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Scientific, Technical and Economic Committee for Fisheries (STECF) – 69th Plenary Report (PLEN-22-01)

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Abstract

Commission Decision of 25 February 2016 setting up a Scientific, Technical and Economic Committee for Fisheries, C(2016) 1084, OJ C 74, 26.2.2016, p. 4–10. The Commission may consult the group on any matter relating to marine and fisheries biology, fishing gear technology, fisheries economics, fisheries governance, ecosystem effects of fisheries, aquaculture or similar disciplines. The Scientific, Technical and Economic Committee for Fisheries held its 69th plenary as virtual meeting from 21 to 25 March 2022.

CONTENTS

1.	INTRODUCTION.....	1
2.	LIST OF PARTICIPANTS	1
3.	INFORMATION TO THE PLENARY.....	1
4.	STECF INITIATIVES.....	2
5.	ASSESSMENT OF STECF EWG REPORTS.....	3
5.1	EWG 21-04 Economic report on the fish processing industry.....	3
5.2	EWGs 21-07 West Med assessments: closure areas and improvement of TAC framework	7
6.	ADDITIONAL REQUESTS SUBMITTED TO THE STECF PLENARY BY THE COMMISSION	16
6.1	Monitoring the implementation of the Landing Obligation	16
6.2	Evaluation of improvements to FDI - spatial analysis and data linked to time series discard rates landing obligation	31
6.3	Review of the scientific study for the derogation for boat seines fishing for transparent and Ferrer's gobies (<i>Aphia minuta</i> and <i>Pseudaphia ferreri</i>) and Lowbody picarel (<i>Spicara smaris</i>) in certain territorial waters of Spain (Balearic Islands).....	40
6.4	Derogation for 'ganguì' trawlers in certain territorial waters of France.....	45
6.5	Management plan for purse seine fishing in the Republic of Croatia	53
6.6	Evaluation of Joint Recommendation on a derogation from MCRS for Venus Clams in certain Italian waters	71
6.7	Derogation for shore seines in certain territorial waters of France (PACA and Occitanie)	94
6.8	CFP Monitoring – for early advice by 1/04	99
7.	ITEMS/DISCUSSION POINTS FOR PREPARATION OF EWGS AND OTHER STECF WORK	110
7.1	Preparation of EWG 22-14 social data in fisheries - update of the national profiles	110
7.2	Preparation of EWG 22-19 on the review of the Technical Measures Regulation and update on the 21-01 PLEN work on sensitive species.....	111
7.3	Preparation of EWG 22-04: Assessment and advice for non-quota stocks, to support the development of multi-annual strategies in the context EU-UK	112
7.4	Preparation of EWGs 22-12 (Marketing standards: review of fishery criteria and underlying methodologies) and 22-13 (Marketing standards: review of proposed sustainability criteria / indicators for aquaculture).....	114
7.5	Preparation of EWG 22-08: Skates and rays management.....	115
7.6	Preparation of EWGs 22-11: Fishing effort regime for demersal fisheries in West Med	117
7.7	Update of the CFP monitoring protocol.....	120
7.8	STECF for comments/feedback on the questionnaire on functioning of the CFP	124
8.	CONTACT DETAILS OF STECF MEMBERS AND OTHER PARTICIPANTS	126

69th PLENARY REPORT OF THE SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (PLEN-22-01)

Virtual Meeting

21-25 March 2022

1. INTRODUCTION

The STECF hold its autumn plenary as virtual meeting on 21-25 March 2022 with STECF members addressing the ToRs from their home offices.

2. LIST OF PARTICIPANTS

The meeting was attended by 27 members of the STECF, two invited experts, and 10 JRC personnel. Several Directorate General Maritime Affairs and Fisheries (DG MARE) attended parts of the meeting. Section eight of this report provides a detailed participant list with contact details. The STECF members Leyla Knittweiss, Dimitios Damalas, Jenny Nord, and Barry O'Neill were unable to attend the meeting.

3. INFORMATION TO THE PLENARY

STECF early 2022 meetings

All EWGs prior to the July plenary meeting will take place as virtual meetings.

The STECF summer 2022 is scheduled for 4-8 July 2022. It will be the 1st plenary meeting of the newly appointed committee (appointment expected for June) and is planned as physical meeting in Brussels.

STECF term of office

The spring plenary meeting was the last plenary of the current STECF. The term off office of the current committee will end at the time of the summer 2022 plenary meeting (1st plenary meeting of the new STECF, appointment expected for June 2022).

DG MAE thanked the STECF for all its work and commitment over the past three years under difficult conditions caused by the covid pandemic. DG MARE acknowledged the excellent service and commitment of the long-serving members who did not re-apply for membership Alvaro Abella, Tom Catchpole, Didier Gascuel, Leyla Knittweis, and Willy Vanhee. A special thank you went to the chair Clara Ulrich, supported by the two vice-chairs Ralf Döring and Dominic Rihan, for successfully steering the committee and providing high-quality CFP advice in these difficult times.

The STECF, DG MARE and JRC colleagues commemorated Sara Kraak who sadly passed away on 30th January 2022. Sarah was a member of the STECF from 2007 to 2016 and from 2019 to 2022. Sarah was in charge of research on the consequences of gear changes, technical measures, the survival of discarded flatfish, alternative management approaches, benthic litter, the human dimension of fisheries and behavioural economics. Her contribution to the work of the STECF will be greatly missed.

4. STECF INITIATIVES

No STECF initiatives were discussed during the meeting.

5. ASSESSMENT OF STECF EWG REPORTS

5.1 EWG 21-04 Economic report on the fish processing industry

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.

General STECF observations

STECF EWG 21-14, on the Economic report of the EU fish processing sector, met virtually, from 22-25 February 2022. STECF has reviewed the report and notes that the EWG has addressed all the ToRs.

STECF comments on data and procedure

STECF notes that the EU-MAP, as defined in the COMMISSION DELEGATED DECISION (EU) 2021/1167, states, in the ANNEX, CHAPTER II, point 7, that "Over and above the data published by Eurostat, collected by the Member States in line with the European Business Statistics Regulation and Regulation (EC) No 223/2009 of the European Parliament and of the Council(15), Member States may collect additional socioeconomic data on the fish processing sector" although does not include a list of indicators for the processing industry.

STECF further notes that the EWG 21-14 used complementary data sources (e.g. Structural Business Statistics (<https://ec.europa.eu/eurostat/web/structural-business-statistics>) and Prodcom (<https://ec.europa.eu/eurostat/web/prodcom>) from Eurostat) to close gaps where Member States did not provide some indicators requested in the data call.

As this requires the use of an estimation protocol for some Member States, STECF notes that EWG 21-14 further elaborated on the protocol approved by STECF 19-02 and used for the 2019 report on the processing industry.

STECF further observes that the EWG report includes a brief analysis, at country level, for three Member States involved in data collection under EU-MAP, but not collecting data for the fish processing sector because of a very small sized industry (i.e. Austria, Czech Republic and Slovakia).

STECF considers that the use of the protocol and of data sources complementary to the data call means that the EWG-21-14 report provides a comprehensive overview of the most recent information available on the structure and economic performance of the EU fish processing industry.

STECF observes that although not requested in the ToRs, the EWG assessed the sources of raw material (e.g. catches by EU fishing fleets, EU aquaculture company production and imports) with details on species, type of industry and Member States. STECF notes that information on this is scarce, and that only a limited number of Member States provided data (9 of 25, and primarily from the Mediterranean, Black Sea and Baltic regions), with different levels of data coverage and quality. The main EU seafood processing countries did not submit any data and no analysis was made on these Member States. STECF notes also that a workshop on raw material planned by RCG_ECON in 2020 could not be held

STECF comments on the EWG report results

STECF observes that the EWG report covers the period 2008 to 2019 (including 2020 where available) and includes information on the EU fish processing industries in terms of number of enterprises, employment, income and costs. The profitability and performance of the sector is also reported in terms of gross value added, profits, profit margins and labour productivity. STECF notes that the main findings obtained in the EWG report are:

- The overall number of enterprises carrying out fish processing as a main activity was around 3 200 companies. In 2019, the sector had a turnover of about EUR 28.5 billion and employed more than 110 000 people corresponding to around 100 000 full time equivalents. This implies that part-time employment in this sector is relatively low.
- The majority of processing enterprises (98%) are small and medium sized enterprises (less than 250 employees), 85% are small-sized (less than 50 employees) and more than half are micro-enterprises (less than 10 employees).
- The distribution of enterprise by size-classes shows many differences across Member States, with Finland, Greece, Italy, Slovenia, and Sweden having the highest proportions of micro-enterprises. The highest proportion of enterprises above 50 employees are in Eastern Europe (e.g. Poland and Lithuania).
- There has been a progressive concentration of production over the analysed period (2008-2019), evidenced by a decrease of the total number of enterprises. The number of smaller enterprises has decreased while there has been a parallel increase in larger enterprises
- Gross Value Added is positive and increasing (+18%) in 2019 compared to 2018. This increase counterbalanced an increase in personnel costs (+5% compared to 2018), linked to an increase both in employment and in average wages. The sector was able to generate an Operating Cash Flow 34% higher than in 2018.
- The purchase of fish and raw material is the dominant cost item for the sector (more than 70% of the total production costs). The EWG concluded that there are substantial differences in the origin of the sourcing of raw material across those Member States who submitted data. While e.g. Finland and Croatia rely on domestic production, in Germany only one quarter of the raw material used by fish processing industries is domestic. 52% is imported from other EU countries, while 20% is purchased from outside the EU.

STECF notes that the EWG also analysed the socio-demographic aspects of the labour force employed by the sector. The variables included information on gender, age, nationality and educational level. This data was collected under the EUMAP and were provided by the Member States. The main findings on these aspects obtained by the EWG were:

- The proportion of female and male in the workforce is almost equal.
- The 40-64 age class made up the largest proportion (51%) of people employed in the processing industry and most employees hold a medium education level, followed by 25% of low educated employees.
- The vast majority (73%) of people employed in the sector are EU nationals working in their own country with the remainder being mostly workers from other EU Member States.

STECF comments on the impact of recent economic shocks

STECF observes that the impact of the COVID-19 outbreak on the EU fish processing industry was assessed by the EWG. STECF notes that given that 2020 data were only

available for a minority of the Member States, the assessment made was mainly qualitative. STECF notes that according to that preliminary assessment, the EU fish processors seem to have globally managed the initial disruptions in labour productivity, supply of raw materials and prices by the end of 2020. However, in the light of the sharp rise in energy costs emerging from the past few months and the further expected cost increases (mainly of raw material) as a consequence of the Russian invasion of Ukraine, will undoubtedly have an impact on the fish processing industry across the EU.

STECF notes that the EWG also assessed the impact of the Brexit. The EWG concluded that the main impact of Brexit has been an increase in paperwork and transport costs for both exporters and importers to and from the UK. In addition, the EWG provided some specific analyses on the situation in Ireland. The EWG concluded that the pelagic processors are the most heavily impacted part of the processing sector in Ireland, given that sourcing of raw material, particularly mackerel, has become more challenging to get. This has led to a concentration of the production of pelagic processed products in the first half of the year, reducing their average selling prices.

STECF conclusions

STECF concludes that the report on the economic performance of the fish processing industry provides a comprehensive overview of the most recent information available on the structure and economic performance of the EU fish processing industry.

STECF concludes that the report has gained improvements from the methodological approach used for countries not providing data, which has helped bridging data gaps.

STECF concludes that the assessment of the impact of Brexit on the sector provides useful insights, although it cannot be considered as a comprehensive overview because it is limited to a single case study. Further case studies covering other Member States would be informative, including the import-export flows of products between UK and the EU.

STECF concludes that the analysis of the raw material provided by the EWG is limited due to the lack of data. STECF reiterates its previous conclusion from PLEN 21-01 that it is difficult to obtain this data by Member States, due to the complexities in deriving information directly from industries.

However, in the light of the Farm to Fork Strategy and its recent deliverable EU Code of Conduct on Responsible Food Business and Marketing Practices that entered into force in July 2021¹, STECF concludes that it is essential to identify the supply chain, as clearly as possible, from the fishing area (for fishery products) or farming plants (for aquaculture one) to the market outlets. Furthermore, given that the purchase of fish and raw material is the dominant cost item for the sector, this information is also crucial for assessing the strengths and vulnerabilities of the sector. The collection of this data is, therefore, important and Member States are encouraged to continue improving the dataset in accordance with the guidelines of the data call².

STECF concludes that the COVID-19 impact assessment provided by the EWG is merely descriptive. STECF acknowledges the general interpretation provided by the EWG but

1 https://ec.europa.eu/food/horizontal-topics/farm-fork-strategy/sustainable-food-processing/code-conduct_en

2 <https://datacollection.jrc.ec.europa.eu/guidelines/socioeco/proind>

concludes also that a more detailed assessment of the impact will not be available until the data from years 2020 and 2021 are available and analysed. STECF further concludes that any outlook assessment into the future (2020-2022 and beyond) should be read with caution given the changing and volatile macroeconomic environment in the EU.

STECF concludes that given that the EU-MAP does not provide a list of variables to be potentially collected, the data collection should follow the recommendations of the RCG_ECON (PGECON 2020 Report) which are based on the COMMISSION IMPLEMENTING DECISION (EU) 2016/1251.

5.2 EWG 22-01 Evaluation of maximum catch limits and closure areas in the Western Mediterranean

Request to STECF

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

Background provided by the Commission

EWG 22-01 was requested to address the following Terms of References:

ToR 1. STECF is requested to continue the development of management models including different levels of maximum catch limits for deep-water shrimps and for hake in both West Med management units.

ToR 2. STECF is also requested to develop mixed-fisheries spatio-temporal scenarios for all demersal fishing gear (e.g. bottom trawls, gillnets, longlines) in EMU1 and EMU2 with simulations from 2020 to 2030. The STECF evaluation should be looking at differences in captures reduction between the 2019 situation (prior to closure adoptions) by species and by age-class and the following scenarios:

- a) Status quo scenario: closures adopted since the implementation start of the West Med MAP by the 3 Member States;
- b) Same delineation of closures areas as in 2020, 2021 and 2022 and all closure areas become permanent from 2023 onwards;
- c) Same delineation of closures areas as in 2020, 2021 and 2022 and all closure areas are for all fishing gear (e.g. trawlers, longliners, netters);
- d) 10% of permanent closure areas in each GSA, taking into account the different types of habitats such as for instance waters shallower than 200m depth and waters deeper than 200m;
- e) 20% of permanent closure areas in each GSA with half of it in waters shallower than 200m depth and half of it in waters deeper than 200m;
- f) 30% of permanent closure areas in each GSA with half of it in waters shallower than 200m depth and half of it in waters deeper than 200m.

To provide an order of magnitude of the closures efficiency, it should be aimed at reducing about 20% of captures of juveniles and spawners of each target species in each GSA. For each GSA, the EWG is requested to propose recommendations for designing alternative closures based on criteria such as but not limited to bathymetry, depth, type of substrate, stock seasonality, establishment of a buffer area, minimal size of the closure area, etc.

TORs were further detailed in agreement with DG MARE to give additional directions to the working group experts':

As discussed during the meeting on 27 January 2022, the legal concept adopted in December 2021 by Member States to manage by output the deep-water shrimps in the western Mediterranean is "maximum catch limit". Contrary to the legal concept of total allowable catch (TAC), a maximum catch limit does not involve a legal right for the future years and does not create a fixed relative stability (i.e. a distribution of the fishing opportunities between the concerned Member States). Concretely, it means that there is no legal obligation for a continuity of catch levels between 2022, 2023, 2024, onwards. However, to simplify the modelling work, the STECF experts are invited to work with TACs and use a reduction at percentage level through time (e.g. 10% reduction of the previous year catches: $TAC[year+1]=0.9*TAC[year]$) as an alternative to following the transition path calculated by STECF EWG 21-11 for each stock. The model output should be analysed in order to determine whether such reductions allow to reach MSY by 2025 at the latest.

Details on TACs scenarios implementation:

- TACs should be implemented both on hake (HKE) for the coastal metiers and on deep-water shrimps (ARA and ARS) for the deep-water metiers. If possible, there would thus be 3 scenarios with TACs: a) hake only, b) deep-water shrimps only, c) simultaneously hake & deep-water shrimps. Those scenarios would be completed in September 2022 by the effort reductions and additional management measures as done in EWG 21-13.
- All models should be simulating 2 fleets corresponding to the two metiers (deep-water and coastal fisheries). This definition of metiers is unstable as fishing boats can move from one metier to the other easily from one day to the next, but changes due to external parameters cannot be accounted for in the models therefore the metiers will be treated as two separate fleets.
- Models that can implement a monthly time step (e.g. BEMTOOL and SMART) will test a first scenario where the TACs are implemented annually and fishers are assumed to follow a "run to fish" behaviour and a second scenario where TACs are implemented monthly. When TACs are implemented monthly, if possible, the value implemented each month should change depending on the seasonality of the fisheries. To obtain information on the seasonality the experts can rely on experts' opinions over the different areas and use DCF landings data by quarter, when data by quarter are available. The reference year should be 2015-2017.
- All models should account for monthly flexibility but not annual inter-flexibility. When the TAC is not consumed within one month, it can be used the next month (except for December).
- An optional scenario will be accounting for an "inverse TAC" system. Quotas will not be decreasing through time, but the first year of implementation will be the hardest with an increase of the quota through time as the stock recovers. The values could be taken from the transition path to Fmsy by 2025 calculated by STECF EWG 21-11.
- For 2022, the maximum catch limit values for deep-water shrimps can be found in the Fishing Opportunities Regulation for the Med and Black Sea: Council Regulation (EU) 2022/110 of 27 January 2022 fixing for 2022 the fishing opportunities for certain fish stocks and groups of fish stocks applicable in the Mediterranean and Black Seas (OJ L 21, 31.1.2022, p. 165–186)
- For 2022, there is no maximum catch values for hake in the EU regulation so modelling would start for hake with catch limits in 2023.

Details on Spatial scenarios implementation:

- Concerning point b) of TORs: if closures are already permanent within a GSA this point will not be tested.
- Concerning points d), e) and f) the closure of 10%, 20% and 30% of each GSA should be tested subtracting already existing closure areas from this percentage. Additionally, the areas >1000m and the <50m or within 3 nautical miles from the coast, should be excluded from what is considered the "total area of a GSA".
- Ad-hoc contracts ran prior to EWG 22-01 will produce shapefiles with the distribution of hotspots of juveniles and spawners of hake and potentially of the five main target species of the MAP. The location of the closure areas should take into account the distribution of hotspots to test the efficiency of the closure areas.
- As reported in the TORs: "To provide an order of magnitude of the closures efficiency, it should aim at reducing about 20% of captures of each target species in each GSA."

The reduction of ~20% should be calculated in comparison to captures in 2015-2017, as per TORs.

STECF comments

The Expert Working Group 22-01 met online from 28th February to 4th March 2022. The meeting was attended by 20 experts, including three STECF members and two JRC experts.

STECF notes that this EWG is one of several EWGs dedicated to providing advice to the Commission on the Western Mediterranean Multiannual Plan (Regulation (EU) 2019/1022, referred to as WestMed MAP) since 2018. These EWGs have improved knowledge and evaluated various management issues through mixed fisheries modelling.

Models

STECF notes that four different fleet-based mixed-fisheries models were used: two models in Effort Management Unit (EMU) 1, i.e. GSAs 1-2-5-6-7 (though one was applied to GSA7 only), two models in EMU 2 (GSAs 8-9-10-11). Three of these models (IAM in EMU 1, BEMTOOL and SMART in EMU 2) have been used and developed since STECF EWG 19-01. The fourth model, ISIS-fish (Mahevas and Pelletier, 2004; Pelletier et al., 2009), was tested during EWG 22-01 for the first time, in an attempt to implement a spatially explicit model for EMU1. ISIS-fish is a deterministic simulation model designed to explore the dynamics of mixed fisheries. It combines spatially explicit fish and fleet dynamics at a monthly time step. Fishing mortality results from the interaction between the spatial distribution of population abundance and the spatial distribution of fishing effort for the different métiers. It can evaluate closures effect accounting for effort reallocation and catch limitations.

STECF notes that this model was initially presented in EWG 19-01 but its case study application to the Western Med was not sufficiently mature at that time and could not be used. STECF acknowledges thus that progresses in parameterisation and implementation

have been achieved since then and that the model could be tested again this year. STECF notes, however, that the ISIS-fish model was only used to analyse the European hake fishery in GSA7.

Parameterisation of scenarios and main results by EMU and type of scenarios

Testing proposals for maximum catch limits (MCLs) in EMU1

The scenarios run by EWG 22-01 in EMU1 considered MCLs for European hake (GSAs 1-5-6-7) and for blue and red shrimp (GSA1 and GSAs 6-7) applying MCLs for hake only, shrimps only, and for both species at the same time. These scenarios were run either with a decreasing MCL through time (forward scenario, aimed at reaching Fmsy by 2025, where MCL is progressively decreased from 2022 to 2025) or with an increasing MCL through time (inverse scenario: where MCL is set at Fmsy in 2022, and then gradually increased between 2023 and 2025), for a total of 10 scenarios compared to the baseline (Table 2.3.1.1.1 of the EWG 22-01 report).

The IAM model (Merzéréaud et al., 2011) was parameterised to differentiate between Spanish coastal and deep-waters trawl fisheries, while no deep-water fisheries were considered for France. STECF notes that since the model timescale has an annual time step, EWG 22-01 did not evaluate the effect of monthly MCLs.

STECF notes that the two scenarios that simulated the implementation of MCL simultaneously on European hake in GSAs 1-5-6-7 and blue and red shrimp in GSA 1 and GSAs 6-7 (forward and inverse scenarios, scenarios i and j) forecast a general increase of the biomass of the exploited stocks; however, only the forward scenario foresees exploitation levels in line with the objectives of the WestMed plan, or below (Section 2.3.1.2 of the EWG 22-01 report).

The implementation of a MCL only on European hake (scenario a) forecasts an increase in the biomass of hake in GSAs 1-5-6-7, red mullet in GSA1, GSA6 and GSA7, and Norway lobster in GSA6. This scenario allows the stocks of red mullet in GSA1 and GSA6 to reach Fmsy. However, this is associated to an increase of F and a decrease of blue and red shrimp biomass in both GSA1 and GSAs 6-7 (ARA1 and AR67), due to the reallocation of fishing effort to deeper waters.

STECF notes that, in general, all scenarios forecast bio-economic impacts for the French and Spanish trawlers in the short term with a decrease in their Gross Value Added (GVA). In the scenarios where MCL is applied on European hake only, all the trawl fleet segments are economically impacted. In contrast, in the scenarios where MCL is applied only on blue and red shrimp, only the fleet segments involved in deep-water trawling are impacted, (i.e. Spanish trawlers above 12 meters). Conversely, economic advantages are projected for vessels using longlines and gillnets (Sections 2.3.1.2 and 2.3.1.3 of the EWG 22-01 report).

STECF notes that none of the scenarios result in achieving Fmsy for all stocks, except when applying MCLs simultaneously on both blue and red shrimp and hake. However, STECF notes that the results for hake should be treated with caution as the MCL was applied in

the simulations to trawlers only, not accounting for the longline and gillnet fisheries which also exploit this stock.

STECF notes that the spatially explicit mixed fisheries model, ISIS-Fish, was also used to run scenarios accounting for MCL for hake in GSA 7. Forward, inverse and monthly MCL scenarios were used for a total of four scenarios alternative to the baseline (Table 2.3.2.1.1 of the EWG 22-01 report).

Testing proposals for closed areas in EMU1 (GSA7 only here)

The ISIS-Fish model was also applied to evaluate the effects of area closures on European hake in GSA 7. The scenarios run by EWG 22-01 are summarized in the Table 3.4.1.1.1 of the EWG 22-01 report.

Testing proposals for maximum catch limits in EMU2

STECF notes that the BEMTOOL model (Rossetto et al., 2015; Russo et al., 2017) was used to run scenarios simulating the implementation of MCL on blue and red shrimp and giant red shrimp, separately. No scenario accounting for a simultaneous implementation of MCLs on the two shrimps was tested. In addition, the simulation of the implementation of MCL on European hake in EMU2 was not tested by EWG 22-01 (Section 2.3.3.1 of the EWG 22-01 report).

The BEMTOOL model was updated to consider the different types of fishing activity exerted by each fleet segment at a métier level. The model timescale was set at a monthly time step, so it was possible to run scenarios accounting for monthly MCLs.

STECF notes that implementing a MCL on the deep-water fisheries showed an improvement for all the stocks considered, with the only exception of hake. Blue and red shrimp and giant red shrimp showed an improved stock status, while red mullet, deep-water rose shrimp and Norway lobster remained within the upper and lower limits of F_{msy} , despite the reallocation of fishing effort from deep-waters to coastal fisheries.

The implementation of an inverse MCL approach did not show a recovery of the stocks. In general, the GVA shows an increase for small-scale fisheries (i.e., gillnet and longlines), and a strong decrease for all the trawling fleets.

Testing proposals for closed areas in EMU2

The SMART model (Russo et al., 2014; D'Andrea et al., 2020) was updated increasing the spatial resolution of the spatial grid of the model in line with ISIS-Fish and with the outputs of the ad-hoc contracts preceding the EWG. This allowed improving the quality of the information on the spatial distribution of both the spawning and nursery areas.

STECF notes that EWG 22-01 advises that protection of stocks should not be evaluated considering percentages of areas of protection, but through the evaluation of the response of stocks to spatial management measures.

STECF notes that none of the scenarios considered for EMU 2 (Table 3.3.2.4.1 of EWG 22-01 report) evaluating spatial closures will achieve Fmsy by 2025, with the exception of red mullet in GSA10 and GSA9, and Norway lobster in GSA9. The SSB of most of the stocks showed does increase across year-on-year.

None of the scenarios reduce catches by 20% for all species. All scenarios are associated with a sharp decrease in profits in the short-term. The loss of profits is larger in the fleet segments VL12-18 and VL18-24.

General comments

STECF acknowledges that all the ToRs have been addressed by EWG 22-01. However, STECF notes that not all the scenarios originally listed in the ToRs could be addressed by EWG 22-01.

Regarding ToR 1, STECF notes that not all the MCL scenarios could be run by EWG 22-01. In particular, no monthly MCL was tested in EMU1, while no scenario on European hake MCL was evaluated in EMU2. STECF notes that in the absence of specifications on how MCLs would be implemented and shared across countries and fleets, EWG 22-01 simulated MCLs as TACs as stated in the EWG ToRs. STECF notes that the scenarios run by EWG 22-01 did not take into account the adaptation of the MCL to the status of the stock (e.g. Fmsy, SSB) that is expected to change during the application of management measures. This aspect needs to be further explored to accommodate the adaptive setting of MCLs on a yearly basis in future projections.

Regarding ToR2, EWG 22-01 did not run scenarios accounting for 10, 20, and 30% permanent closures in each GSA. STECF notes that EWG 22-01 considered it not feasible to implement those scenarios as the EWG was not in the position to decide which areas should be closed. As an alternative to those scenarios, the increase by 50 and 100% of the surface of the existing closed areas was simulated (in EMU2 only).

In addition, STECF acknowledges that no biomass reference points are available for the key stocks in order to fully test scenarios based on Harvest Control Rules (HCR).

STECF notes that none of the scenarios tested by EWG 22-01 lead to achieving Fmsy for all the targeted stocks in EMU1, except when applying a MCL system in parallel with the effort regime reduction on both blue and red shrimp and European hake simultaneously.

STECF notes that implementing a MCL system on the deep-water fisheries targeting blue and red shrimp and giant red shrimp in EMU2 improved the exploitation status of all stocks, with the exception of European hake.

STECF notes that applying a permanent area closure in GSA7 would decrease the catches of juvenile hake by 20%, although Fmsy would not be reached by 2025.

STECF notes that in EMU2, none of the area closure scenarios tested by EWG 22-01 lead to reductions in the catches of all target species by 20% or achieve Fmsy for all species.

STECF notes that all scenarios show a sharp decrease in profits.

STECF notes that given the large number of other species that are exploited with the target species of the WestMed MAP, the actual socio-economic impact of the simulations remains uncertain. STECF notes that the models provide estimated trends in some economic indicators for a number of scenarios. However, STECF cannot assess to which extent these impacts threaten the economic sustainability of the fleets as no socio-economic reference points are available to qualify the results. Additionally, the socio-economic evaluations assume a constant number of vessels, and results would be different if the number of vessels is reduced through, for example, a decommissioning scheme, or effort increased as inactive vessels become active when stocks recover.

STECF acknowledges the efforts made to accommodate new types of management measures during the EWG. STECF recognises that the various models have different abilities to simulate different types of management measures and acknowledges that the model implementation of these new measures raised many conceptual and methodological questions for the modellers. This is particularly true regarding the modelling of MCL management and new area closures. STECF agrees with the EWG that some of these questions may require further elaboration.

Nevertheless, STECF acknowledges that the models implemented by EWG 22-01 are state-of-the-art and can be used for the evaluation of management strategies. They allow for a comparison of various management strategies in terms of both their likelihood to achieve the objectives of the MAP and their relative impact on the economic outcomes for the fleets. STECF agrees that the annual update of these models incorporating the most recent stock and fleet data allows monitoring the ongoing performance of the MAP.

STECF notes though that models used so far do not account for ecosystems effects of protecting sensitive habitats; therefore the current simulations may underestimate the risk posed to the stocks by displacement effects from persistent hotspots areas to the surrounding areas.

STECF notes that it would be worthwhile to carry out further investigation of potentially conflicting effects of cumulating several management measures, which may either add up or counteract each other, and may even have adverse effects on the stocks depending on effort redistribution.

STECF conclusions

STECF concludes that EWG 22-01, as the latest of a series of dedicated EWGs, has made further progress in assessing the consequences of management measures in the Western Mediterranean.

STECF concludes that EWG 22-01 ran scenarios of different management measures applying on different fleets in different areas various management measures. STECF acknowledges that there has been improvement in the modelling approach and in the range of results compared to previous EWGs reports, although sometimes strong assumptions or limited data still had to be used for the modelling. In particular, STECF concludes that uncertainty remains for the full evaluation of economic impacts of the management measures since not all species caught by the fleets are included in the model. STECF concludes thus that the results need to be interpreted with caution.

STECF acknowledges that the scenarios requested to EWG 22-01 are complex and comprehensive. STECF notes that not all scenarios could be run under the existing models' configuration and resolution, in spite of important modelling effort being mobilised. STECF concludes that available data, knowledge and manpower limit the level of precision and scale that mixed-fisheries models can achieve, and thus advises that management measures should not operate at a scale finer than the data and knowledge available to enforce, monitor and evaluate their effectiveness with some degree of confidence.

STECF concludes that most scenarios simulated indicate that Fmsy will not be achieved for all stocks by 2025. The implementation of additional measures like closed areas or MCLs would, however, improve in many cases the stock status compared to the current effort regime alone.

STECF concludes that all scenarios tested with mixed fisheries models predict, as in previous years, some worsening of the economic performance of the fleets during the first years of implementation. Although for some fleets the losses may be recovered later, the results emphasise the difficult trade-offs for between real short-term costs for individual fishers and expected collective long-term gains in the future.

References

- D'Andrea, L., Parisi, A., Fiorentino, F., Garofalo, G., Gristina, M., Russo, T., Cataudella, S., 2020. smartR: a R package for spatial modelling of fisheries and simulation of effort management. *Methods in Ecology and Evolution* 00:1-10. 10.1111/2041-210X.13394
- Mahévas, S., Pelletier, D., 2004. ISIS-Fish, a generic and spatially explicit simulation tool for evaluating the impact of management measures on fisheries dynamics. *Ecological Modelling*, 171: 65-84.

- Merzéréaud, M., Macher, C., Bertignac, M., Frésard, M., Le Grand, C., Guyader, O., Fifas, S., 2011. Description of the impact assessment bio-economic model for fisheries management (IAM). Amure Electronic Publications, Working Papers Series D-29-2011, 19 p.
- Pelletier, D., Mahévas, S., Drouineau, H., Vermard, Y., Thebaud, O., Guyader, O. & Poussin, B., 2009. Evaluation of the bioeconomic sustainability of multi-species multi-fleet fisheries under a wide range of policy options using ISIS-Fish. *Ecological Modelling*, 220(7): 1013-1033.
- Rossetto, M., Bitetto, I., Spedicato, M. T., Lembo, G., Gambino, M., Accadia, P., et al. (2015). Multi-criteria decision-making for fisheries management: a case study of Mediterranean demersal fisheries. *Marine Policy* 53, 83–93. doi: 10.1016/j.marpol.2014.11.006
- Russo, T., Parisi, A., Garofalo, G., Gristina, M., Cataudella, S., et al., 2014. SMART: A Spatially Explicit Bio-Economic Model for Assessing and Managing Demersal Fisheries, with an Application to Italian Trawlers in the Strait of Sicily. *PLoS ONE*, 9(1): e86222. doi:10.1371/journal.pone.0086222
- Russo, T., Bitetto, I., Carbonara, P., Carlucci, R., D'Andrea, L., Facchini, M.T., Lembo, G., Maiorano, P., Sion, L., Spedicato, M.T., Tursi, A. and Cataudella, S., 2017. A Holistic Approach to Fishery Management: Evidence and Insights from a Central Mediterranean Case Study (Western Ionian Sea). *Front. Mar. Sci.* 4:193. doi: 10.3389/fmars.2017.00193

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

6.1 Monitoring the implementation of the Landing Obligation

Background provided by the Commission

In line with Article 15(14) of the Regulation on the Common Fisheries Policy[3], the Commission reports annually on the implementation of the landing obligation of the year prior to the report based on information transmitted by the Member States, the Advisory Councils and other relevant sources to the Commission. This reporting is included since 2016 in the Commission's annual Communication submitted every June on the State of Play of the Common Fisheries Policy and Consultation on the Fishing Opportunities[4].

The Commission's Communication in 2022 will cover the implementation of the landing obligation in 2021. The legal obligation of the Commission to annually report on the implementation of the landing obligation is finished, as it was up to 2020. However, as the landing obligation is a key element in the CFP to contribute to its objectives of sustainable fisheries, it was decided to continue its annual exercise.

According to Article 15(14), the Commission report should include the following elements:

- steps taken by Member States and producer organisations to comply with the landing obligation;
- steps taken by Member States regarding control of compliance with the landing obligation;
- information on the socioeconomic impact of the landing obligation;
- information on the effect of the landing obligation on safety on board fishing vessels;
- information on the use and outlets of catches below the minimum conservation reference size of a species subject to the landing obligation;
- information on port infrastructures and of vessels' fitting with regard to the landing obligation; for each fishery concerned; and
- information on the difficulties encountered in the implementation of the landing obligation and recommendations to address them.

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

4 The latest Communication from the Commission to the European Parliament and the Council, Towards more sustainable fishing in the EU: state of play and orientations for 2022 - COM(2021) 279, staff working document - SWD(2021) 122 final, covering implementation of the landing obligation of 2020.

In order to facilitate the reporting, and in line with the outcome of STECF EWG 16-04, in 2017 Member States were invited on a voluntary basis to complete questionnaires seeking more detailed information on the impact of the landing obligation and national steps taken to assist with its implementation. In 2018 and 2019, Member States were asked to update the information provided as appropriate with additional questions on control and enforcement. The questionnaire continues to help structure the responses provided by the Member States and the quality of information provided has improved. The questionnaire follows a similar approach each year to ensure comparability of replies. Still, where relevant, questions are updated in view of the available scientific advice and STECF 20-03 recommendations.

The Commission's report in 2022 will cover the implementation of the landing obligation in 2021 – two years after it fully entered into force in 2019 on a legal basis. Against this background, and to be able to report comprehensively on the implementation, the Commission stressed the importance that every Member State fills in the voluntary questionnaire as comprehensively as possible or update the information submitted, whenever appropriate. Aside from the Member States, all the Advisory Councils^[5] and the European Fisheries Control Agency (EFCA) were asked to submit information on the themes covered in the questionnaire. As STECF concluded in the previous years, a co-ordinated approach to reporting at the regional level would help to avoid the large amount of repetition that continues to appear in the submitted questionnaires. The Commission aims to receive such co-ordinated approach in 2022 by the different Member States Regional Groups.

Throughout the transition period (2015 – 2018), intense collaboration and exchanges with all stakeholders have taken place and have helped to reach a better, and in some instances a common, understanding in both the solutions and challenges in implementing the landing obligation. STECF concluded in PLEN 19-01 that there are many sources of information in addition to the Member States' reports and concludes that these should be better integrated into the review process of the landing obligation. Including quantitative data, research projects (the CINEA study on the landing obligation⁶) and the European Parliament report of MEP Soren Gade on securing the objectives of the landing obligation. As in previous years, STECF is asked for a review and a summary of these reports via one ad hoc contract – to feed into the STECF PLEN 22-01. This specific ad-hoc contract should be used as this report gives an integrating overview, including ICES discard data available, of the different data sources available and the status of implementation of the landing obligation.

The annual reports of the Member States and the EFCA will be received by the Commission 4 March 2022 the latest. Given the STECF PLEN 22-01 takes place 21 - 25 March 2022, the ad-hoc contract was carried out between 7 – 18 March 2022.

5 Except for the Aquaculture Advisory Council.

6 STECF 21-03 conclusions to take into account: STECF cautions, as acknowledged by the authors, that the CINEA study has not evidenced any clear trends or patterns up to 2019 because of the landing obligation due to limited implementation of the landing obligation to date. Therefore, STECF agrees with the conclusions of the study that there is a lack of evidence of changes in discarding practice in the fisheries and that discarding is still taking place despite the landing obligation.

Background documents are published on the meeting's web site on: <https://stecf.jrc.ec.europa.eu/plen2201>

Request to the STECF

Based on the report of the STECF ad hoc contract on the monitoring of the landing obligation, and avoiding, as much as possible, repetition in their advice and highlights of the previous years, as well take into account STECF 21-03 conclusions in preparation of the monitoring of implementation, STECF is requested to:

1) To advise the Commission on the elements appropriate to meet the reporting requirements of Article 15(14) of the CFP, review and summarise the main findings of the reports highlighting, in a structured manner, key salient points raised by each MS and to provide an overview of them at the sea basin level, including for the long distance fleet operating beyond EU waters;

This structured manner also to be considered as appropriate in the points below;

1. If possible, to identify to what extent discard rates are being reduced in specific fleets or fisheries.

2. Identify specific actions where Member States and producer organisations have made adjustments to support the implementation of the landing obligation, and if any differences in actions occurred in 2020;

3. Identify the most important challenge or weakness in implementation and the lessons to be learned from best practices. Where available, identify specific fleets and stocks where the landing obligation has had a direct impact on fishing activity;

4. Highlight the most important weaknesses in the reporting and registration of all catches and the lessons to be learned from best practices;

5. Make any further recommendations as appropriate to improve the full implementation of the landing obligation, its identified challenges and the reporting of catches.

STECF comments

STECF observes that according to Article 15(14) of the CFP, the requirement for annual reporting on the implementation of the LO by Member States, the Advisory Councils and other relevant sources to the Commission ended in 2020. In 2021 and 2022, the Commission has though continued to request annual reports without a mandatory requirement in place.

The questionnaire used by the Commission was a modified version of the questionnaire originally developed by STECF-16-03, with simplifications and consolidations suggested by STECF PLEN 20-03. Reports on the implementation were requested for 2022 referring to the situation in 2021.

STECF notes that Member States have continued to provide these reports. 14 Member States and 3 Advisory Councils submitted reports in time to be analysed in the ad-hoc contract. France, Ireland and Malta submitted their reports after the deadline, and these have therefore not been evaluated by STECF. The Commission did not receive 2021 reports from five Member States: Croatia, Cyprus, Italy, Portugal and Slovenia.

Since 2017 (reports referring to 2016) there has been a steady decline in the number of submissions of reports from Member States (from 21 in 2017 to 14 in 2022). Only two out of eight Mediterranean Member States submitted a report. However, 2022 was also the first year since 2017 that all Member States with fishing activity in the Baltic and the Black Sea submitted reports.

The level of details provided in the reports by the Member States varies widely. Some Member States provide extensive descriptions of the efforts carried out to implement the landing obligation as well as comprehensive data on discard levels, infringements, last-haul inspections etc. while others provided repetitive information submitted in previous reports and limited or incomplete data sets. In some cases, Member States provided no data at all.

Table 6.1.1 2021 reports received (in 2022) and used in the ad-hoc contract by region (grey indicates no activity in that sea basin).

Member States	NWW	SWW	North Sea	Baltic Sea	Mediterranean Sea	Black Sea
Belgium	Yes	Yes	Yes			
Bulgaria						Yes
Croatia					No	
Cyprus					No	
Denmark			Yes	Yes		
Estonia				Yes		
Finland				Yes		
France*	No	No	No		No	
Germany			Yes	Yes		
Greece					Yes	
Ireland*	No					
Italy					No	
Latvia				Yes		
Lithuania				Yes		
Malta*					No	
Netherlands	Yes		Yes			
Poland				Yes		
Portugal	No	No				
Romania						Yes
Slovenia					No	
Spain	Yes	Yes			Yes	
Sweden			Yes	Yes		

* France, Ireland and Malta reports were submitted after the set deadline of 4 March and were not evaluated by STECF.

STECF notes that the LO introduced with the latest reform of the CFP has been in place since 2015 and fully applied since 2019, yet as reported by STECF in STECF PLEN 21-01, the available information suggests that implementation remains weak. STECF notes that this is confirmed by the latest EFCA report reviewed by the ad-hoc contract, which indicates that the risk of non-compliance with the landing obligation in 2021 remains high or very high for several fisheries analysed (ex. fisheries targeting demersal species and operating with trawls in the eastern and western Baltic Sea, in the North Sea, Skagerrak and Kattegat, the North Western Waters and in sub areas 8 and 9 of the South Western Waters).

STECF observes that several years after full implementation of the LO, Member States still report no, or only limited, adverse socio-economic impacts. STECF considers this is due to poor compliance and to the exemptions in place, which allow discarding of unwanted catches to continue, and are themselves poorly complied with and reported. Furthermore, the anticipated early closures of fishing activity due to choke issues have not materialized and this has continued to be the case in 2021. Nevertheless, the NWW AC and NS AC have updated their analysis where potential choke issues are identified and mapped for the respective sea basins, showing that situations of mismatch between fishing opportunities and actual catch patterns still exist in several fisheries. Member States report that the most important measures to prevent choke situations to occur are quota swaps and inter-annual flexibility. However, Member States largely affected by Brexit pointed out that the reduction in fishing opportunities due to the withdrawal of UK from the EU has restricted the ability to swap quotas and the reductions in quota because of quota transfers from the EU to the UK have negatively impacted the sector and increased the choke risk in some fisheries.

Although not mandatory anymore, STECF acknowledges that reporting on the LO is needed. However, much of the information and data provided under the current questionnaire does not provide any major insights into the implementation of the LO, while also containing a significant amount of duplicate information year-on-year. Therefore, the questionnaire does not provide all the information and data needed to allow a proper monitoring of the implementation of the LO. In this context, DGMARE may want to consider which information and data is required, while also taking account of information and data already collected through other sources (e.g., DC-MAP, FDI etc.). Further development of the data visualization analysis using data linked to time series discard rates carried out by STECF (TOR 6.2 of this PLEN 22-01 report) may be one area that could be explored.

Request 1: Discard rates⁷ trends

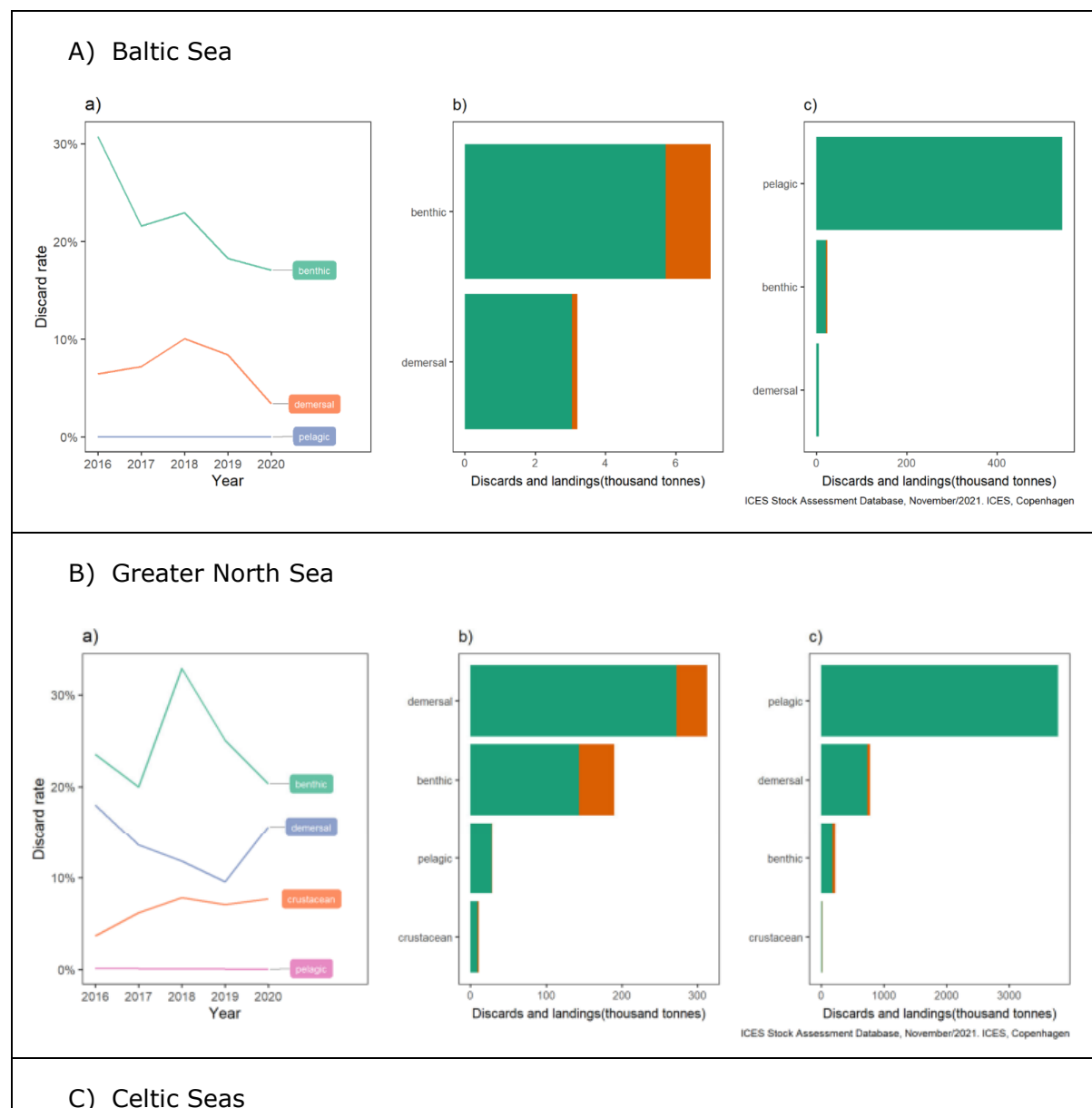
STECF notes that quantitative discard data for EU fishing fleets is provided by EU Member States in response to ICES and STECF FDI data calls.

ICES Fisheries Overviews⁸ provide information on fishing activities for eleven ecoregions, including data where available. Quantitative discards data is provided for five of these ecoregions (Baltic Sea, Greater North Sea, Celtic Seas, Bay of Biscay & Iberian Coast, and Oceanic Northeast Atlantic) with information available by métiers, categories of species (benthic, crustaceans, demersals, pelagics) for the period 2016-2020. For the six other

⁷ Stock/species/genus discards divided by stock/species/genus total catch

⁸ <https://www.ices.dk/advice/Fisheries-overviews/Pages/fisheries-overviews.aspx>

ecoregions (Azores, Barents Sea, Faroes, Greenland Sea, Icelandic Waters, Norwegian Sea), only qualitative information is provided.



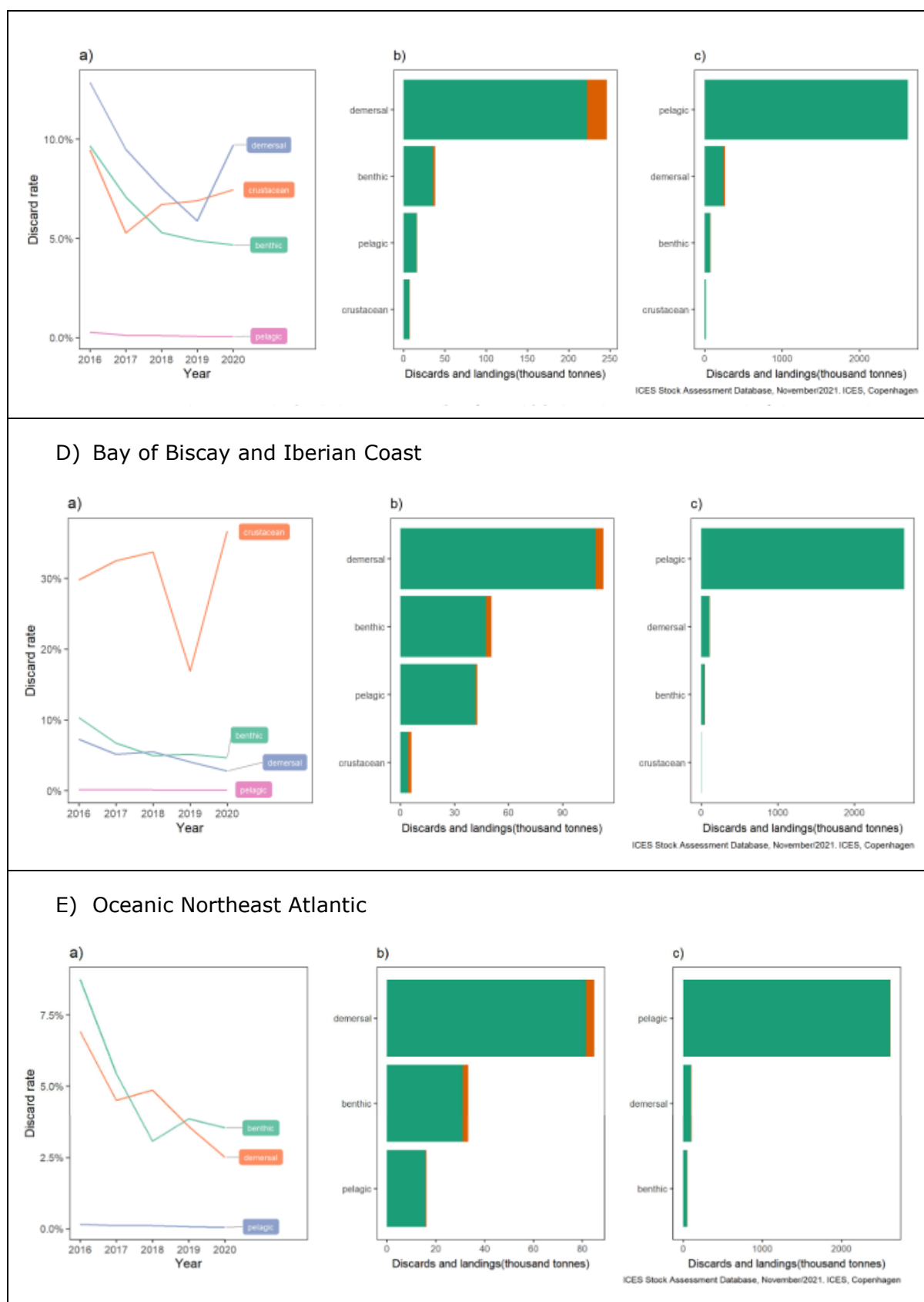


Figure 6.8.1. A) Baltic Sea ecoregion (ICES subareas 27.3, excluding Division 27.3.a). **B) Greater North Sea ecoregion** (ICES subarea 3a, 4 and 7d). **C) Celtic Seas ecoregion** (ICES

subareas 6 and 7 but excluding Division 7.d). **D) Bay of Biscay and Iberian Coast ecoregion** (ICES subareas 8 and 9). **E) Oceanic Northeast Atlantic** (ICES divisions and subdivisions 5.b.1.a, 6.b.1, 7.c.1, 7.k.1, 8.e.1, 8.d.1, 9.b.1, 10.a.1, 10.b, 12.a.1, 12.b, 12.c, and 14.b.1.). Left panel (a): Discard rates in 2016–2020 by fish category, shown as percentages (%) of the total annual catch in that category. Middle panel (b): Landings (green) and discards (orange) in 2020 by fish category (in thousand tonnes) only of those stocks with recorded discards. Right panel (c): Landings (green) and discards (orange) in 2020 by fish category (in thousand tonnes) of all stocks, including stocks with zero discards or without discard information (© ICES, 2021, 2022. ICES granted permission to reproduce the graphs. (ICES 2021a <https://doi.org/10.17895/ices.advice.9139> and ICES 2021,b <https://doi.org/10.17895/ices.advice.9099>, ICES 2022).

According to ICES (2022) total discard rates per species category are, in general, below 10% in two ecoregions (Celtic Seas and Oceanic Northeast Atlantic). They have been decreasing over time in two ecoregions between 2016-2020 (Baltic Sea and Oceanic Northeast Atlantic). However, the remaining ecoregions (Greater North Sea, Celtic Seas and Bay of Biscay & Iberian Coast) show that discard rates have remained variable with no apparent trend.

STECF considers that these overviews are useful, but understands that they are calculated in total weight per category, and are thus mainly representative of the stocks and fisheries with largest catch volumes, which can be misleading for the smaller stocks. STECF notes, thus, that divergent discard trends between species and fisheries can be masked when aggregated across broad categories of species. The inspection of latest stock-by stock ICES advice reveals continued high discard rates for a number of key commercial stocks in 2021. As such, the trends should not be over-interpreted, and it remains difficult to draw robust conclusions in terms of a potential effect of the landing obligation at stock, fishery or regional level.

STECF notes that the 2021 CINEA study⁹ concluded that the estimated discard rates did not show clear trends or patterns as a response to the implementation of the LO. There was also no distinction observed in discard rates between fisheries and species that have, or do not have, an exemption to the LO. Finally, there was a lack of evidence for changes in discarding practices in the fisheries of the Atlantic Western Waters, North Sea and Baltic Sea as a result of the implementation of the LO.

STECF notes that the STECF FDI Report (EWG 21-12) contains tabulated 2020 discard estimates provided by EU Member States for EU fleets by species and subregion for all areas where EU fleets are operational (Annex 4 of EWG 21-12). Annex 4 of that report also includes tabulated discard estimates for the proposed 2022 exemptions, by exemption area, species and country, based on the 2020 data provided by Member States. Similar tables for the proposed 2020-21 exemptions are also available in the FDI reports EWG 19-11 and 20-10 and their annexes. The FDI EWG reports also include detailed tabulated and graphical percentages of discard estimates in numbers and weight above and below MCRS by Member State, year, area, métier and species (Annex 5 of EWG 21-12 includes the longest time series – 2014-2020). STECF further notes that there are detailed graphical and numerical discard information available on the JRC website (<https://stecf.jrc.ec.europa.eu/dd/fdi/graphs>) by Member State, year (2015-2019), species, vessel length, fishing technique, gear type, mesh size range, supra region, region and EEZ indicator.

⁹ https://cinea.ec.europa.eu/publications/synthesis-landing-obligation-measures-and-discard-rates_en

STECF notes that the amount of data stored in the FDI database is extensive and extracting meaningful information on trends in discards ratios or in the percentages of catches below and above MCRS would require detailed statistical analyses beyond what can be performed during the STECF plenary. Recent STECF FDI EWGs were focused on development of methodology providing data to FDI data call and ensuring the best quality, quantity, coverage and availability of the FDI data, and did not perform quantitative analyses of trends in the data.

STECF notes that the ad hoc contract evaluated by STECF PLEN 22-01 under ToR 6.2 of this PLEN 22-01 report provided useful visualization of the discard rates and their trends by region in an interactive dashboard allowing filtering data by species, métiers, years, etc. (see ToR 6.2 for more details). However, the interpretation of discards' trends based on such data visualizations remains difficult due to differences in the coverage of the data available for the analysis and the lack of quality indicators. In particular, STECF notes that as reported by STECF EWG 21-12 the data collection in most EU Member States in 2020 was affected by Covid-19 pandemic, therefore might not be fully comparable with the results obtained in previous years.

STECF further notes that the same FDI ad-hoc contract (ToR 6.2) also incorporated spatial maps of landings by c-square by year with the total landings and discards by métier and their coverage at the same resolution level. This was visualized in the interactive dashboard. The dashboard could potentially be used to analyze the spatial evolution of the fleet activity (in terms of landings) and discards over the time period per region, métier, year, quarter, etc.

STECF notes that each year discards under exemptions permitted under the LO are calculated by the FDI EWGs. STECF acknowledges that the methodology to calculate the exemptions is appropriate. However, for some cases, the low level of sampling or the absence of sampling by Member States, can lead to imprecise estimates not fully representative of the actual level of discarding by the relevant fleets, noting that the actual levels of discarding are largely unknown at present. To improve the quality of these estimates, in 2021 STECF EWG 21-10 recommended to include additional quality indicators to the FDI data call that is going to be implemented in 2022. This additional information will improve the monitoring of the quality of discards reported by Member States.

STECF considers that the last-haul information compiled by EFCA and the discard information provided to ICES and under the FDI data call represent the best and most detailed information available and highlights the need for Member States to provide data that are representative of the level of discarding and are statistically sound.

STECF PLEN 22-01 is not able to comment further on discard trends but notes that such an analysis could be undertaken in the future. However, STECF underlines that a regular and synthetic monitoring of discards trends at EU level based on best available data is a complex and time consuming exercise, raising the same kind of methodological and statistical robustness issues as e.g. the annual CFP monitoring exercise (cf. ToR 6.8 and 7.7 of this PLEN 22-01 report), as also highlighted in the STECF EWG 18-15 on extended CFP monitoring indicators. Additional dedicated work would be needed to develop an adequate protocol for such an analysis to be carried out routinely.

STECF further notes that there is also ongoing work on modelling selectivity changes performed in the STECF EWGs on technical measures regulation, which might prove useful in the context of the landing obligation analysis.

Request 2: Adjustments to support the LO implementation

STECF notes that several Member States are testing innovative control tools for monitoring and control of the landing obligation, over and above what is used traditionally. Denmark has equipped vessels with Remote Electronic Monitoring (REM or EM10) as part of national pilot projects specifically geared for control purposes, and Sweden and Spain report that national EM pilot projects for monitoring & control have been initiated. Many Member States in the North Sea and the Baltic Sea reported that they intend to participate in the regional EM pilot projects as supported by EFCA. Aside from control tools, no other new initiatives or adjustments such as changes to national quota management systems to support the implementation of the LO are apparent.

Request 3 and 4: Challenges and weaknesses

STECF notes the following challenges and weaknesses reported by Member States, as summarized in the ad-hoc STECF contract:

STECF notes that Member States point out that control and enforcement of the landing obligation remains challenging. Member States continue to rely on traditional control tools for monitoring and control of the landing obligation such as at-sea inspections, control at landing/markets, administrative controls etc.

STECF notes that Member States report that misreporting of discards continues to take place, a fact supported also by the reports from [EFCA](#)¹¹, the Commission audits, the [European Parliament](#)¹² and the recent [CINEA](#) and [EUMOFA](#)¹³ studies. STECF highlights that EUMOFA concludes that the available data on landings of catch below MCRS is incomplete and incomparable between Member States. The most comprehensive and comparable dataset is the Aggregated Catch Data Reports (ACDR)¹⁴ of data sent by Member States to the Commission. However, STECF notes that according to the review made by the ad-hoc contract, 8 EU Member States report zero landings of unwanted catches in the ACDR data.

STECF re-iterates the need to maintain and improve the collection and reporting of catch (landings, unwanted catch and discards) data as pointed out by EWG 20-04. This remains a major weakness because if the data reported do not reflect the actual removals¹⁵, this will have a significant impact on the quality of scientific advice and may compromise the achievement of the MSY objective. This potential for poor quality catch data is particularly true for species and fisheries where a *de minimis* exemption is granted as there is a risk that the volume of unwanted catch discarded may be substantially higher than that permitted. For high survival exemptions, this risk is mitigated to some extent by deducting

10 Referred throughout as EM following 2019 ICES WGTIFD recommendations

11 <https://www.efca.europa.eu/en/content/compliance-evaluation>

12 https://www.europarl.europa.eu/doceo/document/A-9-2021-0147_EN.html

13 <https://op.europa.eu/de/publication-detail/-/publication/aec12d1c-5d00-11ea-8b81-01aa75ed71a1>

14 Aggregated Catch Data Reporting" as required in Article 33 of Council Regulation (EC) No 1224/2009.

15 Removals refer to the total of dead individuals removed from the population by fishing (landings, landed unwanted catch (e.g. under MCRS) and dead discards), and is thus not exactly the same as catch when some part of the discarded survive.

the estimated dead discards associated with the exemptions from the advised catch prior to agreeing on a TAC.

STECF notes that the EFCA report for 2021 highlights that their activities to promote effective and efficient implementation of the LO continued to be impacted by the COVID-19 pandemic. STECF further notes that the number of LO infringements detected through all joint deployment plans remains low. Based on the reporting by EFCA in previous years, STECF PLEN 21-01 had already commented that this is likely to be due to the very low probability of detecting illegal discarding with traditional control tools such as at-sea inspections.

STECF re-iterates that existing control tools have their limitations in providing an effective enforcement of the LO rules and that EM systems have been shown to be an effective complement to conventional monitoring and control tools. In this context, STECF notes that there has been some progress regarding the initiation and implementation of EM pilots specific for monitoring and control of the LO.

STECF notes that the objective of the LO is to increase selectivity and reduce the levels of unwanted catches. There is evidence from previous STECF evaluations and from ICES that levels of unwanted catches remain substantial in many mixed demersal fisheries in EU waters (10-30% on average Figure 6.1.1). STECF notes the results of the FAME report¹⁶, stating that although there continues to be an increase in selectivity projects supported by EMFF, there are also an increase in scientific projects for supporting exemptions. As stated in STECF PLEN 21-01 Member States seem more intent in adopting exemptions to allow the discarding of a level of unwanted catches rather than improving selectivity.

STECF further notes that based on the FAME report, Member States that experienced significant impacts of the LO reported that the EMFF funding helped, both directly through measures related to the LO and indirectly through the support for fisheries management generally, including contributions to control and enforcement.

Request 5: Further recommendations as appropriate to improve the full implementation of the LO, its identified challenges and the reporting of catches.

STECF notes that it is not possible currently to assess information on socio-economic impacts of implementation of the LO. Only The Netherlands and Denmark have referred to specific economic studies¹⁷. STECF notes that STECF EWG 22-05 plans to complete a literature review of work carried out on the socio-economic impacts of the LO, both predicted and observed.

STECF observes that the impacts of exemptions on fishing mortality is poorly understood given the limited reporting of catches discarded under exemptions. STECF EWG 20-04 had previously concluded that it would be appropriate and timely for regional groups and the Commission to review existing exemptions to the LO. Such a review would determine whether they have been effectively enforced and effective, whether the original STECF

16 https://ec.europa.eu/oceans-and-fisheries/funding/fisheries-and-aquaculture-monitoring-and-evaluation-fame_en

17 The Netherlands: study to support the de minimis exemption, Denmark: https://static-curis.ku.dk/portal/files/233843569/IFRO_Udredning_2019_26.pdf; https://static-curis.ku.dk/portal/files/174176081/IFRO_Rapport_256.pdf.

observations remain valid or whether the exemptions require amendment or are still required, given likely changes in catch patterns, gears used, vessels involved and uptake. STECF notes that this comment has been followed up by the Commission with the request to STECF in STECF PLEN 21-03 to discuss the proceedings (and preparation) of such a review, which is planned to be undertaken in 2023.

STECF observes that there is a risk that de minimis exemptions can provide an incentive for vessel operators to continue discarding unwanted catches at sea and only retain unwanted catches on board if they are inspected on hauling. The implications of such practices are that data quality will deteriorate and scientific advice for fisheries management will be less reliable, because the unmonitored part of the fishing mortality cannot be accurately estimated. Therefore, STECF stresses that exemptions should be considered as a last resort and that the focus should be on improving selectivity, where possible. Where exemptions are justifiable, then they should be subject to a high-level of monitoring.

STECF conclusions

General Conclusions

Based on all the information available, STECF concludes that the effectiveness of the LO to reduce unwanted catches is limited in many fisheries, and compliance remains poor.

STECF concludes that Member States have continued to provide very limited information on the socio-economic impacts of the LO. This is expected, since there is little change in fishing practices due to the LO so far thus there are most likely also very limited socio-economic impacts solely from the LO.

STECF acknowledges the importance of reporting on the implementation of the LO. However, STECF concludes that the questionnaire does not provide all the information and data needed to allow the monitoring of the implementation of the LO. Given there is no longer a mandatory annual reporting requirement under Article 15 of the CFP Basic Regulation, DGMARE may want to revisit the information and data needed to allow the monitoring of the implementation of the LO and the sources of such information and data. The current questionnaire could then be discontinued.

Conclusions on Discard rates trends

STECF concludes that there are various sources of information providing time series of discard rate over the recent years, but concludes that it is still difficult to extract synthetic and robust conclusions on how the situation is evolving across the various regions, fisheries and species. STECF concludes that the fisheries overviews published by ICES are an attempt in that direction, but that averages across groups of stocks and fisheries may hide large variability across stocks and should not be overinterpreted.

STECF concludes that extensive quantitative discards information is also available in the FDI database, that could be used for a thorough statistical analysis of recent trends in

discard ratios across regions, species and gears. The visualisation of discard rates carried out by STECF (TOR 6.2) will further add to the use of the FDI database.

STECF considers that the last-haul information compiled by EFCA and the discard information provided to ICES and under the FDI data call represent the best and most detailed information available and highlights the need for Member States to provide statistically sound data that are representative of the actual level of discarding.

STECF concludes that a regular and synthetic monitoring of discards trends at EU level based on best available data is a comprehensive work, raising important methodological and statistical robustness issues. Additional dedicated work would be needed to develop an adequate protocol for this.

Conclusions on adjustments to support the LO implementation

STECF concludes that several Member States are initiating or implementing non-traditional control tools for monitoring and control of the LO, namely EM for control purposes, and that this constitutes progress for the effective implementation of the LO considering that trials so far were more targeted towards data collection than control.

Conclusions on challenges and weaknesses

STECF concludes that misreporting of discards continues to take place. It is vital to maintain and improve the collection and reporting of catch (landings, unwanted catch and discards) data. If the data reported do not reflect the actual removals, this will have a significant impact on the quality of scientific advice and may compromise the achievement of the MSY objective.

STECF concludes that the number of LO infringements detected through all joint deployment plans remains low due to the very low probability of detecting illegal discarding and the limitations of the existing control tools in providing an effective enforcement of the LO rules. However, STECF concludes that the advance of EM systems by MSs is a positive step that will help in the effective implementation of the LO.

STECF concludes that the objective of the LO of increasing selectivity and reducing the levels of unwanted catches is still not being achieved in some fisheries. STECF concludes that extensive analyses of selectivity trends and optimum target are also being performed in dedicated STECF EWGs in the frame of the Technical Measures Regulation 2019/1241, which could also inform Commission in relation to the landing obligation.

Finally, STECF notes that little progresses are reported regarding improved mechanisms for quota swaps, quotas pooling and/or quota management in the spirit of Article 17 of the CFP to reduce quota-related incentives to discarding. Considering that the mismatch between fishing opportunities and fishing patterns will likely increase in the future following changes in fish distribution in relation to climate change, STECF underlines that sustainability issues related to quota sharing and relative stability still need to be considered.

Conclusions on Further recommendations

STECF concludes that it is not possible currently to assess information on socio-economic impacts of implementation of the LO as, for 2021, only two Member States have reported on such impacts. STECF concludes that discussions have already taken place in 2021

between the Commission and the STECF PLEN 21-03 (ToR 7.2) to discuss future work, and that the ad-hoc review planned accordingly for 2022 will continue advancing knowledge on socio-economic aspects of the landing obligation.

STECF concludes that given the impacts of exemptions on fishing mortality are poorly understood due to the limited reporting of catches discarded under exemptions, the planned review of exemptions in 2023 will be appropriate and timely to provide a better understanding of their impacts.

STECF concludes also that exemptions should be considered as a last resort and that the focus should be on improving selectivity, where possible. Where exemptions are justifiable, then they should be subject to a high-level of monitoring.

References

ICES (2022) ICES Fisheries Overviews, <https://www.ices.dk/advice/Fisheries-overviews/Pages/fisheries-overviews.aspx>

ICES (2021a). Baltic Sea Ecoregion - Fisheries overview. In Report of the ICES Advisory Committee, 2021. ICES Advice 2021, FisheriesOverviews_BalticSea_2021. <https://doi.org/10.17895/ices.advice.9139>

ICES (2021b). Greater North Sea ecoregion – Fisheries overview. In Report of the ICES Advisory Committee, 2021. ICES Advice 2021, FisheriesOverview_GreaterNorthSea_2021. <https://doi.org/10.17895/ices.advice.9099>

Scientific, Technical and Economic Committee for Fisheries (STECF) Evaluation of Joint Recommendations on the Landing Obligation and on the Technical Measures Regulation (STECF-20-04). Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-20383-4, doi:10.2760/328463, JRC121260.

STECF (2019) Scientific, Technical and Economic Committee for Fisheries (STECF) – Fisheries Dependent -Information – FDI (STECF-19-11). <https://stecf.jrc.ec.europa.eu/dd/fdi/graphs>

STECF (2020) Scientific, Technical and Economic Committee for Fisheries (STECF) – Fisheries Dependent -Information – FDI (STECF-20-10).

6.2 Evaluation of improvements to FDI - spatial analysis and data linked to time series discard rates landing obligation

Background provided by the Commission

One of the conclusions of the STECF 16-13, the monitoring of the spatio/temporal pattern of fishing activities, if combined with an appropriate knowledge of fish population (resource) distribution (in particular the components of critical life stages that generally form a large portion of unwanted catches), is expected to be useful for assessing the progressive implementation of the landing obligation. Clearly, the application of spatial methods for assessing the implementation of the landing obligation through changes in fishing activity implies the availability of spatial data on fleet activity and fish distributions. As discussed, this is increasingly becoming available through new technologies but is, for the present not available for all fishing vessels. Over the course of next few years, coverage will likely increase but in some areas, such as the Mediterranean, progress is likely to be slower.

STECF was requested in STECF 21-03 within the preparatory discussion on the implementation of the landing obligation, to discuss or give advice if the above assessment can be carried out or if coverage is still not to the level for such an assessment.

The STECF 21-03 noted that it should be technically possible to visualise some FDI data filtering, for example, views with discard rates and geographical distribution of the landings related to the same metiers on one interactive dashboard. Such type of exercise requires a high degree of knowledge of the FDI data and additional data quality checks making sure data coming from different FDI data tables is consistent. Therefore, STECF proposes to conduct a small pilot feasibility analysis using FDI driven case studies (e.g. for specific species and or fishing gears/metiers). Results of the pilot analysis will inform on the usefulness of FDI data for the purpose identified by the Commission and what tools and resources could be used to complete a more comprehensive picture in the future for more species and metiers.

An ad-hoc contract has been carried out and should be seen as the first step in this exercise following the STECF advice as the pilot feasibility analysis; there might be technical difficulties in carrying out the pilot.

Access to FDI data

For this small pilot feasibility analysis using FDI driven case studies, access to the FDI data provided by the Member States via the annual FDI datacall is necessary. Aside from the aggregated published data accessible to all, the contractor will have to use the data as provided by the Member States and the Table A fill-ins. This pilot is designed for internal Commission use to be able to analyze, develop and inform EU policy aiming to assist in further STECF scientific opinions and recommendations that are used in the CFP decision-making process.

Request to the STECF

On the basis of (the presentation of) the results of the ad hoc contract, and the conclusions of STECF 21-03, STECF is requested to:

1. Assess the value of the output of the ad hoc contract for assessing the progressive implementation of the LO, and in general-give recommendations – if possible – to the future use and value of such output and visualizations on other fisheries (implementation) matters on which STECF advises the Commission on;
2. Advise the Commission if any follow up would be worthwhile and if so, in what way this task could be carried out (part of an EWG, another ad-hoc contract, etc);
3. Reflect on the matter of 'fillings' used in the FDI database and for this exercise, would it be preferable to use the data that the Member States provide via the database without fillings to avoid confusing or misreading by the public.

Information provided to STECF

An extensive presentation was provided to the STECF from the contractor of the ad-hoc contract.

The presentation contained the details of the methodology used to create an interactive dashboard based on FDI data, a short preview of the dashboard developed, and case studies illustrating the output from the software by way of examples. Recommendations and comments related to the data used were also provided.

Linkages between the different FDI data tables were made through "COUNTRY, YEAR and SPECIES (landings and discards)" indicators of the data call. To create the possibility to aggregate and analyse data by region, all subregions were allocated to specific management regions based on the definitions used in the previous STECF EWGs on FDI reports.

The dashboard includes several views combining several data sets provided to the FDI data call. It uses interactive filters to select data and explore it through visuals. See an example in the screenshot below.

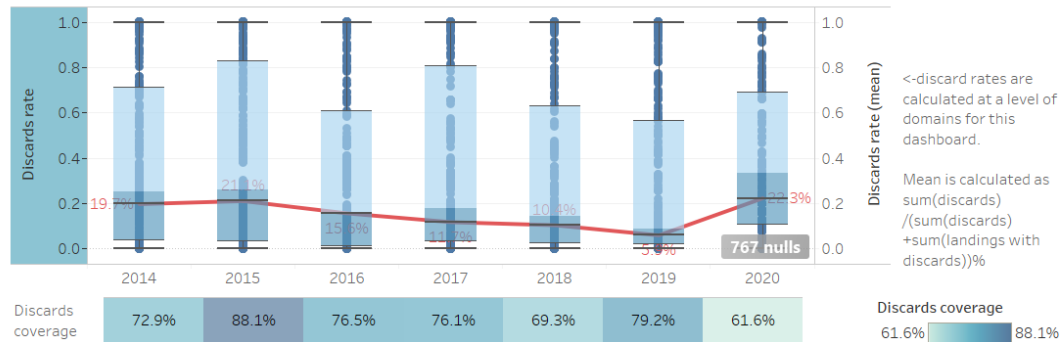
STECF FDI discards exploration dashboard

Both species name and species codes have to be selected

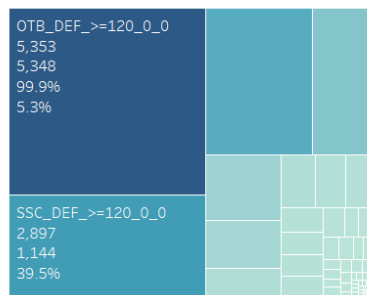
Region: North Sea | Sub Region: (All) | Species name: (All) | Species codes: COD | Target Assemblage: (All)

Gear Type: (All) | Metier: (All) | Mesh Size Range: (All) | Specon Tech: (All) | Vessel Length: (All)

Discard rates



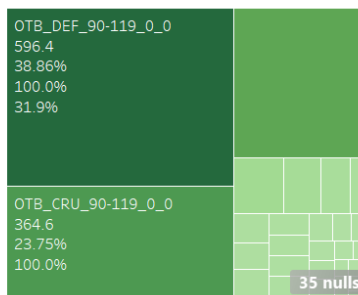
Landings composition 2017



Overall estimated

Landings: 15,213
 Discards: 1,535
 Coverage: 76.1%

Discards composition 2017

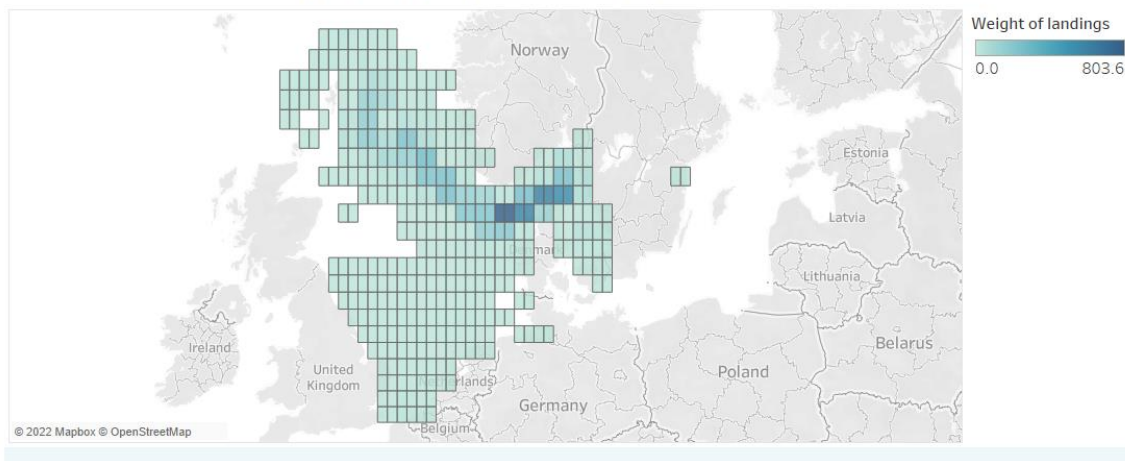


Year: 2017

Quarter: 1 to 4

<- Press on specific square to filter dashboard for metier level analysis

Spatial landings of COD in 2017



The below dashboards are based on Tables D (discards length data) and F (landings length data) of the FDI data call and only linked to composition of discards and landings by metier through species. The bars below provide a list of domains relevant to the metiers selected, however for selection filters below should be used.
To make a selection one needs to filter species code above and select Domain names from drop down filters listed.

NOTE: Quality of data in these dashboards depend on the quality of data provided by MS during the FDI data call 2021.

Domain Landings 2017

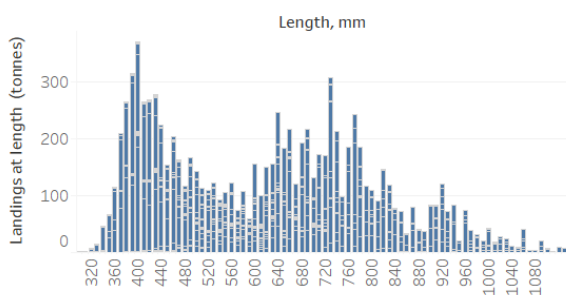


Select Domain landings in the bar above or drop down below

Domain Landings

(Multiple values)

Landings at length COD, 2017



Number of trips sampled (landings) COD, 2017

Species	300	310	320	330	340	350	360	370
COD	8	8	21	28	29	34	37	

Domain Discards 2017

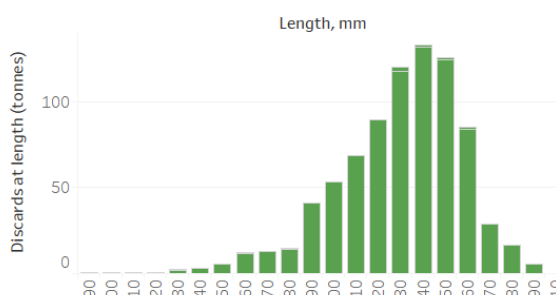


Select Domain discards in the bar above or drop down below

Domain Discards

(Multiple values)

Discards at length COD, 2017



Number of trips sampled (discards) COD, 2017

Species	190	200	210	220	230	240	250	260
COD	6	6	6	1	6	5	5	

STECF comments

Request 1 - Assess the value of the output of the ad-hoc contract for assessing the progressive implementation of the LO, and in general-give recommendations – if possible – to the future use and value of such output and visualizations on other fisheries (implementation) matters on which STECF advises the Commission on.

STECF is of the opinion that this pilot study shows the potential in visualising FDI data for assessing the implementation of the landing obligation, including for spatial analysis. It could also be used to explore other fisheries matters involving FDI data. However, currently the lack of an in-depth evaluation of the discards data quality limits the analysis of the implementation of the landing obligation, as it remains difficult to interpret and assess the robustness of any observed trend in discard rate and to distinguish between patterns arising from true changes in the fisheries and those coming from sampling artefacts (i.e; separating signal from noise). STECF underlines that little can be inferred about data quality and accuracy from the data available to the interactive dashboard. The number of trips sampled by fish length and coverage rate were the only quality indicators available for such an assessment. Additional data quality information are thus needed alongside any visuals created based on the FDI discards data.

In this context, STECF notes that STECF EWG 2021-10 on FDI methodology proposed that additional quality indicators be provided by EU Members States. STECF notes also that some of these proposed indicators will already be included in the 2022 FDI data call. The following indicators were added and/or amended in the FDI data call tables used for

reporting results for biological discards data: discards CV with upper and lower confidence limits, number of trips sampled, and number of total trips related to sampling strata (STECF EWG 2021-10 and 21-12 report).

STECF acknowledges that this will improve the assessment of data quality. STECF considers that such an assessment is conditional to any use of FDI discards data and should be included explicitly in future dashboards using FDI data. STECF considers that this also applies to any other database or data call collecting discards data.

STECF notes that data was used as provided by the Member States, including “fill-ins” (see also Request 3) through the FDI data calls for the years 2014-2020. No further qualitative analyses were conducted. The FDI database still includes UK data but these were omitted in the present dashboard study.

STECF notes that in the future, linkages between some FDI tables could be made by “DOMAIN_LANDINGS” and “DOMAIN_DISCARDS” names. These are free names defining the specific sampling strata by the Member States. At present there is a wide variety of names in the FDI database emerging from the non-standardised definitions used by the Member States (including different metier definitions). However, STECF expects that with the ongoing development of a common metier list by ICES (RCG NA NS&EA RCG Baltic 2020), there may be improvement in harmonisation of the domain names between Member States in the near future. This would allowed better linkage of biological data (length, weight, number of trips, sampled trips, number of fish sampled, etc.) with the discard estimates and enable STECF to perform a quantitative analysis on the data provided. STECF notes that this will be further discussed during STECF EWG 22-10.

STECF notes that the dashboard displays spatial maps for landings, since there is only geographical information on landings and not for discards in the FDI data. STECF also notes the data for the Mediterranean region was limited to Table A (Catch Summary that includes discards and landings by metier, fleet, quarter, etc.) and spatial data by c-square as biological data with discards and landings by length is not included in the STECF FDI data call at present. This lack of Mediterranean and Black Sea biological data in the FDI database limits the development of any visualisation for these regions. STECF reiterates there is a need to translate biological data from the Mediterranean and Black Sea data call so that it can be inputted into the FDI database.

STECF notes that this pilot study was conducted using the commercial Tableau software and that JRC no longer holds the Tableau licence to be able to use and further develop the output of the study. This means that any follow-up of this work will need to take account of possible options for conversion to other software.

STECF notes that the dashboard operates on raw disaggregated FDI data as provided by Member States, and not on the aggregated dataset that is publicly available on the STECF website. There are a number of confidentiality issues in the raw data provided at low resolution. STECF notes that the pilot study was created for internal use by DGMARE, not for public access, and notes that this confidentiality criterion will limit the future development and public use of dashboards.

Request 2 - *Advice the Commission if any follow up would be worthwhile and if so, in what way this task could be carried out (part of an EWG, another ad-hoc contract, etc).*

STECF agrees with the conclusion from the ad-hoc contract report that the potential of the FDI data has not been fully exploited. STECF is also aware that many external users make regular use of public FDI data, including scientific bodies (e.g., ICES), scientific studies for eco-certification / scoring, Commission agencies (e.g., Control agencies) as well as many scientists and non-scientists. It is expected that these users would be highly interested in a user-friendly public visualisation tool to ease data manipulation – STECF notes incidentally that this may also help avoiding misuse linked to insufficient understanding of the FDI database. STECF is therefore of the opinion that a public and updated dashboard alongside the one presented here could complement the already existing data dissemination tools on the STECF website.

STECF notes though that there are a number of limitations to this, linked to what was discussed under request 1. Regarding software issues, STECF notes that the JRC currently holds a license for the Qlik software used for data dissemination, which could be an alternative option for a future dashboard.

STECF notes also that there is a partial overlap of the dashboard with the app displaying the FDI data developed under the 2021 CINEA report¹⁸. This web app was developed using the Shiny package of R. STECF notes that the two display tools face similar limitations related to the quality of discard data collected. STECF notes that the Shiny app developed under the CINEA study was more comprehensive than the dashboard presented here, as it aimed also to contextualize the discard rates with other information such as the status and trends of exploited stocks and LO derogations or exemptions in place. STECF notes that R-Shiny is distributed under a free and open-source license which could solve the licensing issue discussed above; and it could also include additional features for statistical analysis; but it is also more time-consuming and requires more coding skills for developers to construct and maintain a generic, flexible and easy-to-update R-Shiny app, compared to the Tableau dashboard.

STECF notes that JRC is currently responsible for FDI data dissemination and works closely with STECF EWG on FDI. Therefore, the result of the ad-hoc contract and how it can be used and updated for future data sharing should be discussed by JRC/DGMARE and the STECF EWG on FDI.

Request 3 - *Reflect on the matter of 'fillings' used in the FDI database and for this exercise, would it be preferable to use the data that the Member States provide via the database without fillings to avoid confusing or misreading by the public.*

18 <https://data.europa.eu/doi/10.2826/176808>

STECF notes that the discard estimates in the dashboard were analysed with “fill-ins” produced by the STECF EWG on FDI (using the method described in the STECF EWG 21-12, 19-11 and 18-11 reports).

STECF notes that the discard coverage on the dashboard (percentage of landings which include discard information compared to the total landings reported) also includes “fill-ins”. STECF realises that the inclusion of “fill-ins” will complicate the evaluation of the quality and robustness of the data used and may confuse uninformed users. However, if the additional information requested on precision of sampling data collected and sampling rate is made available in the 2022 FDI data call, STECF believes that the use of “fill-ins” is preferable to apply in case of sampling gaps where discard information is lacking.

STECF conclusions

On the basis of the ad-hoc contract presentation on visualisation of the FDI spatial, catch and biological data, STECF concludes the following:

Request 1 - *Assess the value of the output of the ad-hoc contract for assessing the progressive implementation of the LO, and in general-give recommendations – if possible – to the future use and value of such output and visualizations on other fisheries (implementation) matters on which STECF advises the Commission on.*

STECF concludes that this pilot study shows the potential for presentation of the available FDI data in relation to the landing obligation. STECF concludes though, that the lack of an in-depth evaluation of the FDI discards data quality limits the full use of the data. STECF thus concludes that any discard data visual would need to be supported with quality indicators/assessment, to help assess the robustness of observed trends in discard rates.

Confidentiality issues may occur when providing data at low aggregation levels (raw Member State level). Therefore, STECF concludes that the public use of the dashboard involving FDI or other discard data should be aggregated to such a level that confidentiality is not an issue.

Request 2 - *Advice the Commission if any follow up would be worthwhile and if so, in what way this task could be carried out (part of an EWG, another ad-hoc contract, etc).*

STECF is aware of the progress made by the EWG on FDI regarding the evaluation of the quality and robustness of their data (sampling rate, etc.). STECF concludes that completing such an evaluation is necessary before carrying on with similar projects. The results of the 2022 FDI quality evaluation should be taken into account and included in future visualisation projects.

STECF concludes that the ad-hoc contract provided useful overviews of the diversity of FDI data in a single dashboard. STECF concludes that this work should be presented to STECF EWG 22-10 to discuss further developments.

STECF concludes that, considering the resource efficiency of the software used in the ad-hoc contract, further development of the visuals and incorporation of the quality indicators of the current dashboard could be addressed through an additional ad-hoc contract.

However, should this dashboard be aimed to become public and flexible for wider open access use, a number of issues will first have to be addressed in collaboration with the JRC and the EWG FDI expert group, including data confidentiality, quality indicators and software conversion.

Finally, STECF concludes that the dashboard and the R-Shiny app developed by the CINEA study are two independent, but partly overlapping tools developed for displaying FDI visuals for Commission's purposes. A discussion would then be needed between Commission, STECF and JRC about best ways forward for future developments and future updates when new FDI data comes in, based on Commission's knowledge needs and on easiness of use both for tools' developers and for tools' users.

Request 3 - *Reflect on the matter of 'fillings' used in the FDI database and for this exercise, would it be preferable to use the data that the Member States provide via the database without fillings to avoid confusing or misreading by the public.*

STECF concludes that if similar visual dashboards are to be used in future and shared with the public, it is advisable to have the possibility to separate data with 'fill-ins' and data without 'fill-ins', to be able to track which data are directly coming from Member States sampling and which are coming from partly automatized gaps filling processes. If an additional ad-hoc contract is implemented, the technical possibility to separate both data sets could be assessed.

Reference:

European Commission, European Climate, Infrastructure and Environment Executive Agency, Heinrich, J., Synthesis of the landing obligation measures and discard rates, Publications Office, 2021, <https://data.europa.eu/doi/10.2826/176808>

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 precision of fisheries data used for assessment (WKPRECISE), 8–11 September 2009, Copenhagen, Denmark. ICES CM 2009/ACOM:40. 43 pp.

RCG NA NS&EA RCG Baltic 2020. Regional Coordination Group North Atlantic, North Sea & East[1]ern Arctic and Regional Coordination Group Baltic. 2020. Part I Report, 110 pgs. Part II Decisions and Recommendations, 7 pgs. Part III, Intersessional Subgroup (ISSG) 2019-2020 Reports, 154 pgs.
(<https://datacollection.jrc.ec.europa.eu/docs/rcg>

6.3 Review of the scientific study for the derogation for boat seines fishing for transparent and Ferrer's gobies (*Aphia minuta* and *Pseudaphia ferrerii*) and Lowbody picarel (*Spicara smaris*) in certain territorial waters of Spain (Balearic Islands)

Background provided by the Commission

In October 2021, the Spanish Administration has transmitted a [scientific study](#), supporting elements and video data in relation to the derogation from Council Regulation (EC) No 1967/2006 as regards the minimum distance from the coast and the minimum sea depth for boat seines fishing for transparent and Ferrer's gobies (*Aphia minuta* and *Pseudaphia ferrerii*) and Lowbody picarel (*Spicara smaris*) in certain territorial waters of Spain (Balearic Islands). The current derogation will expire on 30 April 2023.

Background documents are published on the meeting's web site on: <https://stecf.jrc.ec.europa.eu/plen2101>.

Request to the STECF

STECF is requested to review and make any appropriate comments and recommendations on the study report and the supporting data on the fisheries targeting lowbody picarel as well as transparent and Ferrer's gobies in Balearic waters.

In particular, STECF is requested to evaluate whether the adjustments suggested in previous STECF assessments of these fisheries and their respective management plans have been taken on-board.

STECF should notably verify whether its suggestion to set a seasonal TAC in line with the most recent catches has been followed and whether a clarification has been provided regarding the possible overlap between the two bays used by the Jonquiller fishery targeting gobies and seagrass beds.

Finally, if the scientific study conducted and the supporting documents provided do not allow to clarify whether the fishery interacts with seagrass beds in the two bays concerned, STECF should advise on the improvement to be made to the study protocol to answer this point.

Conclusions of previous STECF evaluations

STECF PLEN 19-03 concluded that the Management Plan (MP for boat seines in the Balearic Islands 2019-2022) did not provide enough information on quantitative evidence to ensure that catches of species mentioned in Annex IX of the MEDREG are minimal, nor on discard quantities. It also concluded that information was missing on the minimum mesh size used on Gerretera gear, which is critical to for the derogation on minimum mesh size for that gear type; and that information was not sufficient to conclude that the Jonquiller has no

significant impact on Posidonia beds. Finally, STECF PLEN 19-03 concluded that the management thresholds (minimum daily catch quotas and maximum annual catches) for the 2016-2019 fishing period were not reached, and that accordingly, their effectiveness as a tool for the management of the fishery and conservation of the resource was questionable.

STECF PLEN 20-01 then concluded that the two additional documents provided by the Spanish authorities only addressed the comments of PLEN 19-03 concerning the effects of the Jonquiller boat seines fisheries on Posidonia, and commented that the evidence provided did not fully support the statement that the transparent goby fishery is taking place entirely on sandy bottoms, thus not affecting the Posidonia meadows.

Summary of the information provided to STECF

Two documents and 11 videos documenting fishing operations using boat seines and targeting small gobids were provided by the Spanish authorities to address the comments of the STECF PLENs 19-03 and 20-01.

STECF reviewed the following documents provided by the Commission:

- 1) INFORME DE LA PESCA CON ARTES DE TIRADA TRADICIONAL (JONQUILLERA) EN AGUAS DE LAS ISLAS BALEAR CAMPAÑA 2019-2020 (In Spanish, no english version provided).
- 2) INFORME DE LA PESCA CON ARTES DE TIRO TRADICIONAL (JONQUILLERA) EN AGUAS DE LAS ISLAS BALEARES CAMPAÑA 2020-2021. (In Spanish, no english version provided).

Both reports contain the following information for the 2019-2020 and 2020-2021 fishing periods, respectively:

- a. a list of vessels that have carried out activity in the fishery,
- b. defined catch quotas for jonquillera/cabotí,
- c. the evolution of daily total catches of the main fishing boats,
- d. depths of the hauls operating the jonquillera,
- e. location of the positions of the hauls,
- f. economic performance of catches,
- g. measures aimed at fishing inspection, and
- h. responses to some aspects requested by the European Commission.

STECF comments

Regarding request to evaluate whether the adjustments suggested in previous STECF assessments of these fisheries and their respective management plans have been taken on-board.

Catches of species mentioned in Annex III of the MEDREG

The Article 5.4. of the MP authorises the landing of a maximum of 5 kg of non-authorized species or 10% of the total daily catch weight. By-catch exceeding the established daily maximum catches of non-authorized species must be immediately released to the sea. While only *Atherina spp* is allowed to land in the gerretera fishery, for jonquillera, the authorized species are the gobidae *Aphia minuta*, *Pseudaphya ferreri*, which always

predominate in the catch, and two frequently associated species: another gobiid species *Crystallgobius linearis* and *Gymnamodytes cicerellus* (Ammodytidae).

The documents indicate that only Jonquillera is operated in Mallorca, and no catch information is provided for gerretera gear.

Regarding target and authorised species, STECF notes that *Pseudophya ferreri* now predominate the catch. STECF notes though that it is not possible to estimate separately the catch for each of the authorised species, as these species are often caught together and are not separated onboard.

STECF notes a drastic reduction of the presence of *Aphia minuta* in the catch in recent years, with less than 3% of the total catches in the season 2020-2021 being registered in *Aphia*-dominated catch types as "*Aphia*" or "*Aphia mixed*". It is stated that this could be related to the sea temperature increase, *Aphia minuta* being considered as very sensitive to changes in environmental conditions.

Regarding bycatch and non-authorised species, STECF notes that data on bycatches and discards of species mentioned in Annex III of the MEDREG are presented for the recent fishing season 2019-2020. The subsequent report (relative to the 2020-2021 fishing season) does not provide additional information. Twenty two hauls were sampled during the season, representing 4% of total number of hauls. Most bycatch species were caught in only few hauls (usually in less than 5 hauls out of 22) and in small quantities of a few individuals.

The catch in weight for the bycatch species was not reported at the level of species but aggregated for all catch species, which prevents estimating bycatch rates in percentage of total catch. The information in number supports however that these bycatch are minimal and that the jonquillera fishery is highly selective.

Information on the minimum mesh size used on Gerretera gear

STECF notes that the gerretera gear has been already described in the STECF Plen 19-03 (MP 2019-2020), whereas information on the mesh size at the codend was not provided in the recent reports.

Brief descriptions of the gears (jonquillera and gerrretera) including mesh size at the codend have been provided in the documents. Gerretera gear is similar to the jonquillera. It is about 200 meters in length and composed of three parts. It is constructed, with a mesh size of 50 mm in the wings and mesh size decreasing towards the codend, which has a mesh size of 10 mm (document No1 "Informe de la Pesca...." 19-20, page 27).

Regarding request to verify on whether its suggestion to set a seasonal TAC in line with the most recent catches has been followed.

PLEN 19-03 noted that the Decree 19/2019 of 15 March 2019 set maximum annual quotas for transparent and Ferrer's gobies at 40,000 kg and for picarel at 30,000 kg.

The second document contains in section 9 a list of the changes made on this Decree 19/2019 of March 15th, that have been published in the Decree 31/2021 of May 31th. STECF observes that the maximum authorised catch for the fishing season has been reduced at 20,000 kg for "gobids" and maintained at 30,000 kg for picarel. In the case of jonquillera, the TAC concerns the set of species which they are authorized to capture. The dominant catch in the jonquillera catch in recent years is *Pseudophya ferreri*. The MPs states that if these allowable quotas are reached, the fishery is closed.

STECF notes that while these TACs values have been reduced by a half for gobids, they are still much higher than the annual catches from the last 4 years (min 5,418, max 11,922

kg). No recent data on picarel catches were provided. The last information on the fishery of picarel regards the fishing season 2017-2020. In these years catches of about 20,000 kg per year were registered.

STECF also notes that the number of active vessels has notably decreased in recent years, with 13 vessels active in 2020/2021 out of 33 authorised. STECF considers thus that the seasonal TACs set represent a reduction in catch limits from previous years but are not restrictive given the TAC is much higher than actual catches. The minimum CPUEs have neither been reached in the recent years.

Regarding request to clarify regarding the possible overlap between the two bays used by the Jonquiller fishery targeting gobies and seagrass beds.

STECF notes that Article 11.3 of the Spanish Government Decree 19/2019 of March 15th was modified by the Decree 31/2021 of May 31st, which prohibits the operations of boat seines targeting small gobids on maërl, coral reef and on *Posidonia* beds.

Article 1.2 of Decree 19/2019, of March 15th was also modified, and now has the following wording: "*The scope of application of this Decree is the internal waters of the coast of the Balearic Islands, with the exception of the areas of the bays of Pollença and Alcúdia, where was detected interaction with Posidonia*". STECF understands thus that fishing in these two bays is now forbidden.

STECF notes that fishing activities on these areas was still occurring during the 2020-2021 fishing season and catches of boats operating there represented about 60% of the catches.

Regarding request to assess whether the scientific study conducted, and the supporting documents provided evidence that the fishery interacts with seagrass beds in the two bays concerned.

STECF notes that the Spanish Administration has provided a set of films using underwater cameras showing the net set during fishing operations as evidence that the fishery does not impact on *Posidonia* beds.

STECF observes that the underwater video sampling provide information from various vessels (4 out of the 13 active) and fishing operations (13 fishing days out of 285) from different fishing places around the Island, and operated by controllers from the administration following a protocol described in details in the documents. STECF notes that two of the operating boats are located in the harbours of the Pollença and Alcúdia bays. The Spanish administration states that due to the now enforced prohibition of fishing operations in these bays, documentation only proceed from other areas of the Mallorca Island.

STECF notes that the cameras have been installed in the upper rope of the gear and the shooting is taken from the above. STECF notes that on the videos, the net during operations does not lift sand or other sediments from the bottom. STECF observes that the underwater videos show operations occurring over sandy areas where *Posidonia* is absent, and notes that some dead *Posidonia oceanica* leaves and rhizomes can be observed on these sandy bottoms.

STECF cannot though fully assess how representative these videos are in relation to standard fishing operations and fishing grounds. Additional haul information may be provided on e.g. where the videos were taken in comparison with available *Posidonia* mapping in the same area, on when during the haul, and on catch quantity of the filmed hauls compared to average catch quantities of the fishery in the same area and period.

STECF conclusions

STECF concludes that the new documents contain important elements for the monitoring and management of activities of the boat seines fishing in Balearic Islands, and provide complementary data and adjustments as were requested in previous STECF assessments of these fisheries.

STECF concludes that although the updated seasonal TAC for jonquillera represents a reduction in catch limits from previous years, it remains substantially higher than the catch volumes observed over the last four fishing seasons. STECF concludes that it is unlikely that the TACs will be limiting for the fishery as long as only a fraction of the number of authorised fishing vessels are active in the fishery.

STECF concludes that the possible overlap between the two bays used by the Jonquiller fishery targeting gobies and seagrass beds is no longer an issue since the fishery is now prohibited in the two bays of Pollença and Alcúdia.

STECF acknowledges the effort made by the Spanish authorities to provide underwater videos monitoring the fishing activity and encourages such initiatives that promote transparent documentation of fishing impact. While STECF could not fully assess the representativeness of the videos over the standard fishing operations, STECF acknowledges that the gears shown in the videos did not seem to impact the sandy bottom.

6.4 Derogation for 'ganguï' trawlers in certain territorial waters of France

Background provided by the Commission

In accordance with Article 13(1) of Regulation (EC) No 1967/2006 (hereafter the MedReg), the use of towed gears is prohibited within 3 nautical miles of the coast or within the 50m isobath where that depth is reached at a shorter distance from the coast. In addition, Article 13(2) prohibits the use of trawl nets within 1.5 nautical miles from the coast. At a request of a Member State, derogation from Article 13(1) and (2) may be granted, provided that the conditions set in Article 13(5) and (9) are fulfilled.

Furthermore, Article 4(1) of MedReg prohibits fishing with trawl nets, dredges, purse seines, boat seines, shore seines or similar nets above seagrass beds of, in particular, *Posidonia oceanica* or other marine phanerogams. Derogation from this article may be granted, provided that the conditions stipulated in Article 4(5) are fulfilled. If a fishery benefits from derogation under Article 4(5), then a derogation to the minimum distance from the coast and depth shall be allowed.

Finally, a general condition for all derogations is that the fishing activities concerned are regulated by a management plan provided for under Article 19 of the MedReg. According to paragraph 5 of Article 19, the measures to be included in the management plan shall be proportionate to the objectives, the targets and the expected time frame and shall have regard to:

- a) the conservation status of the stock or stocks;
- b) the biological characteristics of the stock or stocks;
- c) the characteristics of the fisheries in which the stocks are caught;
- d) the economic impact of the measures on the fisheries concerned.

This traditional fishery is in a phasing-out process, while 36 vessels were operating in 2014, there were only 10 in 2017. The vessels are eligible only if they comply with the requirements above and if they have '*a track record in the fishery of more than five years and not involving any future increase in the fishing effort deployed*'. The specific '*bouilleur de cru*' regime will mechanically result in this fishery disappearing in the medium term because the fishing authorisation is withdrawn and annulled if either the vessel authorised is sold or the fisher owning the authorisation retires.

In application to their commitments, the French authorities published on 16 March 2018 an '*arrêté ministériel*' reinforcing the management framework for this fishery. Those provisions exceed the requirements of the relevant EU fisheries regulations:

- a) conditioning the granting of a fishing authorisation for '*ganguï*' to the fitting of a VMS transponder, irrespective of the size of the vessel;
- b) reinforcing substantially the control objectives for this fishery;
- c) reinforcing substantially the control of the landings;

- d) mandating the landing of the catches only in designated ports;
- e) mandating the declaration of all catches, irrespective of the weight of the catch and the length of the vessel.

Commission Implementing Regulation (EU) 2021/141 granted derogation from Article 4(1), 13(1) and 13(2) of the MedReg in territorial waters of France adjacent to the coast of the Provence-Alpes-Côte d'Azur region to '*ganguis*' trawlers. This derogation applies until 11 May 2022 and French authorities have expressed their wish to renew the derogation.

Background documents are published on the meeting's web site on: <https://stecf.jrc.ec.europa.eu/plen2101>.

Request to the STECF

The STECF is requested to review the implementation report of the '*ganguis*' fisheries and the additional documents provided to support the French request to renew the derogation. The STECF is also requested to present its findings and make appropriate comments with respect to the conservation and management requirements/objectives stipulated by Council Regulation (EC) No 1967/2006 ("MedReg") and by the Regulation (EU) No 1380/2013.

More specifically, STECF is requested to advise and comment on whether the documents provided contain adequate and up-to date scientific and technical justifications ensuring that:

1) the conditions set by the MedReg are still fulfilled:

- the fishing vessels concerned have an overall length of less than or equal to 12 meters of overall length and engine power of less than or equal to 85 kW, in accordance with the first subparagraph of Article 4(5) of MedReg.
- the fishing activities concerned affect not more than 33% of the area covered by seagrass beds of *Posidonia oceanica* within the area covered by the management plan and not more than 10% of seagrass beds in the territorial waters of France, in line with requirements of points (ii) and (iii) of the first subparagraph of Article 4(5) of MedReg.
- catches of species subject to minimum conservation size as mentioned in Annex III are minimal, in line with Article 13(9) of MedReg.
- the mesh size comply with the requirement of at least a square-meshed net of 40mm or a diamond meshed net of 50mm and panels of netting smaller than 40mm mesh size are not used for fishing or kept on board, in line with Article 9 of MedReg.
- appropriate steps have been undertaken to ensure the collection of scientific information with a view to the identification and mapping of *Posidonia* habitat, in line with Article 4(6) of MedReg.

2) the impact on the *Posidonia* beds has been mitigated further since 2014, in the years of the implementation of the management plan, in particular ensuring an effective reduction of the fishing capacity and effort. In the event that these justifications are not sufficient, the experts shall provide recommendations on the additional information needed and on the likely migration measures to counteract possible nonfulfillment.

3) the current management measures would continue ensuring a sustainable exploitation of species targeted by 'gangui' trawler without jeopardizing the socio-economic sustainability of the overall fishing fleets involved in exploiting those resources in the coastal area.

Summary of recent previous evaluations of the derogations for "gangui" trawlers

On 16 March 2018, the French authorities published an "arrêté ministériel" reinforcing the management framework for the gangui fishery. In May 2018, the derogations regarding the prohibition to fish above protected habitats, the minimum distance from the coast and the minimum sea depth were renewed through Commission Implementing Regulation (EU) 2018/693. These derogations applied until 11 May 2020.

In 2019, STECF PLEN 19-03 was requested to review the implementation report of the gangui fisheries provided by France and the additional documents provided to support the French request for a further renewal of the derogation. STECF PLEN 19-03 noted that most of the conclusions of the STECF PLEN-17-02 and PLEN-17-03 remained valid and raised the following issues:

a) no updated information was submitted on species composition or on levels of catches and discards;

b) the CPUE threshold that was set as a reference value was not reached in the period 2015-17 indicating that the reference value should be revised;

c) the effort reduction proposed in case the reference values were not reached was not precautionary because the activity of the fleet was well below the allowed fishing days;

d) the value provided on the impact of the "gangui" fishery on *Posidonia* beds represented an underestimate of the potential swept area because the assessment of whether this condition has been met is sensitive to the choice of parameters value (i.e., if only the impact of the trawl itself is considered or if all the elements of the gear in contact with the bottom are included).

STECF PLEN 19-03 also noted that *Posidonia* beds where the gangui fishery operates were in regression, acknowledging though that the fishery is not the only factor impacting them. STECF PLEN 19-03 acknowledged that the gradual decrease of fishing effort in the gangui fishery (i.e., gangui authorization is withdrawn when a vessel is sold, or the owner retires) will ultimately lead to the permanent cessation of the fishery over time. At that time, only 10 vessels were authorized, compared to 36 in 2014 indicating this measure was working effectively.

In 2020, STECF PLEN 20-02 was requested to review the additional documents provided by France and assess whether these addressed the conclusions of PLEN 19-03. STECF PLEN 20-02 concluded that adequate information was provided to address the main concerns raised by STECF PLEN 19-03. In particular, updated information showed that:

a) the species landed by gangui were not included in Annex III of MedReg;

b) cephalopods were not a main target, representing 6% of total catches in biomass in average;

c) VMS approach was effective to measure the footprint of gangui fishery on *Posidonia* beds.

However, STECF PLEN 20-02 noted that the supporting documents did not address the comment raised at STECF PLEN 19-03, suggesting a revision of the CPUE threshold set as a reference value.

Summary of the information provided to STECF

Six documents were provided to STECF, which are summarized below.

- *Renewal of the derogation for gangui trawl fisheries in the Mediterranean Sea (199-22_EN)*

This is the request of the French Administration for a further renewal of the current derogation for “gangui fishery” which expires on 11 May 2022.

- *Report from France to the European Commission on the monitoring of the derogation for gangui trawl fisheries (17 February 2022) (Rapport gangui 17022022_EN)*

This report describes the scientific management, control and monitoring mechanisms which are currently in place in the French ‘gangui’ trawl fishery. The overall context and characteristics of this fishery are included in the French report of 11 June 2019 (*Rapport gangui final 20092019COM_EN*), which is an additional background document provided by France (see below).

The report recalls that three main management measures have been put in place since 2018: a) the quota of European fishing authorisations with a view to reducing the fleet; b) a fishing effort monitoring regime based on the use of VMS; c) the implementation of a national plan for the control and monitoring of landings. In addition, since 2020 a Natura 2000 risk analysis with regard to commercial fishing was introduced in France.

In 2021, nine vessels were eligible to use gangui, but only seven of these were active. A table summarizing the technical features of the seven operating in the gangui fishery shows that they have an overall length ranging from 8.0 to 10.82 m, and an engine power ranging from 44 to 74 kW.

The report recalls that the gangui fishery does not target cephalopods and that catches of species subject to minimum conservation size as mentioned in Annex III are minimal. The target species identified in the management plan refer to the commercial category “soup”, accounting for 67% of catches and including 37 species. Five species represent 61% of the “soup” category: *Scorpaena porcus*, *Serranus scriba*, *Serranus cabrilla*, *Symphodus tinca*, and *Symphodus rostratus*.

The report shows that the fleet operating the gear called “small gangui” (with a beam) is not operating anymore, and only large gangui (trawl-like with doors) are used. The number of vessels operating large gangui have been decreasing consistently over time. In 2021, only 7 active vessels were allowed to use gangui, corresponding to a decrease of around 80% in the number of vessels operating in the fishery since 2014. It is reported that the intention of the French authorities is to follow the “*bouilleur de cru*” regime, resulting in the disappearance of this fishery in the medium term.

The fishing effort of each vessel is monitored and in 2021 the number of fishing days per vessel (from 102 to 148) were well below the maximum number of days per year set by the Management Plan (180 days).

In the frame of a national control plan, all gangui vessels have been equipped with VMS and send a catch report and a landing declaration to the French Administration within 48 hours of each fishing day. In addition, since 1 July 2018 catches must be landed only in designated landing ports. Out of 30 inspections carried out, no infringements were detected.

The report includes a Natura 2000 risk analysis (see below: *annexe4_matrice_pressions-activites_ifremer_0_EN*) which started in 2020 and is aimed at evaluating the potential impact of gangui on *Posidonia* meadows. There are two types of large gangui gears: a) light doors gangui used at depths ranging from 12 to 30 m; b) heavy doors gangui used at depths ranging from 28 to 100 m. It is reported that ganguis operating in Hyères belong to the light doors category, but no information is given on whether heavy gangui are still in use elsewhere.

It is also reported some resilience of the seagrass to this impact (<http://www.natura2000.fr/outils-et-methodes/guides-et-ouvrages/arp-n2000>) (see below: *EVAL_SENSIB_BIOC_MED-PPHYSIQUES_EN*). Further risk analysis will be carried out in the near future.

- *Report by France to the European Commission on the follow-up to the derogation concerning gangui-type trawl fishing (11 June 2019) (Rapport gangui final 20092019COM_EN)*

This report was already evaluated by both STECF PLEN 19-03 and STECF PLEN 20-02, and informs on the control and monitoring mechanisms put in place in the "gangui" fishery by France. No new information was presented in 2022.

The measures described are:

- A plan for the reduction of the number of authorizations;
- Measures for control and monitoring of landings;
- Scientific monitoring of the activity and its impact on the marine environment.

- *Estimating the maximum Gangui footprint in 2021 using VMS data*

The footprint of the authorized gangui vessels was estimated by means of VMS pings filtered by maximum speed (<2 knots), harbours and maximum delay between consecutive positions of 3 h (to limit aberrant trajectories). The estimated surface of *Posidonia oceanica* in the Provence-Alpes-Côte d'Azur region is about 311.68 km² and in the Mediterranean French waters is about 872 km² (Geomatic study 2018 on the *Posidonia oceanica* and its dead matte carried out by French Agency for Biodiversity, AFB). The total estimated maximum footprint of gangui is estimated to be 66.04 km² in 2021, corresponding to 21% and 7.6% of the surface covered by *Posidonia oceanica* in the PACA region and in the Mediterranean French waters, respectively.

- *Summary of potential links between fishing activities and physical pressures in the marine environment (annexe4_matrice_pressions-activites_ifremer_0_EN)*

This document is an excel file showing a matrix of the relationship between fishing activities and physical pressures in the marine environment. It represents the relative amplitude of pressures of fishing gears, depending on the nature and design of the fishing gear and the type of substrate of the benthic habitats considered. The associations identified in this matrix are intended to serve as a guide to enable the risk of habitat degradation by professional fishing activities to be classified through the pressures they may cause.

- *Sensitivity of Mediterranean benthic habitats to physical pressures (EVAL_SENSIB_BIOC_MED-PPHYSIQUES_EN)*

This document is an excel file showing an assessment of the sensitivity of benthic habitats in the Mediterranean to certain anthropogenic physical pressures which was carried out by a group of experts on the basis of the best available scientific knowledge. Spreadsheet III.5.1 is dedicated to the impact on *Posidonia oceanica* and its biocenosis.

The excel file describes the following generic types of impact:

- Surface abrasion has the effect of removing leaves of *Posidonia* (and the species attached to it) without entering the mat. The mat and the fauna remain intact. Some species groups are affected by superficial abrasion, but the benthic community remains globally recognisable.
- Concerning the extraction of substrate and deep abrasion, the removal of the substrate results in the destruction of the habitat, by pulling out leaves and the rhizomes and all other characteristic species. As the growth rate of rhizomes and leaves is particularly slow (up to few cm per year), the recovery time is greater than 25 years when pressure ceases. The three-dimensional, and therefore functional, structure of the biocenosis and its characteristic species are lost.

This risk analysis for commercial fisheries is conducted by pressure * habitat and pressure * fishing gear. A crossing of the two matrices therefore gives a first estimate of the severity of the impact of a given fishing gear on a given habitat. The risk analysis shows thus that the "light doors" gangui generates surface abrasion on seagrass, involving the removal of leaves but without destroying the deep habitat, rhizomes and sheltered infauna. Conversely, the "heavy doors gangui" extracts substrate, causes deep abrasion (>5cm) and seagrass destruction.

STECF comments

Specific comments on the three issues described in the request to STECF are as follows:

1. Conditions set by MedReg are still fulfilled:

STECF notes that all the seven vessels allowed to operate with gangui are less than 12m LOA and an engine power lower than 85kW.

STECF observes that the fishing activities of gangui were estimated to affect 21% of the area covered by seagrass beds of *Posidonia oceanica* within the area covered by the management plan (PACA Region) and 7.6% of seagrass beds in the territorial waters of France, in line with requirements of points (ii) and (iii) of the first subparagraph of Article 4(5) of MedReg.

STECF notes that no updated information has been provided on the qualitative and quantitative composition of gangui catches. The report provided by the French Administration (Rapport gangui 17022022_EN) gives a general overview of catches, highlighting that the category "soupe" represents 67% of gangui catches and includes five species (i.e., *Scorpaena porcus*, *Serranus scriba*, *Serranus cabrilla*, *Symphodus tinca*, and *Symphodus rostratus*), which represent 61% of this commercial category. STECF notes that the same values were observed in the report provided by the French Administration in 2019 (Rapport gangui final 20092019COM_EN). STECF notes that the five species which are mainly caught by this fishery are not included in Annex III of MedReg, in line with Article 13(9).

STECF notes that no specific information is provided concerning the compliance of gangui vessels with mesh size requirements set out by Article 9 of MedReg (i.e., 40mm square-mesh or 50mm diamond mesh). However, the French report (Rapport gangui 17022022_EN) states that verification of compliance with the fishing gears are regularly carried out at sea and landing sites, in line with the monitoring programme foreseen by

the management plan. STECF notes that out of the 30 inspections carried out, no infringements have been detected.

STECF observes that the presence of *Posidonia oceanica* was mapped in 2018 (Rapport gangui final 20092019COM_EN; pag 32) and compared with the fishing grounds exploited by the gangui fleet in 2021 (Estimating the maximum Gangui footprint in 2021 using VMS data; pag. 1). From the maps provided, STECF notes that most of these fishing grounds overlaps with *Posidonia* beds. No information is though provided on the potential presence of seagrass in the westernmost fishing grounds.

2. The impact on the *Posidonia* beds has been mitigated further since 2014

STECF notes that the impact on *Posidonia* beds has been mitigated solely by gradually reducing the fishing capacity since 2014 (Table 6.4.1), in line with the so-called “bouilleur de cru” regime, foreseen by the French management plan. STECF notes that in the period 2014-2021 the European Fishing Authorizations and the eligible vessels for this fishery have been reduced by 64% and 75%, respectively.

Table 6.4.1. Number of European Fishing Authorizations (EFA) and number of eligible vessels allowed to use gangui in the PACA Region.

Years	2014	2018	2019	2020	2021
No EFA	25	19	10	10	9
No eligible vessels	36	24	17	13	9

Concerning fishing effort, STECF notes that in 2021 the average number of days at sea carried out by the seven large gangui vessels operating in the PACA Region was 128.7 (Table 6.4.2), while the maximum number of fishing days foreseen by the French management plan is 180 for this segment. In addition, STECF notes that overall fishing effort has been gradually decreasing over time (i.e., 1226 days in 2019 and 901 days in 2021).

Table 6.4.2. Number of fishing days exerted by the seven large gangui vessels operating in 2021 in the PACA Region.

Gangui vessels	1	2	3	4	5	6	7
Fishing days	129	129	114	145	102	134	148

The risk assessment spreadsheets indicate that the two types of gangui (light doors and heavy doors) have different impact on *Posidonia oceanica*, the heavy doors gangui being estimated as potentially damaging for *Posidonia*. The French report indicates that in Hyères “only light doors ganguis” were operating in 2021, but it is not clear if all seven active ganguis in the PACA Region belong to the Hyères fishery. It is neither clear which gear is operated on the western part of the fishing grounds, nor whether there are *posidonia* beds in this area. Therefore, STECF cannot fully evaluate the severity of the risk of bottom impact occurring.

3. The current management measures would continue ensuring a sustainable exploitation of species targeted by 'gangui' trawler without jeopardizing the socio-economic sustainability of the overall fishing fleets involved in exploiting those resources in the coastal area

STECF observes that the information provided does not allow assessment as to whether the management measures ensure the sustainable exploitation of the species targeted in the gangui fishery, since no stock assessment is available for any of the most targeted species.

STECF notes that no socio-economic information is provided. STECF PLEN 20-02 acknowledged the initiative of the French Administration to launch a socio-economic study on the gangui fisheries. The results of this study were expected to be available in the second half of 2021, but no information has been provided.

STECF conclusions

Regarding request 1), STECF acknowledges the efforts made by the French Administration to manage the gangui fishery and concludes that the five MedReg conditions listed in the request are met.

Regarding request 2), STECF acknowledges that the gradual decrease of the fishing capacity ("bouilleur de cru" regime) and the corresponding reduction in total fishing effort lead to reducing the footprint of this fishery on *Posidonia* beds.

STECF concludes that the gangui with heavy doors has been assessed as being potentially damaging of *Posidonia* beds; Based on the documents provided, STECF cannot however ascertain whether part of the gangui fleet still uses this gear, and thus whether the reduction in footprint is sufficient to consider that it ensures the protection of the associated habitat (*Posidonia oceanica*). Clarifications on this point would be needed.

Regarding request 3), STECF concludes that the information provided does not allow assessing the status of the stocks exploited nor the socio-economic sustainability of the fleet. STECF acknowledges that fishing pressure reduces, but cannot though conclude whether the species can be considered as being exploited sustainably.

6.5 Management plan for purse seine fishing in the Republic of Croatia

Background provided by the Commission

In November 2021 the Croatian Administration has expressed its intention revise and renew the management plan adopted in 2017. With the submission of the updated plan, Croatia requests derogation from Art 13(3) of EC 1967/2006 for the following purse-seines gears:

- a)** - purse seine nets for catching chub mackerel, mackerel, horse mackerel, needlefish and sardine – *lokardara*
- b)** purse seine nets for catching bonito, turbot, little tunny and greater amberjack – *palamidara*
- c)** purse seine nets for catching mullet, salema and saddled seabream – *ciplarica*
- d)** purse seine nets for catching needlefish – *igličara*
- e)** purse seine nets for catching smelt – *oližnica*

In particular this plan envisions, for the above gears, the renewal of the derogations from EC 1967/2006 article 13(3) in terms of minimum distance from the coast and minimum depth, which is currently granted with the Regulation¹⁹ (EU) 2018/1586 of 22 October 2018. The current derogation has expired on 26 October 2021.

Background documents are published on the meeting's web site on: <https://stecf.jrc.ec.europa.eu/plen2101>.

Request to the STECF

TOR 1. Advice and assess whether the management for the purse-seines gears, (a) *lokardara*, (b) *palamidara* (c) *ciplarica*, (d) *igličara*, (d) *oližnica*, targeting respectively (a) chub mackerel, mackerel, horse mackerel, needlefish and sardine, (b) bonito, turbot, little

¹⁹ Commission Implementing Regulation (EU) 2018/1586 of 22 October 2018 establishing a derogation from Council Regulation (EC) No 1967/2006 as regards the minimum distance from coast, the minimum sea depth and the prohibition to fish above protected habitats for shore seines fishing in territorial waters of Croatia

C/2018/6842 ; ELI: http://data.europa.eu/eli/reg_impl/2018/1586/oj

tunny and greater amberjack, (c) mullet, salema and saddled seabream and (d) needlefish, in the waters of Croatia contains adequate elements in terms of:

1.1. The description of the fisheries

- Biological characteristics and state of the exploited resources with reference in particular to long-term yields.
- Description of the fishing pressure and measures to accomplish a sustainable exploitation of the main target stocks.
- Data on catches (landings and discards) of the species concerned, fishing effort and abundance indices such as catch-per-unit-effort (or CPUE).
- Catch composition in terms of size distribution, with particular reference to the percentage of catches of species subject to minimum sizes in accordance with Annex IX of Regulation (EU) 2019/1241/2021.
- Information on the social and economic impact of the measures proposed.
- Potential impact of the fishing gear on the marine environment with particular interest on protected habitats (i.e. seagrass bed, coralligenous habitat and maërl bed);

1.2. Objectives, safeguards and conservation/technical measures

- Objectives that are consistent with the objectives set out in Article 2 and with the relevant provisions of Articles 6 of CFP22 Regulation and quantifiable targets, such as fishing mortality rates and total biomass.
- Objectives for conservation and technical measures to be taken in order to achieve the targets set out in Article 15 of Regulation (EU) No 1380/2013, and measures designed to avoid and reduce, as far as possible, unwanted catches.
- Measures proportionate to the objectives, the targets and the expected time frame.
- Safeguards to ensure that quantifiable targets are met, as well as remedial actions, where needed, including situations where the deteriorating quality of data or non-availability places the sustainability of the main stocks of the fishery at risk.
- Other conservation measures, in particular measures to gradually eliminate discards, taking into account the best available scientific advice or to minimise the negative impact of fishing on the ecosystem.

1.3. Other aspects

- Quantifiable indicators for periodic monitoring and assessment of progress in achieving the objectives of the plan in line with Art 2 of Commission

20 Regulation (EU) 2019/1241 of the European Parliament and of the Council of 20 June 2019 on the conservation of fisheries resources and the protection of marine ecosystems through technical measures, amending Council Regulations (EC) No 1967/2006, (EC) No 1224/2009 and Regulations (EU) No 1380/2013, (EU) 2016/1139, (EU) 2018/973, (EU) 2019/472 and (EU) 2019/1022 of the European Parliament and of the Council, and repealing Council Regulations (EC) No 894/97, (EC) No 850/98, (EC) No 2549/2000, (EC) No 254/2002, (EC) No 812/2004 and (EC) No 2187/2005.

21 Council Regulation (EC) No 1967/2006 of 21 December 2006 concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea, amending Regulation (EEC) No 2847/93 and repealing Regulation (EC) No 1626/94.

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

Implementing Regulation (EU) 2018/1586 of 22 October 2018 2018/1586 or new information in the case of new gears not covered under the previous plan.

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

2.1 Derogation to the distance from the coast or depth (Article 13(3)) – Pursuant Article 13 paragraphs 3, 5 and 9):

- There are particular geographical constraints, such as the limited size of the continental shelf along the entire coastline;
- The fisheries involve a limited number of vessels and do not contain any increase in the fishing effort;
- The fisheries cannot be undertaken with another gear;
- The fisheries are subject to a management plan and carry out a monitoring of catches as requested in Article 23;
- The vessels concerned have a track record of more than 5 years;
- The fisheries do not interfere with the activities of vessels using gears other than trawls, seines or similar towed nets;
- The fisheries are regulated in order to ensure that catches of species mentioned in Annex IX of Regulation (EU) 2019/1241 with the exception of mollusc bivalves, are minimal
- The fisheries do not target cephalopods.
- The fisheries have any significant impact on the marine environment

Summary of the information provided to STECF

STECF was provided with a document, submitted in November 2021 entitled "MANAGEMENT PLAN FOR PURSE SEINE FISHING IN THE REPUBLIC OF CROATIA"

The document presents a revision and renewal of the Management Plan (MP) adopted in 2017 for five 'small' purse seines (lokardara, palamidara, ciplarica, igličara, oližnica). With the submission of the updated plan, Croatia also requests the continuation of the granted derogations from the provisions of Council Regulation (EC) 1967/2006 related to the distance from the coast and the minimum depth at which the gears palamidara, ciplarica, igličara and oližnica can operate. No derogation is asked for lokardara.

According to the information provided, the main characteristics of the five purse seines (in terms of target species, additional species considered as 'intended' catch, mesh sizes and net dimensions) are summarized in Table 6.5.1.

23 Regulation (EU) 2019/1241 of the European Parliament and of the Council of 20 June 2019 on the conservation of fisheries resources and the protection of marine ecosystems through technical measures, amending Council Regulations (EC) No 1967/2006, (EC) No 1224/2009 and Regulations (EU) No 1380/2013, (EU) 2016/1139, (EU) 2018/973, (EU) 2019/472 and (EU) 2019/1022 of the European Parliament and of the Council, and repealing Council Regulations (EC) No 894/97, (EC) No 850/98, (EC) No 2549/2000, (EC) No 254/2002, (EC) No 812/2004 and (EC) No 2187/2005.

Table 6.5.1. Main characteristics of the 'small' Croatian purse seines.

Gear	Target species	Other species considered as 'intended' catch	Minimum mesh size	Maximum permitted net length/height
Lokardara - purse seine nets for chub mackerel, horse mackerel, needlefish and 'sardine'	<i>Scomber colias</i> , <i>Scomber scombrus</i> , <i>Trachurus mediterraneus</i> , <i>Trachurus trachurus</i> , <i>Belone belone</i> , <i>Sardinella aurita</i>		20 mm	250 m / 80 m
Palamidara - purse seine nets for bonito, 'turbot', little tunny and greater amberjack	<i>Sarda sarda</i> , <i>Auxis rochei</i> , <i>Euthynnus alletteratus</i> , <i>Seriola dumerili</i>	<i>Sphyræna sphyræna</i> , <i>Pomatomus saltatrix</i> , <i>Sarpa salpa</i>	68 mm	800 m / 120 m
Ciplarica - purse seine nets for mullets, salema and saddled seabream	Mugilidae, <i>Sarpa salpa</i> , <i>Oblada melanura</i>	<i>Sarda sarda</i> , <i>Sphyræna sphyræna</i> , <i>Pomatomus saltatrix</i> , <i>Euthynnus alletteratus</i>	52 mm	600 m / 85 m
Igličara - purse seine nets for needlefish	<i>Belone belone</i>	<i>Boops boops</i> , <i>Atherina hepsetus</i> , <i>Sphyræna sphyræna</i>	20 mm	250 m / 50 m
Oližnica - purse seine nets for smelt	<i>Atherina hepsetus</i> , <i>Atherina boyeri</i>		14 mm	200 m / 50 m

STECF notes (see also below) that the MP stipulates that the catch of target and "other species considered as intended catch" must not be less than 70% of the total catch at landing.

The use of artificial light to attract fish is permitted only when fishing with oližnica and lokardara. The document states that fishing with small purse seine nets is forbidden in "national parks and nature parks".

Currently, there are 346 licences for lokardara, palamidara, ciplarica, igličara and oližnica (Table 6.5.2) but the number of vessels authorised to fish with these nets is 126, of which 52 vessels are authorized to operate under derogations from Art 13(3) (Table 6.5.2).

Table 6.5.2. Number of current licences with registered purse seine nets, and current number of authorised vessels (based on Table 1 of the MP). The number of authorised vessels has remained the same since the implementation of Regulation (EU) 2018/1585 of 22 October 2018.

Gear	Number of licenses	Current number of vessels authorised to operate under derogations	Current number of authorised vessels operating in line with Mediterranean Regulation
Lokardara	41		41
Palamidara	88	20	11
Ciplarica	126	17	19
Igličara	35	5	
Oližnica	56	10	3
Total	346	52	74

STECF notes that there is an additional Table in the MP (Table 2, p. 34) showing the numbers of licences, the numbers of authorized vessels and the respective fleet capacities) which are not coherent with the values in Table 1 of the MP. For example, the number of licences and number for authorised vessels for lokardara fishery appear to be "20" and "max. 250" in Table 2 of the MP, which does not seem correct. STECF also notes that although the total number of vessels authorized is currently 126 according to Table 1, in Tables 3 and 4 of the Chapter "Socioeconomic Impact" (pages 56-58) of the MP, the number of authorized vessels appears as 85, 91 and 91 for 2018, 2019 and 2020, respectively. STECF notes that these discrepancies should be resolved.

The information provided in the MP concerning catches and fishing effort is quite limited. For each purse seine and for the period 1st November 2018 - 1st November 2020, the following information is presented: the spatial distribution of authorised vessels along the Croatian coasts (fishing areas), the length structure and total capacity of authorised vessels (GT & KW), the number of active vessels, the total number of fishing days, the monthly number of fishing days, the total catch and catch value (landings data). Table 6.5.3 summarizes the information provided on the number of active fishing vessels, the total number of fishing days as well as the catch in terms of target, 'intended' and other species, for the period 1st November 2018 - 1st November 2020. No data are presented for 2021.

Table 6.5.3. Summarised information provided for the period 1st November 2018 - 1st November 2020.

Gear	Active authorised vessels	Total number of fishing days	Total catch (kg)	Target species	'Intended' species	Other species
Lokardara	16	790	74,707	42% (Mostly chub mackerel and sardinella)	38%	20% (anchovy and sardine 9%)
Palamidara	26	1,240	32,918	95% (Mostly bonito and greater amberjack)	3%	2%
Ciplarica	26	2,083	50,569	42% (Mostly mullets)	39% (Mostly bonito)	19%
Igličara	3	209	2,276	29%	39% (Mostly bogue)	32%
Oližnica	4	181	7,320	78%		22%

Based on Tables 6.5.2 and 6.5.3, STECF calculated that 39%, 84%, 72%, 60%, and 31% of authorised vessels were active in lokardara, palamidara, ciplarica, igličara and oližnica, respectively during 1st November 2018 - 1st November 2020. 'Intended' and unintended other species were a significant portion of the catch of lokardara (mackerel net), ciplarica (mullet net), and igličara (needlefish net). STECF notes that catch compositions of 'unintended' other species (ranging from 2% in palamidara to 32% in igličara) are not provided.

The MP contains an additional analysis of catch composition from data (presumably from onboard sampling, although that is not specified) collected in 2019 – 2020 (Table 6.5.4).

Table 6.5.4. Catch composition in terms of target and other species (2019-2020).

Gear	Number of catches analysed	Target species	Other species
Lokardara	4	100% (<i>Scomber colias</i>)	0%
Palamidara	17	100% (<i>Sarda sarda</i> , <i>Euthynnus alletteratus</i> , <i>Auxis rochei</i> , <i>Seriola dumerili</i>)	0%
Ciplarica	12	99.5% (Mugilidae, <i>Sarpa salpa</i> , <i>Oblada melanura</i>)	0.05% (<i>Diplodus annularis</i>)
Igličara	5	99.8% (<i>Belone belone</i>)	0.02%
Oližnica	3	90% (<i>Atherina</i> spp.)	10% (<i>Belone belone</i> 76%, <i>Loligo vulgaris</i> 7.5%, <i>Alloteuthis media</i> 3%, <i>Pagellus acarne</i> 2%, etc)

STECF notes that, in this case (Table 6.5.4), the catch of other 'intended' species is zero for all gears and the catch of not-target species is zero or negligible, except for of the sand smelt net oližnica (10%).

STECF notes though that the difference between catches information presented in Table 6.5.3 and 6.5.4 is confusing and should be clarified.

A socioeconomic analysis is presented in the MP based on DCF data, applying to the group of vessels authorized to fish with the 'small' purse seines in the period 2018-2020. Average length of these vessels was 10 m LoA, engine power 99 kW, tonnage 8,9 GT and average vessel age 39 years. For more than two thirds of authorized vessels, "small" purse seine nets represented their secondary fishing activity. They primarily rely on other fishing gears (fixed nets, purse seine for small pelagic fish "srdelara", demersal trawls, hooks and lines, pots, set longlines etc).

In the period 2018-2020, the fleet spent on average 2.4 thousand days at sea annually using "small" purse seines and landed on average 93.7 tonnes with a value of around EUR 225 thousand. In general, the economic performance of vessels authorized for the use of "small" purse seine nets has improved in 2020 compared to average in 2018-2019 due to

increased landing value and decreased fuel costs, although this is mostly attributed to the use of other gears, while effort and landings using “small” purse seines has declined. In 2020, the share of “small” purse seines in terms of total fishing days, total landing and total landing value for the authorized vessels was 24.8%, 1.3% and 5.2%, respectively. The number of vessels active in each of the purse seine fisheries, the corresponding fishing days, landing quantities and landing values (yearly averages for 2018-2020) are presented in Table 6.5.5 (Table 7 in the MP).

Table 6.5.5. Average number of vessels, fishing days, landing weights and landing values for vessels using “small” purse seine nets in the period 2018-2020.

Gear	No vessels	Fishing days	%	Landing weight (Kg)	%	Landing value (EUR)	%
Lokardara	18	418	18%	34,558	39%	18,812	9%
Palamidara	23	685	28%	27,480	28%	117,817	51%
Ciplarica	27	1,116	45%	26,494	28%	72,852	34%
Igličara	3	111	5%	1,752	2%	2,660	1%
Oližnica	5	106	4%	3,378	3%	12,788	5%

STECF notes that the number of active vessels in this table is not completely consistent with the information presented in other tables (e.g. table 6.5.3).

Concerning the biology of the target species, the information provided in the plan is summarized in Table 6.5.6. This mainly include length frequency distributions and length-weight relationships.

Table 6.5.6. Biological information provided in the MP. LFD: Length frequency distribution. L-W: length-weight relationship. SR: sex ratio.

Gear	Species	Number of specimens examined	Year	Biological information provided
Lokardara	<i>Scomber colias</i>	317	2020	LFD, L-W, SR
Palamidara	<i>Seriola dumerili</i>	100	2019 - 2020	LFD, L-W
	<i>Sarda sarda</i>	200	2019 - 2020	LFD, L-W, SR
	<i>Auxis rochei</i>	60	2020	LFD, L-W, SR

	<i>Euthynnus alletteratus</i>	199	2019 - 2020	LFD, L-W, SR
Ciplarica	<i>Chelon aurata</i>	43	2019 - 2020	LFD, L-W, SR
	<i>Chelon ramada</i>	151	2019 - 2020	LFD, L-W, SR
Igličara	<i>Belone belone</i>	200	2019 - 2020	LFD, L-W
Olišnica	<i>Atherina</i> spp.	300	2020	LFD, L-W

STECF comments

STECF notes that this MP has not been reviewed by STECF since spring 2017, which represents a long period compared to most other MedReg management plans for other fisheries. The main comments raised by PLEN 17-01 dealt with the absence of supporting information on the potential impact of the high nets Ciplarica and Palamidara on the posidonia seabed in the coastal zone. It was also requested to collect all available information on catch and effort data over the longest time series possible, to monitor trends and changes in the fishery.

ToR 1.1. The description of the fisheries

- *Biological characteristics and state of the exploited resources with reference in particular to long-term yields*

STECF notes that there is no information regarding the current stock status for any of the species, nor any analysis that could be used to determine the long-term yield that would be consistent with the objectives of CFP.

- *Description of the fishing pressure and measures to accomplish a sustainable exploitation of the main target stocks*

There is little detailing of the measures to accomplish a sustainable exploitation of the main target stocks.

STECF only notes that the current number of authorised vessels for using each purse seine is 126 (Table 6.5.2), while before the adoption of the MP in 2017, all vessels with a registered purse seine were authorized to fish (n=346), irrespective of depth/distance from the coast. In 2018-2020, 60% of the 126 authorized vessels were active in the "small" purse seine fisheries (n=76) and the average yearly catch using the 5 different purse seines was 93.7 t (corresponding to an average of 2400 fishing days).

It can thus be hypothesised that fishing pressure has reduced, although no information is provided on fishing effort before 2018 to support this.

The MP plans “to maintain fishing pressure at current levels which are considered to be sustainable”. STECF notes however that no information is provided that could support the statement that current fishing pressure can be considered to be sustainable.

STECF notes that a number of measures are listed in the MP (permanent cessation of fishing activities, buy-out of fishing gears, temporary cessation of fishing activities, temporal and spatial closures to protect spawners and recruits) that may be used in order to accomplish the sustainable exploitation of the stocks, but with little details on how and when these measures are implemented.

- *Data on catches (landings and discards) of the species concerned, fishing effort and abundance indices such as catch-per-unit-effort (or CPUE).*

Information provided on catches and effort is summarized in Tables 6.5.3, 6.5.4 and 6.5.5. It is limited to average 2018-2020 data, which does not allow assessing trends in the fisheries, nor comparing the fishery situation before and after the implementation of the MP. There is no information on discards. No CPUE data or other data indicative of abundance indices have been provided.

STECF also notes that the information provided and summarized in Table 6.5.3 (catch composition based on landings data for the period 1st November 2018 - 1st November 2020) and Table 6.5.4 (catch composition based on onboard samplings carried out in 2019-2020) is contradictory. In the landings (Table 6.5.3), ‘intended’ and unintended other species are a significant portion of the catch of lokardara (mackerel net), ciplarica (mullet net), and igličara (needlefish net) (58% to 71%). In the onboard samplings (Table 6.5.4), the catch of other ‘intended’ species is zero whereas the catch of other unintended species in lokardara, ciplarica and igličara is 0-0.05%. STECF notes that clarification on catch patterns and coherence between tables is requested.

Most recent information for 2021 is not provided.

- *Catch composition in terms of size distribution, with particular reference to the percentage of catches of species subject to minimum sizes in accordance with Annex IX of Regulation (EU) 2019/1241*

Information on size distribution of catches is restricted to certain target species (summarized in Table 6.5.6). STECF notes that some species of Annex IX (*Diplodus annularis* and *Pagellus acarne*) appear in small quantities in the catches of ciplarica and oližnica (Table 6.5.4) but size distributions are not provided. The mackerel purse seine (lokardara) is shown (in Figure 56 in the MP) to catch some specimens of chub mackerel <18 cm. STECF notes that the MCRS of *Scomber* spp. is 18 cm (Annex IX).

- *Information on the social and economic impact of the measures proposed.*

Some socioeconomic data are presented for the period 2018-2020, showing that the economic performance of the fleets has improved in 2020 compared to 2018-2019 (see above in the description of documents). Quantitative information on the expected economic impacts of rejecting the derogations requested in the MP is lacking, but STECF understands that "small" purse seine is usually not the primary fishing gear used by the vessels

- *Potential impact of the fishing gear on the marine environment with particular interest on protected habitats (i.e. seagrass bed, coralligenous habitat and maërl bed)*

There is only limited information on the effects on protected habitats, and no maps of *Posidonia* beds versus fishing grounds. It is stated that the net used for smelt (oližnica) "is used exclusively over shallow, muddy seabed above which the target species may be found". However, elsewhere in the report, it is stated that "... fishing with small purse seine nets is possible almost exclusively in coves with clean flat or sloping seabed ...", but without any documentation supporting this statement. It cannot thus be concluded that this condition is fulfilled.

STECF reiterates its observation in STECF PLEN-17-01 that ciplarica and palamidara have high net heights (85 and 120 m respectively, see Table 6.5.1) and could potentially affect phanerogams when operated in the shallow coastal zone. STECF considers that this previous comment has not been addressed in the new MP.

ToR 1.2. Objectives, safeguards and conservation/technical measures

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

The current exploitation status of target stocks in terms of F and biomass is unknown. Quantifiable targets and reference points are not specified for any of the target species, so this condition is not met.

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

As mentioned above, the MP stipulates that the share of sardine and anchovy must not exceed 20% of the catch, while the total share of unintended other species must not exceed 30% of the total catch at landing. STECF notes that these percentages don't seem to be exceeded. According to the information provided in the MP for the period 1st November 2018 - 1st November 2020 (see Table 6.5.3), the landing share of anchovy and sardine in lokardara fishery was 9%, while the share of unintended other species was 20% in lokardara, 2% in palamidara, 19% in ciplarica, 32% in igličara and 22% in oližnica.

According to the information provided from the onboard samplings in 2019-2020, the share of unintended other species was 0% in lokardara, 0% in palamidara, 0.05% in ciplarica, 0.02% in igličara and 10% in oližnica (see Table 6.5.4). STECF notes again that the information summarized in Tables 6.5.3 and 6.5.4 present different pictures for the bycatch quantities of the purse seine nets. It is also unclear whether unintended species are discarded or retained.

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

No objectives, targets and expected time frame are provided in the form of e.g. reference points and harvest control rules, and no information is provided on specific measures proportionate to this.

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

The MP stipulates that "In cases where the monitoring data indicate the need, the following additional measures may be implemented:

- Reduction of fishing effort through buy-off of fishing gears, permanent cessation and, based on scientific advice, temporal cessation
- Expansion of the spatial limitations (prohibition of fishing in certain subzones, individual fishing grounds, in some locations, etc.) and revision of fishing seasons."

STECF notes that no detailed information is provided in how and when these measures would be implemented, neither regarding what monitoring data and related thresholds would be considered as "indicating the needs".

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

Specific spatial and/or temporal closures are only determined for the purse seines targeting mullets (ciplarica) and sand smelt (oližnica): Fishing with ciplarica is allowed from 31 December to 31 October. Fishing with the purse seine "oližnica" can be conducted in the period from 16 August to 14 May, in Istria (west of Cape Crna punta and south of Cape Lako) and in the Novigrad Sea and the fishing area of subzone F2 in the same period.

The MP contains measures to control and monitor the purse seine fishing, catch and trade, including the obligation of data submission to the competent authority, obligatory landing in designated ports and submission of data on the first sale. It is stated that all authorised vessels, regardless of vessel length, must be equipped with VMS or alternatively GPRS sensors and E-logbooks or alternatively 'M-logbook', but no spatial information has been provided in the plan.

ToR 1.3. Other aspects

- *Quantifiable indicators for periodic monitoring and assessment of progress in achieving the objectives of the plan in line with Art 2 of Commission Implementing Regulation (EU) 2018/1586 of 22 October or new information in the case of new gears not covered under the previous plan.*

It is stated that "As part the Data Collection Programme, the Plan and measurable indicators for periodic monitoring and evaluation of progress in achieving the goals of the Plan shall be monitored in a scientific manner." STECF notes that such measurable indicators and their associated reference points have not yet been defined.

ToR 2.1. Derogation to the distance from the coast or depth (Article 13(3)) – Pursuant Article 13 paragraphs 3, 5 and 9)

STECF assessment of fulfilment of conditions set by MEDREG are presented in the following table.

Condition set by the MEDREG	Palamidara	Ciplarica	Igličara	Oližnica
There are particular geographical constraints, such as the limited size of the continental shelf along the entire coastline	The MP states that the species targeted by this gear can only be effectively caught seasonally when fish schools approach the coast. Given that no other information is presented, STECF is unable to evaluate this statement.	The MP states that the mugilids & <i>Oblada melanura</i> targeted by this gear are mainly distributed in the coastal zone prohibited by the MEDREG. STECF acknowledges that these species are indeed distributed near the coast.	The MP states that the needlefish can be effectively caught in spring and autumn when fish gather into schools in the vicinity of the coast. Given that no other information is presented, STECF is unable to evaluate this statement.	The MP states that the sand smelt is present over shallow, muddy bottoms. STECF notes that the species lives near the shore but considers it unlikely that this species would occur only above muddy bottoms.
The fisheries involve a limited	The MP states that the number of	The MP states that the number	-All authorized vessels operate under	-The number of vessels authorized to operate under derogations

Condition set by the MEDREG	Palamidara	Ciplarica	Igličara	Oližnica
number of vessels and do not contain any increase in the fishing effort	<p>vessels authorized to operate under derogations (n=20) will not increase in the future.</p> <p>-For the vessels authorised to fish in line with the provisions of MEDREG (outside 300m, or 50m depth) it is planned to maintain the number stable with only minor adjustments (based on historical activity).</p> <p>STECF notes that it is unclear what "minor adjustments" means, and whether this could imply an increase in fishing effort</p>	<p>of vessels authorized to operate under derogations (n=17) will not increase in the future.</p> <p>-For the vessels authorised to fish in line with the provisions of MEDREG (outside 300m, or 50m depth) it is planned to maintain the number stable with only minor adjustments (based on historical activity).</p> <p>STECF notes that it is unclear what "minor adjustments" means, and whether this can imply an increase in fishing effort</p>	<p>derogations (n=5). The MP states that this number will not increase in the future.</p>	<p>(n=10) will not increase in the future.</p> <p>-For the vessels authorised to fish in line with the provisions of MEDREG (outside 300m, or 50m depth) it is planned to maintain the number stable with only minor adjustments (based on historical activity).</p> <p>STECF notes that is unclear what "minor adjustments" means, and whether this can imply an increase in fishing effort</p>
The fisheries cannot be undertaken with another gear	STECF understands that there are no other fisheries in Croatia targeting the same species. The target	STECF understands that there are no other fisheries in Croatia targeting the same species. The target	STECF understands that the target species can also be caught by the needlefish boat seine (also called "igličara").	STECF understands that the target species can also be caught by the sand smelt boat seine (also called "oližnica").

Condition set by the MEDREG	Palamidara	Ciplarica	Igličara	Oližnica
	species can be by-catch of other purse seines.	species can be by-catch of static nets.		
The fisheries are subject to a management plan and carry out a monitoring of catches as requested in Article 23	Yes. The plan includes biological sampling as well as monitoring of fishing, catch and trade.	Yes. The plan includes biological sampling as well as monitoring of fishing, catch and trade.	Yes. The plan includes biological sampling as well as monitoring of fishing, catch and trade.	Yes. The plan includes biological sampling as well as monitoring of fishing, catch and trade.
The vessels concerned have a track record of more than 5 years	Yes. Same vessels as in the 2017 MP.	Yes. Same vessels as in the 2017 MP.	Yes. Same vessels as in the 2017 MP.	Yes. Same vessels as in the 2017 MP.
The fisheries do not interfere with the activities of vessels using gears other than trawls, seines or similar towed nets	The MP states that <i>"given the fact that fishing with purse seine nets is in practice performed only locally when fish appears ..., this type of fishing is not a direct competitor to other fishing gears (mainly gillnets, traps and angling gears) since it targets different species and in different fishing conditions"</i> .	The MP states that <i>"given the fact that fishing with purse seine nets is in practice performed only locally when fish appears ..., this type of fishing is not a direct competitor to other fishing gears (mainly gillnets, traps and angling gears) since it targets different species and in different"</i>	The MP states that <i>"given the fact that fishing with purse seine nets is in practice performed only locally when fish appears ..., this type of fishing is not a direct competitor to other fishing gears (mainly gillnets, traps and angling gears) since it targets different species and in different fishing conditions"</i> . Given that there is no other information presented, STECF is unable to assess the	The MP states that <i>"given the fact that fishing with purse seine nets is in practice performed only locally when fish appears or it is attracted by light, this type of fishing is not a direct competitor to other fishing gears (mainly gillnets, traps and angling gears) since it targets different species and in different fishing conditions"</i> . Given that there is no other information presented, STECF is unable to assess the validity of this statement.

Condition set by the MEDREG	Palamidara	Ciplarica	Igličara	Oližnica
	Given that there is no other information presented, STECF is unable to assess the validity of this statement.	<i>fishing conditions</i> ". Given that there is no other information presented, STECF is unable to assess the validity of this statement.	validity of this statement.	
The fisheries are regulated in order to ensure that catches of species mentioned in Annex IX of Regulation (EU) 2019/1241 with the exception of mollusc bivalves, are minimal	According to the information provided to STECF PLEN 22-01 (Table 6.5.4), as well as PLEN 17-01, catches of species mentioned in Annex IX are negligible	According to the information provided to STECF PLEN 22-01 (Table 6.5.4), as well as to PLEN 17-01, catches of species mentioned in Annex IX are minimal	According to the information provided to STECF PLEN 22-01 (Table 6.5.4), as well as to PLEN 17-01, catches of species mentioned in Annex IX are negligible	According to the information provided to STECF PLEN 22-01 (Table 6.5.4), as well as to PLEN 17-01, catches of species mentioned in Annex IX are minimal
The fisheries do not target cephalopods	According to the information provided to STECF PLEN 22-01, as well as to PLEN 17-01, the catch of cephalopods is zero	According to the information provided to STECF PLEN 22-01, as well as to PLEN 17-01, the catch of cephalopods is negligible	According to the information provided to STECF PLEN 22-01, as well as to PLEN 16-03, the catch of cephalopods is negligible	According to the limited information presented, the catch of cephalopods is <1.5% (see also STECF PLEN 16-03)
The fisheries have any significant impact on	- This purse seine has a high net height (120 m) and could	-This purse seine has a high net height (85 m) and could	-Effects on protected habitats are most likely low due to low	-Effects on protected habitats are most likely low due to the species habitat (muddy bottoms), low number

Condition set by the MEDREG	Palamidara	Ciplarica	Igličara	Oližnica
the marine environment	<p>potentially affect phanerogams. The plan does not state specifically that fishing does not take place over phanerogam beds.</p> <p>- According to the information presented, the fishery is very selective (0-2% bycatch) and the large mesh size (68 mm) results in low catches of undersized fish (see STECF PLEN 17-01)</p>	<p>potentially affect phanerogams.</p> <p>-The plan does not state specifically that fishing does not take place over phanerogam beds.</p> <p>-According to the information presented, the bycatch is 0.05-19% and the large mesh size (52 mm) results in low catches of undersized fish (see STECF PLEN 17-01)</p>	<p>number of vessels involved in the fishery and small height of the net.</p> <p>- According to the information presented, the bycatch is 0.02-32%. The fishery does not seem very selective.</p>	<p>of vessels involved in the fishery and small height of the net.</p> <p>- According to the information presented, the bycatch is 10-22%. The fishery does not seem very selective.</p>

STECF conclusions

STECF concludes that while several of the requirements for granting the derogations on the minimum distance and depths are fulfilled, a number of conditions specified in the MedReg are not met. Management objectives, and proportionate management measures in relation to them are poorly defined.

STECF acknowledges the monitoring catch and effort data collected since the implementation of plan, but highlighted some unclarities and inconsistencies across tables, that would need to be clarified. STECF concludes that the catches and fishing effort data provided do not allow assessing fisheries trends over years, nor the effects of the implementation of the MP since 2018 in comparison to the situation prevailing before.

As such, while there are indications that the number of active vessels has substantially reduced compared to the period before the implementation of the plan in 2017, STECF cannot assess whether the current fishing pressure can be considered sustainable.

STECF concludes that its previous conclusion from PLEN 17-01 was not addressed and reiterates that supporting information shall be provided regarding the potential impact and distribution of the purse seines fisheries on sensitive habitats such as *Posidonia* beds, especially for the gears using high nets in the shallow coastal waters.

6.6 Evaluation of Joint Recommendation on a derogation from MCRS for Venus Clams in certain Italian waters

Background provided by the Commission

The landing obligation is compulsory, as from 1 January 2017, for the species that define the fisheries (other than small pelagics) and that are subject to a minimum conservation reference size (MCRS) according to Annex IX of the Technical Measure Regulation adopted in July 2019²⁴. The fisheries targeting the mollusc bivalve Venus clams (*Venus gallina* – as originally described – or *Chamelea gallina*) are therefore subject to this provision.

Between 2019 and 2020 Italy submitted to the European Commission a proposal of a three-year discard plan for the fisheries targeting Venus clams by hydraulic dredges in the certain Italian waters. Following STECF advice a high survivability derogation was granted for 3 years and a 3 year derogation to MCRS. With the latter derogation expiring on 31st December 2022, the IT administration is submitting a new Joint Recommendation to support the derogation from the MCRS of 25mm for Venus shells in the waters of the following GSAs: 9-10-11 and 17-18.

After the entry into force of the new Technical Measures Regulation (Regulation (EU) 2019/1241)²⁵ Member States have the possibility to develop joint recommendations that can be used to amend certain regional baseline selectivity standards through the Commission empowerment to adopt delegated Acts on the basis of these joint recommendations. This permits the tailoring of detailed and technical rules so as to take into account regional specificities. The alternative measures should, as a minimum, lead to such benefits for the conservation of marine biological resources that are at least equivalent to the ones provided by the baseline standards. As such, the joint recommendation shall not lead to a deterioration of baseline standards and also aim at achieving the objectives and targets set out in Articles 3 and 4 of Regulation (EU) 2019/1241.

The new Joint Recommendation is supported by a study which evaluates the possible effects of re-defining the MCRS.

Background documents are published on the meeting's web site on: <https://stecf.jrc.ec.europa.eu/plen2101>.

Request to the STECF

²⁴ <http://data.europa.eu/eli/reg/2019/1241/2021-07-16>

STECF is requested to review and make any appropriate comments and recommendations on the joint recommendation for the fisheries targeting Venus clams in the certain IT territorial waters of the GSAs 9-10-11 and 17-18 and its supporting study.

In particular, STECF is requested to:

- Assess the potential past and future impacts on the stock of the proposed change in the MCRS for Venus clams from 25 mm to 22 mm on exploitation rates and stock biomass.

In making this evaluation, STECF is asked to take into account the works of the STECF-EWG 15-14, 16-0625, 19-01, 19-02, PLEN 20-01, and of the European Parliament²⁶.

Summary of the information provided to STECF

STECF was provided with comprehensive documentation to inform its review, consisting of the main document describing the Joint Recommendation accompanied of 8 annexes:

1. *Joint Recommendation - Derogation to Minimum Conservation Reference Size for the mollusc bivalve Venus spp. (Chamelea gallina) in the Italian territorial waters for 2023-2025.*

This document sets out the case for extending the derogation for the Minimum Conservation Reference Size (MCRS) for the mollusc bivalve Venus spp. (*Chamelea gallina*) applying in Italian territorial waters to the Italian fleet. This is in the form of a new Joint Recommendation (JR) under Article 15 of Regulation (EU) No. 2019/1241. Currently, the minimum conservation reference size for Venus clams caught in Italian territorial waters is set at 22 mm. This is a derogation from the legal minimum conservation reference size of 25 mm as established in Annex IX of the regulation (EC) No. 2019/1241. This derogation will be in force until December 31st, 2022 in line with art. 1 of Regulation (EU) n. 2020/2237 that modified art. 5 of Regulation (EU) n. 2020/3.

The JR describes the rationale behind the request for extending the derogation until 31 December 2025. It recalls that the studies in support of the previous Joint Recommendation, which showed high survivability and selectivity on this species, were considered acceptable and Italy was allowed to continue applying the MCRS at 22 mm instead of 25 mm until December 31st, 2022 (in line with art. 1 of Regulation (EU) n. 2020/2237). Now, in order to renew this derogation to MCRS, following art. 15 (3) of the Technical Measures Regulation (Reg. (EU) n. 2019/1241), Italy is proposing a new joint recommendation, based on the results of new ad hoc studies that were carried out in recent years to further demonstrate that the current derogation to the MCRS of *Chamelea gallina* doesn't cause any detrimental impact to the ecosystem and to the stocks.

²⁵ https://stecf.jrc.ec.europa.eu/reports/discards/-/asset_publisher/b1zP/document/id/1450181?inheritRedirect=false

²⁶ Scarcella G. & Cabanelas A.M. (2016) Research for PECH Committee - The clam fisheries sector in the EU - The Adriatic Sea case. Directorate-General for Internal Policies, Policy Department B: Structural and Cohesion Policies, Fisheries, 60 pp. doi:10.2861/401646.

The JR defines the Geographical scope and fisheries covered (GFCM Geographical Sub-Areas 9, 10, 17,18) and the Management measures in force in the current National Discard plan.

The rationale to obtain the Derogation from Minimum Conservation Reference Size (MCRS) states that:

- A reduction of a minimum conservation reference size from 25 mm to 22 mm is not incompatible with the length at maturity, so it should not have a significant impact on the protection of the juvenile organisms. It is predicted to lead to only a small reduction of the reproductive potential of the stock, which is not considered to have any important negative impact on the sustainability of the stock.
- The current Discard Plan for clams produces positive economic benefits. The reduction of daily fishing hours reduces fuel costs, and meanwhile it helps better manage the rotation of fishing areas. If the derogation would not be granted anymore there would be a heavy economic impact on the sector.
- It finally claims that a refusal to maintain the MCRS at 22 mm will automatically lead to the return to the operating conditions as implemented before 2017, i.e.: -
Maximum quota 600 Kg/day (instead of the currently applied 400 kg/day)
// 5 days / week of exercise (instead of the currently applied 4 days / week) //
Higher costs for companies // Increase in dredged areas by fishing vessels.

In relation to Selectivity, the JR recalls that the funds of the Ministry for agricultural food and forestry policies (MIPAAF) have supported studies to improve the selective performance of the gear as whole: the cage, where the first selection of the product occurs, and the vibrating sieve, where most of the selection occur. The results are summarized in Annex_E.

The JR concludes that:

- the reduction of the MCRS to 22 mm, produces some benefits to dredging fishery.
- The selectivity of the dredge clearly showed that the gear is highly selective respect to the smallest (still not at a maturity size) individuals.
- The survey trials show that the discard percentages (*of undersized clams*) are very low to almost null.
- The Italian production system articulated through the Management Consortiums is able to:
 - Protect the nursery areas;
 - Protect and enhance the areas of the breeding pools (within 0.3 nm from coast),
 - Reactivate the fishing grounds also through restocking operations
 - Reactivate the fishing grounds affected by coastal defense and beach nourishment work.

Finally, the JR indicates that the Italian Management Consortia for clam fishery are planning to create a single legal entity, in accordance with EU regulations, able to manage and stabilize the clam markets, as well as a qualitative improvement of the product, combining the development and profitability with both reducing the environmental impact and increasing sustainability.

2. Annex A Explanatory Memorandum

This document provides the list of annexes and recalls the major actions undertaken since the implementation of the Discard Plan, such as

- Reduction in the overall fishing effort at its level in 2011 by limiting the number of fishing days to 4 days per week, per vessel. It is compulsory to suspend fishing activities in each consortium for two months a year. Italy also reduced the volume of the daily catch limitation applicable to each vessel from 600 kg to 400 kg.
- Setting up measures aiming at increasing the survivability of the Venus spp. stock by designating restocking areas
- Scientific data collection: Italy introduced a system of continuous scientific monitoring of the stocks of clams in each compartment of the Adriatic Sea
- Technical measures: Italy has financed pilot projects with the aim of increasing the selectivity of the screening equipment for Venus clam fisheries
- Control and monitoring of the Venus spp with a Vessel Monitoring System (VMS). Landings are carried out at designated landing sites, for inspection purposes in coordination with the European Fisheries Control Agency (EFCA).
- With respect to market measures, Italy introduced a system of certification by consortia and producer organizations. Landed specimens comply with the MCRS.
- Ad hoc studies on survivability of damaged and undamaged clams, on the biology of the species (reproduction, growth, fecundity, maturity), and on the impact of dredging

3. Annex B: Evaluation of the redefinition of the Minimum Conservation Reference Size of the striped venus clam (Chamelea gallina) caught in the Italian waters. REPORT OF THE ACTIVITY CARRIED OUT AFTER THE ENTRY INTO FORCE OF THE COMMISSION DELEGATED REGULATION 2016/2376 (2017-2021)

This document contains a summary of all the relevant elements affecting the management of fisheries employing dredges affected by the discard plan for Venus shells (Venus spp.) in certain Italian territorial waters. It describes the legislative framework, the fishery and the factors affecting it (environmental, anthropogenic,...), the state of implementation of the discard plan (the monitor system to record vessel position at sea, the certification system to confirm product compliance with MCRS, restocking), and the studies on biology, survivability, selectivity, the monitoring system by regional surveys, the impacts on the benthos, the studies on discards and on restocking areas (case studies). Therefore, Annex B gives a summary of all the detailed studies included in the following annexes (annex C-H on Biology, Survivability, Selectivity, Economic impact, Impact and Mortality events respectively). STECF has summarized here below all the relevant issues for the evaluation of the JR for Derogation to Minimum Conservation Reference Size for the mollusc bivalve Venus spp. (*Chamelea gallina*).

- *Main elements on the fishery performance and economics (in Annexes B and F)*

The evolution of the fleet in the last decades is summarised. The number of hydraulic dredges targeting striped Venus clam in the Adriatic Sea since 2012 was fixed at 597 boats, except for the last two years which dropped to 590 boats. Total catches and revenues since 2018 have been around 20 000 t and around 50 millions € respectively, similar to those in 2011-12 but above the average observed in period 2013-2017. So in recent years there has been some increase. In 2020 the Italian striped venus clam fishery sector landed about 20,4 kt of product equal to 15.7% by weight of all the Italian fishery production. In economic terms, revenues of approximately 46.5 million euros represented 7.2% of the total revenue at the national level. Moreover, the Venus clam sector represented 98.8% by weight and 91.3% in revenues of the whole hydraulic dredge sector.

Part of the increase in revenues in recent years is shown (for a case study in the central Adriatic sea) to be related to the reduction in fuel consumption by the fleet, which is attributed to the reduction of the fishing time required to get the daily quota per vessels. In Annex F it is shown for three districts of the Mid-Adriatic Sea case study that between 2018 – 2021 the contribution to catches of the clams between 24 and 22 mm TL ranged between 80% and 12%, with a decreasing tendency, indicating that coming back to a MCRS of 25 mm would have implied a significant economic loss in some of these years.

Effort, landings and nominal LPUE estimated as annual landing divided by total number of fishing days were presented by regions and were in general stable around 0.4 t/d (which is the daily quota per boat). It is admitted that estimating effort in terms of fishing hours would result in a more reliable LPUE. It is stated that this will be remedied in the coming years with the collection of data about daily fishing hours becoming mandatory in the framework of Management Plans. Decreasing trends of nominal LPUE was seen in Ancona, but it was claimed that if proper effort as time fishing would have been accounted for then LPUE would have increased in the period. A decreasing trend in LPUE was seen in Venetia as well, attributed to the weather events that occurred in 2018 and 2019. Here as well it is shown that if fishing hours per day would have been taken into account, then catch per hour would have been increasing between 2016 to 2018 (Annex B).

Reduction of fishing areas by regions as a result of the entry into force of the new limits to fishing from the coast (0.3 nm), within which fishing activities with hydraulic dredges is prohibited (Reg. EC 1967/2006) were quantified. The impact differs in the various management consortia but is always significant (in total about 52% reduction) and it is mentioned that this affects the fleets economic profitability.

Other factors affecting the resource and the fisheries are reported as environmental factors (water quality, river outputs...), mass mortality events (as those in October 2018 and November 2019, which the Veneto Region associated to sea storms and bad weather, Sirocco winds etc), or Man-made infrastructure and beach replenishments.

- *Summary studies of the biology of Venus Clam (in Annexes B and C)*

A review of the available literature (Table 11) together with new biological studies carried out in the last three years (and published in International scientific journals) are summarized:

For growth: The analysis of the length-at-age data in mid-western Adriatic Sea (Bargione et al. 2020) revealed that on average the 1st year of life for *C. gallina* specimens is reached at about 15 mm TL, indicating that clam size increases by about 1 mm/month during the first year of life, whereas at the 2nd year of life -reached at about 21 mm - the growth rate was already more than halved. In the Adriatic the estimated length at 1 year was very similar with all techniques, whereas differences emerged from the second year. The study of Mancuso et al. 2019 reported that the 2nd year of life is reached between 22-25 mm. In the past, 2-year-old clams have been reported to have a mean length of about 25 mm TL (the previous MCRS), whereas in this study it was just under 22 mm (the current MCRS), reflecting a reduction in shell growth rate over time that has already been reported by Biondi & Del Piero (2012) in the Gulf of Trieste.

Annex B states that as clam takes 2 years to reach the size of 22 mm, clams of 22 mm or slightly less, once released back into the sea, will reach the size of 25 mm in about 4-5 months.

On Reproductive studies: A new study on the reproductive biology of Venus clam is summarized (Bargione et al. 2021). The reproductive peak for the species would appear between the months of May and July; this period is followed by a resting stage until October. Sexual maturity is reached within the first year of life (ca. 11.0 mm for females

and 11.5 mm for males), while all the individuals are sexually mature above 15 mm. Partial fecundity of Venus clam is positively related to shell size and clams of 22 mm have a batch fecundity capable to release $\sim 1.4 \times 10^5$ oocytes/female, while 25 mm clams (ex-MCRS) produce higher amount of oocytes but in the same order of magnitude (2.3×10^5 oocytes/female). Annex B also states that, multiple spawning events occur within the same reproductive season.

Therefore, a size of 22 mm is larger than the size at maturity (TL50 = 11-12 mm) and is able to produce a large number of oocytes, which would guarantee the sustainable exploitation of the resource, provided that appropriate fisheries management is carried out by the consortia concerned.

Genetics: striped venus clam individuals sampled at five different localities in the Adriatic Sea, spanning over 600 km, are all part of a largely panmictic population, with high larval dispersal. Annex B states that the high genetic diversity recorded together with the existence of a unique population in the Adriatic Sea confers to this species a higher responsiveness to local environmental perturbations (e.g., overfishing, pollution, and mortality due to microbiological infections and represents a fundamental counterforce against local population size decline, thereby increasing the ability of population persistence.

- *Summary studies of the fishery selectivity (in Annexes B and E)*

A study on the selectivity of the dredge, preliminary reported in 2020, was completed (Petetta et al. 2021). Sea trials were conducted on-board a commercial fishing vessel in the coastal waters of the northern-central Adriatic Sea, on a vessel using traditional dredge mouth of 280 cm and with 11.5 +/- 0.6 mm bar spacing. The study demonstrated that 25% of the clams entering the dredge were not size selected by it. Clams with a length (i.e. maximum distance between anterior and posterior margins) of 18.9 mm had 50% retention probability and tow duration did not affect the size selection process in the dredge. The dredge catch efficiency was 79% in numbers of clams and 89% in weight. A 58% of the clams caught were below the original MCRS of 25 mm. Clogging effects existed though they did not change with haul time. L50c was 19.91 mm (18.58-21.19). The study demonstrates that to land only the legal sizes of clams, the additional size selection process carried out on board the fishing vessels by the sorting sieves is necessary.

The selectivity of mechanical vibrating sieves on board had already been study by Sala et al. (2017). The study showed a significant effect of grid hole diameter on both length of 50 % retention (L50) and selection range (SR). The sieve could not achieve knife-edge selection, in which the sieve retains all the clams not smaller than the minimum landing size (MLS) (at that time of 25 mm -- EC Regulation 1967/2006). However, it was noted that grids with a hole diameter > 21 mm demonstrated a satisfactory selection ability, with very low values of the SR and almost knife-edge logistic curves (with L50 at 24.29 mm). In addition, the selection properties of the first two grids, which have holes measuring > 21 mm, seem to be suitable for the (previous) 25 mm MLS, because their Selection Factors (SF) range from 1.15 to 1.16.

Several discards studies on the commercial fishery have been carried since the Discard Plan entered into force, to assess the effectiveness of the selection process and to verify that the product complied with the minimum conservation reference size (MCRS \geq 22 mm). Comparison of samples taken before the selection process, directly from the collecting box where all the catch is tipped immediately after the haul, with samples from the commercial fraction, after the selection process with the vibrating sieves occurred were presented for the districts from the Marche Region. The length-frequency distributions of the clams sampled directly from the collection box (unsorted catch) demonstrated a wide range of sizes, with a considerable quantity of undersized specimens (< 22 mm). In terms of weight

this undersized fraction of the catch represents from 1.9% to a maximum of more 75% per haul, with average value of $29.4 \pm 0.22\%$. However after the sorting process, the number of specimens < 22 mm was negligible and sometimes null ($< 1\%$). The undersized fraction had a weight ranging from 0% to 5% with an average value of $1.27 \pm 0.01\%$. Furthermore, the commercial catch (after sorting) was mainly made up of clams of 24-25 cm (modal classes). The results obtained from the monitoring activities demonstrate that, as a consequence of the sorting operations on board with a legal sieve, the quantities of clams currently retained are not sufficient to allow practical seeding operations for restocking purposes. Over 95% of undersized clams (< 22 mm) are immediately returned to sea following the selection process.

Several pilot projects to increase the selectivity of the gear (sieve and cage) have been funded by the Italian Ministry for Food, Agriculture, Fisheries Policies (MiPAAF), using European Maritime and Fisheries Fund (EMFF) and are detailed in Annex E). Some of them were successful in reducing the amount of undersize clams retained by the pilot dredges compared to the traditional gear and in catches fewer vagile organisms, as in the Abruzzo case study or smaller abundances of benthic species as in the Veneto case studies. Further examples and details are in Annex E.

- *Summary studies of the discarded clam survivability (in Annexes B and D)*

Since the smaller specimens that pass through the sieve are returned to the sea through a waste exhaust pipe, discarded clams undergo considerable physical stress (Morello et al., 2005a) and the mechanical stress has the potential to reduce their survivability (Moschino et al., 2008).

In the studies carried out after the entry to force of the Commission Delegated Regulation (EU) 2020/3 of 28 August 2019 (presented before to STECF and now published by Bargione et al. 2021), *C. gallina* specimens of different size classes that had undergone hydraulic dredging and mechanized sorting were analysed for reburial ability in a laboratory tank and for survivability in the laboratory (135 clams, 21 days) and at sea (320 clams, 15 days). All the specimens considered were undamaged. In the tank experiments, the reburial times (T50 and T90) and the upper (+) and lower (-) confidence intervals (CIs) of the whole sample were about 4 h (CI+ 4.4, CI- 3.6) and 8 h (CI+ 8.2, CI- 7.7), respectively, and were significantly shorter for the medium-sized clams (22-24.9 mm) than for the smallest (< 21.9 mm) and the largest (> 25 mm) specimens. For the field survivability experiments, clams under and above the minimum conservation reference size (MCRS) were placed in separate metal cages. Survival rates were 94.8% and 96.2% respectively in the laboratory and at sea, without significant differences between the two experiments or among size classes. These findings conclusively demonstrate that *C. gallina* specimens returned to the sea have a very high survival probability.

A new additional study was carried out in October 2020 to assess the survivability of the discarded damaged clams. The experiment lasted 21 days and was conducted at sea into metal cages. The results showed a moderate-high survival probability of damaged individuals (77.5%) which only represented 15.5% of the all discarded fraction. Therefore, the total survivability remains high, with an overall indirect post-fishing mortality of discarded clams estimated at only 4.5% of the total catch.

- *Stock trends Annex B, Long term perspectives in two regions.*

The current studies annexed to the JR report on surveys over different regions along the Italy Adriatic coast since 2017, and on long term trends in clam densities for Veneto region between 2003 and 2020 (not all years) and for Cavallino-Chioggia between 2005 and 2020,

are coming from the analysis carried out for MSC certification. In addition, some long term perspective from surveys is also provided for the region Marche region since 1984.

In the Veneto region, the abundance decline of all sizes in 2018 continued until 2019 and 2020 (see figures 14 and 15 of Annex B to the Joint Recommendation; background documents are published on the meeting's web site on: <https://stecf.jrc.ec.europa.eu/plen2101>). For Cavallino-Chioggia a rather similar pattern is observed (see figures 14 and 15 of Annex B to the Joint Recommendation; background documents are published on the meeting's web site on: <https://stecf.jrc.ec.europa.eu/plen2101>). These recent low biomass densities are similar to those observed in the period 2009-2011. Harvest rates in the Veneto area (estimated as the ratio of catches (t) over estimated amounts of *C. gallina* on an annual basis over the suitable areas, determined by the monitoring activities), shows that on average the amounts gathered are just over 40% of clams larger than 20 mm, with several exceptions in years with natural phenomena of massive deaths occurring, in which this ratio is above 52% (2009 and 2018, 2019). A high harvest rate is also reported for 2020. In the report the most recent decreases of the density levels in these regions were considered to be attributable to these weather events inducing massive deaths of clams.

In addition, some long term perspective from surveys is provided for the region Marche region since 1984, whereby the recent estimates of biomass from the recent surveys result in biomass values comparable to those observed in the '80s (between 5000 and 15000 tons; Table 6.6.1). Furthermore, harvest rates in 2018 and 2019 are similar to those inferred in the late nineties in this region. From this information no recent deterioration on the status of the clams population in this Marche region are perceived to occur.

Table 6.6.1 (taken from Table 18 in Annex B): Table 1. Striped venus clam biomass (tons) at sea estimated by surveys over the period 1984-2020 in the Ancona, Civitanova Marche and San Benedetto del Tronto districts. Both biomass of commercial individuals with total length greater than 22mm and greater than 25mm are shown. Data prior to 2017 for Ancona and Civitanova Marche districts is pulled together.

Years	TL ≥ 22mm			TL ≥ 25mm		
	Ancona	Civitanova M	S Benedetto	Ancona	Civitanova M	S Benedetto
1984	-	-	-	4427		5902
1985	-	-	-	8255		7483
1986	-	-	-	3918		1303
1987	-	-	-	3788		2076
1988	-	-	-	-		-
1989	-	-	-	-		-
1990	-	-	-	-		-
1991	-	-	-	475		639
1992	-	-	-	1103		1689
1993	-	-	-	1069		1445
1994	-	-	-	1936		309
1995	-	-	-	5775		1036
1996	-	-	-	5706		2726
1997	-	-	-	3944		1194
1998	-	-	-	3456		1798
1999	-	-	-	8924		2582

2000	-	-	-	8736	2343
2001	-	-	-	4444	670
2002	-	-	-	-	-
2003	-	-	-	-	-
2004	-	-	-	-	-
2005	-	-	-	-	-
2006	-	-	-	-	-
2007	-	-	-	-	-
2008	-	-	-	-	-
2009	-	-	-	-	-
2010	-	-	-	-	-
2011	-	-	-	-	-
2012	-	-	-	4869.3	7451.1
2013	-	-	-	-	-
2014	-	-	-	-	-
2015	-	-	-	-	-
2016	-	-	-	-	-
2017	1643	723	2670	668.9	1017.77
2018	2503.49	2815.63	3982.85	2988.8	2106.79
2019	5587.45	2389.7	10636.7	4241.0	7584.18
2020	6541.36	1520.3	3157.8	4391.3	2373.91

- *Stock trends: Four years of surveys after Discard Plan (Annex B).*

After the entry into force of the European Regulation 2016/2376, and in the framework of the European Data Collection Framework, several surveys at sea were performed all along the Italian Adriatic coasts, where the bulk of the striped venus clam dredgers are present. The surveys followed a common standardized sampling protocol to compare catch data (abundance, biomass, size frequency distributions) among all the operating units involved in the sampling (Various Authors, 2018). Among others, one of the standards adopted by the operating units is the use of a sampling net mounted inside the dredge that can collect the whole clam population; this sampler was made of a stainless-steel frame (40 cm X 20 cm X 1 cm) mounted on the dredge mouth and a netting bag with a mesh size of 12 mm to collect all the individuals present in the area. In this way ordinary dredge samples can be compared with the Net sampler. For the purposes of the research, the commercial sieve with hydraulic movement on board was modified. The various metal grids used during commercial fishing operations were replaced by a single 19 mm grid. Sampling took place with fishing operations on equidistant transects and perpendicular to the coast, with stations at 0.25, 0.50, 0.75 and 1 nautical miles from the coast and, where necessary, even further.

The results obtained from the surveys conducted between 2017 and 2020 highlights a general good status of the resource in most of the Adriatic compartments. Overall, commercial biomass increased or remained unchanged in 9 out of 13 compartments monitored between 2017 and 2020 (in 2020, on average, 3.6 times higher than in 2017).

Similarly, the biomass of individuals over 25 mm in size were found to be increasing or constant in 10 of the 13 compartments monitored (in 2020, on average, 4.4 times higher than in 2017). The remaining compartments (Venice, Chioggia, Ravenna and Termoli) showed a steady decline in biomass. In particular, for these compartments a reduction in biomass of about 62% was observed compared to the values observed in 2017 with the strongest decrease (-90%) observed in the Chioggia compartment.

In the Compartments (Rimini, Pesaro, Ancona, Civitanova Marche, San Benedetto del Tronto, Pescara and Ortona) the resource (commercial biomass, g m⁻²) was found in good state between 2017 and 2020.

6 Districts show mean biomass of commercial individuals (TL \geq) below 5 g m⁻² (which is the reference point to trigger reactive management). Chioggia and Venice, biomass from commercial products has progressively decreased to half from 2019, reaching values well below the reference point for the fishing ban (\leq 5 g m⁻²). Currently, these Districts seem to have imposed as a maximum allowed one day of fishing per week. The Ravenna Compartment was also in distress in all the years monitored with values about the level of attention in 2017-2018, and around 5 g m⁻² from 2019 onwards. Termoli District, throughout the four-year period, has shown biomass values of commercial products less than 5 g m⁻². A similar situation was also observed for the Consortium of Manfredonia, in fact in this area fishing is no longer practiced and the Consortium has been dismissed and no longer recognized since 2020 (DG PEMAC 5479 of 06/03/2020). An ambiguous situation was instead observed for the Consortium of Barletta in which although the biomass values are high, the area affected by such biomass was found to be small and comprised within a 2.5 km radius from Barletta seaport. Consequently, even the Barletta compartment currently does not enjoy a good state of health of the clam resource and fishing activity should be prohibited.

Annex B concludes that these results ultimately indicate that the current MCRS of 22 mm had no evident direct negative effect on *C. gallina* stocks. Where stock have decline, possible explanation includes strong environmental perturbation due to extreme weather events (Vaia storm and abnormal high tides in Veneto region in 2018 and 2019) and anthropogenic alteration of the natural environment (alteration of river mouths in Puglia, beach replenishment along the majority of sandy beaches). However, the current management of the resource implemented by the individual Consortia represents an element of primary importance on which continued attention should be paid to ensure the conservation of the resource and the continuity of its fishing activity.

Moreover, the surveys suggest that *C. gallina* densities and biomass is negatively correlated to the distance from the coast (Figure 26 of Annex B). This pattern indicates that the area comprised within 0.3 nm from the coast hosts an important fraction of the population in the majority of the districts and years. This fraction of the population likely sustains and provides new individuals to nearby harvested areas preventing the collapse of the population. Annex B concludes that given the importance of these areas, fishing activities must not be resumed and should not be allowed in order to preserve this fraction of the population.

- *Impact assessment on the benthos community (Annex B and G)*

Several case studies on the monitoring of impacts on the benthos were presented in Annex G.

Case study 1. A preliminary study on the razor and venus clams hydraulic dredging was carried out in the northern Adriatic Sea. This is descriptive study on the macro-benthic communities. the main faunal groups are molluscs followed by crustaceans and others. Accessory fauna harvested by dredges is strictly typical of shallow coastal environments.

Case study 2. An analysis of the benthic communities (biocenoses) of the fishing grounds exploited by dredges in the Northern Adriatic Sea, comparing a no-fishing area in front of Lido di Venezia with the fishery areas along Veneto Region. This was already reported to PLEN 20-01. No major impact can be seen. The average of data collected from all 42 samples doesn't evidence any critical point. The *C. gallina* ratio is over 90% and only the non-commercial species group reach a value higher than 5%, but not on a single species basis but on the sum of all these species. There was only one sample collected along the coast of Lido di Venezia in November 2018 where the presence of species of a commercial nature represented more than 5%

Case study 3. A survey in 2018 was conducted along the coast of the Marche Region to evaluate the status of the resource *C. gallina*. In total, 91 taxa were observed in 366 samples, whose probability of observation (O) and abundance (P) were recorded. The results confirmed what was previously observed (Scaccini 1967; Vatova, 1949) indicating a strong presence of *C. gallina* with a probability of observation equal to 98%. The most common and abundant species included *Owenia fusiformis*, *Spisula subtruncata*, *Corbula gibba*, *Diogenes pugilator*, *Nassarius mutabilis*, *Cyclope neritea*, *Tellina nitida*, *Schizaster canaliferus*, *Echinocardium cordatum* and *Anadara demiri*. This show that the macrozoobenthic community has not changed significantly compared to studies carried out before the hydraulic dredge's activity (Scaccini 1967; Vatova, 1949) and that the area was and still is characterised by a *Chamelea gallina* facies, typical of the fine, well-grained sands of Pérès and Picard (1964)

Case study 4. Study of the megabenthic fauna living associated with *C. gallina* in the summer season, and to estimate damage and mortality on discarded non-target species by mean an ad hoc damage scale: Field work was carried out in June 2021 off the mid-western Adriatic Sea in Porto San Giorgio. A total of 9 hauls were conducted onboard a commercial hydraulic dredge at 0.3 nm off the coast at a depth ranging between 4-5 m. The damage caused to all caught individuals of non-commercial species was assessed using a four level damage scale: D0 – intact, D1 – slightly damaged, D2 – moderately damaged, D3 – severely damaged. Mortality rate was calculated assuming damage classes D2 and D3 expecting to die. Within the discarded non-commercial species, a total of 8 faunal groups and 21 species have been identified: bivalves (8 species), gastropods (3 species), crabs (2 species), hermit crabs, sea urchins, sea stars, ribbon worms. Discard was dominated by crabs (45.7% and 54.8% of total abundance and biomass, respectively), bivalves (30.6% and 24.1%) and sea urchins (16.0% and 17.2%). Overall, mortality rate was 22.9% of all the discarded individuals. The sea urchin *E. cordatum* was extremely sensitive to dredging with a mortality rate of 95.4%, whereas bivalves and *L. vernalis* showed a mortality rate of 14.2% and 6.2%, respectively. Among the lower abundant discarded species, the sea star *A. irregularis* had a mortality rate of 9.9%.

In this study the fraction of non-target species rejected to the sea (discard) was extremely low in both abundance (1.3%) and biomass (3.2%) indicating that the area was principally dominated by the target species forming a "facies à *C. gallina*" (Pérès and Picard, 1964). Actually an extremely large fraction of discards were "undersized" striped venus clam individuals (86.9% and 74.3% in abundance and biomass, respectively). The faunal composition documented here is quite similar to those observed in discards in other Mediterranean and closed by-areas (Morello et al., 2005; Anjos et al., 2018; Urrea et al., 2021a), although the total number of species detected was much lower indicating an important difference in species richness potentially related to several potential factors (seasonality, abiotic, fishing intensity, etc.). Crabs were the most represented faunal group in terms of abundance and biomass, while mollusks were the most diversified one in agreement with what observed by the previous authors. Including also the target species within discard, it's composition was dominated by the presence of undersized target individuals and mainly by benthic species with large dimensions and morphological features that prevented their passage through the rods of the gear, such as larger bivalves, crabs

and heart urchins, although representatives of a number of small-bodied species were also retained as the dredge fills up (Petetta et al., 2021). Overall, a large fraction of the total non-target species discarded was damaged (40%) of which more than half suffered the higher damage levels (3.7% intermediate and 19.2% severe damage, respectively). Similar estimates of the damaged discarded total fraction (about 40 %) were found for the smooth clam fishery by (Baeta et al., 2021b)

In the Mediterranean Sea clam dredging fisheries frequently occurs on shallow coastal area, which are high-energy habitats, and benthic communities seem to be well-adapted to short and medium-term perturbations showing a high level of resilience (Tuck et al., 2000; Constantino et al., 2009; Ragnarsson et al., 2015; Vasapollo et al., 2020). However, it is also expected that fragile, near surface dwelling and larger species are more impacted by fishing activity. The study found that soft-bodied or soft-shelled species (i.e. *E. cordatum*, *I. nucleus*, *M. stultorum*, *P. aureus*) were the most sensitive to clams dredging as widely reported by other authors (eg. Hall-Spencer and Moore, 2000; Urra et al., 2017, 2021b)

Annex B concludes: Hydraulic dredges have a physical impact on the seabed. However, it should be noted that communities living in low-depth and high-energy environments are already naturally subjected to strong environmental stress and disturbance (large wave movements, strong currents etc.), and they demonstrate high resilience. The coastal areas exploited by the Venus clam fishery are managed by applying a rotation of fishing grounds, which means that the same area is exploited once every 4-6 months, or even less, depending on the abundance of the resource. Fishing operation are forbidden at the District level for at least 2 months/year, but the number of months has reached up to 9 in some instances (also applied by means of Orders issued by the local Port Authorities). These resting periods allows macro-benthic community to recover over a 3-6 months period as indicated by Pranovi and Giovanardi (1994) and Vasapollo et al. (2020), or over about 2 months for areas with predominantly sandy characteristics used for commercial fishing (Pranovi et al., 1998). According to Goldberg et al., 2012, in a specific assessment of the effects of the hydraulic dredger used to harvest *Mercenaria mercenaria* in Connecticut, it appears that the ecological effects on benthic communities after the action of hydraulic dredgers are comparable to those which intervene after natural disturbances. Studies carried out on the benthic communities of the exploited areas compared with studies carried out before the hydraulic dredge's activity (Scaccini 1967; Vatova, 1949) show that the macrozoobenthic community has not changed significantly and that the area was and still is characterised by a *Chamelea gallina* facies, typical of the fine, well-sorted sands of Pérès and Picard (1964).

STECF comments

STECF notes that information in support of the Joint Recommendation for the Derogation to the Minimum conservation reference size of Venus clam is comprehensive and systematically addresses all the key elements of the Management of these hydraulic dredge fisheries, the Discard Plan, and the redefinition of the MCRS, including a summary by regions of the surveys carried out since the implementation of the Discard Plan in 2017.

STECF was asked to comment on the Joint recommendation and supporting study. Below follows the STECF comments on the key elements summarized in Annex B with special emphasis on the capability to assess the potential past and future impacts on the stock of the proposed change in the MCRS for Venus clams (from 25 mm to 22 mm) on exploitation rates and stock biomass. First a summary of the previous evaluations made by STECF on this subject is provided.

Summary of previous evaluations by STECF

STECF 16-06 evaluated a proposal submitted by Italy for a three-year discard plan for the fisheries targeting Venus clams by hydraulic dredges in the Northern Adriatic Sea. Based on the STECF advice, Delegated Regulation (EU) 2016/2376 of 13th October 2016, established a discard plan for mollusc bivalve Venus spp., in the Italian territorial waters. This plan derogated from the minimum conservation reference size of *Chamelea gallina* established in Annex III to Regulation (EC) No 1967/2006, with a MCRS of 22mm instead of 25mm. This discard plan had a lifespan of three years from 1 January 2017 and expired on 31 December 2019.

In 2019 Italy submitted a proposal for a further three-year discard plan that aimed to extend the derogation for the reduced MCRS of 22mm and also included a high survivability exemption to allow discarding of Venus clams below 22mm. STECF PLEN 19-01 and 19-02 evaluated this proposal and the supporting information supplied. Although both evaluations concluded that the past and predicted future impacts of the proposed change in the MCRS on exploitation rates and stock biomass could not be fully assessed with the information provided, STECF 19-02 concluded nevertheless that the request for a continuation of the reduction in MCRS of Venus clam (*Chamelea gallina*) from 25 mm to 22 mm until 31 December 2022 seemed reasonable from a biological perspective. STECF PLEN 19-02 also concluded that the revised JR submitted attempted to respond to the observations made by STECF PLEN 19-01 on the weaknesses in the original survivability studies. Based on the STECF 19-02 advice, the high survivability exemption was granted for 3 years up until 31 December 2022 and the derogation to the MCRS was granted for 1 year until 31 December 2020 pending further supporting information being submitted by the Italian administration (Delegated Regulation (EU) 2020/3).

In 2020 the Italian administration submitted a new Joint Recommendation supported by a study which evaluated the possible effects of re-defining the MCRS. STECF PLEN 20-01 evaluated the recommendation and concluded that the documentation on exploitation rates or stock biomass trends for Venus clams in Italian waters only related to the Veneto region. Little information on exploitation rates or stock biomass was provided for the main fishing grounds (Marche region). Given the paucity of such information, STECF was therefore unable to fully assess the potential past and future impacts of the proposed change in the MCRS for Venus clams from 25 mm to 22 mm on exploitation rates and stock biomass. On the basis of the information provided, STECF could not disentangle the impact of the change of MCRS alone from the impact of the entire management plan and accompanying measures. In general, reducing the MCRS is unlikely to ensure the protection of juveniles as required by Article 18 of Regulation (EU) No 2019/1241. However, given that the size at first maturity of Venus clams is below 22 mm, a reduction in MCRS to 22 mm is likely to have little effect on the exploitation rate on juveniles.

STECF PLEN 20-01 noted that the status of the stocks seems to have been stable or improving in those areas for which sufficient information is available (Veneto). STECF could not assess whether this was related to the implementation of the management plan, or to natural fluctuations in populations. STECF concluded however that the management plan includes provisions which are likely more effective for the management of the exploitation rates on Venus clam populations than the conditions prevailing before 2017.

Finally STECF PLEN 20-01 noted that the statement that if the derogation on the MCRS from 25 mm to 22 mm were not granted higher effort and quota will result, was not evidenced or supported. Incidentally, STECF noted that the reference used for estimating maturity at 15-17 mm was already ancient (Polenta, 1993) and considered that it would be beneficial to perform updated maturity analyses to verify whether these estimates were still valid. STECF considered that the methodology used to generate the survival estimates was robust.

Progresses regarding the preliminary studies that had been examined by STECF PLEN 20-01 in support of the 2020 JR

STECF notes that within the European Data Collection Framework, several surveys at sea were performed along the Italian Adriatic coast, where the bulk of the striped venus clam dredgers are present, thus expanding the information on stock trends to other areas than Veneto region, as recommended by PLEN 20-01. In particular, new data have been provided for the important Marche region (see comments below).

New evidences of the benefits of current MCRS derogation for the economic performance of the fleet are being presented in the Economic impact report (Annex F), although not jointly addressed in the report.

- There it is shown for three districts of the Mid-Adriatic Sea that between 2018 – 2021 that the contribution to catches of the clams between 24 and 22 mm TL (so below the old MCRS of 25 mm) ranged between 80% and 12%, i.e., were substantial, indicating that coming back to a MCRS of 25 mm would have implied a significant economic loss. Similarly, the monitoring surveys carried out since 2017 (Annex B) they all show for all regions that after the sieving process on board there is substantial amount of clams between 22 and 24.9 mm (ranging between 10 and 80% depending on years and/or regions). This again proves that a large fraction of catches depends on the additional sizes retained thanks to the reduction of the MCRS from 25 to 22 mm. Actually, these results on the size composition of retained catches are in agreement with the expectations from the Sala et al. 2017 study on the selectivity of the clam fishery after the sieving process on board given grid holes of 21.1 mm.
- A second indirect evidence comes as well from Annex F were for the case study of the central Adriatic region the fuel costs (€/day) are shown to have reduced in 2017-2019 in comparison with the previous years. This attributed mainly to the reduction of fishing time per day as a result of the reduction on the daily quotas. Actually the reduction in this region went from about 4.0 h/day, before 2017, to about 2.5 h/day, since the entry into force of Discard Plan in 2017

STECF acknowledges that this gives support to the Annex B statement in conclusions that “The portion of clams between 22 and 25 mm represents a wide commercial portion, with modal classes at 23-24 mm. In the same period and with the same fishing effort a MCRS of 25 mm would have led to commercial losses of around 34%. This means that a possible return to the 25 mm size would imply a considerable increase in fishing effort (intended as more time spent by vessels to achieve the daily quota) to guarantee an acceptable level of revenue”.

STECF notes that new studies on the biology (growth, reproduction and genetics) are presented and published, updating the knowledge from former studies on Venus clam for the Adriatic and elsewhere, as requested by STECF 20-01.

STECF notes that the studies on selectivity of the dredge have been completed and published. And several new pilot studies to improve selectivity of the fishery are being supported and tested.

STECF notes that the study on survivability, already endorsed by STECF, has been published and it has expanded with a new additional study (carried out October 2020) to assess survivability on discarded damaged clams.

This all demonstrates a major step forward since PLEN 20-01 to improve the knowledge on this fishery.

Comments on the cumulative evidence provided in 2022 on the impact on juveniles by the current fishing practices including the derogation of MCRS to 22 mm.

Bringing together all the scientific information described above, STECF notes that :

- According to the evidence provided on reproductive biology, sexual maturity is reached around 11-11.5 mm, while all the individuals are sexually mature above 15 mm (Bargione et al. 2021), well below the current MCRS at 22 mm. According to the growth studies (Bargione et al. 2020), this means that maturity is reached at the end of its first year of life, while at the age 2, with a length around 22 mm, they all are fully mature. These studies are in agreement with literature although some discrepancies appear on the mean length at age 2 for which some authors and earlier studies pointed out to be reached at a slightly larger size (for instance in the range 22-25 mm --- Mancuso et al. 2019).
- According to the studies on the selectivity of hydraulic dredge fishery and the studies on discards, the undersized fraction of the retained catch represents a fraction in weight ranging from 0% to 5%, with an average value of $1.27 \pm 0.01\%$. This means that clams under 22 mm are generally not retained for landing, but directly released to sea if pumped on board from the dredge after the sieving through a waste exhaust pipe. In terms of weight the undersized fraction of the catch pumped on board represents from 1.9% to a maximum of more than 75%, with average value of $29.4 \pm 0.22\%$. Therefore over 95% of undersized clams (< 22 mm) caught are immediately returned to sea following the on board selection process. Most of this discarded undersized clams are usually well above 15 mm (see example in Annex B), with rare few exceptions when a strong pulse of recruitment occurs in the fishing area. This is in agreement with the selection of the dredges (Petetta et al. 2021) which reports a L50a of 18.9 and a retention of about 0.25 or less to clams below 15 mm.
- According to the survivability analysis most of the released undersized clams will survive (about 96%) (Bargione et al. 2021), even if some of them are partly damaged (Annex E). STECF notes that survival rates estimated around 95.0% are in line with other estimates provided in the studies by Brooks et al., 1991; Moschino and Marin, 2006; Morello et al., 2006; ISPRA, 2012.

In summary STECF considers that there is sufficient scientific research and fishery monitoring showing that catches are made on the adult population and that discarded undersized clams are in a large majority adults which will survive after burying in the sea sandy bottoms. STECF agrees also that fisheries which have an L50 well above the TL at 50% maturity are expected to be precautionary as to prevent stock collapses and to minimize the impacts of fishing (Myers and Mertz 1998; Froese et al. 2016).

STECF considers thus that the immature fraction of the Venus clam population is globally unaffected by this fishery. STECF , and that the supporting documentation has provided sufficient evidence to support the objective set out in Article 18 of Regulation (EU) No. 2019/1241, which states that changes to MCRS, in this case reducing MCRS from 25 mm to 22 mm, is still consistent with the objective of ensuring the protection of juveniles.

The current study on partial (batch) fecundity revealed that 25 mm clams (ex-MCRS) produce higher amount of oocytes (about 60% higher in average) but in the same order of magnitude than the 22 mm clams (Bargione et al. 2021). Certainly the current derogation of the MCRS would imply therefore some reduction of the spawning capacity of the population. However, the impact and sustainability of such reduction has to be

considered through the impacts on the stock trends according to the harvest rates, as discussed below.

Comments on the new evidence provided in 2021 regarding the effect of MCRS on the on exploitation rates and stock biomass

STECF PLEN 20-01 had earlier highlighted that the documentation on historical exploitation rates or stock biomass trends for Venus clams in Italian waters provided to STECF only related to the Veneto region, and that STECF was therefore unable to fully assess the potential past and future impacts of the proposed change in the MCRS.

In 2022, the current studies annexed to the JR, report on surveys over different regions along the Italy Adriatic coast since 2017, and update the long terms perspectives on clam densities for Veneto region and Cavallino-Chioggia until 2020, coming from the analysis carried out for MSC certification. In addition, new long term perspective was provided for the region Marche region from surveys since 1984.

Looking at these long historical time series, STECF notes that , in the Northern regions a decrease in biomass is currently observed, shown to be similar to low levels recorded in the past. In the report this recent decrease is considered to be attributable to extreme weather events inducing massive death of clams with parallel increase in harvest rates (table 14 Annex B). In the Marche region information no major tendency in biomass or harvest rate is observed, whereby the recent estimates of biomass result in biomass values comparable to those observed in the '80s (between 5000 and 15000 tons; Table 6.6.1). Furthermore, harvest rates in 2018 and 2019 are similar to those inferred in the late nineties in this region (Figure 22 Annex B). From this information no recent deterioration on the status of the clams population in this Marche region are perceived to happen.

STECF notes though that information on the sources of the old series of surveys (or abundance indices) and their quality are not provided in the supplementary information and therefore STECF cannot assess the reliability of the long time series. As the historical perspectives are relevant for the assessment of the trends on these clams resources, future reports should provide details on the historical data sources and assess their robustness.

Regarding the short-term recent perspectives (2017-2020) provided by surveys, STECF notes that commercial biomass has increased or remained unchanged in 9 out of 13 compartments monitored between 2017 and 2020. The regions where the resource (commercial biomass, g.m⁻²) was found in good state were those in the Central Adriatic coast from the Rimini to Ortona, where the main fishery takes place, accounting for 76% of catches approximately. In addition surveys showed (from the Net sampler) that small individuals (TL < 22 mm) are the largest fraction of the populations (in numbers) in most regions, as expected for populations having regular recruitments.

On the other hand, 6 Districts show mean biomass of commercial individuals (TL \geq) below 5 g m⁻² (which is the reference point to trigger reactive management). Where the stocks are in poor state or have declined several different explanations are put forward in Annex B. In the Northern area, a decrease in biomass is currently observed, shown to be similar to low levels recorded in the past. The decrease recorded in commercial clam sizes in Chioggia and Venice are hypothesized to be due to the anomalous weather events (Vaia storm and abnormal high tides in Veneto region in 2018 and 2019) leading to massive death. In Rabena region the resource was distress in all the years monitored. In the South, anthropogenic alteration of the natural environment (alteration of river mouths in Puglia, beach replenishment along the majority of sandy beaches) are also considered to have played a role on the status of the resource.

STECF notes thus that no unique pattern can be inferred from the current situation of stocks across the entire region. There are signs of healthy status in the main fisheries in the central region and some apparent stability of the resource in the Marche region (for the limited comparisons in the long term available). For the regions with poor or decreasing stock status STECF cannot assess whether this was related to the implementation of the management plan, or to natural fluctuations in populations, since relative high harvest rates are observed in parallel to these decreases in abundances (as for instance in the Northern region).

STECF notes nevertheless that in these places where the resource is in poor state reactive management measures are reported to have been undertaken to protect the resources according to the management plan (as for instance reducing the number of fishing days per week). Therefore STECF reiterates its previous opinion that the management plan includes provisions which are likely more effective for the management of the exploitation rates on Venus clam populations than the conditions prevailing before 2017.

No information on long term exploitation rates or stock biomass trends are provided for other fishing grounds, preventing comparing trends prior and after implementation of the change in the MCRS. STECF therefore encourages the recovery of survey information from earlier years for other regions, where available, to progress with providing historical perspectives on the recent development of the clam resource.

Furthermore, STECF notes that the monitoring of the resource through surveys are of great utility to understand the dynamics of the resources (length structure) and to anticipate failures and recoveries, and should be continued to facilitate future assessments. For instance, in Manfredonia and Barletta Districts, Net samples showed an important decline in the number of juveniles, which suggests that the densities of the commercial fraction will probably drop the next years.

Regarding the monitoring of effort and CPUE, STECF agrees with the JR considerations that a better measurement of effort would be given by the summation over the fishing days in a selected periods of the numbers of fishing boats per day times the fishing hours at sea per day. A measurement feasible to be obtained in the coming years with the collection of data about daily fishing hours mandatory in the framework of Management Plans.

Regarding the request to STECF to assess the potential past *and future* impacts on the stock of the proposed change in the MCRS for Venus clams from 25 mm to 22 mm on exploitation rates and stock biomass, STECF underlines though that all the information presented only allows monitoring and managing the fishery on an adaptive manner, reacting to observed changes in biomass. This thus allows assessing the potential past impacts on the stock of the combined effect of the MCRS change and of the management plan implemented, but does not allow the evaluation of future impacts of the plan and of the MCRS change.

STECF considers that the great amount of knowledge now available on growth, maturity, spawning potential and selectivity would allow more advanced population modelling and scenarios analysis that could help estimate target reference points for management in terms of biomass densities and harvest rates, using the length distribution from surveys and catches as inputs. A modelling approach could also help evaluate the relative effect of the MCRS change itself separately from the remaining drivers of population dynamics (the management plan and the environmental factors).

Impacts of the dredging fishing activities on the benthos community

STECF commends the summary of research activities recently promoted and presented on the impact of the dredge fishery on the benthos over different regions along the Adriatic coast (in Annex G). Certainly the damage of benthic organisms can occur during the towing of the dredge on the seabed or during the sieving and discarding processes (Veale et al., 2001). Therefore, studies as the ones presented to analyse the composition of discard in order to propose new strategies to minimize their impact, to compare the benthos composition diversity between preserved and fishing areas to assess the degree of impacts fishing causes and studies on survivability of damaged benthos organisms, are key to understand the actual impact of fishing.

STECF notes that the fraction of non-target species rejected to the sea (discard) is very low, because the study areas were mainly dominated by the target species Venus clam. The largest fraction of discards were “undersized” striped venus clam (86.9% and 74.3% in abundance and biomass, respectively). Case study 2 shows that in general no bycaught species exceed 5% of the catch. Case study 3 shows for the Marche region that the macrozoobenthic community has not changed significantly compared to studies carried out before the hydraulic dredge’s activity. And case study 4 in the mid Adriatic coast, shows that overall, mortality rate was 22.9% of all the discarded individuals (not including the target species). It has been shown that fragile, near surface dwelling and larger species are more impacted by fishing activity. In general soft-bodied or soft-shelled species were the most sensitive to clams dredging. STECF notes that as the clam dredging fisheries frequently occurs on shallow costal area, which are high-energy habitats, the benthic communities seem to be well-adapted to short and medium-term perturbations showing a high level of resilience (Tuck et al., 2000; Constantino et al., 2009; Ragnarsson et al., 2015; Vasapollo et al., 2020).

Article 3 (2) of Regulation (EU) No. 2019/1241, states that Technical measures shall in particular contribute to achieving the objective of minimizing negative environmental impacts of fishing on marine habitats (e). The former studies seem to show that the impacts on the habitats are not major and current benthos community can be compared with those recorded in previous decades, though impacts can be severe for some soft-bodied or soft-shelled species being caught by the dredge. STECF therefore endorses the regular monitoring of benthos community to assess their evolution in terms of diversity and species composition. Furthermore as fishing takes place on communities living in low-depth and high-energy environments, they are already naturally subjected to strong environmental stress and disturbance (large wave movements, strong currents etc.), and these communities can have high resilience. In this context the management of venus clam fishery by applying a rotation of fishing grounds, once every 4-6 months, or even less, depending on the abundance of the resource, as currently implemented, may play a key role in preserving and allowing restoration of benthos community.

Given that restocking activities are becoming irrelevant due to the small amount of undersized clams landed at the at designated landing sites, STECF acknowledges that a key element for the regeneration of fishing grounds is the rotation across different grounds of fishing over the longest period as possible. STECF considers that population modelling may also be helpful to estimate minimum elapsed times for repeating fishing activities over the same fishing grounds as a useful quantitative management objective for preserving fishing grounds and regeneration of target and non-target resources, based on the growth studies and regeneration rates of impacted benthos after fishing activities.

In the context of minimizing damages to the benthos communities STECF endorses the continuation of pilot studies on improving the selectivity and reducing the amount of by catch of other benthic species and their damaged, which are shown to be promising (as reported for several case studies in Annex E).

Other considerations

STECF notes that the supporting documentation states that if the derogation on the MCRS from 25 mm to 22 mm is not granted, higher effort and quota will result. STECF observes that the increase in effort can be expected to happen, as reasoned above, but it is unclear why and how managers would increase quotas in the frame of the plan. STECF understands that the derogation to reduce MCRS to 22mm is the main incentive for fishermen to comply with the plan, since this allows them to increase revenue while reducing discards and fishing effort. Nevertheless, the extent to which such reduced compliance and effort increase would be truly realized if the derogation is not granted is unknown.

STECF conclusions

STECF commends the comprehensive amount information presented in support of the Join Recommendation for the Derogation to the Minimum conservation reference size of Venus clam. This systematically addressing all the key elements of the Management of these hydraulic dredge fisheries. Most of the suggestions made by STECF PLEN 20-01 have been followed and expanded.

On these key elements, STECF concludes the following:

On the assessment of stock trends and harvest rates:

STECF concludes that information from the regional surveys carried out since 2017, as well as the extended time series for some regions, show various biomass status and trends for the different areas, which might be partly due to natural fluctuations and partly due to the management plan and to the new MCRS at 22 mm for which extension is required.

For the 4 (out of 13) regions with poor or decreasing stock status, STECF cannot conclude whether this is related to the implementation of the management plan, or to natural fluctuations in populations due to environmental phenomena. STECF re-iterates its previous conclusion that the management plan includes measures, which are likely more effective for the management of the exploitation rates on Venus clam populations than the conditions prevailing before 2017.

STECF concludes though, that the elements provided do not allow STECF to assess the future impacts of the proposed change in the MCRS for Venus clams from 25 mm to 22 mm on exploitation rates and stock biomass. STECF concludes that population modelling integrating all the valuable new knowledge presented would be needed to evaluate future impacts and to disentangle the relative effect of the MCRS from the other effects of the plan and of environmental factors.

STECF also concludes that long time series of abundance indices are useful and encourages to, where possible, collate data prior to 2017 in regions where this data is still lacking.

On the impact on juveniles of the JR for changing the MCRS

STECF considers the comprehensive scientific research on growth, maturity and reproduction, discard survivability and fishery monitoring is sufficient to conclude that Venus clams catches are made up of adults and that discarded undersized clams are primarily adults which will survive after re-burying in the seabed. Therefore, STECF concludes that the immature fraction of the Venus clam population is globally unaffected by this fishery with the current derogation of the MCRS, and that reducing MCRS from 25 mm to 22 mm, is still consistent with the objective of ensuring the protection of juveniles, as required by Article 18 of Regulation (EU) No 2019/1241

On the impact of the fishery and the new MCRS on the bottom

Regarding the compliance with Article 3 (2e) of Regulation (EU) No. 2019/1241, requiring the specific technical measures to achieve the objective of minimizing negative environmental impacts of fishing on marine habitats, STECF concludes that the studies reported seem to show that the impacts on the habitats are not major or irreversible as current benthos communities can be compared with those recorded in previous decades ago. However, STECF highlights those impacts can be severe for some soft-bodied or soft-shelled species being caught by the dredges used in the fisheries. Therefore, STECF therefore endorses the regular monitoring of benthos communities to assess their evolution in terms of diversity and species composition.

STECF acknowledges that the rotation of fishing grounds, once every 4-6 months, as currently implemented for the management of the Venus clam fishery, may be a key element in preserving and allowing restoration of benthos communities. STECF concludes that integrated modeling based on the new knowledge collected may help better quantify minimum elapse time for rotation of fishing activities over the same fishing grounds for each region, based on growth and benthic community regeneration rates.

On the economic impact on the effects of rejecting the JR for changing the MCRS

STECF acknowledges that the dependency of the catches from the fleets involved catches on Venus clam between 22 and 25 mm is substantial, and that reverting to the old MCRS of 25 mm would have a negative impact on the economic performance of the fishery, and probably on the amount of realized effort (in terms fishing hours per day) and discards.

On future research

STECF endorses the continuation of pilot studies on improving the selectivity and reducing the amount of by catch of other benthic species and damage to such species. These studies have provided promising results (as reported for several case studies in Annex E).

STECF agrees with the JR considerations that a better measurement of effort based on the number hours fishing should be set up for the monitoring of the fishery.

STECF concludes that the great amount of knowledge available on growth, maturity, spawning potential and selectivity would allow more advanced population modelling and scenarios analysis to support the management plan.

References

- Anjos, M., Pereira, F., Vasconcelos, P., Joaquim, S., Matias, D., Erzini, K., & Gaspar, M. (2018). Bycatch and discard survival rate in a small-scale bivalve dredge fishery along the Algarve coast (southern Portugal). *Scientia Marina*, 82(S1), 75-90.
- Baeta, M., Rubio, C., & Breton, F. (2021). Impact of mechanized clam dredging on the discarded megabenthic fauna on the Catalan coast (NW Mediterranean). *Journal of the Marine Biological Association of the United Kingdom*, 101(3), 545-553.
- Bargione, G., Vasapollo, C., Donato, F., Virgili, M., Petetta, A., & Lucchetti, A. (2020). Age and growth of striped Venus Clam *Chamelea gallina* (Linnaeus, 1758) in the Mid-Western Adriatic Sea: a comparison of three laboratory techniques. *Frontiers in Marine Science*, 807. doi: 10.3389/fmars.2020.582703

- Bargione, G., Petetta, A., Vasapollo, C., Virgili, M., and Lucchetti, A. (2021). Reburial potential and survivability of the striped venus clam (*Chamelea gallina*) in hydraulic dredge fisheries. *Sci. Rep.* 11, 1–9.
- Bargione, G., Donato, F., Barone, G., Virgili, M., Penna, P., & Lucchetti, A. (2021). *Chamelea gallina* reproductive biology and Minimum Conservation Reference Size: implications for fishery management in the Adriatic Sea. *BMC Zoology*, 6(1), 1–16.
- Biondi, S., and Del Piero, D. (2012). Survey on *Chamelea gallina* beds in the Lignano area (Gulf of Trieste, Adriatic Sea). in *Annales: Series Historia Naturalis* (Scientific and Research Center of the Republic of Slovenia), 35.
- Brooks, SPJ., De Zwaan, A., Van den Thillart, G., Cattani, O., Cortesi, P., Storey, KB., 1991. Differential survival of Venus gallina and Scapharca inaequalis during anoxic stress: covalent modification of phosphofructokinase and glycogen phosphorylase during anoxia. *Journal of Comparative Physiology B*, 161 (2), 207–212.
- Constantino, R., Gaspar, M. B., Tata-Regala, J., Carvalho, S., Curdia, J., Drago, T., et al. (2009). Clam dredging effects and subsequent recovery of benthic communities at different depth ranges. *Mar. Environ. Res.* 67, 89–99
- Froese, R., Winker, H., Gascuel, D., Sumaila, U. R., & Pauly, D. (2016). Minimizing the impact of fishing. *Fish and fisheries*, 17(3), 785–802.
- Gaspar, M. B., Pereira, A. M., Vasconcelos, P., and Monteiro, C. C. (2004). Age and growth of *Chamelea gallina* from the Algarve coast (Southern Portugal): influence of seawater temperature and gametogenic cycle on growth rate. *J. Molluscan Stud.* 70, 371–377. doi:10.1093/mollus/70.4.371.
- Hall-Spencer, J. M., and Moore, P. G. (2000). Scallop dredging has profound, long-term impacts on maerl habitats. *ICES J. Mar. Sci.* 57, 1407–1415
- Goldberg, R., Rose, J. M., Mercaldo-Allen, R., Meseck, S. L., Clark, P., Kuropat, C., & Pereira, J. J. (2014). Effects of hydraulic dredging on the benthic ecology and sediment chemistry on a cultivated bed of the Northern quahog, *Mercenaria mercenaria*. *Aquaculture*, 428, 150–157.
- ISPRA, 2012. Piano di monitoraggio ambientale (fase di esercizio) del Terminale GNL di Porto Viro e della condotta di collegamento alla terraferma.
- Myers, R. A., & Mertz, G. (1998). The limits of exploitation: a precautionary approach. *Ecological applications*, 8(sp1), S165–S169.
- Mancuso, A., Stagioni, M., Prada, F., Scarponi, D., Piccinetti, C., and Goffredo, S. (2019). Environmental influence on calcification of the bivalve *Chamelea gallina* along a latitudinal gradient in the Adriatic Sea. *Sci. Rep.* 9, 1–11.
- Morello, E.B., Frogli, C., Atkinson, R.J.A., Moore, P.G., 2005(a). Impacts of hydraulic dredging on a macrobenthic community of the Adriatic Sea, Italy. *Can. J. Fish. Aquat. Sci.* 2087, 2076–2087. <https://doi.org/10.1139/F05-122>
- Morello, EB., Frogli, C., Atkinson, RJA., Moore, PG., 2006. The effects of hydraulic dredging on the reburial of several molluscan species. *Biologia Marina Mediterranea*, 13 (1), 610–613.
- Moschino, V., Marin, MG., 2006. Seasonal changes in physiological responses and evaluation of “well-being” in the Venus clam *Chamelea gallina* from the Northern Adriatic Sea. *Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology*, 145 (4), 433–440. DOI: <https://doi.org/10.1016/j.cbpa.2006.07.021>.

- Moschino, V., Chícharo, L., & Marin, M. G. (2008). Effects of hydraulic dredging on the physiological responses of the target species *Chamelea gallina* (Mollusca: Bivalvia): laboratory experiments and field surveys. *Scientia Marina*, 72(3), 493-501.
- Polenta, R. (1993). Growth observations on the striped venus clam *Chamelea gallina* in the Middle Adriatic Sea
- Petetta, A., Herrmann, B., Virgili, M., Bargione, G., Vasapollo, C., & Lucchetti, A. (2021). Dredge selectivity in a Mediterranean striped venus clam (*Chamelea gallina*) fishery. *Fisheries Research*, 238, 105895.
- Pérès, J. M., and Picard, J. (1964). New manual for benthic bionomics in the Mediterranean Sea. *Trav. la Stn. Maritime Endoume* 31, 137
- Polenta, R., 1993. Osservazioni sull'accrescimento della vongola *Chamelea gallina* L. Nel Medio adriatico. Tesi di Laurea in Scienze Biologiche. Università degli studi di Bologna.
- Pranovi, F., Raicevich, S., Franceschini, G., Torricelli, P., and Giovanardi, O. (2001). Discard analysis and damage to non-target species in the "rapido" trawl fishery. *Mar. Biol.* 139, 863-875.
- Ragnarsson, S. Á., Thorarinsdóttir, G. G., and Gunnarsson, K. (2015). Short and long-term effects of hydraulic dredging on benthic communities and ocean quahog (*Arctica islandica*) populations. *Mar. Environ. Res.* 109, 113-123.
- Sala, A., Brcic, J., Herrmann, B., Lucchetti, A., Virgili, M., 2017. Assessment of size selectivity in hydraulic clam dredge fisheries. *Can. J. Fish. Aquat. Sci.* 74, 339-348. <https://doi.org/10.1139/cjfas-2015-0199>
- Scaccini A., (1967). Dati preliminari e sulle zoocenosi bentoniche e sulla biomassa in una zona dell'alto e medio Adriatico. Note del Laboratorio di Biologia e Pesca di Fano. Annesso all'Istituto zoologico dell'Università di Bologna. Volume II, N.3 pag 25-56.
- STECF-16-06. Reports of the Scientific, Technical and Economic Committee for Fisheries (STECF) – The application of the landing obligation on the fisheries targeting Venus clams in the Northern Adriatic Sea (STECF-16-06). 2016. Publications Office of the European Union, Luxembourg, EUR 27758 EN, JRC 101340, 12 pp.
- STECF PLEN 19-01. Scientific, Technical and Economic Committee for Fisheries (STECF) – 60th Plenary Meeting Report (PLEN-19-01). Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-02904-5, doi:10.2760/56785, JRC116423
- STECF PLEN 19-02. Scientific, Technical and Economic Committee for Fisheries (STECF) – 61st Plenary Meeting Report (PLEN-19-02). Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-09515-6, doi:10.2760/31279, JRC117461
- STECF PLEN 20-01. Scientific, Technical and Economic Committee for Fisheries (STECF) – 63rd Plenary Report – Written Procedure (PLEN-20-01). Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-18117-0, doi:10.2760/465398, JRC120479
- Tuck, I. D., Bailey, N., Harding, M., Sangster, G., Howell, T., Graham, N., et al. (2000). The impact of water jet dredging for razor clams, *Ensis* spp., in a shallow sandy subtidal environment. *J. Sea Res.* 43, 65-81
- Urra, J., García, T., Gallardo-Roldán, H., León, E., Lozano, M., Baro, J., et al. (2017). Discard analysis and damage assessment in the wedge clam mechanized dredging fisheries of the northern Alboran Sea (W Mediterranean Sea). *Fish. Res.* 187, 58-67.
- Urra, J., Marina, P., Rojas García, A., León Duarte, E., Gallardo-Roldán, H., Montaner, B. O., ... & García, T. (2021). Biodiversity Assessment and Geographical Affinities of

- Discards in Clam Fisheries in the Atlantic–Mediterranean Transition (Northern Alboran Sea). *Thalassas: An International Journal of Marine Sciences*, 37(2), 721-737.
- Vasapollo, C., Virgili, M., Bargione, G., Petetta, A., De Marco, R., Punzo, E., et al. (2020). Impact on Macro-Benthic Communities of Hydraulic Dredging for Razor Clam *Ensis minor* in the Tyrrhenian Sea. *Front. Mar. Sci.* 7, 14.
- Vatova, A. (1949). La fauna bentonica dell'alto e medio Adriatico. *Nova Thalassia* I(3): 1-110, tables VII-XXXVII, plates I-IX In: *Nova Thalassia*. Istituto di Biologia Marina per l'Adriatico: Venezia. ISSN 0369-527
- Veale, L. O., Hill, A. S., Hawkins, S. J., and Brand, A. R. (2001). Distribution and damage to the by-catch assemblages of the northern Irish Sea scallop dredge fisheries. *J. Mar. Biol. Assoc. United Kingdom* 81, 85–96

6.7 Derogation for shore seines in certain territorial waters of France (PACA and Occitanie)

Background provided by the Commission

During PLEN 21-03, the STECF assessed France's request for prolonging the derogation to the Mediterranean Regulation granted to the shore seines fishery in PACA and Occitanie. In March 2021, France provided the Commission with additional information to address PLEN 21-03's conclusions.

Request to the STECF

The STECF is requested to review the additional documents France provided and assess whether these address the conclusions of PLEN 21-03.

Supporting documents

The original documents in French are provided alongside the machine-translated English documents for disambiguation, where necessary.

The STECF assessed this request during PLEN 21-03 and the background documents provided remain relevant. Some updated background documents transmitted to PLEN 21-03 have been re-submitted.

Background documents are published on the meeting's web site on: <https://stecf.jrc.ec.europa.eu/plen2201>

Summary of the information provided to STECF

The following documents were provided to STECF, which are summarized below.

- *Report from France to the European Commission on the monitoring of the derogation for beach seine fishing in the Mediterranean (23 June 2021)* (machine-translated English documents, original documents provided in French)

This report was already evaluated by STECF PLEN 21-03. No update on the information presented in this document was sent to STECF PLEN 22-01.

The report provides a summary description of the French beach seine fishery, and then revolves around three main management measures for the activity which are contained in the current regulatory framework. These three measures are:

- the quota for European fishing authorizations (EAF) with a view to reducing the fleet;

- the implementation of a national plan to control and monitor landings;
- the scientific monitoring of the activity as well as its impact on the marine environment

- *Additional information to France's report to the European Commission on the monitoring of the derogation concerning beach seine fishing in the Mediterranean* (original version 17 February 2022, then updated by France during STECF PLEN 22-01) (machine-translated English documents, original documents provided in French)

The document delivers information on the new measure to monitor beach seine fishing activity and its impact on the marine environment introduced in France from 2020 onwards: Natura 2000 risk analysis with regard to professional fishing activities. Also, the document provides information about recent management measure on the reduction of the fishing effort ceiling for Mediterranean beach seines.

At the beginning of the STECF PLEN 22-01 an error was noticed in the calculation of percentages of effort reduction in the original document and France sent a corrected version of the document to STECF PLEN 22-01.

- *Draft Order amending the Order of 18 February 2022 on the allocation of fishing effort quotas for certain professional fishing activities in the Mediterranean Sea by vessels flying the French flag for 2022.*

This document is a draft version of the document for which MS states that will be soon published in the Official Journal of the French Republic.

- *Summary of potential links between fishing activities and physical pressures in the marine environment (annexe4_matrice_pressions-activites_ifremer_0_EN)*

This document shows the matrix of the relationship between fishing activities and physical pressures in the marine environment and denotes the relative amplitude of pressures between gears, depending on the nature and design of the fishing gear and the type of substrate of the benthic habitats considered. These relationships were drawn up from best available knowledge on the basis of bibliographic evidence, video observations or statements from scientists experts in the types of activities under consideration. The associations identified in this matrix are intended to serve as a guidance to assess the risk of habitat degradation by professional fishing activities.

- *Sensitivity of Mediterranean benthic habitats to physical pressures (EVAL_SENSIB_BIOC_MED-PPHYSIQUES_EN)*

This document provides an assessment of the sensitivity of various types of Mediterranean benthic habitats to some anthropogenic physical pressures. As for the matrix in Annex 4, it has been carried out on the basis of the best current knowledge in collaboration with scientific experts. Each matrix includes, for each physical pressure, a strength score, a resilience score and a sensitivity score to which confidence indices are associated, as well as a description of the criteria justifying the scores awarded. The generic sensitivity assessments resulting from this project are intended to serve as a tool to assist the

monitoring and management of the marine environment, in particular through vulnerability/risk assessments of benthic habitats.

STECF comments

STECF PLEN 21-03 had concluded the following:

STECF recognizes the gradual decrease of both fleet capacity and fishing effort ("bouilleur de cru" regime) for the French beach seines under study, indicating that the management plan is effectively working towards its objective of phasing out the fishery over time.

STECF concludes though that the effort ceiling set in the plan should be revised downwards in line with the actual decrease in fishing effort to prevent possible increase in the future.

STECF concludes that several elements requested in the ToRs could not be evaluated by lack of appropriate information provided. More specifically, the following are missing:

- Evolution of catches for all species captured (landings + discards) over time
- CPUEs for target species
- Size composition of catches
- Magnitude of discards
- Fishing footprint to evaluate if fishing activity is practiced above sensitive habitats
- Information on the social and economic impact of the measures proposed

STECF highlights in particular the absence of target species (sand smelt) in the most recent catch composition provided.

STECF PLEN 22-01 comments in relation to these raised by PLEN 21-03 are as follows:

- Natura 2000 risk analysis with regard to professional fishing activities.

France has provided details of the new Natura 2000 risk analysis, used in France since 2020, to assess beach seine fishing activity and its impact on the marine environment. This methodology, which is intended to be operational and reproducible for all Natura 2000 sites at sea in France, makes it possible to ensure that uniform risk assessments are carried out over the network of sites and to promote consistency of management measures at national level.

This risk analysis for commercial fisheries is conducted by pressure * habitat and pressure * fishing gear. A crossing of the two approaches therefore gives a first estimate of the severity of the impact of a given fishing gear on a given habitat. This risk analysis started in 2020 and will continue to be expanded with additional studies in the coming years.

The first conclusion for matrix beach seines and habitat is that there is a main risk of *superficial abrasion* of the habitat in which this fishery operates: sandy or stony ends at the edge of the shore. The risk analysis also concludes that there is a very low abrasion of the surface of the bottom with minor disturbance and significant resilience of this habitat type.

The other risks identified are:

- *rescaling* ("*remaniement*" in original French version, i.e. *displacement and reorganisation of the substrate without loss of the material*), which is considered to be low. The resilience of the environment to this type of impact is considered high.
- *the change in particle load* which is estimated to be low and of short duration. This type of impact is of concern for the habitat only if it persists over time and if the water quality is too damaged.

The document states that the premises of this study on the risk of impact of fishing in the Natura 2000 area are aimed at confirming the analyses carried out previously by France, which concluded that beach seine fishing has a low impact on the habitat as it does not have a lasting impact on the bottom of which it operates.

STECF notes though that France did not provide information on which benthic communities beach seines operate on, or maps on the distribution of benthic communities where beach seines fishing takes place (in document MS simply states that beach seines „*operate over soft, relatively flat bottom without rocks or other obstacles*”; „*fisheries is not carried out above protected areas*”)... This does not allow relating the impact risk assessment to the habitat sensitivity information provided in the second matrix.

- Reduction of the fishing effort

As indicated in the report, the number of vessels for beach seine fisheries has decreased by 54% since the implementation of the management plan in 2014. However, as previously commented by STECF, the fishing effort ceiling had not so far experienced a similar decrease, making it theoretically possible to increase the effort by the remaining vessels.

STECF notes that in order to certify a controlled reduction in fishing effort, the MS is now about to adopt by national decree a measure designed to reduce fishing effort ceiling to the same extent as the number of vessels. Thus, the available ceiling decreases from 1386 days per year to 638 days per year, i.e. a 54% reduction in fishing effort ceiling. This measure follows the decrease from 37 vessels in 2014 to 17 vessels in 2022.

STECF notes that France provided the draft decree, and understands that the amending decree will soon be published in the Official Journal of the French Republic.

STECF conclusions

STECF acknowledges the effort made by France to provide additional information for assessing the request for prolonging the derogation to the Mediterranean Regulation granted to the beach seines fishery in PACA and Occitanie.

STECF concludes that according to the risk assessment provided by France, the beach seines fishery has only limited impact on the environment, mainly in relation to superficial abrasion.

STECF concludes that its previous PLEN 21-03 comment on the effort ceiling has been addressed, noting that effort ceiling is about to be reduced by 54%, in accordance with the reduction of number of the vessels from 2014 to 2022.

STECF concludes that its previous comment in relation to the provision of updated catches monitoring data has though not been addressed.

6.8 CFP Monitoring – for early advice by 1/04

Background provided by the Commission

Article 50 of the Common Fisheries Policy (CFP; Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013) stipulates: “The Commission shall report annually to the European Parliament and to the Council on the progress on achieving maximum sustainable yield and on the situation of fish stocks, as early as possible following the adoption of the yearly Council Regulation fixing the fishing opportunities available in Union waters and, in certain non-Union waters, to Union vessels.”

Request to the STECF

STECF is requested to report on progress in achieving MSY objectives in line with the Common Fisheries Policy.

STECF observations

To address the above Terms of Reference, STECF expert group (STECF-Adhoc-22-01) was convened between January and March 2022 to compile available assessment outputs and conduct the extensive analysis required.

The expert group presented a comprehensive report accompanied by several detailed annexes providing: 1) CFP monitoring protocols as agreed by STECF (STECF, 2018a); 2) R code for computing NE Atlantic indicators; 3) R code for computing Mediterranean & Black Seas indicators. Electronic annexes include 1) URL links to electronic annexes referring to the reports and stock advice sheets underpinning the analysis, 2) ICES data quality issues corrected prior to the analysis, and 3) R code for computing all European waters indicators. The report and electronic annexes are available at <https://stecf.jrc.ec.europa.eu/reports/cfp-monitoring> .

STECF notes that the report is clear and well laid out, comprehensively describing the analysis undertaken and cataloguing the changes made in the approach since the previous report (STECF-Adhoc-21-01).

The Ad-hoc 22-01 report then sets out results of the analyses separately for the Northeast Atlantic (NE Atlantic), the Mediterranean & Black Seas (Sections 3 and 4). Based on the above results, progress towards achieving MSY objectives are summarised below. In this

report, “Northeast Atlantic” refers to stocks in FAO Area 27 inside and outside EU waters²⁷, and “Mediterranean & Black Seas” refers to stocks in FAO Area 37²⁸.

At the request of EUROSTAT, an overview for all European waters is also presented (Section 5 of the STECF-Adhoc-22-01 report).

For the NE Atlantic (FAO area 27), the most recent published assessments carried out up to (and including) 2021 incorporating data up to 2020 were downloaded from the ICES website on 27 January 2022. For the Mediterranean & Black Seas (FAO area 37), the information was extracted from the STECF Mediterranean Expert Working Group repositories comprising the most recently published assessments carried out up to 2021 with data up to 2020, and from the GFCM stock assessment forms comprising the most recently published assessments carried out up to 2020 with data up to 2019.

The analysis for the “Mediterranean and Black Seas” is performed on a limited number of stocks and a small proportion of total EU landings across all species and areas. The information is available for 34 stocks in the Mediterranean Sea, and only for one stock in the Black Sea. For many of these stocks though, the shorter time series of assessments (comparatively to the NE Atlantic) means that biomass reference points with regards to safe biological limits are still missing, and that $F_{0.1}$ is commonly used as a proxy for F_{MSY} . In addition, the different calendar for the provision of advice under the GFCM framework means that the latest stock assessments only become publicly available later in the year. Therefore, the 2021 GFCM stock assessments were unavailable for the present analysis.

Trends towards the MSY objective in the Northeast Atlantic and Mediterranean & Black Seas

The overview below describes the trends in fishing pressure observed in the NE Atlantic and the Mediterranean & Black Sea for the periods 2003 to 2020 and 2003 to 2019, respectively. It applies to the stocks with an analytical assessment (=ICES “categories 1 and 2” stocks) with associated reference points included in the reference list (sampling frame) of stocks for these areas.

Overview of stock status

Northeast Atlantic

27 The stocks that are included in the NE Atlantic analysis are those stocks in ICES category 1, 2 and 3 for which assessments are available and that were managed through a TAC at EU level in 2017 (based on DG MARE TAC/quotas database). Stocks in EU waters include stocks in/or partially in ICES areas 3, 4, 6, 7, 8 and 9, but excluding Norwegian coastal stocks in area 4 (see list of stocks in section 5; Scott et al., 2017a).

28 The combinations of Species/GSA that are included in the Mediterranean & Black Seas analysis are those based on a ranking system approach for which the species having a rank in the first ten positions either in total live weight or total economic values between 2012 and 2014 were chosen (see Mannini et al., 2017).

The indicators provided in the STECF-Adhoc-22-01 report show that in the NE Atlantic (both EU and non-EU waters), stock status has significantly improved since 2003 (Figure 6.8.1) but that many stocks are still overexploited: among the stocks which are fully assessed (Table 3, in the STECF-Adhoc-22-01 report), the proportion of overexploited stocks (i.e. $F > F_{MSY}$, blue line) has decreased from around 70% (2003-2008) to 28% in 2020. The proportion of stocks outside safe biological limits ($F > F_{pa}$ or $B < B_{pa}$, orange line, Table 5 in the STECF-Adhoc-22-01 report), computed for the 45 stocks for which both reference points are available, follows a similar decreasing trend, from above 80% (82% in 2003) to around 40% since 2016 (38% in 2020).

STECF observes that the proportion of overexploited stocks has decreased from more than 40% in 2019 to 28% in 2020, but STECF is not in the position to assess whether this change only reflects a yearly event, possibly linked to Covid-19 having induced a temporary decrease in the fishing pressure, or whether this represents a more long term trend of improvement.

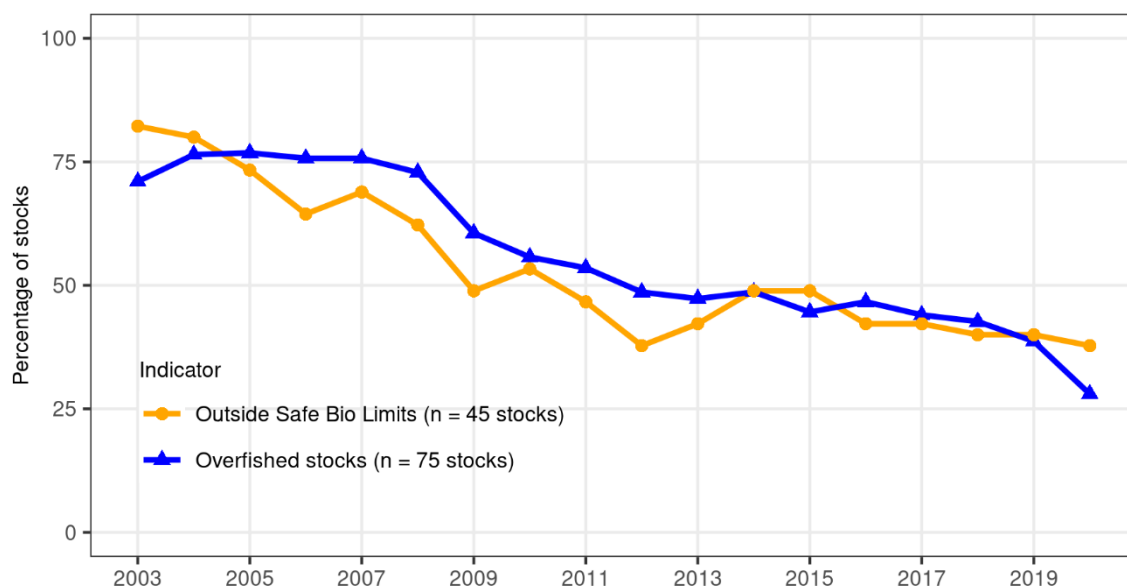


Figure 6.8.1 Trends in stock status in the NE Atlantic (both EU and non-EU waters) 2003-2020. Two calculated proportions are presented: blue line: the proportion of overexploited stocks ($F > F_{MSY}$) (out of a total of 75 stocks) and yellow line: the proportion of stocks outside safe biological limits SBL ($F > F_{pa}$ or $B < B_{pa}$) (out of a total of 45 stocks).

Combining these two calculated proportions (Table A), STECF notes that in 2020, 5 stocks that are exploited below F_{MSY} are still outside safe biological limits, and 5 stocks inside safe biological limits are still exploited above F_{MSY} . In addition, 30 have an unknown status with regards to safe biological limits. This means that for the last known year, of the 75 stocks considered, 31% (23 stocks) are known to be neither overexploited nor inside safe biological limits, suggesting that the Art. 2.2 objective of the CFP has not been met.

Table 6.8.1 Number of stocks overfished ($F > F_{MSY}$), or not overfished ($F \leq F_{MSY}$), and inside ($F \leq F_{pa}$ and $B \geq B_{pa}$) and outside ($F > F_{pa}$ or $B < B_{pa}$) safe biological limits (SBL) in 2020 in the NE Atlantic.

	Below F_{MSY}	Above F_{MSY}
Inside SBL	23	5
Outside SBL	5	12
Unknown	26	4

Mediterranean & Black Seas

For the Mediterranean & Black Seas, the number of stocks assessed and for which data is available, varies from year to year. In addition, assessment results for some stocks do not extend back to the early part of the time-series. As a result, calculated proportions may be misleading and the trends over time are not presented in the report for this region. According to the summary Table 26 in the STECF-Adhoc-22-01 report, out of 34 stocks, 5 (14%) were not overfished in 2019, the other 29 were overfished. Proportions concerning safe biological limits cannot be calculated as biomass reference points are missing for most stocks.

Trends in the fishing pressure (Ratio of F/F_{MSY})

As agreed by STECF (2018a) the Ad-hoc 22-01 report computed the trends in fishing pressure using a statistical model (Generalised Linear Mixed Effects Model, GLMM) accounting for the variability of trends across stocks and including the computation of a confidence interval around the median. A large confidence interval means that different stocks show different trends in F/F_{MSY} over time.

The model-based results for the NE Atlantic (inside and outside EU waters), Mediterranean and Black Seas and for all EU waters are displayed in Figures 15, 17, 26 and 32 of the STECF-Adhoc-22-01 report. For illustration, trends in the median values for F/F_{MSY} over time for inside and outside EU waters in the NE Atlantic and for the Mediterranean and Black Sea are summarised in Figure 6.8.2 below.

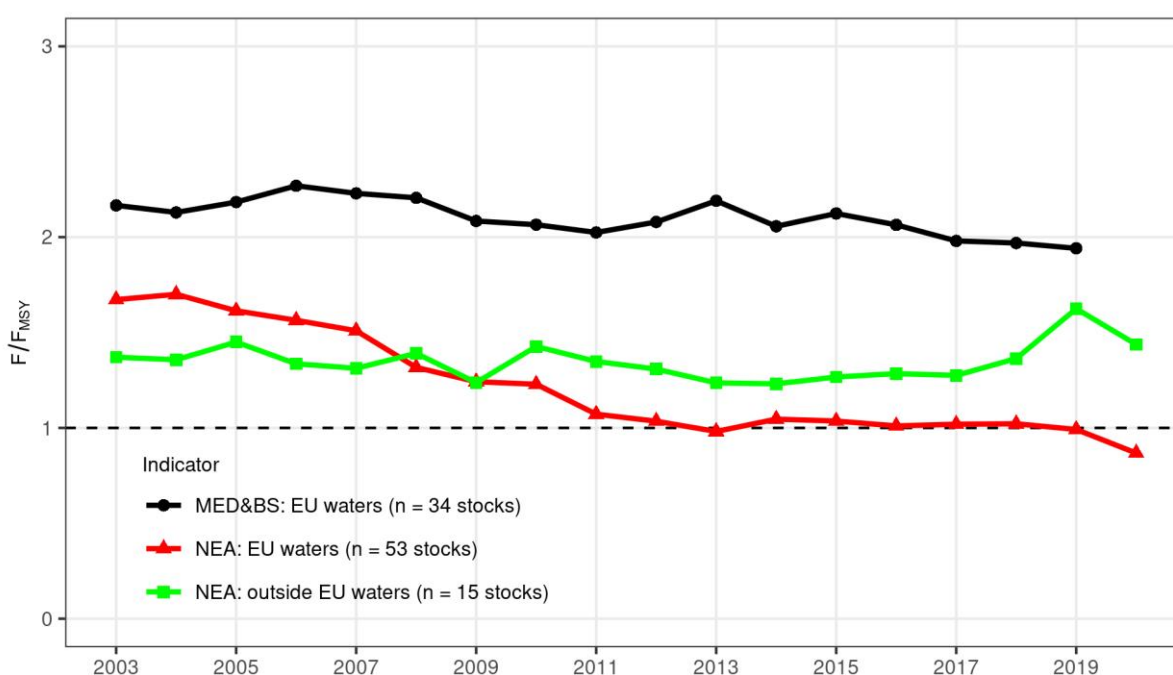


Figure 6.8.2 Trends in fishing pressure 2003-2020. Three model-based indicators F/F_{MSY} are presented (all referring to the median value of the model): one for 53 stocks with appropriate information in the NE Atlantic EU waters (red line); one for an additional set of 15 stocks also located in the NE Atlantic but outside EU waters (green line), and one for the 34 stocks from the Mediterranean Sea & Black Seas (black line).

Northeast Atlantic

In the NE Atlantic EU waters, the model-based indicator of fishing pressure (F/F_{MSY} , based on 52 stocks with appropriate information – Figure 15 in the STECF-Adhoc-22-01 report) shows a gradual downward trend over the period 2003-2020. In the early 2000s, the median of this indicator of fishing mortality was about 1.7 times larger than F_{MSY} , but this has reduced and stabilised close to 1 (F_{MSY}) over the period 2013-2019, noting that the line being around 1 means that only around half of the stocks are fished below F_{MSY} . In 2020 for the first time, the value has fallen below 1 (0.87).

The same model-based indicator was computed by the STECF-Adhoc-22-01 expert group for an additional set of 15 stocks located in the NE Atlantic, but outside EU waters (Figure 17 in the STECF-Adhoc-22-01 report). This median indicator has always remained above 1 (ranging 1.2-1.6) since 2003, with no increasing or decreasing trend.

STECF notes that the somewhat differing perceptions compared to last year may arise because the indicator for NE Atlantic stocks outside EU waters is based on comparatively few stocks (12 in the STECF Ad hoc 21-01 and 15 in the 22-01 reports respectively), and uncertainty around the actual value of the median estimates (confidence interval) is high (see Figure 17 in the STECF Ad hoc 22-01 report). Hence, the median estimates are likely to be unstable from one year to the next and should be interpreted with caution.

Mediterranean and Black Seas

The indicator for fishing pressure computed for stocks from the Mediterranean & Black Seas (34 stocks) has remained at a high level during the whole 2003-2019 period (Figure 26 in the STECF Ad hoc 22-01 report). While there appears to be a slight downward trend in the median value for F/F_{MSY} since 2013, it remains close to $2 \times F_{MSY}$ (Figure 6.8.2), which is not in line with the objective of the CFP.

EU Waters

At the request of EUROSTAT, the F/F_{MSY} model-based indicator was also fitted using all stocks in EU waters as input data, (i.e. both the in NE Atlantic EU waters and in the Mediterranean & Black Seas together (86 stocks), to report on all stocks fished in EU Waters. However, the trend in indicator values (Figure 32 in the STECF-Adhoc-22-01 report) appears to be largely driven by F/F_{MSY} estimates for stocks in the NE Atlantic. This is likely due to the significant variability in trends observed in Mediterranean and Black Seas stocks, compared to the more consistent trends observed across the NE Atlantic stocks. The result is that the overall F/F_{MSY} indicator for all EU waters shows a low and decreasing trend over time, which masks the situation in the Mediterranean and Black Seas. For this reason, STECF decided not to present the trend for EU waters as a whole in Figure 6.8.2 as it is misleading.

Trends in Biomass

The model-based results for the NE Atlantic (EU waters), the Mediterranean and Black Seas and for data-limited stocks in the NE Atlantic (=ICES "category 3" stocks) are displayed respectively in Figures 19, 28 and 21 of the STECF Ad hoc 22-01 report. For illustration, trends in the median values for biomass over time are summarised in Figure 6.8.3 below. STECF notes there is large uncertainty around this indicator (see Figure 32 in the STECF-Adhoc-22-01 report).

The model-based indicators for the trend in biomass (Figures 19 and 28 of the STECF-Adhoc-22-01 report) show a general increase over time since 2007 in the NE Atlantic (EU waters only) both for assessed stocks and for data limited stocks for which only a relative biomass index is available from scientific survey data (Figure 6.8.3). In 2020, biomass was on average around 35% (for assessed stocks) and 50% (for data limited stocks) higher than in 2003. In the Mediterranean & Black Seas, the median biomass was higher at the beginning of the time-series, but declined and remained stable from 2006–2015, after which it shows a gradual increase.

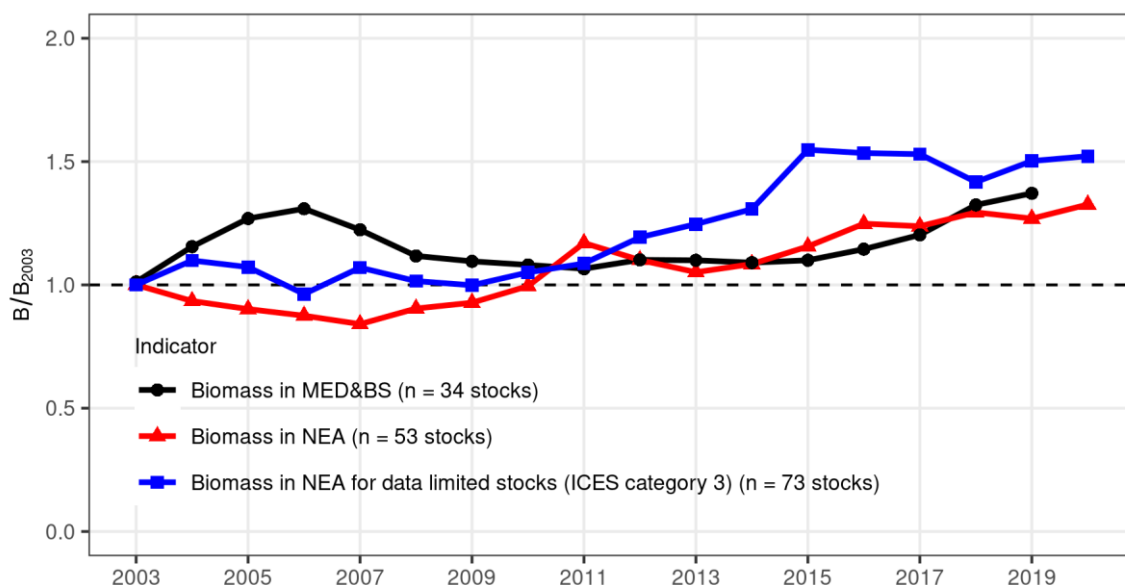


Figure 6.8.3 Trends in the indicators of stock biomass (median values of the model-based estimates relative to 2003). Three indicators are presented: one for the NE Atlantic EU waters (53 stocks considered, red line); one for the Mediterranean & Black Seas (34 stocks, black line); and one for data limited stocks (ICES category 3, 73 stocks, blue line).

As a general comment, STECF notes that the trends observed in this year's STECF-Adhoc-22-01 report may slightly differ from previous STECF reports. Beyond the issue of the varying number of stocks from year to year, such differences may also be partially attributable to the results from updates of the stock assessment. For example, there are instances that some stocks, assessed as overfished one year, are re-assessed as fished at or below F_{MSY} the following year (or vice-versa), due to the addition of an additional year of data (the inherent so-called "retrospective pattern" of stock assessment results). To illustrate this, changes of historical perceptions over time are given in Section 7 of the STECF-Adhoc-22-01 report. They show that the model systematically underestimates the median value for F/F_{MSY} compared to the subsequent year, and, conversely, overestimates the median value for B/B_{2003} , (Figures 34 and 35 in the STECF-Adhoc-22-01 report). Therefore, small differences in the resulting outcomes compared to last year's report should not be over-interpreted. In the Mediterranean and Black Seas, there appears to be no systematic under- or over-estimation observed in the historical pattern (Figures 36 and 37 in the STECF-Adhoc-22-01 report).

Trends in Recruitment

The model – based results for the trend in decadal recruitment are given in Figure 22 in the STECF-Adhoc-22-01 report. This indicator aims to identify long-term trends in spite of large year-to-year variability of recruitment for all stocks, and is calculated over a twenty-year moving average: For example, the 2019's decadal recruitment for a single stock is the ratio between the average recruitment from 2010 to 2019 over the average recruitment from 2000 to 2009 (check the protocol in Annex 1 of the STECF-Adhoc-22-01 report for more details; Figure 4 in the STECF-Adhoc-22-01 report). Median values model output is displayed in Figure 6.8.4 below.

The average decadal recruitment indicator shows a decreasing trend until 2012 and an inversion afterwards, which may reflect some improvement in the reproductive capacity of the stocks.

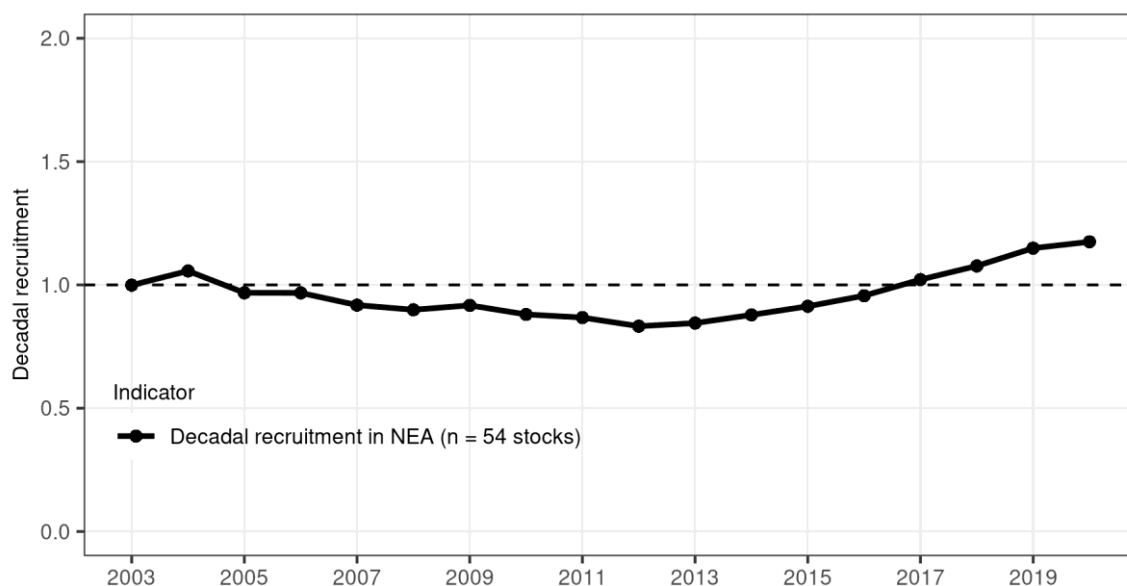


Figure 6.8.4 Trend in median values for decadal recruitment scaled to 2003 in the NE Atlantic area (based on 54 stocks).

Trends per Ecoregion

The STECF-Adhoc-22-01 report provides indicator trends by Ecoregion for EU waters in the NE Atlantic and the Mediterranean & Black Sea. STECF notes, however, that the number of stocks contributing to each ecoregion is generally rather small (<10 stocks per region) meaning that the indicator values may be imprecise. Consequently, the observed trends need to be interpreted with caution.

In EU waters, the overall fishing pressure in all ICES Ecoregions has decreased and the status of stocks has improved compared to the start of the time-series (Figures 4, 6 and 16 in the STECF-Adhoc-22-01 report). In 2020, the proportion of overexploited stocks ranged between 7% - 50% across the different ICES Ecoregions, while the modelled estimate of the F/F_{MSY} ratio for 2020 was between 0.5 and 1.14 with only the estimate for the Baltic Sea above 1.0. While the results for each region may be imprecise, for the stocks analysed, the trends give a clear signal that fishing pressure in each region has reduced over the time-series.

Coverage of the scientific advice

Coverage of biological stocks by the CFP monitoring

The analyses of the progress in achieving the MSY objective in the NE Atlantic should include all stocks with advice provided by ICES that are at least partially inside EU waters. According to the ICES database accessed for the analysis, ICES provided scientific advice for 262 biological stocks included in EU waters (at least in part). Of these, 153 stocks (58%) are data limited (ICES category 3 and above, Table 6.8.2).

Table 6.8.2 Total number of stocks assessed by ICES for different stock categories in different areas. Note that not all of these stocks are considered of EU relevance (STECF 15-04) and as such, numbers are higher than those used in the CFP monitoring analysis.

	ICES Stock Category						Total
	1	2	3	4	5	6	
Arctic Ocean	9	0	3	0	0	0	12
Azores	0	0	2	0	1	0	3
Baltic Sea	9	0	8	1	1	0	19
BoBiscay & Iberia	12	4	17	0	9	5	47
Celtic Seas	23	0	18	4	8	3	56
Greater North Sea	17	1	6	0	1	1	26
Iceland, Greenland and Faroes	0	0	1	0	0	0	1
Widely	7	0	8	0	4	12	31
Total	103	6	79	7	36	31	262

The present CFP monitoring analysis for the NE Atlantic is focused on stocks with a TAC in 2017 and for which estimates of fishing mortality, biomass and biological reference points are available. As detailed in the STECF Ad hoc 22-01 report, not all indicators can be calculated for all stocks in all years. The expert group was able to compute indicators for 45 to 75 stocks of categories 1 and 2 depending on indicators, years and areas, and 73 stocks of category 3 (Table 4 in the STECF-Adhoc-22-01 report). These stocks represent the vast majority of catches, but a large number of biological stocks present in EU waters are still not included in the CFP monitoring analysis.

In the Mediterranean and Black Seas region, stocks status and trends are only assessed for a limited number of stocks. The expert group selected 243 combinations of Species/GSA in the sampling frame (Mannini et al., 2017²⁹), of which 62 combinations (26%) have been covered by 34 available stock assessments in 2019. The difference between the number of combinations (62) and the number of stock assessments (34) stems from the fact that some stocks are assessed over multiple GSAs.

Coverage of TAC regulation by scientific advice

STECF notes that 156 TACs (combination of species and fishing management zones) in the EU waters of the NE Atlantic are derived using the agreed sampling frame (Gibin, 2017³⁰; Scott et al 2017a³¹, Scott et al 2017b³²). STECF underlines that in many cases, the boundaries of the TAC management areas are not aligned with the biological limits of stocks used in ICES assessments. The EWG therefore computed an indicator of advice coverage, where a TAC is “covered” by a stock assessment when at least one of its divisions match the spatial distribution of a stock for which reference points have been estimated from an ICES full assessment. Based on this indicator, 56% of the 156 TACs are covered, at least partially, by stock assessments that provide estimates of F_{MSY} (or a proxy), 51% by stock assessments that have B_{pa} , with only 22% covered by stock assessments that provide estimates or proxies of B_{MSY} .

Additionally, STECF notes that, using this index, some TACs can be considered as “covered” if they relate to: (i) part of a given management area, (ii) several assessments contributing to a single TAC (e.g. *Nephrops* functional units in the North Sea) or (iii) scientific advice covering a different (but partially common) area (e.g. whiting in the Bay of Biscay). Thus, such an approach overestimates the spatial coverage of advice (i.e. the proportion of TACs based on a single and aligned assessment). This means that many TACs are still not covered by scientific advice based on F_{MSY} reference values.

Ongoing developments

STECF acknowledges that monitoring the performance of the CFP requires significant effort to provide a comprehensive picture. The process presents several methodological challenges due to the annual variability in the number and categories of stocks assessed and due to the large variation in trends across stocks. As a result, the choice of indicators and their interpretation is regularly discussed by STECF, expanded and adjusted over time when necessary.

29 Mannini, A., Osio G.C., Jardim E., Mosqueira I., Scott F., Vasilakopoulos P., Casey J., 2017 - Technical report on: Sampling Frames for Mediterranean and Black Sea CFP Monitoring indicators Publications Office of the European Union, Luxembourg; EUR 28568; doi:10.2760/31047.

30 Gibin M., 2017 - Integrating Fishing Management Zones, FAO and ICES statistical areas by data fusion, JRC Technical Report, JRC105881.

31 Scott, F., Gibin, M. and Jardim, E., 2017a - Generating the CFP indicators sampling frame for FAO area 27 (Northeast Atlantic). JRC Technical Report, JRC106114, doi:10.2760/689063.

32 Scott, F., Gibin, M., Vasilakopoulos, P. and Jardim, E. 2017b. Matching the sampling frame for FAO area 27 (Northeast Atlantic) with ICES assessments. JRC Technical Report, JRC106115, doi:10.2760/818883.

STECF is aware that a stable methodology and set of indicators provide an easier and increased understanding by stakeholders of the CFP monitoring analysis over time. However, STECF also has to consider annual changes in assessment methodologies, data and models, and to balance this with expectations for consistency.

STECF notes that work is planned in 2022 to revise the protocol, including a proposal to provide a more robust indicator for trends in biomass (See Section ToR 7.7 of this PLEN 22-01 report).

STECF also recognises the need to broaden the scope of the CFP monitoring to address those CFP objectives that are not currently dealt with. In particular, indicators covering the landing obligation, wider ecosystem and socio-economic aspects in the analysis would be a useful expansion. A process to develop such indicators was initiated in 2018 but needs further development to be made fully operational and routinely included in the CFP monitoring.

STECF conclusions

Regarding the progress made in the achievement of F_{MSY} in line with the CFP, STECF concludes that the latest results indicate a reduction in the overall exploitation rate and an increase in biomass of stocks in the NE Atlantic over the period 2003-2020. Nevertheless, many stocks remain overfished and/or outside safe biological limits and the objective of the CFP to ensure that all stocks are fished at or below F_{MSY} in 2020 has not been achieved.

STECF also concludes that the situation with regard to stocks in the Mediterranean and Black Sea remains challenging, with annual fishing mortality estimates around twice of F_{MSY} for the entire time-series (2003-2019). There are indications that fishing pressure has slightly decreased since 2013 to just below that average level in 2019, while biomass indicates the onset of a slight improvement since 2015 after a period of showing no trend between 2007 and 2015. Furthermore, there remains a need to increase the number of stocks that are assessed in the Mediterranean and Black Seas, to increase the representativeness of the indicator values.

STECF notes that many stocks still lack definition of some key reference points in relation to safe biological limits, F_{MSY} or B_{MSY} . STECF considers this issue to be a priority, and supports ongoing work in ICES, GFCM and STECF EWGs to improve this situation. Progresses will be incorporated in this CFP monitoring as they become available.

STECF recognises the need to revise and update the protocol that has been followed for this monitoring report since 2018, and to broaden its scope to consider possible additional CFP objectives not currently

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

7.1 Preparation of EWG 22-14 social data in fisheries - update of the national profiles

Request to the STECF

STECF is requested to discuss the draft ToR and organisation of this EWG that will take place in September 2022 (final date to be confirmed), especially whether or not an ad-hoc contract would need to be carried out to prepare the examples of the national profiles and in what way this is best prepared.

STECF response

STECF EWG 22-14, Social data in the EU fisheries sector, is scheduled to take place in September, 2022. In preparation of this EWG, DGMARE prepared a first draft of the ToR and a number of questions that need answering prior to finalising the ToR of this EWG. STECF is asked to respond to these questions. The final draft ToR for EWG 22-14 will be presented to STECF PLEN 22-02 for discussion.

EWG 22-14 is the third EWG on developing and analysing social data in fisheries as follows:

1. EWG 19-03 provided a comprehensive overview of the social data collected under the EU MAP for the EU fishing sector on the social and demographic characteristics of the labour force both at EU and Member States level over the year 2017.
2. EWG 20-14 further developed the methodologies for the collection and analysis of social data in fisheries, to be applied for the collection of social data for the data call 2021 and the subsequent analysis and use of these data.
3. PLEN 20-03 concluded that if the suggestions for National and Community profiling of the fishing sector, as recommended under EWG 20-14, would be operationalised, this would indeed allow for more data and information to become available to implement assessments of the social impacts of fisheries management measures. This is important in the light of the social dimension of the CFP securing/developing further sustainability also on this aspect. In addition, STECF concluded that there is a necessity to produce clear and unified definitions of concepts and variables used. This unification should be achieved across all bodies currently involved in the development of social indicators such as STECF, RCG ECON and ICES WGSOCIAL.

The objective of EWG 22-14 will be more closely related to the work implemented by EWG 19-03, and the second part of EWG 20-14, and has a focus on further methodological development and especially further developing the National profiles.

In order to prepare this EWG, a number of issues have been discussed with the Commission during STECF PLEN 22-01. The draft ToR of EWG 22-14 will be discussed during STECF PLEN 22-02.

7.2 Preparation of EWG 22-19 on the review of the Technical Measures Regulation and update on the 21-01 PLEN work on sensitive species

Request to the STECF

STECF is requested to discuss means to achieve the following:

- to identify the optimal ages and sizes at which fish should be caught;
- identifying corresponding fishing gears and including in the analysis the transitional costs, as well as the operational changes needed to realize this, beginning with the stocks where the highest gains can be achieved (cod stocks and Mediterranean hake),
- develop technical support for detailed fisheries-based transition plans at regional levels for the purpose of improving yields while having regard to appropriate economic and social transitions;

STECF response

STECF discussed EWG 22-19 at length with DGMARE during PLEN 22-01. It was agreed that it would be advisable to develop these ToRs in intersessional meetings to be finalised in July plenary. This intersessional process worked well in planning the work of EWG 21-07. STECF Bureau will liaise with MARE and the chairs of the EWG to arrange these intersessional following from PLEN 22-01.

7.3 Preparation of EWG 22-04: Assessment and advice for non-quota stocks, to support the development of multi-annual strategies in the context EU-UK

Background provided by the Commission

In the context of the development and implementation of the EU policies and to support the commitment with the UK under the Trade and Cooperation Agreement, DG-Mare requested STECF to give advice on non-quota stocks to support the development of multi-year management strategies. The EWG 22-04 is planned to provide an overview and identify the main issues that constitute a baseline to inform stock assessment and support fishery management of non-quota species (NQS).

Request to the STECF

STECF is requested to discuss on the organisation of this EWG and clarify workflow and draft ToRs.

STECF comments

The EWG 22-04 will be held from 9th to 13th May 2022 and chaired by Ralf Doering and Christoph Konrad.

STECF discussed with DG MARE the preparatory work of the EWG and the workflow. The EWG 22-04 is requested to provide two deliverables, first providing a data set and carry out a quality analysis of the data. Secondly, provide a desk-based review of the current state of knowledge on six areas (fishing activity, data collection, stock assessment, ecosystem knowledge, social and economic importance, and fisheries management) of NQS by sea basin: North Sea (ICES div 4a,b,c), Eastern Channel (div 7d), Western Channel (div 7e), Irish Sea (7a), Celtic Sea (div 7f,g,h,j) and West of Scotland (div 6a) using available data, scientific/technical literature, and insights from stakeholders, where possible. In preparation and ahead of the EWG, two dedicated ad hoc contracts will be launched to i) catalogue scientific information about stock status derived from national and regional activities; and ii) compile information on existing management measures for NQS in different Member States and literature about fisheries management measures and strategies.

After the EWG, a general overview of the EU fishing statistics (landings, effort and value) by sea basin for the period 2000-21 will be collated through ad-hoc contract.

STECF therefore proposes that the Terms of Reference for this Expert Working Group on NQS are:

ToR 1. a) Evaluate the quality of data for non-quota species and fisheries compiled from different sources of information; b) Identify gaps and limitations of these data to inform stock assessment and support fisheries management; c) Define appropriate procedures and methods for improving the data collection for the conservation and management of NQS.

ToR 2. a) Evaluate the current state of knowledge for each sea basin with respect to main non-quota species (in both landings and value). The evaluation should cover the following six areas: fishing activity, data collection, stock assessment, ecosystem knowledge, social and economic importance, and fisheries management; b) Identify specific issues for each sea basin; c) Prioritize common issues within the six areas and provide guidelines for how to address them. This work should be using and expanding a catalogue of stock status relevant scientific activities provided by an ad hoc contract.

ToR 3. a) Create a list of relevant literature on fisheries management measures and strategies that are already used and others that can be adapted/expanded, to be used and consulted in the future; b) Based on the ad-hoc contract, analyse the current management measures/strategies for non-quota species identifying their pros and cons.

STECF suggests that the participation for this EWG should include:

MS experts dealing with data collection.

MS experts dealing with fisheries management.

7.4 Preparation of EWGs 22-12 (Marketing standards: review of fishery criteria and underlying methodologies) and 22-13 (Marketing standards: review of proposed sustainability criteria / indicators for aquaculture)

Request to the STECF

STECF is requested to discuss on the organisation of these EWG and clarify workflow and draft ToRs.

STECF comments

STECF concludes that the draft ToRs of the coming EWG 22-12 (Marketing standards: review of fishery criteria and underlying methodologies) are well progressed, while those of EWG 22-13 (Marketing standards: review of proposed sustainability criteria / indicators for aquaculture) are still to be specified and will be finalized through further discussion between STECF bureau, representatives of DG MARE and the potential chair(s) of this EWG.

STECF proposed the week starting on September 5th as a candidate week for the two EWGs to take place in parallel.

7.5 Preparation of EWG 22-08: Skates and rays management

Request to the STECF

STECF is requested to discuss on the organisation of this EWG and clarify workflow and draft ToRs.

Proposed ToRs

1. To consider the appropriateness of the current EU approach in terms of ensuring the sustainable exploitation and conservation of all skates and rays species falling under the SRX group TAC. This should include an analysis of ICES catch statistics, and any other data deemed relevant (e.g. surveys, logbooks), for an appropriate reference period to help assess current exploitation of the different species in the SRX group TAC, by area, including the examination of the exploitation of vulnerable species and possible implications for their conservation.
2. To consider adaptations to the current SRX group TACs, including the use of additional single species sub-TACs
3. To consider bespoke management plans as a replacement to SRX group TACs
4. To consider progress made in underpinning the exemption to the landing obligation and next steps, by species and by gears. This should assess catch data, discard survival rates, methods for improving avoidance, selectivity and survival.
5. To consider transparent criteria to classify skate and ray species as prohibited species

The STECF should discuss pros and cons of each approach considered, especially in light of achieving conservation objectives, but also in terms of *inter alia*, relative stability and socio-economics, species identification and reporting.

The work should build on the EWG 17-21 report and any additional knowledge from more recent years.

STECF response

STECF notes that the outputs of the EWG 22-08 will be closely linked to the expertise of the participants and considers it important that expertise in elasmobranchs ecology, modelling, fishing technology and management & conservation issues are well represented at the EWG.

STECF suggests to conduct the EWG during week 26-30 September away from ICES WGEF.

Additionally, STECF notes that there are clear links between S&R management EWG and the EWG 22-04 dealing with Non Quotas Species. The ad-hoc contract for NQS will for

instance have to review the national management measures in place; these information's could be of interest in the context of S&R management too.

In order to prepare this EWG, a number of issues have been discussed with the Commission during STECF PLEN 22-01. The draft ToR of EWG 22-08 will be discussed during STECF PLEN 22-02 in light of the outputs from EWG 20-04.

7.6 Preparation of EWGs 22-11: Fishing effort regime for demersal fisheries in West Med

Background provided by the Commission

The European Commission bases its proposal for the Fishing Opportunities Regulation in the Mediterranean and Black Seas on best available scientific advice provided by STECF for the elements related to the implementation of the West Med MAP (EU regulation 2019/1022).

For the preparation of the European Commission proposal of Fishing Opportunities Regulation for 2023, best available scientific advice will come from a combination of the results from four STECF Expert Working Groups (EWG 22-01, EWG 22-03, EWG 22-09 and EWG 22-11).

The review of the report of EWG 22-01, on the evaluation of closure areas in the Western Mediterranean and the consolidation of models taking into account maximum catch limits, corresponds to ToR5.2 of the present Plenary ToR.

Regarding the drafting of the ToRs for EWG 22-09, on the assessment of demersal stocks in the western Mediterranean, a first draft is being provided that will be consolidated with the comments from PLEN 22-01 and the results of EWG 22-03.

Finally, regarding the drafting of the ToRs for EWG 22-11, on the evaluation of management scenarios using several conservation and technical measures (e.g. trawling effort reduction, maximum catch limits, closure areas), this will be done prior to STECF PLEN 22-02.

Request to the STECF

STECF is requested to discuss on the organisation of EWG 22-09 and EWG 22-11 (e.g. review of results, written procedure) and review the drafts ToRs of EWG 22-09.

STECF comments

Discussions were held with the STECF committee, with representatives of DGMARE and with the chair of EWG 22-01 (28 February–4 March 2022), on issues to be considered in the preparation of EWG 22-11 scheduled for September 2022. These refer to information needs, on the combination of different management measures, on the importance of additional socio-economic data and on the analytical assessments of target species not yet available for some species and areas.

Economic data

The need of further information on socio-economic indicators and available economic data at the right level of granularity was emphasized by EWG 22-01 experts. Additional issues to be discussed before EWG 22-11 include:

- discuss the relationship between Full-Time Equivalents (FTE) and fishing effort
- details on the calculation of salary/crew costs for each concerned Member State
- include a table as annex of the TORs with the additional socio-economic indicators to be estimated by the EWG
- redistribution by Member States of maximum catch limits (MCLs) by GSA and by fleet (if proposal from MSs exists)
- data at harbor level, which would allow to assess the potential effects of different scenarios at a finer spatial scale
- data on subsidies obtained from EU and MSs
- availability of disaggregated socio-economic data for each concerned Member State
- harvest control rules
- MCL distribution between gears and consideration of discards in the MCL modeling process

STECF PLEN 22-01 suggested that these points be discussed in the next EWG 22-02: Annual Economic Report on the EU Fishing Fleet I (04 - 08 April 2022). By the time of completing this PLEN 22-01 report, the AER EWG had held a discussion on the subject. One important issue is that economic data should be made available at GSA level. The AER does not collect the data at this level, but data should be available at national level and would need to be requested to MS.

Multi-models discussion

The following models are used: non-spatially explicit mixed fisheries models, IAM (for EMU 1) and BEMTOOL (for EMU 2), and spatially explicit mixed fisheries models ISIS-Fish (GSA 7) and SMART (EMU 2), each one with different assumptions, and therefore results between EMUs cannot be quantitatively compared. In the future, if there is a need to homogenize results and ease comparison, it could be considered to select one area where the different models would be used. This option could be feasible for GSA 7 as experts are already using two of the four models (IAM and ISIS-Fish). Alternatively, a first step could be to use the two spatially explicit mixed fisheries models. Analyses with different models are though not likely to be performed before EWG 22-11.

In addition, one further potential option for the quantitative comparison of results from the four current models could be by adding a single generic model, Flasher (implementation of the FLR framework), to be developed and used in both EMU1 and EMU2 against which the results of the four other ones could be compared. This option would be developed outside the EWG, by JRC, and thus needs to be discussed with JRC.

Management scenarios

Currently through EU Regulations, multiple management measures are implemented in the Western Mediterranean:

- Effort reduction for trawlers
- Effort reduction of longliners
- Closure areas
- Maximum catch limits on deep-water shrimp species (ARA, ARS)

PLEN 22-01 (ToR 5.2) STECF noted that it would be worthwhile to carry out further investigation of potentially conflicting effects of cumulating several management measures, which may either add up or counteract each other, and may even have adverse effects on the stocks depending on effort redistribution.

STECF suggests a clarification is needed on the data supporting the establishment of a MCL of blue and red shrimp (ARA) and giant red shrimp (ARS) for France and how that should be accounted for from a simulation perspective.

Data issues

About analytical assessments not yet available, it is worth of noting the case of blue and red shrimp (ARA) in GSA 5. An analytic, and validated, assessment was run during the GFCM SAC Working Group on Stock Assessment of Demersal Species ([WGSAD](#)) in 2021 based on data up to 2019 differing from the data submitted by Spain to the EU data call. The ARA 5 analytical assessment performed during EWG-20-09, also with data up to 2019, was considered as not acceptable as a consequence of large discrepancies in the catch composition and survey composition data. In the absence of clarification on this data discrepancy, the ARA 5 analytical assessment performed during EWG-20-09 was replaced by an index-based assessment. The data used in STECF WGs are the ones from the DCF. Since the input data are different in the two assessments, a clarification is needed on these discrepancies.

Given that the results of EWG 22-03 on Quality checking of MED and BS data and reference points due to take place in May, will be incorporated to EWG 22-11 tasks, the EWG 22-11 ToRs will be discussed during PLEN 22-02. Depending on output of EWG 22-03, definitions within models applied for EWG 22-11 will change: availability of Bpa and Blim and/or stock recruitment relationships.

STECF conclusions

EWG 22-11: Fishing effort regime for demersal fisheries in West Med will take place in September 2022. STECF concludes that the ToRs of the coming EWG 22-11 will be revised in the

7.7 Update of the CFP monitoring protocol

Background provided by the Commission

DG MARE intends to request STECF to continue the monitoring of fish stocks with respect to the CFP objectives relevant to exploitation of the stocks with respect to maximum sustainable yield. In order to inform effectively about this development of the CFP, MARE considers that the indicators used should be stable, reliable and informative. MARE considers that it is appropriate for STECF to review and update the indicators as necessary and appropriate and at STECF's discretion, bearing in mind the need to maintain continuity as much as possible. MARE also recalls the need for common indicators that cover stock development in both the Northeast Atlantic and the Mediterranean basin.

Request to the STECF

On the basis of the 2022 CFP monitoring report (see section 6.8 of this report / STECF-Adhoc 22-01) and the ad-hoc work done by the JRC, make appropriate methodological recommendation for the monitoring of fish stocks in relation to the MSY objectives of the CFP.

Inform on progress in developing common indicators for all EU waters, i.e. for both the Northeast Atlantic stocks and the stocks in the Mediterranean Basin.

Summary of the information provided

The STECF was provided with a document entitled "Suitability study of the Bayesian State-Space model 'JARA' for stock status indicator estimation" that described the work done by the JRC team in an ad-hoc expert working group (STECF-Adhoc-22-02) conducted in January 2022. The document reviews the shortcomings of the current Generalized Linear Mixed-effects Model (GLMM) approach to compute model-based indicators and develops an alternative Bayesian State-Space Model (SSM) approach. Both methods are applied to the F/F_{MSY} and B/B_{2003} indicators for stocks of EU waters of North-East Atlantic and in the Mediterranean and Black Seas. The results are compared in terms of precision, consistency, and interpretability. Finally, based on the SSM approach, two options to generate combined indices across European waters are explored.

STECF comments

STECF recalls that the first version of the Common Fisheries Policy monitoring protocol for computing indicators was developed in 2015 (Jardim et al., 2015). Since then, this protocol (or subsequent updates) has been applied annually in ad-hoc expert groups, whose work has been later adopted by STECF to report on progress in achieving MSY objectives in line with the CFP. The latest version of the protocol (Jardim et al., 2019) was adopted by the

EWG STECF-18-15 and has been applied in the last four years (2019-2022). See section 6.8 in this plenary report for the monitoring conducted in 2022.

STECF commends the work conducted by JRC to improve the current methodology for model-based indicators and to develop common indicators for all EU waters.

Based on the JRC document, a list of potential methodological changes in the protocol were identified and are described below.

Change of GLMM to Bayesian SSM

The current GLMM approach to compute model-based indicators presents some shortcomings as described in detail in the document provided by the JRC (STECF-Adhoc-22-02). The alternative Bayesian SSM approach provides a statistically sound method with published applications (Sherley et al., 2019; 2020; Pacoureaux et al., 2021) that might suit better to the characteristics of the data derived from single-stock assessment models. For large datasets with no missing values, the GLMM and the Bayesian SSM approaches estimated very similar indicator trends for both F/F_{MSY} and B/B_{2003} . The differences between both approaches were primarily related to the occurrence of missing data in the time-series. While the GLMM approach had a limited ability to account for missing values, the SSM approach accounts for the partial dependence between an estimate at $t+1$ and the estimate at t and could predict stock specific trends providing robust and reliable estimates as shown in the sensitivity analysis (section 3.5 of the document). Furthermore, STECF emphasizes that contrary to the GLMM approach, the Bayesian SSM approach produced unbiased estimates of the nominal geometric mean. Therefore, STECF considers the Bayesian SSM approach entails improvements in several methodological aspects and could replace the GLMM approach to compute the model-based indicators for monitoring the CFP.

Historical consistency of model-based indicators

The comparison of the historical plots of the CFP model-based indicators based on the GLMM showed a tendency to systematically overestimate B/B_{2003} and underestimate F/F_{MSY} in the NEA. The new Bayesian SSM approach has not been applied yet and its historical performance has not been evaluated. STECF considers it could be useful to apply the new approach some years backwards to evaluate the sensitivity of indicators to annual updating. The new approach could provide further insights into the underlying causes for historical changes in the indicators by disentangling the effects of (1) historical assessment bias, (2) changes in the dataset in terms of stock composition and (3) the retrospective bias of the model itself.

Normalised biomass time series

STECF notes that the model-based indicators for B/B_{2003} from the Bayesian SSM approach were similar regardless of whether the model was fitted to absolute or to normalised biomass time series. However, the confidence intervals estimated from the bootstrap procedure on the absolute biomass is substantially inflated compared to normalised biomass. This could be attributed to the large variation in absolute SSB scales. Given that this has no direct value for inferring some average stock status across many different stocks, STECF supports the proposed approach of fitting the model to normalised biomass time series.

Change in reference year for biomass

Currently the reference year for computing model-based biomass indicators is 2003 (i.e. the indicator is B/B_{2003}). This poses additional problems, though somehow alleviated by the Bayesian SSM methodology, as there are missing values at the start of the time series (especially in the Mediterranean and Black Sea where the time-series are shorter). STECF considers that it may be more appropriate to select another reference year without missing values and preferably located around the middle of the time series. Candidate reference

years could be 2009 as that is the first year where there are no missing values and is the year before the full entry into force of the Mediterranean Regulation (Council Regulations EC 1967/2006). It could also be 2013, the year prior to the entry into force of the reformed CFP (Regulation (EU) No 1380/2013), for which there is the introduction of Maximum Sustainable Yield objectives, or any year in between. Regardless of the selected reference year, STECF notes that the Bayesian SSM can introduce time blocks that could ease the comparison of trends between different time periods (e.g. before and after the CFP reform). However, this additional feature has not been tested for CFP monitoring and would require additional work to be made operational.

Recruitment model-based indicators

STECF notes that the model-based approach was not applied to recruitment indicators and could therefore not be discussed. Nevertheless, in principle the Bayesian SSM approach is also considered suitable for this indicator because the recruitment indicator is also a model-based indicator using a GLMM associated to a bootstrap procedure to estimate its uncertainty.

Sampling frame

The sampling frame defining the reference list of stocks to be included in the analysis was adopted in 2017. STECF notes that the criteria followed in the NEA and in the Mediterranean and Black Sea differ from each other, reflecting differences in management and in stock assessment coverage in the two areas. Every year there are though small changes in the number of stocks included in the analysis due to changing availability of assessments, redefinition of stock limits, upgrades/downgrades of the assessment type, etc. STECF considers that the revision of the model-based approach presents an opportunity to revisit the sampling frame and update it if deemed relevant.

STECF conclusions

In conclusion, STECF, jointly with the JRC team, suggests the following work is conducted inter-seasonally:

- Apply the new SSM approach to the final 2022 dataset and produce a report with the same structure as the EWG STECF-Adhoc-22-01 report.
- Update the protocol based on the new SSM approach (using the means standardised SSB approach and the new reference year to be proposed by JRC as preferred option).
- Present a document with alternate figures to convey the results more intuitively and to convey the increased information provided by the SSM approach to aid interpretation.
- Conduct further analysis to evaluate the underlying causes for historical changes in the indicators by disentangling the effects of (1) historical assessment bias, (2) changes in the dataset in terms of stock composition and (3) the retrospective bias of the model.
- Analyse the feasibility to update the current sampling frame and present (if possible) a comparative analysis of the implications for the model-based indicators.

This work could be presented for discussion and approval in STECF PLEN-22-03, so that the new methodology could be readily applied in 2023. STECF emphasises that any changes in the indicators and protocols should continue to be in a transparent and reproducible framework. The new Bayesian SSM model is already available on the open access platform github (<https://github.com/Henning-Winker/JARA>) and accomplishes all these principles.

Other issues, like the inclusion of additional indicators to monitor the CFP initiated by EWG STECF-18-15, are considered relevant, but were set aside due to the lack of time and STECF suggests they could be discussed again in PLEN 22-02.

References

- Council Regulation EC 1967/2006 concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea, amending Regulation (EEC) No 2847/93 and repealing Regulation (EC) No 1626/94
- Jardim, E., Mosqueira, I., Osio, G.C. and Scott, F. 2015. Common Fisheries Policy Monitoring Protocol for computing indicators. EUR 27566 EN. Doi: 10.2788/560953
- Jardim, E., Mosqueira, I., Vasilakopoulos, P., Mannini, A., Pinto, C. and Konrad, C. 2019. Protocol for the monitoring of the Common Fisheries Policy Version 4.0.
- Pacoureau, N., Rigby, C. L., Kyne, P. M., Sherley, R. B., Winker, H., Carlson, J. K., Fordham, S. V., et al. 2021. Half a century of global decline in oceanic sharks and rays. *Nature*, 589: 567–571.
- Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC
- Sherley, R. B., Winker, H., Rigby, C. L., Kyne, P. M., Pollom, R., Pacoureau, N., Herman, K., et al. 2019a. Estimating IUCN Red List population reduction: JARA—A decision-support tool applied to pelagic sharks. *Conservation Letters*: 1–10.
- Sherley, R. B., Crawford, R. J. M., de Blocq, A. D., Dyer, B. M., Geldenhuys, D., Hagen, C., Kemper, J., et al. 2020. The conservation status and population decline of the African penguin deconstructed in space and time. *Ecology and Evolution*, 10: 8506–8516.

7.8 STECF for comments/feedback on the questionnaire on functioning of the CFP

Background provided by the Commission

In December 2021, the Commission launched two targeted consultations to ask stakeholders to contribute to two upcoming reports: the report on the functioning of the [common fisheries policy](#) (CFP) and the report on the [common market organisation](#) (CMO). The Commission will deliver the reports by the end of 2022, as announced in articles 48 and 49 of their respective regulations.

As provided by the CFP Regulation³³, the implementation of the CFP shall be guided by the principles of good governance, taking into account regional specificities, through a regionalised approach, as well as appropriate involvement of stakeholders at all stages. Dialogue with stakeholders has proven to be essential for achieving the objectives of the CFP and the CMO, and the Commission believes that such dialogue is equally essential during the consultation phase on these reports.

This request to the STECF focus on the CFP report only.

To ensure a maximum of input, the Commission carries out a three step consultation process:

First, we have asked the stakeholders to fill in the online questionnaires of the consultations by 14 March 2022. The questions of the [CFP online questionnaire](#) cover all chapters of the CFP Regulation, ending with the topics raised in the [Mission letter](#) to Commissioner Sinkevičius (social dimension, climate adaptation and clean oceans).

The questionnaires are designed to identify what does and does not work well, any shortcomings in how the CFP is implemented, and to highlight good practices, innovative tools and/or processes implemented by stakeholders and Member States.

We have shared the link to the EU survey widely, including with the Advisory Councils, representatives of the European Parliament, Member States' representatives in the Council working party on Fisheries Policy, and the STECF and ICES secretariats.

Second, for the consultation of the CFP report, the online questionnaire should provide the basis for more in-depth discussions at regional level starting in April 2022. Given the regional specificities, the regional administrations and experts are crucial in these discussions and we encourage the Member States to organise regional debates within the structure of the Member States Regional Groups, where possible also involving the participation of relevant Advisory Councils and regional stakeholders.

Finally, to close the consultation process following the results of both CFP and CMO online questionnaires and the in-depth CFP discussions at regional level, we aim to organise a stakeholder event on Friday 10 June 2022.

Individual responses of scientists are difficult to attain, but DG MARE values the input of the STECF as advisory body in this process and the following request is put forward to ensure STECF input within the consultation process for the Commission to collate and to

³³ Article 3 of the CFP Regulation.

feed into the more in-depth discussions at regional level, together with the replies of the online questionnaire.

Request to the STECF

STECF is requested to view the online questionnaire of the recent targeted consultation on the 2022 Report on the Functioning of the Common Fisheries Policy as a background document. The online questionnaire is designed in such way following the chapters of the CFP and providing a summary of the recent status of implementation and recent studies or developments per chapter.

The STECF is requested to provide its feedback, comments and references to specific scientific articles that STECF wants to highlight for the Commission to take into account, or highlighting concerns or innovative best practices of what works well and what not, in a *separate* document to the 22-01 PLEN report. This separate document will together with the supplementary the analysis of the results of the online questionnaire of all stakeholders – be a starting point to feed into the in-depth discussions at regional level taking place as of April 2022.

STECF response

The TOR was addressed by issuing a questionnaire to the STECF members. The questions were as follows:

Question 1: What are the main topics or articles in the basic regulation of the CFP which you want to see covered in the report on the functioning of the CFP?

Question 2: Are there specific scientific articles/papers you want to highlight for the Commission to take into account?

Question 3: What concerns you have regarding the functioning of specific articles in the basic regulation of the CFP?

Question 4: What do you see as innovative best practice in relation to provisions in the basic regulation of the CFP?

Question 5: In your opinion, what works well and what not regarding the CFP?

The answers were summarised and delivered to DG Mare in a separate document.

8. CONTACT DETAILS OF STECF MEMBERS AND OTHER PARTICIPANTS

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

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