JRC SCIENCE FOR POLICY REPORT

Scientific, Technical and Economic Committee for Fisheries (STECF) - Evaluation of Landing Obligation Joint Recommendations (STECF-19-08)

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EWG-19-08 report:

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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. This report contains reviews of joint recommendations from Member States Regional Groups for the implementation of the Landing Obligation in 2020.

1.1 SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (STECF) – Evaluation of Landing Obligation Joint Recommendations (STECF-19-08)

1.2 Request to the STECF

Based on the previous evaluations, suggested structure of the next STECF evaluation, the ad-hoc contract 19-01 on temporary de minimis exemptions, the likely joint recommendations that will be submitted by MS regional groups, the following draft terms of reference are proposed, STECF is requested to:

1. Review the supporting documentation underpinning exemptions on the basis of high survivability in respect of:
a. Exemptions agreed for 2019 on the basis of high survivability where there was a requirement for further information to be supplied. In such cases, STECF should assess the quality of the information supplied and, where possible, provide a qualitative assessment of the ongoing efforts to address the needs for further information identified by STECF last year.
b. New exemptions based on high survivability. In data poor situations, assess what further supporting information may be available and how this could be supplied in the future (e.g. survival studies, tagging experiments).

2. Review the supporting documentation (biological, technical and/or economic) for de minimis exemptions on the basis that either increasing selectivity is very difficult to achieve, or to avoid handling unwanted catches would create disproportionate cost in respect of:
a. The combined (multi species) and single de minimis exemptions agreed for 2019 where there was a requirement for further information to be supplied. In such cases, STECF should assess the quality of the information supplied and, where possible, provide a qualitative assessment of the ongoing efforts to address the needs for further information identified by STECF last year.
b. New de minimis exemptions. In data poor situations, assess what further supporting information may be available and how this could be supplied in the future (e.g. discard data collection, selectivity studies).

3. Review whether there is sufficient information to support proposed minimum conservation reference size(s) that deviate from existing minimum landing sizes, and whether they are consistent with the objective of ensuring the protection of juveniles.

4. Review the supporting documentation provided for technical measures aimed at increasing gear selectivity for reducing or, as far as possible, eliminating unwanted catches. This should include, if relevant, an indication of where further selectivity is currently difficult to achieve in a specific fishery, where possible provide information on the possible causes and if research should explore potential solutions.

1.3 STECF response

Background of the EWG 19-08

The report of the Expert Working Group 19-08 (STECF EWG 19-08) represents the findings of the meeting convened to review the joint recommendations (JR) from Member States regional groups for the implementation of the landing obligation (LO) in 2020. Joint recommendations for discard plans represent the agreement among Member States (MS) cooperating regionally on the elements for the preparation of Union law (Commission delegated act) in accordance with Article 15.6 of the Common Fisheries Policy. These

elements are: definitions of fisheries and species; *de minimis* and high survivability exemptions; fixation of minimum conservation references sizes; additional technical measures to implement the landing obligation; and the documentation of catches. EWG 19-08 reviewed the new or amended joint recommendations from the North Sea, North Western waters (NWW), South Western waters (SWW) and Western Mediterranean.

The specific Terms of Reference for EWG 19-08 were as follows:

Based on the previous evaluations, suggested structure of the next STECF evaluation, the ad-hoc contract 19-01 on temporary de minimis exemptions, the likely joint recommendations that will be submitted by MS regional groups, the following draft terms of reference are proposed, STECF is requested to:

1. Review the supporting documentation underpinning exemptions on the basis of high survivability in respect of:

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b) New exemptions based on high survivability. In data poor situations, assess what further supporting information may be available and how this could be supplied in the future (e.g. survival studies, tagging experiments).

2. Review the supporting documentation (biological, technical and/or economic) for de minimis exemptions on the basis that either increasing selectivity is very difficult to achieve, or to avoid handling unwanted catches would create disproportionate cost in respect of:

a) The combined (multi species) and single de minimis exemptions agreed for 2019 where there was a requirement for further information to be supplied. In such cases, STECF should assess the quality of the information supplied and, where possible, provide a qualitative assessment of the ongoing efforts to address the needs for further information identified by STECF last year.

b) New de minimis exemptions. In data poor situations, assess what further supporting information may be available and how this could be supplied in the future (e.g. discard data collection, selectivity studies).

3. Review whether there is sufficient information to support proposed minimum conservation reference size(s) that deviate from existing minimum landing sizes, and whether they are consistent with the objective of ensuring the protection of juveniles.

4. Review the supporting documentation provided for technical measures aimed at increasing gear selectivity for reducing or, as far as possible, eliminating unwanted catches. This should include, if relevant, an indication of where further selectivity is currently difficult to achieve in a specific fishery, where possible provide information on the possible causes and if research should explore potential solutions.

1.4 STECF observations

The number of exemptions proposed in the JRs for evaluation by EWG 19-08 was comparable with the previous submissions in 2018 (EWG 18-06, STECF 18-02). The number of individual exemptions proposed for introduction in 2020 was 67 compared with 70 for 2019. For the Mediterranean, in some cases the same recommendations were proposed by the different regional groups (SUDESTMED, PESCAMED and ADRIATICA); these groups submitted eight of the same exemptions. When duplicated proposals were combined across the Mediterranean groups, the total number of individual proposed and assessed exemptions across all regions (NS, NWW, SWW, MED) was 53 (Table xx.1). The number of proposed exemptions in the previous year was 58 (STECF 18-02).

Table 1 Number of recommendations by type and region evaluated by EWG 19-08.

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	Recommendations evaluated		
Region	*de minimis*	high survivability	Total
North Sea	6	5	11
North Western Waters	7	6	13
South Western Waters	19	2	21
Mediterranean (consolidated)	4	4	8
Total	36	17	53

STECF notes that for some regions, existing exemptions are specified in the joint recommendations, while for other regions, information is given only for exemptions for which new evidence is provided. Therefore, the values in Table.1 do not provide the total number of exemptions that have been proposed during the period of the Landing Obligation in each region. EWG 19-08 reviewed only the new or temporary exemptions from each region.

To manage the large number of recommendations, the STECF response is structured as follows: general observations, followed by specific observations on the joint recommendations submitted from each of the region, North Sea (Table 2), North Western Waters (Table 3), South Western Waters (Table 4), and Mediterranean (Table 5). As part of this evaluation, EWG 19-08 identified new information provided, the justification for each exemption and specific data shortfalls in the material submitted to support the JRs. STECF comments took account of any information received after EWG 19-08.

STECF emphasises that the JRs, including supporting evidence based on the templates developed by STECF, should be submitted in a timely manner to allow for proper assessment by STECF and the EWG.

STECF acknowledges that the EWG 19-08 has addressed the Terms of Reference noting that as EWG 18-06 (the 2018 evaluation of Landing Obligation joint recommendations), the high number of recommendations meant that it was not possible for EWG 19-08 to apply the same level of scrutiny to each proposal as in earlier years.

STECF reiterates that the role of EWG 19-08 and STECF 19-02, and any future STECF meetings is to evaluate the scientific rigor and robustness of the underpinning information supplied by Member States to support the joint recommendations. STECF cannot adjudicate on whether exemptions should be accepted or not.

STECF agrees with EWG 19-08 in that it would be timely for the Member States Groups and the Commission to review the actual use and effectiveness of the exemptions currently in place and determine whether they need to be amended or are still required.

In line with STECF 17-01, 18-01, 18-02, EWG 18-06, 19-08, STECF highlights the "lack of [required] reporting by vessel operators of fish discarded under exemptions…". There was little included to address this in the latest JR's. Exceptions include provisions for CCTV linked to the plaice survivability exemption in the North Sea and specific monitoring measures included in the JR for Venus clams in the Adriatic (this JR is dealt specifically in section 6.4 of the PLEN-19-02 report). STECF stresses again the need to improve the collection of catch documentation data. If the data situation does not improve and the true quantities being caught as reported do not

reflect the actual removals, it will likely have a significant impact on the quality of scientific advice and may compromise the achievement of the MSY objective. As STECF 18-01 and 18-02 pointed out, innovative monitoring measures such as CCTV and Remote Electronic Monitoring (REM) have been applied in pilot studies and could be a more effective way to enforce the Landing Obligation (EWG 13-23).

STECF observations on proposed *de minimis* exemptions

STECF notes an increase in the number of proposed *de minimis* exemptions that are based on disproportionate costs. It is recognized that presenting information demonstrating disproportionate costs is challenging. STECF has proposed analytical frameworks that can assist in the submission of economic cases for *de minimis* (STECF, 2013 2016 & 2019). The purpose of supporting information is to understand the scale, or proportionality, of the costs of landing unwanted fish. The information should describe that the burden, in terms of time and operational costs, to deal with unwanted catches causes loss of income. However, STECF notes that for the 2019 *de minimis* proposals, these analytical frameworks have generally not been followed. In many cases the same generic information is used to support multiple exemptions making it difficult to make an evaluation.

STECF reiterates that there is no agreed method to objectively judge whether the estimates provided amount to disproportionate costs. "Disproportionate" is a subjective term which means that there is a large element of judgement required in deciding on whether to permit or reject a proposal. STECF consider that simply stating that handling, storing and landing unwanted catches has an associated cost, is not sufficient to demonstrate that those costs are disproportionate. Further, STECF also notes that the case for *de minimis* should not be strengthened by having high levels of unwanted catches and therefore inflated levels of handling costs. Improving selectivity in the relevant fisheries should be the priority as this will reduce the costs for handling unwanted catches.

STECF previously provided an interpretation that, based on the wording of Article 15 2(c), disproportionate costs are simply assumed to be already occurring. The key aspect of the Regulation is how to define when the unwanted catch is "below a certain percentage of the total catch of that gear", how to set the "the percentage unwanted" and how this should be implemented in a discard plan. The general expectation is that this would be relatively low (e.g. in line with the *de minimis* allowance itself, 5-7% discard rates). STECF suggests that the Commission review this interpretation and assess whether it may form a better basis for establishing exemptions based on disproportionate costs, while also potentially being easier to evaluate by STECF.

STECF notes that different methods have been used to calculate *de minimis* volumes. In most cases, a percentage (e.g. 5% or 7%) has been applied to the catches of the relevant species caught by the defined fishery. However, for some fisheries, where the intention is for the *de minimis* amount to cover 100% of the discards, a small percentage has been applied to the total catch of the stock to generate a *de minimis* volume that is higher than would have been the case if just the catches taken in the defined fishery were used. This is the case for plaice and whiting in the brown shrimp fishery in the NWW and industrial species bycatch in demersal fisheries the North Sea). For fisheries where it is not viable to sort and land any of the unwanted catches, this approach provides a mechanism to comply with the Landing Obligation, however, it also removes the incentive to further improve selectivity as 100% of the unwanted catches can be discarded.

STECF reiterates that *de minimis* exemptions can encourage some vessel operators to continue discarding unwanted catches beyond the permitted *de minimis* amounts. The estimated *de minimis* amount is deducted from the TAC; However, since *de minimis* amounts can be much less than the actual amount of unwanted catches, if discarding continues beyond the *de minimis* amount, fishing mortality will exceed the advised catches. STECF notes that, for survival exemptions, in 2018, deductions from TACs were made based on the estimated survival rate, whereby the estimate of exempted dead discards were deducted from the TAC to reduce the risk of increasing fishing mortality beyond the agreed TAC. Therefore, STECF notes that *de minimis* exemptions may pose a higher risk to overfishing than survival exemptions, and this reinforces the requirement for effective monitoring of the uptake of *de minimis* levels.

STECF observations on proposed high survivability exemptions

EWG 19-08 re-iterated that assessing what constitutes high survivability is complicated by the limited information available and the variability in survival estimates. There is a wide range of factors that can affect survival, however identifying and quantifying these is difficult due to the relatively limited species-specific information and differences between experiments including timing, season, gear handling, observation period. This means that assessing the representativeness of studies as an indicator of discard survival across an entire fishery is difficult, given the range of factors that can influence survival, and how they may vary in time, even within a fishery. STECF agrees with this observation and highlights the need to take this into account when evaluating proposals for survival exemptions.

STECF notes that this is particularly relevant for the three time-limited skate and ray survival exemptions covering many species and fisheries. STECF 18-02 observed that the scope of this exemption is not consistent with other survivability exemptions and highlighted the risks in extrapolating survival evidence between species, fisheries and seasons. STECF notes that the latest evidence suggest that skate and ray survival rates can be highly variable between species and fisheries. Studies indicate that smaller individuals and smaller species have lower survival, inshore static nets are associated with higher survival and shorter tow durations are associated with higher survival. It is indicated that for some fisheries and species combinations the survival may be close to zero.

STECF observe that vitality data is increasingly being used to support high survival proposals. Information on the health condition of fish at the point of release provides useful information on the survival potential of discards. However, the proportion of fish alive at the point of release does not constitute a valid survival estimate due to the mortalities that are known to occur post-release. The relationship between health condition and survival probability can be established by collecting survival estimates and vitality data in combination. Studies have demonstrated, within a fishery, fish assessed at different vitalities have significantly different survival probabilities, and therefore vitality from a wider sample can be used as a proxy for survival. However, the relationship between assessed vitality and survival probability varies between fisheries and studies for the same species. At this time, there is insufficient evidence to use vitality as a proxy for survival, outside of the fisheries from which these relationships have been generated, to provide discard survival estimates with meaningful levels of confidence.

STECF notes that several survivability exemptions – plaice and rays and skates – are linked to a road map setting out work planned to develop survival estimates and accompanying measures to increase survivability. EWG 19-08 pointed out that there is no explicit reporting against the roadmap, which made it hard to assess progress with the work set out in the roadmap. STECF agrees that reporting against the different tasks set out in the roadmaps will facilitate future evaluations.

STECF has previously emphasised the need to consider estimates of survivability in the context of the discard rate for the fishery seeking an exemption (STECF 17-02). This highlighted that medium survival rates in high discarding fisheries still lead to high discard mortality rates. Examples of this were given in STECF 18-02. STECF notes that in 2018, deductions from TACs were made based whereby exempted dead discards were deducted from the TAC to reduce the risk of overfishing. However, STECF has previously noted (STECF PLEN 19-01) that unless surviving discards are accounted for in stock assessments and dead discards are accounted for in TAC setting when survivability exemptions are in place, the actual fishing mortality will not match the agreed catch level.

STECF notes that several existing exemptions for plaice and sole are linked to conditions such as restricting the exemption to fishing to certain depths, tow durations and to specific groups of vessels. While these factors undoubtedly influence survival, there is no evidence of them being applied by Member States. In practice controlling and enforcing such measures to any degree would be challenging.

STECF observations on data describing fisheries proposed for exemption

STECF notes that while progress has been made in supplying supporting information, it is also observed that for several exemptions there is still a lack of supporting information provided. EWG 19-08 observes that in many cases the supporting information relating to the fleets and fisheries is derived from the aggregated version of the STECF FDI database that is publicly available, which has not been updated since 2016, and as such may not represent the current situation. STECF notes that future exemptions should be supported with current catch data where available.

STECF observations on Selectivity

STECF reiterates that the avoidance of unwanted catch through improved selectivity or other means should be the primary focus in implementing the landing obligation. STECF notes that the JRs received contained few measures to increase selectivity. Exceptions include the NWW and North Sea where attempts have been made to increase selectivity in the form of specific technical measures in certain areas and fisheries. STECF also notes the intentions provided by Member States in the Mediterranean to introduce Marine Protected Areas and Fish Recovery Areas, which is a positive step.

STECF recognizes that modifying selectivity or avoiding areas with concentrations of juveniles can result in some reduction in revenue. STECF reiterates these should be viewed in the broader context of medium-term gains in stocks and, in the absence of improvements in selectivity, whether economic viability will be threatened due to choke effects or the utilization of quota from the requirement to land low-value catches.

The outputs of the EWG evaluations and STECF reviews are summarised in Tables 5.5.2-5, the number of recommendations means that the volume of information is substantial.

Table 2. Main findings of the STECF EWG 19-08 and summary of additional information received relating to exemptions presented: North Sea.

De minimis	
Recommendation	Ling caught by bottom trawls of with a mesh size between 100 and 119 mm catching ling in Union waters of ICES subarea 4
Main findings of EWG 19-08	This exemption has been withdrawn
Comments of STECF PLEN 19-02	No additional comments
Recommendation	Whiting caught by beam trawls with a mesh size of 80-119mm mesh size in ICES subarea 4
Main findings of EWG 19-08	Existing exemption for 3 years with a condition that Member States should provide additional information. A summary of an additional study to support the exemption based on disproportionate costs for the Dutch demersal fisheries has been supplied. This study includes an economic analysis of handling unwanted catches in the Dutch beam and pulse trawl fisheries for sole and plaice. The information provided is at a fleet rather than at individual vessel level. The information provided shows the cost of landing unwanted catches to be significant but not specific to unwanted catches of whiting. The study only covers the Dutch fleet and it is not clear whether it is representative of other fleets availing of this exemption.
Comments of STECF PLEN 19-02	There is evidence of increased costs associated with handling and storing unwanted catches in the relevant fisheries, but this is quantified at the fleet level and not specific to whiting. Evidence that landing unwanted catches has an associated cost, is not sufficient to demonstrate

	those costs are disproportionate. Improving selectivity in the relevant fisheries should be the priority as this will reduce the costs for handling unwanted catches.
Recommendation	Whiting & cod below MCRS in mixed demersal fisheries using bottom trawls or seines with a mesh size of 70-99 mm in ICES Divisions 4a & 4b
Main findings of EWG 19-08	Existing temporary exemptions granted until the end of 2019. New information on the fisheries has been supplied for the French, Dutch and German fleets to support the request. The JR refers to the same supporting information provided in 2017 and 2018. A summary of an additional study to support the exemption based on disproportionate costs for the Dutch demersal fisheries has also been supplied (same study as the previous exemption). This study explores the economic impacts of the Landing Obligation on different sectors of the Dutch fleet. The justification is based on difficulties to improve selectivity in the short-term period as well as the handling of unwanted catches on board leading to disproportionate costs. The information provided shows the impact to be significant but not specific to handling unwanted catches of cod and whiting and is specific to only the Dutch fleet. The representativeness of the costs presented to the other fleets relevant to this exemption request is unclear.
Comments STECF PLEN 19-02	There is evidence of increased costs associated with handling and storing unwanted catches in the relevant fisheries, but this is not specific to cod and whiting. Evidence that landing unwanted catches has an associated cost, is not sufficient to demonstrate those costs are disproportionate. Improving selectivity in the relevant fisheries should be the priority as this will reduce the costs for handling unwanted catches.
Recommendation	Horse mackerel & mackerel - bottom trawls, seines and beam trawls with a mesh size between 80 and 99 mm in ICES subarea 4
Main findings of EWG 19-08	Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for horse mackerel and mackerel. The descriptions of the fleets and fisheries and justification for the exemptions is the same. Supporting documents provide reasonably detailed information on the fleets (trawl and seine) and fisheries from France but not for other Member States fishing in the area covered by the exemption. No information is provided for beam trawls. Catch data, the average discard rates and estimated *de minimis* volumes are provided. The data presented is taken mostly from the FDI database and is prior to 2017 so may not be representative of current catch patterns in the fisheries. The justification is based on disproportionate costs linked to difficulties in improving selectivity in a short-term period. The request is supported with a detailed economic analysis of costs associated with handling and storing unwanted catches. Estimates are given of the potential increase in workload are provided in terms of time and operational costs, which show the costs associated are significant. However, they relate only to the French fleet and are not specific to the handling of horse mackerel and mackerel. It is unclear whether the costs presented are representative of other fleets relevant to this exemption request. The supporting information also provides a review of selectivity trials carried out since 2010. The results presented while largely qualitative show reductions of unwanted catches including horse mackerel and mackerel but also corresponding losses of marketable catch associated with most of the gear modifications tested. Because of these losses, there seems a marked reluctance to use any of the gear options tested. Unwanted catches of horse mackerel are likely to be more than the de minimis volume requested, meaning some catches of horse mackerel will still have to be landed.
Comments STECF PLEN 19-02	There is evidence of increased costs associated with handling and storing unwanted catches in the relevant fisheries due to an estimated increase in sorting time of unwanted catches on board

	of 30-60% depending on vessel size. This is not specific to mackerel and horse mackerel. Evidence that landing unwanted catches has an associated cost, is not sufficient to demonstrate those costs are disproportionate. Improving selectivity in the relevant fisheries should be the priority as this will reduce the costs for handling unwanted catches.
Recommendation	Ling below MCRS caught using longlines in ICES subarea 4
Main findings of EWG 19-08	This is a new request for an exemption. A reasonably detailed description of the French fleet is provided, which identifies a fleet of 10 vessels that operate in the North Sea and the West of Scotland. No other Member State is involved. Only part of the information provided originates from the North Sea (division 4a) with most originating from observer trips from the West of Scotland waters. Catch data, the average discard rates and estimated de minimis volumes are provided. The justification is based on longlines being highly selective gears and to increase selectivity further is not possible without incurring high economic costs. The exemption is to cover small residual unwanted catches (~5 tonnes). No specific studies are provided. The arguments regarding difficulties in improving selectivity are credible given the nature of the fisheries. However, the information provided is purely qualitative. No attempt has been made to quantify the potential scale of the losses that would be incurred if the de minimis exemption was not granted. Additionally, it is noted that the supporting information indicates that only 14% of ling classified as unwanted catches are below MCRS. It is not clear the reasons for the other 86% being discarded. Such catches will still have to be landed in the future.
Comments STECF PLEN 19-02	STECF agrees with the EWG 19-08 assessment
Recommendation	Bycatch of industrial species caught using bottom trawls, seines and beam trawls in ICES subarea 4
Main findings of EWG 19-08	This is a request for a new exemption. Supporting information is provided on bycatch of industrial species (sprat, sandeel, Norway pout and blue whiting) in Danish demersal trawl fisheries and *Pandalus* fishery in the North Sea and Skagerrak/Kattegat. Additionally, landing and discard estimates and number of vessels involved in different fisheries of Sweden and UK are presented in the background document. Information on catch and discard rates for Denmark and Sweden is based on observer data from 2016-2018. Data for the UK has been obtained from the FDI database but refers to data prior to 2017 and may not be reflective of the current state of the fisheries. There is also a reference to beam trawl (BT2) fisheries in the request, but no specific information is provided on catches from beam trawl fleets impacted. The volumes of *de minimis* are calculated based on total catches in the relevant fisheries. While the volume of *de minimis* is small, the calculation method means that 100% of unwanted catches of industrial species will continue to be discarded. The justification for this exemption is that the volumes of unwanted catches are small (typically less than 5kg per haul), and the handling of unwanted catches are regarded as uneconomically disproportionate given the difficulties in sorting these species from the target species. Additionally, the assertion is made that options to improve selectivity have been exhausted.

	There is no quantitative evidence to support these assertions. Intuitively, achieving additional selectivity improvements would be difficult to achieve in such fisheries and the costs for sorting would be high given the nature of the species involved. The supporting information provides indications of some of the steps that have been taken in these fisheries to improve selectivity, but a more detailed description of these steps would be beneficial to demonstrate that selectivity cannot be improved further and the *de minimis* is needed to cover the residual unwanted catches.
Comments of STECF PLEN 19-02	STECF agrees with the EWG 19-08 assessment
High Survivability	
Recommendation	Plaice below MCRS caught with beam trawls with a mesh of 80-119mm in Union waters of ICES division 2a and ICES subarea 4
Main Findings of EWG 19-08	Extension of existing temporary exemption beyond 2019. The delegated act stipulates that a roadmap be developed and delivered (as evaluated by STECF 18-03). The roadmap details research plans which are anticipated to address uncertainties regarding discard survival for plaice. No new discard survival estimates are provided. New analyses of existing data show that haul duration influences survival. The effect of survival of gear modifications such as flip-up rope or benthos release panels, as specified in the Delegated Act, have not been demonstrated. Detailed information provided for Belgium and Dutch fleets and fisheries. Catch data shows a reported discard rate of 50-64%. It is questionable whether previous survival estimates generated from pulse trawling are representative of the exempted fishery, given that numbers of pulse trawlers are set to reduce. They may be replaced by beam trawlers. More research is committed by Belgium to directly observe the survival of discarded plaice caught by beam trawlers in the North Sea in a new project in 2019-2021. Outputs from this work are expected to enable a robust evaluation of this proposal.
Comments STECF PLEN 19-02	STECF agrees with the EWG-19-08 assessment and observes that the submission of future evidence to support this proposal should be presented in line with the relevant timelines in the roadmap.
Recommendation	Catch and by-catch of plaice by vessels using trawl (OTB, PTB) of mesh sizes 90-99mm equipped with SELTRA in area 3a and 80-99mm in area 4 (targeting flatfish or roundfish)
Main Findings of EWG 19-08	This is a proposed new exemption. The JR also notes that a similar exemption is requested by the NWW in areas 7a-c and 7f-k. One of the supporting survival studies is the same as that used to support the proposed exemption *'plaice caught with bottom trawls with a mesh size of at least 120mm in summer months in ICES subarea 4'*, and gave a survival estimate of 44% (summer) and 75% (winter). The most important factor influencing plaice survival was air exposure time with a reported drop in survival to 8% after 60 min (only in summer). Sorting times are reported to be typically around 1 hour. Therefore, survival is expected to be lower than the reported 44% in the studied fishery, which was based on a sorting time of around 20 minutes. The other supporting survival evidence is a short excerpt from a study in 4b on an otter trawl fishery targeting whiting using 90-99 mm. An estimated discard survival of 42% is given. However, as noted by the authors, the observation time was not sufficient, and a modelled

	survival probability was reported of 19-20%. It was not possible to assess the quality of the underpinning studies without the full reports. The JR references existing the survival exemptions granted for plaice caught with otter trawl in ICES area 7d, e, f, g, which have been supported with studies positively assessed by STECF. All relevant countries have provided fishery data. The proposed exemption is limited to TR2-vessels targeting flatfish and roundfish and not vessels targeting other species like *Nephrops* and squid. Discard rates are reported as 22-54%. It is noted that part of the fleet operates on the boundary between NWW and NS regions so there is utility in having consistency in these two regions. Provision of the full survival reports would enable an assessment of the quality of the reported estimates. Further information on similarities between the fleets covered by the proposal would inform on the representativeness of the underpinning studies, particularly on sorting time, haul duration, catch composition and targeted species. Also, fishery data are needed for UK in area 4 and DK in 3a.
Comments STECF PLEN 19-02	STECF received the full scientific report supporting this proposal and considered the method to generate survival estimates to be robust. STECF agrees with the EWG 19-08 assessment and observe that the estimates of survival are variable between relevant studies (fisheries) (18-75%), and note that smaller plaice, caught more frequently with smaller cod end meshes (e.g. TR2), are indicated to have lower survival levels. STECF also note that a definition of vessels targeting flatfish and roundfish would be needed to manage the implementation of this exemption.
Recommendation	Skates and rays (*Rajiformes*) caught with all gears in in Union waters of ICES divisions 2a, 3a and subarea 4) (for cuckoo ray see below)
Main Findings of EWG 19-08	Exemption granted for three years (2019-2021); the delegated act stipulates a roadmap be developed and applied to increase survivability. No new discard survival evidence provided (except for cuckoo ray, see below). It is assumed that all fisheries are concerned. New fishery information was provided by Sweden for ICES division 3a and the eastern part of area 4. Fisheries data should include number of vessels. The effects of different variables on discard survival is not well understood, and this introduces risks in extrapolating discard survival evidence between species, fisheries and seasons. The supporting information identifies significant data gaps to be addressed and lists projects that are ongoing to generate additional ray survival evidence. There was no explicit reporting against the roadmap, which is recommended in the future. Future submissions should report against the three main tasks in the roadmap. Evidence provided for the NWW is also relevant to the NS but was not included in the JR. This information specifically reports from UK fisheries in ICES area 4.
Comments STECF PLEN 19-02	STECF agrees with the EWG 19-08 assessment and notes that this wide-ranging exemption still has many evidence gaps. Continued work following the roadmap will potentially address these gaps in the coming years. The latest evidence indicates survival varies across species and fisheries, and larger individuals and species caught by inshore and static gears have the highest rates of survival. STECF notes

	that the outputs of the ICES Workshop on incorporating discards into the assessments and advice of elasmobranch stocks (WKSHARK5) will provide useful context for this exemption. STECF also agrees with EWG-19-08 that the submission of future evidence to support this exemption should be presented in line with the timelines in the roadmap.
Recommendation	Cuckoo ray to December 2019 – as part of Skates and rays (*Rajiformes*) caught with all gears in in Union waters of ICES divisions 2a, 3a and subarea 4)
Main Findings of EWG 19-08	Exemption granted for one year (2019) for cuckoo ray in ICES divisions 2a and 3a, and subarea 4. This is a request for an extension. Two new studies were provided. The studies showed most cuckoo rays were alive at the point of release (90-97%), and 41% (n=868) and 84% (n=37) were in excellent condition. Both studies were from the otter trawl fisheries in NWW region. Information to assess the relevance to North Sea fisheries was not provided. Vitality data do not constitute discard survival estimates but indicate survival potential. It is assumed that all fisheries are concerned. Only Sweden provided new fishery information. Cuckoo ray is rarely caught in Swedish fisheries (1 in 2340 observed hauls). Additional information on the fisheries operational and environmental conditions in the NS, and how they compare to those in NWW, would enable the relevance of the new vitality data to be determined. Directly observed discard survival estimates should be generated for relevant fisheries.
Comments STECF PLEN 19-02	STECF agrees with the EWG 19-08 assessment and observe that evidence from all regions indicates that cuckoo rays display lower survival than larger ray species and there could be zero survival in some fisheries. Further observations from survival experiments are needed to provide reliable estimates of survival rates for cuckoo ray before any definitive judgment can be made. New and ongoing studies (e.g. SUMARIS project), completed in the next 1-2 years across relevant fisheries, and following the ICES guidance, will generate necessary evidence on discard survival levels.
Recommendation	Plaice caught with bottom trawls with a mesh size of at least 120mm in summer months in ICES subarea 4
Main Findings of EWG 19-08	Extension to existing exemption to include summer months. New directly observed estimates show 44% discard survival for summer. Data were derived from otter trawls (90 mm) in 3a targeting plaice and *Nephrops*. Only a summary of the full report was provided, so an evidence quality assessment could not be conducted. Previously submitted evidence estimated discard survival rate during winter at 75%. The most important factor influencing plaice survival was air exposure time, with a reported drop in survival to 8% after 60 min (only in summer). Sorting times are reported to be typically around 1 hour. Therefore, survival is expected to be lower than the reported 44%, which was based on a sorting times of around 20 minutes. Fishery information was provided, but for DK it is unclear if the data represents all species or just plaice. The DK discard rates are inconsistently reported. The request is for North Sea only, but the evidence is provided from the Skagerrak. Clarification is needed on the intended area for the exemption. The relevance of the study to the wider North Sea area is also unknown. The presented survival rate was based on cod end mesh 90 mm, the cod end mesh in the

	proposal is at least 120 mm but presented survival levels are considered relevant. The full scientific report would enable an assessment of the quality of the summer survival estimate. Operational information on defined fleets in 3a and 4 would allow an assessment of the representativeness of the study.
Comments STECF PLEN 19-02	STECF received the full scientific report supporting this proposal and considered the method to generate survival estimates to be robust. STECF agrees with the EWG 19-08 assessment.
Recommendation	Plaice caught with Scottish seines in ICES subarea 4
Main Findings of EWG 19-08	The proposed exemption is an extension to cover Scottish seines. The proposal is motivated by an existing exemption for Danish seines on the basis that both fisheries have similar operational characteristics. Plaice discard survival rate was previously assessed at 78% for Danish seine, no new survival estimates were provided. The data provided demonstrate differences between the Scottish seine and Danish seine fisheries (vessel dimensions and engine power, haul durations and catch sizes). These differences are sufficient to question whether the survival rates from one fishery are representative of the other. For example, the substantially higher catch sizes in the Scottish seine fishery and the higher proportion of smaller discarded plaice may have a negative effect on survival levels. Moreover, it is not clear whether the two gears are comparable, as the North Sea survival estimate may be from a Danish anchor seine which operate differently to the Scottish seine gears. This should be clarified. A discard rate is given for the Dutch fleet (22-42% per year) only. It is not clear if any other Member State is involved. Directly observed survival rates from the Scottish seine fishery would enable a more robust evaluation of this proposed exemption. Vitality of discarded plaice may be sufficient to enable inferences on the likelihood of survival. More details on the fishery, including vessel numbers, specific fishing operating method and catch composition are also needed for a full evaluation.
Comments STECF PLEN 19-02	STECF agrees with the EWG 19-08 assessment.
Recommendation	Turbot caught by beam trawl with a cod end larger than 80mm in ICES area 4
Main Findings of EWG 19-08	This is a repeat request for a new exemption (STECF EWG 18-06). No new survival evidence was presented; previously submitted studies indicated a survival estimate of 30% but only for pulse trawls. New catch, landings and discards data are provided, but only vessel numbers for Belgium. A discard rate of 10% was reported. It is questionable whether previous survival estimates generated from pulse trawling are representative of the exempted fishery, given that numbers of pulse trawlers are set to reduce. They may be replaced by beam trawlers over the next few years. More research is committed by Belgium to directly observe the survival of discarded turbot caught by beam trawlers in the North Sea in a new project in 2019-2021. Outputs from this work are expected to provide more

	detailed information on the survival rates.
Comments STECF PLEN 19-02	STECF agrees with the EWG 19-08 and PLEN 18-02. There remain concerns regarding the estimated survival rates due to the considerable variability and how representative they are of the fishery. New estimates from beam trawlers are anticipated, which will provide a better assessment of survival levels.
Recommendation	High Survival exemption for *Nephrops* caught by demersal bottom trawls in ICES subareas 3a and 4.
Main Findings of EWG 19-08	There is an ongoing three-year exemption for *Nephrops* which requires additional scientific information to be submitted yearly for otter trawls. No new evidence was provided. The JR argues that no additional data was necessary. However, EWG 18-06 questioned whether survival evidence previously submitted was relevant to the UK east coast *Nephrops* fishery or the *Pandalus* fishery. Such information is still missing, and no further assessment can be made of *Nephrops* survival in these fisheries. Additional information on the Swedish and Danish fisheries for *Pandalus* fishery indicated that *Nephrops* is a low volume bycatch species (1.2t per year). Information on the operational and environmental characteristics of the different *Nephrops* fisheries would provide context to the survival estimates currently available. Additional *Nephrops* vitality data is believed to have been collected in an east Scottish fishery but was not provided.
Comments STECF PLEN 19-02	STECF agrees with the EWG 19-08 assessment

Table 3. Main findings of the STECF EWG 18-06 and summary of additional information received relating to exemptions presented: North Western Waters.

De minimis	
Recommendation	Haddock and cod - bottom trawls, seines and beam trawls with a mesh size equal to or greater than 80 mm in ICES divisions 7b-7c and 7e-7k
Main findings of EWG 19-08	Existing temporary exemption granted until the end of 2019. Separate exemptions are proposed for haddock and cod but the descriptions of the fleets and fisheries and justification for the exemptions is the same. The supporting information provide a relatively detailed description of the fisheries concerned. No information is provided for Belgium and UK beam trawl fisheries. The justification for the exemption is based principally on selectivity being difficult to achieve. Information is provided on French and Irish selectivity trials and indicates that improvements in selectivity for haddock are difficult to achieve without substantial short-term losses in marketable catches. An analysis providing comparative estimates of current revenue to break-even revenue (CR/BER) for the estimated catches from current (baseline) gears and the anticipated catches from selectivity trial gear configurations is included for the Irish fleets and fisheries involved. There are indications that this analysis is representative of other fleets operating in the area. The CR/BER for the current (baseline) gear configurations indicate that in the short-term the

	operational costs would be greater than the estimated revenue, i.e. in the short-term, the fishery would be operating at a loss. While the CR/BER estimates are likely to be rather imprecise, it seems reasonable to assume that the magnitude of change in CR/BER indicates that improvements in selectivity by adopting any of the gear configurations tested would result in significant losses in revenue in the short-term. Specific technical measures operating with bottom trawls or seines in the Celtic Sea protection zone are to become mandatory from 1 July 2019. The selectivity information provided indicates that introduction of such gears is expected to reduce unwanted catches of haddock and cod to a lesser extent, but it is too early to evaluate whether that will be achieved.
Comments of STECF PLEN 19-02	STECF agrees with the observations of EWG 19-08. STECF also notes that the cod stock in the Celtic Sea is heavily depleted and one of the stocks covered under the Bycatch reduction plan for stocks in NWW. Reducing fishing mortality on this stock should be a priority. Introducing a *de minimis* exemption to allow continued discarding, if not strictly monitored, may lead to increased fishing mortality due to unreported discarding.
Recommendation	Horse mackerel and mackerel caught using bottom trawls, seines and beam trawls in ICES subarea 6 and ICES divisions 7b-7k
Main findings of EWG 19-08	Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for horse mackerel and mackerel. The descriptions of the fleets and fisheries and justification for the exemptions is the same. The supporting information provides an overview of the fisheries to which the exemptions are to apply, together with data on selectivity trials, estimates of landings and discards of horse mackerel and mackerel by the fleets concerned. The request is supported with a detailed economic analysis of costs associated with handling and storing unwanted catches. The information is principally for the French fleets operating in the eastern Channel and southern North Sea. Limited information is provided for other fleets. The justification for the exemption is selectivity improvements to reduce unwanted catches of horse mackerel and mackerel will be hard to achieve without severe economic impacts on the revenue of the boats concerned. Additionally, the costs for handling and storing small quantities of unwanted catches on board are disproportionate. The review of the selectivity trials while largely qualitative show reductions of unwanted catches including horse mackerel and mackerel but also corresponding losses of marketable catch associated with most of the gear modifications tested. Because of these losses, there seems a marked reluctance to use any of the gear options tested. This is the same as in the North Sea and SWW. An economic analysis to demonstrate the scale of these losses and how they would impact on the relevant fleets would be appropriate. The introduction of the specific technical measures for vessels operating with bottom trawls or seines in the Celtic Sea protection zone from 1 July 2019 may reduce the unwanted catch of horse mackerel, mackerel and other species. The effectiveness of these measures should be monitored. Estimates of the potential increase in workload are provided. The analysis shows the costs and time implications for crew in a generic sense rather than specifically for unwanted catches of horse mackerel and mackerel. Information is only provided for the French fleet and it is unclear whether this is representative of other fisheries covered by the exemption.

	Unwanted catches of horse mackerel are likely to be well in excess of the *de minimis* volume requested, meaning significant catches of horse mackerel will still have to be landed.
Comments of STECF PLEN 19-02	There is evidence of increased costs associated with handling and storing unwanted catches in the relevant fisheries. These costs result from an increase in handling and sorting times on board at 30-60% depending on vessel size. This is not specific to mackerel and horse mackerel. Evidence that landing unwanted catches has an associated cost, is not sufficient to demonstrate those costs are disproportionate. Improving selectivity in the relevant fisheries should be the priority as this will reduce the costs for handling unwanted catches.
Recommendation	Common sole caught using beam trawls with mesh size of 80-119mm with a large mesh panel in ICES divisions 7a, 7j and 7k
Main findings of EWG 19-08	Existing exemption but revised by increasing the scope to cover ICES divisions 7a, 7j and 7k. New information supplied is limited to a description of the numbers of Belgian and Irish beam trawls vessels involved in the fishery in VIIa, j, k in 2016-2018 and their associated catches. It is not clear whether other Member States have vessels operating in the fishery. The justification for the exemption is the same as the existing *de minimis* exemption for common sole for beam trawls in the Channel (7d, 7e) and the Celtic Sea (7f, 7g, 7h). It is based on selectivity having improved through the introduction of gear modifications. The *de minimis* is required to cover residual unwanted catches. It is assumed that the fisheries covered by the existing exemption are the same fisheries and that the selective gear will be as effective at reducing unwanted catches of sole in the areas proposed to be included. However, no information has been provided to this effect. STECF 15-01 noted the mesh size of the so-called Flemish panel specified in the Delated Act was 120mm compared to what was originally tested, i.e. a 150mm panel. As pointed out by STECF previously, this may reduce the effectiveness of the panel and not give the reductions in unwanted catches observed in the trials. Information to evidence this would be useful, accepting that the Flemish panel as currently used does improve selectivity for sole compared to standard 80mm beam trawls.
Comments of STECF Plen 19-02	STECF agrees with the EWG 19-08 assessment
Recommendation	Boarfish caught using bottom trawls in ICES divisions 7b-c and 7f-k
Main findings of EWG 19-08	This is a new request for an exemption. The supporting information provides an overview of the fisheries to which the exemption is to apply. Information is only provided for the French fleet. It is not clear whether the intention is for the exemption to apply to the fleets of other Member States. The justification for the exemption is that improvements in selectivity to avoid the catches of boarfish will be hard to achieve without severe economic impacts on the revenue of the boats concerned. A review of recent French selectivity experiments is provided. Additionally, an economic analysis shows the costs of handling and storing unwanted catches on board French demersal trawlers operating in the North Sea.

	The assertion that selectivity improvements will be hard to achieve without severe economic impacts on the revenue of the boats concerned is intuitive but not supported by quantitative information. Additionally, while estimates of the potential increase in workload are provided, these are based on a limited generic analysis which is not specific to unwanted catches of boarfish. This analysis relates to vessels operating in the North Sea and it is not clear whether the information provided is representative of the fleets involved in this exemption.
Comments from STECF PLEN 19-02	There is evidence of increased costs associated with handling and storing unwanted catches in the relevant fisheries. These costs result from an increase in handling and sorting times on board at 30-60% depending on vessel size. These are not specific to boarfish. Evidence that landing unwanted catches has an associated cost, is not sufficient to demonstrate those costs are disproportionate. Improving selectivity in the relevant fisheries should be the priority as this will reduce the costs for handling unwanted catches.
Recommendation	Greater silver smelt caught using bottom trawls with a mesh size greater or equal to 100mm in ICES division 5b (EU waters) and subarea 6
Main findings of EWG 19-08	This is a new request for an exemption. The supporting information provides an overview of the fisheries to which the exemption is to apply. Information is only provided for the French fleet. It is not clear whether the intention is for the exemption to apply to the fleets of other Member States. The justification for the exemption is the same as for the boarfish exemption above. The assertion that selectivity improvements will be hard to achieve without severe economic impacts on the revenue of the boats concerned is intuitive but not supported by quantitative information. Additionally, while estimates of the potential increase in workload are provided in terms of time, only a limited generic analysis is provided. This analysis relates to vessels operating in the North Sea and it is not clear whether the information provided is representative of the fleets involved in this exemption.
Main comments of STECF PLEN 19-02	There is evidence of increased costs associated with handling and storing unwanted catches in the relevant fisheries. These costs result from an increase in handling and sorting times on board at 30-60% depending on vessel size. These are not specific to Greater silver smelt. Evidence that landing unwanted catches has an associated cost, is not sufficient to demonstrate those costs are disproportionate. Improving selectivity in the relevant fisheries should be the priority as this will reduce the costs for handling unwanted catches.
Recommendation	Fish bycatch below MCRS in the Brown shrimp fishery caught using beam trawls of mesh size <31mm in ICES division 7a
Main findings of EWG 19-08	This is a new request for an exemption. Detailed information on the fishery in the Irish Sea is provided for the UK fleet. However, there are no recent estimates of fish discards from the brown shrimp fisheries, the estimates of discarding are based on a study that was undertaken in 1995. There is no way of assessing whether this reflects catches in the fishery currently. Further catch sampling would provide

	more reliable estimates of unwanted catches. The justification for the exemption are that significant increases in selectivity are very difficult to achieve and that the cost of handling the unwanted catch are disproportionate. Intuitively these assertions are reasonable. However, only limited qualitative information is provided to support them and this is principally based on the brown shrimp fishery in the North Sea. It is likely the North Sea fishery is representative of the Irish Sea fishery. Expressing the *de minimis* exemption as proposed would mean that the fisheries for brown shrimp would be able continue to discard all catches of fish. A similar approach has been proposed for industrial species bycatch in North Sea demersal trawl fisheries.
Main comments of STECF PLEN 19-02	Given the specificities of brown shrimp fisheries in the North Sea, which are well documented and show that the unwanted catches in this fishery are generally of very small fish. Provided the fisheries in the North Sea are considered representative of the Irish Sea fishery, it is safe to assume that both are valid assertions, noting there is no attempt to substantiate this claim.
Recommendations	Megrim below MCRS caught using bottom trawls with a mesh size of 70-99mm and beam trawls with a mesh size of 80-119mm in ICES subarea 7
Main findings of the EWG 19-08	This is a new request for an exemption. Very limited information is provided on the fisheries and fleets involved for Spain. Estimates of discards are also given for Spain. Limited catch information is provided for Belgium. The justification for the exemption is based on an economic analysis which show the costs of handling unwanted catches of megrim by the Spanish fleet operating in ICES subarea 7. The analysis presented estimates the additional crew costs associated with the handling of unwanted catches of megrim onboard. This is compared to the situation if the unwanted catches had to be landed. The analysis shows there to be costs associated with handling the unwanted costs, but it is not possible to assess whether these are disproportionate or not. Limited information is also provided for the Belgian beam-trawl fishery to justify the exemption based on improvements in selectivity being difficult to achieve. However, acknowledging this is linked to use of selective gears, there is no additional information or analysis provided in support of this assertion. There is no evaluation of the impact the selective beam trawl gear would have on catches of megrim. There is also reference to future selectivity work to be undertaken by the Spanish fleet. No detail is provided of these trials, but it is anticipated that there is scope for improvements in selectivity in this fishery as indicated by EWG 18-02.
Comments of STECF PLEN 19-02	The analysis provided is specific to unwanted catches of megrim and shows additional costs for handling unwanted catches of megrim and shows the additional time on board to handle unwanted catches of megrim is estimated to increase crew costs by approximately 40%. Evidence that landing unwanted catches has an associated cost, is not sufficient to demonstrate those costs are disproportionate. Improving selectivity in the relevant fisheries should be the priority as this will reduce the costs for handling unwanted catches.
Recommendation	Cod, haddock and whiting below MCRS caught using bottom trawls with a mesh size up to 119mm in the West of Scotland *Nephrops* fishery in ICES division 6a

Main findings of EWG 19-08	This is a new request for an exemption. Separate exemptions are proposed for cod, haddock and whiting but apply to the same fishery for *Nephrops* in the West of Scotland (ICES division 6a). Estimates of unwanted catches below MCRS are given and show for all three species the volume of *de minimis* requested will cover only a small proportion of the current unwanted catches. The justification for the exemption is largely based on an analysis of disproportionate cost of handling unwanted catches ashore which is estimated to equate to a net cost of approximately £100 per tonne. The costs seem reasonable, but there is no objective means to assess whether they are realistic or can be considered disproportionate. While not directly mentioned, the JR contains provisions to introduce selective gears into the *Nephrops* fishery. These gears will improve selectivity and should reduce unwanted catches. However, it would seem appropriate, given the current high levels of unwanted catches in this fishery to list the gears to be introduced through the existing discard plan into the Celtic Sea and the Irish Sea for *Nephrops* fisheries. The gear options listed in these areas include the SELTRA trawl and sorting grids which would be considered much more selective than the gear options proposed for the West of Scotland.
Comments of STECF PLEN 19-02	STECF agrees with the EWG 19-08 assessment. STECF notes that the cod and whiting stocks in the West of Scotland are heavily depleted and reducing fishing mortality on these stocks should be a priority. The West of Scotland cod stock is one of the stocks covered under the Bycatch reduction plan for stocks in NWW. Introducing a *de minimis* exemption to allow continued discarding will not lead to a reduction in fishing mortality and if not strictly monitored may lead to increased fishing mortality due to unreported discarding.
High Survivability	
Recommendation	Skates and ray species caught by any gear in ICES subareas VI and VII (for cuckoo ray see below)
Main Findings of EWG 19-08	Exemption granted for three years (2019-2021); the delegated act stipulates a roadmap be developed and applied to increase survivability. Two new studies were provided. A tagging study for undulate ray in ICES VIIe for the English inshore otter trawl fishery using 80 mm codend gave an estimated discard survival rate of 93%. This was based on only 10 returned tags and reported as preliminary results until more tags returned. The method of survival estimation is considered robust. The second study investigated factors effecting the health condition of discarded rays based on records of 13 skate and ray species caught by 3 gear types (trawl, gillnet, longline). The study concludes that smaller individuals and smaller species, (e.g. cuckoo and spotted ray), are likely to be released in poorer condition than larger individuals, (e.g., blonde and thornback ray), and would have a lower probability of survival. Health condition was higher for rays caught by static gears than for towed gears, this was associated with towed gears catching smaller rays. Longer tow duration was associated with lower health condition. The supporting information identifies significant data gaps to be addressed and lists projects that have been commissioned to generate additional ray survival evidence. There was no explicit reporting against the road map, which is recommended in the future. Future submissions should report against the three main tasks in the road map.
Comments STECF	STECF agrees with the EWG 19-08 assessment and notes that the wide-ranging exemption

PLEN 19-02	still has many evidence gaps. The latest evidence indicates survival varies across species and fisheries, and larger individuals and species caught by inshore and static gears have the highest rates of survival. STECF note that the outputs of the ICES Workshop on incorporating discards into the assessments and advice of elasmobranch stocks (WKSHARK5) will provide useful context for this exemption. STECF also agrees with EWG-19-08 that the submission of future evidence to support this exemption should be presented in line with the timelines in the roadmap.
Recommendation	Skates and ray species caught by any gear in ICES subareas VI and VII (cuckoo ray)
Main Findings of EWG 19-08	Exemption was granted for one year (2019) for cuckoo ray in ICES areas 6 and 7. This is a request for extension. A new study from an otter trawl fishery in VIIa showed most cuckoo rays were alive at the point of release (97%) and 84% (n=37) were in excellent condition. Vitality data do not constitute discard survival estimates but indicate survival potential. The second study investigated factors affecting the health condition of discarded different rays and concluded that smaller individuals and smaller species, such as cuckoo ray, are likely to be released in poorer condition than larger individuals. However, observations were based on a limited number of cuckoo rays (16 individuals), for which vitality categories were not explicitly reported. No new evidence was provided on discard rates for cuckoo ray. Further data and knowledge of discard survival and discard rates for different ray and skate species, including cuckoo ray, are anticipated in outputs from a road map.
Comments STECF PLEN 19-02	STECF agrees with the EWG 19-08 assessment and observe that evidence from all regions indicates that cuckoo rays display lower survival than larger ray species and there could be zero survival in some fisheries. Further observations from survival experiments are needed to provide reliable estimates of survival rates for cuckoo ray before any definitive judgment can be made. New and ongoing studies (e.g. SUMARIS project), completed in the next 1-2 years across relevant fisheries, and following the ICES guidance, will generate necessary evidence on discard survival levels.
Recommendation	Plaice caught with beam trawls by vessels of the >221kW segment fleet which use the flip-up rope or benthic release panel; or vessels, with an engine power of not more than 221kW; or less than 24m in length overall in ICES subarea 7
Main Findings of EWG 19-08	Extension of the existing temporary exemption beyond 2019. New vitality evidence was provided on plaice at the point of discarding in the English South West beam trawl fishery. Vitality data were collected from different vessels, working different gear designs, with differing catch handling processes, under a wide range of seasonal conditions and across three ICES subdivisions. The vitality data were used to generate inferred survival estimates based on established relationships between survival and vitality. Inferred survival estimates varied between trips; the overall estimate was 56%. Using vitality as a proxy for survival is a viable approach to estimate survival but is less robust than direct observation methods. An overview of fisheries only for the Belgium beam trawl fleet was provided. Equivalent data from other relevant countries were not provided. Belgium has developed a three-year (2019-2021) project to generate directly observed survival estimates for plaice in the North Sea 7d,f,g (not for 7hjk). This project will contribute to delivering the roadmap and the evidence needed to evaluate this proposal. Reporting against the roadmap so that new evidence is highlighted against the agreed tasks is encouraged.

Comments STECF PLEN 19-02	STECF agrees with the EWG 19-08 assessment and note that the regional group should describe how the proposed exemption links to the Bycatch Reduction Plan for the plaice stock in area 7h,j,k.
Recommendation	Plaice (*Pleuronectes platessa*) caught with otter trawls (OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX) in ICES divisions VIIa and VIIb to VIIk but excluding VIId, VIIe, VIIf, VIIg; in combination - for métiers targeting Norway lobster - with highly selective gears listed in Section 6 applying to *Nephrops* fisheries
Main Findings of EWG 19-08	This is a new exemption. Based on the wording provided in JR, EWG 19-08 interpreted this proposal to apply only to *Nephrops* fisheries with highly selective gear. If the intention is to apply to whitefish demersal fisheries, then a further evaluation is required (see below Comments STECF PLEN 19-02). A new study on plaice survivability in the Irish fish-directed otter trawl fishery is provided (not *Nephrops* fishery). A critical review showed the method to be robust, but in agreement with PLEN 19-01, the estimate of survival presented in the JR is questionable, whereby the survival estimate generated is 37% (rather than 43%). The study also reported that hauls with *Nephrops* catches were excluded from the estimate, due to the substantially lower plaice survival observed for these hauls. Therefore, the reported plaice discard survival estimate is not considered representative of the *Nephrops* trawl fishery. Based on evidence that is available but was not provided (e.g. Noak, et al unpubl.; Elliott et al, 2017 (unpubl.); Randall et al, 2016), *Nephrops* fisheries are likely to have lower levels of plaice discard survival, due to the injuries sustained in the trawl and the increased sorting times when catching *Nephrops*. Detailed information on the fleets and fisheries from Ireland and UK was provided.
Comments STECF PLEN 19-02	Following EWG 19-08, PLEN 19-02 received clarification that this exemption was intended to include fish directed fisheries, as well as *Nephrops* targeting fisheries, where highly selective gears are used. STECF observes that the new survival estimate is comparable to, but lower than equivalent estimates from other fish directed otter trawl fisheries in NWW (Morfin et al., 2017; Catchpole et al., 2015). STECF agrees with the EWG 19-08 assessment and note that additional evidence indicating more limited survival of plaice in *Nephrops* trawl fisheries is available but has not been reported here (e.g. Noak, et al unpubl.; Elliott et al, 2017 (unpubl.); Randall et al, 2016). STECF also notes that the plaice stock in 7h,j,k is heavily depleted and reducing fishing mortality on this stocks should be a priority. This plaice stock is covered under the Bycatch reduction plan for stocks in NWW. Introducing a survival exemption to allow continued discarding with only partial survival likely for discarded plaice will not lead to a reduction in fishing mortality.
Recommendation	Plaice (*Pleuronectes platessa*) caught with seines (SSC, SDN) in ICES division VIId.
Main Findings of EWG 19-08	This is a new exemption, proposed to provide consistency with the North Sea Danish seine plaice exemption. The basis for the proposal is that both fisheries have similar operational characteristics. No survival evidence was presented for the defined fishery. Instead a study on plaice discard survival from Danish seines was provided. This was assessed by EWG 18-06 to give robust survival estimates for the fishery studied. Fishery data demonstrate differences in the characteristics of the Dutch flyshoot (Scottish seine) and Danish seine fisheries (vessel dimensions and engine power, haul durations and catch sizes). These differences are sufficient to question whether the survival rates from one fishery are representative of the other. For example, the substantially higher catch sizes in the

	Dutch flyshoot fishery and the higher proportion of smaller discarded plaice may have a negative effect on survival levels. Moreover, it is not clear whether the two gears are comparable, as the North Sea survival estimate may be from a Danish anchor seine which operate differently to the Dutch flyshoot (Scottish seine) gears used in 7d. This should be clarified. Directly observed survival rates from the Dutch flyshoot fishery would provide the most robust evaluation of this proposed exemption. Data on the vitality of discarded plaice could be sufficient to enable inferences on the likelihood of survival. More details on the fishery, including vessel numbers, specific fishing operating method and catch composition are also needed for a full evaluation.
Comments STECF PLEN 19-02	STECF agrees with the EWG 19-08 assessment
Recommendation	Common sole below MCRS caught with bottom trawls with mesh size 80-99mm in ICES division VIIe
Main Findings of EWG 19-08	This request is for a geographic extension of the existing exemptions in 7d and 4c (North Sea). Unlike these existing exemptions, there is no reference to nursery areas and the supporting information states there are no known spawning or juvenile concentrations in 7e. No new survival evidence was provided. Previously assessed studies that support existing exemptions estimated survival of <MCRS Common sole at 51% (IVc; EWG 16-10) and 89% (VIId; EWG 17-03). The method applied in these studies was robust. With no new survival evidence, it is assumed in the supporting information that any differences between the VIIe and VIId/IVc fisheries have no significant effect on survival. Existing exemptions apply to inshore Common sole directed fisheries, while the proposed exemption for VIIe is for a cuttlefish targeted fishery. Unlike the VIId and IVc fisheries, the catches of the VIIe fleet include a high proportion of rays, spider crab and cuttlefish. It is likely that the presence of these species will negatively influence the survival of discarded fish given their spikey or rough morphology which can harm other fish. A deviation from the existing exemptions is an increase in vessel size from a maximum length of 10 metres to 12 metres. However, the mean lengths of the fleets are similar (e.g. IVc 9.8m vs VIIe 10.8m), and this is unlikely to affect survival rates. Fishery information was provided for the French fleet (90 vessels under 12 m, with mean engine power of 130 kW; discard rate of <MCRS Common sole is given as 7% of Common sole catches). To enable a more robust evaluation of this exemption, information on other national fleets are needed. Also, due to the differences in catch composition, preferably directly observed survival estimates from this fishery should be generated, or alternatively, vitality information on discarded <MCRS Common sole.
Comments STECF PLEN 19-02	STECF agrees with the EWG 19-08 assessment
Technical Measures	
Recommendations	Additional selective gears for the Celtic Sea, Irish Sea and West of Scotland
Main findings of EWG 19-08	Last year's JR proposed a series of changes to minimum gear requirements of which PLEN 18-02 assessed that the majority represented improvements or equivalence in selectivity with the current legal gears. These new technical measures were implemented through art 9 (Celtic Sea Protection Zone) and art. 10 (Irish Sea) in the discard plan for North Western waters (2018/2035).

	The 2019 JR proposes some adjustments and additions to the current technical measures in the discard plan for the Celtic Sea Protection Zone and for the Irish Sea but also to introduce new minimum gear standards in the waters West of Scotland. Comments on the main changes proposed are provided below. There are also several technical amendments to the current discard plan for which no supporting information has been provided, so EWG 19-08 has been unable to assess the impacts of these changes. Celtic Sea Protection Zone Based on the supporting information supplied, adding 120 mm cod end to the list of gear options in the Celtic Sea is reasonable. This gear has equivalent selectivity to the current gears included in the NWW discard plan. Based on the supporting information provided, EWG 19-08 agrees that the principle of the dual codend to vertically separate catch into two codends where differential selection can take place has the potential to reduce bycatch of unwanted species while maintaining catches of target species. It is also important that the specifications (e.g. mesh size and twine thickness) of the dual codend arrangement are defined in the delegated act. Assessment of the overall selection performance of any proposed dual codend arrangement in relation to the available gear options. No supporting information has been provided to justify the introduction of a derogation to allow a codend mesh size of 80mm + 120mm square mesh panel (SMP) for vessels with catches of more than 10% of sole. Based on available information this gear is likely to lead to a reduction in selectivity for the vessels that use this gear. New scientific evidence is needed to justify this request before allowing it as a legal gear. The suggested definition of the SELTRA trawl included in the JR is reasonable and represents an increase in selectivity compared to the gear defined previously. Irish Sea As per the Celtic Sea, the introduction of a derogation to allow a cod end mesh size of 80mm + 120mm SMP for vessels with catches of 10% of sole would imply a reduction in selectivity for the vessels that choose this gear. New scientific evidence is needed to justify this request. The amendment included in the JR relating to the inclusion of a derogation for queen scallop fisheries is largely unsubstantiated. However, based on knowledge of this fishery the fish bycatches are expected to be modest and the impact of this fleet is therefore likely small overall. As with the Celtic Sea, the definition of the SELTRA is reasonable and represents an increase in selectivity compared to the gear defined previously. The exclusion of vessels <12 m is a new element compared to last year´s assessment. No supporting scientific information was provided with the JR but it is understood that the proposal to exclude vessels <12 m is related to differences in selectivity for small and large vessels. Supporting evidence is needed to clarify this to be the case. West of Scotland No supporting scientific information was provided with the proposed changes of minimum

	gear requirements in the JR for the West of Scotland *Nephrops* fishery. However, based on available information – 300mm SMP and 100mm cod end with 160mm SMP - the introduction of both gear alternatives proposed would imply an increase in selectivity provided their use is restricted to the *Nephrops* fishery and not to other fisheries in the area targeting demersal fish species.
Main comments of STECF PLEN 19-02	STECF agrees with the assessment of EWG 19-08.

Table 4. Main findings of the STECF EWG 18-06 and summary of additional information received relating to exemptions presented: South Western Waters.

De minimis	
Recommendation	Hake caught with trawls and seines in directed fisheries in ICES subareas 8 and 9
Main findings of EWG 19-08	Existing temporary exemption granted until the end of 2019. Detailed information on the Spanish fisheries and fleets involved are provided. Catch information as well as a breakdown of the Spanish fleets is presented. Limited information is provided for Portugal and no information is provided for France. The justification for the exemption is that improvements in selectivity are hard to achieve and the de minimis is needed as a temporary solution while selective gears are developed for the relevant fisheries. The supporting information includes a review of selectivity trials carried out by Spain over the period 2014-2018. This review is comprehensive and details the results from several different trials with different selectivity devices. An economic analysis of disproportionate costs resulting from the handling and storage of unwanted catches of hake on board is also provided. This is linked to the selectivity studies but relates only to the Spanish fleets. While showing improvements in selectivity lead to reductions in marketable catches, it is not possible to conclude definitively that further improvements in selectivity are very difficult to achieve. However, there are indications that further work on selectivity is planned, which may identify gear modifications that could be adopted in the fisheries in the future. Additionally, results from the SIBALO project are presented which show the increased costs associated with handling and storing unwanted catches of hake on board. The estimates of the potential increase in workload are presented and show the increase in costs associated with the handling of unwanted catches. The results show these costs to be significant. The representativeness of the analysis of other fisheries in the area to be covered by the exemption is unclear.
Comments of STECF PLEN 19-	STECF agrees with the assessment of EWG 19-08.

02	STECF also notes that an additional report has been provided which details planned work by Spain to assess the costs for handling unwanted catches on board vessels and ashore. Hake caught with trawls is included in this analysis. This report gives a detailed overview of the relevant Spanish fleets and the types of economic data that will be collected. It aims to provide a comparison of the costs for handling unwanted catches with and without a *de minimis* exemption in place. This study is expected to be completed by the end of 2019 and will provided further information to support this exemption. STECF stresses that improving selectivity for hake in the relevant fisheries should be the priority.
Recommendation	Horse mackerel and mackerel caught with bottom trawls, seines and beam trawls in ICES subareas 8 and 9
Main comments from EWG 19-08	Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for horse mackerel and mackerel but the descriptions of the fleets and fisheries and justification for the exemptions is the same. Detailed descriptions on the fleets and fisheries is provided for Spain, and Portugal. This includes catch data and descriptions of the different fisheries with bycatch of mackerel and horse mackerel. Only limited information is provided for France. The volume of de minimis requested are estimated for horse mackerel and mackerel. Significant differences in discard rates between the different fleets under the exemption are observed and it is difficult to establish how the estimated de minimis volume relates to actual levels of unwanted catches. The supporting information contains a review of selectivity trials carried out by France in recent years with a range of selectivity devices (e.g. T90 codends and square mesh cylinders). The review indicates minimal reductions in unwanted catches of mackerel and horse mackerel with any of the devices tested. The supporting information provided is generic and contains only limited information relating to mackerel and horse mackerel. It does not demonstrate conclusively that improvements in selectivity in these fisheries are very difficult to achieve. There are indications that selectivity trials are continuing which will be completed at the end of 2019, which will test other gear modifications. A detailed economic analysis of disproportionate costs resulting from the additional time required for handling and sorting unwanted catches on board is also provided. This information is provided for several French fleets and is linked to the selectivity studies. The analysis provided of disproportionate costs is also generic and it is not possible to establish how representative of the fisheries covered by the exemption as it relates to French demersal trawlers operating in the North Sea. It is not clear how representative this analysis is of the Spanish and Portuguese fleets operating in area 8 and 9.
STECF	There is evidence of increased costs associated with handling and storing

Comments from PLEN 19-01	unwanted catches in the relevant fisheries. These costs result from an increase in handling and sorting times on board at 30-60% depending on vessel size. These are not specific to horse mackerel and mackerel. Improving selectivity in the relevant fisheries should be the priority as this will reduce the costs for handling unwanted catches. STECF also notes an additional report has been provided which details planned work by Spain to assess the costs for handling unwanted catches on board vessels and ashore. Mackerel and horse mackerel caught with trawls is included in this analysis. This report gives a detailed overview of the relevant Spanish fleets and the types of economic data that will be collected. It aims to provide a comparison of the costs for handling unwanted catches with and without a *de minimis* exemption in place. This information may provide additional evidence to support these exemptions but only for the Spanish fleets.
Recommendation	Megrim, plaice, anglerfish, whiting and pollack caught with bottom trawls, seines and beam trawls in ICES subareas 8 and 9
Main findings from EWG 19-08	Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for megrim, plaice, anglerfish, whiting and pollack. The exemption for whiting only applies to subarea 8. The descriptions of the fleets and fisheries and justification for the exemptions is largely the same as for horse mackerel and mackerel. The catch data presented is incomplete and has been obtained from the FDI database but refers to data prior to 2017. This may not be reflective of the current state of the fisheries. Significant differences in discard rates between the different species covered under the exemption are observed. These vary from 1% for pollack to 58% for whiting. For megrim and whiting the unwanted catches will far exceed the estimated de minimis volumes. Therefore, considerable quantities of unwanted catches will still have to be landed. There is no indication in the supporting documents to suggest further work to test selective gears to reduce these unwanted catches are planned. The same review of the French selectivity trials provided for mackerel and horse mackerel is included in the supporting information for each of these species. The review is generic and does not provide any specific information for the species covered under these exemptions. Therefore, it does not demonstrate that improvements in selectivity in these fisheries and for these species are very difficult to achieve. The same economic analysis of disproportionate costs is also presented in support of these exemptions. As for horse mackerel and mackerel, the analysis does not provide specific information relating to these species and the concerns relating to representativeness to these fleets as for horse mackerel and mackerel similarly apply.
STECF comments from PLEN 19-01	There is evidence of increased costs associated with handling and storing unwanted catches in the relevant fisheries. These costs result from an increase in handling and sorting times on board at 30-60% depending on

	vessel size. These are not specific to the stocks covered under these exemptions. Improving selectivity in the relevant fisheries should be the priority as this will reduce the costs for handling unwanted catches. Anglerfish and megrim caught with trawls are included in the proposed Spanish study. This information may provide additional evidence to support the exemptions for anglerfish and megrim but only for the Spanish fleets.
Recommendation	Anchovy and boarfish caught with bottom trawls, seines and beam trawls in ICES subareas 8 and 9
Main findings from EWG 19-08	Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for anchovy and boarfish. A limited description is provided of the Portuguese fleets and fisheries. No supporting information is provided, so no assessment can be made as to whether selectivity is difficult to improve in these fisheries or whether the costs of handling unwanted catches of boarfish and anchovy are disproportionate. No unwanted catches of these species are reported in the information supplied, and it is therefore unclear why the exemptions are required. It is suggested that a first step would be to establish the level of unwanted catch and then assess whether a de minimis exemption is needed.
Main comments of STECF Plen-02	STECF agrees with the assessment of EWG 19-08.
Recommendation	Red Sea Bream caught with bottom trawls, seines and beam trawls in ICES Division 9a
Main findings of EWG 19-08	Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for Red sea bream and sole. A limited description is provided of the Portuguese fleets and fisheries. No supporting information is provided, so no assessment can be made as to whether selectivity is difficult to improve in these fisheries or whether the costs of handling unwanted catches of Red Sea Bream and sole are disproportionate. No level of unwanted catch is reported, and it is therefore unclear why the exemptions are required. Increased monitoring of the fisheries would increase the understanding of the level of unwanted catches and help to assess whether these exemptions are needed in the future.
Comments of STECF PLEN 19-02	STECF agrees with the assessment of EWG 19-08.
Recommendation	Horse mackerel and mackerel caught with gillnets in ICES subareas 8, 9, 10 & CECAF 34.1.1, 34.1.2, 34.2.0
Main findings of EWG 19-08	Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for horse mackerel and mackerel but the description of the fleets and fisheries and supporting information is the same for all the exemptions. Information on the fleets and fisheries is provided for France and Portugal, but only limited information is provided for Spain. Information on the Spanish fisheries and fleets is needed to fully understand the extent to which the exemption would apply. The catch information presented is based

	on limited observations prior to 2017 but there is no indication of whether catch patterns have changed. According to the requests, the fleets involved are largely small-scale inshore vessels that are particularly vulnerable to the risk of losses of commercial catch that an improvement in selectivity would cause. The supporting information also provides a justification on the grounds of disproportionate costs. The arguments regarding difficulties in improving selectivity are credible given the nature of the fisheries. However, the qualitative nature of the information presented means evaluation is difficult. No attempt has been made to quantify the potential scale of these losses in the JR and it is not clear how this would vary across the different gillnet fisheries involved. The levels of *de minimis* volumes are quite low for both species. However, according to the supporting information many vessels (~3,000) would potentially avail of this exemption. Monitoring of uptake of small volumes of *de minimis* across many vessels would be challenging in practice.
Comments of STECF PLEN 19-02	STECF notes that these exemptions are only supported with qualitative arguments on disproportionate costs and selectivity with no attempt to differentiate between species and fisheries. Therefore, the arguments for these *de minimis* exemptions are not well founded, accepting though that improvements in selectivity are difficult to achieve in gillnet fisheries. Assessment of the disproportionate costs associated with Spanish gillnet fisheries are included under the new Spanish study highlighted previously. Mackerel and horse mackerel are specifically referred to in the description of this study.
Recommendation	Megrim, plaice, anglerfish, whiting and pollack caught with gillnets in ICES subareas 8 & 9
Main findings of EWG 19-08	Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for megrim, plaice, anglerfish, whiting and pollack. The exemption for whiting only applies in subarea 8. The description of the fleets and fisheries and supporting information is the same for all the exemptions. The fleets and fisheries involved are the same as for the mackerel and horse mackerel exemptions and the justification to support the exemptions is also broadly similar. New supporting information has been provided. An overview of the fleets and fisheries is provided for the Member States involved, which are the same as those for the mackerel and horse mackerel *de minimis* exemptions. The justification used based on selectivity being difficult to achieve is the same as provided for the mackerel and horse mackerel exemptions. There is no reference to disproportionate costs. As with the mackerel and horse mackerel exemptions, the arguments regarding difficulties in improving selectivity are credible given the nature of the fisheries. However, the qualitative nature of the information presented means it is difficult to evaluate whether this assertion is correct or not for the different species involved. The potential scale of any marketable losses resulting from an increase in selectivity in these fisheries is not quantified in the JR and it is not clear how this would vary across the different gillnet fisheries involved. The JR does not provide any information as to why different levels of de minimis are required. There does not appear to be any relationship between the level requested and the levels of unwanted catch. As for mackerel and horse mackerel, monitoring discards of these species covered under this exemption will be challenging.

Comments of STECF PLEN 19-02	STECF notes that these exemptions are only supported with qualitative arguments on selectivity with no attempt to differentiate between species and fisheries. Therefore, the arguments for these *de minimis* exemptions are not well founded, accepting though that improvements in selectivity are difficult to achieve in gillnet fisheries.

High Survivability	
Recommendation	Red seabream (Blackspot) caught with hooks and lines in ICES subareas 8 and 9a
Main Findings of EWG 19-08	Extension of an existing exemption (to include hook-and-line fisheries in ICES areas 8 and 9a). A full report of a study was provided on the survival of discarded Blackspot seabream in the demersal longline fisheries in Portuguese Mainland waters (ICES sub-Division 9.a). 86% of 59 individuals survived a ≤36h monitoring period. The method was reviewed and identified limitations, particularly in the short monitoring period, which is likely to have overestimated survival. Further studies are needed to generate robust survival estimates. Fishery information was provided describing Portuguese mainland water vessels belonging to a polyvalent and a trawl fleet catching Blackspot seabream either as a target or valuable by-catch species. Landings are given for the Portuguese and Spanish fleets. The Spanish and Portuguese fleets use comparable fishing methods, including hook size, line design and soak time (~6 hours). The discard rate was given as negligible.
Comments STECF PLEN 19-02	STECF agree with the EWG 19-08 assessment
Recommendation	Skates and rays (*Rajiformes*) caught with all gears in ICES subareas 8 and 9 (for cuckoo ray see below)
Main Findings of EWG 19-08	Exemption granted for three years (2019-2021); the delegated act stipulates a roadmap be developed and applied to increase survivability. New vitality evidence was provided for four ray species caught by trammel net and trawl fleet. The sampling covered all year and main fishing areas around Portugal. Most rays were alive at the point of discarding, the percentage of rays assessed in Excellent and Good condition was 52-100% for *R. clavata,* 67-92% for *R. brachyura*; 67-100% for *R. montagui*; and 79% for *R. undulata*. Vitality data do not constitute discard survival estimates but indicate survival potential. Factors shown to affect vitality were fish length, mesh size and soak time. Vitality evidence was also presented from two scientific trawls surveys. Most of rays were found in Excellent or Good conditions (60-72%), however, these data are not representative of commercial fishing conditions due to the short tow duration of 30 mins. The JR described an acoustic tagging experiment on *R. undulata*. In this

	study, 144 specimens were tagged, and after 14 days, the survival rate was reported at 52%. The quality of this estimate could not be established without the full report. The exemption applies to all fisheries in areas 8 and 9. Information was provided for the Portuguese fleet including gear type, number of vessels and estimated landings and discards (except for net fisheries). The new vitality data appear to adequately cover the fishing activity, characteristics and conditions of the Portuguese trammel net and trawl fisheries. The supporting information identifies significant data gaps still need to be addressed. While new vitality information adds to the understanding of survival of rays, further discard survival studies are still needed. There was no explicit reporting against the road map, which is recommended in the future. Future submissions should report against the three main tasks in the road map.
Comments STECF PLEN 19-02	STECF agree with the EWG 19-08 assessment and note that the wide-ranging exemption still has many evidence gaps. The latest evidence indicates survival varies across species and fisheries, and larger individuals and species caught by inshore and static gears have the highest rates of survival. STECF note that the outputs of the ICES Workshop on incorporating discards into the assessments and advice of elasmobranch stocks (WKSHARK5) will provide useful context for this exemption.
Recommendation	Skates and rays (*Rajiformes*) caught with all gears in ICES subareas 8 and 9 (for cuckoo ray only)
Main Findings of EWG 19-08	Exemption was granted for one year (2019) for cuckoo ray in ICES subareas 8 and 9. This is a request for.an extension. New vitality evidence was provided for cuckoo ray caught by trammel net and trawl fleet. The sampling covered all year and main fishing areas around Portugal. 58% of specimens were assessed to be in Excellent condition, 21% in Good condition and 21% in Poor/Dead condition. Vitality evidence was also presented from two scientific trawl surveys. For the 5 specimens observed, most were found dead (n=4; 20% survival), however, these data are not representative of commercial fishing conditions due to the short tow duration of 30 mins, which is likely to have resulted in more rays in better health condition. New directly observed discard survival estimated of cuckoo ray were also provided. A total of 503 cuckoo rays caught with otter bottom trawl in ICES 9a were assessed for vitality, and 141 held for survival monitoring. 66.8% of cuckoo rays were alive at the point of release, 7.6% in excellent condition, 24% in good condition, 35% in poor condition and 33% were dead. All cuckoo rays died within 8 days of monitoring (survival was 0%) regardless of initial vitality. No controls were used to determine experimental induced mortality. This study indicates that the survival rate of discarded cuckoo ray could be zero in some fisheries. Information was provided on the Portuguese and Spanish fleets. Further

	details are needed on all fishery-gear-area combinations to which the exemption applies. Further data and knowledge of discard survival and discard rates for different ray and skate species, including cuckoo ray, are anticipated in outputs from a road map. Initiatives are planned to encourage fishermen to good use best practices in handling and release of discarded rays.
Comments STECF PLEN 19-02	STECF agree with the EWG 19-08 assessment and observe that evidence from all regions indicates that cuckoo rays display lower survival than larger ray species and there could be zero survival in some fisheries. Further observations from survival experiments are needed to provide reliable estimates of survival rates for cuckoo ray before any definitive judgment can be made. New and ongoing studies (e.g. SUMARIS project), completed in the next 1-2 years across relevant fisheries, and following the ICES guidance, will generate necessary evidence on discard survival levels.

Table 5. Main findings of the STECF EWG 18-06 and summary of additional information received relating to exemptions presented: Mediterranean.

De minimis	
Recommendation	Total catches of demersal finfish[1] under the Landing Obligation excluding hake, mullets and pelagic species caught with bottom trawls in all areas
Main findings of EWG 19-08	Extension of the existing temporary exemption beyond 2019. Biological and economic data has been submitted by Cyprus, Greece, Malta, Italy, France and Spain. Fleet descriptions are provided for all Member States, but not all present discard proportion estimates or discard rates for the relevant fisheries. Quantified data on catches below MCRS is lacking. Discard estimates vary markedly by Member States and species. For some species the total volume of discards is low but the proportions of the catch that is discarded is high. Justification is based on selectivity can be improved but an optimal solution has still to be developed and further research is needed to develop appropriate gear modifications or other avoidance measures. Gears tested indicate losses in marketable catches of around. The *de minimis* is needed as a temporary solution to offset some of the unwanted catches while research, testing selective gears is carried out. The JR indicates research that has been carried out and shows improvements are possible but result in losses of marketable catches. This has made introducing such gears as difficult. Further work is planned to test additional gear modifications. A simple analysis of the costs to convert trawl gear to gillnets is also provided, which shows significant costs and associated losses of marketable catch.

[1] Demersal finfish refers to European seabass (*Dicentrarchus labrax*), annular seabream (*Diplodus annularis*), sharpsnout seabream (*Diplodus puntazzo*), white seabream (*Diplodus sargus*), two-banded seabream (*Diplodus vulgaris*), groupers (*Epinephelus* spp.), stripped seabream (*Lithognathus mormyrus*), Spanish seabream (*Pagellus acarne*), red seabream (*Pagellus bogaraveo*), common pandora (*Pagellus erythrinus*), common seabream (*Pagrus pagrus*), wreckfish (*Polyprion americanus*), gilthead seabream (*Sparus aurata*) and deep-water rose shrimp (*Parapenaeus longirostris*)

	The arguments presented regarding improvements in selectivity being difficult to achieve are reasonable but are rather generic and not specific to any fishery. It is not possible to assess the impacts on fisheries within the different areas of the Mediterranean. The justification is also supported by an analysis of disproportionate costs. This is based on economic analyses carried out under several projects (e.g. H2020 MINOUW and DISCARDLESS) which show costs of landing unwanted catches are expected to exceed the returns from sale of raw materials for silage or fishmeal. Additional fixed costs for the maintenance of equipment and facilities are also reported. Estimates of the potential increase in costs of handling unwanted catches ashore are also provided although these are generic, covering trawl, gillnets and hook and line fisheries across the three regions within the Mediterranean. A similar analysis has been used previously to justify *de minimis* exemptions in the Mediterranean. The planned introduction of Marine Protected Areas and Fish Recovery Areas as a measure to avoid unwanted catches of undersized fish is a positive move. Using the *de minimis* as a stop-gap while the network of MPAs and FRAs is being introduced seems reasonable provided the network of closed areas are introduced quickly.
Comments of STECF PLEN 19-02	STECF agrees with the observations of EWG 19-08. STECF notes that additional information on the fisheries covered by this exemption was supplied but does not alter the substance of the assessment of EWG 19-08. STECF notes there is evidence of increased costs associated with handling and storing unwanted catches in the relevant fisheries. These costs result from an increase in handling and sorting times on board at 30-40% depending on vessel size. STECF also notes the evidence put forward regarding the cost of handling unwanted catches ashore, which is difficult in the Mediterranean. Due to the small quantities and a very large number of landing places, even in the case that landed unwanted catches could be sold, the evidence indicates their costs for collection would be disproportional to the value. Accepting that the supporting evidence is credible, STECF stresses the need to put in place the MPAs and FRAs as quickly as possible and to continue efforts to improve selectivity in trawl fisheries.
Recommendation	Total catches of demersal finfish1 under the Landing Obligation excluding hake, mullets and pelagic species caught with gillnets and trammel nets in all areas
Main findings of EWG 19-08	Extension of the existing temporary exemption beyond 2019. Biological and economic data has been submitted by Cyprus, Greece, Malta and Italy, France and Spain. Fleet descriptions are provided for all Member States, but not all present discard proportion estimates or discard rates for the relevant fisheries. Quantified data on catches below MCRS is missing. Discard estimates vary markedly by Member States and species. Justification is based on selectivity can be improved but an optimal solution has still to be developed and further research is needed to develop appropriate gear modifications or other avoidance measures. The JR indicates research that has been carried out and improvements in selectivity can be achieved using modified gillnets. Such modifications results in losses of

	marketable catches amounting to about 15%. Further work is planned considering ways to increase the selectivity of gillnets. The justification is also supported by the same analysis of disproportionate costs of handling unwanted catches on board and ashore. As with the previous exemption, while estimates of the potential increase in costs are provided, the arguments are generic, and no attempt has been made to identify fisheries which are particularly impacted or species that are particularly problematic. Additionally, the introduction of Marine Protected Areas and Fish Recovery Areas as with the previous exemption seems a positive step.
Comments of STECF PLEN 19-02	STECF agrees with the observations of EWG 19-08. STECF notes that additional information on the fisheries covered by this exemption was supplied but does not alter the substance of the assessment of EWG 19-08. STECF notes there is evidence of increased costs associated with handling and storing unwanted catches in the relevant fisheries. These costs result from an increase in handling and sorting times on board at 30-40% depending on vessel size. STECF also notes the evidence put forward regarding the cost of handling unwanted catches ashore, which is difficult in the Mediterranean. Due to the small quantities and a very large number of landing places, even in the case that landed unwanted catches could be sold, the evidence indicates their costs for collection would be disproportional to the value. Accepting that the supporting evidence is credible, STECF stresses the need to put in place the MPAs and FRAs as quickly as possible and to continue to investigate gear modifications to reduce the level of unwanted catches in these fisheries.
Recommendation	Total catches of demersal finfish[1] under the Landing Obligation excluding hake, mullets and pelagic species caught with hooks and lines in all areas
Main findings of EWG 19-08	Extension of the existing temporary exemption beyond 2019. Biological and economic data has been submitted by Cyprus and Greece. Other Member States have not provided such data. Fleet descriptions are provided for all Member States, but not all present discard proportion estimates or discard rates for the relevant fisheries. Quantified data on catches below MCRS is missing. Discard estimates vary by MS and species, but mostly are less than 1%. The highest discard rates are around 10% but generally levels of unwanted catches are low in all cases where data is presented. Justification is based principally based on the analysis of disproportionate costs presented for trawls and gillnets. There is also reference to selectivity studies carried out by Spain showing that these gears are size selective, and selectivity can be influenced by hook size. No estimates of impacts on catch volume or economic performance of the gears is provided. As with the previous exemption, while estimates of the potential increase in costs are provided, the arguments are generic, and no attempt has been made to identify fisheries which are particularly impacted or species that are particularly problematic.

	The introduction of Marine Protected Areas and Fish Recovery Areas as with the previous exemption is also included and is considered positive.
Comments of STECF PLEN 19-02	STECF agrees with the observations of EWG 19-08. STECF notes that additional information on the fisheries covered by this exemption was supplied but does not alter the substance of the assessment of EWG 19-08. STECF notes there is evidence of increased costs associated with handling and storing unwanted catches in the relevant fisheries. These costs result from an increase in handling and sorting times on board at 30-40% depending on vessel size. However, STECF notes these costs may be less in hook and line fisheries given the level of unwanted catches in such fisheries are likely to be small. STECF notes the evidence put forward regarding the cost of handling unwanted catches ashore, which is difficult in the Mediterranean. Due to the small quantities and a very large number of landing places, even in the case that landed unwanted catches could be sold costs, the evidence indicates their costs for collection would be disproportional to the value. Accepting that the supporting evidence is credible, STECF stresses the need to put in place the MPAs and FRAs as quickly as possible. STECF notes improvements in selectivity are unlikely in hook and line fisheries.
Recommendation	Total annual bycatches of Anchovy, Sardine, Mackerel and Horse mackerel caught by bottom trawls in all areas
Main findings of EWG 19-08	Extension of the existing temporary exemption beyond 20192. Biological and economic data has been submitted by Cyprus and Greece. Other Member States have not provided such data. Fleet descriptions are provided for all Member States, but not all present discard proportion estimates or discard rates for the relevant fisheries. Quantified data on catches below MCRS is missing. Discard estimates vary by MS and species. Discard rates are generally higher according to the information presented and mostly above 5%. Rates of up to 30% and 50% for horse mackerel in Greece and Italy are reported This indicates the level of *de minimis* will not cover the levels of unwanted catches and further measures will be required to reduce such catches. The justification for the exemption is based on the analysis of disproportionate costs presented for trawls, gillnets and hooks and lines so the observations are the same.
Comments of STECF PLEN 19-02	STECF agrees with the observations of EWG 19-08. STECF notes that additional information on the fisheries covered by this exemption was supplied but does not alter the substance of the assessment of EWG 19-08. STECF notes there is evidence of increased costs associated with handling and storing unwanted catches in the relevant fisheries. These costs result from an increase in handling and sorting times on board at 30-40% depending on vessel size. STECF notes the evidence put forward regarding the cost of handling unwanted catches ashore, which is difficult in the Mediterranean. Due to the small quantities and a very large number of landing places, even in the case that landed unwanted catches could be sold, the evidence indicates their costs for collection would be disproportional to the value. Accepting that the supporting evidence is credible, STECF stresses the need to put in place the

	MPAs and FRAs as quickly as possible. STECF notes improvements in selectivity should also be investigated.
High survivability	
	Red Sea Bream (Blackspot) – hooks and lines, all areas
Main Findings EWG 19-08	This is a proposed extension of an existing exemption. Supporting evidence is based on a review with multiple references but no original reports, therefore the quality of the information could not be fully assessed. One reference was submitted previously, EWG 18-06 and PLEN 18-02 concluded it represented sound scientific evidence for the discard survival of red sea bream in the "voracera" fishery. Based on fish recovering their basal homeostatic levels, a survival rate of 91% was estimated. Data is provided for Italian, Spanish, Mediterranean, Greece and Slovenia hook-and-line fisheries. While there is little information provided, the operational characteristics of the defined fishery are likely to be different from the "voracera" fishery, and so the survival evidence referred to may not be representative. Further survival assessments would determine whether survival rates differ across the defined gear types, seasons and geographic areas.
Comments STECF PLEN 19-02	STECF agrees with the EWG 19-08 assessment.
Recommendation	Lobster & Crawfish – gillnets, pots and traps, all areas
Main Findings EWG 19-08	This is a proposed extension of an existing exemption beyond 2019. Supporting evidence is based on a review with multiple references but no original reports, therefore the quality of the information could not be fully assessed. One discard survival estimate is mentioned, from a study on crawfish in a trammel net fishery in the Balearic Islands indicating a survival rate of 54%–76% based on 16 individuals. In the absence of the full report, the quality of this estimate could not be determined. The representativeness of the estimate to the defined fleet could not be established. Survivability for these species is expected to be high in pots and traps (as in the northern Atlantic, where exemption from the landing obligation is not required). Additional studies would be preferable for nets as there remains uncertainty on discard survival. Limited catch data is provided for crawfish catches by Italian vessels. It is not clear to which fisheries the exemption applies other than the Italian fisheries. Discard rates were not provided.
Comments STECF PLEN 19-02	STECF 19-02 identified the full report of the survival study submitted in the JR. The study was assessed to have followed a robust method. From three vessels, representative of the small-scale Majorcan lobster fishing fleet, it was observed that 36% of 209 crawfish were dead at the point of release (crawfish; *Palinurus elephas;* Catanese et al., 2018). In a captive observation survival assessment, one out of 16 crawfish died, the overall survival rate presented was 64%. STECF note that if 64% are alive at the point of discarding, and 94% of those survive in the longer term, then the overall survival rate is 60%, but this remains within the presented range of 57-76%. STECF agrees with the EWG 19-08 assessment. Additional studies in a representative range of static net fisheries would improve certainty on discard survival (only one estimate, based on 16 individuals, from one fishery).
Recommendation	Common sole – Rapido, Adriatic and PESCAmed
Main Findings EWG 19-08	This is a proposed extension of an existing temporary exemption beyond 2019. An abstract from a study (to be reported in full later in 2019) is provided. The information provided indicates a survival of 21-51% (mean 36%). The study noted that depth and catch weight affected survival. A full report on the study would enable an evaluation of the scientific robustness of the survival estimate. A fishery description is provided

Comments STECF PLEN 19-02	A machine translated full report (from Italian to English) on the study was made available and reviewed by STECF 19-02. From catches taken under normal commercial practice, immediate mortality was reported at 66%. The sole alive at the point of release (34%) were mostly in poor condition. The survival of those individuals alive at point of release, using the captive observation method, was estimated at 21-51%. Mortality rates appear to have slowed by the end of the monitoring period of 120 hours, but STECF note that this time is shorter than comparable studies and may overestimate survival. This survival estimate is also based on a sample of sole that has a higher proportion of healthy fish than was seen in the commercial catch. STECF note that when accounting for individuals that were dead at the point of release, the overall discard survival rate is less than 7-17%.
Recommendation	*Nephrops* – Pots and Traps, Adriatic and PESCAMed
Main Findings EWG 19-08	Extension of the existing temporary exemption beyond 2019. No new survival evidence is provided. Survival rates of *Nephrops* caught by pots are high (> 80%) in the NWW and North Sea. It is not possible to make direct inference as to the applicability of these survival levels to the Mediterranean, particularly as it is warmer than the Atlantic regions. Some information on the Italian fleet was provided. The reported catches are very small <1 tonne per year. It is stated that *Nephrops* landings are sold alive. There is no information on levels of unwanted catch. Additional data could be provided indicating the scale of the fishery, discards and details of the live market.
Comments STECF PLEN 19-02	STECF agrees with the EWG 19-08 assessment.

1.5 STECF conclusions

STECF endorses the findings presented in the Report of the EWG 19-08 and makes the following conclusions:

- STECF concludes that the role of EWG 19-08 and any future STECF EWGs set up to evaluate joint recommendations remains to evaluate the scientific rigor and robustness of the underpinning information supplied by Member States to support the main elements of joint recommendations. STECF cannot adjudicate on whether exemptions should be accepted or not.
- STECF re-iterates that it is difficult to provide conclusive advice on whether the information presented is sufficient to accept or reject any individual application based on the exemption provisions. The subjective nature of the conditionalities – "high survival", "very difficult to achieve" or "disproportionate costs" means that there is a large element of judgement required in deciding on whether to permit or reject a proposal that cannot be based solely on scientific option of the evidence presented.
- EWGs 19-08 and 18-06 noted that the quality of submissions to support the exemptions has generally improved since the first JR's were submitted in 2014. However, there were cases where the quality of submission is poor, making it very difficult to conduct an analysis at all. STECF continues to encourage Member State Regional Groups to use the templates developed by STECF in 2016 to supply fisheries and fleet descriptors and in case of *de minimis* exemptions provide economic data to support such proposals.
- STECF concludes that the number of *de minimis* exemptions continues to increase, and in particular those based on the conditionality of disproportionate costs. STECF observes that the same generic information on the costs of handling unwanted catches is used to support multiple exemptions making it is difficult to make an evaluation. Moreover, STECF concludes that simply stating that landing unwanted catches has an associated cost, is not sufficient to demonstrate that those costs are disproportionate. STECF

concludes that the case for *de minimis* should not be improved by having high levels of unwanted catches, and therefore high handling costs, where the incentive to improve selectivity should be maintained. Further STECF stresses that improving selectivity or avoidance methods to reduce the catches of unwanted catches should be the priority.

- STECF suggests that the Commission review the interpretation of the conditionality relating to disproportionate costs included in Article 15. STECF consider this may form a better basis for establishing exemptions based on disproportionate costs, while also potentially being easier to evaluate by STECF.
- STECF reiterates that to fish at F_{MSY}, *de minimis* discard quantities need to be deducted from the agreed catch opportunity (TAC) arising from F_{MSY} based advice. If *de minimis* were operated as an addition to the F_{MSY}-advised catch, then mortality rates would exceed the F_{MSY} target. Consequently, fish being discarded under d*e minimis* provision require careful monitoring, and the need for enhanced monitoring for *de minimis* cases is imperative to avoid overfishing by exceeding the *de minimis* amounts; this risk is highest where the estimate of unwanted catch is much higher than the *de minimis* amount. STECF concludes that *de minimis* exemptions pose a higher risk to overfishing than survival exemptions when deductions from the TAC are based on the estimated level of exempted dead discards.
- STECF re-emphasises the need to consider survivability in the context of the discard rate for the fishery seeking an exemption (STECF 17-02), highlighting that medium survival rates in high discarding fisheries still lead to high discard mortality rates. STECF notes that in 2018, deductions from TACs were made, whereby exempted dead discards were deducted from the TAC to reduce the risk of overfishing. STECF has also previously concluded (STECF 19-02) that unless surviving discards are accounted for in stock assessments when dead discards are accounted for in TAC setting, where survivability exemptions are in place, the actual fishing mortality will not match the agreed catch level. This should be discussed in the assessment forums for stocks with survival exemptions.
- STECF re-iterates that assessing what constitutes high survivability is complicated by the limited evidence and the variability in the available estimates. Many factors can affect survival, but these are not well understood. STECF states that for the skate and ray survival exemptions, the uncertainty in extrapolating survival evidence between species, fisheries and seasons is particularly high. STECF concludes that the latest evidence suggest that skate and ray survival rates can be highly variable between species and fisheries. Studies indicate that smaller individuals and smaller species have lower survival, inshore static nets are associated with higher survival and shorter tow durations are associated with higher survival. It is indicated that for some fisheries and species combinations the survival may be close to zero.
- STECF concludes that, while providing useful information on the survival potential of discards, vitality data in isolation, does not constitute evidence of discard survival. The relationship between health condition and survival probability can be established by collecting these data simultaneously. However, beyond the fisheries from which these relationships have been generated, there is currently insufficient evidence to use vitality as a proxy to estimate discard survival with meaningful levels of confidence.
- STECF concludes where survivability exemptions are linked to a roadmap setting out work planned to develop survival estimates and accompanying measures to increase survivability, the JRs should report against the different tasks set out in the roadmap to facilitate future evaluations.
- STECF concludes that several existing exemptions for plaice and sole are linked to conditions such as restricting the exemption to fishing to certain depths, tow durations and to specific groups of vessels. While these factors undoubtedly influence survival, STECF notes there is no evidence of them being applied by Member States. In practice controlling and enforcing such measures to any degree would be challenging.
- STECF reiterates that the avoidance of unwanted catch through improved selectivity or other means should be the primary focus in implementing the landing obligation. STECF

notes that the JRs received contained few measures to increase selectivity. STECF recognize that modifying selectivity can result in some reduction in revenue, but these should be viewed in the broader context of medium-term gains in stocks and the risk of choke events and the utilization of quota to land low value catches.

- In accordance with STECF 19-01, the role of exemptions should be made explicit within the bycatch reduction plans required for all stocks with zero catch advice.
- STECF observe that in many cases the supporting information relating to the fleets and fisheries is derived from the STECF FDI database, which has not been updated since 2016, and as such may not represent the current situation. STECF concludes that future exemptions should be supported with current data.
- STECF observes that some of the existing exemptions were included under the discard plans for 2015-2017. STECF 18-02 also raised the question of whether the increasing number of exemptions is diminishing the overall objectives of the Landing Obligation.
- STECF observes that there has been little attempt to review these exemptions as to whether the fisheries have changed in terms of catch patterns, gears used, vessels involved and in the case of *de minimis* the uptake of the volume of catch allowed to be discarded. STECF conclude it would be timely for the Member States Groups and the Commission to review these exemptions and determine whether they need to be amended or are still required.

1.6 References

Morfin, M., Kopp, D., Benoît, H. P., Méhault, S., Randall, P., Foster, R., and Catchpole, T. (2017). Survival of European plaice discarded from coastal otter trawl fisheries in theEnglish Channel. Journal of Environmental Management 204, 404–412.

Catchpole, T., Randall, P., Forster, R., Santos, A. R., Armstrong, F., Bendall, V., and Maxwell, D. (2015). Estimating the discard survival rates of selected commercial fish species (plaice-Pleuronectes platessa) in four English fisheries. Cefas report.

1.7 Contact details of STECF members

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

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REPORT TO THE STECF

EXPERT WORKING GROUP ON Evaluation of Landing Obligation Joint Recommendations (EWG-19-08)

Dublin, Ireland, 17-21 June 2019

This report does not necessarily reflect the view of the STECF and the European Commission and in no way anticipates the Commission's future policy in this area

1 EXECUTIVE SUMMARY

EWG 19-08 has reviewed the new or amended joint recommendations from the North Sea, North-western waters (NWW), South-western waters (SWW) and three regions of the Mediterranean (SUDESTMED, ADRAIATICA and SUDESTMED) for the implementation of the Landing Obligation in 2020. Joint recommendations for discard plans have the purpose of providing the Commission with the agreement among Member States cooperating regionally on the elements for the preparation of Union law (Commission delegated act) in accordance with Article 15.6 of the Common Fisheries Policy (CFP). These elements are: definitions of fisheries and species; *de minimis* and high survivability exemptions; fixation of minimum conservation references sizes; additional technical measures to implement the Landing Obligation; and the documentation of catches.

General Observations

The role of EWG 19-08, and any future STECF meetings is to evaluate the scientific rigor and robustness of the underpinning information supplied by Member States to support the joint recommendations. STECF cannot adjudicate on whether exemptions should be accepted or not.

EWG 19-08 notes, as EWG 18-06 (the 2018 evaluation of Landing Obligation joint recommendations), the high number of recommendations meant that it was not possible for the EWG to apply the same level of scrutiny to each proposal as in earlier years.

EWG 19-08 notes that while progress has been made in supplying supporting information, it is observed that for many exemptions there is still a lack of supporting information provided. EWG 19-08 observes that in many cases the supporting information relating to the fleets and fisheries is derived from the aggregated version of the STECF FDI database that is publicly available, which has not been updated since 2016, and as such may not represent the current situation.

EWG 19-08 notes that it would be timely for the Member States Groups and the Commission to review the actual use and effectiveness of the exemptions currently in place and determine whether they need to be amended or are still required.

In line with STECF EWGs 17-01, 18-01, 18-02, 18-06, EWG 19-08 highlights the "lack of [required] reporting by vessel operators of fish discarded under exemptions…". There was, once again, little included to address this in the latest JR's. Exceptions include provisions for CCTV linked to the plaice survivability exemption in the North Sea.

EWG 19-08 stresses again the need to improve the collection of catch documentation data. If the data situation does not improve and the true quantities being caught as reported do not reflect the actual removals, it will likely have a significant impact on the quality of scientific advice and may compromise the achievement of the MSY objective. As STECF 18-01, 18-02 pointed out, innovative monitoring measures such as CCTV and Remote Electronic Monitoring (REM) have been applied in pilot studies and could be a more effective way to enforce the Landing Obligation (EWG 13-23).

EWG 19-08 reiterates that the avoidance of unwanted catch through improved selectivity or other means should be the primary focus in implementing the Landing Obligation. EWG 19-08 highlights that the JRs received contained few measures to increase selectivity. Exceptions include the NWW and North Sea where attempts have been made to increase selectivity in the form of specific technical measures in certain areas and fisheries. EWG 19-08 acknowledges the intentions by Member States in the Mediterranean to introduce Marine Protected Areas and Fish Recovery Areas, which is a positive step.

EWG 19-08 observations on proposed *de minimis* exemptions

EWG 19-08 notes that more than 90% of the proposed *de minimis* exemptions are based on disproportionate costs. It is recognized that presenting information demonstrating disproportionate costs is challenging. STECF has proposed analytical frameworks that can assist in the submission of economic cases for *de minimis* (EWG 13-23, EWG 16-10 & PLEN 19-01). The purpose of supporting information is to understand the scale, or proportionality, of the costs of landing unwanted fish. The information should describe that the burden, in terms of time and

operational costs, to deal with unwanted catches causes loss of income. However, EWG 19-08 notes for the 2019 *de minimis* proposals, that these analytical frameworks have generally not been followed. In many cases the same generic information and assumptions are used to support multiple exemptions making it difficult to make an evaluation.

EWG 19-08 reiterates that there is no agreed method to objectively judge whether the estimates provided amount to disproportionate costs. "Disproportionate" is a subjective term which means that there is a large element of judgement required in deciding on whether to permit or reject a proposal. As concluded in STECF PLEN 19-01, EWG 19-08 consider that simply stating that handling, storing and landing unwanted catches has an associated cost, is not sufficient to demonstrate that those costs are disproportionate. The priority should be improving selectivity and the introduction of avoidance measures to reduce the levels of unwanted catches and, thus, reduce the costs for handling these unwanted catches.

EWG 19-08 notes that different methods have been used to calculate *de minimis* volumes. In most cases, a percentage (e.g. 5% or 7%) has been applied to the catches of the relevant species caught by the defined fishery. However, for some fisheries, where the intention is for the *de minimis* amount to cover 100% of the discards, a small percentage has been applied to the total catch of the stock or stocks to generate a *de minimis* volume. This volume is higher than would have been the case if just the catches taken in the defined fishery for that stock were used. This is the case for plaice and whiting in the brown shrimp fishery in the NWW and industrial species bycatch in demersal fisheries the North Sea. For fisheries where it is not viable to sort and land any of the unwanted catches, this approach provides a mechanism to comply with the Landing Obligation. However, it also removes the incentive to further improve selectivity as 100% of the unwanted catches can be discarded, accepting sorting such catches may be difficult in such fisheries.

EWG 19-08 observations on proposed high survivability exemptions

EWG 19-08 re-iterates that assessing what constitutes high survivability is complicated by the limited information available and the variability in survival estimates. There is a wide range of factors that can affect survival. However, identifying and quantifying these is difficult due to the relatively limited species-specific information and differences between experiments including timing, season, gear handling and observation period. This means that assessing the representativeness of studies as an indicator of discard survival across an entire fishery is difficult, given the range of factors that can influence survival, and how they may vary in time, even within a fishery.

EWG 19-08 notes that this is particularly relevant for the three time-limited skate and ray survival exemptions covering many species and fisheries. STECF PLEN 18-02 observed that the scope of this exemption is not consistent with other survivability exemptions and highlighted the risks in extrapolating survival evidence between species, fisheries and seasons.

EWG 19-08 notes that the latest evidence suggest that skate and ray survival rates can be highly variable between species and fisheries. Studies indicate that smaller individuals and smaller species have lower survival, while inshore static nets are associated with higher survival and shorter tow durations in trawl fisheries are also associated with higher survival. It is indicated that for some fisheries and species combinations, the survival may be close to zero.

EWG 19-08 notes that several survivability exemptions – plaice and rays and skates – are linked to a road map setting out work planned to develop survival estimates and accompanying measures to increase survivability. EWG 19-08 acknowledges the value of such roadmaps but points out that there is no explicit reporting against the roadmap, which makes it hard to assess progress with the work set out.

EWG 19-08 has previously emphasised the need to consider estimates of survivability in the context of the discard rate for the fishery seeking an exemption (STECF 17-02). This highlighted that medium survival rates in high discarding fisheries still lead to high discard mortality rates. Examples of this were given in STECF 18-02 (e.g. plaice in beam trawl fisheries) and are still relevant.

EWG 19-08 notes that several existing exemptions for plaice and sole are linked to conditions such as restricting the exemption to fishing to certain depths, tow durations and to specific

groups of vessels. While these factors undoubtedly influence survival, there is no evidence of them being applied by Member States. In practice controlling and enforcing such measures to any degree would be challenging.

Evaluation of regional joint recommendations

The number of exemptions proposed in the JRs for evaluation by EWG 19-08 was comparable with the previous submissions in 2018 (EWG 18-02, STECF 18-06). The number of individual exemptions proposed for introduction in 2020 was 67 compared with 70 for 2019. This was made up of a limited number of new exemptions and multiple exemptions that were granted for one year, until the end of 2019.

For the Mediterranean, in some cases the same recommendations were proposed by the different regional groups (SUDESTMED, PESCAMED and ADRIATICA); these groups submitted eight of the same exemptions. When duplicated proposals were combined across the Mediterranean groups, the total number of individual proposed and assessed exemptions across all regions (NS, NWW, SWW, MED) was 53 (Table 1.1). The number of proposed exemptions in the previous year was 58 (STECF 18-02).

Table 1.1 Number of recommendations by type and region evaluated by EWG 19-08.

Region	High Survivability	*De Minimis*
NWW	5	6
North Sea	6	7
SWW	2	19
SUDESTMED	2	4
ADRIATICA	4	4
PESCAMED	4	4
Total	23	44

The following is a summary of the main observations for each of these exemptions by region.

North Sea

De minimis	
Recommendation	Ling caught by bottom trawls of with a mesh size between 100 and 119 mm catching ling in Union waters of ICES subarea 4
Main findings of EWG 19-08	This exemption has been withdrawn
Comments of STECF PLEN 19-02	No additional comments
Recommendation	Whiting caught by beam trawls with a mesh size of 80-119mm mesh size in ICES subarea 4
Main findings of EWG 19-08	Existing exemption for 3 years with a condition that Member States should provide additional information. A summary of an additional study to support the exemption based on disproportionate costs for the Dutch demersal fisheries has been supplied. This study includes an economic analysis of handling unwanted catches in the Dutch beam and pulse trawl fisheries for sole and plaice. The information provided is at a fleet rather than at individual vessel level. The information provided shows the cost of landing unwanted catches to be significant but not specific to unwanted catches of whiting. The study only

	covers the Dutch fleet and it is not clear whether it is representative of other fleets availing of this exemption.
Recommendation	Whiting & cod below MCRS in mixed demersal fisheries using bottom trawls or seines with a mesh size of 70-99 mm in ICES Divisions 4a & 4b
Main findings of EWG 19-08	Existing exemption revised by increasing the scope to cover the whole of area IV. The original exemption only applied in area IVc. New information on the fisheries has been supplied for the French, Dutch and German fleets to support the request. The JR refers to the same supporting information provided in 2017 and 2018. A summary of an additional study to support the exemption based on disproportionate costs for the Dutch demersal fisheries has also been supplied (same study as the previous exemption). This study explores the economic impacts of the Landing Obligation on different sectors of the Dutch fleet. The justification is based on difficulties to improve selectivity in the short-term period as well as the handling of unwanted catches on board leading to disproportionate costs. The information provided shows the impact to be significant but not specific to handling unwanted catches of cod and whiting and only covers the Dutch fleet. The representativeness of the costs presented to the other fleets relevant to this exemption request is unclear.
Recommendation	Horse mackerel & mackerel - bottom trawls, seines and beam trawls with a mesh size between 80 and 99 mm in ICES subarea 4
Main findings of EWG 19-08	Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for horse mackerel and mackerel. The descriptions of the fleets and fisheries and justification for the exemptions is the same. Supporting documents provide reasonably detailed information on the fleets (trawl and seine) and fisheries from France but not for other Member States fishing in the area covered by the exemption. No information is provided for beam trawls. Catch data, the average discard rates and estimated *de minimis* volumes are provided. The data presented is taken mostly from the publicly available FDI database held by the JRC and is prior to 2017 so may not be representative of current catch patterns in the fisheries. The justification is based on disproportionate costs linked to difficulties in improving selectivity in a short-term period. The request is supported with a detailed economic analysis of costs associated with handling and storing unwanted catches. Estimates are given of the potential increase in workload are provided in terms of time and operational costs, which show the costs associated are significant. However, they relate only to the French fleet and are not specific to the handling of horse mackerel and mackerel. It is unclear whether the costs presented are representative of other fleets relevant to this exemption request. The supporting information also provides a review of selectivity trials carried out since 2010. The results presented while largely qualitative show reductions of unwanted catches including horse and mackerel but also corresponding losses of marketable catch associated with most of the gear modifications tested. Because of these losses, there seems a marked reluctance to use any of the gear options tested. Unwanted catches of horse mackerel are likely to be more than the *de minimis* volume requested, meaning some catches of horse mackerel will

	still have to be landed.
Recommendation	Ling below MCRS caught using longlines in ICES subarea 4
Main findings of EWG 19-08	This is a new request for an exemption. A reasonably detailed description of the French fleet is provided, which identifies a fleet of 10 vessels that operate in the North Sea and the West of Scotland. No other Member State is involved. Only part of the information provided originates from the North Sea (division 4a) with most originating from observer trips from the West of Scotland waters. Catch data, the average discard rates and estimated *de minimis* volumes are provided. The justification is based on longlines being highly selective gears and to increase selectivity further is not possible without incurring high economic costs. The exemption is to cover small residual unwanted catches (~5 tonnes). No specific studies are provided. The arguments regarding difficulties in improving selectivity are credible given the nature of the fisheries. However, the information provided is purely qualitative. No attempt has been made to quantify the potential scale of the losses that would be incurred if the *de minimis* exemption was not granted. Additionally, it is noted that the supporting information indicates that only 14% of ling classified as unwanted catches are below MCRS. It is not clear the reasons for the other 86% being discarded. Such catches will still have to be landed in the future.
Recommendation	Bycatch of industrial species caught using bottom trawls, seines and beam trawls in ICES subarea 4
Main findings of EWG 19-08	This is a request for a new exemption. Supporting information is provided on bycatch of industrial species (sprat, sandeel, Norway pout and blue whiting) in Danish demersal trawl fisheries and *Pandalus* fishery in the North Sea and Skagerrak/Kattegat. Additionally, landing and discard estimates and number of vessels involved in different fisheries of Sweden and UK are presented in the background document. Information on catch and discard rates for Denmark and Sweden is based on observer data from 2016-2018. Data for the UK has been obtained from the FDI database but refers to data prior to 2017 and may not be reflective of the current state of the fisheries. There is also a reference to beam trawl (BT2) fisheries in the request, but no specific information is provided on catches from beam trawl fleets impacted. The volumes of *de minimis* are calculated based on total catches in the relevant fisheries. While the volume of *de minimis* is small, the calculation method means that 100% of unwanted catches of industrial species will continue to be discarded. The justification for this exemption is that the volumes of unwanted catches are small (typically less than 5kg per haul), and the handling of unwanted catches are regarded as uneconomically disproportionate given the difficulties in sorting these species from the target species. Additionally, the assertion is made that options to improve selectivity have been exhausted. There is no quantitative evidence to support these assertions. Intuitively, achieving additional selectivity improvements would be difficult to achieve in such fisheries and the costs for sorting would be high given the nature of the species involved. The supporting information provides indications of some of the steps that have been taken in these fisheries to improve selectivity, but a more detailed description of these steps would be

	beneficial to demonstrate that selectivity cannot be improved further and the *de minimis* is needed to cover the residual unwanted catches.
High Survivability	
Recommendation	Plaice below MCRS caught with beam trawls with a mesh of 80-119mm in Union waters of ICES division 2a and ICES subarea 4
Main Findings of EWG 19-08	Extension of existing temporary exemption beyond 2019. The delegated act stipulates that a roadmap be developed and delivered (as evaluated by STECF 18-03). The roadmap details research plans which are anticipated to address uncertainties regarding discard survival for plaice. No new discard survival estimates are provided. New analyses of existing data show that haul duration influences survival. The effect of survival of gear modifications such as flip-up rope or benthos release panels, as specified in the Delegated Act, have not been demonstrated. Detailed information provided for Belgium and Dutch fleets and fisheries. Catch data shows a reported discard rate of 50-64%. It is questionable whether previous survival estimates generated from pulse trawling are representative of the exempted fishery, given that numbers of pulse trawlers are set to reduce. They may be replaced by beam trawlers. More research is committed by Belgium to directly observe the survival of discarded plaice caught by beam trawlers in the North Sea in a new project in 2019-2021. Outputs from this work are expected to enable a robust evaluation of this proposal.
Recommendation	Catch and by-catch of plaice by vessels using trawl (OTB, PTB) of mesh sizes 90-99mm equipped with SELTRA in area 3a and 80-99mm in area 4 (targeting flatfish or roundfish)
Main Findings of EWG 19-08	This is a proposed new exemption. The JR also notes that a similar exemption is requested by the NWW in areas 7a-c and 7f-k. One of the supporting survival studies is the same as that used to support the proposed exemption '*plaice caught with bottom trawls with a mesh size of at least 120mm in summer months in ICES subarea 4'*, and gave a survival estimate of 44% (summer) and 75% (winter). The most important factor influencing plaice survival was air exposure time with a reported drop in survival to 8% after 60 min (only in summer). Sorting times are reported to be typically around 1 hour. Therefore, survival is expected to be lower than the reported 44% in the studied fishery, which was based on a sorting time of around 20 minutes. The other supporting survival evidence is a short excerpt from a study in 4b on an otter trawl fishery targeting whiting using 90-99 mm. An estimated discard survival of 42% is given., However, as noted by the authors, the observation time was not sufficient, and a modelled survival probability was reported of 19-20%. It was not possible to assess the quality of the underpinning studies without the full reports. The JR references existing the survival exemptions granted for plaice caught with otter trawl in ICES area 7d, e, f, g, which have been supported with studies positively assessed by STECF. All relevant countries have provided fishery data. The proposed exemption is limited to TR2-vessels targeting flatfish and roundfish and not vessels targeting other species like *Nephrops* and squid. Discard rates are reported as 22-54%. It is noted that part of the fleet operates on the boundary between NWW and NS regions so there is utility in having consistency in

	these two regions. Provision of the full survival reports would enable an assessment of the quality of the reported estimates. Further information on similarities between the fleets covered by the proposal would inform on the representativeness of the underpinning studies, particularly on sorting time, haul duration, catch composition and targeted species. Also, fishery data are needed for UK in area 4 and DK in 3a.
Recommendation	Skates and rays (*Rajiformes*) caught with all gears in in Union waters of ICES divisions 2a, 3a and subarea 4) (for cuckoo ray see below)
Main Findings of EWG 19-08	Exemption granted for three years (2019-2021); the delegated act stipulates a roadmap be developed and applied to increase survivability. No new discard survival evidence provided (except for cuckoo ray, see below). It is assumed that all fisheries are concerned. New fishery information was provided by Sweden for ICES division 3a and the eastern part of area 4. Fisheries data should include number of vessels. The effects of different variables on discard survival is not well understood, and this introduces risks in extrapolating discard survival evidence between species, fisheries and seasons. The supporting information identifies significant data gaps to be addressed and lists projects that are ongoing to generate additional ray survival evidence. There was no explicit reporting against the roadmap, which is recommended in the future. Future submissions should report against the three main tasks in the roadmap. Evidence provided for the NWW is also relevant to the NS but was not included in the JR. This information specifically reports from UK fisheries in ICES area 4.
Recommendation	Cuckoo ray to December 2019 – as part of Skates and rays (*Rajiformes*) caught with all gears in in Union waters of ICES divisions 2a, 3a and subarea 4)
Main Findings of EWG 19-08	Exemption granted for one year (2019) for cuckoo ray in ICES divisions 2a and 3a, and subarea 4. This is a request for an extension. Two new studies were provided. The studies showed most cuckoo rays were alive at the point of release (90-97%), and 41% (n=868) and 84% (n=37) were in excellent condition. Both studies were from the otter trawl fisheries in NWW region. Information to assess the relevance to North Sea fisheries was not provided. Vitality data do not constitute discard survival estimates but indicate survival potential. It is assumed that all fisheries are concerned. Only Sweden provided new fishery information. Cuckoo ray is rarely caught in Swedish fisheries (1 in 2340 observed hauls). Additional information on the fisheries operational and environmental conditions in the NS, and how they compare to those in NWW, would enable the relevance of the new vitality data to be determined. Directly observed discard survival estimates should be generated for the relevant fisheries.
Recommendation	Plaice caught with bottom trawls with a mesh size of at least 120mm in summer months in ICES subarea 4
Main Findings of EWG 19-08	Extension to existing exemption to include summer months. New directly observed estimates show 44% discard survival for summer. Data were derived from otter trawls (90 mm) in 3a targeting plaice and *Nephrops*. Only a summary of the full report was provided, so an evidence

	quality assessment could not be conducted. Previously submitted evidence estimated discard survival rate during winter at 75%. The most important factor influencing plaice survival was air exposure time with a reported drop in survival to 8% after 60 min (only in summer). Sorting times are reported to be typically around 1 hour. Therefore, survival is expected to be lower than the reported 44% Fishery information was provided, but for DK it is unclear if the data represents all species or just plaice. The DK discard rates are inconsistently reported. The request is for North Sea only, but the evidence is provided from the Skagerrak. Clarification is needed on the intended area for the exemption. The relevance of the study to the wider North Sea area is also unknown. The presented survival rate was based on cod end mesh 90 mm, the codend mesh in the proposal is at least 120 mm but presented survival levels are considered relevant. The most important factor influencing plaice survival was air exposure time with a reported drop in survival to 8% after 60 min. The full scientific report would enable an assessment of the quality of the summer survival estimate. Operational information on defined fleets in 3a and 4 would allow an assessment of the representativeness of the study.
Recommendation	Plaice caught with Scottish seines in ICES subarea 4
Main Findings of EWG 19-08	The proposed exemption is an extension to cover Scottish seines. The proposal is motivated by an existing exemption for Danish seines on the basis that both fisheries have similar operational characteristics. Plaice discard survival rate was previously assessed at 78% for Danish seine, no new survival estimates were provided. The data provided demonstrate differences between the Scottish seine and Danish seine fisheries (vessel dimensions and engine power, haul durations and catch sizes). These differences are sufficient to question whether the survival rates from one fishery are representative of the other. For example, the substantially higher catch sizes in the Scottish seine fishery and the higher proportion of smaller discarded plaice may have a negative effect on survival levels. Moreover, it is not clear whether the two gears are comparable, as the North Sea survival estimate may be from a Danish anchor seine which operate differently to the Scottish seine gears. This should be clarified. A discard rate is given for the Dutch fleet (22-42% per year) only. It is not clear if any other Member State is involved. Directly observed survival rates from the Scottish seine fishery would enable a more robust evaluation of this proposed exemption. Vitality of discarded plaice may be sufficient to enable inferences on the likelihood of survival. More details on the fishery, including vessel numbers, specific fishing operating method and catch composition are also needed for a full evaluation.
Recommendation	Turbot caught by beam trawl with a cod end larger than 80mm in ICES area 4
Main Findings of EWG 19-08	This is a repeat request for a new exemption (STECF EWG 18-06). No new survival evidence was presented; previously submitted studies indicated a survival estimate of 30% but only for pulse trawls. New catch,

	landings and discards data are provided, but only vessel numbers for Belgium. A discard rate of 10% was reported. It is questionable whether previous survival estimates generated from pulse trawling are representative of the exempted fishery, given that numbers of pulse trawlers are set to reduce. They may be replaced by beam trawlers over the next few years. More research is committed by Belgium to directly observe the survival of discarded turbot caught by beam trawlers in the North Sea in a new project in 2019-2021. Outputs from this work are expected to enable a robust evaluation of this proposal but without this information the estimates provided are not considered reliable
Recommendation	High Survival exemption for *Nephrops* caught by demersal bottom trawls in ICES subareas 3a and 4.
Main Findings of EWG 19-08	There is an ongoing three-year exemption for *Nephrops* which requires additional scientific information to be submitted yearly for otter trawls. No new evidence was provided. The JR argues that no additional data was necessary. However, EWG 18-06 questioned whether survival evidence previously submitted was relevant to the UK east coast *Nephrops* fishery or the *Pandalus* fishery. Such information is still missing, and no assessment can be made of *Nephrops* survival in these fisheries. Additional information on the Swedish and Danish fisheries for *Pandalus* fishery indicated that Norway lobster is a low volume bycatch species (1.2t per year). Information on the operational and environmental characteristics of the different *Nephrops* fisheries would provide context to the survival estimates currently available. Additional *Nephrops* vitality data is believed to have been collected in an east Scottish fishery but was not provided.

North Western Waters

De minimis	
Recommendation	Haddock and cod - bottom trawls, seines and beam trawls with a mesh size equal to or greater than 80 mm in ICES divisions 7b-7c and 7e-7k
Main findings of EWG 19-08	Existing temporary exemption granted until the end of 2019. Separate exemptions are proposed for haddock and cod but the descriptions of the fleets and fisheries and justification for the exemptions is the same. The supporting information provide a relatively detailed description of the fisheries concerned. No information is provided for Belgium and UK beam trawl fisheries. The justification for the exemption is based principally on selectivity being difficult to achieve. Information is provided on French and Irish selectivity trials and indicates that improvements in selectivity for haddock are difficult to achieve without substantial short-term losses in marketable catches. An analysis providing comparative estimates of current revenue to break-even revenue (CR/BER) for the estimated catches from current (baseline) gears and the anticipated catches from selectivity trial gear configurations is included for the Irish fleets and fisheries involved. There are indications that this analysis is representative of other fleets operating in the area. The CR/BER for the current (baseline) gear configurations indicate that in the short-term the operational costs would be greater than the estimated revenue, i.e. in the short-term, the fishery would be operating at a loss. While the CR/BER estimates are likely to be rather imprecise, it seems

	reasonable to assume that the magnitude of change in CR/BER indicates that improvements in selectivity by adopting any of the gear configurations tested would result in significant losses in revenue in the short-term. Specific technical measures operating with bottom trawls or seines in the Celtic Sea protection zone are to become mandatory from 1 July 2019. The selectivity information provided indicates that introduction of such gears is expected to reduce unwanted catches of haddock and cod to a lesser extent, but it is too early to evaluate whether that will be achieved.
Recommendation	Horse mackerel and mackerel caught using bottom trawls, seines and beam trawls in ICES subarea 6 and ICES divisions 7b-7k
Main findings of EWG 19-08	Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for horse mackerel and mackerel. The descriptions of the fleets and fisheries and justification for the exemptions is the same. The supporting information provides an overview of the fisheries to which the exemptions are to apply, together with data on selectivity trials, estimates of landings and discards of horse mackerel and mackerel by the fleets concerned. The request is supported with a detailed economic analysis of costs associated with handling and storing unwanted catches. The information is principally for the French fleets operating in the eastern Channel and southern North Sea. Limited information is provided for other fleets. The justification for the exemption is selectivity improvements to reduce unwanted catches of horse mackerel and mackerel will be hard to achieve without severe economic impacts on the revenue of the boats concerned. Additionally, the costs for handling and storing small quantities of unwanted catches on board are disproportionate. The review of the selectivity trials while largely qualitative show reductions of unwanted catches including horse and mackerel but also corresponding losses of marketable catch associated with most of the gear modifications tested. Because of these losses, there seems a marked reluctance to use any of the gear options tested. This is the same as in the North Sea and SWW. An economic analysis to demonstrate the scale of these losses The introduction of the specific technical measures for vessels operating with bottom trawls or seines in the Celtic Sea protection zone from 1 July 2019 may reduce the unwanted catch of horse mackerel, mackerel and other species. The effectiveness of these measures should be monitored. Estimates of the potential increase in workload are provided. The analysis shows the costs and time implications for crew in a generic sense rather than specifically for unwanted catches of horse mackerel and mackerel. Information is only provided for the French fleet and it is unclear whether this is representative of other fisheries covered by the exemption. Unwanted catches of horse mackerel are likely to be well in excess of the *de minimis* volume requested, meaning significant catches of horse mackerel will still have to be landed.
Recommendation	Common sole caught using beam trawls with mesh size of 80-119mm with a large mesh panel in ICES divisions 7a, 7j and 7k
Main findings of EWG 19-08	Existing exemption but revised by increasing the scope to cover ICES divisions 7a, 7j and 7k.

	New information supplied is limited to a description of the numbers of Belgian and Irish beam trawls vessels involved in the fishery in 7a, j, k in 2016-2018 and their associated catches. It is not clear whether other Member States have vessels operating in the fishery. The justification for the exemption is the same as the existing *de minimis* exemption for common sole for beam trawls in the Channel (7d, 7e) and the Celtic Sea (7f, 7g, 7h). It is based on selectivity having improved through the introduction of gear modifications. The *de minimis* is required to cover residual unwanted catches. It is assumed that the fisheries covered by the existing exemption are the same fisheries and that the selective gear will be as effective at reducing unwanted catches of sole in the areas proposed to be included. However, no information has been provided to this effect. STECF 15-01 noted the mesh size of the so-called Flemish panel specified in the delegated act was 120mm compared to what was originally tested, i.e. a 150mm panel. As pointed out by STECF previously, this may reduce the effectiveness of the panel and not give the reductions in unwanted catches observed in the trials. Information to evidence this would be useful, accepting that the Flemish panel as currently used does improve selectivity for sole compared to standard 80mm beam trawls.
Recommendation	Boarfish caught using bottom trawls in ICES divisions 7b-c and 7f-k
Main findings of EWG 19-08	This is a new request for an exemption. The supporting information provides an overview of the fisheries to which the exemption is to apply. Information is only provided for the French fleet. It is not clear whether the intention is for the exemption to apply to the fleets of other Member States. The justification for the exemption is that improvements in selectivity to avoid the catches of boarfish will be hard to achieve without severe economic impacts on the revenue of the boats concerned. A review of recent French selectivity experiments is provided. Additionally, an economic analysis shows the costs of handling and storing unwanted catches on board French demersal trawlers operating in the North Sea. The assertion that selectivity improvements will be hard to achieve without severe economic impacts on the revenue of the boats concerned is intuitive but not supported by quantitative information. Additionally, while estimates of the potential increase in workload are provided, these are based on a limited generic analysis which is not specific to unwanted catches of boarfish. This analysis relates to vessels operating in the North Sea and it is not clear whether the information provided is representative of the fleets involved in this exemption.
Recommendation	Greater silver smelt caught using bottom trawls with a mesh size greater or equal to 100mm in ICES division 5b (EU waters) and subarea 6
Main findings of EWG 19-08	This is a new request for an exemption. The supporting information provides an overview of the fisheries to which the exemption is to apply. Information is only provided for the French fleet. It is not clear whether the intention is for the exemption to apply to the fleets of other Member States. The justification for the exemption is the same as for the boarfish

	exemption above. The assertion that selectivity improvements will be hard to achieve without severe economic impacts on the revenue of the boats concerned is intuitive but not supported by quantitative information. Additionally, while estimates of the potential increase in workload are provided in terms of time, only a limited generic analysis is provided. This analysis relates to vessels operating in the North Sea and it is not clear whether the information provided is representative of the fleets involved in this exemption.
Recommendation	Fish bycatch below MCRS in the Brown shrimp fishery caught using beam trawls of mesh size <31mm in ICES division 7a
Main findings of EWG 19-08	This is a new request for an exemption. Detailed information on the fishery in the Irish Sea is provided for the UK fleet. However, there are no recent estimates of fish discards from the brown shrimp fisheries, the estimates of discarding are necessarily based on a study that was undertaken in 1995. There is no way of assessing whether this reflects catches in the fishery currently. Further catch sampling would provide more reliable estimates of unwanted catches. The justification for the exemption are that significant increases in selectivity are very difficult to achieve and that the cost of handling the unwanted catch are disproportionate. Intuitively these assertions are reasonable. However, only limited qualitative information is provided to support them and this is principally based on the brown shrimp fishery in the North Sea. It is likely the North Sea fishery is representative of the Irish Sea fishery. Expressing the *de minimis* exemption as proposed would mean that the fisheries for brown shrimp would be able continue to discard all catches of fish. A similar approach has been proposed for industrial species bycatch in North Sea demersal trawl fisheries.
Recommendations	Megrim below MCRS caught using bottom trawls with a mesh size of 70-99mm and beam trawls with a mesh size of 80-119mm in ICES subarea 7
Main findings of the EWG 19-08	This is a new request for an exemption. Very limited information is provided on the fisheries and fleets involved for Spain. Estimates of discards are also given for Spain. Limited catch information is provided for Belgium. The justification for the exemption is based on an economic analysis which show the costs of handling unwanted catches of megrim by the Spanish fleet operating in ICES subarea 7. The analysis presented estimates the additional crew costs associated with the handling of unwanted catches of megrim onboard. This is compared to the situation if the unwanted catches had to be landed. The analysis shows there to be costs associated with handling the unwanted catches, but it is not possible to assess whether these are disproportionate or not. Limited information is also provided for the Belgian beam-trawl fishery to justify the exemption based on improvements in selectivity being difficult to achieve. However, acknowledging this is linked to use of selective gears, there is no additional information or analysis provided in support of this assertion. There is no evaluation of the impact the selective beam trawl gear would have on catches of megrim. There is also reference to future selectivity work to be undertaken by the Spanish fleet. No detail is provided of these trials, but it is anticipated that

	there is scope for improvements in selectivity in this fishery as indicated by EWG 18-02.
Recommendations	Cod, haddock and whiting below MCRS caught using bottom trawls with a mesh size up to 119mm in the West of Scotland *Nephrops* fishery in ICES division 6a
Main findings of EWG 19-08	This is a new request for an exemption. Separate exemptions are proposed for cod, haddock and whiting but apply to the same fishery for *Nephrops* in the West of Scotland (ICES division 6a). Estimates of unwanted catches below MCRS are given and show for all three species the volume of *de minimis* requested will cover only a small proportion of the current unwanted catches. The justification for the exemption is largely based on an analysis of disproportionate cost of handling unwanted catches ashore which is estimated to equate to a net cost of approximately £100 per tonne. The costs seem reasonable, but there is no objective means to assess whether they are realistic or can be considered disproportionate. While not directly mentioned, the JR contains provisions to introduce selective gears into the *Nephrops* fishery. These gears will improve selectivity and should reduce unwanted catches. However, it would seem appropriate, given the current levels of unwanted catches in this fishery to introduce the list of gears to be introduced into the Celtic Sea and the Irish Sea for *Nephrops* fisheries. The gear options listed in these areas include the SELTRA trawl and sorting grids which would be considered much more selective than the gear options proposed for the West of Scotland.
High Survivability	
Recommendation	Skates and ray species caught by any gear in ICES subareas VI and VII (for cuckoo ray see below)
Main Findings of EWG 19-08	Exemption granted for three years (2019-2021); the delegated act stipulates a roadmap be developed and applied to increase survivability. Two new studies were provided. A tagging study for undulate ray in ICES VIIe for the English inshore otter trawl fishery using 80 mm codend gave an estimated discard survival rate of 93%. This was based on only 10 returned tags and reported as preliminary results until more tags returned. The method of survival estimation is considered robust. The second study investigated factors effecting the health condition of discarded rays based on records of 13 skate and ray species caught by 3 gear types (trawl, gillnet, longline). The study concludes that smaller individuals and smaller species, (e.g. cuckoo and spotted ray), are likely to be released in poorer condition than larger individuals, (e.g., blonde and thornback ray), would have a lower probability of survival. Health condition was higher for rays caught by static gears than for towed gears, this was associated with towed gears catching smaller rays. Longer tow duration was associated with lower health condition. The supporting information identifies significant data gaps to be addressed and lists projects that have been commissioned to generate additional ray survival evidence. There was no explicit reporting against the road map, which is recommended in the future. Future submissions should report against the three main tasks in the road map.
Recommendation	Skates and ray species caught by any gear in ICES subareas VI and VII (cuckoo ray)

Main Findings of EWG 19-08	Exemption was granted for one year (2019) for cuckoo ray in ICES areas 6 and 7. This is a request for extension. A new study from an otter trawl fishery in 7a showed most cuckoo rays were alive at the point of release (97%) and 84% (n=37) were in excellent condition. Vitality data do not constitute discard survival estimates but indicate survival potential. The second study investigated factors effecting the health condition of discarded different rays concluded that smaller individuals and smaller species, such as cuckoo ray, are likely to be released in poorer condition than larger individuals. However, observations were based on a limited number of cuckoo rays (16 individuals), for which vitality categories were not explicitly reported. No new evidence was provided on discard rates for cuckoo ray. Further data and knowledge of discard survival and discard rates for different ray and skate species, including cuckoo ray, are anticipated in outputs from a road map.
Recommendation	Plaice caught with beam trawls by vessels of the >221kW segment fleet which use the flip-up rope or benthic release panel; or vessels, with an engine power of not more than 221kW; or less than 24m in length overall in ICES subarea 7
Main Findings of EWG 19-08	Extension of the existing temporary exemption beyond 2019. New vitality evidence was provided on plaice at the point of discarding in the English South West beam trawl fishery. Vitality data were collected from different vessels, working different gear designs, with differing catch handling processes, under a wide range of seasonal conditions and across three ICES subdivisions. The vitality data were used to generate inferred survival estimates based on established relationships between survival and vitality. Inferred survival estimates varied between trips; the overall estimate was 56%. Using vitality as a proxy for survival is a viable approach to estimate survival but is less robust than direct observation methods. An overview of fisheries only for the Belgium beam trawl fleet was provided. Equivalent data from other relevant countries were not provided. Belgium has developed a three-year (2019-2021) project to generate directly observed survival estimates for plaice in the North Sea 7d,f,g (not for 7hjk). This project will contribute to delivering the roadmap and the evidence needed to evaluate this proposal. Reporting against the roadmap so that new evidence is highlighted against the agreed tasks is encouraged.
Recommendation	Plaice (*Pleuronectes platessa*) caught with otter trawls (OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX) in ICES divisions 7a and 7b to 7k but excluding 7d, 7e, 7f, 7g; in combination - for métiers targeting Norway lobster - with highly selective gears listed in Section 6 applying to *Nephrops* fisheries
Main Findings of EWG 19-08	This is a new exemption. Based on the wording provided in JR, EWG 19-08 interpreted this proposal to apply only to *Nephrops* fisheries with highly selective gear. If the intention is to apply to whitefish demersal fisheries, then a further evaluation is required. A new study PUBLIon plaice survivability in the Irish fish-directed otter trawl fishery is provided (not *Nephrops* fishery). A critical review showed the method to be robust, but in agreement with PLEN 19-01, the estimate of survival presented in the JR is questionable, whereby the survival estimate generated is 37% (rather than 43%). The study also reported that hauls with *Nephrops* catches were excluded from the estimate, due to the substantially lower plaice survival observed for these hauls. Therefore,

	the reported plaice discard survival estimate is not considered representative of the *Nephrops* trawl fishery. Based on evidence that is available but was not provided, *Nephrops* fisheries are likely to have lower levels of plaice discard survival, due to the injuries sustained in the trawl and the increased sorting times when catching *Nephrops*. Detailed information on the fleets and fisheries from Ireland and UK was provided.
Recommendation	Plaice (*Pleuronectes platessa*) caught with seines (SSC, SDN) in ICES division 7d.
Main Findings of EWG 19-08	This is a new exemption, proposed to provide consistency with the North Sea Danish seine plaice exemption. The basis for the proposal is that both fisheries have similar operational characteristics. No survival evidence was presented for the defined fishery. Instead a study on plaice discard survival from Danish seines was provided. This was assessed by EWG 18-06 to give robust survival estimates. Fishery data demonstrate differences in the characteristics of the Dutch flyshoot (Scottish seine) and Danish seine fisheries (vessel dimensions and engine power, haul durations and catch sizes). These differences are sufficient to question whether the survival rates from one fishery are representative of the other. For example, the substantially higher catch sizes in the Dutch flyshoot fishery and the higher proportion of smaller discarded plaice may have a negative effect on survival levels. Moreover, it is not clear whether the two gears are comparable, as the North Sea survival estimate may be from a Danish anchor seine which operate differently to the Dutch flyshoot (Scottish seine) gears used in 7d. This should be clarified. Directly observed survival rates from the Dutch flyshoot fishery would provide the most robust evaluation of this proposed exemption. Data on the vitality of discarded plaice could be sufficient to enable inferences on the likelihood of survival. More details on the fishery, including vessel numbers, specific fishing operating method and catch composition are also needed for a full evaluation.
Recommendation	Common sole below MCRS caught with bottom trawls with mesh size 80-99mm in ICES division 7e
Main Findings of EWG 19-08	This request is for a geographic extension of the existing exemptions in 7d and 4c (NS). Unlike these existing exemptions, there is no reference to nursery areas and the supporting information states there are no known spawning or juvenile concentrations in 7e. No new survival evidence was provided. Previously assessed studies that support existing exemptions estimated survival of <MCRS Common sole at 51% (4c; EWG 16-10) and 89% (7d; EWG 17-03). The method applied in these studies was robust. With no new survival evidence, it is assumed in the supporting information that any differences between the 7e and 7d/4c fisheries have no significant effect on survival. Existing exemptions apply to inshore Common sole directed fisheries, while the proposed exemption for 7e is for a cuttlefish targeted fishery. Unlike the 7d and 4c fisheries, the catches of the 7e fleet include a high proportion of rays, spider crab and cuttlefish. It is likely that these species will negatively influence the survival of discarded fish. A deviation from the existing exemptions is an increase in vessel size from a maximum length of 10 metres to 12 metres. However, the mean lengths of the fleets are similar (e.g. 4c 9.8m vs 7e 10.8m), and this is unlikely to affect survival

	rates. Fishery information was provided for the French fleet (90 vessels under 12 m, with mean engine power of 130 kW; discard rate of <MCRS Common sole is given as 7% of Common sole catches). To enable a more robust evaluation of this exemption, information on other national fleets are needed. Also, due to the differences in catch composition, preferably directly observed survival estimates from this fishery should be generated, or alternatively, vitality information on discarded <MCRS Common sole.
Technical Measures	
Recommendations	Additional selective gears for the Celtic Sea, Irish Sea and West of Scotland
Main findings of EWG 19-08	Last year's JR proposed a series of changes to minimum gear requirements of which PLEN 18-02 assessed that the majority represented improvements or equivalence in selectivity with the current legal gears. These new technical measures were implemented through art 9 (Celtic Sea Protection Zone) and art. 10 (Irish Sea) in the discard plan for North Western waters (2018/2035[2]). The 2019 JR proposes some adjustments and additions to the current technical measures in the discard plan for the Celtic Sea Protection Zone and for the Irish Sea but also to introduce new minimum gear standards in the waters West of Scotland. Comments on the main changes proposed are provided below. There are also several technical amendments to the current discard plan for which no supporting information has been provided, so EWG 19-08 has been unable to assess the impacts of these changes. Celtic Sea Protection Zone Based on the supporting information supplied, adding 120 mm codend to the list of gear options in the Celtic Sea is reasonable. This gear has equivalent selectivity to the current gears included in the NWW discard plan. Based on the supporting information provided, EWG 19-08 agrees that the principle of the dual codend to vertically separate catch into two codends where differential selection can take place has the potential to reduce bycatch of unwanted species while maintaining catches of target species. It is also important that the specifications (e.g. mesh size and twine thickness) of the dual codend arrangement are defined in the delegated act. Assessment of the overall selection performance of any proposed dual codend arrangement in relation to the available gear options. No supporting information has been provided to justify the introduction of a derogation to allow a codend mesh size of 80mm + 120mm square mesh panel (SMP) for vessels with catches of more than 10% of sole. Based on available information this gear is likely to lead to a reduction in selectivity for the vessels that use this gear. New scientific evidence is needed to justify this request before allowing it as a legal gear. The suggested definition of the SELTRA trawl included in the JR is reasonable and represents an increase in selectivity compared to the gear defined previously.

[2] Commission Delegated Regulation (EU) 2018/2034 of 18 October 2018 establishing a discard plan for certain demersal fisheries in North-Western waters for the period 2019-2021. OJ L327, 21.12.2018, p.8.

	Irish Sea As per the Celtic Sea, the introduction of a derogation to allow a codend mesh size of 80mm + 120mm smp for vessels with catches of 10% of sole would imply a reduction in selectivity for the vessels that choose this gear. New scientific evidence is needed to justify this request. The amendment included in the JR relating to the inclusion of a derogation for queen scallop fisheries is large unsubstantiated. However, based on knowledge of this fishery the fish bycatches are modest and the impact of this fleet is therefore small overall. As with the Celtic Sea, the definition of the SELTRA is reasonable and represents an increase in selectivity compared to the gear defined previously. The exclusion of vessels <12 m is a new element compared to last year´s assessment. No supporting scientific information was provided with the JR but it is understand that the proposal to exclude vessels <12 m is related to differences in selectivity for small and large vessels. Supporting evidence is needed to clarify this to be the case. West of Scotland No supporting scientific information was provided with the proposed changes of minimum gear requirements in the JR for the West of Scotland *Nephrops* fishery. However, based on available information – 300mm smp and 100mm codend with 160mm smp - the introduction of both gear alternatives proposed would imply an increase in selectivity provided their use is restricted to the *Nephrops* fishery and not to other fisheries in the area targeting demersal fish species.

South Western Waters

De minimis	
Recommendation	Hake caught with trawls and seines in directed fisheries in ICES subareas 8 and 9
Main findings of EWG 19-08	Existing temporary exemption granted until the end of 2019. Detailed information on the Spanish fisheries and fleets involved are provided. Catch information as well as a breakdown of the Spanish fleets is presented. Limited information is provided for Portugal and no information is provided for France. The justification for the exemption is that improvements in selectivity are hard to achieve and the *de minimis* is needed as a temporary solution while selective gears are developed for the relevant fisheries. The supporting information includes a review of selectivity trials carried out by Spain over the period 2014-2018. This review is comprehensive and details the results from several different trials with different selectivity devices. An economic analysis of disproportionate costs resulting from the handling and storage of unwanted catches of hake on board is also provided. This is linked to the selectivity studies but relates only to the Spanish fleets. While showing improvements in selectivity lead to reductions in marketable catches, it is not possible to conclude definitively that further improvements

	in selectivity are very difficult to achieve. However, there are indications that further work on selectivity is planned, which may identify gear modifications that could be adopted in the fisheries in the future. Additionally, results from the SIBALO project are presented which show the increased costs associated with handling and storing unwanted catches of hake on board. The estimates of the potential increase in workload are presented and show the increase in costs associated with the handling of unwanted catches. The results show these costs to be significant. The representativeness of the analysis of other fisheries in the area to be covered by the exemption is unclear.
Recommendation	Horse mackerel and mackerel caught with bottom trawls, seines and beam trawls in ICES subareas 8 and 9
Main comments from EWG 19-08	Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for horse mackerel and mackerel but the descriptions of the fleets and fisheries and justification for the exemptions is the same. Detailed descriptions on the fleets and fisheries are provided for Spain, and Portugal. This includes catch data and descriptions of the different fisheries with bycatch of mackerel and horse mackerel. Only limited information is provided for France. The volume of *de minimis* requested are estimated for horse mackerel and mackerel. Significant differences in discard rates between the different fleets under the exemption are observed and it is difficult to establish how the estimated *de minimis* volume relates to actual levels of unwanted catches. The supporting information contains a review of selectivity trials carried out by France in recent years with a range of selectivity devices (e.g. T90 codends and square mesh cylinders). The review indicates minimal reductions in unwanted catches of mackerel and horse mackerel with any of the devices tested. The supporting information provided is generic and contains only limited information relating to mackerel and horse mackerel. It does not demonstrate conclusively that improvements in selectivity in these fisheries are very difficult to achieve. There are indications that selectivity trials are continuing which will be completed at the end of 2019, which will test other gear modifications. A detailed economic analysis of disproportionate costs resulting from the additional time required for handling and sorting unwanted catches on board is also provided. This information is provided for several French fleets and is linked to the selectivity studies. The analysis provided of disproportionate costs is also generic and it is not possible to establish how representative of the fisheries covered by the exemption as it relates to French demersal trawlers operating in the North Sea. It is not clear how representative this analysis is of the Spanish and Portuguese fleets operating in area 8 and 9.
Recommendation	Megrim, plaice, anglerfish, whiting and pollack caught with bottom trawls, seines and beam trawls in ICES subareas 8 and 9
Main findings from EWG 19-08	Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for megrim, plaice, anglerfish, whiting and pollack. The exemption for whiting only applies to subarea 8. The descriptions of the fleets and fisheries and justification for the exemptions is largely the same as for horse mackerel and mackerel. The

	catch data presented is incomplete and has been obtained from the FDI database but refers to data prior to 2017. This may not be reflective of the current state of the fisheries. Significant differences in discard rates between the different species covered under the exemption are observed. These vary from 1% for pollack to 58% for whiting. For megrim and whiting the unwanted catches will far exceed the estimated *de minimis* volumes. Therefore, considerable quantities of unwanted catches will still have to be landed. There is no indication in the supporting documents to suggest further work to test selective gears to reduce these unwanted catches are planned. The same review of the French selectivity trials provided for mackerel and horse mackerel is included in the supporting information for each of these species. The review is generic and does not provide any specific information for the species covered under these exemptions. Therefore, it does not demonstrate that improvements in selectivity in these fisheries and for these species are very difficult to achieve. The same economic analysis of disproportionate costs is also presented in support of these exemptions. As for horse mackerel and mackerel, the analysis does not provide specific information relating to these species and the concerns relating to representativeness to these fleets as for horse mackerel and mackerel similarly apply.
Recommendation	Anchovy and boarfish caught with bottom trawls, seines and beam trawls in ICES subareas 8 and 9
Main findings from EWG 19-08	Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for anchovy and boarfish. A limited description is provided of the Portuguese fleets and fisheries. No supporting information is provided, so no assessment can be made as to whether selectivity is difficult to improve in these fisheries or whether the costs of handling unwanted catches of boarfish and anchovy are disproportionate. No unwanted catches of these species are reported in the information supplied, and it is therefore unclear why the exemptions are required. It is suggested that a first step would be to establish the level of unwanted catch and then assess whether a *de minimis* exemption is needed.
Recommendation	Red Sea Bream caught with bottom trawls, seines and beam trawls in ICES Division 9a
Main findings of EWG 19-08	Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for Red sea bream and sole. A limited description is provided of the Portuguese fleets and fisheries. No supporting information is provided, so no assessment can be made as to whether selectivity is difficult to improve in these fisheries or whether the costs of handling unwanted catches of Red Sea Bream and sole are disproportionate. No level of unwanted catch is reported, and it is therefore unclear why the exemptions are required. Increased monitoring of the fisheries would increase the understanding of the level of unwanted catches and help to assess whether these exemptions are needed in the future.
Recommendation	Horse mackerel and mackerel caught with gillnets in ICES subareas 8, 9, 10 & CECAF 34.1.1, 34.1.2, 34.2.0
Main findings of EWG 19-08	Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for horse mackerel and mackerel but the description of the fleets and fisheries and supporting information is the same for all the exemptions.

	Information on the fleets and fisheries is provided for France and Portugal, but only limited information is provided for Spain. Information on the Spanish fisheries and fleets is needed to fully understand the extent to which the exemption would apply. The catch information presented is based on limited observations prior to 2017 but there is no indication of whether catch patterns have changed. According to the requests, the fleets involved are largely small-scale inshore vessels that are particularly vulnerable to the risk of losses of commercial catch that an improvement in selectivity would cause. The supporting information also provides a justification on the grounds of disproportionate costs. The arguments regarding difficulties in improving selectivity are credible given the nature of the fisheries. However, the qualitative nature of the information presented means evaluation is difficult. No attempt has been made to quantify the potential scale of these losses in the JR and it is not clear how this would vary across the different gillnet fisheries involved. The levels of *de minimis* volumes are quite low for both species. However, according to the supporting information many vessels (~3,000) would potentially avail of this exemption. Monitoring of uptake of small volumes of *de minimis* across many vessels would be challenging in practice.
Recommendation	Megrim, plaice, anglerfish, whiting and pollack caught with gillnets in ICES subareas 8 & 9
Main findings of EWG 19-08	Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for megrim, plaice, anglerfish, whiting and pollack. The exemption for whiting only applies in subarea 8. The description of the fleets and fisheries and supporting information is the same for all the exemptions. The fleets and fisheries involved are the same as for the mackerel and horse mackerel exemptions and the justification to support the exemptions is also broadly similar. New supporting information has been provided. An overview of the fleets and fisheries is provided for the Member States involved, which are the same as those for the mackerel and horse mackerel *de minimis* exemptions. The justification used based on selectivity being difficult to achieve is the same as provided for the mackerel and horse mackerel exemptions. There is no reference to disproportionate costs. As with the mackerel and horse mackerel exemptions, the arguments regarding difficulties in improving selectivity are credible given the nature of the fisheries. However, the qualitative nature of the information presented means it is difficult to evaluate whether this assertion is correct or not for the different species involved. The potential scale of any marketable losses resulting from an increase in selectivity in these fisheries is not quantified in the JR and it is not clear how this would vary across the different gillnet fisheries involved. The JR does not provide any information as to why different levels of *de minimis* are required. There does not appear to be any relationship between the level requested and the levels of unwanted catch. As for mackerel and horse mackerel, monitoring discards of these species covered under this exemption will be challenging.

High Survivability

Recommendation	Red seabream (Blackspot) caught with hooks and lines in ICES subareas 8 and 9a
Main Findings of EWG 19-08	Extension of an existing exemption (to include hook-and-line fisheries in ICES areas 8 and 9a). A full report of a study was provided on the survival of discarded Blackspot seabream in the demersal longline fisheries in Portuguese Mainland waters (ICES sub-division 9.a). 86% of 59 individuals survived a ≤36h monitoring period. The method was reviewed and identified limitations, particularly in the short monitoring period, which is likely to have overestimated survival. Further studies are needed to generate robust survival estimates. Fishery information was provided describing Portuguese mainland water vessels belonging to a polyvalent and a trawl fleet catching Blackspot seabream either as a target or valuable by-catch species. Landings are given for the Portuguese and Spanish fleets. The Spanish and Portuguese fleets use comparable fishing methods, including hook size, line design and soak time (~6 hours). The discard rate was given as negligible.
Recommendation	Skates and rays (*Rajiformes*) caught with all gears in ICES subareas 8 and 9 (for cuckoo ray see below)
Main Findings of EWG 19-08	Exemption granted for three years (2019-2021); the delegated act stipulates a roadmap be developed and applied to increase survivability. New vitality evidence was provided for four ray species caught by trammel net and trawl fleet. The sampling covered all year and main fishing areas around Portugal. Most rays were alive at the point of discarding, the percentage of rays assessed in Excellent and Good condition was 52-100% for *R. clavata,* 67-92% for *R. brachyura*; 67-100% for *R. montagui*; and 79% for *R. undulata*. Vitality data do not constitute discard survival estimates but indicate survival potential. Factors shown to affect vitality were fish length, mesh size and soak time. Vitality evidence was also presented from two scientific trawls surveys. Most of rays were found in Excellent or Good conditions (60-72%), however, these data are not representative of commercial fishing conditions due to the short tow duration of 30 mins. The JR described an acoustic tagging experiment on *R. undulata*. In this study, 144 specimens were tagged, and after 14 days, the survival rate was reported at 52%. The quality of this estimate could not be established without the full report. The exemption applies to all fisheries in areas 8 and 9. Information was provided for the Portuguese fleet including gear type, number of vessels and estimated landings and discards (except for net fisheries). The new vitality data appear to adequately cover the fishing activity, characteristics and conditions of the Portuguese trammel net and trawl fisheries. The supporting information identifies significant data gaps still need to be addressed. While new vitality information adds to the understanding of survival of rays, further discard survival studies are still needed. There was no explicit reporting against the road map, which is recommended in the future. Future submissions should report against the three main tasks in the road map.
Recommendation	Skates and rays (*Rajiformes*) caught with all gears in ICES subareas 8 and 9 (for cuckoo ray only)
Main Findings of	Exemption was granted for one year (2019) for cuckoo ray in ICES subareas 8

EWG 19-08	and 9. This is a request for an extension. New vitality evidence was provided for cuckoo ray caught by trammel net and trawl fleet. The sampling covered all year and main fishing areas around Portugal. 58% of specimens were assessed to be in Excellent condition, 21% in Good condition and 21% in Poor/Dead condition. Vitality evidence was also presented from two scientific trawl surveys. For the 5 specimens observed, most were found dead (n=4; 20% survival), however, these data are not representative of commercial fishing conditions due to the short tow duration of 30 mins, which is likely to have resulted in more rays in better health condition. New directly observed discard survival estimated of cuckoo ray were also provided. A total of 503 cuckoo rays caught with otter bottom trawl in ICES 9a were assessed for vitality, and 141 held for survival monitoring. 66.8% of cuckoo rays were alive at the point of release, 7.6% in excellent condition, 24% in good condition, 35% in poor condition and 33% were dead. All cuckoo rays died within 8 days of monitoring (survival was 0%) regardless of initial vitality. No controls were used to determine experimental induced mortality. This study indicates that the survival rate of discarded cuckoo ray could be zero in some fisheries. Information was provided on the Portuguese and Spanish fleets. Further details are needed on all fishery-gear-area combinations to which the exemption applies. Further data and knowledge of discard survival and discard rates for different ray and skate species, including cuckoo ray, are anticipated in outputs from a road map. Initiatives are planned to encourage fishermen to use best practices in handling and release of discarded rays.

Mediterranean

De minimis	
Recommendation	Total catches of demersal finfish[3] under the Landing Obligation excluding hake, mullets and pelagic species caught with bottom trawls in all areas
Main findings of EWG 19-08	Extension of the existing temporary exemption beyond 2019. Biological and economic data has been submitted by Croatia, Cyprus, Greece, Malta, Italy, Slovenia, France and Spain. Fleet descriptions are provided for all Member States, but not all present discard proportion estimates or discard rates for the relevant fisheries. Quantified data on catches below MCRS is lacking. Discard estimates vary markedly by Member States and species. For some species the total volume of discards is low but the proportions of the catch that is discarded is high. Justification is based on selectivity can be improved but an optimal solution has still to be developed and further research is needed to develop appropriate gear modifications or other avoidance measures. Gears tested indicate losses in marketable catches of around. The *de minimis* is needed

[3] Demersal finfish refers to European seabass (*Dicentrarchus labrax*), annular seabream (*Diplodus annularis*), sharpsnout seabream (*Diplodus puntazzo*), white seabream (*Diplodus sargus*), two-banded seabream (*Diplodus vulgaris*), groupers (*Epinephelus* spp.), stripped seabream (*Lithognathus mormyrus*), Spanish seabream (*Pagellus acarne*), red seabream (*Pagellus bogaraveo*), common pandora (*Pagellus erythrinus*), common seabream (*Pagrus pagrus*), wreckfish (*Polyprion americanus*), gilthead seabream (*Sparus aurata*) and deep-water rose shrimp (*Parapenaeus longirostris*)

	as a temporary solution to offset some of the unwanted catches while research, testing selective gears is carried out. The JR indicates research that has been carried out and shows improvements are possible but result in losses of marketable catches. This has made introducing such gears as difficult. Further work is planned to test additional gear modifications. A simple analysis of the costs to convert trawl gear to gillnets is also provided, which shows significant costs and associated losses of marketable catch. The arguments presented regarding improvements in selectivity being difficult to achieve are reasonable but are rather generic and not specific to any fishery. It is not possible to assess the impacts on fisheries within the different areas of the Mediterranean. The justification is also supported by an analysis of disproportionate costs. This is based on economic analyses carried out under several projects (e.g. H2020 MINOUW and DISCARDLESS) which show costs of landing unwanted catches are expected to exceed the returns from sale of raw materials for silage or fishmeal. Additional fixed costs for the maintenance of equipment and facilities are also reported. Estimates of the potential increase in costs of handling unwanted catches ashore are also provided although these are generic, covering trawl, gillnets and hook and line fisheries across the three regions within the Mediterranean. A similar analysis has been used previously to justify *de minimis* exemptions in the Mediterranean. The planned introduction of Marine Protected Areas and Fish Recovery Areas as a measure to avoid unwanted catches of undersized fish is a positive move. Using the *de minimis* as a stop-gap while the network of MPAs and FRAs is being introduced seems reasonable provided the network of closed areas are introduced quickly.
Recommendation	Total catches of demersal finfish1 under the Landing Obligation excluding hake, mullets and pelagic species caught with gillnets and trammel nets in all areas
Main findings of EWG 19-08	Extension of the existing temporary exemption beyond 2019. Biological and economic data has been submitted by Croatia, Cyprus, Greece, Slovenia, Malta, Italy, France and Spain. Fleet descriptions are provided for all Member States, but not all present discard proportion estimates or discard rates for the relevant fisheries. Quantified data on catches below MCRS is missing. Discard estimates vary markedly by Member States and species. Justification is based on selectivity can be improved but an optimal solution has still to be developed and further research is needed to develop appropriate gear modifications or other avoidance measures. The JR indicates research that has been carried out and improvements in selectivity can be achieved using modified gillnets. Such modifications results in losses of marketable catches amounting to about 15%. Further work is planned considering ways to increase the selectivity of gillnets. The justification is also supported by the same analysis of disproportionate costs of handling unwanted catches on board and ashore. As with the previous exemption, while estimates of the potential increase in costs are provided, the arguments are generic, and no attempt has been made to identify fisheries which are particularly impacted or species that are

	particularly problematic. Additionally, the introduction of Marine Protected Areas and Fish Recovery Areas as with the previous exemption seems a positive step.
Recommendation	Total catches of demersal finfish[1] under the Landing Obligation excluding hake, mullets and pelagic species caught with hooks and lines in all areas
Main findings of EWG 19-08	Extension of the existing temporary exemption beyond 2019. Biological and economic data has been submitted by Cyprus and Greece. Other Member States have not provided such data. Fleet descriptions are provided for all Member States, but not all present discard proportion estimates or discard rates for the relevant fisheries. Quantified data on catches below MCRS is missing. Discard estimates vary by MS and species, but mostly are less than 1%. The highest discard rates are around 10% but generally levels of unwanted catches are low in all cases where data is presented. Justification is based principally based on the analysis of disproportionate costs presented for trawls and gillnets. There is also reference to selectivity studies carried out by Spain showing that these gears are size selective, and selectivity can be influenced by hook size. No estimates of impacts on catch volume or economic performance of the gears is provided. As with the previous exemption, while estimates of the potential increase in costs are provided, the arguments are generic, and no attempt has been made to identify fisheries which are particularly impacted or species that are particularly problematic. The introduction of Marine Protected Areas and Fish Recovery Areas as with the previous exemption is also included and is considered positive.
Recommendation	Total annual bycatches of Anchovy, Sardine, Mackerel and Horse mackerel caught by bottom trawls in all areas
Main findings of EWG 19-08	Extension of the existing temporary exemption beyond 20192. Biological and economic data has been submitted by Cyprus and Greece. Other Member States have not provided such data. Fleet descriptions are provided for all Member States, but not all present discard proportion estimates or discard rates for the relevant fisheries. Quantified data on catches below MCRS is missing. Discard estimates vary by MS and species. Discard rates are generally higher according to the information presented and mostly above 5%. Rates of up to 30% and 50% for horse mackerel in Greece and Italy are reported This indicates the level of *de minimis* will not cover the levels of unwanted catches and further measures will be required to reduce such catches. The justification for the exemption is based on the analysis of disproportionate costs presented for trawls, gillnets and hooks and lines so the observations are the same.
High survivability	
	Red Sea Bream (Blackspot) – hooks and lines, all areas
Main Findings EWG 19-08	This is a proposed extension of an existing exemption. Supporting evidence is based on a review with multiple references but no

	original reports, therefore the quality of the information could not be fully assessed. One reference was submitted previously, EWG 18-06 and PLEN 18-02 concluded it represented sound scientific evidence for the discard survival of red sea bream in the "voracera" fishery. Based on fish recovering their basal homeostatic levels, a survival rate of 91% was estimated. Data is provided for Italian, Spanish, Mediterranean, Greece and Slovenia hook-and-line fisheries. While there is little information provided, the operational characteristics of the defined fishery are likely to be different from the "voracera" fishery, and so the survival evidence referred to may not be representative. Further survival assessments would determine whether survival rates differ across the defined gear types, seasons and geographic areas.
Recommendation	Lobster & Crawfish – gillnets, pots and traps, all areas
Main Findings EWG 19-08	This is a proposed extension of an existing exemption beyond 2019. Supporting evidence is based on a review with multiple references but no original reports, therefore the quality of the information could not be fully assessed. One discard survival estimate is mentioned, from a study on crawfish in a trammel net fishery in the Balearic Islands indicating a survival rate of 54%–76% based on 16 individuals. In the absence of the full report, the quality of this estimate could not be determined. The representativeness of the estimate to the defined fleet could not be established. Survivability for these species is expected to be high in pots and traps (as in the northern Atlantic, where exemption from the landing obligation is not required). Additional studies would be preferable for nets as there remains uncertainty on discard survival. Limited catch data is provided for crawfish catches by Italian vessels. It is not clear to which fisheries the exemption applies other than the Italian fisheries. Discard rates were not provided.
Recommendation	Common sole – Rapido, Adriatic and PESCAmed
Main Findings EWG 19-08	This is a proposed extension of an existing temporary exemption beyond 2019. A fishery description is provided. An abstract from a study (to be reported in full later in 2019) is provided. The information provided indicates a survival of 21-51% (mean 36%). The study noted that depth and catch weight affected survival. A full report on the study would enable an evaluation of the scientific robustness of the survival estimate.
Recommendation	*Nephrops* – Pots and Traps, Adriatic and PESCAMed
Main Findings EWG 19-08	Extension of the existing temporary exemption beyond 2019. No new survival evidence is provided. Survival rates of *Nephrops* caught by pots are high (> 80%) in the NWW and North Sea. It is not possible to make direct inference as to the applicability of these survival levels to the Mediterranean, particularly as it is warmer than the Atlantic regions. Some information on the Italian fleet was provided. The reported catches are very small <1 tonne per year. It is stated that *Nephrops* landings are sold alive. There is no information on levels of unwanted catch. Additional data could be provided indicating the scale of the fishery, discards and details of the live market.

2 INTRODUCTION

Joint recommendations for discard plans have the purpose to provide the Commission with the agreement among Member States cooperating at sea-basin level on the elements for the preparation of Union law (Commission delegated Act) in accordance with Article 15.6 of the CFP Regulation[4]. The six potential elements that can be contained in a discard plan are the following:

- definitions of fisheries and species;
- provisions for survivability exemptions;
- provisions on *de minimis* exemptions;
- the fixation of minimum conservation reference sizes;
- additional technical measures needed to implement the landing obligation; and
- the documentation of catches.

To date STECF have evaluated four sets of joint recommendations:

- In 2014 - Discard plans for pelagic species in all sea basins including the Mediterranean and cod and salmon in the Baltic Sea;
- In 2015 - Discard plans for demersal species in the NWW, SWW and the North Sea
- In 2016 – Revised discard plans for demersal species in the NWW, SWW and the North Sea and discard plans for demersal species in the Mediterranean and the Black Sea
- In 2017 – Revised discard plans for demersal species in the NWW, SWW and the North Sea and discard plans for demersal species in the Mediterranean and the Black Sea
- In 2018 – Revised discard plans for demersal species in the NWW, SWW and the North Sea and discard plans for demersal species in the Mediterranean.

In addition, 6 STECF Expert Working Groups (EWG) have been convened. These have considered various aspects of the landing obligation and provided guidance to Member States and the Advisory Councils on the types of underpinning evidence that should be supplied to support the different elements of discard plans.

EWG 19-08 was convened to review the joint recommendations from the Member States regional groups for the implementation of the landing obligation in 2020. Since 2019 all species come under the Regulation, the joint recommendations do not contain plans for the phasing in of species. It is generally accepted that evaluation of documentation of catches is something which lies outside the remit of STECF and EWG 19-08 has not considered this.

1.8 Terms of Reference for EWG-19-08

Based on the previous evaluations, suggested structure of the next STECF evaluation, the Ad-hoc contract 19-01 on temporary *de minimis* exemptions, the likely joint recommendations that will be submitted by MS regional groups, the following draft terms of reference are proposed:

STECF is requested to:

1. Review the supporting documentation underpinning exemptions on the basis of high survivability in respect of:
    a. Exemptions agreed for 2019 on the basis of high survivability where there was a requirement for further information to be supplied. In such cases, STECF should assess the quality of the information supplied and, where possible, provide a qualitative assessment of the ongoing efforts to address the needs for further information identified by STECF last year.

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

b. New exemptions based on high survivability. In data poor situations, assess what further supporting information may be available and how this could be supplied in the future (e.g. survival studies, tagging experiments).

2. Review the supporting documentation (biological, technical and/or economic) for *de minimis* exemptions on the basis that either increasing selectivity is very difficult to achieve, or to avoid handling unwanted catches would create disproportionate cost in respect of:
    a. The combined (multi species) and single *de minimis* exemptions agreed for 2019 where there was a requirement for further information to be supplied. In such cases, STECF should assess the quality of the information supplied and, where possible, provide a qualitative assessment of the ongoing efforts to address the needs for further information identified by STECF last year.
    b. New *de minimis* exemptions. In data poor situations, assess what further supporting information may be available and how this could be supplied in the future (e.g. discard data collection, selectivity studies).

3. Review whether there is sufficient information to support proposed minimum conservation reference size(s) that deviate from existing minimum landing sizes, and whether they are consistent with the objective of ensuring the protection of juveniles.

4. Review the supporting documentation provided for technical measures aimed at increasing gear selectivity for reducing or, as far as possible, eliminating unwanted catches. This should include, if relevant, an indication of where further selectivity is currently difficult to achieve in a specific fishery, where possible provide information on the possible causes and if research should explore potential solutions.

1.9 Main elements of the discard plans

Based on the terms of reference, EWG 19-08 considered the main elements of discard plans:

- ***De minimis* and High survivability:** The main elements that EWG 19-08 have evaluated are a combination of existing exemptions for *de minimis* and high survivability which were granted on a temporary basis for one year for which, the Commission requested additional information from Member States, as well as new exemption requests for *de minimis* and high survivability.
- **MCRS:** None of the JRs submitted included proposals for changes to MCRS.
- **Technical Measures:** Regulation (EU) 2015/812[5] introduced an amendment to the CFP Basic Regulation to expressly allow discard plans to include technical measures. Such measures should be strictly linked to the implementation of the Landing Obligation and aim to increase selectivity and reduce unwanted catches. EWG 19-08 was requested to evaluate any submissions of technical measure developments and proposals provided in the Joint Recommendations. Proposed amendments were received from the North Western Waters Regional Group.

The number of exemptions proposed in the JRs for evaluation by EWG 19-08 was comparable with the previous submissions in 2018 (EWG 18-06, STECF 18-02). The number of individual exemptions proposed for introduction in 2020 was 67 compared with 70 for 2019. This was made up of a limited number of new exemptions and multiple exemptions that were granted for one year, until the end of 2019.

For the Mediterranean, in some cases the same recommendations were proposed by the different regional groups (SUDESTMED, PESCAMED and ADRIATICA); these groups submitted

[5] Regulation (EU) 2015/812 of the European Parliament and of the Council of 20 May 2015 amending Council Regulations (EC) No 850/98, (EC) No 2187/2005, (EC) No 1967/2006, (EC) No 1098/2007, (EC) No 254/2002, (EC) No 2347/2002 and (EC) No 1224/2009, and Regulations (EU) No 1379/2013 and (EU) No 1380/2013 of the European Parliament and of the Council, as regards the landing obligation, and repealing Council Regulation (EC) No 1434/98. OJ L133, 29.05.2015, p.1.

eight of the same exemptions. When duplicated proposals were combined across the Mediterranean groups, the total number of individual proposed and assessed exemptions across all regions (NS, NWW, SWW, MED) was 53 (Table 2.2.1). The number of proposed exemptions in the previous year was 58 (STECF 18-02).

Table 2.2.1 Number of recommendations by type and region evaluated by EWG 19-08.

Region	High Survivability	*De Minimis*
NWW	5	6
North Sea	6	7
SWW	2	19
SUDESTMED	2	4
ADRIATICA	4	4
PESCAMED	4	4
Total	**23**	**44**

2 GENERAL OBSERVATIONS

Previous EWGs (EWGs 15-10, 16-10, 17-08 and 18-06 as well as PLEN 14-02) set up to evaluate the Joint Recommendations have made general observations relating to these evaluations. EWG 19-08 has chosen not to repeat all of these in this report, even though most are still valid.

EWG 19-08 has the following new general observations:

1 The increasing numbers of exemptions in the sea basins areas raises the question of whether in fact all fisheries in some areas have exemptions and thereby diminish the overall objectives of the Landing Obligation. As evidenced by EWG 18-06, in the SWW and Mediterranean it appears this is the case with most stocks covered by either a high survivability or *de minimis* exemption.

2 EWG 19-08 observes that some of the existing exemptions included under the discard plans were put in place under earlier discard plans from the period 2015-2017. There has been little attempt to review these exemptions as to whether the fisheries have changed in terms of catch patterns, gears used, vessels involved and in the case of *de minimis,* the uptake of the volume of catch allowed to be discarded. It would be timely for the Member States Groups and the Commission to review these exemptions and determine whether they need to be amended or are still required.

3 EWG 19-08 recognises the progress made in supplying supporting information to justify exemptions and the volume of work that has been carried out to generate this information. However, EWG 19-08 notes that for the 2019 JR's there are many cases where the supporting information is generic with the same information and assumptions used to support multiple exemptions. For some exemptions no supporting information has been provided at all. While, EWG 19-08 acknowledges that the same exemption can impact several fisheries, without any specific linkage to the stocks and fisheries involved, it is extremely difficult to make any evaluation as to whether the exemption makes sense or not.

4 EWG 19-08 notes that in many cases the supporting information relating to the fleets and fisheries involved are based on data stored in the publicly available STECF FDI database. This information has not been updated since 2016. This means that in many cases the estimation of *de minimis* volumes is based on catch data that may not be representative of the current catches in the relevant fisheries. In addition, it makes it difficult to evaluate extent of the *de minimis* compared to the current level of unwanted catches.

5 In accordance with the advice from STECF PLEN 19-01, EWG 19-08 considers that the role of exemptions should be made explicit within the bycatch reduction plans required for all stocks with zero catch advice.

6 EWG 19-08 notes despite many experiments to test selective gears, there are few examples of such gears being incorporated into the JRs submitted. An exception is the NWW and North Sea where attempts have been made to increase selectivity in the form of specific technical measures in certain areas and fisheries. Uptake of selective gears in other regions remains extremely low even in fisheries where unwanted catches remain high.

7 For 2019, EWG 19-08 acknowledges the intentions of Member States in the Mediterranean to create a network of Marine Protected Areas and Fish Stock Recovery Areas (FSA). This is a positive step, provided the relevant Member States move quickly to introduce such closures.

8 EWG 19-08 notes that few specific provisions included in the JR's submitted include measures to improve the documentation of catches. An exception is the inclusion of provisions for CCTV linked to the plaice survivability exemption in the North Sea. EWG 19-08 stresses the need to improve the collection of catch data. This includes fish discarded under *de minimis* and survivability exemptions.

9 EWG 19-08 observes that while extensive work has been carried out on selectivity, for some regions, this work has been uncoordinated and not necessarily targeted at the right fisheries. A review of the work completed to identify what works and what does not, along with detailing the gaps in knowledge would help to channel further experiments into the appropriate fisheries.

10 EWG 19-08 recognises there are many challenges for Member States in presenting appropriate information to support *de minimis* exemption based on disproportionate costs. STECF has proposed different analytical framework that can assist in the submission of economic cases for *de minimis* (STECF EWG 13-23 and EWG 16-10). The purpose of the economic analysis to support a *de minimis* exemption is to understand the scale, or proportionality, of the challenges faced by the group of vessels relevant to the *de minimis* exemption in comparison to the baseline situation pre-Landing Obligation.

11 EWG 19-08 notes that for many cases Member States have provided an economic analysis demonstrating disproportionate costs to justify *de minimis* exemptions. More than 90% of the proposed *de minimis* exemptions are based on such analyses. EWG 19-08 acknowledges some are quite detailed. They demonstrate that the potential increase in workload in terms of time and operational costs and that due to storage limitations vessels may be forced to cut short fishing trips causing loss of income. However, EWG 19-08 highlights that there is no way to objectively judge whether such estimates amount to disproportionate costs. EWG 19-08 consider that simply stating that handling, storing and landing unwanted catches has an associated cost, is not sufficient to demonstrate that those costs are disproportionate. The priority should be improving selectivity and the introduction of avoidance measures to reduce the levels of unwanted catches and thus, reduce the costs for handling these unwanted catches.

12 EWG 19-08 notes that Member States have used a variety of ways to calculate *de minimis* volumes. In most cases for single species *de minimis* exemptions, a percentage (e.g. 5% or 7%) has been applied to the catches of the relevant species. However, for several fisheries where the intention is to discard 100% of the catches (e.g. brown shrimp in the NWW and North Sea and industrial species bycatch in demersal fisheries the North Sea), catches from the entire fishery or fisheries have been used as the basis for the calculation. A small percentage has been applied to these total catches to give a higher *de minimis* volume than would have been the case if just the catches for that species in that fishery were used.

13 EWG 19-08 notes that in some cases where the unwanted catch of species subject to the Landing Obligation are substantial, granting a *de minimis* of 5-7% of the catches of such species will have little, most likely an unmeasurable effect on their overall fishing mortality and only a marginal effect on the ability of the vessels concerned to continue fishing legally. It is likely that granting an exemption to discard 5%, will achieve little in terms of mitigating the costs of landing the other 95% of the unwanted catch.

14 EWG 19-08 notes 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, or to bring only permitted *de minimis* quantities ashore on landing.

15 EWG 19-08 has identified areas where there are limitations in the information presented or the methodologies used and, in some cases, where there are inconsistences. In these cases, further clarification may be required. Where evidence is presented and shows that for example increasing selectivity results in losses of marketable fish, then this is noted, but whether this constitutes a technical difficulty is not something that can be readily answered by the EWG. Inevitably, improvements in selectivity result in some degree of loss, and therefore some reduction in revenue. However, these should be viewed in the broader context of medium term gains in stocks and in the absence of improvements in selectivity, would the fishery be worse of in comparison due to choke effects and utilization of quota for fish that have little or no value.

16 EWG 19-08 re-iterates that assessing what constitutes high survivability is problematic, which is made more complex by the limited information available and the high variability in the available survival estimates. What is clear is that there are a wide range of factors that can affect survival, and these are likely to be the primary cause of the high variability observed across the various studies. However, identifying and quantifying these is difficult due to the relatively limited species-specific information and differences between experiments including timing, season, gear handling, observation period. This means that passing judgment on the representativeness of individual or limited studies as an indicator of discard survival across an entire fishery is difficult given the range of factors that can influence survival and how they may vary in time even within a fishery.

17 EWG 19-08 notes that several existing exemptions for plaice and sole are linked to conditions such as restricting the exemption to fishing to certain depths, tow durations and to specific groups of vessels. While these factors undoubtedly influence survival, there is no evidence of them being applied by Member States. In practice controlling and enforcing such measures to any degree will be challenging.

18 EWG 19-08 notes that several survivability exemptions – plaice and rays and skates – are linked to a road map setting out work planned to develop survival estimates and accompanying measures to increase survivability. However, EWG 19-08 points out that there is no explicit reporting against the road map, which it makes it hard to assess progress with the work set out in the roadmap. Structured reporting against the different tasks would be beneficial.

19 EWG 19-08 re-emphasises the need to consider survivability in the context of the discard rate for the fishery seeking an exemption (STECF 17-02), highlighting that medium survival rates in high discarding fisheries still lead to high discard mortality rates. STECF notes that in 2018, deductions from TACs were made, whereby exempted dead discards were deducted from the TAC to reduce the risk of overfishing. STECF has also previously concluded (STECF 19-02) that unless surviving discards are accounted for in stock assessments when dead discards are accounted for in TAC setting, where survivability exemptions are in place, the actual fishing mortality will not match the agreed catch level. This should be discussed in the assessment forums for stocks with survival exemptions.

3 PROGRESSION IN IMPLEMENTATION OF THE LANDING OBLIGATION

EWG 19-08 updated the analysis of the number of exemptions completed by EWG 18-06 adopted in the discard plans for 2016 to 2019 and requested for 2020 in the current set of JRs. The analysis of exemptions is based on the following method, and subject to several caveats as outlined below:

- The results illustrate the number and increase in exemptions adopted since 2016. For 2016 to 2019, the figures are based on a count of the total number of exemptions (including existing, modified and new ones) as listed in the relevant demersal discard plans (pelagic discard plans not included in the analysis), whereas for 2020 the figures are based on a count of the exemption requests as listed in the current set of joint recommendations. The figures presented last year for 2019 based on the relevant JRs were replaced by the figures based on the agreed discard plans for the same year. Moreover, compared to last year's analysis, the figures for the Baltic were excluded, since no new JR was presented for 2020 and no change has been made to the one existing exemption.
- The figures presented need to be treated with caution, because the way exemptions or the underlying requests are listed (and counted on that basis) is not always the same between different years or regions, or between the discard plans and the underlying joint recommendations. For example, in some cases one request is split into more than one exemption in the relevant discard plan.
- In some cases the type of an exemption changed between the years from *de minimis* to high survival. Therefore, the absolute number of exemptions in some cases may seem to have changed only marginally or not at all between two years, even though new *de minimis* exemptions were added, because at the same time existing *de minimis* exemptions were changed into high survival exemptions.
- Several combined *de minimis* exemptions applying to more than one species until 2019, have now been split into several single species exemption requests in the 2020 JRs, increasing the number.
- In the Mediterranean discard plans and JRs, several exemption requests with the same wording are listed individually for three different areas (South-eastern Mediterranean, Western Mediterranean and Adriatic). On this basis, the number of Mediterranean exemptions increased considerably between 2019 and 2020, since many existing exemptions were newly listed for additional areas – whereas in discard plans and JRs from other.
- Many exemptions cover more than one species (or stocks of the same species) and/or gear type and counting such an exemption as just 1 (as done for this analysis for reasons of simplicity) could therefore be misleading if the results are misinterpreted as a measure of exemption coverage in terms of stocks, TACs or fisheries.

EWG 19-08 highlights that this indicator is to be treated as a preliminary indicator of trends in the number of exemptions adopted (and requested) throughout the years but does not allow for any conclusion about the actual exemption coverage in terms of catches, (i.e. it cannot be used to quantify the impact of exemptions on Landing Obligation coverage). EWG 19-08 considers that in future a more elaborate indicator of Landing Obligation coverage could be developed, quantifying the amount or percentage of fishing opportunities (or even the tonnage of observed catch) under the Landing Obligation versus that covered by exemptions. In addition to quantifying the number of exemptions overall throughout the years, EWG 19-08 also quantified the number of a) combined (versus single species) *de minimis* exemptions, and b) exemptions (both combined and single species), for which the *de minimis* amount is calculated based on total annual catches of more than just one species, thus increasing the overall requested *de minimis* amount.

The analysis illustrates the continued rise in the numbers of exemptions following from first full year of Landing Obligation implementation in 2019. *De minimis* and high survivability cases (combined) rose from just over 40 in 2018 to nearly 70 for 2019. For 2020, 53 exemptions have been proposed, acknowledging that many of these are temporary exemptions that were granted for one year until the end of 2019. Overall results from the analysis of trends in the numbers of exemptions is shown in Figure 4.1.

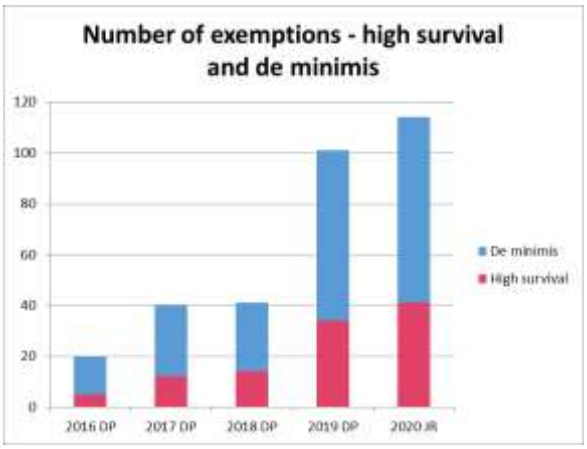

Figure 4.1 Total number of *de minimis* and high survival exemptions implemented since the introduction of the Landing Obligation

Figure 4.2 illustrates the trends in exemptions by area for *de minimis* and high survival exemptions respectively. *De minimis* exemptions increased fairly steadily (apart from 2018) to 44 cases propsoed for 2020, higher overall than high survival exemptions. EWG 19-08 notes a marked reduction in proposed combined *de minimis* cases for 2020. High survival exemptions increased more slowly to begin with and peaked in requests for 2019 (reaching a total of 30). For 2020, some 23 high survival exmeptions proposed.

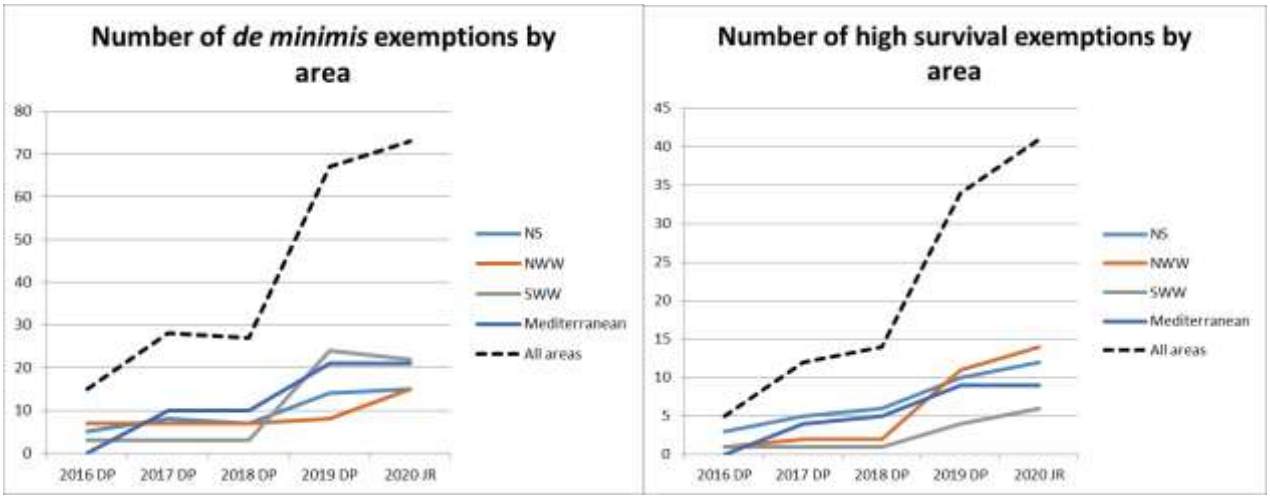

Figure 4.2 Trends in *de minimis* and high survival exemptions by area since the introduction of the Landing Obligation

4 Evaluation of Regional Draft Joint Recommendations

4.1 Structure of Advice – *de minimis* exemptions

In assessing each of the *de minimis* exemptions requested, EWG 19-08 have based their evaluation on the following three elements as described in STECF PLEN 19-01.

1. Information based on the STECF template that defines the fisheries involved. This should include the number of vessels; relevant catch data; indicative discard rates; and estimated volumes of *de minimis* requested.

2. Explanation why the *de minimis* exemption is needed, putting it in the context of the level of unwanted catches in the fishery. This demonstrates whether the exemption is required to cover residual unwanted catches following improvements in selectivity, as a "stop-gap" while further selectivity or avoidance measures are developed or to reduce disproportionate costs from handling and sorting unwanted catches on board.

3. Provide the scientific evidence that underpins the exemption. Include a summary of the relevant supporting studies and experiments in the JR.

EWG 16-06 provided a template for provision of information relating to the fisheries for *de minimis* exemptions and for survivability exemptions (See Annex I). EWG 19-08 notes that as in previous years some Member States have used these templates in their JRs but that the completion remains patchy.

Regarding the underpinning information for *de minimis* exemptions EWG 19-08 has based their observations on the approaches of previous STECF evaluations of the JRs as well as the general principles described by STECF PLEN 19-01 on the development of criteria for reviewing *de minimis* requests.

4.2 Structure of Advice – Survivability exemptions

In the case of high survivability exemptions, EWG 19-08 has provided advice based on the following elements:

1. Exemption status
2. Survival evidence
3. Fishery context
4. Survival and fishery compatability
5. Additional evidence

Where possible, EWG 19-08 has used the critical review framework developed by ICES Workshop on Methods for Estimating Discard Survival (WKMEDS) on how to conduct discard survival assessments to assess the survival data provided to support the exemptions. This review consists of a series of 'Yes/No' phrased questions. Positive responses ('Y') meant that the guidance was followed, and negative responses ('N') were given when it was not followed, or there was no evidence that it was followed. The most important criteria are captured in five 'key guidance questions', which are considered the most useful in assessing the quality of the study, both in terms of how robust the estimate is and how representative the derived discard estimates are of the defined fishery. The template used is shown in Annex II. There are more details on the critical review process available in the ICES WKMED meeting reports (ICES, 2016).

4.3 Survivability of Skates and Rays – General considerations

EWG 19-08 notes that the high survivability exemptions for skates and rays included in 2019, have been retained in the proposals for the 2020 discard plans. As highlighted by EWG 18-06, studies of survivability of skates and rays following capture and release from fishing gear have, in some cases, produced results suggesting that high survivability exemptions might offer a solution and, indeed the three requests covered in this report (one each for North Sea, NWW and SWW) are for exemptions based on high survivability. However, EWG 19-08 re-iterates in view of the general concerns over the exploitation of skates and rays, it is important that any exemptions are based on the most relevant and sound science. This underlines the requirement for continuing focussed studies designed to be representative of the fisheries seeking exemptions.

EWG 19-08 re-iterates that assessing what constitutes high survivability is complicated by the limited information available and the variability in survival estimates. EWG 19-08 notes that this is particularly relevant for the skate and ray survival exemptions covering many species and fisheries. There is a wide range of factors that can affect survival, however identifying and quantifying these is difficult due to the relatively limited species-specific information and differences between experiments including timing, season, gear handling, observation period. This means that assessing the representativeness of studies as an indicator of discard survival across an entire fishery is difficult, given the range of factors that can influence survival, and how they may vary in time, even within a fishery.

STECF 18-06 observed that the scope of the exemption for skates and rays was not consistent with other survivability exemptions and highlighted the risks in extrapolating survival evidence between species, fisheries and seasons. EWG 19-08 notes that the latest evidence suggest that skate and ray survival rates can be highly variable between species and fisheries. Studies indicate that smaller individuals and smaller species have lower survival, inshore static nets are associated

with higher survival and shorter tow durations are associated with higher survival. It is indicated that for some fisheries and species combinations the survival may be close to zero. Therefore, EWG 19-08 stresses the need for close monitoring and continued research to ensure these survival exemptions do not lead to over exploitation of skate and ray species.

4.4 Survivability of Plaice – General considerations

The discard plans introduced in 2019 included six high survivability exemptions for plaice in different fishing gears – beam trawls, otter trawls and trammel nets - across the NWW and the North Sea. EWG 18-06 noted that the evidence submitted to support these exemptions highlighted that survivability in most of the fisheries for which exemptions is affected by many factors and is highly variable. STECF also had doubts that given the indicative relatively high discard rates and relatively low survival rates, it is likely that significant quantities of plaice discarded will not survive. Therefore, most of these exemptions were only granted for one year until the end of 2019. Member States were required to submit additional scientific information supporting those exemptions.

For the latest JRs assessed by EWG 19-08, Member States have proposed to retain these exemptions and additionally, have proposed several new or extensions to the existing exemptions. If all these exemptions were to be granted, this would effectively mean that almost all plaice catches in otter trawl, seine net and beam trawl fisheries would be covered by a high survivability exemption. EWG 19-08 highlights that the motivation for the proposed work is to mitigate against the economic costs of landing high volumes of unwanted plaice and that in the beam trawl and otter trawl fisheries, the justification for survivability exemption for plaice caught is based on the potential for improving survival and selectivity, but not on demonstrated high survival.

STECF PLEN 19-01 collated existing relevant plaice discard survival evidence from the North Sea and North Western Waters, this evidence has been submitted to support the proposed exemptions (see Table 5.4.1). There are both survival estimates derived from direct observation, and those based on a proxy using relationships from other studies between health condition at the point of discarding and survival probability. To assess the implications of the existing and proposed exemptions, STECF PLEN 19-01 mapped the most relevant discard estimate to the fleet catch estimates for each area 7 plaice stock. EWG 19-08 highlights that this analysis should be completed for the plaice stock in relevant fisheries in the North Sea and Skagerrak covered by exemptions. For high survivability recommendations, STECF has previously emphasised the need to consider estimates of survivability in the context of the discard rate for the fishery seeking an exemption (STECF 17-02). It has been highlighted that medium survival rates in high discarding fisheries still lead to high discard mortality rates. Some examples include for 7.a plaice, where an estimated 21-30% of the total 7.a plaice catch could be discarded dead by the beam trawl fleet when under exemption. STECF note that unless surviving discards are accounted for in stock assessments and dead discards are accounted for in TAC setting when survivability exemptions are in place, the actual fishing mortality will not match the agreed catch level. EWG 19-08 also notes that introducing discard survival estimates is something which should be discussed in the assessment forums for more stocks and especially plaice, given the proliferation of exemptions.

Table 5.4.1. Details of plaice discard survival evidence in the context of the landing obligation, adapted from Rihan et al (2019) https://link.springer.com/chapter/10.1007/978-3-030-03308-8_3

ID	Fishing gear	Location / ICES	min %	max%	N	Comment	Reference
1	Beam trawls	English Channel (7.e)	4	15	275	Observed survival, adjusted to asymptote	Catchpole et al. 2015
2	Beam trawls	North Sea (4.c)	11	22	558	Observed, pulse trawl	Schram and Molenaar 2018a,b
3	Beam trawls	North Sea (4.c)	30	40	446	Observed survival for various beam trawl sectors (mean of hauls +/-sd; range 4-93%)	Uhlmann et al. 2018
4	Beam trawls	Eastern and Western English Channel (7.d, e, h, g)	30	32	1314	Inferred survival using vitality data from 4.c	Uhlmann et at., 2018
5	Otter trawls	Bideford Bay (7.f, 7.g)	75	88	572	Inferred survival using vitality data from 7.e	Smith et al. 2015
6	Otter trawls	Eastern and Western English Channel (7.d,e)	45	67	1040	Observed and inferred survival using vitality data from 7.e	Smith et al. 2015; Morfin et al. 2017
7	Trammel net	Swansea Bay (7.f, 7.g)	37	60	96	Observed survival, adjusted to asymptote	Smith et al. 2015
8	Otter trawls	North Sea (4.c)	28	37	385	Observed survival for *Nephrops* trawl, adjusted to asymptote	Randall et al. 2016
9	Otter trawls	Irish Sea (7.a)	37	43	88	Observed survival for demersal fish trawl	Oliver et al. 2018
10	Trammel net	English Channel (7.d)	71	72	168	Observed survival, adjusted to asymptote	Catchpole et al. 2015
11	Otter trawls	North Sea (4.c)	19	20	292	Observed survival, adjusted to asymptote	Catchpole et al. 2015
12	Otter trawls	English Channel (7.e)	47	63	348	Observed survival, adjusted to asymptote	Catchpole et al. 2015

5 NORTH SEA - OVERVIEW OF JOINT RECOMMENDATIONS

Commission Delegated Regulation (EU) 2015/2440 established a discard plan for certain demersal fisheries in the North Sea and in Union waters of ICES Division 2a. Based on new Joint Recommendations for the North Sea submitted by the regional group of Member States this plan has been updated several times, most recently by Commission Delegated Regulation (EU) 2018/2035. In 2019, a further set of Joint Recommendations has been submitted by the Member States. The main elements of these JR's and which of these have been assessed by EWG 19-08 are summarised in table 6.1.

Table 6.1 Main elements of the Joint Recommendations submitted for the North Sea

Elements	***Status with relevant Article in current discard plan***	***Assessment by EWG 19-08 with relevant Annexes in JR***
De minimis		
Common sole caught with gillnets and trammel nets in in Union waters of ICES divisions 2a and 3a, and ICES subarea 4	Existing and unchanged Article 9a	Not assessed
Common sole caught by beam trawls with a mesh size of 80-119mm with increased mesh sizes in the extension of the beam trawl in ICES subarea 4	Existing and unchanged Article 9b	Not assessed
Sole, cod, haddock, saithe, whiting and hake caught in the *Nephrops* fishery using bottom trawls with a mesh size equal to or larger than 70 mm equipped with a species-selective grid in Union waters of ICES division 3a	Existing and unchanged Article 9c	Not assessed
Sole, haddock, whiting, cod, plaice, saithe, herring, Norway pout, greater silver smelt and blue whiting below MCRS caught in the *Pandalus* fishery using bottom trawls with a mesh size equal to or larger than 35 mm equipped with a species selective grid, and with unblocked fish outlet, in Union waters of ICES division 3a	Existing and unchanged Article 9d	Not assessed
Cod and whiting below MCRS caught in the mixed demersal fishery using bottom trawls or seines of mesh size 70-99 mm in Union waters of ICES division 4c	Existing and unchanged Article 9e	Not assessed
Whiting caught in bottom trawls 90-119mm with SELTRA panels and bottom trawls with a mesh size of 120mm and above in Union	Existing and unchanged Article 9g	Not assessed

waters of ICES division in 3a		
Bycatch of plaice in fisheries caught in the *Nephrops* trawl fishery with a mesh size ≥ 80-99mm with a SEPNEP in ICES subarea 4	Existing and unchanged Article 9h	Not assessed
All fish species caught in the Brown shrimp fishery using beam trawls in Union waters of ICES divisions 4b and 4c:	Existing and unchanged Article 9i	Not assessed
Ling below MCRS caught using bottom trawls with a mesh size equal to or greater than 120 mm in Union waters of ICES subarea 4	Existing and unchanged Article 9k	Not assessed
Whiting below MCRS in demersal mixed fisheries using beam trawls with a mesh size of 80-119 mm in Union waters of ICES subarea 4	Existing with request for additional information Article 9l	New information assessed Annex C
Whiting and cod below MCRS caught in mixed demersal fisheries by vessels using bottom trawls or seines with a mesh size of 70-99 mm in Union waters of ICES divisions 4a and 4b	Temporary until end of 2019 Article 9f	Re-assessed on basis of new information Annex C
Horse mackerel caught using bottom trawls, seines and beam trawls with a mesh size between 80 and 99 mm in ICES subarea 4	Temporary until end of 2019 Article 9m	Re-assessed on basis of new information Annex I
Mackerel caught using bottom trawls, seines and beam trawls with a mesh size between 80 and 99 mm in ICES subarea 4	Temporary until end of 2019 Article 9n	Re-assessed on basis of new information Annex J
Ling below MCRS caught using longlines in ICES subarea 4	New	Assessed Annex K
Bycatch of industrial species caught using bottom trawls, seines and beam trawls in ICES subarea 4	New	Assessed Annex L
Ling below MCRS caught using bottom trawls with a mesh size between 100 and 119 mm in Union waters of ICES subarea 4	Not included in new JR	Not assessed
High Survivability		
Common sole below MCRS caught with bottom trawls with a codend mesh size of 80-99 mm in ICES division 4c	Existing Article 4	Not assessed

Fish bycatch in pots and fyke nets in Union waters of ICES division 3a and ICES subarea 4	Existing Article 5	Not assessed
Plaice caught with nets; Danish seines; bottom trawls with a mesh size of at least 120 mm in winter months (from 1 November to 30 April) in Union waters of ICES division 3a and subarea 4	Existing Article 6	Not assessed
Nephrops caught with *pots; bottom* trawls with a cod-end larger than 80 mm or a cod-end with a mesh size of at least 70 mm equipped with a species selective grid; or a cod-end of at least 35 mm equipped with a species selective grid in Union waters of ICES divisions 2a, 3a and subarea 4	Existing with request for additional information for bottom trawls in 3a & 4 Article 3(1b)	Assessed on basis of new information Annex A
Plaice below MCRS caught with beam trawls with a mesh of 80-119mm in Union waters of ICES division 2a and ICES subarea 4	Temporary until end of 2019 Article 7	Re-assessed on basis of new information Annex G
Skates and rays (*Rajiformes*) caught with all gears in in Union waters of ICES divisions 2a, 3a and subarea 4)	Temporary for cuckoo ray until end of 2019 Article 8	Re-assessed on basis of new information Annex B
Plaice caught with bottom trawls with a mesh size of at least 120mm in summer months in ICES subarea 4	Extension of existing exemption Article 6	Assessed on basis of new and existing information Annex E
Plaice caught with Scottish seines in ICES subarea 4	New	Assessed Annex F
Turbot caught with trawls with a codend larger than 80mm in ICES subarea 4	New (Re-submitted from 2018 JR)	Assessed based on existing and new information Annex H
Technical Conservation Measures		
Definition of the SEPNEP	Existing Article 2(4) & 11	Not assessed
Definition of the Belgium/Flemish panel	Existing Article 2(3)	Not assessed
Technical rules in the Union waters of ICES division 3a	Existing Article 2(1) and 10	Not assessed

5.1 North Sea – Proposals for *de minimis* exemptions

A summary of the fishery information applicable to the new or revised de minimis exemptions is given in Table 6.1.1.

Table 6.1.1 Summary of de minimis exemptions submitted as part of the North Sea Joint Recommendations (restricted to new or revised exemptions)

De minimis	
Fishery	Main Findings of EWG 19-08
Ling caught by bottom trawls with a mesh size between 100-119mm catching ling in ICES subarea 4	This exemption has been withdrawn
Fishery	Main Findings of EWG 19-08
Whiting caught by beam trawls with a mesh size of 80-119mm in ICES subarea 4	1. Exemption status Existing exemption for 3 years with a condition that Member States should provide additional information. 1. Defintion of fisheries Limited information is provided on the fleets involved. Catch information is provided for the period 2014-2016 for whiting and the target species in the fishery, sole and plaice. The *de minimis* volume based on 2% of the catches of sole and plaice is estimated to be 1640 tonnes. This is more than the average discards of whiting for the period 2014-2016. 2. Basis for exemption A summary of an additional study to support the exemption based on disproportionate costs for the Dutch demersal fisheries has been supplied. This study includes an economic analysis of handling unwanted catches in the Dutch beam and pulse trawl fisheries for sole and plaice. The information provided is at a fleet rather than at individual vessel level. 3. EWG 19-08 observations The information provided shows the cost of landing unwanted catches to be significant but not specific to unwanted catches of whiting. The study only covers the Dutch fleet and it is not clear whether it is representative of other fleets availing of this exemption. Calculating the *de minimis* based on catches of sole and plaice means 100% of the discards of whiting can be potentially discarded.
Fishery	Main Findings of EWG 19-08
Whiting and cod below MCRS caught in mixed demersal fisheries using bottom trawls or seines with a	1. Exemption status Existing temporary exemption granted until the end of 2019. 2. Definition of fisheries New information on the fleets and fisheries has been supplied for the FR, NL and DE fleets to support the request. Based on the data for France,

mesh size of 70-99 mm in Union waters of ICES divisions 4a and 4b	Germany and the Netherlands a *de minimis* exemption of 6% of whiting and cod (of which maximal 2% is cod) corresponds to total quantities of 253t of discarded whiting and 72t of discarded cod for the entire North Sea. No supporting information as to how these discard volumes were calculated has been made available but at these levels they represent less than 1% of total catches of cod and whiting in the North Sea. 3. Basis for exemption The supporting information provided is largely the same as in 2017 and in 2018. A summary of an additional study to support the exemption based on disproportionate costs for the Dutch demersal fisheries has also been supplied. This study also explores the economic impacts of the Landing Obligation on different sectors of the Dutch fleet The justification is based on difficulties to improve selectivity in the short-term period as well as the handling of unwanted catches on board leading to disproportionate costs. Vessels in the fishery are operating fishing trips (~3 days on average) at considerable distance from home harbours. It is argued that the handling and storing of unwanted catches on board would force vessels to return to harbour more frequently, generating high costs for the vessel. 4. EWG 19-08 observations Estimates of the potential increase in workload are provided in terms of time and operational costs. This shows the additional costs for the Dutch fleet targeting *Nephrops* generated by having to handle unwanted catches on board. The information provided shows the impact to be significant. Similar information for the French fleet had been provided in 2017 and 2018. However, the study provided is specific to one fleet and it is not clear how representative the costs presented are to the other fleets relevant to this exemption request. of losses following from the use of more selective gears in the relevant fisheries. There is reference in the supporting information to selectivity studies showing improvements in selectivity being difficult to achieve but this information relates only to the Dutch fleet and is rather generic in nature.
Horse mackerel and mackerel caught using bottom trawls, seines and beam trawls with a mesh size between 80 and 99 mm in ICES subarea 4	1. Exemption status Existing temporary exemption granted until the end of 2019. Separate exemptions are proposed for horse mackerel and mackerel. The descriptions of the fleets and fisheries and justification for the exemptions is the same. Therefore, the evaluation is combined. 2. Definition of fisheries The supporting document provides reasonably detailed information on the fleets (trawl and seine) and fisheries from France but not for other Member States fishing in the area covered by the exemption. No information is provided for beam trawls, even though they are included in the exemption. The supporting information indicates the average discard rates for horse mackerel and mackerel are estimated at 10% for horse mackerel and around 1% for French demersal trawlers (2016 catch data). Catches of horse mackerel and mackerel by French demersal trawlers were 1,514 tonnes and 1,104 tonnes respectively. Based on the information provided in the supporting study, the *de minimis* exemption of 7% of horse mackerel bycatches would correspond to total quantities of 106t (not 189t as stated in JR) and 77 tonnes for mackerel for the entire North Sea. This is based on average catches over the period 2013-2016. According to the information

	supplied 90% of horse mackerel and 3% of mackerel are discarded based on catch data over the period 2013-2016. The data presented is taken mostly from the FDI database and is prior to 2017 so may not be representative of current catch patterns in the fisheries. 3. Basis for exemption Justification is based on disproportionate costs linked to difficulties in improving selectivity in a short-term period. The supporting information demonstrates that the handling and storage on board of unwanted catches would increase the workload on board and leads to the hold of the vessels being filled more quickly, forcing the vessels to return to harbour quickly with shortened fishing trips. The request is supported with a detailed economic analysis of costs associated with handling and storing unwanted catches. A summary is also provided from the results of several selectivity studies carried out in Southern North Sea and English Channel. This information relates only to the French fleet. 4. EWG 19-08 observations Estimates of the potential increase in workload are provided in terms of time and operational costs. This shows the additional costs for the French demersal trawler fleet generated by having to handle unwanted catches on board. The information provided shows the impact to be significant. However, while estimates of the potential increase in workload are provided in terms of time and operational costs, they are generic and not specific to the handling of horse mackerel and mackerel. Additionally, the study provided is specific to one fleet and it is not clear how representative the costs presented are to other fleets relevant to this exemption request. The supporting information also provides a review of selectivity trials carried out since 2010. The results presented while largely qualitative show reductions of unwanted catches including horse and mackerel but also corresponding losses of marketable catch associated with most of the gear modifications tested in losses of 30-40%. Because of these losses, there seems a marked reluctance to use any of the gear options tested. Unwanted catches of horse mackerel are likely to be more than the *de minimis* volume requested. Therefore, significant quantities of horse mackerel will still have to be landed without improvements in selectivity.
Ling below MCRS caught using longlines in ICES subarea 4	1. Exemption status New request for an exemption. 2. Definition of fisheries A reasonably detailed description of the French fleet is provided, which identifies a fleet of 10 vessels that operate in the North Sea and the West of Scotland. No other Member State is involved. Only part of the information provided originates from the North Sea (division 4a) with most originating from observer trips from the West of Scotland waters. According to the estimates presented in the supporting document, the European longliners caught on average (2013-2016) 153 t of ling out of a total catch of 2 615 tons of TAC species in subarea 4 by these vessels. This would imply that *de minimis* of 3% would represent a maximum amount of allowed discard for ling of 5 tonnes in subarea 4. This amount is very limited when compared to the total catches (< 3%) and of the TAC for ling in subarea 4 (3 738 t in 2019). the TAC deduction would represent less than

	0.15% of the 2019 TAC. 3. Basis for request The justification is based on longlines being highly selective gears and to increase selectivity further is not possible without incurring high economic costs. The exemption is to cover small residual unwanted catches. No specific studies are provided. 4. EWG 19-08 observations The arguments regarding difficulties in improving selectivity are credible given the nature of the fisheries and the *de minimis* volume is estimated as small compared to overall ling catches. However, the qualitative nature of the information presented means that the improvements of selectivity, for example through increases in hook size would have on the fishery have not been provided. No attempt has been made to quantify the potential scale of the losses that would be incurred if the *de minimis* exemption was not granted. Additionally, it is noted that the supporting information indicates that only 14% of ling classified as unwanted catches are below MCRS. It is not clear the reason the other 86% is discarded. Such catches will still have to be landed In the future.
Bycatch of industrial species caught using bottom trawls, seines and beam trawls in ICES subarea 4	1. Exemption status This is a request for a new exemption. 2. Definition of fisheries Supporting information is provided on bycatch of industrial species (sprat, sandeel, Norway pout and blue whiting) in Danish demersal trawl fisheries and *Pandalus* fishery in the North Sea and Skagerrak/Kattegat. Additionally, landing and discard estimates and number of vessels involved in different fisheries of Sweden and UK with bycatch of these species are presented in the background document. Information on catch and discard rates for Denmark and Sweden is based on observer data from 2016-2018. Data for the UK has been obtained from the FDI database but refers to data prior to 2017 and may not be reflective of the current state of the fisheries. There is also a reference to beam trawl (BT2) fisheries in the request, but no specific information is provided on catches from beam trawl fleets impacted. Based on the Danish and Swedish catch data, the *de minimis* volume for all species and fisheries is estimated at around 448 tonnes and 62 tonnes respectively. The discard rates were between 0.67% and 4.7 %. The volumes of *de minimis* are small when taken in the context of overall catches of all species in the fishery. The catches of unwanted species in 2018 was estimated at 303 tonnes. It is not clear whether this is the total catch from all fleets or just Danish vessels are other vessels. Most of the catches are made up of Norway pout with very small catches of the other species recorded. The unwanted catches in the North Sea and Kattegat appear to be very low < 10 tonnes for the Danish fleets. 3. Basis for exemption The justification for this exemption is that handling of unwanted catches are regarded as uneconomically disproportionate given the difficulties in sorting these species from the target species. No specific studies are presented, and the justification is based purely on qualitative information. 4. EWG 19-08 observations

	No documentation is provided to support the assertion that selectivity is difficult to achieve in these fisheries or that the costs of handling unwanted catches are disproportionate. The justification is based on the assumption that the catches are insignificant in the demersal fisheries and options to improve selectivity have been exhausted. There is no quantitative evidence to support these assertions even though, intuitively, achieving additional selectivity improvements would be difficult to achieve in such fisheries and the costs for sorting would be high given the nature of the species involved. The supporting information provides indications of some of the steps that have been taken in these fisheries to improve selectivity, but a more detailed description of these steps would be beneficial.

5.2 North Sea - Proposals for survivability exemptions

A summary of the fishery information applicable to the new or revised survivability applications is given in Table 6.2.1.

Table 6.2.1 Summary of high survivability submitted as part of the North Sea Joint Recommendations

High Survivability	
Fishery	Main Findings of EWG 19-08
Plaice below MCRS caught with beam trawls with a mesh of 80-119mm in Union waters of ICES division 2a and ICES subarea 4	1. Exemption status Extension of an existing temporary exemption beyond 2019. The delegated act also stipulates that a roadmap developed to increase survivability should be developed and scientifically assessed by STECF. Annual reports on the progress and modifications/ adjustments made to the survivability programme should be provided. The roadmap was evaluated by STECF PLEN 18-03. The annual progress report on the survivability programme was provided. 2. Survival evidence There are no new survival estimates provided. However, certain initiatives linked to the roadmap have been completed or have been commenced in Belgium and the Netherlands. Since January 1st, 2019, Belgian beam trawlers must use either a flip-up rope or a benthos release panel. These measures are aimed at reducing excessive catches of stones and debris that may contribute to an improved survival of discards. EWG 19-08 notes that new research is planned on the influence on plaice survival of stone and sand intermixture in catches. New analyses of the relationship between immediate plaice mortality and haul duration are being undertaken. Initial indications show that haul duration is a factor that merits further research to enhance survival. Recent work in the Netherlands is also presented. It relates mainly to pulse trawlers and includes sea trips to estimate plaice survival, the use of vitality scores as a proxy for survival, more studies into the factors that affect discard survival and measures to increase survival. 3. Fishery context Detailed information is provided for the Belgium and Dutch fleets and fisheries. Catch data shows a reported discard rate of 50 % for 2017-2018 for Belgium and 64% discard rate the Dutch fleet. The Dutch fishery is by far the largest (>90% of plaice catches). 4. Survival and fishery compatibility The analyses presented of some of the factors that affects plaice survival

	are highly relevant for the proposed exemption. These relate to haul duration, exemptions for smaller vessels inside 12 miles and the requirement for the use of flip-up ropes and benthic release panels. The inclusion of these factors in the current exemption are ambiguous and poorly defined, Furthermore, the introduction of gear modifications such as flip-up rope or benthos release panels may contribute to improved survival, but the scientific basis currently is hypothetical. 5. Additional evidence Future research plans within the roadmap presented are detailed and ambitious and address the central uncertainties regarding factors affecting discard survival for plaice. More knowledge of factors that can explain the observed variability in previous survival estimates is necessary. The annual progress reports are somewhat difficult to follow in differentiating between what had already been submitted and reviewed by STECF and new research. A clearer highlighting of new science is encouraged in future progress reports. The Dutch evidence is based on pulse trawls but the relevance and representativeness to beam trawls needs to be further defined.
Skates and rays (*Rajiformes*) caught with all gears in in Union waters of ICES divisions 2a, 3a and subarea 4)	1. Exemption status Extension was granted for three years (2019-2021) for skates and rays in ICES divisions 2a and 3a, and subarea 4. The delegated act stipulates that a roadmap developed to increase survivability should be developed and applied to the survivability programme. 2. Survival evidence No new evidence on discard survival (except for cuckoo ray, see below) was provided. A comprehensive review of the existing survival rates of skate and rays, based on existing information and survival studies was completed. An average survival estimates of 45% was given. 3. Fishery context Fisheries to which the exemption applies are not listed in the JR. It is assumed that all fisheries are concerned. A comprehensive review was completed of the existing estimates of discard rates of skate and rays, showing that discard rates depend greatly on the species, area and métier considered. New information was provided by Sweden for ICES division 3a and the eastern part of area 4 (total annual landings and catch per unit of effort as well as discard rate is given by fishery for starry ray, sailray, thornback ray, common skate, long-nosed skate, shagreen ray and cuckoo ray). 4. Survival and fishery compatibility The supporting information showed significant data gaps to be addressed. The effects of different variables on discard survival is not well understood, and this introduces risks in extrapolating discard survival evidence between species, fisheries and seasons. This is still the case although efforts are being made to understand and address these gaps. 5. Additional evidence Fisheries data should include number of vessels. Further advancement of data and knowledge of discard survival for different ray and skate species, metiers and areas by member states in cooperation with scientific bodies and institutions is planned in the road map. There was no explicit reporting against the road map, which is recommended in the future. Report of progress in each of the following areas should be presented by main task in

	the road map: (1) survival evidence, (2) enhanced catch data on skate and ray stocks and discard rates for different species, metiers and areas, (3) implementation of best practices such as selectivity improvements, avoidance and improved catch handling for higher survival of skate and ray discards. Evidence provided for the NWW is also relevant to NS but was not included in the JR, specifically reports from the UK fisheries in ICES area 4. Further advancement of data and knowledge of discard survival and discard rate for different ray and skate species, including cuckoo ray, metiers and areas by member states in cooperation with scientific bodies and institutions is planned in the road map, including a post-release discard survival study on cuckoo ray in 2020. There was no explicit reporting against the road map, which is recommended in the future. Report of progress in each of the following areas is expected: (1) survival evidence, (2) knowledge and data on the state of skate and ray stocks and discard rates for different species, metiers and areas, (3) implementation of best practices such as selectivity improvements, avoidance and improved catch handling for higher survival of skate and ray discards.
Cuckoo Ray	1. Exemption status Exemption was granted for one year (2019) for cuckoo ray in ICES divisions 2a and 3a, and subarea 4. This is a request for an extension. 2. Survival evidence There were two new studies provided for which the ICES critical review was applied. The first study assessed the vitality of individuals, representative of the commercial conditions of the Irish Sea otter trawl fishery (NWW) and showed that most were alive and most categorised in excellent conditions (84%) at the point of release. This indicates there is potential for substantial levels of survival. The survival estimate provided, relies on the use of vitality as a proxy for discard survival, based on previous studies on thornback ray in the UK. The relationship between vitality and survival is based on a small number of individuals from another area and a different species. The study provided a survival estimate of more than 80% in the Irish otter trawl fishery (ICES 7a), but such an estimate is considered weak. The reported survival estimate is therefore not representative for the North Sea but did show most of the sampled cuckoo ray were alive and 84% categorised in excellent condition. The second study provided further vitality evidence on discarded cuckoo ray, but not discard survival estimates. The methodology used was robust and the study shows the immediate mortality was 10.9% (89% were alive at the point of release) in the French otter trawl fishery (ICES 7 and 8 (NWW), codend mesh size 100mm diamond). Around 37% of the sampled individuals, representative of commercial conditions, were categorised as in poor condition, with up to 41.4% scored as excellent or good. 3. Fishery context Fisheries to which the exemption applies are not listed in the JR. It is assumed that all fisheries are concerned. There was no new evidence provided about discard rates from other Member States apart from Sweden. Cuckoo ray is considered a rare species in the Swedish fisheries, as it was recorded in the observer programme in only 1 out of 2340 observed hauls between 2000 and 2018. 4. Survival and fishery compatibility Vitality data provided by the JR from two studies conducted in the NWW are likely to be relevant to otter trawl fisheries in the NS, but no information is

	provided to support this assumption in terms of their representativeness. 5. Additional evidence Additional information on the fisheries operational and environmental conditions in the NS, with special focus on how they compare to those in NWW, would improve confidence determining the relevance of the new cuckoo ray vitality data. The vitality data provided illustrate the potential for survival but cannot be considered to provide a discard survival estimate. Tagging and captive observation methods would generate new discard survival estimates for cuckoo ray in different fisheries.
Plaice caught with bottom trawls with a mesh size of at least 120mm in summer months in ICES subarea 4	1. Exemption status Extension to existing exemption to include summer months. 2. Survival evidence The supporting annex presents new directly observed discard survival estimates for otter trawls (90 mm) in 3a targeting plaice and *Nephrops* during summer and winter separately. The study appears to be in line with ICES WKMEDS recommendations but is presented in a very summarised way. Therefore, it was not possible to assess the quality of the survival estimate. The study appears to provide data that are representative of the fisheries in 3a. The average reported discard survival after 14 days of monitoring was 44% for plaice captured in summer hauls which targeted plaice. To compare with the current winter exemption, the estimated survival for discarded plaice during winter according to the annexed study is 75%. 3. Fishery context Some relevant fishery information is provided. Vessel numbers, landings and discards of plaice are given for all countries except for DK, where is it unclear if the data represents all species or just plaice. The Danish plaice discard rate for >120 mm trawls is reported to be 6% and 3% for 3a and 4 respectively, while in the JR summary table reports a DK discard rate of 0.8%. It is not clear which spatial areas the proposed exemption is intended to cover. The JR-request states the North Sea, but the evidence is from the Skagerrak (3a)- a clarification is needed. The applicability of the study presented from 3a to the wider North Sea area is only anecdotally described, which makes it difficult to assess its representativeness to the wider area. The uncertainties described make it difficult to determine a discard rate associated with the exemption. 4. Survival and fishery compatibility The supporting study was based on fish caught using a 90mm cod end mesh, compared to the exemption that applies to ≥ 120 mm mesh. It is unlikely the survival rate when using a larger cod mesh is lower than the reported rates of 44-75%. The most important factor influencing plaice survival, according to the underlying study, was air exposure time with a reported drop in survival to 8% after 60 min air exposure in the summer experiments. 60 minutes is also reported to be the average sorting time in the fishery when plaice is targeted. Therefore the 44% summer survival rate in the JR request (i.e. the average survival from the underlying scientific study) may not represent the survival rate in the fishery during summer as fleet sorting times can be longer than those observed in the survival study. 5. Additional evidence a scientific report including all study details, (i.e. full methods + results section) and a more comprehensive discussion on representativeness, would allow assessment of the quality and relevance of the study

	supporting the proposed exemption. Furthermore, information about similarities and differences in all nation's fleets in both 3a and 4 eligible for the proposed exemption would allow assessment of the representativeness of the study. Particularly, sorting time, haul duration and catch composition are important information that is currently lacking. Fleet information should also clarify the gears that would come under this proposal (e.g. is OTT considered to be covered under OTB) and DK plaice landings and discards should be provided.
Plaice caught with Scottish seines in ICES subarea 4	1. Exemption status The proposed exemption is an extension to cover Scottish seines. 2. Survival evidence Apart from the fishery description provided, the proposed exemption is also motivated in the JR by the existing exemption accepted in 2018 for Danish seines. The JR indicates that the most influential factor on survival (air exposure through catch processing) is almost similar for Scottish seine and Danish seine - both clearly below 30 minutes. On the basis that both fisheries have similar vessel and operational characteristics, the plaice discard survival rate flyshoot fisheries is assessed as being close to the Danish seine at 78%. 3. Fishery context Detailed fleet information and plaice catches including discard rate is given for the Dutch fleet (22-42% per year) only. It is not clear if any other MS are involved. 4. Survival and fishery compatibility The JR states that the plaice survival rate from the North Sea Danish seine fishery is representative of the North Sea Scottish fishery (referred to as Dutch flyshoot). This is based on both fisheries having similar vessel and operational characteristics. However, the data provided demonstrate substantial differences in the characteristics of these fisheries (specifically, vessel dimensions and engine power, haul durations and catch sizes). Vessel length and power is higher in Scottish seine (16 vs 20-35m; 142 vs 366-1049 kW) and catch is higher in the Scottish seine fishery (150-700 vs 500-2000 kg). Haul duration is stated to be lower in the Scottish Seine fishery (179 vs 60 mins), with activity concentrated in the winter months. These differences are sufficient to indicate the survival from the Danish seine fishery is not representative of the Sottish seine fishery. 5. Additional evidence The Dutch flyshoot fishery is described in detail (including important information on catches, catch processing and fishing operation details). A Danish fleet is mentioned but with less details and no other countries have provided any information.
Turbot caught with trawls with a codend larger than 80mm in ICES subarea 4	1. Exemption Status This is a repeat request for a new exemption. The original request was included in the North Sea but was not included in the final delegated act. In the previous submission in 2018, no data on fisheries were provided and it was unclear if the exemption would apply to all trawl fisheries or just to beam trawlers and/or pulse trawlers. The preliminary mean survival estimates of 30% was somewhat low and that survival rates in summer were higher than in winter which is unusual. 2. Survival evidence No new discard survival evidence is provided. Previously submitted documents reported a survival rate of 20-43%.

	3. Fishery context Catches, landings and discards are now provided for all relevant countries, but vessel numbers only for Belgium. The discard rate provided (BE, NL, TBB_DEF, 2014-16) was 10%. 4. Survival and fishery compatibility It remains unclear whether the survival estimates provided from pulse trawling are still relevant to this request, given that numbers of pulse trawlers are set to reduce, and likely to be replaced by beam trawlers. Based on the data provided, NL catches most of the North Sea turbot (54%), most of which is caught by pulse and beam trawlers. 5. Additional evidence More research is committed by BE to directly observe the survival of discarded turbot caught by beam trawlers in the North Sea in a new project in 2019-2021. Outputs from this work will enable a robust evaluation of this proposed exemption.
High Survival exemption for *Nephrops* caught by demersal bottom trawls in ICES subareas 3a and 4.	1. Exemption status This is an existing three-year exemption for *Nephrops* in the North Sea for pots and bottom trawls. The exemption for bottom trawls requires that Member States having a direct management interest shall submit yearly additional scientific information supporting the existing exemptions. 2. Survival evidence There was no new evidence provided on discard survival. The JR argues that no additional data was necessary as STECF found that the supporting scientific information was based on a robust approach and the validation technique used in the context of the wider fleet is reasonable. However, this is not considered the case for the East coast *Nephrops* fishery or the *Pandalus* fishery, where the fisheries and prevailing environmental conditions are quite different. 3. Fishery context There was no new evidence provided on the existing fisheries. Additional information on the Swedish and Danish fisheries for Northern prawns was provided. A discard rate of 15% is given for the Swedish vessels with codend mesh size >35 mm equipped with a species selective grid with a bar spacing of maximum 19 mm. 4. Survival and fishery compatibility Considering that no additional evidence has been provided except for discard rates in the *Pandalu*s fishery in 3a and 4a, the conclusions from 2018 still apply, (i.e., given the limited information, it was not possible to assess whether the assumptions were justified). Regarding the *Pandalus* fishery, there is too little information to assess whether the assumptions were justified but given that *Nephrops* are a bycatch in the *Pandalus* fishery with little discard volume (~1.2t). The actual impact on fishing mortality of the *de minimis* is negligible. 5. Additional evidence Additional information on catches would improve confidence. Clarification of the inconsistency in the fishery data provided for UK, and additional information on the fisheries operational and environmental conditions in the NS, with special focus on how they compare to those in NWW is required. Additional *Nephrops* survival data had been generated in a project in Scotland but had not been provided, once prepared these data should be submitted.

5.3 North Sea – Proposals for technical measures

EWG 19-08 reiterates the observations of EWG 18-06. There is evidence of improvements in selectivity in many demersal fisheries in the North Sea and Skagerrak, but there are still fisheries within this area where the level of unwanted catches remains high and improvements in selectivity should be considered to reduce such catches. Despite numerous trials and pilot projects to test more selective gears, small mesh demersal trawl mixed fisheries using TR2 gears (70-99mm mesh size) in the southern North Sea continue to have high levels of unwanted catches.

6 NWW – Overview of Joint Recommendations

Commission Delegated Regulation (EU) 2015/2438 established a discard plan for certain demersal fisheries in North Western Waters (i.e. in Union waters of ICES Areas 5b, 6 and 7). Based on new Joint Recommendations for the North Western Waters submitted by the regional group of Member States, this plan has been updated several times, most recently by Commission Delegated Regulation (EU) 2018/2034. In 2019, a further set of Joint Recommendations has been submitted by the Member States. The main elements of these JR's and which have been assessed by EWG 19-08 are summarised in table 7.1.

Table 7.1 Main elements of the Joint Recommendations submitted for the NWW

Elements	***Status with relevant Article in current discard plan***	***Assessment by EWG 19-08 with relevant Annexes in JR***
De minimis		
Whiting caught with bottom trawls and seines with a mesh size equal to or greater than 80 mm, pelagic trawls and beam trawls with a mesh size of 80-119 mm in ICES division 7d	Existing Article 8a	Not Assessed
Whiting caught with bottom trawls and seines with a mesh size equal to or greater than 80 mm, pelagic trawls and beam trawls with a mesh size of 80-119 mm in ICES division 7d	Existing Article 8b	Not Assessed
Common sole caught in gillnets and trammel nets in ICES divisions 7d, 7e, 7f and 7g	Existing Article 8c	Not Assessed
Common sole caught with beam trawls with a mesh size of 80-119mm with increased mesh sizes in the extension of the beam trawl in ICES divisions 7d, 7e, 7f, 7g and 7h	Existing Article 8d	Not Assessed
Haddock caught with bottom trawls, seines and beam trawls with a mesh size equal to or	Temporary until end of 2019 Article 8e	Re-assessed on basis of new information Annex G

greater than 80 mm in ICES divisions 7b-7c and 7e-7k		
Cod caught using bottom trawls, seines and beam trawls with a mesh size equal to or greater than 80 mm in ICES divisions 7b-7c and 7e-7k	Temporary until end of 2019 Article 8f	Re-assessed on basis of new information Annex H
Horse mackerel caught using bottom trawls, seines and beam trawls in ICES subarea 6 and ICES divisions 7b-7k	Temporary until end of 2019 Article 8g	Re-assessed on basis of new information Annex I
Mackerel caught using bottom trawls, seines and beam trawls in ICES subarea 6 and ICES divisions 7b-7k	Temporary until end of 2019 Article 8h	Re-assessed on basis of new information Annex J
Common sole caught using beam trawls with mesh size of 80-119mm with a large mesh panel in ICES divisions 7a, 7j and 7k	Extension of existing exemption Article 8d	Re-assessed on basis of new and existing information Annex K
For boarfish caught using bottom trawls in ICES divisions 7b-c & 7f-k	New	Assessed Annex O
Fish bycatch below MCRS in the Brown shrimp fishery caught using beam trawls of mesh size <31mm in ICES division 7a	New	Assessed Annex M
Megrim below MCRS caught using bottom trawls with a mesh size of 70-99mm and beam trawls with a mesh size of 80-119mm in ICES subarea 7	New	Assessed Annex N
Greater silver smelt caught using bottom trawls with a mesh size greater or equal to 100mm in ICES division Vb (EU waters) and subarea VI	New	Assessed Annex P
Cod below MCRS caught using bottom trawls with a mesh size up to 119mm in the West of Scotland *Nephrops* fishery in ICES division 6a	New	Assessed Annex Q
Whiting below MCRS caught using bottom trawls with a mesh size up to 119mm in the West of Scotland *Nephrops* fishery in ICES division 6a	New	Assessed Annex R
Haddock below MCRS caught using	New	Assessed

bottom trawls with a mesh size up to 119mm in the West of Scotland *Nephrops* fishery in ICES division 6a		Annex S
High Survivability		
Nephrops caught using pots, traps or creels in ICES subareas 6 and 7;	Existing Article 3(1a)	Not assessed
Nephrops caught with bottom trawls with a mesh size equal to or larger than 100mm in ICES subarea 7	Existing Article 3(1b)	Not assessed
Nephrops caught using bottom trawls with a mesh size of 70-99mm in combination with highly selective gears in ICES subarea 7	Existing Article 3(1c)	Not assessed
Nephrops caught using bottom trawls with a mesh size of 80-119mm within 12 miles of coasts in ICES division 6a	Existing Article 3(1d)	Not assessed
Common sole below MCRS caught using bottom trawls with codend mesh size of 80-99 mm in ICES division VIId	Existing Article 4	Not assessed
Plaice caught with trammel nets in ICES divisions 7d, 7e, 7f, 7g	Existing Article 6(1a)	Not assessed
Plaice caught using bottom trawls in ICES divisions 7d, 7e, 7f, 7g	Existing Article 61(b)	Not assessed
Fish caught with pots, traps and creels in ICES subareas 6 and 7	Existing Article 7	Not assessed
Skates and ray species caught by any gear in ICES subareas VI and VII	Temporary for cuckoo ray until end of 2019 Article 5	Re-assessed on basis of new information Annexes A & B
Plaice caught with beam trawls by vessels of the >221kW segment fleet which use the flip-up rope or benthic release panel; or vessels, with an engine power of not more than 221kW; or less than 24m in length overall in ICES subarea 7	Temporary until end of 2019 Article 6(1c) & 1(d)	Re-assessed on basis of new information Annex C
Common sole below MCRS caught with bottom trawls with mesh size 80-99mm in ICES division VIIe	Extension of existing exemption Article 4	Assessed on basis of new and existing information Annex F
Plaice caught using bottom trawls in ICES divisions 7a and 7b to 7k but	New	Assessed

excluding 7d, 7e, 7f, 7g		Annex D
Plaice caught using seines in ICES division VIId	New	Assessed Annex E
Minimum conservation reference size		
NA		
Technical Conservation Measures		
Technical rules in the Celtic Sea protection zone - 7f, 7g and part of 7j	Extension of existing gear options Article 9	New elements assessed Annexes T & U
Technical rules in the Irish Sea – ICES division 7a	Extension of existing gear options Article 10	New elements assessed No supporting information supplied
Technical rules in the West of Scotland – ICES Division 6a	New	Assessed No supporting information supplied

6.1 NWW – Proposals for *de minimis* exemptions

A summary of the fishery information applicable to the proposed new or revised *de minimis* exemptions is provided in Table 7.1.1.

Table 7.1.1 Summary of de minimis exemptions submitted as part of the NWW Joint Recommendations (restricted to new or revised exemptions)

De minimis	
Fishery	Main Findings of EWG 19-08
Haddock and cod caught with bottom trawls, seines and beam trawls with a mesh size equal to or greater than 80 mm in ICES divisions 7b-7c and 7e-7k	1. Exemption Status Existing temporary exemption granted until the end of 2019. Separate exemptions are proposed for haddock and cod. The descriptions of the fleets and fisheries and justification for the exemptions is the same. Therefore, the evaluation is combined. 2. Definition of fisheries The supporting information provide a relatively detailed information on the fisheries concerned. Detailed information is provided for the Irish and French fleets, but no information is provided for Belgium beam trawl fisheries. 3. Basis for exemption The justification for the exemption is based principally on selectivity being difficult to achieve. Information is provided on French and Irish selectivity trials. The information provided indicates that improvements in selectivity lead to substantial short-term reductions in unwanted catches of small gadoids (haddock and whiting) and mackerel and horse mackerel but also associated loss of marketable catch in the order of 20-40% depending on

	gear type and selective gear used. An analysis providing comparative estimates of current revenue to break-even revenue (CR/BER) for the estimated catches from current (baseline) gears and the anticipated catches from selectivity trial gear configurations is included for the Irish fleets and fisheries involved. There are indications that this analysis is representative of other fleets operating in the area. 4. EWG 19-08 observations The information provided indicates that for all gear configurations, the CR/BER for the current (baseline) shows in the short-term that the operational costs would be greater than the estimated revenue (i.e. in the short-term, the fishery would be operating at a loss). While the CR/BER estimates are likely to be rather imprecise, it seems reasonable to assume that the magnitude of change in CR/BER indicates that improvements in selectivity by adopting any of the gear configurations tested would result in significant losses in revenue in the short-term. Even if improvements in selectivity are achieved by adopting the gear configurations tested, it is highly likely that unwanted catches of haddock (and other species including cod) will continue. Since haddock aand cod are high-risk choke species in these areas, granting a *de minimis* exemption will provide a buffer against exceeding the haddock and cod TAC and hence slightly reduce the risk of an early fishery closure. It may also provide an incentive to attempt to develop additional alternative means to improve selectivity and reduce unwanted catches. In addition, specific technical measures operating with bottom trawls or seins in the Celtic Sea protection zone are to become mandatory from 1 July 2019. The selectivity information provided indicates that introduction of such gears is expected to reduce unwanted catches of haddock and cod, but it is too early to evaluate whether that will be achieved.
Horse mackerel and mackerel caught using bottom trawls, seines and beam trawls in ICES subarea 6 and ICES divisions 7b-7k	1. Exemption status Existing temporary exemption granted until the end of 2019. Separate exemptions are proposed for horse mackerel and mackerel. The descriptions of the fleets and fisheries and justification for the exemptions is the same. Therefore, the evaluation is combined. 2. Definition of fisheries The supporting information provides an overview of the fisheries to which the exemption is to apply, together with data on selectivity trials, estimates of landings and discards of horse mackerel and mackerel by the fleets concerned. An estimate of the anticipated weight of catch that would be discarded under a *de minimis* exemption of 7%, based on information from the FDI database (referred to as the STECF database in the Annex) held by the JRC. It also provided some estimates of the costs involved in handling unwanted catches. The information is principally for the French fleets operating in the eastern Channel and southern North Sea. Limited information is provided for other fleets. According to the information presented the estimated weight that corresponds to the proposed *de minimis* exemption of 7% by weight of horse mackerel is 837 tonnes (for all European vessels using bottom trawl, beam trawl and seine in ICES 6 and 7b-k) and 931 tonnes for mackerel. This is based on the data for 2014-2016 held in the publicly available STECF FDI database. 3. Basis for exemption The supporting information demonstrates that the handling and storage on

	board of unwanted catches would increase the workload on board and leads to the hold of the vessels being filled more quickly, forcing the vessels to return to harbour quickly with shortened fishing trips. The request is supported with a detailed economic analysis of costs associated with handling and storing unwanted catches. A summary is also provided from the results of several selectivity studies carried out in Southern North Sea and English Channel. This information relates only to the French fleet. 4. EWG 19-08 observations The justification for the exemption is that selectivity improvements by regulatory measures to avoid the catches of horse mackerel and mackerel will be hard to achieve without severe economic impacts on the revenue of the boats concerned. However, while such a conclusion is intuitive, it is not supported by quantitative information. The introduction of the specific technical measures for vessels operating with bottom trawls or seines in the Celtic Sea protection zone from 1 July 2019 may reduce the unwanted catch of horse mackerel and mackerel. If that is the case the catch corresponding to a 7% *de minimis* exemption would also be reduced accordingly. An analysis of disproportionate costs generated due to hold overloading and an increase of the sorting time by the crew was provided. This is based on a French study. While estimates of the potential increase in workload are provided in terms of time are given and seem reasonable (increase of 30-40%), the analysis is generic. It is not possible to establish how representative the analysis is for other fisheries covered by the exemption.
Common sole caught using beam trawls with mesh size of 80-119mm with a large mesh panel in ICES divisions 7a, 7j and 7k	1. Exemption status Existing exemption but revised by increasing the scope to cover ICES divisions 7a, 7j and 7k. 2. Definition of the fisheries Additional information supplied is limited to a description of the numbers of Belgian and Irish beam trawls vessels involved in the fishery in 7a, j, k in 2016-2018 and their associated catches. It is not clear whether other Member States have vessels operating in the fishery. 3. Basis for the exemption The justification for the exemption is the same as the existing *de minimis* exemption for common sole for beam trawls in the Channel (7d, 7e) and the Celtic Sea (7f, 7g, 7h). No new information has been provided. The justification for the exemption is that selectivity has been improved through the introduction of gear modifications and further improvements would lead to uneconomic losses of marketable catches. The *de minimis* is to cover residual unwanted catches. It is assumed that the fisheries covered by the existing exemption are the same fisheries and that the selective gear will be as effective at reducing unwanted catches of sole in the areas proposed to be included. However, no information has been provided to this effect. 4. EWG 19-08 observations STECF 15-01 noted the mesh size of the so-called Flemish panel specified in the Delegated Act was 120mm compared to what was originally tested, i.e. a 150mm panel. As pointed out by STECF previously, this may reduce the effectiveness of the panel and not give the reductions in unwanted catches observed in the trials. Information to evidence this would be useful, accepting that the Flemish panel as currently used does improve selectivity

	for sole compared to standard 80mm beam trawls.
Boarfish caught using bottom trawls in ICES divisions 7b-c and 7f-k	1. Exemption status This is a new request for an exemption. 2. Definition of the fishery The supporting information provides an overview of the fisheries to which the exemption is to apply. Information is only provided for the French fleet. It is not clear whether the intention is for the exemption to apply to the fleets of other Member States. According to the information presented total catches of boarfish by the fleets concerned was 33,586 t (average 2013 -2016). It is not clear what portion of the total catch was discarded but 100 % of the boarfish catch was discarded by the French fleet. The estimated weight that corresponds to the proposed *de minimis* exemption of 0.5 % of boarfish is 168 tonnes, based on the data for 2013-2016 held in the FDI database. This represents about 0.8 % of the 2019 Union TAC for boarfish in the areas concerned. 3. Basis for the exemption The justification for the exemption is that improvements in selectivity, over and above the measures already to be introduced in the Celtic Sea Protection Zone, to avoid the catches of boarfish will be hard to achieve without severe economic impacts on the revenue of the boats concerned. A review of recent French selectivity experiments is provided, which describes trials carried out with several different selective gears as evidence. Additionally, an economic analysis is provided. It shows the costs of handling and storing unwanted catches on board French demersal trawlers operating in the North Sea. 4. EWG 19-08 observations The supporting information concludes that selectivity improvement by regulatory measures to avoid the catches of boarfish will be hard to achieve without severe economic impacts on the revenue of the boats concerned. However, while such a conclusion is intuitive, it is not supported by quantitative information. The information presented is generic and does not relate to the unwanted catches of boarfish The supporting information also concludes that landing of the bycatch of boarfish may generate disproportionate costs due to hold overloading and an increase of the sorting time by the crew. While estimates of the potential increase in workload are provided in terms of time, there is no way to assess whether such estimates amount to disproportionate costs as only a limited generic analysis is provided. The priority should be to improve selectivity to reduce the unwanted catches and therefore, the costs for handling such catches. This analysis relates to vessels operating in the North Sea and it is not clear whether the information provided is representative of the fleets involved in this exemption.
Greater silver smelt caught using bottom trawls with a mesh size greater or equal to 100mm in ICES division 5b (EU waters) and	1. Exemption status This is a new request for an exemption. 2. Definition of the fishery The supporting information provides an overview of the fisheries to which the exemption is to apply. Information is only provided for the French fleet. It is not clear whether the intention is for the exemption to apply to the fleets of other Member States.

subarea 6	According to the information presented, total catches of greater silver smelt by the fleets concerned was 6,170 t (average 2013 -2016). It is not clear what portion of the total catch was discarded across all fleets but according to the French data observer program 100 % of the greater silver smelt catch was discarded. The estimated weight that corresponds to the proposed *de minimis* exemption of 0.6 % of greater silver smelt is 37 tonnes (for all European vessels using bottom trawl in ICES 5b (EU) and 6), based on the data for 2013-2016 held in the FDI database. This represents about 0.8 % of the 2019 Union TAC for greater silver smelt in the areas concerned. 3. Basis for the exemption The justification for the exemption is similar to the boarfish exemption above. The supporting information highlights that improvements in selectivity to avoid the catches of greater silver smelt will be hard to achieve without severe economic impacts on the revenue of the boats concerned. A review of recent French selectivity experiments is provided, which describes trials carried out with several different selective gears as evidence. Additionally, an economic analysis is provided. It shows the costs of handling and storing unwanted catches on board French demersal trawlers operating in the North Sea. 4. EWG 19-08 observations The supporting information concludes that selectivity improvement by regulatory measures to avoid the catches of greater silver smelt will be hard to achieve without severe economic impacts on the revenue of the boats concerned. However, while such a conclusion is intuitive, it is not supported by quantitative information. The information presented is generic and does not relate to the unwanted catches of greater silver smelt. The supporting information also concludes that landing of the bycatch of greater silver smelt may generate disproportionate costs due to hold overloading and an increase of the sorting time by the crew. While estimates of the potential increase in workload are provided in terms of time, there is no way to assess whether such estimates amount to disproportionate costs as only a limited generic analysis is provided. The priority should be to improve selectivity to reduce the unwanted catches and therefore, the costs for handling such catches. This analysis relates to vessels operating in the North Sea and it is not clear whether the information provided is representative of the fleets involved in this exemption.
Fish bycatch below MCRS in the Brown shrimp fishery caught using beam trawls of mesh size <31mm in ICES division 7a	1. Exemption status This is a new request for an exemption. 2. Definition of the fisheries Detailed information on the fishery in the Irish Sea is provided for the UK fleet. However, there are no recent estimates of fish discards from the brown shrimp fisheries, and the estimates of discarding are based on a study that was undertaken in 1995. This information indicates that the annual average quantity of fish species discarded is about 12.5 tonnes. There is no way of assessing whether this figure reflects catches in the fishery currently. Further catch sampling would provide more reliable estimates of unwanted catches. Landings from the fishery are principally brown shrimp, although some fish individuals are unintentionally retained because of the difficulties associated with sorting the catch. It is assumed the volume of unwanted catches is small and made up mostly of small fish. As with the North Sea, 100% of the

	fish catch is likely to be discarded. 3. Basis for the exemption The arguments in support of the exemption are that significant increases in selectivity are very difficult to achieve and that the cost of handling the unwanted catch are disproportionate. 4. EWG 19-08 observations Given the nature of the fishery, and that existing legislation requires the use of selectivity devices in this fishery to sort small fish from shrimp (e.g. separator trawls or sieve nets), the arguments regarding selectivity are reasonable. Similarly, as with the North Sea fishery, intuitively the costs for sorting the unwanted catches from brown shrimp will significantly increase the costs for handling the catch. However, only limited qualitative information is provided and is principally based on the brown shrimp fishery in the North Sea. While the fisheries undoubtedly have similarities, it is not known whether the North Sea fishery is fully representative of the Irish Sea fishery. In addition, the requested *de minimis* volume is expressed in terms of 0.85% of the total catches of plaice and 0.15% of the total catches of whiting by all fisheries operating in the Irish Sea (7a) since the available information indicates that these are the fish species most commonly caught and discarded in the brown shrimp fisheries. Expressing the *de minimis* exemption in this way would mean that the fisheries for brown shrimp in 7a would be able continue to discard all catches of fish. A similar approach has been proposed *de minimis* exemption for industrial species bycatch in demersal trawl fisheries.
Megrim below MCRS caught using bottom trawls with a mesh size of 70-99mm and beam trawls with a mesh size of 80-119mm in ICES subarea 7	1. Exemption status This is a new request for an exemption 2. Definition of the fisheries Limited information is provided on the fisheries and fleets involved for Spain. Total discards are estimated at 1057 tonnes with an average of 80 tonnes discarded per year per vessel. This is based on national data from Spain. No catch data is provided. Limited catch information is provided for Belgium. 3. Basis for the exemption The justification for the exemption is based on an economic analysis which shows the costs of handling unwanted catches of megrim by the Spanish fleet operating in ICES subarea 7. This analysis concludes that the cost associated to the handling of the unwanted catch of megrim is €49,739 euros per boat per year, which is 2.76% of the average annual income of a boat (average income of €1.8 M). 4. EWG 19-08 observations The analysis presented estimates the additional crew costs associated with the handling of unwanted catches of megrim onboard. While complying with the Landing Obligation will inevitably introduce some additional costs, there is no objective means to assess whether such costs are realistic and would solely be for handling megrim. Limited information is also provided for the Belgian beam-trawl fishery to justify the exemption. This is on the basis that selectivity measures have already been implemented by the Belgium beam trawl fleet through the introduction of the Flemish panel. They argue that to implement further selectivity measures to reduce bycatch would be very difficult to achieve

	without significant losses of marketable sole – the main target of this fishery. There is no additional information or analysis provided in support of this assertion and there is no evaluation of the impact the selective beam trawl gear would have on catches of megrim. There is also reference to future selectivity work to be undertaken by the Spanish fleet. No detail is provided of these trials, but it is anticipated that there is scope for improvements in selectivity in this fishery as indicated by EWG 18-02.
Cod, haddock and whiting below MCRS caught using bottom trawls with a mesh size up to 119mm in the West of Scotland *Nephrops* fishery in ICES division 6a	1. Exemption status These are new request for exemptions. Separate exemptions are proposed for cod, haddock and whiting but the supporting information provided is largely the same. 2. Definition of the fisheries The exemption request relates to bottom trawls with a mesh size up to 119mm in the West of Scotland *Nephrops* fishery (ICES division 6a). Vessels participating in the *Nephrops* fishery are currently identified as those vessels having a minimum of 30% of the total catch by weight retained on board comprised of *Nephrops.* Information on the fishery and the UK fleet is provided. Estimates of unwanted catches below MCRS are given. For cod this indicates a discard rate of 97% of which 56% is below MCRS; for whiting the discard rate is 99% of which 75% is below MCRS; and for haddock a discard rate of 86% of which 78% is below MCRS. Therefore, for all three species the volume of *de minimis* requested will cover only a small proportion of the current unwanted catches. 3. Basis for the exemption The justification for the exemption is largely based on an analysis of disproportionate cost of handling unwanted catches ashore which is estimated to equate a net cost of approximately £100 per tonne. The same figure is used for all three species. 4. EWG 19-08 observations While the costs seem reasonable, there is no objective means to assess whether they are realistic or can be considered disproportionate. While not directly mentioned, the JR contains provisions to introduce selective gears into this *Nephrops* fishery. These gears will improve selectivity and should reduce unwanted catches. However, it would seem appropriate to introduce the same longer list of gears introduced into the Celtic Sea and the Irish Sea for *Nephrops* fisheries. The gear options in these areas include the SELTRA trawl and sorting grids which would be considered much more selective than the gear options proposed for the West of Scotland. It is also noted that the cod and whiting stocks in the West of Scotland are heavily depleted and reducing fishing mortality on these stocks should be a priority. Introducing a *de minimis* exemption to allow continued discarding will not lead to a reduction in fishing mortality and if not strictly monitored may lead to increased fishing mortality due to unreported discarding.

6.2 NWW – Proposals for Survivability Exemptions

A summary of the proposed high survivability exemptions is given in Table 7.2.1.

Table 7.2.1 Summary of high survivability submitted as part of the NWW Joint Recommendations

High Survivability	
Fishery	Main Findings of EWG 19-08
Skates and ray species caught by any gear in ICES subareas VI and VII	1. Exemption status Extension was granted for three years (2019-2021) for skates and rays in ICES areas 6 and 7. The delegated act stipulates that a roadmap developed to increase survivability should be developed and applied to the survivability programme. 2. Survival evidence New survival evidence was presented, which highlights that survival of discards is potentially high (50 to 80%) for many species of skates and rays. There were two new studies provided. This includes a tagging study for undulate ray in ICES area 7e for the English inshore otter trawl fisheries using 80 mm codend mesh size. The ICES critical review was applied to this study. Based on 10 returned tags, the estimated discard survival rate was 93%. The study is considered robust, but results incomplete, as a higher number of tag return is expected – and necessary for reliable survival estimates. The other study investigated the factors that most influence health condition based on records of 13 skate and ray species in 3 representative fisheries around England and Wales (trawl, gillnet, longline). This was a review of previous studies, with limited detail on original data collection and no survival estimate, so the ICES critical review was not applied. The study concludes that smaller individuals but also smaller species, e.g. spotted ray, were more likely to be released in poor condition compared with larger individuals but also species, (e.g. blonde and thornback ray). It is indicated that smaller rays and ray species may have lower survival than larger sized rays and larger species of rays. 3. Fishery context The exemption applies to all fisheries in areas 6 and 7. A comprehensive review of the existing estimates of discard rates of skate and rays, highlighted that discard rates depend greatly on the species, area and métier considered. No new evidence was provided on discard rates for different species. 4. Survival and fishery compatibility A relative comparison of expected survival between different fisheries has been provided. There is no detail regarding the methodology applied for the ranking. Overall, lower survival in areas 6 and 7 is expected for bottom otter trawls and bottom pair trawls (Spanish fleet), offshore beam trawl fisheries with tow duration longer than 3 hours and offshore gillnet fisheries with soak time longer than 48 hours (UK fleet, assumed to work in area 7). This general observation was confirmed by the study supplied which indicated that survival may be higher when using passive gears, due to both more smaller rays and a lower proportion of rays in good condition for otter trawls. It was difficult to assess whether the presented new documentation is meant to represent a "worst-case" scenario, (i.e., expected lower survival), or a "best-case" scenario, (i.e., expected higher survival). 5. Additional evidence

	Further advancement of data and knowledge of discard survival and discard rates for different ray and skate species, metiers and areas by Member States in cooperation with scientific bodies and institutions is planned in the road map. There was detailed and explicit documentation that the road map is being followed, which was positive and should be continued in the future. However, reporting against the road map by documenting progress in each of the following areas: (1) survival evidence, (2) knowledge and data on the state of skate and ray stocks and discard rates for different species, metiers and areas, (3) implementation of best practices such as selectivity improvements, avoidance and improved catch handling for higher survival of skate and ray discards would be preferable.
Cuckoo Ray	1. Exemption status Exemption was granted for one year (2019) for cuckoo ray in ICES areas 6 and 7. This is a request for an extension. 2. Survival evidence A new study assessing the vitality of cuckoo ray and other species, in the Irish Sea otter trawl fishery was provided. This showed that most were alive and most categorised in excellent conditions (84%) at the point of release. This indicates there is potential for substantial levels of survival. The survival estimate provided relies on the use of vitality as proxy for discard survival, based on previous studies on thornback ray in the UK. The relationship between vitality and survival is based on a small number of individuals from another area and a different species. An additional study provided new evidence for cuckoo ray in the otter trawl fisheries in divisions 7f and 7g. This was a review of previous studies, with limited detail on original data collection and no survival estimate, so the ICES critical review was not applied. It was shown that cuckoo ray was more likely to be released in poor condition compared to larger species, (e.g., blonde and thornback ray). However, observations were based on a limited number of cuckoo rays (16 individuals), for which vitality categories were not explicitly reported. 3. Fishery context The exemption applies to all fisheries in areas 6 and 7. No new evidence was provided of discard rates for cuckoo ray. 4. Survival and fishery compatibility There are indications that cuckoo ray might show lower survival - based on the assumption that vitality is indicative of survival, compared to other larger ray species such as thornback ray for example, but there is too little information to assess whether this is the case. 5. Additional evidence Further advancement of data and knowledge of discard survival and discard rate for different ray and skate species, metiers and areas by member states in cooperation with scientific bodies and institutions is planned in the road map. Further observations from survival experiments are needed to provide reliable estimates of survival rates for cuckoo ray before any definitive judgement can be made.
Plaice caught with beam trawls by vessels of the >221kW segment fleet which use the flip-up rope or	1. Exemption status Extension of the existing temporary exemption beyond 2019. 2. Survival evidence New survival evidence was provided on discard survival of plaice caught in the English South West beam trawl fishery. The study generated vitality

benthic release panel; or vessels, with an engine power of not more than 221kW; or less than 24m in length overall in ICES subarea 7	data from a range of UK vessels, working different commercial beam trawl gears, with differing catch handling processes, under a wide range of seasonal conditions and across 3 ICES subdivisions, covering 10 ICES statistical rectangles. The vitality results and inferred discard survival estimates generated were highly variable between trips. The overall estimated discard survival rate was inferred by vitality, rather than observed directly and was given as 56%. Using vitality as a proxy for survival is a viable approach to estimate survival but is less robust than direct observation methods. The ICES critical review method was applied and showed that overall the method to generate vitality evidence was robust 3. Fishery context An overview of fisheries only for Belgium beam trawl fleet was provided. This includes landings, discards and catch, for different plaice stocks, caught by 70-99 mm beam-trawl gears in ICES area 7a, 7d, 7e, 7fg and 7hjk, including % discard rates. Equivalent data from other relevant countries are not provided. 4. Survival and fishery compatibility The vitality results and inferred discard survival estimates generated here are highly variable between trips. The trips varied in time and area, and therefore in environmental conditions, by vessel, gear characteristics and catch composition. It was not possible to conduct an analysis of relative influence of each of these variables on vitality, but it is considered the data were sampled from a range of vessels that is representative of the fleet proposed for exemption. 5. Additional evidence Flanders Research for Agriculture, Fisheries and Food (ILVO) has developed a three-year (2019-2021) project to gather additional survival data and to do further analyses on existing and new data, for plaice in the North Sea 4a & 7d and 7fg (not for 7hjk). This project will contribute to delivering the roadmap submitted alongside other ongoing and new projects, which will include generating new discard survival estimates. Fishery information should be provided by relevant countries other than Belgium. The annual progress reports are somewhat difficult to follow in differentiating between what had already been submitted and reviewed by STECF and new research. A clearer highlighting of new science is encouraged in future progress reports.
Plaice caught using bottom trawls in ICES divisions 7a and 7b to 7k but excluding 7d, 7e, 7f, 7g	1. Exemption status This is a new exemption and was preliminarily assessed by STECF PLEN 19-01. Clarification of the fisheries to be covered is needed. Currently the evaluation completed only applies to *Nephrops* fisheries with highly selective gear. If the intention is to apply to whitefish demersal fisheries, then a further evaluation is required. 2. Survival evidence A study on plaice survivability in the Irish otter trawl fishery is provided. This presents new data for discard survival rate for plaice caught by otter trawlers catching fish (and not *Nephrops*) in 7b. A critical review was applied and showed the method to be robust, in line with ICES guidance, but in agreement with PLEN 19-01, the final estimate of survival presented in the JR is questioned. Two survival rates are reported but the correct survival rate is 37% (rather than 43%). The study also reported that hauls with *Nephrops* catches were

	excluded from the estimate, due to the substantially lower plaice survival observed for these hauls. Therefore, the reported plaice discard survival estimate is not representative of the *Nephrops* trawl fishery. 3. Fishery context Detailed information on the fleets and fisheries from Ireland and UK, including: Number of vessels > 12m (subject to the landing obligation); landings (2018); estimated discards (2017); estimated catch (2017); discard rate; estimated discard survival rate from provided studies is presented. No data was provided for other Member States. 4. Survival and fishery compatibility The survival evidence is not representative of the *Nephrops* trawl fishery, only the fish directed fishery. The report also refers to other plaice survival estimates in NWW (Morfin et al., 2017; Catchpole et al., 2015), but these are also from fish directed fisheries and not *Nephrops* fisheries. *Nephrops* fisheries are expected to have lower levels of plaice survival due to the injuries sustained in the trawl, but also the increased sorting times when catching *Nephrops*. The report suggests that because the experiment, in a fish fishery, was conducted during summer (high air and water temperatures), it is representative of a selective *Nephrops* fishery. There is no evidence to support this. 5. Additional evidence The report that was provided stated that survival was substantially lower when *Nephrops* was in the catch. Other available reports on *Nephrops* trawl fisheries (Randall et al., 2016), on the inferred survival level of plaice from 7a, and observed survival from the North Sea, indicate relatively low levels of survival of plaice, but were not included in the submission. Survival data that is representative of the fishery should be provided. Fishery data from relevant countries, apart from Ireland and UK, should also be provided.
Plaice caught using seines in ICES division 7d	1. Exemption status This is a new exemption. It is proposed that this exemption would provide consistency with the North Sea Danish seine plaice exemption. 2. Survival evidence No survival evidence for the defined fishery was presented. Instead a study on plaice discard survival from Danish seine was provided This study was assessed by EWG 18-06 to provide robust survival estimates and supported an exemption for the Danish seine fishery in the North Sea from 2019. The reported mean survival rate for the Danish seines (SDN) was 78%. It is not clear whether this gear is the same as the proposed gear for this exemption. The North Sea estimates may be from a Danish anchor seine which h would be different to the gears used in 7d. This should be clarified. 3. Fishery context Fishery description is provided for the Dutch Flyshoot fisheries, along with catch, landings and discard data for the North Sea (2017 and 2018). The discard rate is 31% in both years. Discard estimates were not available as the fisheries in 7d were not sampled after 2016 and hence the discard rate for the North Sea was applied as a proxy. 4. Survival and fishery compatibility The proposal states that the plaice survival rate from the North Sea Danish seine fishery is representative of the 7d Dutch flyshoot fishery. This is based on both fisheries having similar vessel and operational characteristics. However, the data provided demonstrate substantial differences in the characteristics of these fisheries (specifically, vessel

	dimensions and engine power, haul durations and catch sizes). Vessel length and power is higher in Dutch fleet (16 vs 20-35m; 142 vs 366-1049 kW) and catch is higher in the Dutch flyshoot fishery (150-700 vs 500-2000 kg). Haul duration is stated to be lower in the in the Dutch flyshoot fishery (179 vs 60 mins), with activity concentrated to the winter months. These differences are sufficient to indicate the survival from the Danish seine fishery is not representative of the Dutch flyshoot fishery. 5. Additional evidence Directly observed survival rates from the Dutch flyshoot fishery would provide the most robust evaluation of this proposed exemption. Vitality of discarded plaice may also be sufficient to enable inferences on the likelihood of survival. More details on the fishery, including vessel numbers, catches and catch composition are needed for a full evaluation.
Common sole below MCRS caught with bottom trawls with mesh size 80-99mm in ICES division 7e	1. Exemption status This request is an extension of the existing exemption in 7d (and 4c). It is noted that there is no reference to the exemption applying only outside nursery areas, as with the existing exemptions. The supporting information states there are no known spawning or juvenile concentrations in the western Channel. 2. Survival evidence No new survival evidence was provided. Studies that support existing exemptions showed survival of <MCRS sole of 51% (4c; EWG 16-10) and 89% (7d; EWG 17-03). The method applied in these studies was consistent with ICES guidelines and the results considered to be robust. 3. Fishery context Fishery information was provided for the FR fleet only: 90 vessels under 12 m, with mean engine power of 130 kW; discard rates of <MCRS common sole at 0.1% of total catches and 7% of Common sole catches when targeting cephalopods. The relevant FR fleet catches less than 80 tonnes of common sole per year. 4. Survival and fishery compatibility With no new survival evidence specific to the fishery, it is assumed that the differences between the 7e and 7d/4c fisheries have no significant effect on survival. The main difference between the fisheries is in the target species and catch composition. While the existing exemptions apply to sole directed fisheries, the proposed exemption for 7e is associated with a cuttlefish targeted fishery. Unlike the 7d and 4c fisheries, the catches of the 7e fleet include a high proportion of rays, spider crab and cuttlefish. It is likely that the presence of these species will influence the survival of discarded fish; but there is no evidence to assess this. The other change from the existing exemptions is the increase in vessel size from a maximum length of 10 metres to 12 metres. However, the mean lengths of the fleets are similar (e.g. 4c 9.8m vs 7e 10.8m), and this is unlikely to affect survival rates. 5. Additional evidence To improve the evaluation of this exemption, information on fleets, other than the French, are needed. It is shown that, at least for the French fleet, the vessels have similar characteristics in relation to size, engine power, gear used and operational parameters to those where exemptions currently exist, but the catch composition is different, and this is likely to affect survival. Directly observed survival estimates from this fishery, or vitality information on discarded <MCRS sole would enable a more robust evaluation of this proposal.

6.3 NWW – Proposals for technical measures

A summary of the proposed technical measures to be introduced into NWW is given in Table 7.3.1.

Table 7.3.1. Summary of the proposals for technical measures to be introduced into NWW

Technical measures	
	Main Findings of EWG 19-08
General	Last year's JR proposed a series of changes to minimum gear requirements of which PLEN 18-02 assessed that the majority represented improvements of selectivity. These new technical measures were implemented through article 9 (Celtic Sea Protection Zone) and article 10 (Irish Sea) in the discard plan for North Western waters (2018/2035). The 2019 JR proposes some adjustments and additions to the current technical measures in the discard plan for the Celtic Sea Protection Zone and for the Irish Sea. It also introduces new minimum gear standards in the West of Scotland (6a).
Celtic Sea Protection Zone	<u>120mm codend</u> The JR proposes to adjust gear options for trawl and seine fisheries operating in the area from 1st July 2019 by introducing a new gear option for demersal fisheries targeting gadoids in the Celtic sea Protection Zone. This gear option is a 120mm codend mesh size (see justification in Annex T). EWG 19-08 notes that the proposal to introduce the 120 mm codend as an alternative is supported by a scientific report of a catch comparison trial (comparing 100 mm T90 and 120 mm) on a seine net vessel in the Celtic Sea. The background is that seine netters traditionally use 120 mm codends but this gear is currently not included in the discard plan. EWG 19-08 assess that the underpinning study is of good scientific quality and that the conclusions drawn from data and analyses in general are sound. EWG 19-08 further notes that as the two codends not only differed in mesh size but also had different mesh orientation, some differences in relative selectivity for different species can be expected. For example, diamond mesh codends are in general more selective than T90 for flatfishes while T90 are superior in terms of roundfish selectivity. Few haddock and whiting < MCRS were caught in either gear. The report concludes that equivalence was shown for undersized fish of these species. However, EWG 19-08 believes that the data and analyses presented in the report does not fully support this conclusion. The catches of undersized whiting (although small) was significantly higher in the 120 mm than the 100 mm T90 (Fig. 3 of annex T2). However, for fish >MCRS the T90 100 mm codend caught significantly more ≥ MCRS haddock and significantly less ≥ MCRS whiting than the 120 mm codend. Cod catches were too small and variable to draw firm conclusions on relative selectivity between the gears. Due to relatively low quotas, haddock is a high-risk choke species while whiting is the least quota limited fish species in the Celtic Sea. EWG 19-08 notes that 120 mm is the baseline mesh for targeting fish with trawls and seines in the North Sea (It will also be introduced as the baseline gear in the West of Scotland in 2021). EWG 19-08 considers that adding 120 mm to the list of allowed gears also in the Celtic Sea is reasonable and can provide a good alternative to maintain whiting catches while avoiding

	haddock. This gear has equivalent selectivity to the current gears included in the NWW discard plan. EWG 19-08 concurs with the proposal in the JR to follow-up these new measures if introduced. Dual codend The JR further proposes to adjust the gear options for trawl and seine fisheries operating in the area from 1st July 2019 by introducing a new gear option for demersal fisheries targeting *Nephrops* in the Celtic sea Protection Zone. This gear option is dual codend trawl with the uppermost codend constructed with T90 mesh of at least 90 mm and fitted with a separation panel with a maximum mesh size of 300 mm (See justification in Annex U). EWG 19-08 notes that the proposal to add the possibility to use a dual codend trawl is motivated by a wish to create more flexibility for *Nephrops* vessels in cases when they have adequate quota access for fish by-catches. This is supported by a report of Irish trials on the selectivity of dual codend trawls. The EWG 19-08 found the underpinning studies to be of good quality although this study uses a control diamond mesh codend of 80 mm, which is outdated in the current regulatory setting. However, EWG 19-08 notes that this fact has the consequence that the selectivity of the proposed dual codend with a 90 mm T90 codend cannot be assessed in relation to the current gears on the list. No further information was provided in the JR. EWG 19-08 assess that the gear on the current list with lowest roundfish selectivity is 100 mm (+100 smp) and that, as a minimum, relative selectivity comparisons between the suggested dual codend and the 100 mm would allow a more detailed an assessment of equivalence of these gear options possible. Based on the supporting information provided, EWG 19-08 agrees that the principle of the dual codend to vertically separate catch into two codends where differential selection can take place has the potential to reduce bycatch of unwanted species while maintaining catches of target species. It is also important that the specifications (e.g. mesh size and twine thickness) of the dual codend arrangement are defined in the delegated act. Assessment of the overall selection performance of any proposed dual codend arrangement in relation to the available gear options. SELTRA trawl EWG 19-08 notes that the JR includes a proposal to amend the specification of the SELTRA trawl defined in the current discard plan. EWG 19-08 understand that the intention is to change the specification of the SELTRA alternative in the current delegated act because the definition in it was mistakenly copied from the North Sea discard plan for the Skagerrak (i.e. specified a 270 mm diamond mesh SELTRA instead of the intended 300 mm square mesh SELTRA). Although no supporting information was provided with the JR, EWG 19-08 considers that there is scientific evidence to conclude that the SELTRA 300 is more selective than SELTRA 270 for roundfish like cod, haddock and whiting (Frandsen et al. 2015, Krag et al. 2016, Tyndall et al. 2017, Valentinsson and Wernbo. 2018). EWG 19-08 considers that the main design characteristics explaining this selectivity difference are panel mesh orientation (square vs. diamond mesh) and the positioning of the panel (the smp is mounted at 3-6 m from the codline while the diamond mesh panel is at 4-7 m). EWG 19-08 observes that the SELTRA 300 is, together with the sorting grid, are the most selective of the gears in terms of reduction potential of roundfish unwanted catches in the list of optional gears for *Nephrops* vessels in the Celtic Sea protection zone.

	Derogation for sole fisheries EWG 19-08 observes that the JR contains a derogation for vessels with catches of above 10% of sole, to allow a codend mesh size of 80mm + 120mm smp. This is new in the 2019 JR. EWG 19-08 notes that no supporting scientific information was provided with the JR. The EWG can therefore only make a general appraisal of the potential consequences of the proposed gear alternative. Based on that the mesh size in the square mesh panel is reduced from 300 mm to 120 mm, EWG 19-08 assess that the introduction of this gear alternative would imply a reduction in selectivity for the vessels that choose this gear. New scientific evidence is needed to make a more thorough evaluation possible.
Irish Sea	SELTRA trawl As with the Celtic Sea, EWG 19-08 considers the revised definition of the SELTRA is reasonable and represents an increase in selectivity compared to the gear defined previously. Derogation for sole fisheries As per the Celtic Sea, EWG 19-08 observes that the introduction of a derogation to allow a codend mesh size of 80mm + 120mm smp for vessels with catches of 10% of sole would imply a reduction in selectivity for the vessels that choose this gear. New scientific evidence is needed to justify this request. Derogation for Queen Scallop fisheries EWG 19-08 notes that the amendment included in the JR relating to the inclusion of a derogation for queen scallop fisheries is largely unsubstantiated. However, based on knowledge of this fishery the fish bycatches are modest and the impact of this fleet is therefore small overall. Derogation for under 12m vessels The exclusion of vessels <12 m is a new element compared to last year´s JR. No supporting scientific information was provided with the JR, but it is understood that the proposal to exclude vessels <12 m is related to differences in selectivity for small and large vessels. Supporting evidence is needed to clarify this to be the case.
West of Scotland	The JR proposes to adjust gear options for several trawl and seine fisheries from 1st July 2020 by introducing new gear options for demersal fisheries targeting *Nephrops* in area 6a and 5b(EU). Vessels deploying a codend mesh size <100mm will have to fit a 300mm smp. For vessels below 12 meters in length over all and/or with engine power of 200kW or less - the panel overall length may be 2m and the panel may be 200mm. For vessels deploying a codend mesh size of 100-119mm and with catches comprising more than 30% of *Nephrops*, will have to use of at least 160mm smp. EWG 19-08 notes that no supporting scientific information was provided with the proposed changes of minimum gear requirements in the JR. The EWG can therefore only make a general appraisal of the potential consequences of the proposed gear alternatives. As the mesh size in the square mesh panel is increased from 120 mm to 300 (200) mm, EWG 19-08 assess that the introduction of this gear e would imply an increase in selectivity in the *Nephrops* fishery (<100 mm). Similarly, EWG 19-08 assess that for trawls using mesh sizes of 100-119 mm the increase in square

	mesh panel mesh size from 120 mm to 160 mm would also represent an increase in selectivity provided this gear is only used in the directed *Nephrops* fishery. If used in demersal trawl fisheries targeting gadoids or in mixed fisheries targeting hake, megrim and anglerfish it would represent a decrease in selectivity compared to the current gears. Related to this EWG 19-08 notes that the soon to be adopted technical framework regulation (COM(2016) 134 final) stipulates that the baseline mesh size in this area will be increased to 120 mm over the coming two years. The regulation states that "selectivity modifications shall result in the same or better selectivity characteristics for cod, haddock and saithe as that of 120 mm". EWG 19-08 therefore assumes that proposals of future gear alternatives take account of this provision.

7 SOUTH-WESTERN WATERS – OVERVIEW OF JOINT RECOMMENDATIONS

Commission Delegated Regulation (EU) 2015/2439 established a discard plan for certain demersal fisheries in South Western Waters (i.e. in Union waters of ICES divisions VIII, IX, X and CECAF areas 34.1.1, 34.1.2, 34.2.0). Based on new Joint Recommendations for the North Western Waters submitted by the regional group of Member States this plan has been updated several times, most recently by Commission Delegated Regulation (EU) 2018/2033. In 2019, a further set of Joint Recommendations has been submitted by the Member States. The main elements of these JR's and which of these have been assessed by EWG 19-08 are summarised in table 8.1.

Table 8.1 Main elements of the Joint Recommendations submitted for the SWW

Elements	***Status with relevant Article in current discard plan***	***Assessment by EWG 19-08 with relevant Annexes in JR***
De minimis		
Common sole caught with beam trawls and bottom trawls in directed fishery in ICES subareas 8 a,b	Existing and unchanged Article 6b	Not assessed
Common sole caught in gillnets and trammel nets in ICES subareas 8 a,b	Existing and unchanged Article 6c	Not assessed
Alfonsinos caught by hooks and lines in division 10	Existing and unchanged Article 6d	Not assessed
Hake caught with trawls and seines in directed fisheries in ICES subareas 8 and 9	Temporary until end of 2019 Article 6a	Re-assessed on basis of new information Annex E1, E2, E3 & E4
Horse mackerel caught with bottom trawls, seines and beam trawls in ICES subareas 8 and 9	Temporary until end of 2019 Article 6f	Re-assessed on basis of new information Annex F
Horse mackerel caught with gillnets in ICES subareas 8, 9 & 10 and CECAF 34.1.1, 34.1.2, 34.2.0	Temporary until end of 2019 Article 6g	Re-assessed on basis of new information Annex G
Mackerel caught with bottom	Temporary until end of 2019 Article 6h	Re-assessed on basis of new information

trawls, seines and beam trawls in ICES subareas 8 and 9		Annex H
Mackerel caught with gillnets in ICES subareas 8, 9 & 10 and CECAF 34.1.1, 34.1.2, 34.2.0	Temporary until end of 2019 Article 6i	Re-assessed on basis of new information Annex I
Megrim caught with bottom trawls, seines and beam trawls in ICES subareas 8 and 9	Temporary until end of 2019 Article 6l	Re-assessed on basis of new information Annex J
Megrim caught with gillnets in ICES subareas 8 and 9	Temporary until end of 2019 Article 6m	Re-assessed on basis of new information Annex K
Plaice caught with bottom trawls, seines and beam trawls in ICES subareas 8 and 9	Temporary until end of 2019 Article 6n	Re-assessed on basis of new information Annex L
Plaice caught with gillnets in ICES subareas 8 and 9	Temporary until end of 2019 Article 6o	Re-assessed on basis of new information Annex M
Anglerfish caught with bottom trawls, seines and beam trawls in ICES subareas 8 and 9	Temporary until end of 2019 Article 6p	Re-assessed on basis of new information Annex N
Anglerfish caught with gillnets in ICES subareas 8 and 9	Temporary until end of 2019 Article 6q	Re-assessed on basis of new information Annex O
Whiting caught with bottom trawls, seines and beam trawls in ICES subarea 8	Temporary until end of 2019 Article 6r	Re-assessed on basis of new information Annex P
Whiting caught with gillnets in ICES subarea 8 and 9	Temporary until end of 2019 Article 6s	Re-assessed on basis of new information Annex Q
Pollack caught with bottom trawls, seines and beam trawls in ICES subareas 8 and 9	Temporary until end of 2019 Article 6t	Re-assessed on basis of new information Annex R
Pollack caught with gillnets in ICES subareas 8 and 9	Temporary until end of 2019 Article 6u	Re-assessed on basis of new information Annex S
Anchovy caught with bottom trawls, seines and beam trawls in ICES subareas 8 and 9	Temporary until end of 2019 Article 6j	Re-assessed on basis of new information Annex E2
Boarfish caught with bottom	Temporary until end of 2019	Re-assessed on basis of

trawls, seines and beam trawls in ICES subareas 8	Article 6k	new information Annex E2
Red Sea Bream caught with bottom trawls, seines and beam trawls in ICES Division 9a	Temporary until end of 2019 Article 6w	Re-assessed on basis of new information Annex E2
Sole caught with bottom trawls, seines and beam trawls in ICES Division 9a	Temporary until end of 2019 Article 6x	Re-assessed on basis of new information Annex E2
High Survivability		
Nephrops caught with trawls in ICES subareas VIII and IX	Existing and unchanged Article 3	Not assessed
Red seabream caught with "voracera" gear in ICES division 9a	Existing and unchanged Article 5	Not assessed
Red sea bream caught with hooks and lines in ICES subarea 10	Existing and unchanged Article 5	Not assessed
Skates and rays (*Rajiformes*) caught with all gears in ICES subareas 8 and 9	Temporary for cuckoo ray until end of 2019 Article 4	Re-assessed on basis of new information Annexes A & B
Red seabream caught with hooks and lines in ICES subareas 8 and 9a	Extension of existing exemption Article 5	Assessed on basis of new and existing information Annexes C and D
Minimum conservation reference size		
NA		
Technical Conservation Measures		
NA		

7.1 SWW - Proposals for *de minimis* exemptions

A summary of the proposed *de minimis* applications for SWW is given in Table 8.1.1.

Table 8.1.1 Summary of *de minimis* exemptions submitted as part of the SWW Joint Recommendations (restricted to new or revised exemptions)

Fishery	Main findings of EWG 19-08
Hake caught	1. Exemption status

with trawls and seines in directed fisheries in ICES subareas 8 and 9	Existing temporary exemption granted until the end of 2019. 2. Definition of fisheries Detailed information on the Spanish fisheries and fleets involved are provided. Catch information as well a breakdown of the Spanish fleets is presented. Although the number and diversity of the fisheries makes this difficult to follow. Providing this information in a consolidated table would assist in understanding the fleets and fisheries. Limited information is provided for Portugal and no information is provided for France. The fleets that would benefit from this *de minimis* exemption are diverse and consist of both fleets that target and catch horse mackerel as bycatch. Significant differences in discard rates between the different fleets under the exemption are noted. No evaluation of these impacts on different fleets is provided 3. Basis for the exemption The justification for the exemption is that improvements in selectivity are hard to achieve and the *de minimis* is needed as a temporary solution, while selective gears are developed for the relevant fisheries. The supporting information includes a review of selectivity trials carried out by Spain over the period 2014-2018. This review is comprehensive and details the results from several different trials with different selectivity devices. An economic analysis of disproportionate costs resulting from the handling and storage of unwanted catches of hake on board is provided. This is linked to selectivity studies but relates only to the Spanish fleets. 4. EWG 19-08 observations While showing improvements in selectivity lead to reductions in marketable catches, it is not possible to conclude definitively that further improvements in selectivity are very difficult to achieve. However, there are indications that further work on selectivity is planned, which may identify gear modifications that could be adopted in the fisheries in the future. Additionally, results from the SIBALO project are presented which show the increased costs associated with handling and storing unwanted catches of hake on board. The estimates of the potential increase in workload are presented and show the increase in costs associated with the handling of unwanted catches. The results show these costs to be significant. The representativeness of the analysis of other fisheries in the area to be covered by the exemption is unclear.
Horse mackerel and mackerel caught with bottom trawls, seines and beam trawls in ICES subareas 8 and 9	1. Exemption basis Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for horse mackerel and mackerel. The descriptions of the fleets and fisheries and justification for the exemptions is the same. 2. Definition of the fisheries Detailed descriptions on the fleets and fisheries is provided for Spain and Portugal. This includes catch data and descriptions of the different fisheries with bycatch of mackerel and horse mackerel. Only limited

	information is provided for France. The volume of *de minimis* requested is estimated at 4,236 tonnes for horse mackerel and 1,148 tonnes for mackerel. This represents approximately 2% and 1% of the respective TACs. Significant differences in discard rates between the different fleets under the exemption are observed and it is difficult to establish how the estimated *de minimis* volume relates to actual levels of unwanted catches. 3. Basis for the exemption The supporting information contains a review of selectivity trials carried out by France in recent years with a range of selectivity devices (e.g. T90 codends and square mesh cylinders). The review indicates no reduction in unwanted catches of mackerel and horse mackerel with any of the devices tested. A detailed economic analysis of disproportionate costs resulting from the additional time required for handling and sorting unwanted catches on board is presented. This information is provided for several French fleets and is linked to the selectivity studies. 4. EWG 19-08 observations The supporting information provided is generic and contains only limited information relating to mackerel and horse mackerel. It does not demonstrate conclusively that improvements in selectivity in these fisheries are very difficult to achieve. There are indications that selectivity trials are continuing which will be completed at the end of 2019, and which will test other gear modifications. The analysis provided of disproportionate costs shows that there will be a 30-60% increase in handling and sorting time on board depending on vessels size. However, this is based on sorting catches of all species on board and not specific to horse mackerel and mackerel. It is not possible to establish how representative of the fisheries covered by the exemption as it relates to French demersal trawlers operating in the North Sea. It is not clear how representative this analysis is of the Spanish and Portuguese fleets operating in area 8 and 9.
Megrim, plaice, anglerfish, whiting and pollack caught with bottom trawls, seines and beam trawls in ICES subareas 8 and 9	1. Exemption status Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for megrim, plaice, anglerfish, whiting and pollack. The exemption for whiting only applies to subarea 8. The description of the fleets and fisheries and supporting information is the same for all the exemptions. 2. EWG 19-08 observations The descriptions of the fleets and fisheries and justification for the exemptions is largely the same as for horse mackerel and mackerel. The catch data presented is incomplete and has been obtained from the FDI database but refers to data prior to 2017. This may not be reflective of the current state of the fisheries. Significant differences in discard rates between the different species covered under the exemption are observed. These vary from 1% for pollack to 58% for whiting. For megrim and whiting the unwanted catches will far exceed the estimated *de minimis* volumes. Therefore, considerable quantities of unwanted catches will still have to be landed. There is no indication in the supporting documents to suggest further

	work to test selective gears to reduce these unwanted catches are planned. 4. Basis for the exemption The same review of the French selectivity trials provided for mackerel and horse mackerel is included in the supporting information for each of these species. The review is generic and does not provide any specific information for the species covered under these exemptions. Therefore, it does not demonstrate that improvements in selectivity in these fisheries and for these species are very difficult to achieve. The same economic analysis of disproportionate costs is also presented in support of these exemptions. 4. EWG 19-08 observations As for horse mackerel and mackerel, the analysis does not provide specific information relating to these species and the concerns relating to representativeness to these fleets as for horse mackerel and mackerel similarly apply. There is evidence of increased costs associated with handling and storing unwanted catches in the relevant fisheries. These costs result from an increase in handling and sorting times on board at 30-60% depending on vessels size. These are not specific to the stocks covered under these exemptions. Improving selectivity in the relevant fisheries should be the priority as this will reduce the costs for handling unwanted catches.
Anchovy and boarfish caught with bottom trawls, seines and beam trawls in ICES subareas 8 and 9	1. Exemption status Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for anchovy and boarfish. 2. Definition of the fishery A limited description is provided of the Portuguese fleets and fisheries. 3. Basis for the exemption No supporting information is provided. 4. EWG 19-08 observations Due to the lack of supporting information, no assessment can be made as to whether selectivity is difficult to improve in these fisheries or whether the costs of handling unwanted catches of boarfish and anchovy are disproportionate. Furthermore, the JR indicates that the total catches of anchovy and boarfish in the relevant fisheries are 7 tonnes and 0 tonnes respectively. No level of unwanted catch is reported, and it is therefore unclear why the exemptions are required. It is suggested that a first step would be to establish the level of unwanted catch and then assess whether a *de minimis* exemption is needed.
Red Sea Bream and sole caught with bottom trawls, seines and beam trawls in ICES Division 9a	1. Exemption status Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for Red sea bream and sole. 2. Definition of fisheries A limited description is provided of the Portuguese fleets and fisheries. 3. Basis for the exemption

	No supporting information is provided. 4. EWG 19-08 observations Due to a lack of supporting information, no assessment can be made as to whether selectivity is difficult to improve in these fisheries or whether the costs of handling unwanted catches of Red Sea Bream and sole are disproportionate. Furthermore, the JR indicates that the total catches of Red Sea Bream and sole in the relevant fisheries are very low, 22 tonnes and 34 tonnes respectively. No level of unwanted catch is reported, and it is therefore unclear why the exemptions are required. Increased monitoring of the fisheries would increase the understanding of the level of unwanted catches and help to assess whether these exemptions are needed in the future.
Horse mackerel and mackerel caught with gillnets in ICES subareas 8, 9, 10 & CECAF 34.1.1, 34.1.2, 34.2.0	1. Exemption status Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for horse mackerel and mackerel. The description of the fleets and fisheries and supporting information is the same for all the exemptions. 2. Definition of the fisheries Information on the fleets and fisheries is provided for France and Portugal, but only limited information is provided for Spain. Information on the Spanish fisheries and fleets is needed to fully understand the extent to which the exemption would apply. The description of the fisheries is generic and indicates that the vessels involved participate in a range of gillnet fisheries targeting different species. Mackerel and horse mackerel are a bycatch in these fisheries. There is no indication as to whether the level of bycatch is different between fisheries. STECF FDI catch data is used to estimate the likely volume of *de minimis* based on total catches by gillnets and trammel nets in subareas 8 and 9. Horse mackerel and mackerel make up around 7% of the total gillnet catch respectively. Volumes of discards would appear to be small at a vessel level although total discards across the relevant fleets combined make up a significant part of the overall discards from gillnet vessels. The catch information presented is based on limited observations prior to 2017 but there is no indication of whether catch patterns have changed. 3. Basis for the exemption New supporting information has been provided to the JR. A description of the states of the stocks affected by this exemption based on ICES advice. An overview of the fleets and fisheries is also provided for the French and Portuguese fleets. Limited information, which is confined to the number of vessels involved, is provided for ES but no other details of the Spanish fisheries are given. According to the requests, the fleets involved are largely small-scale inshore vessels that are particularly vulnerable to the risk of commercial catch losses that an improvement in selectivity would cause. Reference is made to a French selectivity study called REDRESSE, which considered options to improve selectivity in gillnet and trammel net fisheries in the Bay of Biscay. This project found there were no practical solutions to improving selectivity in these fisheries although fishermen had reportedly tried a range of different gear modifications. There is no detail within the JR on this work, but the conclusions were that none of these options were effective at reducing unwanted catches. The JR also

	reports on voluntary measures taken by fishermen to avoid bycatch through spatial temporal measures such as avoidance, immersion times and net length. There is no evidence provided as to the effectiveness of these measures. The supporting information also provides a justification on the grounds of disproportionate costs. This is based on the assertion that horse mackerel and mackerel caught with such gears are usually damaged, making the fish unsellable. Additionally, maintaining the quality of these species is difficult during long fishing trips or when caught in deeper waters. The JR also highlights that the time taken to disentangle the fish from nets can cause serious damage to the flesh of these species, rendering them unsellable. No supporting material in the form of specific studies or economic data presented to support these arguments. 4. EWG 19-08 observations While the arguments regarding difficulties in improving selectivity are credible given the nature of the fisheries, the qualitative nature of the information presented means that EWG 19-08 cannot fully evaluate whether this assertion is correct or not. No attempt has been made to quantify the potential scale of these losses in the Joint Recommendation and it is not clear how this would vary across the different gillnet fisheries involved. The estimated level of *de minimis* requested is minimal – 57 tonnes for mackerel and 52 tonnes for horse mackerel - when compared to the overall catches of both species in these fisheries reflecting the relatively low discards of undersized fish in this fishery and the requirement to use selective gears that help to keep these unwanted catches at relatively low levels. The percentage requested is likely to maintain unwanted catches at current levels. The levels of *de minimis* volumes of *de minimis* are quite and given the estimated volume of the *de minimis* compared (109 tonnes combined) to the large number of vessels involved (~3,000), monitoring of uptake of *de minimis* would be challenging in practice.
Megrim, plaice, anglerfish, whiting and pollack caught with gillnets in ICES subareas 8 & 9	1. Exemption status Existing temporary exemptions granted until the end of 2019. Separate exemptions are proposed for megrim, plaice, anglerfish, whiting and pollack. The exemption for whiting only applies in subarea 8. The description of the fleets and fisheries and supporting information is the same for all the exemptions. 2. Definition of the fishery The fleets and fisheries involved are the same as for the mackerel and horse mackerel exemptions and the justification to support the exemptions also broadly similar. 3. Basis for the exemption New supporting information has been provided. A description of the states of the stocks affected by this exemption based on ICES advice. An overview of the fleets and fisheries is also provided for the Member States involved, which are the same as those for the mackerel and horse mackerel *de minimis* exemptions. Similarly, the justification used based on selectivity being difficult to achieve is the same as provided for the mackerel and horse mackerel exemptions. There is no reference to disproportionate costs.

	4. EWG 19-08 observations The fleets and fisheries involved are the same as for the mackerel and horse mackerel exemptions and the justification to support the exemptions also broadly similar. Therefore, the comments for horse mackerel and mackerel apply. As with the mackerel and horse mackerel exemptions, the arguments regarding difficulties in improving selectivity are credible given the nature of the fisheries. However, the qualitative nature of the information presented means it is difficult to evaluate whether this assertion is correct or not for the different species involved. The potential scale of any marketable losses resulting from an increase in selectivity in these fisheries is not quantified in the JR and it is not clear how this would vary across the different gillnet fisheries involved. The JR does not provide any information as to why different levels of *de minimis* are required. There does not appear to be any relationship between the level requested and the levels of unwanted catch. The actual levels of unwanted catches seem small for most of these species and the actual level of resulting *de minimis* is therefore minimal. However, the inclusion of multiple *de minimis* single species exemptions in the same fisheries would make monitoring of uptake of *de minimis* challenging.

7.2 SWW - Proposals for high survivability exemptions

A summary of the proposed high survivability exemptions for SWW is given in Table 8.2.1.

Table 7.2.1 Summary of high survivability submitted as part of the SWW Joint Recommendations

High Survivability	
Fishery	Main Findings of EWG 19-08
Red seabream caught with hooks and lines in ICES subareas 8 and 9a	1. Exemption status Extension of an existing exemption (to include hook-and-line fisheries in ICES areas 8 and 9a) 2. Survival evidence A report of a survival study was provided on catches of Blackspot seabream in the demersal longline fisheries in Portuguese Mainland waters (ICES sub-Division 9.a). A total of 59 individuals were estimated to survive a ≤36h monitoring period at 86%. The ICES critical review method was applied and identified that the estimate has limitations due to the short captive monitoring period, lack of controls, small sample size, and inconsistent vitality assessment protocols. 3. Fishery context In Portuguese mainland waters, vessels belonging to a polyvalent and a trawl fleet segment catch blackspot seabream either as a target or valuable by-catch species. The number of vessels and landings are given for the Portuguese fleet and for the Spanish fleet. The Spanish and Portuguese fleets fishing red seabream use comparable methods, including hook size, lines and soak time (~6 hours). The discard rate was given as negligible, only for the Portuguese fleet, in the hauls observed in the study it was 0.2%. No information is provided for the French fleets and fisheries. 4. Survival and fishery compatibility For the discard survival study, a vessel was selected which was representative of

	the Portuguese polyvalent fleet. The Portuguese and Spanish vessels fish in a similar way, so the survival evidence is considered representative of the fishery as defined in the proposal. 5. Additional evidence Without certainty that all fisheries-related mortality was recorded within the short-monitoring period, survival may have been overestimated. The identified limitations in the survival study support further survival studies that address the short monitoring time, inconsistent vitality assessments and absence of controls, so that the method is more in line with ICES WKMEDS.
Skates and rays (*Rajiformes*) caught with all gears in ICES subareas 8 and 9	1. Exemption status Extension was granted for three years (2019-2021) for skates and rays in ICES subareas 8 and 9. The delegated act stipulates that a roadmap developed to increase survivability should be developed and applied to the survivability programme. 2. Survival evidence New scientific evidence was provided by Portugal based on a vitality assessment for skates and ray species caught by trammel nets and trawls in ICES division 9a, under two scientific projects (DCF pilot study and UNDULATA project). The sampling covered all year and the fishing areas were in the north, central and southwest Portugal mainland waters. Two major groups of mesh size were considered, namely <180mm and >180mm. Also, under the UNDULATA project, a tagging programme *R. undulata* was implemented alongside the vitality data collection. The results indicate that the vitality status of *R. clavata, R. montagui, R. brachyura* and *R. undulata* caught by trammel fishery is generally high (in Excellent or Good vitality status). Although variables, such as mesh size and soak time may affect the vitality status after capture and therefore the skates' survival capacity after being released to the sea. The percentage of skates in Excellent and Good vitality status always represented more than 75% of the fish sampled (*R. clavata* - 52%-100%; *R. brachyura* - 67%-92%; *R. montagui* - 100%-67%; *R. undulata* - 79%). The mark-recapture tagging programme also reported has a return rate of 11% (40 out of 353 tagged specimens). Currently, it does not provide discard survival information but should do so as re-capture numbers increase. Vitality evidence was also presented from summer scientific surveys focused on crustacean species caught in trawls and autumn demersal species survey. The results indicated that, when the deck time is less than 108 minutes, most of the specimens are found in Excellent or Good conditions (60-72%). However, these data may not represent commercial fishing conditions due to the short tow duration of 30 mins. There are also limitations due to the relatively short monitoring time which may have overestimated survival. A further report described acoustic tagging experiment on *R. ondulata* was provided. In this study, 144 specimens were tagged and after 14 days the survival rate was reported at 52%. The quality of this estimate could not be established without the full report (Morfin et al., in revision). 3. Fishery context The exemption applies to all fisheries in areas 8 and 9. A detailed description of the fleets and fisheries covered by 'all gears' was not provided and there was no fishery statistics information included with the request with which to assess the scale of the problem. Detailed information was provided for the Portuguese fleet concerning the area, gear type, number of vessels subjected to the Landing Obligation and estimated landings and discards (except for net fisheries).

	4. Survival and fishery compatibility The new vitality assessment appears to adequately cover the fishing activity, characteristics and conditions of the Portuguese trammel net and trawl fisheries. Factors affecting the survivability of discarded specimens by species were analyse, such as length, mesh size and soak time. 5. Additional evidence Additional information on the fisheries and survivability of skates and rays in the SWW has provided a better understanding of ray survival for some fishery-species combinations. New vitality information for four ray species indicate most fish are alive at the point of release from a trammel net fishery. Full reports are required to be able to assess the quality of the survival estimates. There was no explicit reporting against the roadmap, which is recommended in the future. Report of progress is also expected concerning the following issues: i) survival evidence, ii) knowledge and data on the state of skate and ray stocks and discard rates for different species, metiers and areas, iii) implementation of best practices such as selectivity improvements, avoidance and improved catch handling for higher survival of skate and ray discards.
Cuckoo Ray	1. Exemption status Exemption was granted for one year (2019) for cuckoo ray in ICES subareas 8 and 9. This is a request for an extension. 2. Survival evidence New scientific evidence was provided by Portugal based on a vitality assessment for cuckoo ray caught by trammel net and trawl fleet in ICES division 9a, under two scientific projects (DCF pilot study and UNDULATA project). The sampling covered all year and the fishing areas were in the north, central and southwest Portugal mainland waters. 58% of specimens were assessed to be in Excellent condition while 21% corresponded to specimens in Good and 21% Poor/Dead condition. The study stated that length, vitality status, mesh size and soak time have no significant effect to retained and discarded data. Evidences of survival of cuckoo ray were also evaluated by assessing vitality status under summer scientific otter trawl surveys focused on crustacean species. For the 5 specimens observed, most were found dead (n=4; 20% survival). These estimates may not be representative of commercial fishing due to the short tow duration of 30 mins and could overestimate survival. New scientific evidences were also provided by Spain based on a vitality assessment and long-term captive experiments for cuckoo ray, caught with otter bottom trawl in ICES 9a area. Observation of the vitality status of the specimens was carried out periodically every 2 hours. A total of 503 cuckoo rays were assessed for vitality and 141 sampled for captive observation for survival monitoring. The results presented in the study showed a proportion of 66.8% of cuckoo rays were alive at the point of release. Among the cuckoo rays assessed for vitality, 7.6% were in excellent condition, 24% good condition, 35% poor condition and 33% were dead. All 141 cuckoo rays died within 8 days of monitoring (survival was 0%) regardless of initial vitality. Tagging experiments were also conducted but the results from recaptures are still being examined. 3. Fishery context The exemption applies to all fisheries in areas 8 and 9. A detailed description of the fleets and fisheries covered by 'all gears' was not provided and there was no fishery statistics information included with the request with which to assess the

	scale of the problem. Information was provided on the Portuguese fleet concerning the area, gear type, number of vessels subjected to the Landing Obligation and estimated landings and discards (except for net fisheries). Regarding the Spanish fleet there is information about the fleet, area and fishing gear. Further details are needed on all fishery-gear-area combinations to which the exemption applies. 4. Survival and fishery compatibility The new vitality survival data appears to adequately cover the fishing activity, characteristics and conditions of the Portuguese trammel net as well as the Spanish trawl fisheries. The data generated from the trawl surveys are not considered to be representative of commercial fishing practices due to the short tow duration, and these data are likely to overestimate survival and vitality of cuckoo ray. 5. Additional evidence Additional information on the fisheries and survivability of cuckoo ray in the SWW has provided a better understanding of cuckoo ray survival for some fishery-area combinations. These data show variable vitality levels and survival rates of 0-20%. According with JR, FR shows the intention to perform further Cuckoo Ray survivability studies (vitality assessment results expected by the end of July and survivability experiments in the next two years). This will provide important evidence on the survival of cuckoo rays, but studies should follow ICES guidance to produce robust estimates that are representative of the fisheries. Spain also planned several workshops and dissemination of results to the fishing sector to advise them and encourage fishermen to good fishing discarding practices and involvement in research trials. The project DESCARSEL and stakeholders produced a 'Guidelines of best practices: handling, maintenance and release of discarded rays".

7.3 SWW – Proposals for technical measures

EWG 19-08 notes that despite many trials testing selective gears in the fisheries in SWW, no new technical measures to improve selectivity or avoidance measures to reduce unwanted catches have been introduced. There seems a marked reluctance to adopt any selective gears because they result in losses of marketable catch. EWG 19-08 observes that the work undertaken seems largely uncoordinated and not necessarily targeted at the right fisheries. A review of the work completed to identify what gears are effective along with detailing the gaps in knowledge would help to channel further experiments into the appropriate fisheries.

8 MEDITERRANEAN - OVERVIEW OF JOINT RECOMMENDATIONS

Commission Delegated Regulation (EU) 2017/86 established a discard plan for certain demersal fisheries in the in the Adriatic Sea, the south-eastern Mediterranean Sea and the western Mediterranean Sea. It covers demersal fisheries for sole, hake, scallop, Venus shells, carpet shells, red mullet and deep-water rose shrimp. The plan was updated in 2017 by Commission Delegated Regulation 2018/153.

In 2019, PESCAMED (Spain, France and Italy), SUDESTMED (Cyprus, Greece, Italy and Malta) and ADRIATICA (Croatia, Slovenia and Italy) the three groups of Member States from the Mediterranean, submitted new sets of joint recommendations. The main elements of the existing discard plan and the new JRs and which of these have been assessed by EWG 19-08 are summarised in table xx. Of the requests presented by the three sub-regional groups, 5 have already been granted previously Table 9.1, and the EWG has not assessed these further. Table 9.1 also lists the annexes presented to the EWG, with some content description.

Table 9.1 Main elements of the Joint Recommendations submitted for the Mediterranean

Elements	***Status with relevant Article in current discard plan***	***Assessment by EWG 19-08 with relevant Annexes in JR***
De minimis		
Hake and Mullets caught by bottom trawls all areas	Existing and unchanged Article 4(1a(i)), 4(1b(i)) & 4(1c(i))	Not assessed
Hake and mullets caught by gillnets and trammel nets all areas	Existing and unchanged Article 4(1a(ii)), 4(1b(ii)) & 4(1c(ii))	Not assessed
Hake and mullets caught by rapido beam trawls ADRIATICA	Existing and unchanged Article 4(1b(iii))	Not assessed
Common sole caught by bottom trawls ADRIATICA	Existing and unchanged Article 4(1b(iv))	Not assessed
Deep-water rose shrimp caught by bottom trawls SUDESTMED	Existing and unchanged Article 4(1c(iii)	Not assessed
Demersal finfish[6] under the Landing Obligation excluding hake, mullets and pelagic species caught with bottom, all areas	Temporary until end of 2019 Article 4(1a(iii)), 4(1b(v)) & 4(1c(iv))	Re-assessed on basis of new information Annexes PESCAMED - B, C, D, E Annexes ADRIATICA – B, C, D, E Annexes SUDESTMED B, C,D,E
Demersal finfish[2] under the Landing Obligation excluding hake, mullets and pelagic species caught with gillnets and trammel nets, all areas	Temporary until end of 2019 Article 4(1a(iv)), 4(1b(vi)) & 4(1c(v))	Re-assessed on basis of new information Annexes PESCAMED - B, C, D, E Annexes ADRIATICA – B, C, D, E Annexes SUDESTMED B, C, D, E
Demersal finfish[2] under the Landing Obligation excluding hake, mullets and pelagic species caught with hooks and lines, all areas	Temporary until end of 2019 Article 4(1a(v)), 4(1b(vii)) & 4(1c(vi))	Re-assessed on basis of new information Annexes PESCAMED - B, C, D, E

[6] Demersal finfish refers to European seabass (*Dicentrarchus labrax*), annular seabream (*Diplodus annularis*), sharpsnout seabream (*Diplodus puntazzo*), white seabream (*Diplodus sargus*), two-banded seabream (*Diplodus vulgaris*), groupers (*Epinephelus* spp.), stripped seabream (*Lithognathus mormyrus*), Spanish seabream (*Pagellus acarne*), red seabream (*Pagellus bogaraveo*), common pandora (*Pagellus erythrinus*), common seabream (*Pagrus pagrus*), wreckfish (*Polyprion americanus*), gilthead seabream (*Sparus aurata*) and deep-water rose shrimp (*Parapenaeus longirostris*)

		Annexes ADRIATICA – B, C, D, E Annexes SUDESTMED B, C, D, E
Bycatches of Anchovy, Sardine, Mackerel and Horse mackerel caught by bottom trawls, all areas	Temporary until end of 2019 Article 4(1a(vi)), 4(1b(viii)) & 4(1c(vii))	Re-assessed on basis of new information Annexes PESCAMED - B, C, D, E Annexes ADRIATICA – B, C, D, E Annexes SUDESTMED B, C, D, E
High Survivability		
Scallop caught with mechanised dredges, PESCAMED	Existing and unchanged Article 1b	Not assessed
Carpet clams caught with mechanised dredges, PESCAMED	Existing and unchanged Article 1c	Not assessed
Venus shells caught with mechanised dredges, PESCAMED	Existing and unchanged Article 1d	Not assessed
Red Sea Bream (Blackspot) caught with hooks and lines, all areas	Temporary until end of 2019 Article 1g	Re-assessed on basis of new information Annex PESCAMED - A Annex ADRIATIC – A Annex SUDESTMED - A
Lobster caught with pots, traps and nets, all areas	Temporary until end of 2019 Article 1h	Re-assessed on basis of new information Annex PESCAMED - A Annex ADRIATIC – A Annex SUDESTMED - A
Crawfish caught with pots, traps and nets, all areas	Temporary until end of 2019 Article 1i	Re-assessed on basis of new information Annex PESCAMED - A Annex ADRIATIC – A Annex SUDESTMED - A
Common sole caught with Rapido trawls, ADRIATICA and PESCAMED	Temporary until end of 2019 Article 1a	Re-assessed on basis of new information Annex PESCAMED - A Annex ADRIATIC – A
Nephrops caught with pots and traps, ADRIATIC and PESCAMED	Temporary until end of 2019 Article 1f	Re-assessed on basis of new information Annex PESCAMED - A Annex ADRIATIC – A

Minimum conservation reference size		
NA		
Technical Conservation Measures		
Spatio-temporal closures for all gears, ADRIATIC & SUDESTMED	New	Assessed Annex ADRIATIC – C Annex SUDESTMED - C

8.1 Mediterranean – Proposals for *de minimis*

General observations

The extension of *de minimis* exemptions requested by PESCAMED, ADRIATICA and SUDESTMED are supported with new biological and economic information provided by the respective Member States in supporting annexes. This information includes:

- Descriptions of the fishing fleets (number and basic characteristics such as length of the vessels);
- Catch data;
- Review of selectivity gear modification or gear substitution;
- Specific analyses of spatio-temporal closures for avoiding unwanted catches; and
- The economic costs associated with the Landing Obligation.

EWG 19-08 highlights that data provided by the three sub-regional groups constitute an important step towards addressing the biological, social and economic issues, identified by previous EWGs considering the JRs in the Mediterranean. The requests by each sub-regional group, the basis for exemption and specific country considerations are summarized in Annex III together with EWG specific considerations where applicable.

EWG 19-08 highlights that

- Not all biological and economic data are available for all GSA areas and fleets (data is not homogeneous);
- There are many assumptions made of the representativeness of data between GSAs; and
- There are indications from preliminary data from projects that will need to be further explored in the future with new studies in the field (e.g. T90, grid, etc).

Regarding the biological data provided, the assessment is complicated by the fact that the exemptions are to allow the discarding of fish under MCRS, but data on the proportion of discards below MCRS is not provided. Only limited information from Greece in GSAs 20, 22 and 23: for *M. merluccius, P. erythrinus* and *P. longirostris* is presented. This shows the majority (>50%) of individuals discarded are below the MCRS. On the other hand, for *E. encrasicolus* and *S. pilchardus*, about 50% of the discarded individuals are below the MCRS. For *M. barbatus, M. surmuletus* and *N. norvegicus*, the majority (>50%) of individuals discarded are above the MCRS.

EWG 19-08 notes that sampling coverage of the metiers covered by the *de minimis* exemptions is patchy. In some cases, there are no data because the métier was not sampled or because species are not observed in the biological samples for the métier (e.g. Italy). Cyprus will begin at-sea observer program for recording all catches of species under Landing Obligation in 2019. This will provide data for estimating proportions of undersized fish. No detail is provided for other Member States of future sampling strategies. Improving sampling to provide better data on levels of MCRS should be prioritised.

EWG 19-08 notes that the discard rates vary by species, area and gear type. In some cases, the observed discards are higher than the estimated *de minimis* volume, while for others the volume of discards is lower. Therefore, while the discard proportions of all MCRS species combined (as a portion of the total catch) do not exceed the requested *de minimis* volume, for some specific

species, the discards far exceed the *de minimis* requested. The transition from these currently high discard rates for these species to the *de minimis* level will be challenging without changes in the fishing pattern, either through improvements in selectivity or by avoiding areas of unwanted catches of these species.

EWG 19-08 recognizes the effort of the MEDAC aimed to provide information on catches, discard rate and nominal effort related to the three macro-areas, fisheries and species, even though data on the catches referred to in the different countries have been aggregated. Information provided by the MEDAC graphs (DCF source) is complementary to the data provided by Member States for the *de minimis* evaluation. The MEDAC annex also appears to gather up-to-date scientific studies and articles in support of the strategy of decreasing unwanted catches through the identification of nursery and spawning areas for the species in Annex III of REGMED which are more frequently discarded[7].

EWG 19-08 re-iterates that the combined *de minimis* approach modifies the proportions of each species that can be discarded compared to a single species *de minimis*. The differences in catch and discard rate between species means that with a combined *de minimis*, there will potentially be less *de minimis* available for certain species and more for others, compared with the single species approach. EWG 19-08 reiterates the conclusions of STECF 18-06 that the combined *de minimis* approach alters the composition of discards rather than increasing flexibility.

EWG 19-08 notes that an analysis of the economic and social impacts of the Landing Obligation, as well as an analysis of the selection patterns of fishing gears, have been completed as part of the EU projects MINOUW, DISCARDLESS and DISCATCH). The findings are reported in the scientific papers of Sartor et al. 2016; Accadia et al., 2018; Sola and Maynou 2018. This information provided by the three sub-regional groups has been summarized by EWG 19-08 in tables of Annex IV**.**

EWG 19-08 considers that a full integrated analysis in all areas is not yet available to fully demonstrate the impact on fishing income per annum under the Landing Obligation; the increase in fishing costs (quota, crew, onshore costs) relative to income; potential reduction economic productivity and/or a potential reduction of profitability. However, with the available results and analyses provided, EWG 19-08 considers that the information demonstrates that without the *de minimis* exemptions, the fleets would incur significant costs because of increased crew time and costs and/or shortening of fishing trips or increasing costs and logistic difficulties for handling and managing the unwanted catches ashore.

EWG 19-08 also notes that the supporting information provided shows the use of selective gears is expected to yield significant loss in earnings due to reduction in catches of some of the main commercially species in the order of 15%-20% (Sola and Maynou, 2018). Converting trawlers to fish with gillnets or trammel nets would reduce earnings by 60-70% (Accadia et al., 2018). An assessment of possible market was carried out by Sartor et al. (2016). The study concluded that, at present, the lack of facilities to handle unwanted catches once landed would result in the classification of discards as "special waste", and the costs for disposal of catches would range from 0.45 €/kg up to 0.65 €/kg (Sartor et al., 2016). EWG 19-08 notes that small-scale vessels are expected to be the most significantly impacted.

EWG 19-08 considers the analysis provided on handling unwanted catches ashore is representative of the three regions as the problems of unwanted catches storage on board of small vessels is reported throughout the Mediterranean. Storage at landing ports to comply with food hygiene rules before transport is complicated by the large number of small landing ports and lack of refrigerated containers for storing unwanted catches. The long distances to reach the processing industries or incinerators is exacerbated in countries where a significant percentage of landing ports are on islands. In most cases the low and irregular quantities of discards landed in each port make the processing of unwanted catches for companies economically unviable.

[7] CALL MARE/2014/27, Study on the evaluation of specific management scenarios for the preparation of MAPs in the Mediterranean and the Black Sea; Colloca et al study (2015) "The Seascape of Demersal Fish Nursery Areas in the North Mediterranean Sea, a First Step Towards the Implementation of Spatial Planning for Trawl Fisheries" and MEDISEH results.

EWG 19-08 considers that while the problems faced in the Mediterranean in complying with the Landing Obligation are not unique, the nature of the fisheries, the number of ports and the proliferation of small boats make addressing the handling of unwanted catches particularly difficult compared to other sea basins.

EWG 19-08 notes the proposal by PESCAMED, ADRIATICA and SUDESTMED groups to develop a network of spatio-temporal closures to avoid unwanted catches. EWG 18-09 considers that the establishment of spatio-temporal closures for excluding fishing activities in areas and time with high probabilities of unwanted catches is a positive step. Overall, the extent of the areas impacted by seasonal or permanent MPAs and FRAs is already quite significant, as demonstrated by maps showing their coverage. EWG 19-08 encourages Member States to document their timelines for introducing MPAs and FRAs with the *de minimis* exemptions used as a temporary measure while the network of closures is developed.

EWG 19-08 notes that according to the figures included in the MEDAC annex, in the Western Mediterranean, Anchovy (*Engraulis encrasicolus*), Spanish sea bream (*Pagellus acarne*), Common pandora (*Pagellus erythrinus*) and Atlantic horse mackerel (*Trachurus trachurus*) are the species that, although not already exempted, are associated with the highest percentages of discards and landings. For those species MEDAC provided a summary table of the areas and periods where spatio-temporal closures should be most effective for the avoidance of undersized specimens.

EWG 19-8 notes that the *de minimis* exemptions reported in the MEDAC annex have been included in all JRs, whilst the technical measures have not been included. MEDAC advice for the granting of *de minimis* exemption should be considered complementary to the management proposals aimed to reduce the catch of undersized specimens through spatio-temporal closures of nursery/spawning areas of the species associated with the highest percentages of discards and landings ("Strategy for not reaching the *de minimis* threshold").

A summary of the fishery information applicable to the proposed *de minimis* exemptions is given in Table 9.1.1.

Table 9.1.1 Summary of *de minimis* exemptions submitted as part of the Mediterranean Joint Recommendations (restricted to new or revised exemptions)

De minimis	
Fishery	Main Findings EWG 19-08
Total catches of demersal finfish[8] under the Landing Obligation excluding hake, mullets and pelagic species caught with bottom trawls in all areas	1. Exemption status Extension of the existing temporary exemption beyond 2019. The exemption has been adapted to reflect the maximum *de minimis* percentage possible and listing the individual species for which the exemption is requested (see footnote). 2. Definition of the fishery New biological and economic data has been submitted by Croatia, Cyprus, Greece, Malta, Italy, Slovenia, France and Spain, on behalf of all Mediterranean Member States. Fleet descriptions are provided for all Member States, but not all present discard proportion estimates or discard rates for the relevant fisheries. Quantified data on catches below MCRS is lacking. Discard estimates vary markedly by Member States and species. For instance, in Cyprus discards vary between 7% for the common pandora to 100% for the

[8] Demersal finfish refers to European seabass (*Dicentrarchus labrax*), annular seabream (*Diplodus annularis*), sharpsnout seabream (*Diplodus puntazzo*), white seabream (*Diplodus sargus*), two-banded seabream (*Diplodus vulgaris*), groupers (*Epinephelus* spp.), stripped seabream (*Lithognathus mormyrus*), Spanish seabream (*Pagellus acarne*), red seabream (*Pagellus bogaraveo*), common pandora (*Pagellus erythrinus*), common seabream (*Pagrus pagrus*), wreckfish (*Polyprion americanus*), gilthead seabream (*Sparus aurata*) and deep-water rose shrimp (*Parapenaeus longirostris*)

	banded seabream. This is a weakness in the combined *de minimis* approach, accepting that the total volume of discards is low for some species even though the proportions of the catch of the catch that is discarded may be high. Data on levels of unwanted catches of undersized fish are provided by Greece but not for other Member States. 3. Basis for the exemption Justification is based on selectivity can be improved but an optimal solution has still to be developed and further research is needed to develop appropriate gear modifications or other avoidance measures. The *de minimis* is needed as a "stop-gap" to offset some of the unwanted catches while research, testing selective gears is carried out. The JR indicates research that has been carried out and improvement in selectivity from the use of T90 meshes is possible but results in losses of marketable catches amounting to about 18%. This has made introducing such gears as difficult but further work is planned. A simple analysis of the costs to convert trawl gear to gillnets is also provided and indicates this would result in losses of marketable catch of 60-65%. The justification is also supported by an analysis of disproportionate costs. This is based on economic analyses carried out under several projects (e.g. MINOUW and DISCARDLESS) which show costs of landing unwanted catches are expected to exceed 0.65€/kg, whereas returns from sale of raw materials for silage or fishmeal would not exceed 0,25€/kg. Additional fixed costs of 300€/vessel/day for the maintenance of equipment and facilities are also reported. 4. EWG 19-08 observations The arguments presented regarding improvements in selectivity are difficult to achieve are reasonable but are rather generic and not specific to any fishery. therefore, it is not possible to assess the impacts on fisheries within the different areas of the Mediterranean. While estimates of the potential increase in costs of handling unwanted catches ASHORE are provided, there is no way to objectively judge whether such estimates amount to disproportionate costs. The arguments are generic, and no attempt has been made to identify fisheries which are particularly impacted. The JR indicates the possibility of introducing Marine Protected Areas and Fish Recovery Areas as a measure to avoid unwanted catches of undersized fish. In this regard, using the *de minimis* as a stop-gap while the network of MPAs and FRAs is being introduced seems a reasonable approach that should lead to reductions in unwanted catches across the whole Mediterranean basin.
Total catches of demersal finfish[1] under the Landing Obligation excluding hake, mullets and pelagic species caught with gillnets and trammel nets in all areas	1. Exemption status Extension of the existing temporary exemption beyond 2019. The exemption has been adapted to reflect the maximum *de minimis* percentage possible and listing the individual species for which the exemption is requested (see footnote). 2. Definition of the fishery New biological and economic data has been submitted by Croatia, Cyprus, Greece, Malta, Italy, Slovenia, France and Spain, on behalf of all Mediterranean Member States. Fleet descriptions are provided for all Member States, but not all present discard proportion estimates or discard rates for the relevant fisheries. Quantified data on catches below MCRS is missing. Discard estimates vary markedly by Member States and species. The

	information provided indicates discard rates below 3% for most species in Cyprus, but greater than 70% for axillary seabream. Data on levels of unwanted catches of undersized fish are provided by Greece but not for other Member States. 3. Basis for the exemption Justification is based on selectivity can be improved but an optimal solution has still to be developed and further research is needed to develop appropriate gear modifications or other avoidance measures. The JR indicates research that has been carried out and improvements in selectivity can be achieved using modified gillnets. Such modifications results in losses of marketable catches amounting to about 15%. Further work is planned. The justification is also supported by an analysis of disproportionate costs, which is based on the same analysis as above for the trawl gears. As with the previous exemption, while estimates of the potential increase in costs are provided, there is no way to objectively judge whether such estimates amount to disproportionate costs. The arguments are generic, and no attempt has been made to identify fisheries which are particularly impacted or species that are particularly problematic. 4. EWG 19-08 observations The arguments presented are reasonable as gillnets are recognised as being relatively selective gears. However, the arguments are generic and not specific to any fishery. As with the previous exemption, while estimates of the potential increase in costs are provided, there is no way to objectively judge whether such estimates amount to disproportionate costs. The arguments are generic, and no attempt has been made to identify fisheries which are particularly impacted or species that are particularly problematic. Additionally, the introduction of Marine Protected Areas and Fish Recovery Areas as with the previous exemption seems a reasonable approach that should lead to reductions in unwanted catches across the whole Mediterranean basin.
Total catches of demersal finfish[1] under the Landing Obligation excluding hake, mullets and pelagic species caught with hooks and lines in all areas	1. Exemption status Extension of the existing temporary exemption beyond 2019. The exemption has been adapted to reflect the maximum *de minimis* percentage possible and listing the individual species for which the exemption is requested (see footnote). 2. Definition of fishery New biological and economic data has been submitted by Cyprus and Greece. Other Member States have not provided such data. Fleet descriptions are provided for all Member States, but not all present discard proportion estimates or discard rates for the relevant fisheries. Quantified data on catches below MCRS is missing. Discard estimates vary by MS and species, but mostly are less than 1%. The highest discard rates are around 10% but generally levels of unwanted catches are low in all cases where data is presented. 3. Basis for exemption Justification is based principally based on the analysis of disproportionate costs presented for trawls and gillnets. There is also reference to selectivity studies carried out by Spain showing that these gears are size selective, and selectivity can be influenced by hook size. No estimates of impacts on catch volume or economic performance of the

	gears is provided. 4. EWG 19-08 observations As with the previous exemption, while estimates of the potential increase in costs are provided, there is no way to objectively judge whether such estimates amount to disproportionate costs. The arguments are generic, and no attempt has been made to identify fisheries which are particularly impacted or species that are particularly problematic. The introduction of Marine Protected Areas and Fish Recovery Areas as with the previous exemption is also included.
Total annual bycatches of Anchovy, Sardine, Mackerel and Horse mackerel caught by bottom trawls in all areas	1. Exemption status Extension of the existing temporary exemption beyond 2019. The exemption has been adapted to reflect the maximum *de minimis* percentage possible and listing the individual species for which the exemption is requested (see footnote). 2. Definition of fishery Biological and economic data has been submitted by Cyprus and Greece. Other Member States have not provided such data. Fleet descriptions are provided for all Member States, but not all present discard proportion estimates or discard rates for the relevant fisheries. Quantified data on catches below MCRS is missing. Discard estimates vary by MS and species. Discard rates are generally higher according to the information presented and mostly above 5%. Rates of up to 30% and 50% for horse mackerel in Greece and Italy are reported This indicates the level of *de minimis* will not cover the levels of unwanted catches and further measures will be required to reduce such catches. 3. Basis for the exemption The justification for the exemption is based on the analysis of disproportionate costs presented for trawls, gillnets and hooks and lines. 4. EWG 19-08 observations As with the previous exemption, while estimates of the potential increase in costs are provided, there is no way to objectively judge whether such estimates amount to disproportionate costs. The arguments are generic, and no attempt has been made to identify fisheries which are particularly impacted or species that are particularly problematic. No information on efforts to increase selectivity for these species is presented, other than a reference to high costs for converting from trawling to other gears. The introduction of Marine Protected Areas and Fish Recovery Areas as with the previous exemptions is also included.

8.2 Mediterranean - Proposals for survivability exemptions

A summary of the proposed high survivability exemptions for the Mediterranean is given in Table 9.2.1.

Table 9.2.1 Summary of high survivability submitted as part of the Mediterranean Joint Recommendations

High survivability	
Fishery	Main Findings EWG 19-08

Red Sea Bream – hooks and lines, all areas	1. Exemption status Extension of an existing exemption. 2. Survival evidence Survival evidence is summarised with multiple references but no full reports, therefore the quality of the information could not be fully assessed. The first reference was submitted previously and evaluated and refers to survival estimates from the "voracera" fishery. In this study, based on fish recovering their basal homeostatic levels, a survival rate of 91% was estimated. 3. Fishery context Other than an Italian fishery, it is not clear to which fishery this exemption refers to, and the level of unwanted catches, as no discard rates were provided. Catch data is provided for Italy in the South Western, South-eastern Mediterranean and Adriatic; Spanish fisheries in the western Mediterranean; Greece in the south-eastern Mediterranean and an unknown number of vessels from Slovenia participated in a hook-and-line fishery catching <1 tonnes each. The Italian and Spanish fisheries have the highest catches 4. Survival and fishery compatibility The survival evidence is derived from the "voracera" fishery, which uses a specific hook and line design, remains in the water around 15-30 minutes and is used to target Blackspot seabream. While there is little information provided, the operational characteristics of the defined fishery are likely to be different from the "voracera" fishery, and so the survival evidence referred to may not be representative, although is likely to be more than 50% given the nature of the fisheries. 5. Additional evidence There is a need for further trials to determine whether survival rates differ across the defined gear types, seasons and geographic areas. A full study, following ICES WKMEDS guidelines to directly observe discard survival, should ideally be conducted in the defined fishery.
Lobster & Crawfish – gillnets, pots and traps, all areas	1. Exemption status Extension of an existing exemption. 2. Survival evidence A summary of survival evidence is provided, with multiple references but no full reports, therefore the quality of the information could not be assessed. The only survival estimate mentioned is from a study on crawfish in a trammel net fishery in the Balearic Islands. This had a small sample size (16 individuals) and indicated a survival of crawfish at 54%–76%. In the absence of the full report, the quality of this estimate could not be determined. Several other studies, applying different methods, are also mentioned but no other survival estimates were provided. 3. Fishery context Limited catch data is provided for crawfish catches by Italian vessels for the South Western Mediterranean (in GSA 9, 10, 11), South-eastern Mediterranean and for the Adriatic Sea. It is not clear to which fisheries the exemption applies other than the Italian fisheries. Discard rates were not provided. The number of vessels affected and discard rates for fisheries with bycatch of crawfish is not provided. Similarly, limited data is provided for Italian and Greek vessels in the Adriatic, South-eastern Mediterranean and South-western Mediterranean. Catches are generally reported to be small, typically less than 5 tonnes. Discard rates were

	not provided, and it is not clear to which fisheries the exemption applies in this area with regards to catches of lobster. 4. Survival and fishery compatibility The one survival estimate provided is based on few individuals from one specific fishery. No information was provided to determine whether this fishery is comparable to other Mediterranean fisheries, so the representativeness of the evidence cannot be established. 5. Additional evidence Survivability for these species is expected to be high in pots and traps (as in the northern Atlantic, where exemption from the landing obligation is not required). Reported catches in pot fisheries are generally low so the impact of the survivability exemption for these fisheries is likely to be low. Additional studies would be preferable for nets as there remains uncertainty on discard survival. Only one study is referenced, and this is based on a small sample size. Further survival studies should be conducted. To increase confidence in applying new survival estimates to the defined fishery, information is also needed to describe the fisheries (including operational methods) that target lobsters and crawfish as this remains unclear.
Common sole – Rapido, Adriatic and PESCAmed	1. Exemption status Extension of the existing temporary exemption beyond 2019. 2. Survival evidence An abstract from a study carried out in the Northern Adriatic (GSA 17) to be reported in full in 2019 is provided. Without the full report, the scientific quality of the survival estimate cannot be fully determined. However, the information provided indicates a survival of 21-51% (mean 36%). The study noted that depth and catch weight affected survival. 3. Fishery context A full fishery description is provided indicating 76 vessels from Italian participate in the fishery. Unwanted catches of 79 tonnes of Common sole per year, with a discard rate of 5.83% are reported. No other Member State is involved in the fishery. 4. Survival and fishery compatibility The study was in GSA 17, the exemption is proposed for GSA 17-18, it is reasonable to assume that the evidence is relevant across these areas. 5. Additional evidence A full report on the survival study would enable an evaluation of the scientific robustness of the survival estimate.
Nephrops – Pots and Traps, Adriatic and PESCAMed	1. Exemption status Extension of the existing temporary exemption beyond 2019. Exemption Applies to ADRIATICA and PESCAMED. 2. Survival evidence No new relevant data and/or survivability studies have been provided. 3. Fishery context The actual extent of the fisheries needs to be clarified. Some information on the Italian fleet targeting Norway lobster or where this species is bycatch with pots and traps have been provided. The reported catches are very small < 1 tonne. It is stated that any *Nephrops* landing is sold alive. There is no

	information on levels of unwanted catch. 4. Survival and fishery compatibility Survival rates of *Nephrops* caught by pots are known to be high based (> 80%) on information from similar fisheries in the NWW and North Sea. It is not possible to make direct inference as to the applicability of the results obtained in other areas to the Mediterranean, particularly since the Mediterranean is in general warmer than the Atlantic, even at the same latitudes, and that the eastern most ranges of the Mediterranean are considerably warmer than the western region. 5. Additional evidence Additional data should be provided indicating the scale of the fishery and the reason for the occurrence of unwanted catches. Given the minimal catches indicated and the absence of a targeted fisheries, it is questionable whether this exemption is required.

9 CONCLUSIONS

The following are the main conclusions of EWG 18-06:

STECF endorses the findings presented in the Report of the EWG 19-08 and makes the following conclusions:

- EWG 19-08 concludes that the roles of EWG 19-08 and any future STECF EWGs set up to evaluate joint recommendations remains to evaluate the scientific rigor and robustness of the underpinning information supplied by Member States to support the main elements of joint recommendations. STECF cannot adjudicate on whether exemptions should be accepted or not.
- Ewg 19-08 re-iterates that it is difficult to provide conclusive advice on whether the information presented is sufficient to accept or reject any individual application based on the exemption provisions. The subjective nature of the conditionalities – "high survival", "very difficult to achieve" or "disproportionate costs" means that there is a large element of judgement required in deciding on whether to permit or reject a proposal that cannot be based solely on scientific option of the evidence presented.
- EWGs 19-08 and 18-06 noted that the quality of submissions to support the exemptions has generally improved since the first JR's were submitted in 2014. However, there were cases where the quality of submission is poor, making it very difficult to conduct an analysis at all. EWG 19-08 encourage Members States Regional Groups to use the templates developed by STECF in 2016 to supply fisheries and fleet descriptors and in case of *de minimis* exemptions provide economic data to support such proposals.
- EWG 19-08 reiterates that the avoidance of unwanted catch through improved selectivity or other means should be the primary focus in implementing the Landing Obligation. STECF notes that the JRs received contained few measures to increase selectivity. EWG 19-08 recognizes that modifying selectivity can result in some reduction in revenue, but these should be viewed in the broader context of medium-term gains in stocks and the risk of choke events and the utilization of quota to land low value catches.
- EWG 19-08 observes that in many cases the supporting information relating to the fleets and fisheries is derived from the publically available STECF FDI database, which has not been updated since 2016, and as such may not represent the current situation. Ewg 19-08 concludes that future exemptions should be supported with current data.
- EWG 19-08 observes that some of the existing exemptions were included under the discard plans for 2015-2017. STECF 18-02 also raised the question of whether the increasing number of exemptions is diminishing the overall objectives of the Landing

Obligation. EWG 19-08 considers this question is still valid given the volume of proposed exemptions put forward across regions.

- EWG 19-08 observes that there has been little attempt to review these exemptions as to whether the fisheries have changed in terms of catch patterns, gears used, vessels involved and in the case of *de minimis* the uptake of the volume of catch allowed to be discarded. STECF conclude it would be timely for the Member States Groups and the Commission to review these exemptions and determine whether they need to be amended or are still required.
- EWG 19-08 observes that selectivity work undertaken in some regions (e.g. SWW) seems largely uncoordinated and not necessarily targeted at the right fisheries. A review of the work completed to identify what gears are effective along with detailing the gaps in knowledge would help to channel further experiments into the appropriate fisheries.
- EWG 19-08 observes that the number of *de minimis* exemptions based on disproportionate costs continues to increase. More than 90% of the proposed *de minimis* exemptions in the JRs are based on disproportionate costs. STECF observes that the same generic information on the costs of handling unwanted catches is used to support multiple exemptions making it is difficult to make an evaluation. Moreover, STECF concludes that simply stating that landing unwanted catches has an associated cost, is not sufficient to demonstrate that those costs are disproportionate. STECF concludes that the case for *de minimis* should not be improved by having high levels of unwanted catches, and therefore high handling costs, where the incentive to improve selectivity should be maintained. Further STECF stresses that improving selectivity or avoidance methods to reduce the catches of unwanted catches should be the priority.
- EWG 19-08 notes that Member States have used a variety of ways to calculate *de minimis* volumes. In most cases for single species *de minimis* exemptions, a percentage (e.g. 5% or 7%) has been applied to the catches of the relevant species. However, for several fisheries where the intention is to discard 100% of the catches (e.g. brown shrimp in the NWW and North Sea and industrial species bycatch in demersal fisheries the North Sea), catches from the entire fishery or fisheries have been used as the basis for the calculation. A small percentage has been applied to these total catches to give a higher *de minimis* volume than would have been the case if just the catches for that species in that fishery were used.
- EWG 19-08 notes that in some cases where the unwanted catch of species subject to the Landing Obligation are substantial, granting a *de minimis* of 5-7% of the catches of such species will have little, most likely an unmeasurable effect on their overall fishing mortality and only a marginal effect on the ability of the vessels concerned to continue fishing legally. It is likely that granting an exemption to discard 5%, will achieve little in terms of mitigating the costs of landing the other 95% of the unwanted catch.
- EWG 19-08 notes 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, or to bring only permitted *de minimis* quantities ashore on landing.
- EWG 19-08 re-iterates that assessing what constitutes high survivability is complicated by the limited evidence and the variability in the available estimates. Many factors can affect survival, but these are not well understood. STECF states that for the skate and ray survival exemptions, the uncertainty in extrapolating survival evidence between species, fisheries and seasons is particularly high. EWG 19-08 concludes that the latest evidence suggest that skate and ray survival rates can be highly variable between species and fisheries. Studies indicate that smaller individuals and smaller species have lower survival, inshore static nets are associated with higher survival and shorter tow durations are associated with higher survival. It is indicated that for some fisheries and species combinations the survival may be close to zero.
- EWG 19-08 re-emphasises the need to consider survivability in the context of the discard rate for the fishery seeking an exemption (STECF 17-02), highlighting that medium survival rates in high discarding fisheries still lead to high discard mortality rates. STECF notes that in 2018, deductions from TACs were made, whereby exempted dead discards were deducted from the TAC to reduce the risk of overfishing. STECF has also previously

concluded (STECF 19-02) that unless surviving discards are accounted for in stock assessments when dead discards are accounted for in TAC setting, where survivability exemptions are in place, the actual fishing mortality will not match the agreed catch level. This should be discussed in the assessment forums for stocks with survival exemptions.

- EWG 19-08 concludes where survivability exemptions are linked to a roadmap setting out work planned to develop survival estimates and accompanying measures to increase survivability, the JRs should report against the different tasks set out in the roadmap to facilitate future evaluations.

10 REFERENCES

Accadia P., Pinello D., Sabatella E., Maynou F. (2018). MINOUW Project, Deliverable 2.18, Reports on the Cost/Benefit of technological solutions.

Catchpole, T., Randall, P., Forster, R., Santos, A. R., Armstrong, F., Bendall, V., and Maxwell, D. (2015). Estimating the discard survival rates of selected commercial fish species (plaice-Pleuronectes platessa) in four English fisheries. Cefas report.

ICES. 2016. Report of the Workshop on Methods for Estimating Discard Survival 5 (WKMEDS 5), 23- 27 May 2016, Lorient, France. ICES CM 2016/ACOM:56. 51 pp.

Frandsen, R., Krag, L. A., Karlsen, J. D., & Feekings, J. P. (2015). Katalog over selektive redskaber afprøvet idansk fiskeri: En guide til bedre at undgå uønsket fangst. Charlottenlund: Institut for Akvatiske Ressourcer, Danmarks Tekniske Universitet. DTU Aqua-rapport, Nr. 300-2015

Krag, L.A., Herrmann, B., Feekings, J., Karlsen J.A. (2016). Escape panels in trawls – a consistent management tool? Aquat. Living Resour. 29, 306. DOI: 10.1051/alr/2016028 www.alr-journal.org.

Morfin, M., Kopp, D., Benoît, H. P., Méhault, S., Randall, P., Foster, R., and Catchpole, T. (2017). Survival of European plaice discarded from coastal otter trawl fisheries in the English Channel. Journal of Environmental Management 204, 404–412.

Randall, P., Armstrong, F., Ribeiro Santos, A., and Catchpole, T. (2016) Assessing the survival of discarded plaice in the English NE Nephrops trawl fishery. Fisheries Science Partnership MF062 and ASSIST MF1232. 37pp

Sartor, P., Carbonara, P., Lucchetti, A., & Sabatella, E. C. (2016). Indagine conoscitiva sullo scarto della pesca alle specie demersali nei mari italiani. Valutazioni propedeutiche per l'implementazione delle disposizioni comunitarie in tema di obbligo di sbarco. Quaderni Nisea, 1, 40.

Rihan D., Uhlmann S.S., Ulrich C., Breen M., Catchpole T. (2019) Requirements for Documentation, Data Collection and Scientific Evaluations. In: Uhlmann S.S., Ulrich C., Kennelly S.J. (eds) The European Landing Obligation. Springer, Cham: Springer.

Scientific, Technical and Economic Committee for Fisheries (STECF) – Landing obligation in EU fisheries (STECF-13-23). (2013). Publications Office of the European Union, Luxembourg, EUR 26330 EN, JRC 86112, 115 pp.

Scientific, Technical and Economic Committee for Fisheries (STECF) – 46th Plenary Meeting Report (PLEN-14-02). (2014). Publications Office of the European Union, Luxembourg, EUR 26810 EN, JRC 91540, 117 pp.

Scientific, Technical and Economic Committee for Fisheries (STECF) – 48th Plenary Meeting Report (PLEN-15-01). 2015. Publications Office of the European Union, Luxembourg, EUR 27220 EN, JRC 95802, 75 pp.

Scientific, Technical and Economic Committee for Fisheries (STECF) – Landing Obligation - Part 5 (demersal species for NWW, SWW and North Sea) (STECF-15-10). (2015). Publications Office of the European Union, Luxembourg, EUR 27407 EN, JRC 96949, 62 pp.

Scientific, Technical and Economic Committee for Fisheries (STECF) – – Evaluation of the landing obligation joint recommendations (STECF-16-10). (2016). Publications Office of the European Union, Luxembourg; EUR 27758 EN; doi:10.2788/59074

Scientific, Technical and Economic Committee for Fisheries (STECF) – 54th Plenary Meeting Report (PLEN-17-01). (2017). Publications Office of the European Union, Luxembourg; EUR 28569 EN; doi:10.2760/33472

Scientific, Technical and Economic Committee for Fisheries (STECF) – Technical measures (STECF-17-02); (2017). Publications Office of the European Union, Luxembourg; EUR 28359 EN; doi:10.2760/51636

Scientific, Technical and Economic Committee for Fisheries (STECF) – 56th Plenary Meeting Report (PLEN-17-03). (2017). Publications Office of the European Union, Luxembourg; ISBN 978-92-79-77297-9, doi:10.2760/605712, JRC109344

Scientific, Technical and Economic Committee for Fisheries (STECF) – Evaluation of the landing obligation joint recommendations (STECF-17-08). (2017). Publications Office of the European Union, Luxembourg, 2017, ISBN 978-92-79-67480-8, doi:10.2760/149272, JRC107574.

Scientific, Technical and Economic Committee for Fisheries (STECF) – Technical Measures – Improving selectivity to reduce the risk of choke species (STECF-18-02); (2018). Publications Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-79382-0, doi:10.2760/41580, JRC111821

Scientific, Technical and Economic Committee for Fisheries (STECF) – 57th Plenary Meeting Report (PLEN-18-01), Publications Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-85804-8, doi:10.2760/088784, JRC111800

Scientific, Technical and Economic Committee for Fisheries (STECF) – 59th Plenary Meeting Report (PLEN-18-03). Publications Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-98374-0, doi:10.2760/335280, JRC114701

Scientific, Technical and Economic Committee for Fisheries (STECF) – Evaluation of the landing obligation joint recommendations (STECF-18-06) (2018). Publications Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-79389-9, doi:10.2760/999971, JRC112740

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

Sola, I., & Maynou, F. (2018). Assessment of the relative catch performance of hake, red mullet and striped red mullet in a modified trawl extension with T90 netting. Scientia Marina, 82(S1), 19–26. https ://doi.org/10.3989/scimar.04711.04A

Tyndall, P., Oliver, M., Browne, D., McHugh, M., Minto, C., and Cosgrove, R. 2017. The SELTRA sorting box: A highly selective gear for fish in the Irish Nephrops fishery. Irish Sea Fisheries Board (BIM), Fisheries Conservation Report, February 2017. 12 pp.

Valentinsson, D., and Wernbo, A. (2018). Relativ selektivitet för tre alternativa bottentrållyft i Skagerrak och Kattegat. In book: Sekretariatet för selektivt fiske- rapportering av 2016 och 2017 års verksamhet, Chapter: 4, Publisher: Sveriges lantbruksuniversitet, Institutionen för akvatiska resurser, Editors: Hans Nilsson, pp.36-51.

11 ANNEXES

11.1 Annex I - Templates for the provision of fisheries information to support *de minimis* and high survivability exemptions

Table 12.1a Template for the provision of information that defines the fisheries to which *de minimis* exemptions should apply

Country	Exemption applied for (species, area, gear type)*	Species as bycatch or target	Number of Vessels subject to LO	Landings (by LO subject Vessels)	Estimated Discards*	Estimated Catch	Discard Rate**	Estimated *de minimis* volumes**

Table 12.1b Template for the provision of information that defines the fisheries to which high survivability exemptions should apply

Country	Exemption applied for (species, area, gear type)*	Species as bycatch or target	Number of vessels subject to the LO	Landings (by LO subject Vessels)	Estimated Discards*	Estimated Catch	Discard Rate	Estimated discard survival rate from provided studies

* The information given here should be disaggregated by exemption applied (e.g. in the case of Whiting in Area VII there should be a separate row for each of the three relevant exemptions).

** Note on discard rates and *de minimis* volumes – For those vessels subject to the LO an estimated discard rate should be applied to their landings of the relevant species in the relevant areas in the most recent year for which there is data available. The discard rate used should be as specific as possible (e.g. in the case of the whiting *de minimis* exemptions in the NWW, an average discard rate of TR1 and TR2 vessels should be avoided as discard rates, for Whiting for example, may be very different between TR1 and TR2 fleets). It may not be possible to calculate a discard rate for the specific vessels which are subject to the LO but a discard rate for the fleet overall should be available and could be used in that case.

11.2 Annex II – ICES template for critical review of survival experiments

The framework of the critical review used to evaluate literature on discard survival estimates based on ICES WKMEDS guidelines; Catchpole et al., unpubl. data. 'Y' = yes, 'N' = no, 'P' = partial; whereby more positive responses demonstrate more robust studies.

	Critical review questions
Key guidance questions	Are criteria given to define when death occurred?
	Was a control used that informed on experimental induced mortality?
	Was all discard induced mortality observed/modelled (during monitoring period or time at liberty)?
	Did the sample represent the part of the catch being studied?

	Did the sample represent the relevant population in the wider fishery?
Vitality assessments	Is the method of selection for assessed fish described?
	Is there a description for each health state category?
	Were reflexes developed using 'unstressed' fish (not exposed to capture treatment) and consistently observed?
	Were there time limits for responses/reflexes? e.g. operculum movement within 5 secs.
	Was assessment container appropriate for the species, adequate to observe responses?
	Is the potential for observer bias discussed?
	Are the protocols effective in assessing health/injury?
	Are assessments consistent across all parts of the study?
Captive Observation	Are the holding/transfer facilities described?
	Are holding/transfer facilities considered sympathetic to the biological/behavioural needs of the subjects?
	Are the holding/transfer conditions the same across treatments/replicates?
	Was there potential for additional stress/injury/mortality with captive fish unlikely?
	Are the holding/transfer conditions representative of "ambient" (discarded to) conditions?
	Are there appropriate protocols for handling/removal of dead specimens? (e.g. dead removed regularly)
	Are there appropriate protocols for monitoring live specimens?
	Is there sufficient frequency in observations during the monitoring period?
	Was there potential for stress/injury in subjects during observation unlikely?
	Was mortality observed to (or very near to) asymptote?
Tagging	Has the potential for tagging induced mortality been considered?
	Are fish released in the same area as they were caught?
	Are tag losses accounted for?
	Can discard-related mortality be distinguished from natural mortality, fishing mortality and emigration?
	Is the duration of the at-liberty tagged period sufficiently long to estimate discard survival?
	Traditional tags - Are catches in the fishery sufficiently large to provide the required tag return rate to estimate discard survival?
	Acoustic, DST tags - Can the death of an individual be accurately determined from the data?
	Acoustic tags - Does the acoustic receiver array provide full coverage of the area?
	Pop-off DST-tags - Is there a similar likelihood of tag recovery for both survivors and non-survivors?

Controls	Were controls representative of the treatment groups? i.e. biologically (length, sex, condition), number, spatial & temporal origin
	Did control subjects experience same experimental conditions?
	Were treatment and controls randomly selected to account for bias?
	Were "blind controls" used to account for performance/measurement bias?
	Is potential for effects when combining stressors from acquisition methods discussed?
Analysis	Is the analysis that derived the survival estimates described?
	Are the conclusions based on data summary or statistical inference?
	Are the conclusions supported by the data / analysis?

11.3 Annex III- Observations by Country on the Mediterranean Joint Recommendations

SUDESTMED

De minimis exemption for 5% in 2020 and 2021 of total annual catches of demersal finfishes under landing obligation for under MCRS specimens - Hake, Mullets and pelagic species excepted - caught by bottom trawls.

Background

An exemption was granted by Commission delegated Regulation (EU) 2017/86 for 6% in 2019 and 2020, 5% in 2021, of total annual catches of Hake and Mullets caught by bottom trawls;

The new exemption is for 5% in 2020 and 2021 of total annual catches of demersal finfishes under landing obligation for under MCRS specimens – hake, mullets and pelagic species excepted- caught by bottom trawls

Basis for exemption

The request is based on new submitted data (both biological and economic) supporting the request of this exemption is provided by SUDESTMED, by country (Cyprus, Greece, Malta and Italy) in several documents (annex A-D)

EWG 19-08 Observations by country

Cyprus:

Cyprus provides data on fleet and demersal species caught by trawl fisheries in GSAs 14, 15, 21, 24 and 25 but not in other areas that SUDESTMED wish to include (26 and 27)

Discard estimations: 3 demersal MCRS species are currently above the 5% threshold: Diplodus annularis (100%) followed by P. acarne and P. erythrinus (7%)

No data about the percentage of undersized fish (below MCRS) is provided

Disproportionate costs: Trawlers are expected to be negatively affected because of expected economic losses foreseen as crew costs and the incineration costs will increase (additional sorting and handling costs estimated at 0.50 €/kg or higher) and the transport is difficult due to the several landing ports in the island. and the incineration costs will increase Cost for incineration by the only regulated company in Cyprus for fish incineration is around 150€/t (0.15€/kg). However, the company may charge much more for small quantities.

Selectivity: if the use of a modified trawl extension with T90 netting is assumed (MINOW project), it is expected that the modified trawl nets will yield significant loss in earnings due to reduction in catches of some of the main commercially –exploited species of around 15%. Another important additional cost for the trawlers would be the cost of purchasing the new modified nets. According to the documents provided by SUDESTMED, and based on the results of the above selectivity

studies under MINOUW and DISCATCH projects, it is considered that improvements in selectivity are not possible for the Cyprus trawl fisheries in the Eastern Mediterranean.

Spatio temporal closures: in Cyprus, the use of MPAs and FRAs as management tools for fisheries is well established. Fisheries Regulation 21(1) (a) implements a closed trawling period from the 1st of June until the 7th of November, and an additional restriction from fishing with trawl nets is implemented in two areas on a rotational basis (Administrative Act 1/2012 - Order based on Article 5A of the Fisheries Law). Furthermore, five MPAs with artificial reefs have been established and two additional are foreseen. Spatial restrictions and closures of fishing activities are also currently in place in two of the six established Marine Protected Areas of the Natura 2000 network. The establishment of a further new MPA in the Akamas Peninsula N2000 is being considered. In general, the creation of MPAs and FRAs is considered by Cyprus as the most effective tool for protecting essential habitats and avoiding unwanted catches. Additional fisheries restriction measures within current MPAs or new MPAs may be adopted, based on future scientific advice.

Greece

Greece provides data on fleet and species caught with bottom trawl fisheries in GSAs 20, 22 and 23

Discard estimations: many MCRS species are above the 5% threshold in several (but not all) areas: *P. acarne, P. bogaraveo, P. erythrinus, P. pagrus. P. acarne and P. bogaraveo* show the highest values (between 20 and 40% discarded)

Provides data on length frequency of landed and discarded individuals of some demersal species in GSAs 20, 22 and 23, from which the percentage of undersized fish (below MCRS) has been estimated by EWG 19-08: for *M. merluccius, P. erythrinus and P. longirostris* the majority (>50%) of individuals discarded are below the MCRS. For *M. barbatus, M. surmuletus and N. norvegicus*, the majority (>50%) of individuals discarded are above the MCRS.

Disproportionate costs: Difficult to transfer unwanted catches from border and several island regions (landing sites estimated to be over 1000), lack of adequate transport means, the ensuring of which will result in a disproportionate cost, compared to the benefit. Results of Discardless project, testing different processing opportunities, estimated raw material cost as 40% of the total revenue of silage, fish oil and fishmeal or 0,14 €/kg raw material sold to fishmeal and 0,09 €/kg if sold to silage. Sensitivity analysis showed that this price would need to be reduced to 0,10-0,12 €/kg raw material sold to fishmeal and 0,03 -0,04 €/kg for the overall operation to start running on a minimum profit. The net profit in all studied cases is negative. So far, the private sector is unwilling to invest and the cost estimations of this study, further support this unwillingness (Discardless project).

Selectivity: the Epilexis project, according to SUDESTMED, provides information about the modelling of the selectivity parameters to reach the minimum allowable landing length, but the EWG 19-08 was not provided with this report.

Spatio-temporal closures: In Greece, several measures to protect and improve the condition of fishery resources through MPAs and FRAs are showcased. There are 521 established FRAs in the Aegean Sea and Crete. Overall, 85.2% of the FRAs are located in the Aegean Sea and 14.8% in Crete. In most of the FRAs (88.5%), towed or mobile gears are restricted, while static gears are restricted in 10.2% of the FRAs and recreational fishing activity is only restricted in 1.3% of the FRAs. Most of the FRAs (85.4%) impose permanent closures. The new list of NATURA 2000 areas, established in 2017 (Ministerial Decision no 50743/11-12-2017 for the review of National list with Natura 2000 sites, GG B' 4432), includes many new maritime areas. Management measures, that may affect fisheries, will be adopted for these areas. In total, the maritime areas of the NATURA 2000 network in Greece, already cover 22.585,18 square km. Measures of one type or another are therefore permanently or temporarily implemented for a large proportion of Greek coastal waters.

Malta

Malta provides data on fleet and species caught with bottom trawl fisheries in GSA 15

Discard estimations: three species with MCRS species are above the 5% threshold: *M. merluccius, P. acarne and P. erythrinus* (all <10%)

No data about the percentage of undersized fish (below MCRS) is provided

Disproportionate costs: raw data is provided but without the economic analysis.

Selectivity: a new study has yielded satisfactory result, according to SUDESTMED, but the EWG 19-08 lacks the full report. SUDESTMED highlights that is important to note that further studies are required to prove the effectiveness of this gear within different environments.

Spatio-temporal measures: In Malta, trawlers may only operate within the 25nM FMZ, if they are below 24m LOA, with an engine capacity not exceeding 185kw, and fish within established trawling zones. Additionally, a further 3 Fisheries Restricted Areas have been established in the Strait of Sicily, as a measure to reduce fishing mortality of juveniles.

Italy

Italy provides data on fleet and demersal species caught by trawl fisheries in GSAs 16 and 19

Discard estimations: 2 demersal MCRS species are currently above the 5% threshold: P*. acarne and P. erythrinus* (>20%)

No data about the percentage of undersized fish (below MCRS) is provided

Disproportionate costs: Average load increase would be needed work of at least 2 hours per day additional sorting operations and storage of waste. The increase in work activity translates into an equivalent increase in labour costs. Moreover, additional costs in MINOUW project have been estimated at 300 €/day and 40000-50000 €/year and all the interviews carried out highlighted the that there are no areas equipped for landing the discards, except for the dredgers. According to Sartor et al. 2016 the lack of an appropriate governance process to handle the unwanted catches once landed would result in the classification of the former discards as special waste. Based on the tariffs applied to aquaculture companies and those of the companies that dispose of slaughter houses waste, the costs for disposal of catches as a waste are expected to range from 0.45 €/kg up to 0.65 €/kg. Costs to be added to fixed costs for the maintenance of the waste loading/unloading registers, the cost for the annual waste declaration as well as the cost of obligatory and periodic analysis of waste for their correct classification according to the national legislation.

Selectivity: Accadia et al. (2018) estimates reductions in profits by 60-70% in the short-term of changing the primary fishing gear from trawl to trammel net the demersal fleets operating in the Ligurian and North Tyrrhenian seas (GSA 9) and in the Strait of Sicily (GSA 16). According to this study, even though benefits on the stocks and consequently on vessels profitability would be expected in the long-term from improvements in selectivity, the short-term costs associated to these measures make them hardly acceptable by fishermen. The use of 90° turned diamond mesh netting for trawl codends (T90) is considered as an alternative design for avoiding mesh distortion, which could potentially satisfy both the fishermen and fisheries management (DISCATCH project). However, Sola and Maynou (2018) using a comparable approach found that T90 experimental net significantly reduces the catches of small-size hake and red mullet reducing unwanted catches of regulated species under the landings obligation. However, considering all commercial species, the experimental net produced losses of commercial catch and income estimated at 17% and 18%, respectively, which may pose a barrier to the adoption of this solution.

Spatio-temporal measures: in Italy, to mitigate the impact on the "young of the year" (YoY) avoiding unwanted catches, the National Management Plans have introduced the possibility of implementing the closure of nursery areas to trawlers and passive gears. These areas of protection should therefore be added to the already established FRA (Pomo pit), "Zone di Tutela Biologica (ZTB)", the SIC and ZPS areas. ZTBs are already included in the measures foreseen by the National Management Plans and in the ZTB, trawl fishery is forbidden. Furthermore, in nursery areas of GSA18, *Merluccius merluccius, Mullus barbatus, and Parapenaeus longirostris* are protected from the fishery.

De minimis exemption for 3% in 2020 and 2021, of total annual catches of demersal finfishes under landing obligation for under MCRS specimens - Hake, and Mullets excepted - caught by trammel and gill nets.

Background

An exemption was granted by Commission delegated Regulation (EU) 2017/86 for 1% in 2019, 2020, and 2021 of total annual catches of Hake and Mullets caught by trammel and gill nets;

The new exemption is for 3% in 2020 and 2021, of total annual catches of demersal finfishes under landing obligation for under MCRS specimens - Hake, and Mullets excepted - caught by trammel and gill nets.

Basis for exemption

The request is based on new submitted data (both biological and economic) supporting the request of this exemption is provided by SUDESTMED, by country (Cyprus, Greece, Malta and Italy) in several documents (annex A-D)

EWG 19-08 observations by country

Cyprus

Cyprus provides data on fleet and species caught by trammel net and gillnet fisheries in GSA 25 only

Discard estimations: all MCRS species are below the 3% threshold

No data about the percentage of undersized fish (below MCRS) is provided

Selectivity: if the use of a modified gillnet is assumed (MINOW project), it is expected that the modified nets will yield significant loss in earnings due to reduction in catches of some of the main commercially –exploited species of around 15%. If the additional cost of buying this net is also included in the fishing costs of the vessels, the economic viability of the fleet could be at risk

Disproportionate costs: small-scale vessels are expected to be negatively affected because of expected economic losses foreseen particularly as incineration costs will increase. The transport is difficult due to the several landing ports in the island. Cost for incineration by the only regulated company in Cyprus for fish incineration is around 150€/t (0.15€/kg). However, the company may charge much more for small quantities.

Greece

Greece provides data on fleet and species caught with trammel net and gillnet in GSAs 20, 22 and 23

Discard estimations: many MCRS species are above the 3% threshold in several (but not all) areas: *D. sargus, D. vulgaris, D. Labrax, D. Annularis, L mormyrus, P. acarne, P. bogaraveo, P. erythrinus, P. pagrus, S. Colias, S. aurata*. The highest discard values are for *D. sargus and D. vulgaris* (30-40%)

No data about the percentage of undersized fish (below MCRS) is provided

Disproportionate costs: Difficult to transfer unwanted catches from border and several island regions (landing sites estimated to be over 1000), lack of adequate transport means, the ensuring of which will result in a disproportionate cost, compared to the benefit (Discardless project) considering also the low quantities of discards.

Malta

Malta provides data on fleet and species caught with trammel and gillnet in GSA 15

Discard estimations: three species with MCRS species are above the 5% threshold: *Mullus spp, D. annularis, D. vulgaris and P. acarne. D. annularis and P. acarne* show values >70%

No data about the percentage of undersized fish (below MCRS) is provided

Disproportionate costs: raw data is provided but without the economic analysis.

Italy

Italy provides data on fleet and species caught by trammel and gillnet in GSAs 16 and 19

No discard estimations are provided

No data about the percentage of undersized fish (below MCRS) is provided

Spatio-temporal closures: 29 MPAs have been established around the Italian coasts, contemplating no take areas, surrounded by "buffer" areas where prohibitions concern mainly industrial and recreational fishing. Italy considers that a network of MPAs around the coastal areas can play a key role in the protection of juveniles of several species in the Annex III of the EU Reg. 1967/2006 especially for those with a more coastal distribution (e.g. *Diplodus spp., Pagrus pagrus*), and already, only 2% of the total MPAs area is available for small scale vessels (< 12mt LoA not using trawl nets) or pesca-tourism vessels, holding a specific fishing authorization for the concerned MPA.

Disproportionate costs: Results of MINOUW project estimated additional costs for SSF reaching 200 €/day. According to Sartor et al. (2016) the lack of an appropriate governance process to handle the unwanted catches once landed would result in the classification of the former discards as special waste. Based on the tariffs applied to aquaculture companies and those of the companies that dispose of slaughter houses waste, the costs for disposal of catches as a waste are expected to range from 0.45 €/kg up to 0.65 €/kg. Costs to be added to fixed costs for the maintenance of the waste loading/unloading registers, the cost for the annual waste declaration as well as the cost of obligatory and periodic analysis of waste for their correct classification according to the national legislation.

Selectivity: According to Sbrana et al. (1999; 2004) and Fabi et al. (2002) gillnets and trammel nets tend to be selective it would seem sensible to base this exemption by demonstrating that increasing selectivity further would lead to significant economic losses of marketable catches for only a marginal reduction in unwanted catches of the listed species.

De minimis exemption for 1% in 2020 and 2021 of total annual catches of demersal finfishes under landing obligation for under MCRS specimens – red sea bream excepted- caught by hooks and lines

Background

No exemptions were granted by Commission delegated Regulation (EU) 2017/86 in 2019, 2020, and 2021 of demersal species caught by hooks and line Additional data (both biological and economic) supporting the request of this exemption is provided by SUDESTMED, by country (Cyprus, Greece, Malta and Italy) in several documents (annex A-D)

The new exemption is for 1% in 2020 and 2021, of total annual catches of demersal under landing obligation for under MCRS specimens – red sea bream excepted- caught by hooks and lines

Basis for exemption

The request is based on new submitted data (both biological and economic) supporting the request of this exemption is provided by SUDESTMED, by country (Cyprus, Greece, Malta and Italy) in several documents (annex A-D)

EWG 19-08 observations by country

Cyprus

Cyprus provides data on fleet and species caught with hook and line fisheries in GSA 25 only

Discard estimations: all MCRS species are below the 1% threshold

No data about the percentage of undersized fish (below MCRS) is provided

Disproportionate costs: small-scale vessels are expected to be negatively affected because of expected economic losses foreseen as crew costs and the incineration costs will increase. The transport is difficult due to the several landing ports in the island. Cost for incineration by the only regulated company in Cyprus for fish incineration is around 150€/t (0.15€/kg). However, the company may charge much more for small quantities.

Greece

Greece provides data on fleet and species caught with hook and line fisheries in GSAs 20, 22 and 23

Discard estimations: many MCRS species are above the 1% threshold in several (but not all) areas: *D. annularis, D. sargus, D. vulgaris, L. mormyrus, P. acarne, P. erythrinus*. None of these species surpass the 10% value

No data about the percentage of undersized fish (below MCRS) is provided

Disproportionate costs: Difficult to transfer unwanted catches from border and several island regions (landing sites estimated to be over 1000), lack of adequate transport means, the ensuring of which will result in a disproportionate cost, compared to the benefit (Discardless project) considering also the low quantities of discards.

Malta

No biological data on discards and fleet provided.

Economic data provided but without any analysis.

Italy

Italy provides data on fleet and species caught by hooks and lines in GSAs 16 and 19

No discard estimations are provided

No data about the percentage of undersized fish (below MCRS) is provided

Spatio-temporal closures: 29 MPAs have been established around the Italian coasts, contemplating no take areas, surrounded by "buffer" areas where prohibitions concern mainly industrial and recreational fishing. Italy considers that a network of MPAs around the coastal areas can play a key role in the protection of juveniles of several species in the Annex III of the EU Reg. 1967/2006 especially for those with a more coastal distribution (e.g. *Diplodus spp., Pagrus pagrus*), and already, only 2% of the total MPAs area is available for small scale vessels (< 12mt LoA not using trawl nets) or pesca-tourism vessels, holding a specific fishing authorization for the concerned MPA.

Disproportionate costs: Results of MINOUW project estimated additional costs for SSF reaching 200 €/day. According to Sartor et al. 2016 the lack of an appropriate governance process to handle the unwanted catches once landed would result in the classification of the former discards as special waste. Based on the tariffs applied to aquaculture companies and those of the companies that dispose of slaughter houses waste, the costs for disposal of catches as a waste are expected to range from 0.45 €/kg up to 0.65 €/kg. Costs to be added to fixed costs for the maintenance of the waste loading/unloading registers, the cost for the annual waste declaration as well as the cost of obligatory and periodic analysis of waste for their correct classification according to the national legislation.

De minimis exemption for 5% in 2020 and 2021 of total annual by-catches of pelagic species (Anchovy, Sardine, Mackerel, Horse mackerel) caught by bottom trawls under landing obligation.

Background

No exemptions were granted by Commission delegated Regulation (EU) 2017/86 in 2019, 2020, and 2021 of pelagic species caught trawls. Additional data (both biological and economic) supporting the request of this exemption is provided by SUDESTMED, by country (Cyprus, Greece, Malta and Italy) in several documents (annex A-D)

The new exemption is for % in 2020 and 2021 of total annual by-catches of pelagic species (Anchovy, Sardine, Mackerel, Horse mackerel) caught by bottom trawls under landing obligation.

Basis for exemption

The request is based on new submitted data (both biological and economic) supporting the request of this exemption is provided by SUDESTMED, by country (Cyprus, Greece, Malta and Italy) in several documents (annex A-D)

EWG 19-08 observations by country

Cyprus

Cyprus provides data on fleet and pelagic species caught by trawl fisheries in GSAs 14, 15, 21, 24 and 25 but not in other areas that SUDEMED wish to include (26 and 27)

In GSA24 no discards data is collected under DCF and current assumption of same discards rate with GSA25.

Discard estimations: all MCRS species are below the 5% threshold

No data about the percentage of undersized fish (below MCRS) is provided

Disproportionate costs, selectivity and spatio-temporal closures: same comments as those provided in the first request exemption

Greece

Greece provides data on fleet and species caught with trawl fisheries in GSAs 20, 22 and 23

Discard estimations: some MCRS species are above the 5% threshold in several (but not all) areas: *E. encrasicolus, S. pilchardus, T. mediterraneus, T. trachurus, S. colias.* In the case of *T. mediterraneus and T. trachurus*, between ca 20 and 30% is discarded.

Provides data on length frequency of landed and discarded individuals of some pelagic species in GSAs 20, 22 and 23, from which the percentage of undersized fish (below MCRS) has been estimated by EWG 19-08: for *E. encrasicolus and S. pilchardus*, about 50% of the discarded individuals are below the MCRS.

Disproportionate costs, selectivity and spatio-temporal closures: same comments as those provided in the first request exemption

Malta

Disproportionate costs, selectivity and spatio-temporal closures: same comments as those provided in the first request exemption

Italy

Italy provides data on fleet and pelagic species caught by trawl fisheries in GSAs 16 and 19

Discard estimations: 1 pelagic MCRS species is currently above the 5% threshold: *Trachurus sp* (>50%)

No data about the percentage of undersized fish (below MCRS) is provided

Disproportionate costs, selectivity and spatio-temporal closures: same comments as those provided in the first request exemption

PESCAMED

De minimis exemption for 5% in 2020 and 2021 of total annual catches of demersal finfishes under landing obligation for under MCRS specimens - Hake, Mullets and pelagic species excepted - caught by bottom trawls. Member States commit to promote increase selectivity by using the directly implementable results of Minouw research programme or other studies.

Background

An exemption was granted by Commission delegated Regulation (EU) 2018/2036, amending Commission Delegated Regulation 2017/86 for 2019;

The new request of exemption is for 5% in 2020 and 2021 of total annual catches of demersal finfishes under landing obligation for under MCRS specimens – hake, mullets and pelagic species excepted- caught by bottom trawls.

The Member States recommend that *de minimis* exemptions should apply in the following cases in relation with disproportionate costs for small-scale multi-specific fisheries in the context of a LO applied to all species listed in Annex III of Regulation (EC) N° 1967/2006, hazards linked to the

full load of holds of limited capacity, and in the absence of infrastructure to handle unwanted catches once landed.

Basis for exemption

The current updated version suggests the extension of *de minimis* exemptions that were granted for 2019, based on additional data provided in Annexes A, C, C1 and C1bis as well as in the selectivity studies that some Member States have performed or are still performing (cf. Annexes B, B1, B2, B3 and B4). In this respect the exemptions are needed as a stop-gap while the studies are ongoing. Here below, the EWG reviews the information provided by country.

EWG 19-08 Observations by country

France

FR_TRAWL: The fleet is described in number, description of the gear, fishing period, fishing area. Requets for exemption for disproportionate cost: Based on specific studies FR indicates that costs for handling, storing and transporting unwanted catches ashore are significant; in addition, small catches and multiple ports. Annex_E_2

Estimated Discards, Estimated Catch, Discard Rate presented according to a specific study carried out in 2017. However not for all species with MCRS data are presented. For some species (Anchovy, sardine, etc) the percentage of discards is higher than the request percentage. Annex_E_1

Selectivity study: The main project to be mentioned is GALION (2015-2018; http://www.amop.fr/le-projet-galion/). This study aimed to analyse the economic impacts of selectivity devices for bottom trawl fisheries. One of the main conclusion is that the implementation of a selective grid, or a change in the mesh size or shape, would generate commercial losses between 5% and 26%, depending on the species considered. Data Annex_B_3

Italy

Number of vessels by GSA and by gear was presented in a single file together with Estimated Discards, Estimated Catch, Discard Rate (Annex C) and estimates *de minimis* volumes of discards.

It is important to highlight the fact that in some case the discards related to a single species present value very high; however, the incidence of the species on total landing and discards can be very low.

In some case there are no data because the metier was not selected for discard sampling (Italian Work Plan for data collection in the fisheries and aquaculture sectors 2014-2016) or because species is not present in the biological samples for the metier. This is an important issue: the lack of quantitative data does not allow to carry out the full assessment.

Potential effects on vessel operations if unwanted catches cannot be avoided during sorting and handling on board: The time spent to sort and store the product of each haul in fisheries may increase because of the new regulation (2 hours per day more, see Sartor et al., 2016); and correspondingly the cost, 200-300 € per day: Deliverable 2.19 of the MINOUW project.

Disproportionate costs relating to high costs of transport and handling ashore: regular quantities guaranteed, uniform product characteristics, prices, transport, etc., the management costs personnel, energy, etc., are all factors which would entail significant investments and operating costs, which are not compatible with the volume of business. Maynou et al. (2018, http://minouw-project.eu – Deliverable 2.19).

Regarding the Italian fisheries, an assessment of possible market was carried out, also in the study performed by Sartor et al. (2016). The project concluded that, at present, the lack of an appropriate governance process to handle the unwanted catches once landed would result in the classification of the former discards as special waste, the costs for disposal of catches as a waste are expected to range from 0.45 €/kg up to 0.65 €/kg (Sartor et al., 2016).

Based on these tariffs, Maynou et al. (2018) estimated the potential cost for an "average" trawl vessel (producing around 40 kg/day of discard of species in the Annex III of the EU Reg. 1967/2006 and working around 140 days/year) in around 3000 euro per year.

Use of more size selective fishing gears: Accadia et al. (2018) reports a simulation on the short-term economic impact of changing the primary fishing gear from trawl to trammel net. Outcomes showed that the fishing gear change would produce a relative loss of 65% gross profits in GSA 9 and 60% in GSA 16.

(T90), tested by FISHSELECT: Sola and Maynou (2018) using a comparable approach found that T90 experimental net significantly reduces the catches of small-size hake and red mullet, however, considering all commercial species, the experimental net produced losses of commercial catch and income estimated at 17% and 18%,

Spatial closure: Italy already established ZTB, zona di tutela biologica, together to the limit of 50 m depth or 3 naurical miles. Furtehrmore National Management Plans (Prot. 26510 of 28.12.2018) introduced the possibility of implementing the closure of nursery areas to trawlers and passive gears (as reported in Giannoulaki et al., 2013).

Spain

No description of the fleet. Requests for exemption for disproportionate cost: Presence of several small ports with very low sales (low-scale economy) with a proximity economy, small fleet size: the majority of vessel have LOA between 12-20 m, neither, ports and vessels have enough capacity to storage the unwanted catches, fish flour mills are far from the ports. Annex_E_2

Estimated Discards, Estimated Catch, Discard Rate presented by OTB metiers (OTB_DEM, OTB_DW, OTB_MDD, and OTB average (Source: Observers data from Instituto Español de Oceanografía) Annex_F. The data showed an high discards rates for species from the genera *Pagellus* with an average of 30% of catches followed by the species Pagrus pagrus with 12% and Trachurus sp (OTB_DEM); in the case of OTB_DW the mainly species discarded under the minimum conservation reference is *Pagellus bogaraveo* with an average of 12.4% of catches; for MDD the mainly species discarded under the minimum conservation reference size are *Trachurus trachurus* with 6.7% and *Trachurus mediterraneus* with 4.7%.

Selectivity study Annex_B: two selectivity studies: DESAL0319 (No supporting document), DESCARTES0ALBORÁN (Annex_B1 only description of methodology. T90 vs 40s, 50D). According the Spanish authority selectivity can be improved; however, there is need for a temporary solution while the researches are running.

De minimis exemption for 3% in 2020 and 2021, of total annual catches of demersal finfishes under landing obligation for under MCRS specimens - Hake, and Mullets excepted - caught by trammel and gill nets. Member States commit to promote increase selectivity by using the directly implementable results of Minouw research programme or other studies.

Background

An exemption was granted by Commission delegated Regulation (EU) 2017/86 for 3% in 2019, of total annual catches of the above species made by vessels using gillnets and trammel nets;

The new request regards the extension of *de minimis* exemptions that were granted for 2019 is the exemption for 3% in 2020 and 2021, of total annual catches of the above indicate species caught by trammel and gill nets.

Basis for exemption

The current updated version suggests the extension of *de minimis* exemptions that were granted for 2019, based on additional data provided in Annexes A, C, C1 and C1bis as well as in the selectivity studies that some Member States have performed or are still performing (cf. Annexes B, B1, B2, B3 and B4). In this respect the exemptions are needed as a stop-gap while the studies are ongoing.

EWG 19-08 Observations by country

France

The fleet is described in number, description of the gear, fishing period, fishing area. Requests for exemption for disproportionate cost: Based on specific studies FR indicates that costs for handling, storing and transporting unwanted catches ashore are significant – small catches and multiple ports. Annex_E_2

Estimated Discards, Estimated Catch, Discard Rate not presented.

No selectivity studies.

Italy

Number of vessels by GSA and by gear was presented in a single file together with Estimated Catch. However, Estimated Discards, Discard Rate (Annex_C) and estimates *de minimis* volumes of discards were not presented because the metier was not selected for discard sampling (Italian Work Plan for data collection in the fisheries and aquaculture sectors 2014-2016) or because species is not present in the biological samples for the metier.

Gear considered already very selective and selectivity cannot be improved (Sbrana et al., 1999; 2004; Fabi et al., 2002). Furthermore, National Management Plans (Prot. 26510 of 28.12.2018) have introduced the possibility of implementing the closure of nursery areas to trawlers and passive gears (the relevant nursery are reported in Giannoulaki et al., 2013 and subsequently summarised by GFCM, 2019).

As for the disproportionate cost, the same arguments used for the trawl fleet are used.

Spain

No description of the fleet. Only Estimated Catch presented. Data on discards not presented because discard under one tonne were not considered. Annex_F

No selectivity studies are presented.

De minimis exemption for 1% in 2020 and 2021 of total annual catches of demersal finfishes under landing obligation for under MCRS specimens – red sea bream excepted- caught by hooks and lines. Member States commit to promote increase selectivity by using the directly implementable results of Minouw research programme or other studies.

Background

An exemption was granted by Commission delegated Regulation (EU) 2017/86 for 1% in 2019, of total annual catches of the above species made by vessels using hooks and lines;

The new request regards the extension of *de minimis* exemptions that were granted for 2019is the exemption for 1% in 2020 and 2021, of total annual catches of the above indicate species caught by vessels using hooks and lines.

Basis for exemption

The current updated version suggests the extension of *de minimis* exemptions that were granted for 2019, based on additional data provided in Annexes A, C, C1 and C1bis as well as in the selectivity studies that some Member States have performed or are still performing (cf. Annexes B, B1, B2, B3 and B4). In this respect the exemptions are needed as a stop-gap while the studies are ongoing.

EWG 19-08 Observations by country

France

The fleet is described in number, description of the gear, fishing period, fishing area. Requests for exemption for disproportionate cost: Based on specific studies FR indicates that costs for handling, storing and transporting unwanted catches ashore are significant – small catches and multiple ports. Annex_E_2

Estimated Discards, Estimated Catch, Discard Rate not presented.

No selectivity studies.

Italy

Number of vessels by GSA and by gear was presented in a single file together with Estimated Catch. However, Estimated Discards, Discard Rate (Annex_C) and estimates *de minimis* volumes of discards were not presented because the metier was not selected for discard sampling (Italian Work Plan for data collection in the fisheries and aquaculture sectors 2014-2016) or because species is not present in the biological samples for the metier.

Gear considered already very selective and selectivity cannot be improved (Sbrana et al., 1999; 2004; Fabi et al., 2002). Furthermore, National Management Plans (Prot. 26510 of 28.12.2018) have introduced the possibility of implementing the closure of nursery areas to trawlers and passive gears (the relevant nursery is reported in Giannoulaki et al., 2013 and subsequently summarised by GFCM, 2019).

As for the disproportionate cost, the same arguments used for the trawl fleet are used.

Spain

No description of the fleet.

Only Estimated Catch presented. Data on discards not presented because discard under one tonne haven't been considered, Annex_F.

There is no rate for under MCRS discards due to the low quantities of discard in this gear.

Request: to limit the risk of discarding only one species and because discard rate can be significantly different from a species to another it is proposed to put in place safeguards: different percentage of discards according to the species (see page 11 of Annex_F)

Selectivity study (Annex_B_4): Species and size selectivity of the deep water longline traditionally used in commercial fishing of the black spot seabream (*Pagellus bogaraveo*) were studied in the Strait of Gibraltar with four sizes of hooks. The results of this study show that the fishing gear can be size selective depending on hook size

De minimis exemption for 5% in 2020 and 2021 of total annual by-catches of pelagic species (Anchovy, Sardine, Mackerel, Horse mackerel) caught by bottom trawls under landing obligation.

Background

An exemption was granted by Commission delegated Regulation (EU) 2017/86 for 5% in 2019, of total annual catches of the above species by vessels using bottom trawls;

The new request regards the extension of *de minimis* exemptions that were granted for 2019 is the exemption for 5% in 2020 and 2021, of total annual catches of the above indicate species caught by vessels using bottom trawl.

Basis for exemption

The current updated version suggests the extension of *de minimis* exemptions that were granted for 2019, based on additional data provided in Annexes A, C, C1 and C1bis as well as in the selectivity studies that some Member States have performed or are still performing (cf. Annexes B, B1, B2, B3 and B4). In this respect the exemptions are needed as a stop-gap while the studies are ongoing.

EWG 19-08 Observations by country

France

The basis should be the same as the trawl request for the other species

Italy

For the *de minimis* exemption for bycatches of pelagic species (Anchovy, Sardine, Mackerel, Horse mackerel) under landing obligation using bottom trawls the catch data and the related discard proportions presented are high, far exceeding the *de minimis* requested. According to the Italian authority, this high value of discards is because, discards are independent from the size and can affects undersized and large specimens.

The bases of request for disproportionate costs is based on the same arguments as above.

Spain

Estimated Discards, Estimated Catch, Discard Rate presented by OTB metiers (OTB_DEM, OTB_DW, OTB_MDD, and OTB average (Source: Observers data from Instituto Español de Oceanografía) Annex_F. Only *Trachurus sp.* present a relevant percentage of discards (6.4 %). For the other pelagic species, the discards are negligible.

ADRIATICA

For the ADRIATICA region the justification and information provided covers all four *de minimis* exemptions.

Background

An exemption was granted by Commission delegated Regulation (EU) 2018/2036, amending Commission Delegated Regulation 2017/86 for 2019

Basis for the extension of exemptions

The current updated version suggests the extension of *de minimis* exemptions that were granted for 2019. Supporting data for Adriatica area are provided in Annexes B, B1, B2 and B3. Member States would also like to emphasise that, due to the large number of landing places and coasts configuration, LO would lead to disproportionate costs for collecting the landed discards and related transport.

Croatia

Description of the fleet: Number of vessels by gear was presented in a single file together with Estimated Catch. No data on discards.

Aneex_b2HRV: supporting documents to obtain derogation for disproportionate costs: multiple landings ports; no market for discards, only one facility licenced for collection and harmless destruction of biological waste. In annex_B3HRV there is a simulation of a theoretical value of weekly quantities of unwanted catches per landing place (theoretical value, 3% and 5% of the overall landing). The table highlight the low value of discards in comparison with the cost.

Italy

Description of the fleet: Number of vessels by GSA and by gear was presented in a single file together with Estimated Discards, Estimated Catch, Discard Rate (Annex C) and estimates *de minimis* volumes.

It is important to highlight the fact that in some case the discards related to a single species present value very high; however, the incidence of the species on total landing and discards is very low.

In some case there are no data because the metier was not selected for discard sampling (Italian Work Plan for data collection in the fisheries and aquaculture sectors 2014-2016) or because species is not present in the biological samples for the metier.

No other supporting document

Slovenia

Description of the fleet: Number of vessels by gear was presented in a single file together with Estimated Catch by gear. No data on discards.

No other supporting document

Request of *de minimis* exemption based on disproportionate handling costs with compared to the fact that the amounts of discards are very low.

According to Slovenian authority the construction of storage and cooling facilities will cost hundred thousand EUR for port modernisation. This would represent considerable investments also considering that currently, in Slovenian fishing ports, there are no separate storage nor any cooling facilities, as these are only small local fishing ports. Such investments, to handle a few kilograms of discards, would be very difficult to justify from the taxpayers' perspective.

11.4 Annex IV – Summary tables of information provided for disproportionate costs by region

SUDESTMED

Country	Cyprus
costs for sorting, handling and storing unwanted catches on board	Sartor et al. 2016 Trawlers - Additional sorting and handling costs estimated at 0.50 €/kg or higher.
no way of handling the catches ashore due to large number of landing points and small catches	Annex D Lack of processing facilities, many landing places: high transportation costs and very small quantities of discards especially in the case of SSF resulting in low volume of business: high investment and operating costs are required for such a business
no way of handling the catches ashore due to logistic problems and/or additional costs	Annex D Cost for incineration by the only regulated company in Cyprus for fish incineration is around 150€/t (0.15€/kg). However, the company may charge much more for small quantities.
Economic impact of selectivity improvement	Annex D Sola I. and Maynou F. (2018). Based on this study the more selective nets produced a 17% decrease in the marketed catch and an 18% reduction in the commercial value. Annex D for Cyprus case it is estimated the reduction in total value of landings to be around 15%. Another important additional cost for the trawl companies would be the cost of purchasing the new modified nets. The cost of the guarding trammel net is estimated around 105 euros per net (45m) while that of the standard net at almost half price at 58 euros per net according to Szynaka et al (2018). If the additional cost of buying this net is also included in the fishing costs of the vessels the economic viability of the fleet is at risk. Deliverable 2.18 of MINOUW Project (Accadia et al. 2018), the use of more selective gears could bring reductions in profits by 60-70% at least in the short run and it cannot be acceptable by fishermen since they will not be economically viable.

Country	Greece
costs for sorting, handling and storing unwanted catches on board	
no way of handling the catches ashore due to large number of landing points and small catches	Annex D Difficult to transfer unwanted catches from border and island regions [Transportation cost in Greece (90 Euros/t MEDAC data)], lack of adequate transport means. Given the very small quantities of unwanted catches, whenever landed and the obligation to transfer the animal by - products with special vehicles (according to the existing law), we should construct special facilities and maintenance infrastructures at all landing points (over 1.000 landing points)

no way of handling the catches ashore due to logistic problems and/or additional costs	Annex D Discardless Results (Triantaphyllidis et al.) Raw material cost was calculated as 40% of the total revenue of silage, fish oil and fishmeal or 0,14 EUR/kg raw material sold to fishmeal and 0,09 EUR/kg if sold to silage. Sensitivity analysis showed that this price would need to be reduced to 0,10-0,12 EUR/kg raw material sold to fishmeal and 0,03 -0,04 EUR/kg for the overall operation to start running on a minimum profit. The net profit in all studied cases is negative. So far, the private sector is unwilling to invest and the cost estimations of this study, further support this unwillingness
Economic impact of selectivity improvement	

Country	Malta
costs for sorting, handling and storing unwanted catches on board	na
no way of handling the catches ashore due to large number of landing points and small catches	na
no way of handling the catches ashore due to logistic problems and/or additional costs	na
Economic impact of selectivity improvement	na

Country	Italy
costs for sorting, handling and storing unwanted catches on board	Annex C_ITA_LO Sartor et al 2016: Average load increase would be needed work of at least 2 hours per day additional sorting operations and storage of waste. The total hours of work of a medium-trawler boat, understood as working time on board and on land for activities strictly related to fishing operations, would not increase; however, the actual workload per embarked would certainly be greater, reducing, for example, the rest time on board. The increase in work activity translates into an equivalent increase in labour costs. Deliverable 2.19 MINOUW project OTB + 300 euro/day = 40-50000 euro/year. SSF +200 euro/day = + 5 working hours/day.
no way of handling the catches ashore due to large number of landing points and small catches	Minow D2.19 table 7.27 pg 58 All the respondents of the survey based on direct interviews declared that there are no areas equipped for landing the discards, with the exception of the dredgers.

no way of handling the catches ashore due to logistic problems and/or additional costs	Minow D2.19 pg 63. Only one company collected the discards in Chioggia, at a rate of 130 Euro/t, and this company was the same for the different companies as it is a generalist company that processed all kinds of organic waste items. Following this, respondents reported that the main problem related to discards was the cost of disposal and this was up to 80 000 Euro annually for the largest company that was interviewed. Sartor et al. 2016 the lack of an appropriate governance process to handle the unwanted catches once landed would result in the classification of the former discards as special waste. Based on the tariffs applied to aquaculture companies and those of the companies that dispose of slaughter houses waste, the costs for disposal of catches as a waste are expected to range from 0.45 €/kg up to 0.65 €/kg. Costs to be added to fixed costs for the maintenance of the waste loading/unloading registers, the cost for the annual waste declaration as well as the cost of obligatory and periodic analysis of waste for their correct classification according to the national legislation. Maynou et al. (2018) potential cost for an "average" trawl vessel (producing around 40 kg/day of discard of species in the Annex III of the EU Reg. 1967/2006 and working around 140 days/year) in around 3000 euro per year. This amount is about 7.5% of the gross profit of the "average" vessel. Moreover, there are no rules and procedures to manage the UWC on shore. Operators(fishermen) are responsible to track the landed product but correct control procedures on shore are still not available.
Economic impact of selectivity improvement	Accadia et al 2018 Outcomes showed that the fishing gear change would produce a relative loss of 65% gross profits in GSA 9 and 60% in GSA 16. Loss in gross profit would be greater for larger and more modern vessels, reaching 80% in GSA 9 and 70% in GSA 16. Even though benefits on the stocks and consequently on vessels profitability would be expected in the long-term from improvements in selectivity, the short-term costs associated to these measures make them hardly acceptable by fishermen. Reductions in profits by 60-70% are clearly economically not sustainable. Annex C DISCATCH. The use of 90° turned diamond mesh netting for trawl codends (T90) is considered as an alternative design for avoiding mesh distortion, which could potentially satisfy both the fishermen and fisheries management. However, Sola and Maynou (2018) using a comparable approach found that T90 experimental net significantly reduces the catches of small-size hake and red mullet reducing unwanted catches of regulated species under the landings obligation. However, considering all commercial species, the experimental net produced losses of commercial catch and income estimated at 17% and 18%, respectively, which may pose a barrier to the adoption of this relatively simple, inexpensive solution. Sbrana et al., 1999; 2004: Fabi et al., 2002 gillnets & trammel nets tend to be selective it would seem sensible to base this exemption by demonstrating that increasing selectivity further would lead to significant economic losses of marketable catches for only a marginal reduction in unwanted catches of the listed species.

ADRIATICA

Country	Slovenia

costs for sorting, handling and storing unwanted catches on board	Annex B1_SVN all three Slovenian fishing ports are very small local fishing ports and have no facilities to store, cool or process discards. Moreover, discards need to be treated separately (rules for the organisation of official controls on products of animal origin intended for human consumption). All Slovenian fishing vessels are small, below 18 meters of length which means that they have no on-board facilities to handle (cool or process) unwanted catches separately.
no way of handling the catches ashore due to large number of landing points and small catches	Annex B1_SVN Discards/fishing trip are few kg (too small to be used commercially or collected by companies that treat animal waste (minimum 50 liters), unwanted catches would have to be transported for about 150 km to be processed (into fishmeal) or incinerated as animal waste
no way of handling the catches ashore due to logistic problems and/or additional costs	storage and cooling facilities would be constructed in Slovenian fishing ports in the range of about few hundred thousand EUR for port modernisation of port facilities to provide for separate storage and cooling facilities for a couple of barrels of discards of a few kilograms per week. This would represent a considerable investment also considering that currently, in Slovenian fishing ports, there are no separate storage nor any cooling facilities, as these are only small local fishing ports. Such investments, to handle a few kilograms of discards, would be very difficult (also considering the additional commercial documents and veterinary inspection to provide for appropriate control from hygiene perspective)

Country	Croatia
costs for sorting, handling and storing unwanted catches on board	Annex B2HRV Manipulation process for selection and collecting of unwanted catches is difficult to assess, but it can be assumed that it would prolong the time between the fishing operations. Estimated costs: sorting process would require additional time up to 30%; 1 to 10 additional boxes per fishing operation; problem related to the UWC storage space needed; fishers don't have any options to store the unwanted catches upon landing.
no way of handling the catches ashore due to large number of landing points and small catches	Annex B2HRV 246 authorised landing sites almost half of them (a total of 121) is located on the islands with limited connections to mainland which is one of the important constraints that hinders the establishment of an efficient system of organised collection of unwanted catches from all over the coast. ; transfer to the destruction center: a majority of landing places is located at the distance more than 200 kilometres from the collection centre where the unwanted catches should be delivered to for further processing (details provided in table 2 of Annex B2HRV). Landed unwanted catches could be sold at a symbolic price of 0,5 EUR (which is overestimated), costs for their collection would be disproportional to the value (table in the AnnexB3_HRV: simulation of a theoretical value of weekly quantities of unwanted catches per landing place with different assumption of the share of unwanted catches in the overall landing (3% and 5%)Results indicate that the maximum value of collected unwanted catches would be below 200 euros (171 EUR) while the average value is only 14 EUR for all 135 landing places). Considering the distance from the place of landing, but also

	considering the fact that most landing places are located on the islands, it is clear that even in the most optimistic scenarios (5%), a value of unwanted catches would be highly disproportional to the costs needed for their collection and transport.
no way of handling the catches ashore due to logistic problems and/or additional costs	Annex B2HRV As in Croatia there is no market for unwanted catches, the entire quantity of unwanted catches that would be landed should thus be considered as waste and collected for destruction. Only 1 facility licenced for collection and harmless destruction of biological waste and only 4 collection centres which are registered for collection and further transport of biological waste (map included in the Annex)

Country	Italy
costs for sorting, handling and storing unwanted catches on board	Annex B_ITA_LO Sartor et al 2016: Average load increase would be needed work of at least 2 hours per day additional sorting operations and storage of waste. The total hours of work of a medium-trawler boat, understood as working time on board and on land for activities strictly related to fishing operations, would not increase; however, the actual workload per embarked would certainly be greater, reducing, for example, the rest time on board. The increase in work activity translates into an equivalent increase in labour costs. Deliverable 2.19 MINOUW project OTB + 300 euro/day = 40-50000 euro/year. SSF +200 euro/day = + 5 working hours/day.
no way of handling the catches ashore due to large number of landing points and small catches	Minow D2.19 table 7.27 pg 58 All the respondents of the survey based on direct interviews declared that there are no areas equipped for landing the discards, except for the dredgers.
no way of handling the catches ashore due to logistic problems and/or additional costs	Minow D2.19 pg 63. Only one company collected the discards in Chioggia, at a rate of 130 Euro/t, and this company was the same for the different companies as it is a generalist company that processed all kinds of organic waste items. Following this, respondents reported that the main problem related to discards was the cost of disposal and this was up to 80 000 Euro annually for the largest company that was interviewed. Sartor et al. 2016 the lack of an appropriate governance process to handle the unwanted catches once landed would result in the classification of the former discards as special waste. Based on the tariffs applied to aquaculture companies and those of the companies that dispose of slaughter houses waste, the costs for disposal of catches as a waste are expected to range from 0.45 €/kg up to 0.65 €/kg. Costs to be added to fixed costs for the maintenance of the waste loading/unloading registers, the cost for the annual waste declaration as well as the cost of obligatory and periodic analysis of waste for their correct classification according to the national legislation. Maynou et al. (2018) potential cost for an "average" trawl vessel (producing around 40 kg/day of discard of species in the Annex III of the EU Reg. 1967/2006 and working around 140 days/year) in around 3000 euro per year. This amount is about

	7.5% of the gross profit of the "average" vessel. Moreover, there are no rules and procedures to manage the UWC on shore. Operators(fishermen) are responsible to track the landed product but correct control procedures on shore are still not available.
Economic impact of selectivity improvement	Accadia et al 2018 Outcomes showed that the fishing gear change would produce a relative loss of 65% gross profits in GSA 9 and 60% in GSA 16. Loss in gross profit would be greater for larger and more modern vessels, reaching 80% in GSA 9 and 70% in GSA 16. Even though benefits on the stocks and consequently on vessels profitability would be expected in the long-term from improvements in selectivity, the short-term costs associated to these measures make them hardly acceptable by fishermen. Reductions in profits by 60-70% are clearly economically not sustainable. Annex B DISCATCH. The use of 90° turned diamond mesh netting for trawl codends (T90) is considered as an alternative design for avoiding mesh distortion, which could potentially satisfy both the fishermen and fisheries management. However, Sola and Maynou (2018) using a comparable approach found that T90 experimental net significantly reduces the catches of small-size hake and red mullet reducing unwanted catches of regulated species under the landings obligation. However, considering all commercial species, the experimental net produced losses of commercial catch and income estimated at 17% and 18%, respectively, which may pose a barrier to the adoption of this relatively simple, inexpensive solution. Sbrana et al., 1999; 2004: Fabi et al., 2002 gillnets & trammel nets tend to be selective it would seem sensible to base this exemption by demonstrating that increasing selectivity further would lead to significant economic losses of marketable catches for only a marginal reduction in unwanted catches of the listed species.

PESCAMED

Country	France
costs for sorting, handling and storing unwanted catches on board	Annex C1_FRA (CRPMEM PACA, 2019) Issues on the maximum delay to collect discards from the landing site: 48h after dead, in case of absence of conservation tanks. No more than 24h of delay to transport discards (no refrigeration on transport); because according the EU law the sub-product of a processed species cannot be the food of the same species, additional burden into the storing of UWC should be needed. Annex E2_FRA boxes to store and land unwanted catches, cold storage, fish market hall taxes increased, costs for crew. Handling and disposal of the products = 20 000€ / year à 322 €/tons.
no way of handling the catches ashore due to large number of landing points and small catches	Annex C1_FRA (CRPMEM PACA, 2019) Several ports (88 in total in the PACA Region - Map in the AnnexC1bisFRA): 7 vessels/port in average. 0,3-08 euro/kg is a too low price to enforce the discards collection by the fishermen. Annex E2_FRA Multitude of landing place, making it difficult to implement any structure of transformation due to insufficient and irregular material flow. Landing harbours for French vessels are disseminated along the Mediterranean coast over 388 km (distance between Port-Vendres and Menton). Low discards volumes overestimated to be between

	43 and 830 kg per day (including discards not under MCRS - OPDUSUD, 2015). Not volumes economically profitable for processing industry. Need of specific containers (600 euro/unit), additional costs in water, electricity and staff, refrigerated rooms when needed. Even if a collective collect between several harbours was considered costs would be estimated at least at 300€ per tonnes. Transport of the products = 15 000 € / year à 250€ / tonnes.
no way of handling the catches ashore due to logistic problems and/or additional costs	Annex C1_FRA (CRPMEM PACA, 2019) Issues: new mechanisms shall be introduced in the processing industry for fishery discards (different from meat processing); the quantities required by the processing industry shall be 10-20 tons/each collection trip. The price is between 0,5-0,8 euros. Discards are too low to be sustainable for the processing industry even if all discards are landed. Annex E2_FRA Challenge of the logistic organisation for a possible collect by a processing company (map of landing sites and distribution of trawlers along the coast included in the Annex).
Economic impact of selectivity improvement	Annex B_ESP-FRA Some selectivity trials have been carried out in France namely in GSA 7 and GSA 8. GALION project results (2015-2018; http://www.amop.fr/le-projet-galion/): the implementation of a selective grid, or a change in the mesh size or shape, would generate commercial losses between 5% and 26%, depending on the species considered
Country	Spain
costs for sorting, handling and storing unwanted catches on board	Annex B_ESP-FRA - Neither, ports and vessels have enough capacity to storage the unwanted catches
no way of handling the catches ashore due to large number of landing points and small catches	Annex B_ESP-FRA Presence of several small ports with very low sales (low-scale economy) with a proximity economy. -Fish flour mills are far from the ports

Country	Italy
costs for sorting, handling and storing unwanted catches on board	Annex B_ITA_LO Sartor et al 2016: Average load increase would be needed work of at least 2 hours per day additional sorting operations and storage of waste. The total hours of work of a medium-trawler boat, understood as working time on board and on land for activities strictly related to fishing operations, would not increase; however, the actual workload per embarked would certainly be greater, reducing, for example, the rest time on board. The increase in work activity translates into an equivalent increase in labour costs. Deliverable 2.19 MINOUW project OTB + 300 euro/day = 40-50000 euro/year. SSF +200 euro/day = + 5

	working hours/day.
no way of handling the catches ashore due to large number of landing points and small catches	Minow D2.19 table 7.27 pg 58 All the respondents of the survey based on direct interviews declared that there are no areas equipped for landing the discards, except for the dredgers.
no way of handling the catches ashore due to logistic problems and/or additional costs	Minow D2.19 pg 63. Only one company collected the discards in Chioggia, at a rate of 130 Euro/t, and this company was the same for the different companies as it is a generalist company that processed all kinds of organic waste items. Following this, respondents reported that the main problem related to discards was the cost of disposal and this was up to 80 000 Euro annually for the largest company that was interviewed. Sartor et al. 2016 the lack of an appropriate governance process to handle the unwanted catches once landed would result in the classification of the former discards as special waste. Based on the tariffs applied to aquaculture companies and those of the companies that dispose of slaughter houses waste, the costs for disposal of catches as a waste are expected to range from 0.45 €/kg up to 0.65 €/kg. Costs to be added to fixed costs for the maintenance of the waste loading/unloading registers, the cost for the annual waste declaration as well as the cost of obligatory and periodic analysis of waste for their correct classification according to the national legislation. Maynou et al. (2018) potential cost for an "average" trawl vessel (producing around 40 kg/day of discard of species in the Annex III of the EU Reg. 1967/2006 and working around 140 days/year) in around 3000 euro per year. This amount is about 7.5% of the gross profit of the "average" vessel. Moreover, there are no rules and procedures to manage the UWC on shore. Operators(fishermen) are responsible to track the landed product but correct control procedures on shore are still not available.
Economic impact of selectivity improvement	Accadia et al 2018 Outcomes showed that the fishing gear change would produce a relative loss of 65% gross profits in GSA 9 and 60% in GSA 16. Loss in gross profit would be greater for larger and more modern vessels, reaching 80% in GSA 9 and 70% in GSA 16. Even though benefits on the stocks and consequently on vessels profitability would be expected in the long-term from improvements in selectivity, the short-term costs associated to these measures make them hardly acceptable by fishermen. Reductions in profits by 60-70% are clearly economically not sustainable. Annex B DISCATCH. The use of 90° turned diamond mesh netting for trawl codends (T90) is considered as an alternative design for avoiding mesh distortion, which could potentially satisfy both the fishermen and fisheries management. However, Sola and Maynou (2018) using a comparable approach found that T90 experimental net significantly reduces the catches of small-size hake and red mullet reducing unwanted catches of regulated species under the landings obligation. However, considering all commercial species, the experimental net produced losses of commercial catch and income estimated at 17% and 18%, respectively, which may pose a barrier to the adoption of

	this relatively simple, inexpensive solution. Sbrana et al., 1999; 2004: Fabi et al., 2002 gillnets & trammel nets tend to be selective it would seem sensible to base this exemption by demonstrating that increasing selectivity further would lead to significant economic losses of marketable catches for only a marginal reduction in unwanted catches of the listed species.

12 CONTACT DETAILS OF EWG-19-08 PARTICIPANTS

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

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13 List of Background Documents

Background documents are published on the meeting's web site on:
https://stecf.jrc.ec.europa.eu/ewg1908

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

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