of contacting vessels. For years before 2015 the documentation of refusals was not sufficient for calculating refusal rates.

22.5 Other comments if relevant

No other comments.

23 UNITED KINGDOM

The UK resubmitted 2014 and 2019 data in addition to the new 2020 data. Further minor amendments have been made to previously submitted data this year to improve consistency in reporting and codification usage between years.

23.1 Methodology

23.1.1 FDF vessel methodology

There was no consideration in the data call for how to denote those vessels that participated in the Fully Documented Fisheries (FDF) scheme. Discard estimates for FDF vessels are calculated separately from those vessels that would be in the same domain due to the difference in fishing behaviour. "_FDF" was appended to the end of the metier tag and in the domain names "_FDF" replaced the commercial category.

23.1.2 Domain name methodology

UK – Scotland

Target assemblage – As not all vessels within a sample domain will target the same assemblage a target assemblage code had to be entered that was most representative of that domain. Bottom trawlers using meshes >=100mm were recorded as targeting DEF, bottom trawlers using meshes 70-99mm were recorded as targeting CRU and mid-water trawlers were recorded as targeting SPF.

Mesh size range – Representative mesh size range codes were applied. The mesh size range codes requested in the data call do not fit with the mesh ranges of the sampled strata. As such, three representative codes were used: 32D69, 70D99 and 100DXX.

Commercial category – As mentioned, where the domain covered FDF vessels, FDF replaced the commercial category field.

UK – England

The Domain name definition for landings and discards followed the way the estimations were performed. We tried to maintain the sampling programme stratification, however we post-stratified the data to account for differences, between ICES areas, and different fleets.

23.1.3 Discards methodology

UK – Scotland

Scottish discard estimates were not initially applied to Table A as the sampling domain data are at a more aggregated level than the level of aggregation requested in Table A. As such, a method of apportioning the estimates would be required. There are concerns that the data could then be misinterpreted as a result of the apportioning method. It is unclear how the data will be made available through the data dissemination tool. Clarification on how the data will be disseminated could allow the application of discard estimates to Table A following an agreed apportioning method. For now the discard data in Tables C and D can be linked to Table A using the domain names and species.

The discard estimates in Table C and D were later applied to Table A by linking with the domain discards and species fields. The estimates were apportioned between the relevant rows scaled to the landed weight.

In Table C, where there is a discard estimate, but no corresponding age data these records were still entered in Table C with NK provided for any of the age information fields.

UK – England

Discards were estimated from the UK- England on-board sampling programme conducted under the DCF. The estimation (raising) was carried out according with the strata described by "Domain discards". If no estimate could be achieved from sampling, or a stratum was not sampled, no discards was provided. The discards estimates achieved for each stratum ("Domain discards") were then partitioned to the much more disaggregated format in table A. The partitioning was done proportionally to the landings for the domain species combination.

For each trip, numbers-at-length were raised to the haul, based on an estimated proportion of the total catch volume sampled, then to the trip, based on the proportion of sampled hauls and fished hauls. The length based data was converted to biomass, using length-weight relationships for each species collected during various scientific trawl surveys (Cefas, unpubl. data). Trip-raised estimates were summed for sampled vessels in each stratum (i.e. Domain) and then raised to total fleet using a ratio between the reported total fleet landings of stock and reported landings of stock by the sampled vessels. When no landings are reported, used effort (number of at sea in domain) to raise the unwanted data.

23.1.4 Length and age distributions

For the length and age distributions each UK country provided biological data individually based on its national data collections programme.

UK- England

Age and length distributions for the discards were estimated based on the UK- England on-board sampling programme. Length data was collected for all fish species and commercial molluscs and crustacean species. For data submission, a minimum number of fish sampled by strata (Domain) is applied. Only domains with 25 or more fish measured and 2 or more trips were sampled by Domain were submitted. Age distributions for the discards were provided to the following species: cod, haddock, megrims, lemon sole, plaice, sole and whiting

Age and length distributions for the landings were estimated based on the UK- England on-shore sampling programme. Length data was provided for all commercial fish species and commercial molluscs and crustacean species. For data submission, a minimum number of fish sampled by strata (Domain) is applied. Only domains with 25 or more fish measured and 2 or more trips were sampled by Domain were submitted. Age distributions for the

landings were provided to the following species: brill, cod, haddock, herring, megrims, lemon sole, ling, pollack, plaice, seabass, sole, turbot and whiting.

UK – Northern Ireland

Length frequencies for all species except *Nephrops* from Northern Ireland (AFBI) are based on the Northern Irish fleet observer program. Trips in specified fleet métiers are raised to the trip level, summed across trips during each year or by quarter, then raised to the annual number of trips per year in the NI fleet in 7.a to give raised annual LFDs for discards. An age–length key based on port-samping is then applied to give annual discards by age class and metier for Cod, haddock and whiting. For the 2020 data-year, due to Covid related disruptions to the fleet observer sampling program, information from the Northern Irish self-sampling program was used in calculations of length/weight-at-age information for cod, haddock and whiting.

For *Nephrops* in functional unit 15 the discards samples contain the heads of *Nephrops* tailed at-sea. Using a length–weight relationship, the live weight of *Nephrops* that would have been landed as tails only is calculated from the carapace lengths of the discarded heads. Discard estimates of fish species is estimated by summing the discard weight, by species, for all samples in a quarter and expressed as a ratio of the summed live weight of *Nephrops* in the discard samples (i.e. those represented as heads only in the samples). The reported live weight of *Nephrops* landed as tails only is then used to estimate the quantity of cod or haddock discarded using the cod or haddock: ratio in the discard samples. The length frequency of cod in the discard samples is then raised to the fleet estimate. In years prior to the self-sampling scheme the ratio of numbers-at-age of discarded cod and haddock: *Nephrops* landings in the unsampled year is used to provide an estimate of discards. In years where sampling of other fisheries has occurred these are added to the international discard estimates of the *Nephrops* fleet.

23.1.5 Effort calculation methodology

The effort measures for all administrations comprising the UK were calculated using the method agreed at the transversal variables workshops. Table J was provided at an UK level as this table comes from the economic data call which is assessed at the UK level rather than the administration level.

23.1.6 Refusal rate methodology

Distinct sampling programmes are implemented by the administrations comprising the UK, as such separate refusal rate tables are submitted by each administration.

UK – Scotland

As best as was possible, the methodology used followed the guidance presented in the SGPIDS 2012 and 2013 reports. The SGPIDS reports did not necessarily cover the categorisation of all possible reasons for a trip not being carried out. Instead of having to reference a large report it would make more sense to provide a table of reasons and classifications. This would standardise the methodology and reduce inconsistency. One further comment concerns the use of this table, as it does not and cannot link directly to the biological sampling tables. Clarification as to why this table is needed and how it will be used is needed.

UK- England

As best as was possible, the methodology used followed the guidance presented in the SGPIDS 2012 and 2013 reports. Below we describe the calculations and rationale used for each variable in the table below:

REFUSAL_RATE	Includes direct and 'indirect refusals'. A count of all the industry non-responses divided by a count of all the

	selections in the year.
COVERAGE_RATE	Does not include off draw samples. A count of all the successful selections that resulted in a trip divided by a count of all the selections in the year.
NONRESPONSE_RATE	A count of all non-responses, non-contacts and offdraw selections divided by a count of all the selections in the year.
VESSELS_FLEET	~
TRIPS_FLEET	~
TRIPS_SAMPLED_ONBOARD	Value includes off draw samples
UNIQUE_VESSEL_SAMPLED	~
VESSELS_CONTACTED	Each vessel is only counted once. This figure does not include multiple contacts of the same vessel. Each vessel is only counted once. As the drawlists are re-created quarterly the same vessel may be contacted more than once in a year.
NOT_AVAILABLE	Each vessel is only counted once. This does not include all occurrences of and attempts at the same vessel. This will also include any vessel selected in sequence that was not approached for safety concerns.
NO_CONTACT_DETAILS	Each vessel is only counted once. This does not include multiple visits to the same vessel.
NO_ANSWER	This is a sum of all the vessel contacts across all quarters where there was no answer - if recorded.
OBSERVER_DECLINED	This is a sum of all the vessel contacts across all quarters where the observer then declined. This does not include where the observer declined to make contact.
INDUSTRY_DECLINED	This is a sum of all the vessel contacts across all quarters where the observer received a flat no. This does not include contacts where the observer was put off or the call was 'inconclusive' – an indirect refusal.
SUCCESFUL_SAMPLE	Value includes off draw samples
TOT_SELECTIONS	Sum of all sequential selections.

23.2 Data availability

For all the UK countries, all tables were submitted on time in the first instance. Tables have been updated between the statutory submission date and during the first two days of the meeting where significant errors were identified (e.g. inconsistent dates used to define quarters between landings and effort tables, inconsistent attribution of FDI markers to metiers in landings and effort tables).

23.3 Coverage

The UK gathers landings and effort data on two distinct databases, one Scottish and one for the rest of the UK (rUK). The data submitted here have their origins in the rUK database iFish2, which is synced with the Scottish database. The uploaded UK data covers all UK-registered vessels from all areas including the distant water fleet.

23.3.1 General comments

UK laboratories have created a shared workspace to coordinate the FDI data call and have worked from the MMO's UK wide iFish2 database to ensure consistency. This has decreased the number of inconsistencies reported last year. More of the processes have been automated using R and SQL scripts to extract and process data into FDI format. This

automation has reduced manual processing errors and made correcting processing errors more straightforward.

23.3.2 Comparison with Eurostat data

Overall, the difference between Eurostat and FDI for the period 2014 to 2019 was relatively small (see table 23.2), with landed live weight being no more than 1.1% less on Eurostat than 2021's FDI submission.

There was no consistent pattern to the differences by area or species. In general landings were found to be higher in FDI data compared to Eurostat. In all years except 2016, the main differences were found to be for area 27 shellfish species such as Scallops, Whelks, Queen Scallops and Crabs (Edible/Brown). In 2016, the difference was primarily due to Cod. There were also found to be marginally less pelagic landings (namely mackerel) in FDI compared to Eurostat for the years 2017 and 2018.

Across all years most differences were in FAO Area 27 (NE Atlantic), which is unsurprising given the pattern of activity of the UK fleet. It is important to note that the extracts of data for these two products were on different dates. Given the dynamic and live nature of our fisheries database exact matches between different snapshots in time are not to be expected. Quality control processes are undertaken regularly on UK databases and data are amended where errors are discovered.

The fleet size differences were larger but still small overall varying between 1.0 and 2.4% greater vessel numbers on FDI than Eurostat (see table 23.3). Again, the snapshot dates differ for these extracts. Additionally, the methodology for Eurostat vessel counts differs to FDI. In Eurostat the number of registered vessels in the UK's commercial sea fishing fleet on a given date are counted. For FDI the number of vessels registered at any point in a given calendar year are counted. Given this difference in methodology the higher numbers for FDI than Eurostat is expected and unsurprising.

Table 23.2: Data totals (landings, tonnes) for the UK by year

Year	FDI 2021	Eurostat	% Dif (vs. Eurostat)
2014	760,095	751,979	1.1%
2015	708,488	701,769	1.0%
2016	701,854	699,842	0.3%
2017	728,127	722,725	0.7%
2018	699,985	696,992	0.4%
2019	622,093	617,298	0.8%

Table 23.3: Data totals (vessels) for the UK by year

Year	FDI 2021	Eurostat	% Dif (vs. Eurostat)
2014	6,338	6,276	1.0%
2015	6,347	6,232	1.8%
2016	6,347	6,197	2.4%
2017	6,271	6,140	2.1%
2018	6,119	6,031	1.4%
2019	6,003	5,905	1.6%

23.3.3 Publication of confidential data

The UK has not flagged any data in this call as confidential. We continue to monitor the content of data calls and will ensure any confidential data is flagged if requested in future data calls. The UK believes that a consistent definition of what constitutes confidential data should be provided as the benchmark used seems to differ significantly between member states.

The UK uses the principles set out in the GDPR regulation (EC 2016/679) to determine whether data are confidential in the sense that their disclosure would place personal data into the public domain in a way that violates the data subjects' rights under GDPR. As FDI

data are aggregated and pseudo-anonymous we do not believe publication of this data (which lacks any vessel identifiers), even where the record covers only one vessel's activities, would disclose personal data in a harmful or potentially harmful way. Moreover, we believe that the public interest and benefit of making such data on the use of shared natural resources public in a pseudo-anonymous way greatly outweighs any potential risks and that the processing and dissemination of such data is for a clearly defined and lawful purpose and furthers EU marine environmental sustainability and food security objectives.

23.4 Problem encountered

No major problems were encountered with the data submitted. The identified errors were resolved and data re-submitted.

There are known minor inconsistencies in codification usage between submitted TABLE G (effort), TABLE H (spatial landings) and TABLE I (spatial effort) datasets specifically for the variables 'MESH_SIZE_RANGE', 'METIER' and 'DEEP'. For example, for some records, the 'METIER' field was found to be 'NK' in TABLE H and TABLE I but reported as 'MIS_MIS_0_0_0' in TABLE G.

Most inconsistencies identified were either resolved or partially resolved through EWG meeting data checks. The remaining codification mismatches identified, despite being initially flagged by data checks as missing effort data, were assessed as minor data consistency code usage issues with both the uploaded landings and effort data assessed to be complete and comprehensive in coverage for all years.

23.5 Impact of COVID-19 in National sampling programmes

UK- England

English Observer programme is currently the only programme to provide estimates of discard data, which allows full estimates of the total removals for quota and non-quota stocks by commercial fishing. The programme was paused in March 2020 due to COVID-19 restrictions and since then has been running with limitations. Therefore, for quarters 2 and 3 2020 there are no discards estimates for the English and Welsh fleets due to the lack of at-sea observer data. In quarter 4 2020, the programme re-started running, but with limitations. In August 2020 (Q3), a limited number of day trips were allowed, but not sufficient to provide any estimates in Q3. Since Q4 2020 only day trips (14hr trip duration) are allowed, which excludes the beam trawl fishery and longer distance demersal otter trawls and netters.

To bridge the data gap, it was established an alternative method of sourcing and collecting data safely. The alternative method chosen for the offshore programme was a co-sampling programme and would involve asking skippers to return part of their unwanted catch ashore to be processed by Cefas observers. Cefas' re-instated Onshore Sampling Programme demonstrated that data could be collected safely at ports and merchants within existing COVID-19 mitigation measures. The co-sampling programme follows the same probabilistic design in the vessel selection as the Observer programme. The main fisheries sampled by this programme were the *Nephrops* fishery in the North Sea, the beam trawl and demersal trawl fishery in the Celtic Sea. Although the programme started in September 2020, due to logistical limitations, only small number of trips were sampled in 2020, which precluded the use of its data. Nevertheless, once the co-sampling programme was established and data collected was assessed for its quality, this programme is still running in 2021.

UK-Scotland

Covid restrictions impacted catch sampling programmes and sampling was stopped in late March 2020 and recommenced in July 2020. Onshore sampling recommenced in July in

Shetland and August on the mainland. Onshore sampling of pelagic species was not unduly affected as processors agreed to store frozen samples until sampling recommenced. Some shellfish processors declined access due to covid restrictions. At-sea sampling by the Scottish Fishermen's Federation recommenced in August but due to covid restrictions, access to vessels was limited and random selection was not used. As a result, at-sea sampling of the inshore *Nephrops* trawler fleet was not carried out for Q2-Q4. For whitefish trawlers, estimates of wanted catch for Q2 were not calculated, and estimates for Q3 and Q4 were based on a much smaller sample size of larger vessels. For inshore *Nephrops* trawlers, annual estimates of catch were calculated but were based on Q1 data only. However, estimates appear to be in line those of with previous years, albeit with higher variance due to the lower sample size. To date, at-sea sampling by MSS has not yet recommenced however a co-sampling pilot project is now in place.

23.6 Other comments if relevant

No other comments.

Annex 2. Ad hoc contract script analysing biological data (Tables C, D, E and F) and merging it with Table A (electronic)

Annex 3. Catalogue of errors in spatial data records for landings (Table H) and effort (Table I) submitted by Member States in response to the 2021 FDI data call (electronic)

Annex 4. Data extract associated with anticipated exemptions for 2022 (electronic)

Annex 5. Percentage of fish above and below MCRS by metiers and Member States (electronic)

Annex 6. Maps of effort and landings (electronic)

Annex 7. Spacial effort evaluations (electronic)

Available at https://stecf.jrc.ec.europa.eu/reports/fdi

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