Centre for Environment Fisheries & Aquaculture Science

Cefas

A review of existing and proposed exemptions from the Landing Obligation applicable in the UK waters of the North Sea and North Western Waters regions

Authors: Thomas Catchpole, Marieke Desender, Samantha Stott

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Executive Summary

In January 2019, the phased implementation of the Landing Obligation (LO) was completed, from which point all eligible species and stocks became subject to a discard ban. In general, all catches of quota species should be landed, although specific exemptions to the discard ban apply. Exemptions can be gained where it can be demonstrated that either landing all catches is associated with disproportionate costs or further improvement of selectivity has shown to be difficult to achieve (known as *de minimis*), or for species proven to have high discard survival levels.

Now that the UK is an independent coastal state, and has committed to minimise unwanted catches and discarding, discard policies can be independently developed. However, the current retained EU regulations, including those for the LO and exemptions from it, continue to be in force until they are changed. To assess the suitability of continuing 50 retained LO exemptions relevant to UK waters of the North Sea and North Western Waters (NWW), Cefas was commissioned to review 50 existing exemptions, and review four proposed new exemptions for UK waters.

The evaluation included updating the fishery information on the affected UK fleets, and a review of relevant recent published and non-published reports, as well as of previous STECF evaluations of the exemptions. Cefas was requested to provide an overall recommendation on whether to continue/implement, continue/implement with modification or discontinue/not implement, each of the 54 exemptions:

Area	Type	Existing			New	
		Continue	Continue with modification	Discontinue	Implement	Implement with modification
NWW	High survival	8	3	1	2	
	De minimis	7	6	2		1
NS	High survival	8	1	1		
	De minimis	9	1	3	1	
Total		**32**	**11**	**7**	**3**	**1**

Most of the existing retained exemptions (32 of 50) were recommended to continue. Although recommended to continue, when granting *de minimis* exemptions, the uptake of the permitted amount should be closely monitored to mitigate against overfishing. It was concluded that in some cases, unless effective monitoring is in place, the sustainability risk to specific stocks is considered high. Similarly, for survival exemptions, it is reiterated that an appropriate deduction should be made to the Total

Allowable Catch (TAC) to account for discard mortality to mitigate overfishing. In the longer term, this could be done as part of the provision of ICES catch advice.

A recommendation for continuation, but with modification, was advised for 11 existing exemptions. Modifications mostly refer to the inclusion of further gear conditionalities, whereby selectivity improvements had been demonstrated, in particular for beam trawls in the NWW region, and for *Nephrops* trawls in the North Sea. There were other minor modifications, including corrections and clarifications.

There were seven existing exemptions recommended to be discontinued. However, for three of these, there was a recommendation for them to be replaced by the newly proposed exemptions. In one case, this meant an extension to the scope of the exemption and in two cases the introduction of a more limited exemption. Of the other four recommended exemptions to be discontinued, one high survival exemption was assessed to have no relevant survival evidence, and three *de minimis* exemptions were assessed to have a general absence of supporting evidence. Four new exemptions were recommended for implementation, one with a modification to include a more selective gear conditionality.

Contents

1. Glossary

Term	Definition
B_{lim}	Limit reference point for spawning stock biomass, below this point there is impaired reproductive capacity
B_{pa}	Precautionary reference point for spawning stock biomass
$B_{trigger}$	Value of spawning stock biomass (SSB) that triggers a specific management action
BE	Belgium
CR/BER	Current Revenue/Break Even Revenue
EWG	Scientific, Technical and Economic Committee for Fisheries (STECF) Expert Working Group. An EWG examines and evaluates specific questions set within the terms of reference defined by the EU Commission.
Flemish panel	'Flemish panel' means the last tapered netting section of a beam trawl whose: • posterior is directly attached to the cod-end; • upper and lower netting sections are constructed of at least 120 mm mesh as measured between the knots; • stretched length is at least 3 m. For a diagram of the design
F_{lim}	Limit reference point for fishing mortality
F_{MSY}	Fishing mortality consistent with achieving Maximum Sustainable Yield
F_{pa}	Precautionary reference point for fishing mortality
FPO	Pots
FU	Functional unit (FU) means a group of ICES rectangles that contain linked mud-patches of *Nephrops* (*Nephrops norvegicus*)
FYK	Fyke nets
GND	Driftnets
GNS	Set gillnets (anchored)
GTN	Combined gillnets-trammel nets
GTR	Trammel nets
JR	Joint Recommendation
LLS	Set longlines
LOA	Length Overall: maximum length of a vessel
MCRS	Minimum Conservation Reference Sizes
MSY	Maximum sustainable yield
MSY B trigger	A biomass reference point that triggers a cautious response within the ICES MSY framework. Below this point, Managers are expected to take measures to reduce fishing mortality

NetGrid	'NetGrid selectivity device' means a selectivity device consisting of a four-panel section inserted into a two-panel trawl with an inclined sheet of diamond mesh netting with a mesh size of at least 200mm, leading to an escape hole in the top of the trawl. For a diagram of the design
OT	Otter trawls not specified
OTB	Bottom otter trawl
OTM	Midwater otter trawl
OTT	Otter twin trawl
PS	Purse seines
PT	Pair trawls not specified
PTB	Bottom pair trawl
PTM	Pelagic pair trawl
SDN	Danish seines
SELTRA trawl panel	The Seltra Panel means a selectivity device which: • consists of a top panel of at least 270mm mesh size (diamond mesh) placed in a four-panel section and mounted with a joining ratio of three meshes of 90mm to one mesh of 270mm, or of a top panel of at least 140mm mesh size (square mesh). • is at least 3 metres long and is positioned no more than 4 metres from the cod line. • is the full width of the top sheet of the trawl (i.e. from selvedge to selvedge) For a diagram of the design
SepNep	'SepNep' means an otter trawl which: • is constructed within the mesh size range of 80 to 99 +≥ 100 mm, • is fitted with multiple cod-ends of mesh sizes ranging from at least 80 to 120 mm attached to a single extension piece, the uppermost cod-end being constructed with a mesh size of at least 120 mm and fitted with a separation panel with a maximum mesh size of 105 mm, and; • may furthermore be fitted with an optional selection grid with a bar spacing of at least 17 mm provided it is constructed in such a way so as to allow the escape of small Norway lobster.' For a diagram of the design
SMP	Square Mesh Panel
SPR	Pair seines
SSB	Spawning stock biomass
STECF	Scientific, Technical and Economic Committee for Fisheries. STECF is an independent committee of scientists and experts, selected by the EU Commission, which is consulted, where

	appropriate, on matters pertaining to the conservation and management of living marine resources. Each year, STECF has been requested to evaluate proposed landing obligation exemptions.
SV	Boat seines
SX	Seine nets not specified
TAC	Total Allowable Catch
TB	Bottom trawls
TBB	Beam trawl
TR1	Demersal trawls and seines - mesh size >100mm
TR2	Demersal trawls – mesh size equal to or larger than 70mm and less than 100mm
TR3	Demersal trawls, Seines - of mesh size equal to or larger than 16 mm and less than 32 mm
TX	Trawls

2. Background

In 2013, the EU Parliament voted for a reform of the Common Fisheries Policy (CFP). The EU Commission stated that the wasteful practice of discarding fish must be gradually stopped by implementing the Landing Obligation (LO). The aim of the LO was to incentivise the reduction of catching unwanted fish and eliminate discards. It includes a move from landing-based fish quotas to a catch-quota system, in effect introducing a cap on fishing mortality, whereby vessels are required to stop fishing when a quota for a species has been exhausted, even if quotas for other species are still available in the same fishery.

In January 2019, the phased implementation of the Landing Obligation was completed, from which point all eligible species and stocks became subject to the LO. The UK officially left the EU on 31st January 2020, and the UK Government has stated in the 2020 Fisheries Act its commitment to minimise unwanted catches and discarding. The EU LO regulations were transposed into UK regulations as retained EU law. The UK can now develop discard policies independently of the EU, but the current regulations continue to be in force until they are changed.

The LO policy includes the potential to gain exemptions, so that rather than landing all catches, catches that meet defined criteria can be discarded. Within the EU, Regional Groups of Member States propose exemptions from the LO, and the EU Commission decides on whether they meet these criteria, a decision which is informed by an independent evaluation by the Scientific, Technical and Economic Committee for Fisheries (STECF).

As an independent coastal state, the UK has responsibility for regulating exemptions from the LO. Cefas was commissioned to conduct a review of all existing exemptions relevant to UK waters, which have been transposed into UK law, and review proposed new exemptions for UK waters. The LO has been implemented on a regional basis, with the North Sea and North Western Waters regions relevant to the UK (Figure 1). The outputs from this evaluation are presented for these two regions and will be used to inform UK Administrations in deciding which exemptions will apply in UK waters.

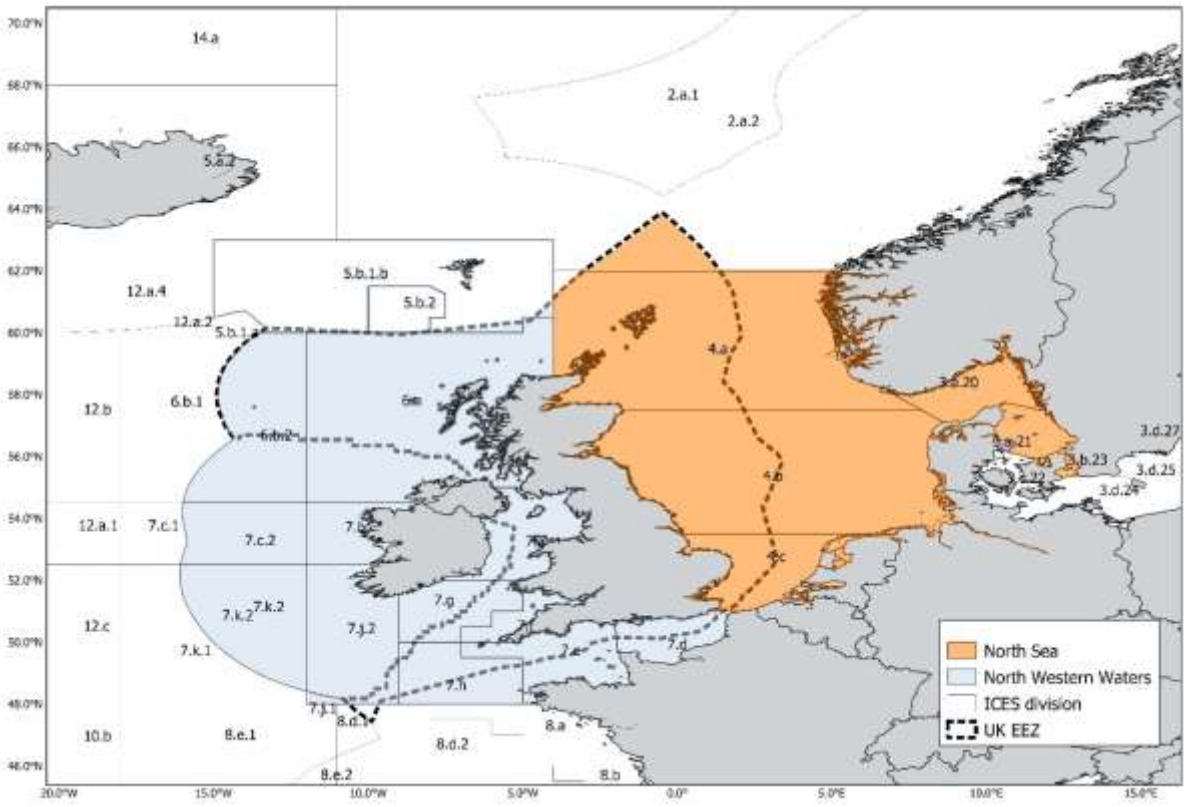

Figure 1. Map of ICES divisions defining the North Sea and North Western Waters (UK and international waters).

3. General observations on exemptions to the Landing Obligation

Avoidance of unwanted catch through improved selectivity or other means should be the primary focus in implementing the Landing Obligation. Improvements in selectivity can 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, whether the fishery could be worse off due to choke effects and utilisation of quota for fish that have little or no value.

The criteria for LO exemptions are set out in Article 15 of the current CFP (Regulation (EU) 1380/2013) and include provisions for the *de minimis* exemptions, whereby either, selectivity is very difficult to achieve or there are disproportionate costs of handling unwanted catches, and for “species for which scientific evidence demonstrates high survival rates, taking into account the characteristics of the gear,

of the fishing practises and of the ecosystem;". Predator-damaged and prohibited species are also exempted. These flexibilities have been transposed to UK law.

Based on the retained legislative text, it is difficult to provide conclusive advice on whether the evidence is sufficient to retain, accept or reject any individual exemption. The subjective nature of the conditionalities – "high survival", "very difficult to achieve" or "disproportionate costs" – means that the final decision on whether to permit or reject a proposal cannot be based solely on scientific evaluation. Furthermore, through the process of providing independent scientific evaluations of proposed exemptions, STECF have developed several observations (e.g. STECF EWG 20-04), with input from Cefas experts, which we consider are usefully reiterated in this section.

3.1. *De minimis*

It is noted that presenting appropriate information to support *de minimis* exemptions based on disproportionate costs is challenging, although necessary to allow for an evaluation to be carried out. The purpose of economic analyses to support a *de minimis* exemption is to understand the scale, or proportionality, of the challenges in terms of lost revenue faced by the group of vessels in complying with the obligation to land all catches of those species subject to the LO.

These economic analyses demonstrate 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, there is no way to objectively judge whether such costs are disproportionate. Simply stating that handling, storing, and landing unwanted catches has an associated cost, is not sufficient to demonstrate that such costs are disproportionate. Logically, in line with the objectives of the LO, priority should be given to improving selectivity and the introduction of avoidance measures to reduce the levels of unwanted catches and thus, reduce the costs for handling such catches.

Estimating de minimis discard volumes

Previously, Regional Groups have used a variety of ways to estimate potential *de minimis* volumes. The maximum percentage of total catch that can be discarded under a *de minimis* exemption is 7% in the first year of its introduction and it should then reduce in each subsequent year down to at least 5%. In the regulation text 'total catch' is not defined and this ambiguity has been used to increase the total amount of permissible discards of a species by including other species and catches into the definition of 'total catch'. For some fisheries, for example the brown shrimp trawl fishery, the expectation is to discard up to 100% of the unwanted catches. In this

example, the catches of all quota species from related fisheries has been used to define the permissible *de minimis* volume. In such cases, the permitted *de minimis* volume of the species under the exemption is much higher than would have been the case if just the catches for that species and in that fishery were used. This means that all unwanted catches can be covered and accounted for by a *de minimis* exemption; this also makes the exemption largely unconstrained with no incentive to reduce unwanted catches.

Estimated amount of unwanted catch relative to the permitted de minimis discard *amount*

In cases where the unwanted catch of species subject to the LO are substantial, granting a maximum *de minimis* of 5-7% of the catches of such species will have little, and most likely an unmeasurable effect on their overall fishing mortality of such species 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.

Meeting MSY commitments

In line with UK fisheries management objectives, the maximum possible amount of *de minimis* (i.e. the maximum safeguard amount) for each species that could potentially be legally discarded, must be deducted from the TAC to prevent fishing mortality exceeding the agreed TAC.

De minimis exemptions for depleted stocks

There are several existing exemptions that apply to stocks that are in a depleted state. It is imperative that measures be taken to reduce the level of unwanted catches in the fisheries concerned by these exemptions, and rigorous monitoring of catches discarded under the exemptions ensured.

Control issues

There is a risk that *de minimis* exemptions can provide an incentive for vessel operators to continue discarding unwanted catches at sea and only retain unwanted catches on board if they are inspected on hauling. The implications of such practices are that data quality will deteriorate and scientific advice for fisheries management will be less reliable because the unmonitored part of the fishing mortality cannot be accurately estimated. Moreover, where there is a large difference between the proportion of unwanted catch and the permitted discard amount, there is a high sustainability risk in the absence of effective monitoring.

3.2. High Survivability

Assessing high survivability

Assessing what constitutes high survivability is problematic, which is made more complex by the limited information available and the 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 studies. However, identifying and quantifying such factors is a challenge due to the relatively limited species-specific information and differences between experiments including timing, season, environmental conditions, gear handling and catch processing. This means that assessing whether individual or a limited range of studies is representative of discard survival across an entire fishery is difficult, given the variety of factors that can influence survival.

Extrapolating survival estimates between fisheries and sea basins

Within the EU process, there were numerous exemption requests where the supporting evidence is derived from the same scientific study. There are examples for which a single study initially produces a robust estimate of discard survival in a localised fishery. This is then applied to the whole region; and once established, the exemption is extended to other regions, based on technical similarities between fisheries. The result of this incremental stretching of the evidence is that the fate of a few hundred fish in a local fishery can provide the basis for exemptions for many fisheries across different regions and this may not be defensible scientifically. Knowledge of the factors influencing discard survival is needed before we can be confident in extrapolating discard survival evidence much beyond the conditions under which it was collected.

Additional conditions for high survival exemptions

Several high survival exemptions for plaice and common sole are linked to conditions such as restricting the exemption to fishing at certain depths, tow durations and to specific groups of vessels, or the use of modified fishing gears. While such factors may influence discard survival, there is no evidence that these conditionalities are being applied in practice or enforced. There is a need to define a proper balance between identifying handling factors that can increase survival and considering whether their implementation can effectively be regulated and controlled. The granting of the exemption should be conditioned on such enforcement measures.

Discard rate and discard mortality

Where discard rates are high, and survival rates are limited, substantial quantities of dead discards are generated. On the other hand, high survival rates may result in limited impacts of discarding despite high discard rates. Therefore, to achieve agreed levels of fishing mortality, dead discards should be accounted for in the stock assessment and the advice derived from it. The inclusion of discard survival in stock assessments also has wider application since it can improve estimates of fishing mortality and in turn enhance scientific advice on fishing opportunities (ICES, 2021a). The ICES SURVIVE workshop has progressed this aim, providing a table of relevant stocks, stock assessments, survival evidence, and stock-specific recommendations regarding discard survival (ICES, 2021a).

4. Methods

In total, 54 exemptions relevant to UK waters were reviewed; of these 4 were new proposed exemptions and 50 were existing exemptions retained in UK law. The list of existing exemptions was derived from the EU Delegated Regulations that were in place in 2019. New exemptions were agreed with input from Defra, the Marine Management Organisation (MMO), other UK Administrations, Cefas and the fishing industry. Fisheries management is a devolved responsibility in the UK, and UK Administrations may introduce additional exemptions to those set out here. The approaches to reviewing existing and evaluating new exemptions is set out in this section and was informed by the evaluation methods and outputs from STECF (e.g. STECF EWG 20-04).

For the North Sea and North Western Waters regions separately, each exemption evaluation is presented in a single table; these differ slightly between the existing and new exemptions. Both give an exemption ID, a summary description of the exemption, UK fishery information, reference to additional evidence, the Cefas evaluation and a recommendation. Links to the relevant previous published STECF evaluation documents are also given for the existing exemptions. A summary of the exemptions and Cefas recommendations are given in the ‘Overview’ sections with details on each exemption in the following sections.

4.1. Existing exemptions

There has been no previous formal comprehensive review of existing LO exemptions, and fishery information supporting the original proposals may be out of date or in some cases was not submitted. Here we provide up to date information on the UK fleets and fisheries affected by the exemptions.

The estimated maximum number of UK vessels potentially affected by the exemption was derived from IFISH (Integrated Fisheries System Holding), an integrated database system for UK fisheries authorities, which contains UK fishing vessel activity at sea, landings and sales of fish. In the tables shown, the precise data source and fishery definition used to derive the number of affected vessels is indicated by "*".

The landings and discard estimates of the affected fleets, the percentage of the total catch taken by affected fleets and the discards rate were derived from the FDI (Fisheries Dependant Information) STECF database. FDI data from 2018 were extracted and presented. Due to the level of resolution in the FDI data, the UK fishery as defined in the exemption did not always correlate directly to the available data. We used the closest approximation to the fleets as defined in the exemption regulation. In the tables shown, the data source and fishery definition used to describe the catches is indicated by "**".

The method of data extraction and calculation of relevant data from the affected fleets is described briefly below:

The spatial areas covered by the exemptions were linked to the associated TACs. Each TAC is presented by the code assigned in the Trade and Cooperation Agreement (TCA). The full TAC description can be found in ANNEX FISH of the TCA. For each exemption-TAC combination the following successive steps 1-4 were taken:

1. The STECF FDI data (2018) was filtered by the ICES sub-divisions where the exemption is in place, generated landings, discards and catch for fleets affected by the exemption.
2. The catches of the affected fleet divided by the total catch (STECF FDI, 2018) gave an estimated percentage of total catch affected by the exemption. This is shown in the tables as the 'UK % total catch taken by affected fleet'.
3. The estimated quantity of affected catch was the product of the total catch (we used the UK share of the 2020 TAC) and the percentage of the catch taken by affected fleet.
4. To estimate the discard rate of the affected fleet, the discards of affected fleet was divided was associated with only one TAC, then only a single figure was provided for the landings, discard estimates, percentage of affected fleets and percentage discards. For those covering more than one TAC, these are presented separately using conventional TAC stock codes.

Additional relevant evidence, including scientific publications and unpublished technical reports (expected to be published to support this report), were used to complement the evaluation and the STECF and EWG reports. However, it was not possible to conduct a systematic review of the relevant literature for all the 54

exemptions. Where relevant, the additional discard estimates and proportions of the catch discarded were presented from the Cefas Observer programme (covering England and Wales since 2002).

An expert evaluation of the evidence was conducted and summarised, and recommendations given. The available evidence was reviewed and assessed for robustness and relevance. The final recommendation also took into consideration the sustainability risk to the stocks as well as the potential for improved fishing practices to be introduced. The overall recommendations were categorised as ‘continue’, ‘continue with modification’ or ‘discontinue’.

The final part of the table consists of links to the latest STECF and EWG reports where the exemption was previously reviewed (https://stecf.jrc.ec.europa.eu/meetings). The link to the most recent STECF report is provided which refer to all previous evaluations of the same or modified exemptions. Where the Cefas recommendation was not “continue” then the conclusions of STECF and EWG are also presented in Annex 1 to facilitate a comparison between the Cefas and STECF evaluations.

4.2. New exemptions

The process for evaluation of the new exemptions was mostly the same as for existing exemptions, however these were not previously assessed by STECF and so no reference is made to previous STECF evaluations, except where they relate to previously reviewed exemptions. The recommendation categories were to ‘implement’, ‘implement with modification’ or ‘not implement’.

The detailed proposals and supporting evidence are given in the referenced documents (and Annexes 2-5) for each of the new exemptions. To ensure impartiality in the assessment of the proposed new UK exemptions, there was an intermediate step of an independent internal Cefas evaluation of the proposals prior to the full review presented here, with the final recommendations informed by that independent review.

5. Overview North Western Waters (NWW) Exemption Recommendations

Existing/New	Exemption No.	Short description	Recommendation	Page
High Survivability				
Existing	1	*Nephrops*; ICES subareas 6 and 7; Pots, Traps or Creels	Continue	26
Existing	2	*Nephrops*; ICES subarea 7; Bottom trawls	Continue	27
Existing	3	*Nephrops*; ICES subarea 7; Bottom trawls	Continue	30
Existing	4	*Nephrops*; ICES division 6a; Otter trawls	Continue	32
Existing	5	Common sole; ICES division 7d (within 6nm); Otter trawls, TBN, TBS	Discontinue (replace with exemption 74)	35
Existing	6	Skates and Rays; ICES subarea 6 and 7; All gears	Continue	36
Existing	7	Plaice; ICES division 7d-7g; Trammel nets	Continue with modification	40

Existing	8	Plaice; ICES division 7d-g; Otter trawls	Continue	42
Existing	9	Plaice; ICES subarea 7a-7k; BT2 beam trawls with flip up or benthic release	Continue with modification	44
Existing	10	Plaice; ICES subarea 7a-7k; BT2 beam trawls within 12nm and tow <90 mins	Continue with modification	47
Existing	11	Plaice; ICES division 7d; Danish seines	Continue	50
Existing	12	All species; ICES subarea 5 (excluding 5a, including EU 5b) 6 and 7; Pots traps and creels	Continue	52
New	74	Common sole; ICES division 7a,d,e,f,g (within 6nm); Otter trawls	Implement	89
New	75	Horse mackerel and sprat; ICES division 7e and 7f; Ring net	Implement	91
De minimis				
Existing	13	Whiting; ICES division 7b-k; bottom trawls and seines and BT2 beam trawls; 5%	Continue with modification	54
Existing	14	Common sole; ICES subarea 7d-g;	Continue	56

		Trammel nets and Gill nets; 3%		
Existing	15	Common sole; ICES division 7d-g; Beam trawls using Flemish panel; 3%	Continue with modification	58
Existing	16	Haddock; ICES division 7b-c and 7e-k; Bottom trawls, Seines and Beam trawls; 5%	Continue with modification	61
Existing	17	Horse mackerel; ICES subarea 6 and division 7b-k; Bottom trawls, Seines and Beam trawls; 7%	Continue	64
Existing	18	Mackerel; ICES subarea 6 and division 7b-k; Bottom trawls, Seines and Beam trawls; 7%	Continue	65
Existing	19	Common sole; ICES division 7a,j,k; Beam trawl plus Flemish panel; 3%	Continue with modification	67
Existing	20	Megrim; ICES subarea 7; Bottom trawls and beam trawls; 5%	Continue	70
Existing	21	Boarfish; ICES division 7b,c and 7f-k; Bottom trawls; 0.5%	Continue with modification	72
Existing	22	Great Silver Smelt; ICES division 5b and	Continue	74

		subarea 6; Bottom trawls; 0.6%		
Existing	23	Haddock; ICES division 6a; Bottom trawls; 3%	Continue	76
Existing	24	Fish<MCRS; ICES division 7a; Brown shrimp beam trawls; 0.85% of plaice and 0.15% whiting	Continue with modification	78
Existing	52	Mackerel, horse mackerel, herring, whiting; ICES divisions 7d; pelagic trawls pelagic trawlers up to 25 meters in length overall; 1% of the total annual catches of mackerel, horse mackerel, herring and whiting	Discontinue	81
Existing	53	Albacore tuna; ICES subarea 7; Midwater pair trawls; 5%	Discontinue	82
Existing	54	Blue whiting; ICES subdivision 5b subarea 6 and 7; industrial pelagic trawls; 5%	Continue	84
New	73	Anglerfish; ICES division 7d-j; Beam trawls; 7%	Implement with modification	87

6. Overview North Sea (NS) Exemption Recommendations

Existing/New	Exemption No.	Short description	Recommendation	Section
High Survivability				
Existing	25	*Nephrops*; ICES division 2a, 3a and subarea 4; Pots	Continue	94
Existing	26	Common sole; ICES division 4c (6nm off the coast, outside nursery areas); Otter trawls	Continue	95
Existing	27	All species; ICES division 3a and subarea 4; Pots, Fyke nets	Continue	97
Existing	28	Plaice; ICES division 3a and subarea 4; Set nets	Continue with modification	99
Existing	29	Plaice; ICES division 3a and subarea 4; Danish seines	Continue	101
Existing	32	Plaice; ICES division 3a and subarea 4; Trawls	Continue	102
Existing	33	Plaice; ICES division 2a and subarea 4;	Continue	105

		BT2 beam trawls with flip up or benthic release		
Existing	34	Plaice; ICES division 2a and subarea 4; BT2 beam trawls within 12 nm and tow <90 mins	Continue	107
Existing	35	Turbot; ICES subarea 4; Beam trawls	Discontinue	110
Existing	36	Skates and Rays; ICES division 2a, 3a and subarea 4; All gears	Continue	111
De minimis				
Existing	37	Common sole; ICES division 2a,3a and subarea 4; Trammels and Gill nets; 3%	Continue	115
Existing	38	Common sole; ICES subarea 4; Beam trawls with Flemish panel; 5%	Continue	117
Existing	41	Whiting and Cod <MCRS; ICES division 4c; Trawls and seines; 5% of all sizes cod and whiting; cod limited to 2% max of that combined amount	Discontinue (replace with exemption 42b)	119

Existing	42	Whiting and Cod <MCRS; ICES division 4a and 4b; Trawls and seines; 6% of all sizes cod and whiting; cod limited to 2% max of that combined amount	Discontinue (replace with exemption 42b)	121
Existing	44	Whiting <MCRS; ICES subarea 4; beam trawls; whiting as 2% of total plaice and common sole catches	Continue	124
Existing	45	Plaice <MCRS; ICES subarea 4; *Nephrops* trawls; 3%	Continue	126
Existing	46	All species; ICES division 4b and 4c; Brown shrimp beam trawls; a quantity of all species subject to catch limits shall not exceed 7%	Continue with modification	128
Existing	47	Horse mackerel; ICES subarea 4; Bottom trawls; 7%	Continue	130
Existing	48	Mackerel; ICES subarea 4; Bottom trawls; 7%	Continue	132
Existing	49	Combined sprat, sandeel; Norway pout and Blue	Continue	134

		whiting; ICES division 3a and subarea 4; Trawls and Seines; combined sprat, sandeel, Norway pout and blue whiting as 1% of all total annual catches in demersal fisheries and fishery Northern Prawn		
Existing	50	Ling <MCRS; ICES subarea 4; Long lines; 3% Total Annual Catches of Ling in hake long line fishery	Continue	136
Existing	51	Mackerel, Horse mackerel, Herring and Whiting; ICES division 4b and 4c (South of 54 degrees north); Pelagic trawls; 1 % of the total annual catches of mackerel, horse mackerel, herring and whiting	Discontinue	138
Existing	72	*Nephrops*; ICES division 2a, subarea 4; Trawls; 80-99mm; <MCRS, 2%	Continue	140
New	42b	Whiting <MCRS; ICES division 4a-c; Trawls and Seines; 5% of whiting	Implement	142

7. North Western Waters (NWW) Existing Exemption Evaluation and Recommendations

High survival	
Exemption number	**1**
Exemption description	*Nephrops*; ICES subareas 6 and 7; Pots, Traps or Creels

Cefas review	
UK fishery data	
Fishery as defined for data extraction	*All pots, traps and creel vessels fishing in ICES subareas 6 and 7 **All pots, traps and creel vessels fishing in ICES subareas 6 and 7
Data source	*Number UK vessels: Official landings database (IFISH, 2018). **Fishery information: FDI 2018
Max. Number UK vessels*	1551
UK Landings of affected fleet (t)**	8.8 for NEP/7; 2286.5 for NEP/5BC6
UK Discards of affected fleet (t)**	0 for NEP/7; 0 NEP/5BC6
UK Catch of affected fleet (t)**	8.8 NEP/7; 2286.5 NEP/5BC6

UK % Total catch taken by affected fleet**	0.2% NEP/7, 14.7% NEP/5BC6
UK Discard Rate of affected fleet (%)**	0% NEP/7, 0% NEP/5BC6
Additional relevant information	-
CEFAS evaluation	There are several sources of robust evidence indicating substantial survival of *Nephrops* released from creels. The proportion of *Nephrops* caught by creels is low relative to trawls. There is a low sustainability risk.
Recommendation	Continue
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 15-10: Landing Obligation – Part 5 (p34 & Annex 3)
STECF plenary report	PLEN 15-02 (p16)

High survival	
Exemption number	**2**
Exemption description	*Nephrops*; ICES subarea 7; bottom trawls; TR1
Cefas review	
UK fishery data	

Fishery as defined for data extraction	* Bottom trawls (OTB, PTB, OTT, TBN), mesh size >=100mm, all vessel lengths, in ICES subarea 7 ** Bottom trawls (OTB, PTB, OTT, TBB), all mesh sizes, all vessel lengths, in ICES subarea 7
Data source	*Number UK vessels: Official landings database (IFISH, 2018). **Fishery information: FDI 2018
Max. Number UK vessels*	125
UK Landings of affected fleet (t)**	5149.9
UK Discards of affected fleet (t)**	354.5
UK Catch of affected fleet (t)**	5504.4
UK % Total catch taken by affected fleet**	99.8%
UK Discard Rate of affected fleet (%)**	12.9%
Additional relevant information	ICES WKSURVIVE recently collated all relevant and robust discard survival estimates (ICES, 2021a): - *Nephrops norvegicus* in Division 6.a, Functional Unit 12 (West of Scotland, South Minch) Otter trawls 56.3% discard survival (53.5-59.4%) winter; 45.7% (43.4-48.3%) in summer; overall 52.7% (50.9-59.4%) (Fox et al., 2020); - *Nephrops norvegicus* in Division 6.a, Functional Unit 13 (West of Scotland, the Firth of Clyde and Sound of Jura). Otter trawls winter short haul: 68-77.7%; Otter trawl spring short haul: 63.4-73.8%; Otter trawl early summer short haul:

	81.3-88%; Otter trawl Spring: 38-42% (Albalat et al., 2016). Otter trawl short autumn: 25-60%; Otter trawl autumn long: 10-17% (Ridgway, 2006) - *Nephrops norvegicus* in Subarea 7, outside the functional units (southern Celtic Seas, southwest of Ireland) Otter trawl 80mm cod end with SELTRA 300 SMP in 7b: 64% (range 58 - 79%) summer (Oliver et al., 2017). - *Nephrops norvegicus* in Division 4.a, Functional Unit 8 (Firth of Forth) Otter trawl: 74.5% (71.8-77.1%) summer only (Fox et al., 2020) - *Nephrops norvegicus* in Division 4.b, Functional Unit 6 (FU6; Farn Deeps) 80mm cod-end with NetGrid selectivity device: 57 +/- 1.8% winter only (Fox et al., 2020)
CEFAS evaluation	Exemptions 2 and 3 were evaluated together, the survival evidence is insufficient to distinguish between TR1 and TR2. There are several robust studies on the survival of *Nephrops*, but only one in area 7, which covers 1 of the 8 functional units, and is focussed on the SELTRA panel design (64% survival). Across the North Sea and NWW regions survival has been estimated at 43-79% in recent studies under different conditions; some older studies show lower survival levels down to 10%. Therefore, there is uncertainty surrounding survival rates in the various gears and fisheries in area 7. Moreover, the recent estimates do not account for predation of discarded *Nephrops* and do not assess whether they are released to suitable habitats, therefore the operational survival levels are likely to be lower. Additional evidence on the survival of *Nephrops* from relevant FUs not previously studied would enable a more robust evaluation of representative levels of survival. The overall discard rate (STECF FDI) is given as 13%, and because the TAC is landings based, no deduction is made to account for discard mortality under exemption. Where discards are accounted for in the assessment and appropriate conservative discard survival estimates are applied, the sustainability risk for the exemption is low.
Recommendation	Continue: discards should be accounted for in the assessment and appropriate conservative discard survival estimates applied.

Links to STECF evaluations (details in Annex 1 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 18-06: (p27, 137 & Annex I)
STECF report	PLEN 18-02 (p33)

High survival	
Exemption number	**3**
Exemption description	*Nephrops*; ICES subarea 7; bottom trawls; TR2
Cefas review	
UK fishery data	
Fishery as defined for data extraction	*Bottom trawls (OTB, PTB, OTT, TBN), mesh size 70-99, all vessel lengths, in ICES subarea 7 **Bottom trawls (OTB, PTB, OTT, TBB), all mesh sizes, all vessel lengths, in ICES subarea 7
Data source	*Number UK vessels: Official landings database (IFISH, 2018). **Fishery information: FDI 2018
Max. Number UK vessels*	286
UK Landings of affected fleet (t)**	5149.9
UK Discards of affected fleet (t)**	354.5

UK Catch of affected fleet (t)**	5504.4
UK % Total catch taken by affected fleet**	99.8%
UK Discard Rate of affected fleet (%)**	12.9%
Additional relevant information	ICES WKSURVIVE recently collated all relevant and robust discard survival estimates (ICES, 2021a): - *Nephrops norvegicus* in Division 6.a, Functional Unit 12 (West of Scotland, South Minch) Otter trawl 56.3% discard survival (53.5-59.4%) winter; 45.7% (43.4-48.3%) in summer; overall 52.7% (50.9-59.4%) (Fox et al., 2020); - *Nephrops norvegicus* in Division 6.a, Functional Unit 13 (West of Scotland, the Firth of Clyde and Sound of Jura). Otter trawl winter short haul: 68-77.7%; Otter trawl spring short haul: 63.4-73.8%; Otter trawl early summer short haul: 81.3-88% (Albalat et al., 2016); Otter trawl short autumn: 25-60%; Otter trawl autumn long: 10-17% (Ridgway,2006); Otter trawl Spring: 38-42%; (Albalat et al., 2016); - *Nephrops norvegicus* in Subarea 7, outside the functional units (southern Celtic Seas, southwest of Ireland) Otter trawl 80mm cod end with SELTRA 300 SMP in 7b: 64% (range 58 - 79%) summer (Oliver et al., 2017). - *Nephrops norvegicus* in Division 4.a, Functional Unit 8 (Firth of Forth) Otter trawl: 74.5% (71.8-77.1%) summer only (Fox et al., 2020) - *Nephrops norvegicus* in Division 4.b, Functional Unit 6 (FU6; Farn Deeps) 80mm cod-end with NetGrid selectivity device: 57 +/- 1.8% winter only (Fox et al., 2020)
CEFAS evaluation	Exemptions 2 and 3 were evaluated together, the survival evidence is insufficient to distinguish between TR1 and TR2. There are several robust studies on the survival of *Nephrops*, but only one in area 7, which covers 1 of the 8 functional units, and is focussed on the SELTRA panel design (64% survival). Across the North Sea and NWW regions survival has been estimated at 43-79% in recent studies under different conditions; some older studies show lower survival levels down

	to 10%. Therefore, there is uncertainty surrounding survival rates in the various gears and fisheries in area 7. Moreover, the recent estimates do not account for predation of discarded *Nephrops* and do not assess whether they are released to suitable habitats, therefore the operational survival levels are likely to be lower than reported. Additional evidence on the survival of *Nephrops* from relevant FUs not previously studied would enable a more robust evaluation of representative levels of survival. The overall discard rate (STECF FDI) is given as 13%, and because the TAC is landings based, no deduction is made to account for discard mortality under exemption. Where discards are accounted for in the assessment and appropriate conservative discard survival estimates are applied, the sustainability risk for the exemption is low.
Recommendation	Continue: discards should be accounted for in the assessment and appropriate conservative discard survival estimates applied (combine Exemptions 2 and 3).
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 18-06: (p27, 137 & Annex I)
STECF report	PLEN 18-02 (p33)

High survival	
Exemption number	**4**
Exemption description	*Nephrops*; ICES division 6a; otter trawls
Cefas review	
UK fishery data	
Fishery as defined for data extraction	*Bottom trawls (OTB, PTB, OTT, TBN), all mesh sizes, all vessel lengths, in ICES area 6a

	**Bottom trawls (OTB, PTB, OTT), all mesh sizes, all vessel lengths, in ICES area 6a
Data source	*Number UK vessels: Official landings database (IFISH, 2018). **Fishery information: FDI 2018
Max. Number UK vessels*	281
UK Landings of affected fleet (t)**	13168.2
UK Discards of affected fleet (t)**	0
UK Catch of affected fleet (t)**	13168.2
UK % Total catch taken by affected fleet**	85%
UK Discard Rate of affected fleet (%)**	0%
Additional relevant information	ICES WKSURVIVE recently collated all relevant and robust discard survival estimates (ICES, 2021a): - *Nephrops norvegicus* in Division 6.a, Functional Unit 12 (West of Scotland, South Minch) Otter trawl 56.3% (53.5-59.4%) winter; 45.7% (43.4-48.3%) in summer; overall 52.7% (50.9-59.4%) (Fox et al., 2020) - *Nephrops norvegicus* in Division 6.a, Functional Unit 13 (West of Scotland, the Firth of Clyde and Sound of Jura). Otter trawl winter short haul: 68-77.7%; Otter trawl spring short haul: 63.4-73.8%; Otter trawl early summer short haul: 81.3-88%; Otter trawl short autumn: 25-60% (Ridgway et al., 2006); Otter trawl autumn long: 10-17%; Otter trawl Spring: 38-42% (Albalat et al., 2016); - *Nephrops norvegicus* in Subarea 7, outside the functional units (southern Celtic Seas, southwest of Ireland) Otter

	trawl 80mm cod end with SELTRA 300 SMP in 7b: 64% (range 58 - 79%) summer (Oliver et al., 2017). - *Nephrops norvegicus* in Division 4.a, Functional Unit 8 (Firth of Forth) Otter trawl: 74.5% (71.8-77.1%) summer only (Fox et al., 2020) - *Nephrops norvegicus* in Division 4.b, Functional Unit 6 (FU6; Farn Deeps) 80mm cod-end with NetGrid selectivity device: 57 +/- 1.8% winter only (Fox et al., 2020).
CEFAS evaluation	There are several robust studies on the survival of *Nephrops* in area 6a, conducted in 2 of the three functional unit areas. The studies showed 46-56% survival in FU 12 (Fox et al., 2020) and 63-88% survival in FU 13 (Albalat et al., 2016); an older study showed lower survival levels down to 10% (Ridgeway et al., 2006). The higher survival in Albalat et al., 2016 is likely influenced by the fishing methods applied to supply the live *Nephrops* market and the short monitoring time of 48 hours and so probably overestimated the survival levels. Therefore, there is some uncertainty surrounding survival rates in the various fisheries in area 6a. Moreover, the recent estimates do not account for predation of discarded *Nephrops* and do not assess whether they are released to suitable habitats, therefore the operational survival levels are likely to be lower than reported. The TAC is landings based, and so no deduction is made to account for discard mortality under exemption. Where discards are accounted for in the assessment and appropriate conservative discard survival estimates are applied, the sustainability risk for the exemption is low.
Recommendation	Continue: discards should be accounted for in the assessment and appropriate conservative discard survival estimates applied.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 18-06: (p27, 138 & Annex II)
STECF report	PLEN 18-02 (p33-34)

High survival	
Exemption number	**5**
Exemption description	Common sole <MCRS; ICES division 7d; caught with otter trawl gears

Cefas review	
UK fishery data	
Fishery as defined for data extraction	*Beam, bottom trawls and seines (OTB, OTT, PTB, SDN, SSC, TBB), all mesh sizes, all vessel lengths, in ICES area 7d **Bottom trawls (OTB, OTT, PTB), all mesh sizes, vessel lengths "VL0006" (6m in length), "VL0010" (10m in length), in ICES area 7d
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	22
UK Landings of affected fleet (t)**	95.8
UK Discards of affected fleet (t)**	0
UK Catch of affected fleet (t)**	95.8
UK % Total catch taken by affected fleet**	17.8%

UK Discard Rate of affected fleet (%)**	0%
Additional relevant information	-
CEFAS evaluation	A survivability exemption has been in place in 7d since 2018 restricted to otter trawl vessels working within 6nm of the shore, that are under 10 metres in length, with a maximum engine size of 221 kW, fishing in depths of 30 metres or less, towing for no more than 1.5 hours and using a cod end mesh of 80-99mm. An equivalent exemption, with the same conditions has been in place in the southern North Sea (4c) since 2016. Both exemptions were supported by robust scientific discard survival studies. The risk of introducing an exemption to the relevant common sole stocks is considered negligible, with estimated discards released under exemption equating to less than 0.1% of total catches by UK vessels. A new proposal extending the existing common sole survivability exemptions in 7d and 4c to cover the wider area of 7a and d-g has also been evaluated.
Recommendation	Discontinue: to be replaced with new Exemption 74.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 18-06 (p26, 138): See Annex for further information
STECF report	PLEN 18-02 (p32-33): See Annex for further information

High survival	
Exemption number	**6**

Exemption description	Skates and ray species caught by any gear in ICES subareas 6 and 7

Cefas review	
UK fishery data	
Fishery as defined for data extraction	*All vessels fishing in ICES subareas 6 and 7 **All vessels fishing in ICES subareas 6 and 7
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	3057
UK Landings of affected fleet (t)**	145.7 for SRX/07; 1960.6 for SRX/67AKXD; 43 for RJU/7DE
UK Discards of affected fleet (t)**	76.3 for SRX/07 ; 670.3 for SRX/67AKXD; 2161.1 for RJU/7DE.
UK Catch of affected fleet (t)**	222 for SRX/07; 2631 for SRX/67AKXD; 54.2 for RJE/7FG.; 2204.1 for RJU/7DE.
UK % Total catch taken by affected fleet**	100%
UK Discard Rate of affected fleet (%)**	68.8% for SRX/07; 50.9% for SRX/67AKXD; 0% for RJE/7FG; 98.0% for RJU/7DE.
Additional relevant information	The following are compiled in a review by Desender et al. (2021) and analyses by Ribeiro Santos et al. (2021): - Thornback ray (RJC) discard survival is estimated at 54% in ICES area 7.d, 4.c from beam trawls based on captive observations (Van Bogaert et al., 2020)

	- Blonde ray (RJH) discard survival is estimated at 67% in ICES area 7.d, 4.c from beam trawls based on captive observations (Van Bogaert et al., 2020) - Spotted ray (RJM) discard survival is estimated at 27% in ICES area 7.d, 4.c from beam trawls based on captive observations (Van Bogaert et al., 2020) - Undulate ray (RJU) discard survival is estimated at 58% in ICES area 7.d, 4.c from beam trawls based on captive observations (Van Bogaert et al., 2020) - Thornback ray discard survival is estimated at 53% in ICES area 4.b, 4.c from pulse trawls based on captive observations (Schram & Molenaar, 2018) - Blonde ray discard survival is estimated at 86% in ICES area 7.d, 4.c for the otter trawl fishery based on captive observations (Van Bogaert et al., 2020) - Thornback ray discard survival is estimated at 72% in ICES area 7.d, 4.c for the otter trawl fishery based on captive observations (Van Bogaert et al., 2020) - Thornback ray discard survival is estimated at 95% (Catchpole et al., 2017) – 99% (Van Bogaert et al., 2020) for the ICES area 4.c, 7.d trammel net fishery (based on tagging and captive observations, respectively) - Blonde ray discard survival is estimated at 41-44% for the ICES area 7.e beam trawl fishery (based on modelled results (Catchpole et al., 2017) extending captive observations (Ellis et al., 2012) to asymptote, the timepoint after which no further discard associated mortality occurs) - Cuckoo ray (RJN) discard survival is estimated at 34-35% for the ICES area 7.e beam trawl fishery (based on modelled results (Catchpole et al., 2017) taking captive observations (Ellis et al., 2012) to asymptote) - Thornback ray discard survival is estimated at 57-69% for the ICES area 7.f otter trawl fishery (based on modelled results (Catchpole et al., 2017) taking captive observations (Enever et al., 2009) to asymptote). - Undulate ray survival is estimated at 49% for ICES area 8.a based on tagging (Morfin et al., 2019) - Thornback ray caught with trammel nets in the Eastern English Channel (ICES division 27.7.d), survival estimated at 94% (Ribeiro Santos et al., 2021).

	- Thornback ray caught with inshore otter trawl in the Thames area (ICES division 27.4.c), survival estimated at 97% (Ribeiro Santos et al., 2021). - Undulate ray caught with inshore otter trawl, using 70-99mm cod end mesh size, fishing in Lyme Bay (ICES division 27.7.e), survival estimated at 83% (Ribeiro Santos et al., 2021). - Thornback ray caught with longlines in Southern North Sea (ICES division 27.4.c), survival estimated at 75% (Ribeiro Santos et al., 2021). - Small-eyed ray caught with inshore otter trawl in Lyme Bay (ICES division 27.7.e), survival estimated at 55% (Ribeiro Santos et al., 2021). In an analysis of the health status of skates and rays at the point of release, the strongest relationship identified was that vigour of discarded rays was related to fish length. There was a higher proportion of fish assessed to be in good health condition for larger rays. Therefore, reducing catches of smaller rays would increase overall discard survival. Moreover, the differences in vigour with fish length was associated with species, indicating that smaller species, e.g. spotted ray and cuckoo ray, are more likely to be released in poor condition compared with larger species such as blonde ray and thornback ray. Furthermore, more smaller rays were caught with otter trawls compared with static and longline gears, and the proportion of rays in good condition was lower for otter trawls, indicating that, for the fisheries investigated here, survival may be higher when using static and longline gears.
CEFAS evaluation	This is a wide-ranging exemption covering all commercial skate and ray species caught by all fishing methods. As such, it is unlike other survival exemptions and therefore requires more evidence to support it. A comprehensive review of evidence across the North Sea and North Western Waters regions (Desender et al., 2021) showed estimated discard survival at 27-99% across different fisheries and species. Our understanding of the factors affecting survival is improving but not yet sufficient to extrapolate survival rates between fisheries, and key evidence gaps have been identified. The evidence generally supports that most blonde rays, undulate rays and thornback rays caught by otter trawls, trammel nets

	and longlines, survive after release. Survival is lowest for smaller skates and smaller species of skates (Alves et al., 2019) (such as Cuckoo ray, spotted ray and small-eyed ray), particularly those caught using beam trawls. Improvements in selectivity to avoid small rays, minimising towing durations and optimising handling would likely increase the survival chances of discarded rays. Although only to a limited extent, the anticipated new gear-based technical measures for the Celtic Sea otter trawlers will improve selectivity towards the smallest skates; similarly if current best practice in beam trawl gear measures was used more widely, it would provide modest selectivity improvements towards rays (see Exemption 15 and 19). The TACs are currently landings based, so no deduction is applied to account for exemptions. These species are vulnerable to overfishing and catch quotas that include discards and survival would provide added protection. There should continue to be a focus on introducing data on discards and survival levels in the assessments to better estimate overall levels of fishing mortality.
Recommendation	Continue: with appropriate deduction from the TAC to account for all discard mortality, recognising that survival varies between different species-fishery combinations. To be reviewed annually to address data gaps and review the inclusion of discard levels and survival in assessments.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 20-04: (p43, 185 & Annex 13)
STECF report	PLEN 20-02

High survival	
Exemption number	**7**
Exemption description	Plaice; ICES division 7d-g; trammel nets

Cefas review	
UK fishery data	
Fishery as defined for data extraction	*Netters (GTR, GNS, GTN), all mesh sizes, all vessel length, in ICES areas 7 d, e, f, g **Netters (GTR, GTN), all mesh sizes, all vessel length, in ICES areas 7 d, e, f, g
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	801
UK Landings of affected fleet (t)**	57.5 for PLE/7DE; 0 for PLE/7FG
UK Discards of affected fleet (t)**	7.5 for PLE/7DE; 0 for PLE/7FG
UK Catch of affected fleet (t)**	65.24 for PLE/7DE; 0 for PLE/7FG
UK % Total catch taken by affected fleet**	2.45% for PLE/7DE; 0% for PLE/7FG
UK Discard Rate of affected fleet (%)**	22.62% for PLE/7DE; 0% for PLE/7FG
Additional relevant information	ICES WKSURVIVE (ICES, 2021a) recently collated all relevant and robust discard survival estimates for plaice: - TR1: 40-50% (Smith et al., 2015 unpubl.). - Trammel nets: 64% (Catchpole et al., 2015a) - Set nets 75/350 mm in ICES subdivsion 22-23: 100% in winter (Andersen et al., 2018)

CEFAS evaluation	There are relatively few studies on plaice survival for set nets compared with bottom trawls. There is one study in 7f relevant to the defined area which gave an estimate of 40-50%; and other estimates of 64% in area 4c and 100% in the Skagerrak and Kattegat. There is uncertainty in how representative these estimates are of the trammel net and fisheries in the wider 7d-g area. Survival estimates from these studies are substantial relative to other gears, and under some conditions all discarded plaice can survive. The level of survival is influenced by the retrieval and sorting method on the vessel; fish that are picked from the net and released as the nets are retrieved, will likely have higher survival chances. The proportion of catch taken by the exempt fleet is low, and there is a low sustainability risk. An appropriate deduction from the TACs, to ensure fishing mortality does not exceed the agreed catch limits, based on precautionary levels of survival, would mitigate the risk of overfishing.
Recommendation	Continue with modification: with appropriate deduction from the TAC to account for all discard mortality, and with the conditionality that fish are released during the net hauling process, whenever possible.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 18-06: (p28, 140 & Annex IV, V): See Annex for further information
STECF report	PLEN 18-02: (p35-36): See Annex for further information

High survival	
Exemption number	**8**
Exemption description	Plaice; 7d-g; Otter trawls; TR1-TR3;
Cefas review	

UK fishery data	
Fishery as defined for data extraction	*Bottom trawls (OTB, OTT, PTB, TBN), mesh size >16mm, all vessel lengths, in ICES areas 7d, e, f and g **Otter trawls (OTB, OTT, PTB), all mesh sizes, all vessel lengths, in ICES areas 7d,e,f and g
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Plaice 7fg: Official landings raised via estimated discard ratio to total catches using UK observer data.
Number UK vessels*	215
UK Landings of affected fleet (t)**	11.3t for PLE/7FG, 728.2t for PLE/7DE
UK Discards of affected fleet (t)**	5.8t for PLE/7FG and 343.8t for PLE/7DE
UK Catch of affected fleet (t)**	17t for PLE/7FG and 1072t for PLE/7DE
UK % Total catch taken by affected fleet**	32.7% for PLE/7FG and 35.1% for PLE/7DE
UK Discard Rate of affected fleet (%)**	33.9% for PLE/7FG and 32.1% for PLE/7DE
Additional relevant information	Survival of plaice discarded from otter trawls in the English Channel, evidence from France and England (Morfin et al., 2017).
CEFAS evaluation	Robust discard survival evidence (63-67%; but indicated lower in summer 45%). The exemption assumes survival evidence is representative of the whole fleet, but there is no data for 7d. The exemption includes TR3, although there is no survival

	evidence for this mesh size range and no other plaice exemptions include it. It would be appropriate to limit the exemption to TR1 and TR2 and the inclusion of TR3 should be further reviewed. The discard mortality is estimated at 11-18% of the total catch of PLE 7fg and PLE 7de. Sustainability risk is low when an appropriate deduction is made from the associated TACs to account for all discard mortality.
Recommendation	Continue: with appropriate deduction from the TAC to account for all discard mortality.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 18-06: (p29, 141 & Annex VI, VII)
STECF report	PLEN 18-02: (p35)

High survival	
Exemption number	**9**
Exemption description	Plaice; ICES subarea 7; beam trawls >221kW which use the flip-up rope or benthic release panel
Cefas review	
UK fishery data	
Fishery as defined for data extraction	*Beam trawls (TBB), mesh size >80mm, in ICES subarea 7 **Beam trawls (TBB), all mesh sizes, all lengths, in ICES subarea 7
Data source	*Number UK vessels: Official landings database (IFISH, 2018)

	**Fishery information: FDI 2018
Max. Number UK vessels*	66
UK Landings of affected fleet (t)**	8.8 for PLE/07A.; 0 for PLE/7BC.; 1060.8 for PLE/7DE.; 126.6 for PLE/7FG.; 1.3 for PLE/7HJK.
UK Discards of affected fleet (t)**	0 for PLE/07A.; 0 for PLE/7BC.; 254.2 for PLE/7DE.; 228.9 for PLE/7FG.; 6.6 for PLE/7HJK.
UK Catch of affected fleet (t)**	8.8 for PLE/07A.; 0 for PLE/7BC.; 1315 for PLE/7DE.; 355.6 for PLE/7FG.; 8 for PLE/7HJK.
UK % Total catch taken by affected fleet**	0.8% for PLE/07A.; 0% for PLE/7BC.; 49.4% for PLE/7DE.; 80.8% for PLE/7FG.; 99.7% for PLE/7HJK.
UK Discard Rate of affected fleet (%)**	0% for PLE/07A.; 0% for PLE/7BC.; 22.2% for PLE/7DE.; 74% for PLE/7FG.; 96% for PLE/7HJK.
Additional relevant information	ICES WKSURVIVE (ICES, 2021a) recently collated all relevant and robust discard survival estimates for plaice: - Beam trawl (7e) 4-15% winter period (Catchpole et al., 2015a) - Beam trawl (7e) 23-27% (modelled) (range 16-41%) (Catchpole et al., 2020; unpubl.). - Beam trawl 80-119mm cod end (7d, e, h, g) 30-33% (Uhlmann et al., 2018) - Beam trawl (7f) 61-68% (modelled) (range 47-76%) (Catchpole et al., 2020 unpubl.) Catchpole, T. (2020e; unpubl.). A presentation: UK SW beam trawl specifications 2020. A summary of data provided by the English beam trawl fleet. A Cefas presentation commissioned by Defra, October 2020. Provided in Annex 6 of this report.

CEFAS evaluation	There is sufficient evidence to indicate that the survival of discarded plaice is typically lower for beam trawls than for other gears. The survival has been observed at around 10-30%, but there is variability in the estimates depending on conditions, with a range of 4-76%. An analysis of factors affecting the health condition of plaice at the time of release (across various gears) identified that increased fish length was linked with higher health condition, while higher temperatures were associated with decreases in vitality (Maxwell et al., 2018). Reducing catch weight and the catches of unwanted small plaice, along with minimising the effects of air exposure by modifying the sorting process would increase the overall survival rates of discarded plaice. The UK South West beam trawl fleet are already using gears that are more selective than the regulated requirements – more details are given in Exemption 15. Improvements in selectivity which would expect to reduce discards and increase discard survival, and are already in use, are the following: Option 1 - most used UK configuration: - Square section: 300mm - Lower panel: 150mm - Batings: 150mm - Sleave (location of Flemish panel): 150mm - cod end: 90mm single 6mm Option 2 - most selective UK configuration: - Square section: 300mm - Lower panel: 180mm - Batings: 180mm - Sleave (location of Flemish panel): 160mm - cod end: 106mm An appropriate deduction from the TACs, to ensure fishing mortality does not exceed the agreed catch limits, based on precautionary levels of survival, would mitigate the risk of overfishing. There is a specific issue for the PLE/HJK stock, which is assessed to be in a poor condition and zero catch is advised (ICES, 2020). Therefore, there should be a reduction in overall catches and the stock represents a significant

	potential choke risk. However, there are limitations in the ICES stock assessment data and questions around the stock spatial area. A review of survival and stock evidence conducted by Catchpole et al., 2020 concluded that, due to the economic significance to the fishing industry, questions concerning the scientific stock assessment need to be answered to inform on the appropriateness of an exemption. It is proposed that effective monitoring and reporting of catches should be made a condition of awarding an exemption for the PLE/7HJK stock, the data from which could be used to improve the assessment.
Recommendation	Continue with modification: with appropriate deduction from the TAC to account for all discard mortality; and effective catch monitoring for the PLE/HJK stock to improve the assessment for this stock. Recommend modifying the gear conditionality to either option 1 or 2 – see Exemption 15 for further information.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 20-04: (p44,186 & Annex 8): See Annex for further information
STECF report	PLEN 20-02

High survival	
Exemption number	**10**
Exemption description	Plaice; ICES division 7 a-k; BT2 beam trawls within 12nm and tow <90 mins
Cefas review	
UK fishery data	

Fishery as defined for data extraction	*Beam trawls (TBB), mesh size >80mm, in ICES subarea 7 **Beam trawls (TBB), all mesh sizes, all lengths, in ICES subarea 7
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	66
UK Landings of affected fleet (t)**	8.8 for PLE/07A.; 0 for PLE/7BC.; 1060.8 for PLE/7DE.; 126.6 for PLE/7FG.; 1.3 for PLE/7HJK.
UK Discards of affected fleet (t)**	0 for PLE/07A.; 0 for PLE/7BC.; 254.2 for PLE/7DE.; 229 for PLE/7FG.; 6.6 for PLE/7HJK.
UK Catch of affected fleet (t)**	8.8 for PLE/07A.; 0 for PLE/7BC.; 1315 for PLE/7DE.; 355.6 for PLE/7FG.; 8 for PLE/7HJK.
UK % Total catch taken by affected fleet**	0.7% for PLE/07A.; 0% for PLE/7BC.; 49.4% for PLE/7DE.; 80.8% for PLE/7FG.; 99.7% for PLE/7HJK.
UK Discard Rate of affected fleet (%)**	0% for PLE/07A.; 0% for PLE/7BC.; 22.2% for PLE/7DE.; 74% for PLE/7FG.; 96% for PLE/7HJK.
Additional relevant information	ICES WKSURVIVE (ICES, 2021a) recently collated all relevant and robust discard survival estimates for plaice: - Beam trawl (7e) 4-15% winter period: (Catchpole et al. 2015a) - Beam trawl (7e) 23-27% (modelled) (range 16-41%): (Catchpole et al., 2020). - Beam trawl with mesh size 80-119 mm cod end (7d, e, h, g) 30-33%: (Uhlmann et al., 2018)

	- Beam trawl (7f) 61-68% (modelled) (range 47-76%): (Catchpole et al., 2020).
CEFAS evaluation	There is sufficient evidence to suggest that the survival of discarded plaice is typically lower for beam trawls than for other gears. The survival has been observed at around 10-30%, but there is variability in the estimates depending on conditions, with a range of 4-76%. An analysis of factors affecting the health condition of plaice at the time of release (across various gears) identified that increased fish length was linked with better health condition, while higher temperatures were associated with decreases in vitality (Maxwell et al., 2018). Reducing catch weight and the catches of unwanted small plaice, along with minimising the effects of air exposure by modifying the sorting process are anticipated to increase the overall survival rates of discarded plaice. Therefore, improvements in selectivity identified in Exemption 15 would be expected to reduce discards and increase discard survival. An appropriate deduction from the TACs, to ensure fishing mortality does not exceed the agreed catch limits, based on precautionary levels of survival, would mitigate the risk of overfishing. There is a specific issue for the plaice 7h.j.k. stock, which is assessed to be in a poor condition and zero catch is advised. Therefore, there should be a reduction in overall catches and the stock represents a significant potential choke risk. However, there are limitations in the ICES stock assessment data and questions around the stock spatial area. A review of survival and stock evidence was conducted by Catchpole et al., 2020, concluding that, due to the economic significance to the fishing industry, questions concerning the scientific stock assessment need to be answered to inform on the appropriateness of an exemption. It is proposed that effective monitoring and reporting of catches should be made a condition of awarding an exemption for this stock. The data generated would be used to improve the assessment. The exemption specifies the maximum distance from shore (within 12nm); however, the evidence does not allow for the evaluation of such a condition.

Recommendation	Continue with modification: with appropriate deduction from the TAC to account for all discard mortality; and effective catch monitoring for the 7hjk stock to improve the assessment for this stock. Recommendation to modify the gear conditionality with either option 1 or 2 – see Exemption 15.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 20-04 (p44, 186 & Annex 8): See Annex for further information
STECF report	PLEN 20-02

High survival	
Exemption number	**11**
Exemption description	Plaice; ICES division 7d; seines

Cefas review	
UK fishery data	
Fishery as defined for data extraction	*Danish seines (SDN), all mesh sizes, all vessel lengths, in ICES area 7d **Danish seines (SDN), all mesh sizes, all vessel lengths, in ICES area 7d
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	0

UK Landings of affected fleet (t)**	0
UK Discards of affected fleet (t)**	0
UK Catch of affected fleet (t)**	0
UK % Total catch taken by affected fleet**	0
UK Discard Rate of affected fleet (%)**	0
Additional relevant information	-
CEFAS evaluation	The exemption applies only to Danish seines, whereas the exemption was originally requested for Scottish seines. It is unclear how much activity there is from Danish seines relative to Scottish seines. No survival evidence was presented for the defined seine fishery. The evidence to support this exemption is based on Danish seines area 3.a, which is now outside the area covered by this exemption. Survival rate for undersized plaice was 78% (Confidence Interval: 67-87%), but this was affected by air exposure. Survival dropped to 20% (Confidence Interval: 4-62%) after 30 min of air exposure. 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. If appropriate precautionary

	deductions are made from the TAC, that account for uncertainties in survival rates, it will mitigate overfishing.
Recommendation	Continue: with appropriate precautionary deduction from the TAC to account for all discard mortality, recognising that survival could be lower in the Dutch flyshoot fisheries.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 19-08: (p26, 109 & Annex E)
STECF report	PLEN 19-02 (p57-58)

High survival	
Exemption number	**12**
Exemption description	All species; ICES division 5b and subarea 6 and 7; pots, traps and creels
Cefas review	
UK fishery data	
Fishery as defined for data extraction	*All pots/traps and creel vessels fishing in ICES subareas 5b, 6 and 7 **All pots/traps and creel vessels fishing in ICES subareas 5b, 6 and 7
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018

Max. Number UK vessels*	1551
UK Landings of affected fleet (t)**	2326.2 for several TACs (summed across TACs)
UK Discards of affected fleet (t)**	0 for several TACs (summed across TACs)
UK Catch of affected fleet (t)**	2326.2 for several TACs (summed across TACs)
UK % Total catch taken by affected fleet**	17% (mainly NEP 5BC6)
UK Discard Rate of affected fleet (%)**	Not Applicable
Additional relevant information	-
CEFAS evaluation	Survival likely to be substantial, pots are designed to retain shellfish species, catch rates are low for fish species. Avian predation should be considered. There is a low sustainability risk.
Recommendation	Continue
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 18-06: (p31, 143 & Annex IX)
STECF report	PLEN 18-02: (p37)

De minimis	
Exemption number	**13**
Exemption description	Whiting; Celtic Sea ICES division 7b-k; bottom trawls, seines and beam trawls; *De minimis* 5%

Cefas review	
UK fishery data	
Fishery as defined for data extraction	*Beam, bottom trawls and seines (OTB, OTT, PTB, SDN, SSC, TBB), all mesh sizes, all vessel lengths, in ICES areas 7b,c, e-k **Beam, bottom trawls and seines (OTB, OTT, PTB, OTM, PTM, SDN, SSC, SPR, SV, TBB), all mesh sizes, all vessel lengths, in ICES areas 7b-k
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	249
UK Landings of affected fleet (t)**	737.5
UK Discards of affected fleet (t)**	194.9
UK Catch of affected fleet (t)**	932.4
UK % Total catch taken by affected fleet**	78%

UK Discard Rate of affected fleet (%)**	20.9%
Additional relevant information	Overall ENG observer program = 42% discard rate English fleets: Otter trawl 79-99 mm whiting discard rate 43% (in 2019); Otter trawl >100 mm whiting discard rate ~20%; Beam trawl 79-99mm discard rate 82%; Beam trawl 100-119mm discard rate 45% (Ribeiro Santos et al., 2021).
CEFAS evaluation	The anticipated introduction of new technical measures in the UK waters of the Celtic Sea for the otter trawl fleet (new default minimum of 100mm cod end with, in some areas, a square mesh panel) is expected to reduce unwanted whiting catches. It is noted that the cod and whiting stocks in the Celtic Sea are heavily depleted, and the anticipated technical measures should help reduce fishing mortality on these stocks. It would be difficult to improve the gear-based selectivity beyond these new otter trawl measures in the short term, due to losses to other marketable catches such as common sole and lemon sole (Forster, 2015; Forster et al., 2018; Guy-Fierens et al., 2021). In 2019, the discard rates exceeded the *de minimis* amount for otter trawlers and beam trawlers, particularly for smaller mesh gears (79-99mm); 42% discard rate vs 5% *de minimis*. Most of the Celtic Sea whiting catch is taken by the otter trawl fleet. In the absence of monitoring and managing the uptake of the allowable *de minimis* amount, there is substantial risk of overfishing of this stock for which the spawning–stock size is below biological reference points (MSY $B_{trigger}$, B_{pa}, and B_{lim}). The UK beam trawl fleet currently use a range of gear configurations with varying selective performance. The current exemption for all vessels using at least 80mm cod ends does not reflect the improvements in selectivity made by many UK vessels. In order to meet the criteria of a *de minimis* exemption, it would require making conditional the use of the more selective beam trawls currently in use (see options 1 and 2 in Exemption 15). Under this exemption most of the unwanted catch of whiting would still need to come ashore.

	Increased uptake of more selective bottom trawls will benefit other species caught in the fisheries and reduce unwanted catches. There is a high risk of fishing mortality exceeding the agreed catch limits - 78% of UK catches come under this exemption and discard rates are substantially higher than the permitted *de minimis* amount of 5%
Recommendation	Continue with modification: recommendation to modify the gear conditionality so it is in line with new technical measures for the otter trawl fleet and with best practice for beam trawlers (option 1 or 2 - see Exemption 15). There is a high risk of fishing mortality exceeding the agreed catch limit. The uptake of the permitted *de minimis* amount must be monitored to mitigate against overfishing. In the absence of effective monitoring, this exemption should be discontinued.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 18-06 (p24, 140 & Annex X): See Annex for further information
STECF report	PLEN 18-02 (p31-32): See Annex for further information

De minimis	
Exemption number	**14**
Exemption description	Sole; ICES subdivision 7d-7g; Trammel and gill nets; *De minimis* 3%
Cefas review	
UK fishery data	
Fishery as defined for data extraction	*Trammel and gill nets (GTR, GNS), all mesh sizes, all vessel lengths, in ICES areas 7d-g

	**Trammel and gill nets (GTR, GNS, GND, GNC, GTN), all mesh sizes, all vessel lengths, in ICES areas 7d-g
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	801
UK Landings of affected fleet (t)**	267 for SOL/07D.; 83.5 for SOL/07E.; 2.9 for SOL/7FG.
UK Discards of affected fleet (t)**	9.6 for SOL/07D.; 0 for SOL/07E.; 0 for SOL/7FG.
UK Catch of affected fleet (t)**	276.7 for SOL/07D.; 83.5 for SOL/07E.; 2.9 for SOL/7FG.
UK % Total catch taken by affected fleet**	68.5% for SOL/07D.; 10.6% for SOL/07E.; 1.6% for SOL/7FG.
UK Discard Rate of affected fleet (%)**	3.5% for SOL/07D.; 0% for SOL/07E.; 0% for SOL/7FG.
Additional relevant information	-
CEFAS evaluation	Discard rates of common sole according to CEFAS observer data is between 0-14% (Ribeiro Santos et al., 2021). This is higher than the discard rates indicated by STECF FDI (0-3%). Discarding is overall generally low, and these fishing gears are tuned to catch common sole at and above the MCRS (Ford et al., 2020), and selectivity improvements through increases in mesh size would incur losses of marketable sole. Therefore, it is reasonable to argue that there are difficulties in improving selectivity to avoid the residual catches of <MCRS fish.

	With discard rates possibly up to 10% higher than the *de minimis* amount , there is a moderate sustainability risk. Consider increasing the *de minimis* amount to its maximum (5%) to increase the TAC deduction and reduce this risk.
Recommendation	Continue: the uptake of the permitted *de minimis* amount must be monitored to mitigate against overfishing.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 15-10 Landing Obligation - Part 5 (p.7, 24 & Annex IV)
STECF report	PLEN 15-02 (p15)

De minimis	
Exemption number	**15**
Exemption description	Common sole; ICES division 7d,e,f,g ; Beam trawls using Flemish panel; 80-119mm cod end; BT2; up to a maximum of 3% of the total annual catches of that species by vessel. Flemish Panel means the last tapered netting section of a beam trawl, the posterior of which is directly attached to the cod-end. The upper and lower netting sections of the panel are constructed of at least 120 mm mesh as measured between the knots and the panel must have a stretched length of at least 3 m.
Cefas review	
UK fishery data	

Fishery as defined for data extraction	*Beam trawls (TBB), mesh size 80-119mm, all vessel lengths, in ICES areas 7d, e, f, g **Beam trawls (TBB), all mesh sizes, all vessel lengths, in ICES areas 7d, e, f, g
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	62
UK Landings of affected fleet (t)**	146.5 for SOL/7FG; 48.8 for SOL/7D; 624 for SOL/7E
UK Discards of affected fleet (t)**	9.1 for SOL/7FG, 0 for SOL/7D and SOL/7E
UK Catch of affected fleet (t)**	155.5 for SOL/7FG; 48.8 for SOL/7D; 624.1 for SOL/7E
UK % Total catch taken by affected fleet**	86.6% for SOL/7FG; 12.1% for SOL/7D; 79.5% for SOL/7E;
UK Discard Rate of affected fleet (%)**	5.8% for SOL/7FG; 0% for SOL/7D and SOL/7E
Additional relevant information	Catchpole, T. (2020e; unpubl.). A presentation: UK SW beam trawl specifications 2020. A summary of data provided by the English beam trawl fleet. A Cefas presentation commissioned by Defra, October 2020. Provided in Annex 6 of this report.
CEFAS evaluation	The UK South West beam trawl fleet are already using gears that are more selective than the regulated Flemish panel design (sleave section). The view that it is difficult to improve selectivity beyond the Flemish panel design is therefore not substantiated. Also, the mesh size of Flemish panel specified in the Delegated Act is 120mm compared to what was originally tested, i.e. a 150mm panel. This will reduce the

	effectiveness of the panel and not give the reductions in unwanted catches observed in the trials. Increased uptake of more selective trawls will benefit other species caught and reduce unwanted catches. To meet the criteria of a *de minimis* exemption based on difficulties to improve selectivity would necessitate making conditional the use of more selective gears that are currently in use: Option 1 - most used UK configuration: - Square section: 300mm - Lower panel: 150mm - Batings: 150mm - Sleave (location of Flemish panel): 150mm - cod end: 90mm single 6mm Option 2 - most selective UK configuration: - Square section: 300mm - Lower panel: 180mm - Batings: 180mm - Sleave (location of Flemish panel): 160mm - cod end: 106mm The discard rate of 6% in 7fg is higher than the *de minimis* amount of 3%. Even after an appropriate TAC deduction is made, unless the *de minimis* catches are capped at 3% there is a risk of overfishing in 7fg, albeit by a relatively small amount. Most of the catch is taken by beam trawl vessels, except in 7d. This risk can be mitigated by either monitoring uptake of the *de minimis* catches or aligning the *de minimis* % with the discard rate. The estimated discard rate of 0% in 7d and 7e should be verified using other data sources. A change in the gear required to access the exemption would affect some UK vessels; and may have more impact on EU vessels (for example, reducing catches of small but marketable sole).
Recommendation	Continue with modification: recommendation to modify the gear conditionality (to either option 1 or 2) and increase the *de*

	minimis amount to match discard rate (6%) in 7fg (and verify discard rates for 7d and 7e).
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 15-10 - Landing obligations - Part5 (p24-25): See Annex for further information
STECF report	PLEN 15-01: For info Flemish panel PLEN 15-02 (p15): See Annex for further information

De minimis	
Exemption number	**16**
Exemption description	Haddock; ICES divisions 7b, 7c and 7e-7k; bottom trawls, seines and beam trawls with a mesh size equal to or greater than 80 mm
Cefas review	
UK fishery data	
Fishery as defined for data extraction	*Bottom trawls, demersal seines and beam trawls (OTB, OTT, PTB, TBN, SSC, SDN, TBB), mesh >=80mm, all vessel lengths, in ICES areas 7bc, e-k **Bottom trawls, demersal seines and beam trawls (OTB, OTT, PTB, SSC, SDN, SPR, SV, TBB), all mesh sizes, all vessel lengths, in ICES areas 7bc, e-k
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018

Max. Number UK vessels*	235
UK Landings of affected fleet (t)**	453.8
UK Discards of affected fleet (t)**	1074.4
UK Catch of affected fleet (t)**	1528
UK % Total catch taken by affected fleet**	92.3%
UK Discard Rate of affected fleet (%)**	70.2%
Additional relevant information	-
CEFAS evaluation	The anticipated introduction of new technical measures in the UK waters of the Celtic Sea for the otter trawl fleet (new default minimum of 100mm cod end with, in some areas, a square mesh panel) is expected to reduce unwanted haddock catches. It is noted that the cod and whiting stocks in the Celtic Sea are heavily depleted, and the anticipated technical measures should help reduce fishing mortality on these stocks as well. At this time, it would be difficult to improve the gear-based selectivity beyond these new otter trawl measures in the short term, due to losses to other marketable catches such as common sole and lemon sole (Forster, 2015; Forster et al., 2018; Guy-Fierens et al., 2021). Effective implementation of new otter trawl measures should be the priority and should be a condition of the use of this exemption. In 2019, the discard rates exceeded the *de minimis* amount for otter trawlers and beam trawlers, particularly for smaller mesh gears (79-99mm). Most of the Celtic Sea haddock catch is taken by the otter trawl fleet. In the absence of monitoring and managing the uptake of the allowable *de minimis* amount,

	there is substantial risk of overfishing. For example, without limiting discards to the *de minimis* amount, a continued discard rate of 36% (assuming all otter trawl vessels switch to 100mm cod end) could potentially result in exceeding the ENG otter trawl quota by 29%. The UK beam trawl fleet are currently using a range of gear configurations with varying selective performance. The current exemption for all vessels using at least 80mm cod ends does not reflect the improvements in selectivity made by many UK vessels. To meet the criteria of gaining a *de minimis* exemption would require making conditional the use of the more selective beam trawls currently in use (see options 1 and 2 in Exemption 15). Under this exemption most of the unwanted catch of haddock would still need to come ashore. Developing technical measures to reduce unwanted catches should continue to be the priority. Increased uptake of more selective bottom trawls will also benefit other species caught in the fisheries and reduce unwanted catches. There is a high risk of fishing mortality exceeding the agreed catch limits - 92% of UK catches come under this exemption and discard rates are substantially higher than the permitted *de minimis* amount of 5%.
Recommendation	Continue with modification: recommendation to modify the gear conditionality so it is in line with new technical measures for the otter trawl fleet and with current best practice for beam trawlers (either option 1 or 2 - see Exemption 15). There is a high risk of fishing mortality exceeding the agreed catch limit. In the absence of effective monitoring, this exemption should be discontinued.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 20-04: (p36, 174 & Annex 3): See Annex for further information
STECF report	PLEN 20-02

De minimis	
Exemption number	**17**
Exemption description	Horse mackerel; ICES subarea 6 and ICES divisions 7b-7k, bottom trawls, seines and beam trawls; *De minimis* 7%
Cefas review	
UK fishery data	
Fishery as defined for data extraction	*Bottom trawls, seines and beam trawls (OTB, OTT, PTB, TBN, SDN, SSC, TBB), all mesh sizes, all vessel lengths, in ICES subarea 6 and ICES areas 7b-k **Bottom trawls, seines and beam trawls (OTB, OTT, PTB, SDN, SPR, SSC, SV, TBB), all mesh sizes, all vessel lengths, in ICES subarea 6 and ICES areas 7b-k
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	557
UK Landings of affected fleet (t)**	13 for JAX/2A-14; 68.8 for JAX/4BC7D
UK Discards of affected fleet (t)**	23.2 for JAX/2A-14; 5 for JAX/4BC7D
UK Catch of affected fleet (t)**	36.3 for JAX/2A-14; 73.8 for JAX/4BC7D
UK % Total catch taken by affected fleet**	0.9 for JAX/2A-14; 3 for JAX/4BC7D

UK Discard Rate of affected fleet (%)**	64% for JAX/2A-14; 6.8% for JAX/4BC7D
Additional relevant information	-
CEFAS evaluation	The discard rates are variable between the two-horse mackerel TACs of 6% and 64% for the English fleets (STECF FDI). Where the discard rate exceeds the *de minimis* amount, without monitoring the uptake of the permitted *de minimis* amount, there is a risk of overfishing. The proportion of the total catch of horse mackerel taken by the fleet under this exemption is relatively low (the vast majority of catches are taken in pelagic fisheries), therefore the sustainability risk to the stock is relatively low. 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. The gear conditionalities for this fleet as recommended in Exemption 15 would expect to improve selectivity towards horse mackerel.
Recommendation	Continue: the uptake of the permitted *de minimis* amount should be monitored to mitigate overfishing.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 20-04: (p175-176, Annex 4)
STECF report	PLEN 20-02

De minimis	
Exemption number	**18**

Exemption description	Mackerel; ICES subarea 6 and ICES divisions 7b to 7k; bottom trawls, seines and beam trawls; *De minimis* 7%
Cefas review	
UK fishery data	
Fishery as defined for data extraction	*Bottom trawls, seines and beam trawls (OTB, OTT, PTB, TBN, SDN, SSC, TBB), all mesh sizes, all vessel lengths, in ICES subarea 6 and ICES areas 7b–k **Bottom trawls, seines and beam trawls (OTB, OTT, PTB, SDN, SPR, SSC, SV, TBB), all mesh sizes, all vessel lengths, in ICES subarea 6 and ICES areas 7b-k
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	557
UK Landings of affected fleet (t)**	1930.2
UK Discards of affected fleet (t)**	126.1
UK Catch of affected fleet (t)**	2056.2
UK % Total catch taken by affected fleet**	2.5%
UK Discard Rate of affected fleet (%)**	6.1%

Additional relevant information	English fleets (2019): 64% discard rate for otter trawls 79-99 mm (Ribeiro Santos et al., 2019; Ribeiro Santos et al., 2021).
CEFAS evaluation	Evidence that landing unwanted catches has an associated cost is not sufficient to demonstrate those costs are disproportionate. The discard rate is estimated at 64% for the English 79-99mm otter trawl fleets (Ribeiro Santos et al., 2019) relative to a *de minimis* amount of 7%; the overall discard rate for all affected fleets is given as 6%, the reason for the discrepancy in the figures is unclear (STECF FDI). The proportion of the total catch of horse mackerel taken by the fleet under this exemption is low at 2.5% (most catches are taken in pelagic fisheries), therefore the sustainability risk to the stock is low. The gear conditionalities for this fleet as recommended in Exemption 15 would be expected to improve selectivity towards mackerel.
Recommendation	Continue: the uptake of the permitted *de minimis* amount should be monitored to mitigate overfishing.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 20-04: (p176-177, Annex 5)
STECF report	PLEN 20-02

De minimis	
Exemption number	**19**
Exemption description	Common sole; ICES divisions 7a, 7j and 7k; beam trawls with mesh size of 80-119mm with a large mesh panel (Flemish panel); *De minimis* 3%

Cefas review	
UK fishery data	
Fishery as defined for data extraction	*Beam trawls (TBB), mesh size 80-119mm, all vessel lengths, in ICES areas 7a, j, and k **Beam trawls (TBB), all mesh sizes, all vessel lengths, in ICES areas 7a, j, and k
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	4
UK Landings of affected fleet (t)**	0.6 for SOL/07A.; 0 for SOL/7HJK.
UK Discards of affected fleet (t)**	0 for SOL/07A.; 0 for SOL/7HJK.
UK Catch of affected fleet (t)**	0.6 for SOL/07A.; 0 for SOL/7HJK.
UK % Total catch taken by affected fleet**	0.6% for SOL/07A.; 0% for SOL/7HJK.
UK Discard Rate of affected fleet (%)**	Not Applicable
Additional relevant information	FDI catches of UK fleet in 7a catching common sole: OTB= 2t, GNS= 0.7t, TBB= 0.1t, LLS= 0.1t, LHP= 0t, FPO=0t Catchpole, T. (2020e; unpubl.). A presentation: UK SW beam trawl specifications 2020. A summary of data provided by the English beam trawl fleet. A Cefas presentation commissioned by Defra, October 2020. Provided in Annex 6 of this report.

CEFAS evaluation	The STECF FDI indicates no discards from the UK fleet, so it is unclear if the exemption is needed. The UK SW beam trawl fleet are already using gears that are more selective than the regulated Flemish panel design (sleave section). The view that it is difficult to improve selectivity beyond the Flemish panel design is therefore not substantiated. Also, the mesh size of Flemish panel specified in the Delegated Act is 120mm compared to what was originally tested, i.e. a 150mm panel. This will reduce the effectiveness of the panel and not give the reductions in unwanted catches observed in the trials. Increased uptake of the more selective trawls currently in use will benefit other species caught and reduce unwanted catches. To meet the criteria of a *de minimis* exemption based on difficulties to improve selectivity would necessitate making conditional the use of more selective gears that are currently in use: Option 1 - most used UK configuration: - Square section: 300mm - Lower panel: 150mm - Batings: 150mm - Sleave (Flemish panel): 150mm - cod end: 90mm single 6mm Option 2 - most selective UK configuration: - Square section: 300mm - Lower panel: 180mm - Batings: 180mm - Sleave (Flemish panel): 160mm - cod end: 106mm There is a relatively low risk of overfishing as the affected UK fleet catches only a small proportion of the TAC. To note, the EU have removed areas j and k from this exemption for 2021; area k is outside UK waters.
Recommendation	Continue with modification: recommendation to modify the gear conditionality (either option 1 or 2).

Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 20-04 (p180-181, Annex 9): See Annex for further information
STECF report	PLEN 20-02

De minimis	
Exemption number	**20**
Exemption description	Megrim below MCRS; ICES subarea 7; bottom trawls with a mesh size of 70-99mm and beam trawls with a mesh size of 80-119mm; *De minimis* 5%
Cefas review	
UK fishery data	
Fishery as defined for data extraction	*Bottom trawls (OTB, PTB, OTT, TBN) 70-99mm and beam trawls (TBB) 80-119mm, all vessel lengths, in ICES subarea 6 and 7 **Bottom trawls (OTB, PTB, OTT) and beam trawls (TBB), all mesh sizes, all vessel lengths, in ICES subarea 6 and 7
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	352
UK Landings of affected fleet (t)**	2442.9

UK Discards of affected fleet (t)**	106.5
UK Catch of affected fleet (t)**	2549
UK % Total catch taken by affected fleet**	99.4%
UK Discard Rate of affected fleet (%)**	4.2%
Additional relevant information	English fleets (2019): 7% discard rate for otter trawls 79-99 mm, otter trawls >=100mm discard rate 9%, beam trawls 79-99mm discard rate ~10% (Ribeiro Santos et al., 2019).
CEFAS evaluation	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. The discard rates of the affected fleet are relatively low, although some estimates are higher than the permitted 5% *de minimis* allowance. The gear conditionalities for this fleet as recommended in Exemption 15 would expect to improve selectivity towards megrim. There is a relatively low risk of overfishing as the affected fleet discard rate is similar to the allowable *de minimis* amount.
Recommendation	Continue: the uptake of the permitted *de minimis* amount should be monitored to mitigate overfishing.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 20-04: (p181-182, Annex 10)
STECF report	PLEN 20-02

De minimis	
Exemption number	**21**
Exemption description	Boarfish; ICES divisions 7b-c and 7f-k; bottom trawls; *de minimis* 0.5%

Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Bottom trawls (OTB, OTT, PTB, TBN), all mesh sizes, all vessel lengths, in ICES areas 7bc, f-k ** Bottom trawls (OTB, OTT, PTB), all mesh sizes, all vessel lengths, in ICES areas 7bc, f-k
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	76
UK Landings of affected fleet (t)**	0
UK Discards of affected fleet (t)**	0
UK Catch of affected fleet (t)**	0
UK % Total catch taken by affected fleet**	0
UK Discard Rate of affected fleet (%)**	Not Applicable

Additional relevant information	English fleets (2019): 90-100% discard rate for otter trawls 79-99 mm, otter trawls >=100mm discard rate 36%, beam trawls 79-99mm discard rate 100% (Ribeiro Santos et al., 2019). ICES boarfish stock (ICES, 2019c) Projet CELSELEC. Amélioration de la sélectivité des chalutiers hauturiers en mer Celtique (Lamote et al., 2017).
CEFAS evaluation	Evidence that landing unwanted catches has an associated cost is not sufficient to demonstrate those costs are disproportionate. The discard rate of boarfish is 90-100% for the English bottom trawl fleets (ICES discard rate 100% for all demersal gears in 2018). A 100% discard rate makes estimating discard quantities more challenging. A *de minimis* amount of 0.5% of the catches of bottom trawls is much less than the estimated discard rate and would leave 99.5% of (unwanted) catches still having to be brought ashore. Around 10% of the total catch of the stock (ICES, 2019c) is caught and discarded by the demersal fleet, therefore, there is a risk of overfishing unless the uptake of the permitted *de minimis* amount is monitored. It is unclear why the *de minimis* amount is set so low at 0.5%, but even if set at the maximum of 7% it would still mean that 93% of catches would need to come ashore. It is also unclear why the exemption excludes ICES areas 7d and 7e, where vessels could make use of this exemption working in the same fisheries. To mitigate against overfishing a TAC deduction equating to the total estimated discard amount would need to be applied. Improving selectivity in the relevant fisheries should be the priority as this will reduce the costs for handling unwanted catches. The gear conditionalities for this fleet as recommended in Exemption 15 would expect to improve selectivity towards boarfish.
Recommendation	Continue with modification: recommendation to modify the gear conditionality so it is in line with new technical measures for the otter trawl fleet and with best practice for beam trawlers (either option 1 or 2 - see Exemption 15). Expand the exemption to ICES 7d and 7e. There is a moderate risk of fishing mortality exceeding the agreed catch limit unless the uptake of the

	permitted *de minimis* amount is monitored. Review after one year in light of estimated discard quantities.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 20-04 (p178-179): See Annex for further information
STECF report	PLEN 20-02

De minimis	
Exemption number	**22**
Exemption description	Greater silver smelt; ICES division 5b and subarea 6; bottom trawls with a mesh size greater or equal to 100mm; *de minimis* 0.6%
Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Bottom trawls (OTB, OTT, PTB, TBN), mesh size >=100mm, all vessel lengths, in ICES areas 5b and 6 ** Bottom trawls (OTB, OTT, PTB), all mesh sizes, all vessel lengths, in ICES areas 5b and 6
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	101

UK Landings of affected fleet (t)**	0
UK Discards of affected fleet (t)**	0
UK Catch of affected fleet (t)**	0
UK % Total catch taken by affected fleet**	0
UK Discard Rate of affected fleet (%)**	Not Applicable
Additional relevant information	From 1 July 2020, fishing vessels operating with bottom trawls or seines in ICES divisions 6a and 5b east of 12°W (West of Scotland) shall comply with the following technical measures: (a) mandatory use of a square mesh panel (positioning retained) of at least 300 mm for vessels deploying a cod-end mesh size less than 100 mm; for vessels below 12 m in length overall and/or with engine power of 200 kW or less, the panel overall length may be 2 m and the panel 200 mm in *Nephrops norvegicus* fisheries; (b) mandatory use of a square mesh panel (positioning retained) of at least 160 mm for vessels deploying a cod-end mesh size of 100-119 mm and if catches comprising more than 30 % of *Nephrops norvegicus*. Projet CELSELEC. Amélioration de la sélectivité des chalutiers hauturiers en mer Celtique (Lamote et al., 2017).
CEFAS evaluation	There is limited evidence to support this exemption, data provided on costs are not specific to greater silver smelt. Evidence that landing unwanted catches has an associated cost is not sufficient to demonstrate that those costs are disproportionate. Improving selectivity in the relevant fisheries should be the priority as this will reduce the costs for handling unwanted catches. There is evidence of improved selectivity with square mesh panels, and the new technical measures introduced in July 2020 in UK waters of 6a and 5b. The technical measures require the use of square mesh panels of

	160-300mm depending on the vessel characteristics and activity. Data on the uptake and effect of these measures for all fleets would be useful to understand the benefits to greater silver smelt. *De minimis* covers 100% of unwanted catches.
Recommendation	Continue: the uptake of the permitted *de minimis* amount should be monitored to mitigate overfishing.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 20-04 (p179-180, Annex 6)
STECF report	PLEN 20-02

De minimis	
Exemption number	**23**
Exemption description	Haddock below MCRS; ICES division 6a; Bottom trawls with a mesh size up to 119mm in the West of Scotland *Nephrops* fishery; *De minimis* 3%
Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Bottom trawls (OTB, PTB, OTT, TBN), mesh size <=119mm, all vessel lengths, in ICES area 6a ** Bottom trawls (OTB, PTB, OTT), all mesh sizes, all vessel lengths, in ICES area 6a
Data source	*Number UK vessels: Official landings database (IFISH, 2018)

	**Fishery information: FDI 2018
Max. Number UK vessels*	229
UK Landings of affected fleet (t)**	3088.2
UK Discards of affected fleet (t)**	941.8
UK Catch of affected fleet (t)**	4030
UK % Total catch taken by affected fleet**	91.5%
UK Discard Rate of affected fleet (%)**	23.4%

Additional relevant information	From July 2020, new technical measures were introduced. When fishing with trawls or seines with cod-end mesh size of 70 mm or greater but less than 100 mm, install into their fishing gear a 3m long, 200 mm square mesh escapement panel, positioned no further than 12-15 metres from the cod-line. For vessels with an engine power of 112 kilowatts or less the length of the panel may be 2 metres and 160 mm square mesh.
CEFAS evaluation	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. The new gear-based technical measures which came into effect in July 2020, are anticipated to improve selectivity towards haddock (and whiting). *De minimis* % is much lower than estimated discard rate. In the absence of monitoring and managing the uptake of the allowable *de minimis* amount, there is substantial risk of overfishing. Under this exemption most of the unwanted catch of haddock may still need to come ashore. Improving selectivity

	should be the priority as this will reduce the costs for handling unwanted catches. There are other tested more selective gears in this fishery, including the SELTRA panel and sorting grids.
Recommendation	Continue: there is a high risk of fishing mortality exceeding the agreed catch limit. The uptake of the permitted *de minimis* amount should be monitored to mitigate against overfishing. In the absence of effective monitoring, this exemption should be discontinued.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 19-08 (p105)
STECF report	PLEN 19-02 (p54)

De minimis	
Exemption number	**24**
Exemption description	Fish bycatch below MCRS in the Brown shrimp fishery; ICES division 7a; caught using beam trawls of mesh size >31mm; *De minimis* 0.85% of plaice and 0.15% of whiting in the demersal fisheries
Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Beam trawls, mesh size 16-31mm, all vessel lengths, in ICES area 7a ** Beam trawls, all mesh sizes, all vessel lengths, in ICES area 7a

Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	5
UK Landings of affected fleet (t)**	Not Available
UK Discards of affected fleet (t)**	Not Available
UK Catch of affected fleet (t)**	Not Available
UK % Total catch taken by affected fleet**	Not Applicable
UK Discard Rate of affected fleet (%)**	Not Applicable

Additional relevant information	Vessels with a beam length over 8m, which currently applies to two of the vessels in operation in the fishery, are required to have a veil to reduce bycatch of larger fish. The catch is riddled on deck to separate the target shrimp from under size fish, crabs and shrimp. Evaluating the efficacy of technical measures: a case study of selection device legislation in the UK *Crangon crangon* (Crangon) fishery (Catchpole et al., 2008). Survival of discarded catch in the Wash Brown Shrimp (*Crangon crangon*) Fishery (Elliott and Desender, 2018). The brown shrimp (*Crangon crangon*) fishery in the Solway Firth. Final report of a project partly financed by the Commission of the European Union under the GEREFORT experimental programme (Lancaster, 1996).

CEFAS evaluation	In this brown shrimp directed fishery, almost all the catches of species subject to landing obligation are discarded. The specificities of this fishery are well documented and show that the unwanted catches in this fishery are generally of very small fish, it is reasonable to accept that it is impractical to separate and land the fish bycatches. There have been developments in improving selectivity in this fishery (e.g. sieve nets) and this work should continue as the priority. Because all the very small fish are discarded, permitting a small percentage of those fish to be legally discarded is of little benefit and provides no solution to the issue of handling these unwanted catches. In this specific case it is appropriate that a *de minimis* amount is set based on a % of the total annual catches to cover all of the discarded catches (0.85% and 0.15% of the total annual catches of plaice and whiting respectively). A TAC deduction based on the total estimated discard amount ensures that all the unwanted catch is accounted for in the TAC. It is noted that the regulation refers to vessels with a mesh size equal to or greater than 31 mm. The permitted mesh size is 16-31mm and so the regulation should be corrected to reflect this. The equivalent regulation in the North Sea brown shrimp fishery does not specify a mesh size. There is a low sustainability to the relevant stocks risk due to low contribution of catches from the exempt vessels.
Recommendation	Continue with modification: the reference to mesh size in the regulation text should be omitted or changed to 16-31mm cod end.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 19-08 (p103-104): See Annex for further information
STECF report	PLEN 19-02 (p52-53): See Annex for further information

De minimis

Exemption number	**52**
Exemption description	Mackerel, horse mackerel, herring and whiting; ICES division 7d; Pelagic trawls; *De minimis* 1 % of the total annual catches of mackerel, horse mackerel, herring and whiting
Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Pelagic trawls (OTM, PTM), <25m vessel length, ICES 7d ** Pelagic trawls (OTM, PTM), all mesh size, <25m LOA, in ICES division 7d
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	0
UK Landings of affected fleet (t) **	0 for MAC/2CX14-; 0 for JAX/4BC7D; Not Available for JAX/2A-14
UK Discards of affected fleet (t) **	0 for MAC/2CX14-; 0 for JAX/4BC7D; Not Available for JAX/2A-14
UK Catch of affected fleet (t) **	0 for MAC/2CX14-; 0 for JAX/4BC7D; Not Available for JAX/2A-14
UK % Total catch taken by affected fleet **	0% for MAC/2CX14-; 0% for JAX/4BC7D; Not Applicable for JAX/2A-14
UK Discard Rate of affected fleet (%) **	0% for MAC/2CX14-; 0% for JAX/4BC7D; Not Applicable for JAX/2A-14

Additional relevant information	Potential French discard information from French ObsMer programme.
CEFAS evaluation	This exemption is difficult to assess due to the limited evidence provided. There are no landings of mackerel, horse mackerel, herring and whiting taken by the fleet under this exemption based on the STECF FDI data. Therefore, the sustainability risk to the stock appears low, however, there are no discard estimates for these species. Where the discard rate exceeds the *de minimis* amount of 1%, without monitoring the uptake of the permitted *de minimis* amount, there may be a risk of overfishing. There is no quantitative evidence on either disproportionate costs or difficulties to improve selectivity available for evaluation. There is no evidence of a UK demand for this exemption.
Recommendation	Discontinue: there is not sufficient evidence to support the exemption. If continued: the uptake of the permitted *de minimis* amount should be monitored to mitigate overfishing with a minimum requirement to gather discard information.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	Not Available
STECF report	PLEN 14-02 (p34-35): See Annex for further information

De minimis	
Exemption number	**53**
Exemption description	Albacore tuna; ICES subarea 7; Midwater pair trawls; *de minimis* 5%

Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Midwater Pair trawls (PTM), in ICES area 7 ** Midwater Pair trawls (PTM), all mesh size, ICES area 7
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	6
UK Landings of affected fleet (t) **	Unknown
UK Discards of affected fleet (t) **	Unknown
UK Catch of affected fleet (t) **	Unknown
UK % Total catch taken by affected fleet **	Unknown
UK Discard Rate of affected fleet (%) **	Unknown
Additional relevant information	-
CEFAS evaluation	This exemption is difficult to assess due to the limited evidence provided (STECF evaluation background documents could not be located). Albacore tuna fishery occurs in the southwestern part of the Celtic Sea ecoregion (ICES Celtic Sea ecoregion, 2020) (mainly outside UK waters). Discarding is a result of high grading and no justification on the grounds of handling costs or

	difficulties to improve selectivity have been provided. Catches of albacore tuna in UK waters have been low. Incidence of tuna in UK waters is low but increasing. Much of the reproductive biology of albacore tuna is still poorly known. The stock is not well monitored but the northern stock is not overfished. Latest data records used are from 2018. There may be a sustainability risk.
Recommendation	Discontinue: there is not sufficient evidence to support the exemption. If continued: the uptake of the permitted *de minimis* amount should be monitored to mitigate overfishing.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	Not Available
STECF report	PLEN 14-02 (p33-34): See Annex for further information

De minimis	
Exemption number	**54**
Exemption description	Blue whiting; ICES subdivision 5b subarea 6 and 7; industrial pelagic trawls; *de minimis* 5%
Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Pelagic trawls (OTM, PTM), all vessel lengths, ICES 5b, 6 and 7

	** Pelagic trawls (OTM, PTM), all vessel lengths, ICES 5b, 6 and 7
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	43 (this is likely an overestimate as it was not possible to define industrial pelagic trawls using the official landings database; anecdotally 1 vessel)
UK Landings of affected fleet (t) **	66785
UK Discards of affected fleet (t) **	0
UK Catch of affected fleet (t) **	66785
UK % Total catch taken by affected fleet **	91.7%
UK Discard Rate of affected fleet (%) **	0%
Additional relevant information	The UK fishery data provided above are an overestimation as we were not able to define industrial pelagic trawls. Blue whiting ICES advice (ICES, 2020c)
CEFAS evaluation	Background documents referring to this exemption were linked to a new submission for an equivalent exemption proposed for the North Sea. Exemptions are in place for SWW and NWW. It is understood that there is only one floating surimi factory in Europe, a French vessel. It is not clear whether this vessel is fishing in UK waters. In general, mackerel and blue whiting are caught mainly on their southward migrations along the shelf edge to spawning grounds in spring (ICES Celtic Sea

	ecoregion, 2020). The highest catches of blue whiting are around the Porcupine Bank. According to the North Sea assessment, discard rates are low and consist mainly of damaged and too small whiting that cannot go through the processing machines. Information for handling costs for unwanted catches was previously provided, but not for this specific trawler. It was estimated that bringing all whiting ashore, frozen, would take up 15% of storage space and increase handling costs. There is no evidence of selectivity difficulties, but the vessel is reportedly fishing with 54mm which is at the max of the 32-54mm range given by EU regulations. Fishing mortality (F) for blue whiting is at risk to be above sustainable levels (F above $F_{MSY\ and}$ $F_{pa,}$ but, below F_{lim}) since 2014 according to the ICES advice. The discard rates according to the ICES advice are low, there is a negligeable sustainability risk.
Recommendation	Continue: the uptake of the permitted *de minimis* amount should be monitored to mitigate overfishing.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	Not Available
STECF report	PLEN 14-02 (p33)

8. North Western Waters (NWW) New Exemption Evaluation and Recommendations

De minimis		
Exemption number		**73**
Exemption description		Anglerfish ; ICES division 7d-j; beam trawls; *de minimis* 7%
Cefas review		
UK fishery data		
Data source		Official landings database (IFISH, 2015-2019)
Max. Number UK vessels		58
UK Estimated landings of affected fleet (t)		1526.8
UK Estimated discards of affected fleet (t)		90-495 (average of 212t)
UK Estimated catch of affected fleet (t)		1402-2738 (average 2013t)
UK Discard Rate (%)		5.1-18.1% (average 10%)
Estimated discard rate survival		Not Applicable
Additional relevant information	The justification is based on the gear being highly selective and to increase selectivity further is not possible without incurring high economic costs. Cefas undertook an inventory of gear specifications used by the English SW beam trawl fleet in	

	2020. The outputs have been shared with Defra and industry stakeholders, but not published. Cefas also reanalysed the gear trials from Project 50% which illustrated the potential for improvements in selectivity with a range of gear modifications (Catchpole et al., 2019). Catchpole, T. (2020e; unpubl.). A presentation: UK SW beam trawl specifications 2020. A summary of data provided by the English beam trawl fleet. A Cefas presentation commissioned by Defra, October 2020. Provided in Annex 6 of this report. Cefas document (2020b; unpubl.). a proposal for 'A 7% de minimis exemption for monkfish (Lophius spp.) caught in beam trawlers ICES divisions VIId-j.' Provided in Annex 3 of this report.
CEFAS evaluation	The estimated discard rate for the affected UK fleet is ~10% relative to a proposed *de minimis* amount of 7%. Therefore, the *de minimis* quantity would permit the discarding of most, but not all (70%) of the unwanted catch. The selectivity studies showed that some gears trialled in 2010 reduced catches of smaller monkfish, while highlighting the difficulties around reducing catches of monkfish in general. However, the trials are 10 years old and at the time focussed on reducing unwanted common sole catches. Priority should be on ensuring that selective gear, reducing catches of smaller monkfish, is consistently deployed across this fishery. To meet the criteria of a *de minimis* exemption based on difficulties to improve selectivity would need the conditional use of the more selective gears that are currently in use: Option 1 - most used UK configuration: - Square section: 300mm - Lower panel: 150mm - Batings: 150mm - Sleave (Flemish panel): 150mm - cod end: 90mm single 6mm Option 2 - most selective UK configuration: - Square section: 300mm - Lower panel: 180mm

	- Batings: 180mm - Sleave (Flemish panel): 160mm - cod end: 106mm Increased uptake of more selective trawls will benefit other species caught and reduce unwanted catches. Beam trawlers take around 6% and 10% of the total landings of black-bellied and white anglerfish respectively (ICES, 2019d; ICES, 2019e). There is a low sustainability risk as the *de minimis* amount is close to the discard rate. If the *de minimis* amount is reduced the risk will increase in the absence of monitoring the uptake of the *de minimis* amount.
Recommendation	Implement with modification: recommendation to implement with the inclusion of gear conditionality (either option 1 or 2). The uptake of the permitted *de minimis* amount should be monitored to mitigate overfishing.

High Survival	
Exemption number	**74**
Exemption description	Common sole; ICES division 7a,d,e,f,g (within 6nm); Otter Trawls (Otter Trawls, OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX); 80-99mm; TR2; <MCRS under 10m LOA and <221 kW (and depth <30m and tow 90 mins)
Cefas review	
UK fishery data	
Data source	Official landings database (IFISH, 2015-2019)
Max. Number UK vessels	76

UK Estimated landings of affected fleet (t)	44-81 (average 61.6)
UK Estimated discards of affected fleet (t)	0-1.3 (average 0.6)
UK Estimated catch of affected fleet (t)	44-81 (average 62.2)
UK Discard Rate (%)	0%-2.8% (average 1%)
Estimated discard rate survival	50% (range 42-89%)

Additional relevant information	Justification is based on the gear being highly selective and to increase selectivity further is not possible without incurring high economic costs. The exemption is supported by two scientific assessments of common sole discard survival from the UK (Cefas) and one new study from Ireland (BIM). These studies provide robust estimates of discard survival indicating high levels of survival when caught under the observed conditions. 1. Estimating the discard survival rates of sole (*Solea solea*) in the English east coast inshore otter trawl fishery (Ribeiro Santos et al., 2016). 2. Assessing the survival of discarded sole (*Solea solea*) in an English inshore trawl fishery. (Randall et al., 2017). 3. Common sole survivability in the Irish otter trawl fishery. (Oliver et al., 2019) Cefas document (2020d; unpubl.). A proposal for 'A survivability exemption for common sole (*Solea solea*) under MCRS caught in the inshore under 10m otter trawl fishery in ICES divisions VIIa, VIId, VIIe, VIIf and VIIg.' Provided in Annex 5 of this report.
CEFAS evaluation	The risk of introducing an exemption to the relevant common sole stocks is negligible, with estimated discards released under exemption equating to less than 0.1% of total catches by UK vessels. The proposal extends the existing common sole

	survivability exemptions in 7d and 4c to cover the wider area of 7a, d-g. The proposal retains the same conditionalities on vessels length, fishing depth and tow duration, reflecting the activities of small inshore trawl fisheries. There are three robust studies indicating survival of 42-48% (4c), 82-89% (7d) and 50% (7b). The proposal seeks to extrapolate evidence from these studies in localised fisheries on individual vessels to a large geographical area encompassing all otter trawl vessels that meet the operational criteria. It is noted that care should be taken not to extrapolate too far from the underpinning information. In this proposal the limitations from the survivability studies are generally set as part of the exemption request (< 10m, inshore, maximum engine power of 221 kW, depth limit to 30 m and tow duration limit to 1:30 hours) except for the applicable region. Additional evidence on the survival of common sole from relevant areas not previously studied (7efg) would enable a more robust evaluation of representative levels of survival. Owing to the level of evidence extrapolation, a TAC deduction made to account for the level of discard mortality, should be based on the most conservative levels of survival observed.
Recommendation	Implement: with appropriate precautionary deduction from the TAC to account for all discard mortality

High Survival	
Exemption number	**75**
Exemption description	Horse mackerel and sprat; ICES division 7e and 7f; ring net
Cefas review	
UK fishery data	
Data source	Official landings database (IFISH, 2015-2019)

Max. Number UK vessels	Average of 1 or less
UK Estimated landings of affected fleet (t)	For horse mackerel 0-2.2 (average of 0.5); for sprat 0-0.8 (average 0.2)
UK Estimated discards of affected fleet (t)	For horse mackerel 0-41.8 (average of 9.8); for sprat 0 (average 0)
UK Estimated catch of affected fleet (t)	For horse mackerel 0-44 (average of 10.3t); for sprat 0-0.8 (average 0.2t)
UK Discard Rate (%)	95% for horse mackerel; 0% for sprat
Estimated discard rate survival	60-70% (inferred – no direct observations)
Additional relevant information	Assessing feasibility and developing methods for estimating survival rates of discarded (slipped) pelagic fish caught by English southwest ring-netters (Catchpole et al., 2015b). Mortality of mackerel (*Scomber scombrus L.)* after pursing and slipping from a purse seine (Huse and Vold, 2010). The response of herring to high crowding densities in purse-seines: survival and stress reaction (Tenningen et al., 2012). Unaccounted mortality in Purse seine fisheries – Quantification and mitigation of slipping mortality (Tenningen, 2014) Assessing fish survival from slipping in purse seine fisheries of European southern waters (Arregi et al., 2014). Cefas document (2020a; unpubl.). a proposal for 'A survivability exemption for sprat (*Sprattus sprattus*) and horse mackerel (*Trachurus trachurus*) caught in the UK ring net fishery targeting pelagic species not subject to quotas in ICES divisions VIIe and VIIf.' Provided in Annex 2 of this report.
CEFAS evaluation	Discard survival from slipped pelagic catches from purse fisheries is high for mackerel, horse mackerel and herring. The process of slipping catches means the fish remain in the water and do not experience the stressors of exposure and going

	through a sorting process as with other discarded catches. A key variable influencing the level of survival is in the crowding experienced prior to release, the proposed exemption retains the need to limit the closure of the purse to 90% for catches dominated by mackerel, and 80% for other catches. It should be noted that there is no direct evidence for the discard survival of sprat. Herring and sprat have similar biology (both family Clupeidae), and it can be inferred that this similarity means discard survival is comparable when caught using the same method under the same conditions. Mackerel (family Scombridae) and horse mackerel (family Carangidae) are more distantly related to herring than sprat, and these species show comparable high levels of discard survival to herring. The fishing operation (ring nets) and species biology are sufficiently similar to those from where direct survival evidence has been generated and where existing exemptions have been applied, to add horse mackerel and sprat to mackerel and herring as exempted species in the UK ring net fishery. The proposed exemption restricts slipping to specific conditions to reduce the effects of crowding and maximise survival. It also includes the specific requirement to record slipping events and the composition and quantity of released unwanted catches, so that data can be collected to assess the impact of the exemption. Discard (slipping) rate is based on one vessel self-reporting; the Cefas observer programme does not cover this metier; estimates of slipped catches would inform the level of risk.
Recommendation	Implement: extend the existing exemption for mackerel and herring in ICES 7e,f to include horse mackerel and sprat; include in the regulation the requirement to record slipping events and the composition and quantity of slipped catches.

9. North Sea (NS) Existing Exemption Evaluation and Recommendations

High survival	
Exemption number	**25**
Exemption description	*Nephrops*; ICES division 2a, 3a and subarea 4; pots

Cefas review	
UK fishery data	
Fishery as defined for data extraction	* All pots/traps and creel vessels fishing in ICES areas 2a and 4 ** Pots, all vessels fishing in ICES areas 2a and 4
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	1112
UK Landings of affected fleet (t) **	59772
UK Discards of affected fleet (t) **	0
UK Catch of affected fleet (t)**	59772
UK % Total catch taken by affected fleet**	0.3%

UK Discard Rate of affected fleet (%) **	Not Applicable
Additional relevant information	-
CEFAS evaluation	There are several sources of robust evidence indicating substantial survival of *Nephrops* released from creels. For example, creel caught Nephrops have been used to provide control specimens in survival assessments of trawl caught Nephrops. The proportion of *Nephrops* caught by creels is low relative to trawls and so the stock sustainability risk is low.
Recommendation	Continue
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 15-10 (p45)
STECF report	PLEN 15-02 (p18)

High survival	
Exemption number	**26**
Exemption description	Common sole; ICES division 4c; otter trawls, TR2
Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Bottom trawls (OTB, OTT, PTB, TBN), all mesh sizes, all vessel lengths, in ICES areas 4c

	** Bottom trawls (OTB), all mesh sizes, all vessel lengths, in ICES areas 4c
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	55
UK Landings of affected fleet (t) **	433.7
UK Discards of affected fleet (t) **	0
UK Catch of affected fleet (t)**	433.7
UK % Total catch taken by affected fleet**	<1%
UK Discard Rate of affected fleet (%) **	0%

Additional relevant information	A survivability exemption has been in place in 4c since 2016, restricted to otter trawl vessels working within 6nm of the shore, that are under 10 metres in length, with a maximum engine size of 221 kW, fishing in depths of 30 metres of less, towing for no more than 1.5 hours and using a cod end mesh of 80-99mm. An equivalent exemption, with the same conditions has been in place in the southern North Sea (7d) since 2018. Both exemptions were supported by robust scientific discard survival studies. The completion of a third study (in 7b), further evidenced the high survival of common sole caught in these fisheries: 1. Estimating the discard survival rates of sole (*Solea solea*) in the English east coast inshore otter trawl fishery (Ribeiro Santos et al., 2016).

	2. Assessing the survival of discarded sole (*Solea solea*) in an English inshore trawl fishery. (Randall et al., 2017). 3. Common sole survivability in the Irish otter trawl fishery. (Oliver et al., 2019).
CEFAS evaluation	The risk of introducing an exemption to the relevant common sole stock is negligible, with estimated discards released under exemption equating to less than 0.1% of total catches by UK vessels. There are three robust studies indicating survival of 42-48% (4c), 82-89% (7d) and 50% (7b) in small vessel inshore trawl fisheries. In this proposal the conditions from the survivability studies are generally set as part of the limitations of the exemption request (< 10m, inshore, maximum engine power of 221 kW, depth limit to 30 m and tow duration limit to 1:30 hours).
Recommendation	Continue: with appropriate deduction from the TAC to account for all discard mortality
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 17-08 (p66)
STECF report	PLEN 17-02 (p30)

High survival	
Exemption number	**27**
Exemption description	All species; ICES division 3a and subarea 4; pots and fyke nets
Cefas review	
UK fishery data	

Fishery as defined for data extraction	* All pots/traps and creel vessels fishing in ICES areas 3a and 4 ** All pots/traps and creel vessels fishing in ICES areas 3a and 4
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	1112
UK Landings of affected fleet (t) **	77.6 for several TACs (summed across TACs)
UK Discards of affected fleet (t) **	0
UK Catch of affected fleet (t)**	77.6 for several TACs (summed across TACs)
UK % Total catch taken by affected fleet**	1.1% for several TACs (summed across TACs)
UK Discard Rate of affected fleet (%) **	Not Applicable
Additional relevant information	-
CEFAS evaluation	Evidence indicates that mortality of discarded fish is likely to be low (although avian predation has been observed) and that the actual catches are negligible relative to other gears and so the sustainability risk to stocks is low.
Recommendation	Continue

Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 17-08 (p63)
STECF report	PLEN 17-02 (p30)

High survival	
Exemption number	**28**
Exemption description	Plaice; ICES division 3a and subarea 4; Set nets
Cefas review	
UK fishery data	
Fishery as defined for data extraction	*Netters (GTR, GNS, GTN), all mesh sizes, all vessel length, in ICES areas 3a and 4 **Netters (GTR, GNS, GTN, GEN), all mesh sizes, all vessel length, in ICES areas 3a and 4
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	212
UK Landings of affected fleet (t) **	18.1
UK Discards of affected fleet (t) **	0

UK Catch of affected fleet (t)**	18.1
UK % Total catch taken by affected fleet**	0.1%
UK Discard Rate of affected fleet (%) **	0%

Additional relevant information	ICES WKSURVIVE recently collated all relevant and robust discard survival estimates for plaice (ICES, 2021a) - Trammel nets: 64% (Catchpole et al., 2015) - Set gill nets 75/350 mm in ICES subdivsion 22-23: 100% in winter (Andersen et al., 2018)
CEFAS evaluation	Discard survival is substantial relative to other gears, and under some conditions all discarded plaice can survive. The level of survival is influenced by the retrieval and sorting method on the vessel; fish that are picked from the net and released as the nets are retrieved, will likely have higher survival chances. An appropriate deduction from the TACs, to ensure fishing mortality does not exceed the agreed catch limits, based on precautionary levels of survival, would mitigate the risk of overfishing.
Recommendation	Continue with modification: with appropriate deduction from the TAC to account for all discard mortality, and with the conditionality that fish are released during the net hauling process, whenever possible.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 18-06 (p112-113): See Annex for further information
STECF report	PLEN 18-02 (p26): See Annex for further information

High survival	
Exemption number	**29**
Exemption description	Plaice; ICES division 3a and subarea 4; Danish Seines
UK fishery data	
Fishery as defined for data extraction	* Danish seines (SDN), all mesh sizes, all vessel lengths, in ICES areas 3a and 4 ** Danish seines (SDN), all mesh sizes, all vessel lengths, in ICES areas 3a and 4
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	1
UK Landings of affected fleet (t) **	52.2
UK Discards of affected fleet (t) **	2.1
UK Catch of affected fleet (t) **	54.2
UK % Total catch taken by affected fleet**	0.5%
UK Discard Rate of affected fleet (%) **	3.9%
Additional relevant information	-

CEFAS evaluation	The evidence to support this exemption is from area 3.a, which is outside UK waters and the area covered by this exemption. The survival rate for undersized plaice was 78% (67-87%), but this was affected by air exposure. Survival dropped to 20% (4-62%) after 30 min of air exposure. The air exposure times used in the experiment were within commercial practice, but it is not known if air exposure times are higher at the fleet level. An appropriate deduction from the TACs, to ensure fishing mortality does not exceed the agreed catch limits, based on precautionary levels of survival, would mitigate the risk of overfishing.
Recommendation	Continue: with appropriate deduction from the TAC to account for all discard mortality.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 18-06 (p114-115)
STECF report	PLEN 18-02 (p26-27)

High survival	
Exemption number	**32**
Exemption description	Plaice; ICES division 3a and subarea 4; otter trawls; ≥80mm (TR1, TR2) Previously catch of plaice using trawl (OTB, PTB) of mesh sizes ≥120mm in areas IIIa and IV in winter
Cefas review	
UK fishery data	

Fishery as defined for data extraction	* Bottom trawls (OTB, OTT, PTB, TBN), mesh sizes >=80mm, all vessel lengths, in ICES areas 3a and 4 ** Bottom trawls (OTB, OTT, PTB), all mesh sizes, all vessel lengths, in ICES areas 3a and 4
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels*	443
UK Landings of affected fleet (t) **	4529
UK Discards of affected fleet (t) **	460.2
UK Catch of affected fleet (t) **	4989.2
UK % Total catch taken by affected fleet **	48.5%
UK Discard Rate of affected fleet (%)**	9.2%
Additional relevant information	ICES WKSURVIVE recently collated all relevant and robust discard survival estimates for plaice (ICES, 2021a) : - Otter trawl 90mm/270 mm SELTRA in 3a20: 44% (37-52%, 95% Confidence Interval) when targeting plaice in summer - SDN in 3a20: 78% (67-87%; 95% Confidence Interval) (Noack et al., 2020) - Otter trawl 90mm with 270 mm SELTRA in 3a20: 75% (61-78%; 95% Confidence Interval) in winter, 44% (34-61%; 95% Confidence Interval) in summer, 73% (63-83%; 95% Confidence Interval) when targeting plaice in winter and

	40% (14-59%; 95% Confidence Interval) when targeting *Nephrops* in winter (Savina et al., 2019) - Otter trawl 120mm: 75% in winter (range 67-83% Confidence Interval), 44% in summer (37-52% Confidence Interval). When targeting *Nephrops* 41% in winter (28-57%) (Karlsen, 2018) - Otter trawl 120mm in 3a20: 89% (84-93%: 95% Confidence Interval) in winter (Methling et al., 2017) - Otter trawl 90mm in 3a20: 15% (0-39%; range) in summer in *Nephrops* fishery, 85% of discarded plaice predated on or pursued by seabirds (Eskelund et al., 2019) - Otter trawl 90-99mm 4b: 25-46% (*Nephrops* fishery) (Randall et al., 2016) - Otter trawl 90-99mm 4b: 13-42% (fish fishery) (Catchpole et al., 2015a)
CEFAS evaluation	This exemption is a consolidation of previously separate regulations for different mesh size ranges in the otter trawl fleet. There is extensive evidence on the survival of discarded plaice for this gear type. The evidence indicates a range of survival levels under different conditions (0-93%) and estimates are typically around 40-70%. There is a general trend of higher survival for larger mesh cod ends and in winter compared with summer. This is supported by an analysis of factors affecting the health condition of plaice at the time of release (across various gears), which identified that increased fish length was linked with higher health condition, while higher temperatures were associated with lower vitality (Maxwell et al, 2018). There is also an indication of lower survival for plaice discarded when *Nephrops* are in the catch, with no plaice surviving in some instances. An appropriate deduction from the TACs, to ensure fishing mortality does not exceed the agreed catch limits, based on precautionary levels of survival, would mitigate the risk of overfishing.
Recommendation	Continue: with appropriate deduction from the TAC to account for all discard mortality
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	

EWG report	STECF 18-06 (p117-118)
STECF report	PLEN 18-02 (p28)

High survival	
Exemption number	**33**
Exemption description	Plaice; ICES division 2a and subarea 4; beam trawls with flip up or benthic release; 80-119 mm; BT2; >221 kW; <MCRS

Cefas review	
UK fishery data (the data do not allow to distinguish between vessels affected by Exemptions 33 and 34)	
Fishery as defined for data extraction	* Beam trawls (TBB), mesh size 80-119mm, all vessel lengths, in ICES areas 2a and 4 ** Beam trawls (TBB), all mesh size, all vessel lengths, in ICES areas 2a and 4
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	10
UK Landings of affected fleet (t) **	9392.9
UK Discards of affected fleet (t) **	0

UK Catch of affected fleet (t) **	9392.9
UK % Total catch taken by affected fleet **	36.8%
UK Discard Rate of affected fleet (%)**	0%
Additional relevant information	ICES WKSURVIVE recently collated all relevant and robust discard survival estimates for plaice (ICES, 2021a): - TBB pulse trawl: 19% (13-28% 95 Confidence Interval) (Schram and Molenaar, 2018) - TBB pulse trawl: 15% (11-19% 95 Confidence Interval) (van der Reijden et al., 2017) - TBB: 43-57% (beam trawl, coastal), 10-26% (beam trawl, small vessels), 3-5% (beam trawl, large vessels), 12-35% (beam trawl, all fleet segments) (Uhlmann et al., 2018)
CEFAS evaluation	This fleet is not sampled in UK national observer programmes, however data from the Dutch fleet is relevant; inclusion of this fleet in the English sampling programme should be considered. There is sufficient evidence to suggest that the survival of discarded plaice is typically lower for beam trawls than for other gears. Survival has been observed at around 10-30%, but there is variability in the estimates depending on conditions, with a range of 3-57%. Reducing catch weight and the catches of unwanted small plaice, along with minimising the effects of air exposure by modifying the sorting process would increase the overall survival rates of discarded plaice. The existing exemption is available to vessels >221kW using flip-up ropes and benthic release panels, however vessels do not routinely record these trawl characteristics. These design features reduce catches of large stones and benthos and so reduce injuries and damage to the catch; however, they do not directly improve the selectivity of the gear towards unwanted fish catches. While such design features may influence discard survival, there is no evidence that these conditionalities are being applied in practice or enforced. Removal of these conditionalities should be considered. With no data on the

	extent to which vessels are using selectivity devices, TAC deductions have assumed all vessels make use of this exemption. The estimated high discard rates and the relatively low survival rates suggest that significant quantities of plaice discarded will not survive. Therefore, there should be a continued focus on improvements in selectivity to avoid unwanted fish. The selectivity improvements identified in the Celtic Sea UK beam trawl fleet should be assessed for their suitability in the North Sea (see Exemption 15). An appropriate deduction from the TACs, to ensure fishing mortality does not exceed the agreed catch limits, based on precautionary levels of survival, would mitigate the risk of overfishing.
Recommendation	Continue: with appropriate deduction from the TAC to account for all discard mortality. This exemption should be reviewed annually to assess new survival and selectivity evidence.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 18-06 (p115-116)
STECF report	PLEN 18-02 (p27-28)

High survival	
Exemption number	**34**
Exemption description	Plaice; ICES division 2a and subarea 4; beam trawls within 12 nm and tow <90 mins; 80-119 mm; BT2;<24m LOA and ≤221 kW and <MCRS
Cefas review	
UK fishery data (the data do not allow to distinguish between vessels affected by Exemptions 33 and 34)	

Fishery as defined for data extraction	* Beam trawls (TBB), mesh size 80-119mm, under 24m vessels, in ICES areas 2a and 4 ** Beam trawls (TBB), all mesh size, all vessel lengths, in ICES areas 2a and 4
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	2
UK Landings of affected fleet (t) **	10
UK Discards of affected fleet (t) **	9392.9
UK Catch of affected fleet (t) **	0
UK % Total catch taken by affected fleet **	9392.9
UK Discard Rate of affected fleet (%) **	36.8%
Additional relevant information	ICES WKSURVIVE recently collated all relevant and robust discard survival estimates for plaice (ICES, 2021a): - TBB pulse trawl: 19% (13-28%; 95 Confidence Interval) (Schram and Molenaar, 2018) - TBB pulse trawl: 15% (11-19%; 95 Confidence Interval) (van der Reijden et al., 2017) - TBB: 43-57% (beam trawl, coastal), 10-26% (beam trawl, small vessels), 3-5% (beam trawl, large vessels), 12-35% (beam trawl, all fleet segments) (Uhlmann et al., 2018)

CEFAS evaluation	This fleet is not sampled in UK national observer programmes, however data from the Dutch fleet is relevant; inclusion of this fleet in the English sampling programme should be considered. There is sufficient evidence to suggest that the survival of discarded plaice is typically lower for beam trawls than for other gears. The survival has been observed at around 10-30%, but there is variability in the estimates depending on conditions, with a range of 3-57%. Reducing catch weight and the catches of unwanted small plaice, along with minimising the effects of air exposure by modifying the sorting process would increase the overall survival rates of discarded plaice. The current exemption is available to vessels ≤221 kW fishing inside 12nm with tow durations of less than 90 mins. Such design features may influence discard survival, but do not directly improve the selectivity towards unwanted fish catches, and there is no evidence that these conditionalities are being applied in practice or enforced. Removal of these conditionalities should be considered. The estimated high discard rates and relatively low survival rates suggest that significant quantities of discarded plaice will not survive. Therefore, there should be a continued focus on improvements in selectivity to avoid unwanted fish. The selectivity improvements identified in the Celtic Sea UK beam trawl fleet should be assessed for their suitability in the North Sea (see Exemption 15). An appropriate deduction from the TACs, to ensure fishing mortality does not exceed the agreed catch limits, based on precautionary levels of survival, would mitigate the risk of overfishing.
Recommendation	Continue: with appropriate deduction from the TAC to account for all discard mortality. This exemption should be reviewed annually to assess new survival and selectivity evidence.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 18-06 (p115-116)
STECF report	PLEN 18-02 (p27-28)

High survival	
Exemption number	**35**
Exemption description	Turbot; ICES subarea 4; beam trawls; >80mm; BT1 and BT2

Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Beam trawls (TBB), mesh size 80-119mm, all vessel lengths, in ICES subarea 4 ** Beam trawls (TBB), all mesh size, all vessel lengths, in ICES subarea 4
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	10
UK Landings of affected fleet (t) **	195.9
UK Discards of affected fleet (t) **	0
UK Catch of affected fleet (t) **	195.9
UK % Total catch taken by affected fleet **	53%
UK Discard Rate of affected fleet (%) **	0%

Additional relevant information	-
CEFAS evaluation	This fleet is not sampled in UK national observer programmes, however data from the Dutch fleet is relevant; inclusion of this fleet in the English sampling programme should be considered. Survival estimates are derived from pulse trawls, which are banned in UK waters. There are no survival estimates from beam trawls and Cefas cannot assess the representativeness of existing estimates compared to standard beam trawls. It is noted that more research is committed by Belgium to generate discard survival estimates of turbot caught by beam trawlers in the North Sea by 2021. In the absence of any survival evidence supporting this exemption, we recommend it is withdrawn. If the exemption were to continue, a precautionary level of zero survival would be appropriate when making a deduction from the TAC to ensure fishing mortality did not exceed the agreed catch limits.
Recommendation	Discontinue: there is no relevant discard survival evidence, to be reviewed in one year in light of anticipated new survival evidence.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 20-04 (p163): See annex for more information
STECF report	PLEN 20-02

High survival	
Exemption number	**36**
Exemption description	Skates and rays; ICES division 2a, 3a and subarea 4; all fishing gears

Cefas review	
UK fishery data	
Fishery as defined for data extraction	* All vessels fishing in ICES subareas 3a and 4 ** All vessels fishing in ICES subareas 3a and 4
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	1902
UK Landings of affected fleet (t) **	1105.3
UK Discards of affected fleet (t) **	19.7
UK Catch of affected fleet (t) **	1125
UK % Total catch taken by affected fleet **	100%
UK Discard Rate of affected fleet (%) **	3.5%
Additional relevant information	The following are compiled in a review by Desender et al., 2021 and analyses by Ribeiro Santos et al., 2021: - Thornback ray (RJC) discard survival is estimated at 54% in ICES sub area 7.d, 4.c from beam trawls based on captive observations (Van Bogaert et al., 2020) - Blonde ray (RJH) discard survival is estimated at 67% in ICES area 7.d, 4.c from beam trawls based on captive observations (Van Bogaert et al., 2020)

	- Spotted ray (RJM) discard survival is estimated at 27% in ICES sub area 7.d, 4.c from beam trawls based on captive observations (Van Bogaert et al., 2020) - Undulate ray (RJU) discard survival is estimated at 58% in ICES sub area 7.d, 4.c from beam trawls based on captive observations (Van Bogaert et al., 2020) - Thornback ray discard survival is estimated at 53% in ICES sub area 4.b, 4.c from pulse trawls based on captive observations (Schram & Molenaar, 2018) - Blonde ray discard survival is estimated at 86% in ICES sub area 7.d, 4.c for the otter trawl fishery based on captive observations (Van Bogaert et al., 2020) - Thornback ray discard survival is estimated at 72% in ICES sub area 7.d, 4.c for the otter trawl fishery based on captive observations (Van Bogaert et al., 2020) - Thornback ray discard survival is estimated at 95% (Catchpole et al., 2017) – 99% (Van Bogaert et al., 2020) for the ICES subarea 4.c, 7.d trammel net fishery (based on tagging and captive observations, respectively) - Blonde ray discard survival is estimated at 41-44% for the ICES subarea 7.e beam trawl fishery (based on modelled results (Catchpole et al., 2017) taking captive observations (Ellis et al., 2012) to asymptote, the timepoint after which no further discard associated mortality occurs). - Cuckoo ray (RJN) discard survival is estimated at 34-35% for the ICES subarea 7.e beam trawl fishery (based on modelled results (Catchpole et al., 2017) taking captive observations (Ellis et al., 2012) to asymptote). - Thornback ray discard survival is estimated at 57-69% for the ICES subarea 7.f otter trawl fishery (based on modelled results (Catchpole et al., 2017) taking captive observations (Enever et al., 2009) to asymptote). - Undulate ray survival is estimated at 49% for ICES sub area 8.a based on tagging (Morfin et al., 2019). - Thornback ray caught with trammel nets in the Eastern English Channel (ICES division 27.7.d), survival estimated at 94% (Ribeiro Santos et al., 2021). - Thornback ray caught with inshore otter trawl in the Thames area (ICES division 27.4.c), survival estimated at 97% (Ribeiro Santos et al., 2021). - Undulate ray caught with inshore otter trawl, using 70-99mm cod end mesh size, fishing in Lyme Bay (ICES

	division 27.7.e), survival estimated at 83% (Ribeiro Santos et al., 2021). - Thornback ray caught with longlines in Southern North Sea (ICES division 27.4.c), survival estimated at 75% (Ribeiro Santos et al., 2021). - Small-eyed ray caught with inshore otter trawl in Lyme Bay (ICES division 27.7.e), survival estimated at 55% (Ribeiro Santos et al., 2021). In an analysis of the health status of skates and rays at the point of release, the strongest relationship identified was that vigour of discarded rays was related to fish length. There was a higher proportion of fish assessed to be in good health condition for larger rays. Therefore, reducing catches of smaller rays would increase overall discard survival. Moreover, the differences in vigour with fish length was associated with species, indicating that smaller species, e.g., spotted ray and cuckoo ray, are more likely to be released in poor condition compared with larger species such as blonde ray and thornback ray. Furthermore, more smaller rays were caught with otter trawls compared with static and longline gears, and the proportion of rays in good condition was lower for otter trawls, indicating that, for the fisheries investigated here, survival may be higher when using static and longline gears.
CEFAS evaluation	This is a wide-ranging exemption covering all commercial skate and ray species caught by all fishing methods. As such, it is unlike other survival exemptions and therefore requires more evidence to support it. A comprehensive review of evidence across the North Sea and North Western Waters regions showed estimated discard survival at 27-99% across different fisheries and species. Our understanding of the factors affecting survival is improving but not yet sufficient to extrapolate survival rates between fisheries, and key evidence gaps have been identified. The evidence generally supports that most blonde rays, undulate rays and thornback rays caught by otter trawls, trammel nets and longlines, survive after release. Survival is lowest for smaller skates and smaller species of skates (Alves et al., 2019) (such as Cuckoo ray, spotted ray and small-eyed ray), particularly those caught using beam trawls. Improvements in selectivity to avoid small rays, minimising towing durations and optimising handling

	would likely increase the survival chances of discarded rays. There is uncertainty in the discard levels with discrepancy between the English national observer programme (discard rate 90%) and the STECF FDI (discard rate 4%). Progress by ICES on including robust discard estimates and survival estimates into stock assessments should continue. The TACs are currently landings based, so no deduction is applied to account for exemptions. These species are vulnerable to overfishing and catch quotas that include discards and survival would provide added protection. There should continue to be a focus on introducing data on discards and survival levels in the assessments to better estimate overall levels of fishing mortality.
Recommendation	Continue: with appropriate deduction from the TAC to account for all discard mortality, recognising that survival varies between different species-fishery combinations. To be reviewed annually to address data gaps and review the inclusion of discard levels and survival in assessments.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 20-04 (p156-158)
STECF report	PLEN 20-02

De minimis	
Exemption number	**37**
Exemption description	Common sole; ICES division 2a,3a and subarea 4; Trammels and Gill nets; 3% *de minimis*
Cefas review	
UK fishery data	

Fishery as defined for data extraction	* Trammel and gillnets (GTR, GNS), all mesh sizes, all vessel lengths, in ICES areas 2a, 3a and 4 ** Trammel and gillnets (GTR, GNS, GND, GNC, GTN), all mesh sizes, all vessel lengths, in ICES areas 2a, 3a and 4
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	212
UK Landings of affected fleet (t) **	54.4
UK Discards of affected fleet (t) **	2.1
UK Catch of affected fleet (t) **	56.5
UK % Total catch taken by affected fleet **	13%
UK Discard Rate of affected fleet (%) **	3.7%
Additional relevant information	-
CEFAS evaluation	Discard rates of common sole from the English North Sea fishery are estimated at 2-4% (Ribeiro Santos et al., 2019). These fishing gears are tuned to catch sole at and above the MCRS (Ford et al., 2020), and selectivity improvements through increases in mesh size would incur losses of marketable sole. Discard rates are low and there are difficulties in improving selectivity to avoid the residual catches of <MCRS

	fish. Discard rates are in line with the *de minimis* amount, thus there is negligible sustainability risk for this stock.
Recommendation	Continue: the uptake of the permitted *de minimis* amount must be monitored to mitigate against overfishing.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 15-10 Landing obligation – Part 5 (p43-44)
STECF report	PLEN 15-02 (p15)

De minimis	
Exemption number	**38**
Exemption description	Common sole; ICES subarea 4; Beam trawls with Flemish Panel; 80-119 mm; BT2; 5% *de minimis* original evidence provided for *de minimis* of 7% till 2017 and 6% in 2019
Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Beam trawls (TBB), mesh size 80-119mm, all vessel lengths, in ICES areas 4 ** Beam trawls (TBB), all mesh size, all vessel lengths, in ICES areas 4
Data source	*Number UK vessels: Official landings database (IFISH, 2018)

	**Fishery information: FDI 2018
Max. Number UK vessels *	10
UK Landings of affected fleet (t) **	299.6
UK Discards of affected fleet (t) **	0t
UK Catch of affected fleet (t) **	299.6
UK % Total catch taken by affected fleet **	69.1%
UK Discard Rate of affected fleet (%) **	0%

Additional relevant information	Common sole ICES stock advice: (ICES, 2021b)
CEFAS evaluation	This fleet is not sampled in UK national observer programmes, however data from the Dutch fleet is relevant; inclusion of this fleet in the English sampling programme should be considered. ICES estimates a discard rate of 18% across all fisheries with beam trawlers making up 94% of landings (ICES, 2021b). The mesh size of Flemish panel specified in the Delegated Act is 120mm which is different to what was originally tested, i.e. a 150mm panel. This will reduce the effectiveness of the panel and not give the reductions in unwanted catches observed in the trials. Selectivity improvements including those identified in the Celtic Sea UK beam trawl fleet should be assessed for their suitability in the North Sea (see Exemption 15). There is also uncertainty over the discard rate and whether it is higher than the permitted *de minimis* amount, and therefore uncertainty over the level of risk of overfishing (potentially 13%).
Recommendation	Continue: there is a risk of fishing mortality exceeding the agreed catch limit. The uptake of the permitted *de minimis*

	amount should be monitored to mitigate against overfishing. Review after one year to assess catch and discards
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 15-10 (p39-40) ; STECF 17-08 (p60-61)
STECF report	PLEN 15-02 (p17)

De minimis	
Exemption number	**41**
Exemption description	Whiting and cod;<MCRS; ICES division 4c; trawls and seines; 70-99mm; TR2; 5% of all sizes cod and whiting; cod limited to 2% max of that combined amount
Cefas review	
UK fishery data	
Fishery as defined for data extraction	* bottom trawls and seines (OTB, OTT, PTB, TBN, SDN, SSC), mesh size 70-99mm, all vessel lengths, in ICES area 4c ** bottom trawls and seines(OTB, OTT, SDN, SSC), all mesh size, all vessel lengths, in ICES area 4c
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	47

UK Landings of affected fleet (t) **	6746 for COD/2A3AX4; 30.2 for WHG/2AC4.
UK Discards of affected fleet (t) **	2.5 for COD/2A3AX4; 63.1 for WHG/2AC4.
UK Catch of affected fleet (t) **	6748.5 for COD/2A3AX4; 93.4 for WHG/2AC4.
UK % Total catch taken by affected fleet **	24.2% for COD/2A3AX4; 90.3% for WHG/2AC4.
UK Discard Rate of affected fleet (%) **	37.7% for COD/2A3AX4; 67.6% for WHG/2AC4.
Additional relevant information	For cod 26-56% discard rate in all North Sea for Otter trawl 70-99mm English fleet (observed trips predominantly from 4b and c) For whiting 53-62% discard rate (Ribeiro Santos et al., 2021) ICES North Sea cod advice (ICES, 2020a)
CEFAS evaluation	This exemption links with Exemptions 42 and 42b. ICES advises that fishing pressure (F) on the cod stock in the North Sea is above safe biological limits (F above F_{MSY}, F_{pa} and F_{lim}), and the cod population remains at a low level with a spawning stock biomass (SSB) below biological reference points (MSY $B_{trigger}$, B_{pa}, and B_{lim}). For depleted stocks it is imperative that measures be taken to reduce the level of unwanted catches in the fisheries concerned and rigorous monitoring of catches discarded under the exemptions ensured. There is a risk that *de minimis* exemptions can provide an incentive for vessel operators to continue discarding unwanted catches at sea. In the absence of effective monitoring of the *de minimis*, and due to the risk to the depleted cod stock and limited supporting evidence, it is recommended that the cod element of this exemption be discontinued. To note, the EU have removed the cod exemption from the northern North Sea (4a,b) but have retained cod for 4c conditionally for one year, requesting further evidence specifically in relation to cod.

	For the whiting component of this exemption, the discard rates are estimated at around 60% relative to a *de minimis* amount of 6%. The uptake of the permitted *de minimis* amount should be monitored to mitigate against overfishing. Improving selectivity should be the priority and there are relevant selective gear options that should be considered (e.g. square mesh panels). In 2020, a proposed exemption (42b) was developed to replace this one and evaluated, combining and modifying Exemptions 41 and 42. There is a high risk of overfishing in the absence of monitoring the uptake of the *de minimis* amount. For whiting, the disparity between the *de minimis* amount and the discard rate indicates that close monitoring is needed to prevent overfishing.
Recommendation	Discontinue: to be replaced with Exemption 42b
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 17-08 (p57-58): See Annex for further information
STECF report	PLEN 17-02 (p27-28): See Annex for further information

De minimis	
Exemption number	**42**
Exemption description	Whiting and cod; <MCRS; ICES division 4a and 4b; trawls and seines; 70-99mm; TR2; 6% of all sizes cod and whiting; cod limited to 2% max of that combined amount
Cefas review	
UK fishery data	

Fishery as defined for data extraction	* Bottom trawls and seines (OTB, OTT, PTB, TBN, SSC, SDN), mesh size 70-99mm, all vessel lengths, in ICES areas 4ab ** Bottom trawls and seines (OTB, OTT, SDN, SSC), all mesh size, all vessel lengths, in ICES areas 4ab
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	220
UK Landings of affected fleet (t) **	7510 for WHG/2AC4.; 14954 for COD/2A3AX4
UK Discards of affected fleet (t) **	3554.6 for WHG/2AC4.; 4368 for COD/2A3AX4
UK Catch of affected fleet (t) **	11064.5 for WHG/2AC4.; 19322 for COD/2A3AX4
UK % Total catch taken by affected fleet **	74.9% for WHG/2AC4.; 72.5% for COD/2A3AX4
UK Discard Rate of affected fleet (%) **	32.1% for WHG/2AC4.; 22.6% for COD/2A3AX4
Additional relevant information	For cod 26-56% discard rate in all North Sea for OTB 70-99mm English fleet (observed trips predominantly from 4b and c) For whiting 53-62% discard rate (Ribeiro Santos et al., 2021) ICES North Sea cod advice (ICES, 2020a)
CEFAS evaluation	This exemption links with Exemptions 41 and 42b. ICES advice that fishing pressure on the cod stock in the North Sea is above safe biological limits (F above F_{MSY}, F_{pa} and F_{lim}), and the cod population remains at a low level with a spawning stock

	Biomass (SSB) below biological reference points (MSY Btrigger, Bpa, and Blim). For depleted stocks it is imperative that measures be taken to reduce the level of unwanted catches in the fisheries concerned and rigorous monitoring of catches discarded under the exemptions ensured. There is a risk that *de minimis* exemptions can provide an incentive for vessel operators to continue discarding unwanted catches at sea. In the absence of effective monitoring of the *de minimis*, and due to the risk to the depleted cod stock and limited supporting evidence, it is recommended that the cod element of this exemption be discontinued. To note, the EU have removed cod from this exemption the EU waters of the northern North Sea (4a,b). For the whiting component of this exemption, the discard rates are estimated at around 30% relative to a *de minimis* amount of 6%. The uptake of the permitted *de minimis* amount should be monitored to mitigate against overfishing. Improving selectivity should be the priority and there are relevant selective gear options that should be considered. Most catches and discards of whiting are associated with the *Nephrops* fishery and there are several selectivity options that have been developed to reduce unwanted catches of fish that could be applied. In 2020, a proposed exemption (42b) to replace this one was developed and evaluated, combining and modifying Exemptions 41 and 42 and incorporating the *Nephrops* trawl selectivity options. For whiting, the disparity between the *de minimis* amount and the discard rate indicates that close monitoring is needed to prevent overfishing.
Recommendation	Discontinue: to be replaced with Exemption 42b
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 19-08 (p86-87): See Annex for further information
STECF report	PLEN 19-02 (39-40): See Annex for further information

De minimis	
Exemption number	**44**
Exemption description	Whiting; <MCRS; ICES subarea 4; beam trawls; 80-119mm; BT2; whiting as 2% of total plaice and common sole catches

Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Beam trawls (TBB), mesh size 80-119mm, all vessel lengths, in ICES subarea 4 ** Beam trawls (TBB), all mesh size, all vessel lengths, in ICES subarea 4
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	10
UK Landings of affected fleet (t) **	6.4
UK Discards of affected fleet (t) **	0
UK Catch of affected fleet (t) **	6.4
UK % Total catch taken by affected fleet **	0.1%
UK Discard Rate of affected fleet (%) **	0

Additional relevant information	Note: fleet not sampled by UK programmes.
CEFAS evaluation	A very small proportion of the UK whiting catch is taken by the UK beam fleets under this exemption. However, this fleet is not sampled as part of the UK national sampling programme and UK vessels are assumed to have catch patterns comparable with Dutch vessels. The low contribution of catches from this fleet indicates a low risk to the stock, however, the UK should consider including this fleet in the data collection programme. The permitted *de minimis* amount is based on catches of common sole and plaice rather than whiting. This is to increase the allowable amount so that it is closer to the total estimated discard quantity. The approach represents a deviation from the way most *de minimis* allowances are calculated and adds further complication for managers. It is noted that deducting the full amount of anticipated exempt discards mitigates against overfishing, but it would be simpler to lift the *de minimis* threshold rather than to develop more complex exemptions by using other species to generate the desired discard amount. STECF noted that the *de minimis* amount is more than the estimated discards (across all countries fleets), and therefore could constitute a loss in fishing opportunities. Improving selectivity in the relevant fisheries should be the priority. The selectivity improvements identified in the Celtic Sea UK beam trawl fleet should be assessed for their suitability in the North Sea (see Exemption 15).
Recommendation	Continue: the uptake of the permitted *de minimis* amount should be monitored to mitigate against overfishing.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 19-08 (p86)
STECF report	PLEN 19-02 (p39)

De minimis	
Exemption number	**45**
Exemption description	Plaice; <MCRS; ICES subarea 4; *Nephrops* trawls; 80-99mm with SEPNEP; TR2 with SepNep; *de minimis* of 3%

Cefas review	
UK fishery data	
Fishery as defined for data extraction	N/A not able to select for SepNep.
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	Unknown
UK Landings of affected fleet (t) **	Unknown
UK Discards of affected fleet (t) **	Unknown
UK Catch of affected fleet (t) **	Unknown
UK % Total catch taken by affected fleet **	Unknown
UK Discard Rate of affected fleet (%) **	Unknown

Additional relevant information	Latest selective Net Grid trials (Armstrong et al., 2020; Armstrong et al., 2021)
CEFAS evaluation	The SepNep device was positively evaluated by STECF to improve selectivity in the fishery. The extent to which the device is used in the North Sea and by the UK fleet is unknown, but anecdotally there is limited or no use of the device in UK waters. The concept of the device is similar to the simpler dual cod end NetGrid design developed in the UK (e.g. Armstrong et al., 2020; Armstrong et al., 2021). Adding this design to the exemption should be considered, but is only used to very limited extent currently. The amount of <MCRS plaice allowed under this exemption is equal to 3 % of the total annual catches of saithe, plaice, haddock, whiting, cod, Northern prawn, common sole and Norway lobster. This combination of species is presumably to generate a higher allowable *de minimis* amount so that it is closer to the total estimated discard quantity for plaice; thus, the TAC deduction more closely reflects the unwanted catch and an absence of monitoring the uptake of *de minimis* carries less risk. The approach does represent a deviation from the way most *de minimis* allowances are calculated and adds further complication. It is noted that deducting the full amount of anticipated exempt discards is an effective way to mitigate against overfishing, but it would be simpler to lift the *de minimis* threshold. The demand for this exemption in UK waters is unclear, but if it encourages the uptake of more selective *Nephrops* trawls designs, it should be supported.
Recommendation	Continue: the uptake of the permitted *de minimis* amount should be monitored to mitigate against overfishing.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 17-08 (p56-57)
STECF report	PLEN 17-02 (p29)

De minimis	
Exemption number	**46**
Exemption description	All Species; ICES division 4b and 4c; brown shrimp beam trawls; a quantity of all species subject to catch limits, which shall not exceed 7%

Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Beam trawls, mesh size 16-31mm, all vessel lengths, in ICES areas 4bc ** Beam trawls (TBB), mesh size 16-31, all vessel lengths, target assemblage crustaceans, in ICES areas 4bc
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	35
UK Landings of affected fleet (t) **	<1 for several TACs (summed across TACs)
UK Discards of affected fleet (t) **	Unknown
UK Catch of affected fleet (t) **	0.01 for SOL/24-C.
UK % Total catch taken by affected fleet **	0%

UK Discard Rate of affected fleet (%) **	Unknown
Additional relevant information	-
CEFAS evaluation	In this brown shrimp directed fishery, almost all of the species subject to landing obligation are discarded. Estimates of discard amounts by species for this fishery were not available. The specificities of this fishery, which are well documented, show that the unwanted catches in this fishery are generally of very small fish, it is reasonable to accept that it is impractical to separate and land the fish bycatches. There have been developments in improving selectivity in this fishery (e.g. sieve nets) and this work should continue. Because all the very small fish are discarded, permitting a small percentage of those fish to be legally discarded is of little benefit and provides no solution to the issue handling the unwanted catches. In the equivalent NWW 7a brown shrimp fishery, a *de minimis* amount is set based on a % of the total annual catches of whiting across all fisheries amount (0.85% and 0.15% of the total annual catches of plaice and whiting respectively). This is designed to cover all the discarded catches. A TAC deduction based on the total estimated discard amount would ensure that all the unwanted catches are accounted for in the TAC. It is recommended that the same approach be applied in the North Sea, this will require a calculation of the estimated discard amount for these species where the discard rate is 100%. Based on the low contribution of catch weight taken by the exempt vessels relative to other fisheries, there is a low stock sustainability risk.
Recommendation	Continue with modification: the full estimated discard amount should be deducted from relevant TACs. The current 6% of catches taken by fisheries for brown shrimp, should be changed to a % of the total catches of species subject to catch limits that is equivalent to the total discards generated by the brown shrimp fishery (up to a maximum of 5%).

Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 18-06 (p16-17 &103-104): See Annex for further information
STECF report	PLEN 18-02 (p22-23) See Annex for further information

De minimis	
Exemption number	**47**
Exemption description	Horse mackerel; ICES subarea 4; bottom trawls; 80-99mm; *de minimis* 7%
Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Bottom trawls (OTB, OTT, PTB, TBN), mesh size 80-99mm, all vessel lengths, in ICES subarea 4 ** Bottom trawls (OTB, OTT, PTB, TBB), all mesh size, all vessel lengths, in ICES subarea 4
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	262
UK Landings of affected fleet (t) **	0.3 for JAX/2A-14 and 1.2 for JAX/4BC7D

UK Discards of affected fleet (t) **	Unknown
UK Catch of affected fleet (t) **	0.3 for JAX/2A-14 and 0.3 for JAX/4BC7D
UK % Total catch taken by affected fleet **	6.8% for JAX/2A-14 and 0.1% for JAX/4BC7D
UK Discard Rate of affected fleet (%) **	Unknown
Additional relevant information	English discard rate ~24%: from the Cefas observer program (Ribeiro Santos et al., 2021)
CEFAS evaluation	This exemption is difficult to assess due to the limited evidence provided. The proportion of the total catch of horse mackerel taken by the fleet under this exemption is relatively low (93% of catches are taken in pelagic fisheries), therefore the sustainability risk to the stock is probably low. However, there is some uncertainty in the discard amounts and further analysis is warranted. Where the discard rate exceeds the *de minimis* amount of 7% (6% for 2021), without monitoring the uptake of the permitted *de minimis* amount, there is a risk of overfishing. 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. The selectivity improvements expected from highly selective *Nephrops* trawls, proposed in new Exemption 42b, would expect to benefit this species.
Recommendation	Continue: the uptake of the permitted *de minimis* amount should be monitored to mitigate overfishing.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 19-08 (p13-14 & 87-88)

STECF report	PLEN 19-02 (p40-41)

De minimis	
Exemption number	**48**
Exemption description	Mackerel; ICES subarea 4; bottom trawls; 80-99mm; *de minimis* 7%

Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Bottom trawls (OTB, OTT, PTB, TBN), mesh size 80-99mm, all vessel lengths, in ICES subarea 4 ** Bottom trawls (OTB, OTT, PTB, TBB), all mesh size, all vessel lengths, in ICES subarea 4
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	262
UK Landings of affected fleet (t) **	6775.5
UK Discards of affected fleet (t) **	523.6
UK Catch of affected fleet (t) **	7299.1
UK % Total catch taken by affected fleet **	6.9%

UK Discard Rate of affected fleet (%) **	7.2%
Additional relevant information	-
CEFAS evaluation	This exemption is difficult to assess due to the limited evidence provided. The proportion of the total catch of mackerel taken by the fleet under this exemption is relatively low (93% of catches are taken in pelagic fisheries), therefore the sustainability risk to the stock is probably low. However, there is some uncertainty in the discard amounts and further analysis is warranted. Where the discard rate exceeds the *de minimis* amount of 7% (6% for 2021), without monitoring the uptake of the permitted *de minimis* amount, there is a risk of overfishing. 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. The selectivity improvements expected from highly selective *Nephrops* trawls, proposed in Exemption 42b, would expect to benefit this species. *Nephrops* TACs are landings based, but the assessments account for an estimated level of discarding. Therefore, no deduction is made from the TAC.
Recommendation	Continue: the uptake of the permitted *de minimis* amount should be monitored to mitigate overfishing.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 19-08 (p13-14 & 87-88)
STECF report	PLEN 19-02 (p40-41)

De minimis	
Exemption number	**49**
Exemption description	Sprat, sandeel, Norway pout and blue whiting; ICES division 3a and subarea 4; trawls and seines; >80mm; TR1 and TR2; combined sprat, sandeel, Norway pout and blue whiting as 1% of all total annual catches in demersal fisheries and the fishery for Northern Prawn

Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Bottom trawls and seines (OTB, PTB, OTT, TBN, SSC, SDN), mesh size >=80mm, all vessel lengths, in ICES area 3a and 4 ** Bottom trawls and seines (OTB, PTB, PTM, OTT, OTM,TBN, TB, SSC, SDN, SPR), all mesh sizes, all vessel lengths, in ICES area 3a and 4
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	458
UK Landings of affected fleet (t) **	0 for SAN/234; 0 for SPR/2AC4-C; 0 for WHB/1X14
UK Discards of affected fleet (t) **	0 for SAN/234; 0 for SPR/2AC4-C; 0 for WHB/1X14
UK Catch of affected fleet (t) **	0 for SAN/234; 0 for SPR/2AC4-C; 0 for WHB/1X14

UK % Total catch taken by affected fleet **	0% for SAN/234; 0% for SPR/2AC4-C; 0 for WHB/1X14
UK Discard Rate of affected fleet (%) **	0% for SAN/234; 0% for SPR/2AC4-C; 0% for WHB/1X14
Additional relevant information	As well as WHB/1X14, there are two more recognised Blue whiting in Norwegian waters of 2 and 4 (WHB/24-N) are allocated no quota, however, these have no associated UK or EU TAC (TQR, 2020). For blue whiting in Union waters of 2, 4a, 5, 6 north of 56° 30' N and 7 west of 12° W (WHB/24A567) the UK has no share in the quota (TQR, 2020). ICES Advice for sprat, sandeel and Norway pout (ICES 2021c; 2020b; 2019a)
CEFAS evaluation	There are two defined fisheries covered by this proposal, the general otter trawlers and the specific Northern Prawn fishery. The Northern prawn fishery is reportedly mostly in area 3a and so outside of UK waters, with a small amount of landings (0-20t per year) in area 4a. It is unknown whether there is an interest in the Northern Prawn fishery component of the exemption in UK waters. For the wider TR1 and TR2 UK fleets, it is unclear what the rationale is for the exemption. There was little evidence provided to support this exemption in terms of selectivity or disproportionate costs information. The FDI database indicates no landings or discards for the UK fleet. For sprat, industrial trawls take 99% of the catch (ICES, 2020b), discards are given as negligible; for blue whiting, pelagic trawls take 99% of the landings, demersal trawls 1%, and 2570 t of discards (0.2% discard rate). For Norway pout, 100% of the catch is taken by small mesh trawlers and discarding is negligible; for sandeel 100% is taken in industrial trawl fisheries and discarding is negligible (ICES, 2021c). There is low risk to the sustainability of this stock due to the very low proportion of catches taken by the exempted fleet. The English observer programme indicates that Norway pout is discarded from the North Sea *Nephrops* trawl fishery. The selectivity improvements expected from

	highly selective *Nephrops* trawls, proposed in Exemption 42b, would expect to benefit this species.
Recommendation	Continue: assess the demand for this exemption in UK waters and gather evidence on extent of discards to enable an appropriate TAC deduction.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 18-06 (p106)
STECF report	PLEN 18-02 (p24)

De minimis		
Exemption number		**50**
Exemption description		Ling; <MCRS; ICES subarea 4; long lines; 3% Total Annual Catches of Ling in hake LLS fishery
Cefas review		
UK fishery data		
Fishery as defined for data extraction		* Longlines (LLS), all vessel lengths, in ICES subarea 4 ** Longlines (LLS), all vessel lengths, in ICES subarea 4
Data source		*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018

Max. Number UK vessels *	403
UK Landings of affected fleet (t) **	455.6
UK Discards of affected fleet (t) **	0
UK Catch of affected fleet (t) **	455.6
UK % Total catch taken by affected fleet **	11.4%
UK Discard Rate of affected fleet (%) **	0%

Additional relevant information	ICES advice for ling under exemption (ICES, 2019b)
CEFAS evaluation	Most catches are from 4a and 84% of landings are derived from longlines (ICES, 2019b). The discard rate for the assessed stock is around 5%. There is no information on the demand for this exemption for UK vessels or on the discard quantities for UK vessels. Evidence provided previously was from France only, indicating a small residual level of unwanted ling in the catch. The arguments regarding difficulties in improving selectivity are credible given the nature of the fisheries. The potential improvements in selectivity, for example through increases in hook size, are not known. It is noted that most unwanted ling (86%) were above MCRS and so these must be landed. The *de minimis* amount is comparable to the estimated discards, therefore the sustainability risk is low.
Recommendation	Continue: the uptake of the permitted *de minimis* amount should be monitored to mitigate overfishing.

Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 19-08 (p88-89)
STECF report	PLEN 19-02 (p39)

De minimis	
Exemption number	**51**
Exemption description	Mackerel, horse mackerel, herring, whiting; ICES divisions 4b and c; pelagic trawls; pelagic trawlers up to 25 metres in length overall; 1% of the total annual catches of mackerel, horse mackerel, herring and whiting
Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Pelagic trawls (OTM, PTM), <25m vessel length, ICES 4b and 4c ** Pelagic trawls (OTM, PTM), all mesh size, <25m LOA, in ICES division 4b and c
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018
Max. Number UK vessels *	4
UK Landings of affected fleet (t) **	0 for WHG/2AC4; 0 for MAC/2A34; Not Available for JAX/2A-14; 0 for JAX/4BC7D; 0 for

	HER/4AB; 15.3 for HER/2A47DX; 15.3 for HER/4CXB7D
UK Discards of affected fleet (t) **	0 for WHG/2AC4; 0 for MAC/2A34; Not Available for JAX/2A-14; 0 for JAX/4BC7D; 0 for HER/4AB; 0 for HER/2A47DX; 0 for HER/4CXB7D
UK Catch of affected fleet (t) **	0 for WHG/2AC4; 0 for MAC/2A34; Not Available for JAX/2A-14; 0 for JAX/4BC7D; 0 for HER/4AB; 15.3 for HER/2A47DX; 15.3 for HER/4CXB7D
UK % Total catch taken by affected fleet **	0% for WHG/2AC4; 0% for MAC/2A34; Not Applicable for JAX/2A-14; 0% for JAX/4BC7D; 0 for HER/4AB; 0.2% for HER/2A47DX; 3% for HER/4CXB7D
UK Discard Rate of affected fleet (%) **	0% for WHG/2AC4; 0% for MAC/2A34; Not Applicable for JAX/2A-14; 0% for JAX/4BC7D; 0% for HER/4AB; 0% for HER/2A47DX; 0% for HER/4CXB7D
Additional relevant information	Potential discard information from French ObsMer programme.
CEFAS evaluation	This exemption is difficult to assess due to the limited evidence provided. There are no landings of mackerel, horse mackerel, herring and whiting taken by the fleet under this exemption based on the STECF FDI data. Therefore, the sustainability risk to the stock appears low, however, there are no discard estimates for these species. Where the discard rate exceeds the *de minimis* amount of 1%, without monitoring the uptake of the permitted *de minimis* amount, there may be a risk of overfishing. There is no quantitative evidence on either disproportionate costs or difficulties to improve selectivity available for evaluation. There is no evidence of a UK demand for this exemption.

Recommendation	Discontinue: there is not sufficient evidence to support the exemption. If continued: the uptake of the permitted *de minimis* amount should be monitored to mitigate overfishing with a minimum requirement to gather discard information.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 20-04 (p150-152, Annex 7.3.1.2): See Annex for further information
STECF report	PLEN 20-02

De minimis	
Exemption number	**72**
Exemption description	*Nephrops*; ICES division 2a, subarea 4; Trawls; 80-99mm; <MCRS, 2%
Cefas review	
UK fishery data	
Fishery as defined for data extraction	* Bottom trawls (OTB, OTT, PTB, TBN), mesh size 80-99mm, all vessel lengths, in ICES subarea 2a and 4 ** Bottom trawls (OTB, OTT, TBN), all mesh size, all vessel lengths, in ICES subarea 2a and 4
Data source	*Number UK vessels: Official landings database (IFISH, 2018) **Fishery information: FDI 2018

Max. Number UK vessels *	218
UK Landings of affected fleet (t) **	10721
UK Discards of affected fleet (t) **	18.7
UK Catch of affected fleet (t) **	10740
UK % Total catch taken by affected fleet **	99.6%
UK Discard Rate of affected fleet (%) **	0.2%
Additional relevant information	English discard rate of 4% from Cefas observer program (2018) from Ribeiro Santos et al. (2021).
CEFAS evaluation	This fishery previously had an exemption for survivability for *Nephrops* (still in place in EU waters) and, prior to that, a *de minimis* exemption. In the UK retained regulation there was a condition to produce additional information on discard survival levels. Information from the Scottish East coast otter-trawl fishery for *Nephrops* showed up to 75% survivability, but STECF concluded that different fishing practices within this fleet contribute to different injury rates which indicate potential for different survival rates, and so the evidence may not be representative of the main fishing activities. In the absence of new survival data for the Scottish east coast fishery, a *de minimis* request for the same region and fishery replaced the survival exemption in the Fisheries Act (2020). Given that the discard rate is currently estimated at around 4%, it is agreed it would be difficult to further improve selectivity towards *Nephrops* substantially (but not unwanted catches of fish species in this fishery). *Nephrops* TACs are landings based, but the assessments account for an estimated level of discarding. Therefore, no deduction is made from the TAC.

Recommendation	Continue: the uptake of the permitted *de minimis* amount should be monitored to mitigate overfishing.
Links to STECF evaluations (details in Annex 1 for Cefas recommendations which are not 'Continue')	
EWG report	STECF 17-08 (p61)
STECF report	PLEN 17-02 (p27)

10. North Sea (NS) New Exemption Evaluation and Recommendations

De minimis	
Exemption number	**42b**
Exemption description	Whiting; <MCRS; ICES division 4a-c; trawls and seines; 70-99mm; TR2; *de minimis* 5% of whiting
Cefas review	
UK fishery data	
Data source	Official landings database (IFISH, 2015-2019)
Max. Number UK vessels	There were 147 vessels in 2019. For ICES 4 (UK waters) in the Norway lobster (*Nephrops norvegicus*) fishery, where catches comprise more than 30% of Norway lobster, using otter trawl gears (OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX) of 70-99 mm (TR2)

UK Estimated landings of affected fleet (t) **	765-1607 (average 1000t)
UK Estimated discards of affected fleet (t)	1038-4822 (average 2661t)
UK Estimated catch of affected fleet (t)	1861-6428 (average 3661t)
UK Discard Rate (%)	55%-83% (average 69.5%)
Estimated discard rate survival	Not Applicable

Additional relevant information	53-66% discard rate in for Otter trawl 70-99 English fleet (observed trips predominantly from 4b and c) (Ribeiro Santos et al., 2021) Report of the EU-Norway Technical Group Meeting on additional technical measures aimed at the protection of both juvenile and adult cod (Graham and Olsen, 2020). Cefas document (2020c; unpubl.). a proposal for 'A 5% de minimis exemption for <MCRS whiting caught in TR2 fisheries in ICES area IV.' Provided in Annex 4 of this report.
CEFAS evaluation	A request is made for a *de minimis* exemption for <MCRS whiting caught in ICES subdivisions 4a, b, and c, by vessels in fish directed fisheries using bottom trawls or seines (OTB, OTT, SDN, SSC) with a mesh size of 70-99 mm (TR2), and in fisheries for Norway lobster by vessels using highly selective trawls with cod ends of mesh size 80-99 mm. This request is to replace 2 existing *de minimis* exemptions 41 and 42. The proposal removes cod from these exemptions due to the limited supporting evidence and the risk to the depleted cod stock - it is recommended that the cod element of exemptions 41 and 42 be discontinued. To note, the EU have removed cod from exemption 42 from the EU waters of the northern North Sea (4a,b) and have requested further evidence for 4c. The new proposal also includes additional selectivity measures for the whiting caught in the *Nephrops* targeted fishery.

	Originally, a *de minimis* exemption for whiting in the North Sea 4c TR2 fleet (70-99mm mesh) was justified on the basis of the difficulty in improving selectivity (evidence provided only by France). It was extended to include cod in 2017 (Exemption 41), but with no additional evidence, and then extended to 4a and b through a separate exemption; the only additional evidence provided was on disproportionate costs for the Dutch *Nephrops* fleet. No evidence from UK vessels has been submitted to support these exemptions, and the wealth of selectivity evidence for the TR2 *Nephrops* fleet has not been submitted or evaluated. Given the extensive work on developing more selective trawls in the North Sea UK *Nephrops* (Norway lobster) TR2 fishery, there is not sufficient evidence to support a generic exemption for whiting and cod caught in the *Nephrops* TR2 fleet on the grounds of difficulties to improve selectivity. Moreover, it is recognised that the *de minimis* amounts will account for only a small proportion of the unwanted catches, and so improving selectivity is the most effective way of reducing handling costs. It is recommended that an exemption for <MCRS whiting be maintained for TR2 vessels targeting fish, but for those operating in the Norway lobster fishery, it should apply only to vessels using predefined selective *Nephrops* trawl designs as specified in the detailed proposal (including SELTRA panel and selection grids). There is a moderate risk of overfishing in the absence of monitoring the uptake of the *de minimis* amount. The disparity between the *de minimis* amount and the discard rate means that close monitoring is needed to prevent overfishing.
Recommendation	Implement: this would replace Exemptions 41 and 42. There is a moderate risk of fishing mortality for whiting exceeding the agreed catch limit (even with selective Nephrops trawls). The uptake of the permitted *de minimis* amount should be monitored to mitigate against overfishing. In the absence of effective monitoring, this exemption should be discontinued.

11. Synopsis of recommendations

Cefas was commissioned to conduct a review of all existing exemptions to the Landing Obligation relevant to UK waters which have been transposed into UK law and review proposed new exemptions for UK waters. In total, 54 exemptions relevant to UK waters were reviewed; of these, 4 were new proposed exemptions (3 in North Western Waters and 1 in the North Sea) and 50 were existing exemptions retained in UK law (27 exemptions in North Western Waters and 23 exemptions in the North Sea).

For the existing exemptions, evidence provided to STECF and the EWG in support of the exemption were reviewed as well as additional information such as published and unpublished technical reports. The UK fishery data derived from the FDI database and IFish was used to provide the UK fishery context. All evidence was evaluated considering the sustainability risk as well as the potential for improvements in gear selectivity.

For both existing and new exemptions, an overall recommendation was provided. For existing exemptions, they were classified as either “continue”, “continue with modification” or “discontinue”. For new exemptions, they were either classified as “implement”, “implement with modification” or “not implement”.

For existing exemptions, a total of 32 exemptions were classified as “continue” (14 North Western Waters and 17 the North Sea) and 11 as “continue with modification” (9 North Western Waters and 2 the North Sea). A total of 7 exemptions were classified as “Discontinue” (3 in North Western Waters and 4 in the North Sea). For the new exemptions, 3 were classified as “implement” (2 in North Western Waters and 1 in the North Sea), and 1 as “implement with modification” (in North Western Waters).

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13. Annex 1 - STECF evaluations

Exemption number	Annex Previous STECF evaluation when Cefas recommendation is other than 'Continue'	
5	EWG comments	Existing provision. EWG 18-06 notes that new information in relation to nursery areas (as requested in the 2018 discard plan COM 2018/46) was not provided in the JR. Suggested additional data to be requested: a) Location of sole nursery grounds.
	STECF comments	No new information was supplied to the STECF Plenary on the location of nursery grounds in VIId. Additional comments were, however, provided by the UK outlining the difficulties of identifying nursery ground areas. STECF notes, however, that a late submission was made by France after the Plenary. This consisted of the coordinates of 5 small areas located along the French coast in VIId (no charts were provided). There was no accompanying text to explain whether the positions represent updates of existing information, or to indicate the source of the material, or the significance of those areas to the sole population in VIId. No information was available for the English coastal areas and therefore STECF was unable to further evaluate the relevance of the nursery grounds in the context of this existing exemption.

Exemption number	Annex Previous STECF evaluation when Cefas recommendation is other than 'Continue'	
7	EWG comments	The supplementary material to the JR provided as scientific evidence of the high survivability of plaice is too limited to be reviewed. Experimental details about a large extent of the study are missing (e.g. analysis, control group, vitality assessment and animal observations). Fleet and fishery descriptions are only provided for the United Kingdom, EWG 18-06 notes that without provision of more complete information it is not possible to assess the merits of this proposed high survivability exemption. Suggested additional data to be requested: a) Fleet and fishery descriptions for countries other than UK. b) Scientific evidence of the survivability of discarded plaice, including experimental details (e.g. analysis, control group, vitality assessment and animal observations).
	STECF comments	Additional material was supplied to PLEN 18-02. A comprehensive and detailed paper provides scientific information indicating a plaice survival rate of 73% in the trammel net fishery in VIId and VIIe. Fishery information was provided by UK and France. STECF concludes that the survivability study is robust and indicates a survival rate of 73%. Combined with the discard rate of 32% indicated in the accompanying document, this implies that about 9% of the overall catch of the gears affected by this exemption is discarded and dies (Fig. 2).

Exemption number	Annex Previous STECF evaluation when Cefas recommendation is other than 'Continue'	
9	EWG comments	The estimated discard survival estimates described here are variable between trips. The trips varied in time and area, and therefore in environmental conditions, by vessel, gear characteristics and catch composition. Estimates for the most recent trips are inferred and based on vitality, so these may have been influenced by any inconsistencies in performing vitality assessments. It is considered the data were sampled from a range of vessels that is representative of the relevant fleet. The specific requirement of the existing exemption was for additional survival evidence for plaice stock in ICES divisions 7h-k. No new data were provided from these areas. Studies previously assessed by STECF indicate that survival is higher in the coastal fishing grounds, and when seawater temperature is lowest. It is considered that, when fishing away from the coast, the environmental and technical attributes of fishing operations in 7h-k are consistent with the other areas covered by this exemption, therefore the survival of plaice discarded by beam trawlers in 7h is likely to be comparable with other areas in the Celtic Sea. Flanders Research for Agriculture, Fisheries and Food (ILVO) has developed a three-year (2019-2021) project ('Survival Monitoring - Overleving Monitoren') to gather additional survival data and further analyze existing and new data, for plaice in the North Sea 4a & 7d and 7fg (not for 7hjk). This project aims to produce new discard survival estimates for plaice in the Celtic Sea and North Sea beam trawl fisheries. Fishery information should be provided by relevant countries other than Belgium. The annual progress reports could be improved, specifically in detailing the scientific evidence on discard survival, and identifying new information from previously submitted evidence. A clearer highlighting of new science is encouraged in future reports.
	STECF comments	STECF agrees with the main findings of EWG 20-04 and note that the regional group. STECF also notes that according to ICES fishing pressure on the plaice stock in 7h,j,k is above FMSY proxy, Fpa, and Flim, and the spawning–stock size is below MSY Btrigger proxy, Bpa, and Blim. Therefore, increases in fishing mortality on this stock should be avoided and any plaice discarded under the exemption should be accurately recorded.

Exemption number	Annex Previous STECF evaluation when Cefas recommendation is other than 'Continue'	
10	EWG comments	The estimated discard survival estimates described here are variable between trips. The trips varied in time and area, and therefore in environmental conditions, by vessel, gear characteristics and catch composition. Estimates for the most recent trips are inferred and based on vitality, so these may have been influenced by any inconsistencies in performing vitality assessments. It is considered the data were sampled from a range of vessels that is representative of the relevant fleet. The specific requirement of the existing exemption was for additional survival evidence for plaice stock in ICES divisions 7h-k. No new data were provided from these areas. Studies previously assessed by STECF indicate that survival is higher in the coastal fishing grounds, and when seawater temperature is lowest. It is considered that, when fishing away from the coast, the environmental and technical attributes of fishing operations in 7h-k are consistent with the other areas covered by this exemption, therefore the survival of plaice discarded by beam trawlers in 7h is likely to be comparable with other areas in the Celtic Sea. Flanders Research for Agriculture, Fisheries and Food (ILVO) has developed a three-year (2019-2021) project ('Survival Monitoring - Overleving Monitoren') to gather additional survival data and further analyze existing and new data, for plaice in the North Sea 4a & 7d and 7fg (not for 7hjk). This project aims to produce new discard survival estimates for plaice in the Celtic Sea and North Sea beam trawl fisheries. Fishery information should be provided by relevant countries other than Belgium. The annual progress reports could be improved, specifically in detailing the scientific evidence on discard survival, and identifying new information from previously submitted evidence. A clearer highlighting of new science is encouraged in future reports.
	STECF comments	STECF agrees with the main findings of EWG 20-04 and note that the regional group. STECF also notes that according to ICES fishing pressure on the plaice stock in 7h,j,k is above FMSY proxy, Fpa, and Flim, and the spawning–stock size is below MSY Btrigger proxy, Bpa, and Blim. Therefore, increases in fishing mortality on this stock should be avoided

		and any plaice discarded under the exemption should be accurately recorded.

Exemption number	**Annex Previous STECF evaluation when Cefas recommendation is other than 'Continue'**	
13	EWG comments	This request involves the use of 'safeguards' and the approach was evaluated by STECF Plenary 2018-01. EWG 18-06 note that studies on selectivity have been provided only for the Irish fleets with general information from France. Fishery information on all fleets is required (not just French and Irish) and STECF further notes that there are some inconsistencies in the data provided. EWG 18-06 notes that since the requested 5% *de minimis* provides only a partial solution (discard rates are 27% for TR1 and 53% for TR2), improvements in selectivity are required. Due to several remaining questions, lack of key data, incomplete selectivity data and general shortage of material justifying disproportionate costs, EWG 18-06 is unable to fully assess the merits of this case. Suggested additional data to be requested: a) Data on the fishery, including catch and discard quantities (other than for France and Ireland). b) Clarification on landings and discard data provided. Estimated landings and the estimated discards for gadoids report the same value, and this is not consistent with the reported discard rate.
	STECF comments	Additional fishery information provided to PLEN 18-02 by NL and UK. Inconsistencies were sorted out. Fishery data provided by Spain related to an exemption that was not requested in the JR. The combination of species was different to the original proposal contained in the JR. STECF notes that while there is partial information on selectivity this is limited to one fleet and there is little information to justify an argument on the basis of disproportionate cost. STECF concludes that in the absence of supporting information, no assessment can be made as to whether improvements in selectivity are very

		difficult to achieve or whether the costs of handling unwanted catches are disproportionate. The basis of the safeguard component of this request was considered by STECF Plenary 2018-01. STECF reiterates its conclusion that to be in line with CFP objectives, the maximum possible amount of *de minimis* (i.e. the maximum amount including safeguard) for each species that could potentially be discarded, must be deducted from the respective TACs.

Exemption number	**Annex Previous STECF evaluation when Cefas recommendation is other than 'Continue'**	
15	EWG comments	EWG 15-05 notes that costs of handling and sorting onboard as such can likely not be considered disproportionate, as fish are unmeshed one by one, so the additional costs of keeping the undersize sole onboard rather than discarding overboard are likely limited. Additional costs are though likely to occur for disposing of fish at land when the unwanted catches are to be stored, collected and used in dedicated outlets, but EWG 15-05 notes that this issue is at present generic to most types of species, fleets and area. Therefore, such additional costs should not be considered in isolation for a specific fishery (as is advocated here for undersize sole taken in gill and trammel nets), but they should be considered at the scale of the entire harbour or coastal area. In summary, EWG 15-05 acknowledges that additional selectivity improvements through increases in mesh size are problematic to achieve without incurring losses of marketable sole although the potential scale of these losses have not been quantified in the Joint Recommendation. EWG 15-05 considers that there is sufficient evidence provided to support this view, but EWG 15-05 is unable to determine whether these are indeed very difficult to attain or not. The *de minimis* will lead to a status-quo in discard rates for this low-discards fishery, since the percentage requested is at or above the actual discards under

		current recruitment level therefore there would be no incentive to reduce discards.
	STECF comments	No additional comments

Exemption number	**Annex Previous STECF evaluation when Cefas recommendation is other than 'Continue'**	
16	EWG comments	The supported information provided in 2019 on catches and discards has been updated with information from the STECF-FDI database (2013-2016). Additional results from selectivity trials from Ireland and France have been provided as well as an update of the economic analysis for Irish vessels. All the additional information provided this year (Annexes 3 and 3bis) is in line with the supporting information accompanying the 2019 JR. 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 and whiting) will continue. Since haddock and 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 June 2020. The selectivity information provided indicates that introduction of such gears is expected to reduce unwanted catches of haddock, but it is too early to evaluate whether that will be achieved. The EWG also notes that based on data held in the STECF-FDI database for the years (average 2013 – 2016), a 5% *de minimis* would have implied a permitted discard for haddock up to a maximum of 843 tonnes. Such an amount represents 7.8% of the 2020 TAC for haddock in ICES areas 7b-k, 8, 9 and 10; COPACE 34.1.1 (10 859 tonnes).
	STECF comments	

Exemption number	**Annex Previous STECF evaluation when Cefas recommendation is other than 'Continue'**	
19	EWG comments	EWG 20-04 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 demonstrate whether the 120 mm panel is equally as selective as the 150 mm panel is still lacking. Such information would explain the reasoning behind only requiring the panel to be constructed in 120mm rather than 150mm. It is not clear if the Flemish Panel will be used by the Irish fleet, which is responsible for around 8% of the catches in 7a in 2019. In this regard, the NWW Member States should consider including the Flemish Panel in a future technical measures JR, thereby making it mandatory for all beam trawl vessels in area 7.

	STECF comments	

Exemption number	**Annex Previous STECF evaluation when Cefas recommendation is other than 'Continue'**	
28	EWG comments	EWG 18-06 observes that no catch or fleet information is provided for any Member State so the extent of the exemption and the fleets to which it would apply is unknown. EWG 18-06 considers that it provides some initial and basic evidence of the survivability of P. platessa caught with trammel nets. EWG 18-06 suggests that the studies should be repeated in the North Sea to ensure the survival rates obtained in the Baltic Sea are representative. EWG 18-06 also notes that no data are provided for other types of static nets (set gillnets, combined gillnets-trammel nets and gillnets and entangling nets). EWG 1806 cannot assess whether the results provided for the trammel net are representative of the other types of set nets. This is only relevant if other types of set-nets are used in the North Sea.
	STECF comments	STECF has no additional comments on the supporting information which seems reasonable. STECF notes that the survival estimate is 100%, if confirmed over a range of conditions this implies that none of the overall catch of the gears affected by this exemption is discarded and dies.

Exemption number	Annex Previous STECF evaluation when Cefas recommendation is other than 'Continue'	
35	EWG comments	EWG 18-06 observes that no data on the fleets or fisheries (e.g. fleet, landings, discard rates) involved is provided. EWG 18-06 further observes it is unclear as to whether the exemption is to apply to all trawl fisheries or just to vessels using pulse trawls. EWG 18-06 notes that the JR states the exemption is on a temporary basis for three years. However, EWG 18-06 notes that there is no justification for this and also points out that the lifespan of the discard plan is three years as well. EWG 18-06 considers the preliminary estimate of survival of 30% to be somewhat low, acknowledging that the studies proposed may allow time for improvements in the fishery (gear selectivity, survivability data). EWG 18-06 considers it a decision for managers to decide whether the survival rate coupled with the proposed additional measures is sufficient to justify the exemption. EWG 18-06 also notes that the survival rates in summer were higher than in winter which is unusual based on results of previous survival studies with different species. Given this unexpected outcome, EWG 18-06 considers it appropriate to repeat the survival studies to confirm this is the case. EWG 18-06 notes that the survival studies presented were all carried out with pulse trawls. EWG 18-06 cannot assess whether the results presented are representative of standard beam trawl gears or other trawl gears but based on the differences in operation of the pulse trawl it is likely that the survival rates would be lower with standard beam trawls and similar with other towed gears. If the intention is for this exemption to cover demersal trawls and standard beam trawl gear as well as pulse trawls, then EWG 18-06 considers it appropriate to repeat these studies with these gears. EWG 18-06 notes that the total sample sizes used in the survival studies are adequate to obtain an overall survival rate. However, although the sea trips were spread out over the year (January, May, June, July, September, October, December) to account for the potential effect of variable environmental and fishing conditions on discards survival. EWG 18-06 considers the low number of individuals in each trip prevents using these as reliable monthly survival estimates. EWG 18-06 observes that the survival probability estimates apply to year-round pulse-trawl fisheries, but the results show variation in survival rates throughout the year. As the studies note, this means that the overall survival probability for a species is not necessarily representative for

		its discards survival at any specific time of the year. The nature of this variation remains to be established. The studies also reveal that catch-processing time seems to have no effect on fish condition or on the survival rate of discards. EWG 18-06 notes that the studies show survival was strongly affected by fish condition. Therefore, the recommendation made in the JR that measures aimed at increasing the survival of discards should focus on improving the condition of discarded fish during the capture process rather than the catch processing seems appropriate. EWG 20-04 It remains unclear whether the survival estimates provided from pulse trawling are relevant to this request, given that numbers of pulse trawlers are set to reduce, and likely to be replaced by beam trawlers. The supporting information mentions that research is committed by BE to estimate the survival of discarded turbot caught by beam trawlers in the North Sea in a project ('Survival Monitoring - Overleving Monitoren') that aims to improve survival estimates for both plaice and turbot in the beam trawl fishery during 2019-2021. Outputs from this work will enable a more robust evaluation of this proposed exemption.
	STECF comments	STECF re-iterates the concerns raised by EWG 18-06 regarding the survival rates estimated which are typically 30% with considerable variability. STECF also highlights that given the indicative discard rates which for some fleets are high and survival rates are relatively low in the BT2 fishery then it is likely that significant quantities of turbot discarded will not survive. Most catches of turbot are taken in the BT2 fishery. STECF notes that for the towed areas combined (beam trawl and otter trawl) the available combined discard rate was 22% and the survival estimate is relatively low at 30%. This implies that at least 15% of the undersized catch made by the gears affected by this exemption is discarded and dies. STECF notes that the survival estimates are based on studies carried out in the pulse trawl fishery. STECF cannot assess the representativeness of these estimates compared to standard beam trawls or TR2 gears. Further studies to consider the effects of differing environmental conditions and fishing operations would seem appropriate. STECF notes that

		detailed catch and fleet information has been supplied to the PLEN 18-02 for both TR2 and BT2 fisheries.

Exemption number	Annex Previous STECF evaluation when Cefas recommendation is other than ‘Continue’	
42	EWG comments	Same information as for exemption 41. but re assessed by 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 40 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.
	STECF comments	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.

Exemption number	Annex Previous STECF evaluation when Cefas recommendation is other than ‘Continue’

41	EWG comments	The JR includes a revision to an existing exemption included under Article 6(h) of Regulation (EU) 2015/2250. The revision contained in the JR for 2018 extends the areas and adds cod to the exemption and requests a *de minimis* exemption for whiting and cod caught in the mixed trawl fishery using a mesh size of 79-99 mm (TR2) in ICES areas IVa, IVb and c. In 2017 this exemption applied only to whiting caught in this fishery. A *de minimis* volume of up to a maximum of 6% in 2018 and 5% after 2018 (on which a maximum of 2% can be used for cod discards) of the total annual catches of species that would fall under landing obligation is requested. The justification for the previous exemption was assessed by EWG 16-10 and sufficient evidence was deemed to have been provided to support the exemption for the French fishery on the basis that further selectivity in the fishery was difficult to achieve. Nevertheless, EWG 16-06 requested that further information on other fleets with whiting bycatch, including catches, discard rates and reports of any relevant selectivity trials, needed to be supplied. This information was subsequently provided. EWG 16-06 noted the challenging transition required from discard rates around 46% to the 6% *de minimis* level requested at the time without significant selectivity improvements. Considering the current discard rates reported (46% for FR and 38% for NL for whiting) to the now 6% (7.7% *de minimis* level) requested that observation remains valid. EWG 17-03 notes that selectivity trials continue to be ongoing and that the results from these should be considered as a means to reduce unwanted catches going forward. EWG 17-03 observes that even with a *de minimis* exemption there will still be a requirement to reduce discards further for whiting and the costs incurred by the rest of the unwanted catch that will be landed and counted against quota may provide an incentive to increase selectivity in the short-term. EWG 17-03 notes that the *de minimis* volumes requested potentially could permit higher than current discards for cod (around 3.7 times more for the NL fleet, even with the safeguard proposed). While the volumes are small 11 tonnes of *de minimis* compared to 3 tonnes of discards, this could act as a dis-incentive to try to improve selectivity in the longer term, given all unwanted catches of cod can be discarded. STECF have consistently proposed that the justification for *de*

		minimis exemptions is largely economic. However, EWG 17-03 notes that very little quantitative information on the economic impact of increasing selectivity and of sorting and handling catch has been provided. Any supporting information that has been remains largely qualitative. EWG 17-03 concludes that the assertion that it is difficult to improve selectivity in the short term without incurring loss of marketable catch is supported by the information provided but only for the French fleet. For the Dutch fleet no relevant selectivity trials or information on selectivity projects and other possible studies have been provided. It is also unclear from the JR whether the intention is to apply this *de minimis* to other fleets. This was indicated to be the case in 2016, when information for fleets from Denmark, Belgium and the UK were included. If the intention is for these fleets to continue to be included then information on the number of vessels, catches and discard rates as well as reports of any relevant selectivity trials should be supplied
	STECF comments	Fisheries and fleet descriptor data have been provided for FR, UK, NL and DE. For NL is not clear what the actual landings and discards were from the vessels reported. The DE data is incomplete as no estimates of discards are included. Therefore STECF is not able to comment on the total level of *de minimis* volume being requested under this exemption. However, given that the catches of cod and whiting by the UK, NL and DE (landings only) are negligible and provided discarding under the exemption is monitored, the impact from these fleets is likely to be minimal. The FR fleet has much higher levels of catches of cod and whiting. STECF re-iterates the observations of EWG 17-03 that the potential maximum volumes of *de minimis* for whiting and cod, taking account of the limitation of 2% on cod discards, should be deducted from the catch advice and deducted from the available fishing opportunities. STECF also observes that economic information to support the exemption is still lacking but notes that the Member States were not asked by the Commission to provide any further information.

Exemption number	Annex Previous STECF evaluation when Cefas recommendation is other than 'Continue'	
46	EWG comments	New exemption. Based on major increases in selectivity being difficult to achieve beyond existing measures. In addition, the handling of unwanted catches is regarded as having an economically disproportionate impact given the difficulties in sorting very small undersized individuals from the target species. No supporting documentation is provided to support either of these assertions even though it is likely that both are important for this fishery. A reasonably detailed description of the fishery and fleets is provided but there is no breakdown by Member State and the catch data is only provided as a percentage of the overall catches and not by volume. Suggested additional data 17 to be requested: a) Supporting documentation on disproportionate costs of i) separating out small fish and ii) need for extra crew. b) Breakdown of the fleets by Member State and the catch data is only provided as a percentage of the overall catches and not by volume
	STECF comments	STECF notes that additional information on disproportionate costs has been provided to the PLEN 18-02. This information adequately documents the increasing time required for sorting small fish from the brown shrimp catch as well as providing economic data relating to the costs of employing extra crew to carry out this sorting on board. STECF notes that a breakdown of the fleets involved in the fishery has also been provided and a justification for not supplying catch data relating to bycatch volumes has also been supplied which seems reasonable

Exemption number	Annex Previous STECF evaluation when Cefas recommendation is other than 'Continue'	
51	EWG comments	Re-evaluated in EWG-20-04: No additional documentation has been provided to support the continuation of this exemption since the last evaluation of the pelagic discard plan JR's for the North Sea carried out by STECF in 2014. Updated information on the number of vessels involved in the fishery and catch data from French observed data collected under the OBSMER programme has been provided. This data indicates similar levels of unwanted catches of mackerel, herring, horse mackerel and whiting reported in 2014. The information provided indicates that the *de minimis* is primarily covering unwanted catches of whiting in the fishery. The unwanted catches of herring, mackerel and horse mackerel are reported to be minimal, and it is not clear why these species are included in the exemption, if the issue is around unwanted catches of whiting. Given only limited new information has been provided, the EWG observations largely re-iterate the STECF conclusions of 2014. It is not possible to precisely identify which vessels or trips would be subject to a *de minimis* exemption from the information given in the JR or whether it is intended that the exemption would apply to specific fishing operations within a given fishing trip. The justification assumes that the unwanted catches are insignificant in the pelagic fisheries and options to improve selectivity have been exhausted. There is no quantitative evidence to support these assertions although several French selectivity projects are referenced, which contain limited information on the specific species covered by the exemption. Intuitively, achieving additional selectivity improvements would be difficult in such fisheries and the costs for sorting would be high given the nature of the species and fisheries involved but this cannot be fully assessed from the information supplied. The *de minimis* volume is estimated at 82 tonnes based on 2018 catch data. This

		volume of 82 tonnes is spread across 106 vessels operating in the fishery. The relatively high number of vessels compared to the low volume of *de minimis* brings into question of monitoring the exemption.
	STECF comments	STECF PLEN 14-02 notes that there is no information presented to demonstrate that increases in selectivity to avoid whiting catches are in fact difficult to achieve in accordance with article 15.5(c)(i). STECF can therefore not evaluate whether this assertion is correct or not. STECF notes that harmonising the minimum size of mackerel at 20 cm would increase the proportion of any mackerel caught in subarea IV that could be landed and sold for human consumption. However, it remains unclear whether such catches would in fact be wanted, since quota limitations is also identified to be one of the main reasons why discarding currently occurs. Furthermore, it is unclear whether this statement constitutes a proposal to set the minimum conservation reference size for mackerel at 20 cm or whether it is merely an observation. STECF notes that there is no information presented to demonstrate that increases in selectivity to avoid unwanted catches of horse mackerel are in fact difficult to achieve in accordance with article 15.5(c)(i). STECF can therefore not evaluate whether this assertion is correct or not. STECF concludes that it is not possible to precisely identify which vessels or trips would be subject to a *de minimis* exemption from the information given in the JR or whether it is intended that the exemption would apply to specific fishing operations within a given fishing trip. STECF concludes that the information in the JR does not constitute scientific evidence to allow an assessment of whether increases in selectivity are difficult to achieve. STECF concludes that the JR presents reasoned qualitative arguments in support of a *de minimis* exemption on the grounds of disproportionate costs of handling unwanted catches in the artisanal fishery using midwater trawl in ICES Divisions IVb, c. However, whereas Article 15.5.c(ii) of

		EU regulation 1380/2013 stipulates that the *de minimis* exemption shall apply to avoid disproportionate costs of handling unwanted catches, for those fishing gears where unwanted catches do not represent more than a certain percentage, to be established in the plan, of total annual catch of that gear, STECF notes that no such percentage is established in the plan.

Exemption number	**Annex Previous STECF evaluation when Cefas recommendation is other than 'Continue'**	
52	EWG comments	NA
	STECF comments	STECF notes that it is not possible to precisely identify which vessels or trips would be subject to a *de minimis* exemption from the information given in the JR or whether it is intended that the exemption would apply to specific fishing operations. It appears that the exemption is being sought for under 25m (LOA) vessels that carry both midwater trawls (OTM; there is also the possibility that vessels also work with midwater pair trawls, PTM) and bottom trawls (OTB) but only for trips or fishing operations that deploy midwater trawls. Furthermore, it also appears that if a vessel deploys both bottom trawls and midwater trawls on the same fishing trip, then that trip would be considered a mixed fishery trip therefore it could be argued that they should be excluded until the introduction of JRs landing obligation for demersal fisheries.

		The reasons why discarding occurs in the artisanal small pelagic fishery are listed in the JR and can be summarised as follows: • For whiting, discarding is mainly due to catches of whiting below 27 cm and it is difficult to avoid such catches with a mesh size less than 70 mm. STECF notes that there is no information presented to demonstrate that increases in selectivity to avoid whiting catches are in fact difficult to achieve in accordance with article 15.5(c)(i). STECF can therefore not evaluate whether this assertion is correct or not. • Mackerel and herring discards in 2012 were mainly due to quota limitations and/or the difference in MLS between IV (30 cm) and VII (20 cm) and suggests that harmonising the minimum size in both areas to 20cm would help reduce unwanted catch of undersized mackerel for the fishery. STECF notes that harmonising the minimum size of mackerel at 20 cm would increase the proportion of any mackerel caught in subarea IV that could be landed and sold for human consumption. However, it remains unclear whether such catches would in fact be wanted, since quota limitations may also be a reason why discarding currently occurs. Furthermore, it is unclear whether this statement constitutes a proposal to set the minimum conservation reference size for mackerel at 20 cm or whether it is an observation. • For horse mackerel discarding appears to be due to a lack of market and the JR indicates that it would seem difficult to increase selectivity as discards already represent a small percentage of the catches. STECF notes that there is no information presented to demonstrate that increases in selectivity to avoid unwanted catches of horse mackerel are in fact difficult to achieve in accordance with article 15.5(c)(i). STECF can therefore not evaluate whether this assertion is correct or not.

		• Some discarding arises because of mechanical damage incurred in the fishing operation. The JR indicates that few solutions to reduce such discards currently exist especially in terms of selectivity. STECF notes that mechanical damage to part of the catch during the fishing operation is unavoidable in many cases for many different fisheries and currently results in discarding. However, damaged fish account for part of the overall fishing mortality and STECF considers that such catches should be reported and accounted for. Whether such catches need to be landed is a decision for managers. STECF considers that while the above arguments are credible, they do not provide sufficient scientific evidence to indicate that increases in selectivity are difficult to achieve. The JR presents reasoned qualitative arguments in support of a *de minimis* exemption on the grounds of disproportionate costs of handling unwanted catches. STECF concludes that it is not possible to precisely identify which vessels or trips would be subject to a *de minimis* exemption from the information given in the JR or whether it is intended that the exemption would apply to specific fishing operations within a given fishing trip. STECF concludes that the information in the JR does not provide sufficient scientific evidence to allow an assessment of whether increases in selectivity are difficult to achieve. STECF concludes that the JR presents reasoned qualitative arguments in support of a *de minimis* exemption on the grounds of disproportionate costs of handling unwanted catches in the artisanal fishery using midwater trawl in ICES Divisions IVb, c. However, whereas Article 15.5.c(ii) of EU regulation 1380/2013 stipulates that the *de minimis* exemption shall apply to avoid disproportionate costs of handling unwanted catches, for those fishing gears where unwanted catches do not represent more than a certain percentage, to be established in the plan, of total annual catch of that gear, STECF notes that no such percentage is established in the plan.

Exemption number	Annex Previous STECF evaluation when Cefas recommendation is other than 'Continue'	
53	EWG comments	NA
	STECF comments	The proposed exemption is supported by argumentation that discards are due to the low commercial value of some catches (due to the damage of the fish) and not to the catches of individuals under the minimum landing weight. In support of this argumentation the size structure of the tuna catches is provided in the plan. Given this information, STECF notes that catches of individuals below 46 cm (2kg) are negligible. The exemption is also supported by the fishing opportunities lost if the exemption is not considered, which according to the estimations provided by the plan, will be in the order of 13.4% of the turnover obtained by the fleet STECF conclusions: For the proposed *de minimis* exemption for the albacore tuna pelagic pair trawlers in ICES sub-area VII, STECF concludes that the discards for which the exemption is asked is essentially high grading. Furthermore STECF concludes that the argumentation from the costs side is not related to the handling costs but on the loss of fishing opportunities due to, precisely, such high grading practices. Thereby STECF concludes that the arguments in support of the exemption are not well founded.

Exemption number	Annex Previous STECF evaluation when Cefas recommendation is other than 'Continue'	
21	EWG comments	2019 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 2020 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 priority should be to improve selectivity to reduce the unwanted catches and therefore, the costs for handling such catches. Discrepancies exist between the wording in the delegated act (2239/2019) concerning the *de minimis* exemption for boarfish in 2020 and the proposal for a continuation of the exemption in the 2020 JR. There are differences in terms of permitted potential *de minimis* discard volume. The implied discard volume for a 0.5% *de minimis* is small in each case (21 tonnes based on catches by all gears and < 1 t based on catches by bottom trawls. Almost all reported discards for 2018 (187 tonnes) were attributed to bottom trawls (178 t). Therefore a 0.5% *de minimis* would not have been sufficient to account for the discards of boarfish in bottom trawl fisheries reported for 2018. Information is only provided for the French fleet. Catch data and a description of the fisheries of other Member States availing of this exemption are needed.
	STECF comments	2019=2020 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.

Exemption number	Annex Previous STECF evaluation when Cefas recommendation is other than 'Continue'	
24	EWG comments	2019 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 is 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
	STECF comments	2019. 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.

14. Annex 2 – A proposal for 'A survivability exemption for sprat and horse mackerel caught in the UK ring net fishery'.

A survivability exemption for sprat (*Sprattus sprattus*) and horse mackerel (*Trachurus trachurus*) caught in the UK ring net fishery targeting pelagic species not subject to quotas in ICES divisions VIIe and VIIf

Request

A request is made for a survivability exemption for sprat (*Sprattus sprattus*) and horse mackerel (*Trachurus trachurus*; scad) caught in the UK ring net fishery targeting pelagic species not subject to quotas in ICES divisions VIIe and VIIf. The request is an extension of an existing exemption for mackerel and herring to also apply to sprat and horse mackerel. The specific request is:

1. By way of a derogation, the landing obligation shall not apply to catches of mackerel, horse mackerel, herring and sprat in the ring net (purse seine) fishery targeting pelagic species not subject to quotas in ICES divisions VIIe and VIIf, if all of the following conditions are met: — the catch is released before a certain percentage (set out in paragraphs 2 and 3 below) of the purse seine is closed ('the point of retrieval'), — the purse seine gear is fitted with a visible buoy clearly marking the limit for the point of retrieval, — the vessel and the purse seine gear are equipped with an electronic recording and documenting system when, where and extent to which the purse seine has been hauled for all fishing operations.

2. The point of retrieval shall be 90 % closure of the purse seine where that catch is mostly of herring.

3. If the surrounded school consists of any other combination of mackerel, herring, horse mackerel or sprat, the point of retrieval shall be 80% closure of the purse seine.

4. It shall be prohibited to release catches of mackerel, herring, horse mackerel and sprat after the point of retrieval.

5. Discarding (slipping) events shall be officially recorded by the vessel operator and will include a best estimate of the species composition and the quantity of the released catches.

Introduction

There are up to 10 ring-netters (small purse-seiners), which target sardines off the UK Cornish and Devon coast (although official reporting indicates less). All the vessels and associated processing companies are part of the Cornish Sardine Management Association (CSMA). There are an estimated 4,000 tonnes of pilchard (also called sardine or ‘Cornish Sardine’) landed from this fishery each year. There is no quota associated with sardines in this region, and therefore the target species is not subject to the landing obligation.

The fishery uses acoustic technology to identify shoals of pelagic fish, however the technology does no enable accurate identification of different species, and bycatches of other species including herring, mackerel and horse mackerel can be taken incidentally in this fishery. These species have an associated quota and are subject to the landing obligation. Vessels in the CSMA belong to three Producers Organisations (Southwest, Cornish and Interfish) and therefore have different levels of access to quotas for these species. When catches of these non-target species are unwanted, these catches are slipped, discarded based to the sea. Catches are unwanted when the species is not of marketable size, quota is not available to the vessel, or when catches of mixed species are taken than cannot practically be sorted. Slipping these catches is the preferred approach to minimise unwanted fishing mortality.

Survivability exemptions are in place for mackerel and herring in the Cornish ring net fishery, that allow for vessels to legally discard incidental unwanted catches, here we propose to add horse mackerel and sprat.

Table 1. Fishery description for proposed sprat survivability exemption

Country	Species	Exemption applied to	Species as bycatch or target	Number of Vessels by year	Reported total wanted catch (landings)	Estimated total unwanted catch (discards)	Estimated total catch	Discard rate (% of unwanted catch relative to total catch)	Discard survival %; and estimated deduction
UK	Sprat (SPR; *Sprattus sprattus*)	ICES 7e,f** for the ring net (PS) fishery targeting pelagic species	Bycatch	2015 0 2016 1 2017 0 2018 0 2019 0	2015 0.0 2016 0.8 2017 0.0 2018 0.0 2019 0.0 Average 0.2	2015 0.0 2016 0.0 2017 0.0 2018 0.0 2019 0.0 Average 0.0	2015 0.0 2016 0.8 2017 0.0 2018 0.0 2019 0.0 Average 0.2	0% (based on one vessel self-reporting; the Cefas observer programme does not cover this metier)	60-70% (inferred); estimated deduction 0 tonnes

** UK waters

Table 2. Fishery description for proposed horse mackerel survivability exemption

Country	Species	Exemption applied to	Species as bycatch or target	Number of Vessels by year	Reported total wanted catch (landings)	Estimated total unwanted catch (discards)	Estimated total catch	Discard rate (% of unwanted catch relative to total catch)	Discard survival %; and estimated deduction
UK	Horse Mackerel JAX	ICES 7e,f** for the ring net (PS) fishery targeting pelagic species	Bycatch	2015 0 2016 1 2017 0 2018 2 2019 0	2015 0.0 2016 0.4 2017 0.0 2018 2.2 2019 0.0 Average 0.5	2015 0.0 2016 7.2 2017 0.0 2018 41.8 2019 0.0 Average 9.8	2015 0.0 2016 7.6 2017 0.0 2018 44.0 2019 0.0 Average 10.3	95% (based on one vessel self-reporting; the Cefas observer programme does not cover this metier)	60-70% (inferred); estimated deduction 3.9 tonnes (based on lower estimate of survival)

** UK waters

Background

Following an evaluation of Joint Recommendations from the North Sea and North Western Waters regional groups by STECF in 2014, the EU Commission granted exemptions based on high survivability for mackerel and herring in purse seine fisheries in both regions. The full STECF evaluation (STECF EWG 14-02) is given in Annex 1, and the response to the STECF evaluation (EU Regulation 1395/2014 and 1393/2014) in Annex 2. The regulation was given as follows:

COMMISSION DELEGATED REGULATION (EU) No 1395/2014 of 20 October 2014 establishing a discard plan for certain small pelagic fisheries and fisheries for industrial purposes in the North Sea

COMMISSION DELEGATED REGULATION (EU) No 1393/2014 of 20 October 2014 establishing a discard plan for certain pelagic fisheries in north-western waters

Article 2

Survivability exemption

1.By way of derogation from Article 15(1) of Regulation (EU) No 1380/2013, the landing obligation shall not apply to catches of mackerel and herring in the purse seine fisheries [in ICES area VI (NWW only)], if all of the following conditions are met:

— the catch is released before a certain percentage (set out in paragraphs 2 and 3 below) of the purse seine is closed ('the point of retrieval').

— the purse seine gear is fitted with visible buoys clearly marking the limit for the point of retrieval,

— the vessel and the purse seine gear are equipped with an electronic recording and documenting system when, where and extent to which the purse seine has been hauled for all fishing operations.

2.The point of retrieval shall be 80 % closure of the purse seine in fisheries for mackerel and it shall be 90 % closure of the purse seine in fisheries for herring.

3.If the surrounded school consists of a mixture of both species the point of retrieval shall be 80 % closure of the purse seine.

4.It shall be prohibited to release catches of mackerel and herring after the point of retrieval.

5.The surrounded school of fish shall be sampled before its release to estimate the species composition, the fish size composition and the quantity.

In 2017, the EU Commission considered that the evidence on which that evaluation was based remained valid for the next 3 years and extend the application of these measures until the end of 2020 (EU Regulation 2018/189 NS; 2018/190 NWW).

Also in 2017, the UK included a Joint Recommendation for high survivability exemption for mackerel and herring in the ring net fishery in ICES areas VIIe and VIIf. This request related to the ring net fishery targeting non-quota pelagic species (for example, sardines) in ICES rea VII and so was not covered by the existing exemption in ICES area VI. The supporting evidence included the scientific studies submitted to support the earlier requests along with a report describing the Cornish ring net fishery and exploring the feasibility and developing methods for estimating survival rates of discarded (slipped) pelagic fish caught by English southwest ring-netters. This evidence was evaluated by STECF EWG 17-08, the full evaluation is given in Annex 3.

In summary, STECF considered that because of the similarity between ring nets and purse seines and their mode of operation, the survival rate of mackerel, herring and horse mackerel slipped by the Cornish ring net fishery is likely to be similar to the survival rates of these species slipped from purse seine fisheries for these species. STECF stated that given that there is currently no additional reliable information on the survival of mackerel, horse mackerel and herring after slipping from purse seines other than that previously provided in support of proposed exemptions (Huse and Vold, 2010; Tenningen et al., 2012), the conclusions reached at that time remain valid. They represent the most appropriate conclusions to draw with respect to potential survival of mackerel herring and horse mackerel slipped in the Cornish Ring net fishery provided that the expected crowding densities in the Cornish ring net fishery are similar to or do not exceed those observed in survival experiments with purse seines (Huse and Vold, 2010; Tenningen et al., 2012).

In response to the STECF evaluation the EU Commission concluded that a survivability exemption in could be applied to for mackerel and herring caught in the ring net fishery targeting non-quota species in ICES divisions VIIe and VIIf. The EU regulation (2018/190) is as follows:

Article 1 Delegated Regulation (EU) No 1393/2014 is amended as follows: (1) in Article 2, the following paragraph 6 is added '6.By way of derogation from Article 15(1) of Regulation (EU) No 1380/2013, the landing obligation shall not apply in 2019 and 2020 to catches of mackerel and herring in the ring net fishery targeting pelagic species not subject to quotas in ICES divisions VIIe and VIIf, if the

requirements set out in paragraphs 1 to 5 of this Article and in Article 4 of this Regulation are met mutatis mutandis.';

The latest request is to extend the existing exemption to include sprat (*Sprattus sprattus*) and horse mackerel (*Trachurus trachurus*) to the species exemption from the landing obligation in the Uk ring net fishery.

Survival evidence

No new survival evidence has been generated or is available to estimate the discard survival rates of sprat (*Sprattus sprattus*) and horse mackerel (*Trachurus trachurus*) in the UK ring net fishery. The evidence to support this request is based on existing evidence previously assessed by STECF and is provided again with this submission. It is argued that the survival levels for species with similar biology, which are caught and released by applying similar fishing operations, will have comparable discard survival probabilities. The evidence submitted and a summary of previous evaluations are given here:

1. Tom Catchpole, Sam Smith, Stefan Glinski, (2015). Assessing feasibility and developing methods for estimating survival rates of discarded (slipped) pelagic fish caught by English southwest ring-netters. Cefas Project report.

The objectives of this report were to gain an understanding of the fishing operation and comparability of fishing methods to other purse fisheries in the North Sea and North Western waters, determine the feasibility to conduct survival assessments and develop vitality assessment protocols. STECF 17-08 noted that the fishing operation of the Cornish ring net fleet is similar in key respects to the operation of purse seine nets for mackerel and herring for which other exemptions has been granted.

2. Irene Huse, Aud Vold, (2010). Mortality of mackerel (*Scomber scombrus* L.) after pursing and slipping from a purse seine. Fisheries Research 106: 54–59

STECF 17-02 noted that Huse and Vold (2010) simulated crowding and slipping of mackerel from purse seines, which showed that crowding has a major effect on survival rates. In all five experiments, mortality was higher among the crowded fish (80–100% mortality) than the controls (0.1–46% mortality). The experiments demonstrated that excessive crowding before slipping mackerel from purse seines should be avoided in order to avoid massive fish kills (Huse and Vold, 2010). Mortality of mackerel at crowding densities in the region of 30kg m-3 was found to be 10-20% (Lockwood et al, 1983) and 28% (Huse and Vold, 2010); i.e. survival rates of 72-90%.

3.Tenningen, M., Vold, A., and Olsen, R. E. (2012). The response of herring to high crowding densities in purse-seines: survival and stress reaction. ICES Journal of Marine Science, 69: 1523–1531.

STECF 14-02 noted that Tenningen et al (2012) indicated that herring are less susceptible to crowding than mackerel and that crowding densities less than 150kg m-3 did not exert mortality rates greater than the control group (0.9%-2.0%); i.e. survival rates of 98-99%.

4. Tenningen M (2014): Unaccounted mortality in Purse seine fisheries – Quantification and mitigation of slipping mortality. PhD thesis, Bergen University.

STECF 14-02 noted that based on the figures from Tenningen (2014), STECF estimates assuming 70%-80% of the purse net is hauled, then for a catch of herring of 1000 t, the crowding density within the purse would be approximately 7.69 kg m-3 which is much lower than the density where mortality of herring was observed to increase (Tenningen, 2012); i.e. indicates that crowding effects the survival of herring less than for mackerel.

5. Arregi, L. Onandia, I. Ferarios, J.M., Ruiz J. and Basurko O.C. 2014. Assessing fish survival from slipping in purse seine fisheries of European southern waters. AZTI-Tecnalia, Sukarrieta, 44 pp.

The study was used to support a high survivability exemption based on for the anchovy, horse mackerel, jack mackerel and mackerel in purse seine fisheries in the South western waters region (in ICES areas VIII, IX, X and CECAF 34.1.1, 34.1.2, 34.2.0)(EU Regulation 1394/2014). STECF 17-08 assessed that the survival rates provided by this study vary in relation to the species as well as the crowding time and total catch (density). The survival rates for the different species obtained in the study are mackerel 3%-100%; horse mackerel 89.7%-100%; anchovy 54.2%-97.8%; sardine 83.9% -100% and chub mackerel 100%. The survival rates depend crucially on the crowding time and the density of fish within the net which is in keeping with findings of other published studies. According to Arregi et al (2014), crowding time related to slipping, under real fishing conditions, is estimated to be less than 5 minutes in duration.

The evidence provided support that discard survival from slipped pelagic catches from purse fisheries is high for mackerel, horse mackerel and herring. It should be noted that the process of slipping catches means that the fish remain in the water and do not experience the stressors of exposure and going through a sorting process as with other discarded catches. A key variable influencing the level of survival is in the crowding experienced prior to release, the proposed exemption retains the need to limit the closure of the purse to 90% for catches dominated by

mackerel, and 80% for other catches, will be the vast majority of catches in the ring net fishery.

It should be noted that there is no direct evidence for the discard survival of sprat. Herring and sprat have similar biology (both family Clupeidae), and it is inferred here that this similarity means that discard survival would be comparable when caught using the same method under the same conditions. Mackerel (family Scombridae) and horse mackerel (family Carangidae) are more distantly related to herring than sprat, and these species show comparable high levels of discard survival to herring.

For completeness, in 2014 STECF 14-02 also assessed a proposed exemption for sprat in the North Sea (Subarea IV) and the Skagerrak and Kattegat (Division IIIa) slipped from purse-seines. It was concluded that because the size of the purse-seines used to catch sprat in the fishery is smaller than the typical purse-seine nets deployed to catch herring, results from other studies could not be confidently extrapolated. It was considered that crowding densities of fish inside the net could be much higher, and this exemption was not awarded. In 2017, STECF 17-08 stated that for mackerel, herring and sardine slipped during the UK ring net fishing operation, it is probable that the survival rates of these species slipped by the Cornish fleet are likely to be similar to survival rates of fish from purse seine fisheries under similar conditions and restrictions. The case to support including sprat for the ring net fishery is therefore based on the similarity of the fishing operation to those from which experimental data are available, and the comparable species biology.

Conclusion

The fishing operation and species biology are sufficiently similar to those from where direct survival evidence has been generated and where existing exemptions have been applied, to add horse mackerel and sprat to mackerel and herring as exempted species in the UK ring net fishery. The proposed exemption restricts slipping to specific conditions to reduce the effects of crowding and maximise survival. It also includes the specific requirement to record slipping events and the composition and quantity of released unwanted catches, so that data can be collected to assess the impact of the exemption.

Annex 1 STECF Evaluation of submitted evidence

46th PLENARY MEETING REPORT OF THE SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (PLEN-14-02)

PLENARY MEETING, 7-11 July 2014, Copenhagen , Report EUR 26810 EN

Edited by Norman Graham, John Casey & Hendrik Doerner, 2014

Proposed Exemptions in the JR The proposed exemptions for pelagic fisheries are as follows:

a) Exemption from the landing obligation for mackerel purse seine fisheries in all areas in NE Atlantic based on high survival

b) Exemption for landing obligation based upon high survival for North Sea Autumn Spawning Herring (*Clupea harengus*) in purse seine fishery in Subarea IV and Divisions IIIa and VIId.

c) Exemption from landing obligation based upon high survival for sprat (*Sprattus sprattus*) in purse seine fishery in North Sea (Subarea 4) and Skagerrak-Kattegat (Division IIIa)

For each, underpinning information to support the exemptions is presented. The STECF comments on each exemption are given below.

STECF notes that most of the information requirements established in EWG 14-01 to justify exemptions are given in the plan but that in some cases is limited and insufficient to calculate, for example, the volume of the proposed de minimis catch.

The STECF comments on each proposed exemption are given in turn below.

a) Exemption from the landing obligation for mackerel purse seine fisheries in all areas in NE Atlantic based on high survival

The JR covers only the North Sea (IV) and Division IIIa. However, this exemption covers purse seine fisheries for mackerel for all areas of NE Atlantic. NE Atlantic is not defined.

Justification for high survivability is based on the results of experimental trials on the survivability of mackerel in purse seines. The results from those studies are variable. Lockwood et al (1983) found that the mortality of mackerel was high if fish were crowded to densities corresponding to those experienced in the late phases of purse-seine fishing (i.e. when the purse is almost closed). Huse and Vold (2010) also simulated crowding and slipping of mackerel from purse seines. Five repeat

experiments were performed, all of which showed that crowding has a major effect on survival rates. In all five experiments, mortality was higher among the crowded fish (80–100% mortality) than the controls (0.1–46% mortality), and the difference was significant ($p = 0.01$). The experiments demonstrate that excessive crowding before slipping mackerel from purse seines should be avoided in order to avoid massive fish kills (Huse and Vold, 2010). Mortality of mackerel at crowding densities in the region of 30kg m-3 was found to be 10-20% (Lockwood et al, 1983) and 28% (Huse and Vold, 2010).

As anecdotal evidence for high survival, “swimming” i.e. the process of holding fish in the purse seine, for periods up to 48 hours to increase quality and subsequent price for fish as a result of emptying their stomachs is presented as further evidence of high survivability.

80% rule

Based on these studies, the JR provides reasoned arguments for the use of an "80% rule" when hauling a purse net. The 80% refers to the degree the seine is closed. The arguments presented suggest that for a typical purse seine used by Danish, Swedish and UK RSW vessels, the average size of the purse seine will be around 720 m long and 200 m deep. The JR notes that individual catches above 1000 tonnes are rare, and that a crowding density of 20 kg m-3 is considered precautionary based on the work of Tenningen (2014) and Huse and Vold (2010). They demonstrated survival rates of between 10% -28%crowding densities of about 30 kg m-3 (10%28%). If this is considered by managers to represent high survival, the proposal suggests that retraction of more than 80% of the purse seine will still leave 130,000 m3 which would be enough volume within the purse seine to secure high survival assuming catches of less than 1000t.

The JR also includes proposals on an operational plan for the implementation of the mackerel exemption for the purse seine fishery as follows: “The purse seine must be fitted with a visible buoy clearly marking the 80% limit. To facilitate compliance, control and documentation the vessel and gear shall be equipped with an electronic sensing system recording and documenting when and where the purse seine has been hauled beyond the 80% limit. Quantities of released fish must be reported in the logbook to ensure full and unbiased recording. Purse seine fishing operations that retrieve the purse seine beyond the 80% mark are not subject to this exemption.”

The arguments for the 80% rule based on the information presented seem reasonable and the proposed measures to ensure compliance with the rule if properly implemented are likely to ensure that in most purse seining sets, crowding in clean catches of mackerel will not exceed 20kg m-3. There remains some

concern, however, on the ability of such a rule to ensure high survival. Survival is not only related to the crowding density but also to the crowding duration. The proposal indicates that a typical purse seine fishing operation from shooting the net until the whole net has been hauled usually takes about 1.5 hours, where shooting takes about 5 minutes, pursing about 20 minutes and hauling about 60 minutes. Huse and Vold (2010) indicate that crowding duration in their experiments were either 10 minutes or 15 minutes duration and was chosen on the basis of video documentation of commercial purse seining provided by the Norwegian coast guard. Their experiments showed that a crowding duration of only 10 min may be fatal to mackerel. It would be desirable if a relationship between crowding density and duration with mortality could be established, but STECF notes that at present the data are too sparse to determine such a relationship. As crowding duration may be a key factor in survival, if haul duration in practice is greater than that assumed for the experiments, then mortality rates could be greater than those observed.

STECF also notes that the JR also includes a proposed exemption for herring in the purse seine fishery in Subarea IV and Divisions IIIa and VIId. However, the proposal is for a 90% rule on the grounds that crowding mortality of herring is lower than that for mackerel. Operationally, it is conceivable that if clean catches of mackerel and herring could be identified and the appropriate hauling rule could be applied a priori, the vessel's system to monitor the proportion of the net hauled would need to be set to monitor 80% or 90% accordingly. This may imply that the skipper will know a priori what will be caught. In the case of mixed catches of mackerel and herring, it is not clear how much of the purse seine should be hauled and there is no experimental information on the mortality of slipped mixed catches of mackerel and herring.

STECF conclusion

Assuming the experiments undertaken on the crowding effects on mackerel mortality referred to in the JR are representative of the conditions experienced under commercial purse seine fishing operations, in particular crowding duration, the results indicate that implementation of the 80% rule as described in the JR is likely to result in crowding densities of mackerel less than 30kg m-3 and a survival rate of around 70%. STECF cannot comment whether this constitutes "high" survivability.

b) Exemption for landing obligation based upon high survival for North Sea Autumn Spawning Herring (*Clupea harengus*) in purse seine fishery in Subarea IV and Divisions IIIa and VIId.

Justification for high survivability is based on the results of experimental trials on the survivability of fish including herring released from purse seines. The results from such studies are variable. However, one study Tenningen et al (2012) indicated that herring are less susceptible to crowding than mackerel and that crowding densities

less than 150kg m-3 did not exert mortality rates greater than the control group (0.9%-2.0%).

As for the mackerel exemption, “swimming” i.e. the process of holding fish in the purse seine, for periods up to 48 hours to increase quality and subsequent price for fish as a result of emptying their stomachs is presented as anecdotal evidence for high survival.

90% rule The JR provides reasoned arguments for the use of a "90%" rule when hauling a purse net for herring. This is based on a typical purse seine used by Danish, Swedish and UK RSW vessels, measuring 720 m long and 200 m deep. Tenningen (2014) has estimated that where 70-80% of a typical purse seine is hauled, there is 130,000 m3 of water within the net.

Under the assumption that individual herring catches above 1000 t are rare, and that a crowding density of 150 kg m-3 will result in 0.9%-2.0% mortality, STECF estimates that assuming 70%-80% of the purse net is hauled, then for a clean catch of herring of 1000 t, the crowding density within the purse would be 0.08 kg m-3. STECF notes that this is much lower than the density where mortality of herring was observed to increase. STECF notes that Figure 2 in the JR is a duplicate of Figure 1, which pertains to the survival of mackerel and not herring and hence there is no supporting information to estimate what the crowding density of herring would be if 90% of the net is hauled. STECF was unable to check the figures quoted from Tenningen (2014) as this citation relates to a PhD thesis which was not made available to STECF during the meeting.

The JR includes proposals on an operational plan for the implementation of the herring exemption for the purse seine fishery as follows: “The purse seine must be fitted with a visible buoy clearly marking the 90% limit. To facilitate compliance, control and documentation the vessel and gear shall be equipped with an electronic sensing system recording and documenting when and where the purse seine has been hauled beyond the 90% limit. Purse seine herring fishing operations that retrieve the purse seine beyond the 90% mark should not be subject to the exemption.”

STECF notes that the sentence “Quantities of released fish must be reported in the logbook in order to ensure full and unbiased recording” which is included in the proposed exemption for mackerel is absent from the proposal for herring.

The arguments for the 90% rule based on the information presented seem reasonable and the proposed measures to ensure compliance with the rule if properly implemented are likely to ensure that in most purse seining sets, crowding in clean catches of herring will not exceed 20kg m-3. However, STECF has some

concerns on the ability of such a rule to ensure high survival. Survival is not only related to the crowding density but also to the crowding duration. The proposal indicates that a typical purse seine fishing operation from shooting the net until the whole net has been hauled usually takes about 1.5 hours, where shooting takes about 5 minutes, pursing about 20 minutes and hauling about 60 minutes. Tenningen (2012) indicate that crowding duration in the experiments was 10 minutes and was chosen on the basis of the experimental procedure of Huse and Vold (2010). It would be desirable to establish a relationship between crowding density and duration with mortality could be established, but STECF notes that at present the data are too sparse to determine such a relationship. As crowding duration may be a key factor in survival, if haul duration in practice is greater than that assumed for the experiments, then mortality rates could be greater than those observed.

STECF conclusion

Based on the figures quoted in the JR from Tenningen (2014), STECF estimates assuming 70%-80% of the purse net is hauled, then for a catch of herring of 1000 t, the crowding density within the purse would be approximately 7.69 kg m-3 which is much lower than the density where mortality of herring was observed to increase (Tenningen, 2012). There is no supporting information in the JR to indicate what the crowding density is likely to be if 90% of the purse is hauled.

Assuming the experiments undertaken on the crowding effects on herring mortality referred to in the JR are representative of the conditions experienced under commercial purse seine fishing operations, in particular relating to crowding duration, the results indicate that implementation of an 80% rule is likely to result in crowding densities much lower than those where mortality of herring has been observed to increase.

STECF also suggests that for control and enforcement purposes, it would appear sensible to use a common rule for all purse seine operations rather than have different rules as proposed (i.e. 80% for mackerel and 90% for herring).

c) Exemption from landing obligation based upon high survival for sprat (Sprattus sprattus) in purse seine fishery in North Sea (Subarea 4) and Skagerrak-Kattegat (Division IIIa)

The JR proposes and exemption from the landing obligation for sprat caught by purse seine vessels in the North Sea (Subarea IV) and the Skagerrak and Kattegat (Division IIIa). There is an adequate description of the purse seine gear. However, the reasons why an exemption for sprat is sought are not explained.

A brief description of the purse seine catches of sprat in 2013 is presented indicating that 6 vessels participated in the fishery in 2013 and catches were low ranging from 1 t to 120 t.

High survival. The basis for the exemption is high survivability observed for other small pelagic species (e.g. mackerel and herring) and not sprat. STECF is unaware of any studies on the survival of sprat slipped from purse seines.

90% rule

The JR includes proposals on an operational plan for the implementation of the sprat exemption for the purse seine fishery in the same way as for herring and mackerel.

The JR makes the assumption that survival of sprat slipped from purse seines is the same as for herring i.e. there would be no additional mortality compared to control groups if the crowning density in the net does not exceed 150 kgm-3. STECF has no information to determine whether this is likely to be the case. There is also no information available, to estimate the potential effect on the survival of slipped sprat given much smaller purse seines are used in this fishery.

STECF conclusion

STECF concludes that there is currently no information available, to reliably estimate the survival rates of sprat slipped from purse seines. STECF can therefore not comment on whether this exemption is appropriate or not.

Furthermore, the size of the purse seines used to catch sprat in 2013 is smaller than the typical purse seine nets deployed to catch herring meaning that crowding densities could be much higher.

Annex 2 Assessment of evaluation by EU Commission

COMMISSION DELEGATED REGULATION (EU) No 1395/2014 of 20 October 2014 establishing a discard plan for certain small pelagic fisheries and fisheries for industrial purposes in the North Sea

COMMISSION DELEGATED REGULATION (EU) No 1393/2014 of 20 October 2014 establishing a discard plan for certain pelagic fisheries in north-western waters

(6) The joint recommendation includes an exemption from the landing obligation for mackerel and herring caught with purse seines under certain conditions based on scientific evidence of high survivability in accordance with Article 15(4)(b) of Regulation (EU) No 1380/2013. Scientific evidence supporting high survivability was provided by the Scheveningen Group in the joint recommendation, which made reference to a number of scientific studies on fish survival from slipping in purse seine fisheries. These studies found that survival rates depend on the crowding time and the density of fish within the net, which are typically limited in these fisheries. This information was reviewed by the STECF plenary 14-02. STECF concluded that assuming the results of the survival studies are representative of survival rates under commercial fishing operations, the proportion of slipped mackerel surviving would likely be around 70% and would result in much lower densities than the density where mortality of herring was observed to increase. A prohibition of the release of mackerel and herring before the net is fully taken on board a fishing vessel, resulting in the loss of dead or dying fish, is set out in Article 19b(2) of Council Regulation (EU) No 850/98 (2). This survivability exemption does not affect the prohibition in force, since the release of the fish will occur at a stage of the fishing operation where the fish would have a high survival rate after release. Therefore, such an exemption should be included in this Regulation.

Annex 3 STECF EWF 17-08 Evaluation of the UK request of high survivability exemption for Cornish Ring Netters

Background information

The UK has a small-scale fishery for sardine using ring nets in ICES Divisions VIIe and VIIf, within 6 miles of the Cornish coast. Ring nets are surrounding nets similar in construction and operation to purse seines and lampara nets:

This fishery is exempted from the landing obligation for pelagic fisheries introduced from1 January 2015 as sardine are not subject to catch limits in area VII; However, in this fishery that are often incidental catches of TAC species, including herring, mackerel and horse mackerel. Such catches or either retained or discarded (slipped) depending on individual vessel quotas and for operational reasons. Such catches of TAC species will come under the landing obligation at the latest by 2019 meaning such catches will have to be landed and counted against quotas.

This imposition will be problematic for the vessels operating in this fishery. The fishermen participating in the fishery argue that the method of fishing has a low impact and that fish slipped from ring nets have a high survivability. However, to prove this definitively would be difficult given the nature of the fishery.

Commission Delegated Regulations (EU) No 1393/2014 1394/2014 provide for exemptions to the landing obligation for purse seine fisheries targeting mackerel, herring, anchovy and horse mackerel on the basis of high survivability. Given the similarities between the fishing methods there may be a basis for granting an exemption for the ring net fishery in the future using the information underpinning the existing exemptions as a basis.

Request to STECF

STECF is asked to consider:

(1) On the basis of the available information on the operation of the ring net fishery and the supporting information supplied to support the exemptions for high survivability in purse seine fisheries whether an exemption for the ring net fishery is justifiable.

(2) Identify whether additional information should be developed to support an exemption taking account of earlier advice on survivability experiments provided by STECF.

STECF response

Supporting documentation

The following documentation was provided in support of the request for an exemption from the obligation to land all catches of herring, mackerel and horse mackerel on the grounds of high survivability.

1. Tom Catchpole, Sam Smith, Stefan Glinski, 2015. Assessing feasibility and developing methods for estimating survival rates of discarded (slipped) pelagic fish caught by English southwest ring-netters. Cefas Project report.

2. Irene Huse, Aud Vold, 2010. Mortality of mackerel (*Scomber scombrus* L.) after pursing and slipping from a purse seine. Fisheries Research 106: 54–59

3.Tenningen, M., Vold, A., and Olsen, R. E. 2012. The response of herring to high crowding densities in purse-seines: survival and stress reaction. ICES Journal of Marine Science, 69: 1523–1531.

STECF observations

In response to request 1 above, STECF considers that it is beyond the competence of STECF to answer the question of whether it is justifiable on the grounds of high survivability to grant an exemption from the obligation to land all catches of mackerel, herring and horse mackerel for the UK ring-net fishery in ICES Divisions VIIe and VIIf. STECF (PLEN-14-02) noted that the definition of what constitutes “high” survival is subjective and therefore such a decision requires an element of value judgement and is therefore the prerogative of managers. The STECF considers that it has competence to provide scientific advice on the survival of fish discarded/slipped in the fishery and whether the scientific evidence required under Article 15.4(b) (Regulation (EU) No 1380/2013) is sufficiently robust to support the conclusions on the reported survival rates. Such advice can be used by managers to take an informed decision on whether it is justifiable to grant an exemption on the basis of high survival.

Assuming that the fishing operation aboard the MFV White heather is representative of the rest of the Cornish ring net fleet, STECF notes that in practice, the fishing operation of the Cornish ring net fleet will be similar in key respects to the operation of purse seine nets for mackerel and herring. However, STECF notes that no information is provided to determine whether the potential crowding densities of mackerel and horse mackerel in the Cornish ring net fishery are likely to exceed those reported by Tenningen et al. (2012) and Huse and Vold (2010). Furthermore, STECF notes that unlike the exemption requests for purse seine operations, the exemption request for ring nets is not accompanied by a proposal to prohibit slipping beyond the point where a stated proportion of the net has been hauled, which could mean that crowding densities could exceed levels that have been shown to induce mortality in other fisheries. Catchpole et al. conclude that slipping of fish during the

ring net hauling operation occurs for two reasons; 1, to reduce the size of the catch so that it could be handled by the vessel and 2, to release the full catch due to the highly mixed unsaleable composition of the catch.

Slipping occurred during the White Heather trials for both of the above reasons. The gear used by MFV White Heather is fitted with marker floats which denote the length and proportion of net that has been hauled at 50% (220m), 75% (330m) and 90% (396m). It is unclear whether other vessels in the Cornish ring net fleet are fitted with similar marker floats. Nevertheless the crowding density is dependent on the size of the overall catch and for some hauls, the crowding density may exceed the levels that have been shown to induce mortality, especially if part of the catch is slipped because it is too large for the vessel to handle. The trials aboard the MFV White heather were designed to identify and describe the gear used, the fishing operation; determine the feasibility to conduct survival experiments and to develop vitality assessment protocols for the main species caught by the vessels using ring nets. Catchpole et al. also provide some information on the potential survival of sardine, herring and mackerel taken during a single fishing operation aboard the MFV White Heather based on a health vitality score. For each species, the number of individuals assessed was small (37 sardine, 26 herring, 1 mackerel). Given the limited information in Catchpole et al., STECF considers that these findings do not provide a representative indication of the likely survivability of mackerel, herring and sardine slipped during the ring net fishing operation. The paper notes that the fish caught were in a post-spawning condition and that the probability of survival after slipping may well be different for fish in other stages of their annual reproductive cycle.

STECF notes that, in practice, the ring net fishing operation aboard MFV White Heather is similar to the operation of purse seine fisheries for mackerel and herring in the northwest Atlantic. It is probable therefore, that the survival rates of sardine, mackerel, herring and horse mackerel slipped from ring net used by the White Heather is likely to be similar to the survival rates of those species slipped from purse seine fisheries, provided that the crowding densities do not exceed those observed in the purse seine survival studies.

In its report of the summer 2014 plenary meeting (STECF-PLEN-14-02), STECF provided advice on Joint Recommendations from Regional Groups for discard plans for pelagic fisheries and advice was provided in relation to proposed exemptions from the landing obligation for the following purse seine fisheries and species.

a) Exemption from the landing obligation for mackerel purse seine fisheries in all areas in NE Atlantic based on high survival. b) Exemption from the landing obligation based upon high survival for North Sea Autumn Spawning Herring (*Clupea harengus*) in purse seine fishery in Subarea IV and Divisions IIIa and VIId. c) A total exemption from the landing obligation for the anchovy, horse mackerel, jack

mackerel and mackerel in purse seine fisheries in ICES areas VIII, IX, X and CECAF 34.1.1, 34.1.2, 34.2.0 based on high survivability.

The STECF reviews of the information provided in support of the above proposed exemptions from the landing obligation are given in sections 6.1, b, d and e of STECF PLEN-14-02. For exemptions a) and b) above, the supporting documentation was Huse and Vold (2010) and Tenningen et al. (2012), which are also provided in support of the current proposal. For exemption c), the supporting documentation was Arregi et al. (2014).

Based on their reviews, STECF concluded the following: With respect to a; Assuming the experiments undertaken on the crowding effects on mackerel mortality referred to in the JR are representative of the conditions experienced under commercial purse seine fishing operations, in particular crowding duration, the results indicate that implementation of the 80% rule as described in the JR is likely to result in crowding densities of mackerel less than 30kg m-3 and a survival rate of around 70%. STECF cannot comment whether this constitutes "high" survivability. With respect to b; Based on the figures quoted in the JR from Tenningen (2014), STECF estimates assuming 70%-80% of the purse net is hauled, then for a catch of herring of 1000 t, the crowding density within the purse would be approximately 7.69kg m-3 which is much lower than the density where mortality of herring was observed to increase (Tenningen, 2012). There is no supporting information in the JR to indicate what the crowding density is likely to be if 90% of the purse is hauled. Assuming the experiments undertaken on the crowding effects on herring mortality referred to in the JR are representative of the conditions experienced under commercial purse seine fishing operations, in particular relating to crowding duration, the results indicate that implementation of an 80% rule is likely to result in crowding densities much lower than those where mortality of herring has been observed to increase.

STECF also suggests that for control and enforcement purposes, it would appear sensible to use a common rule for all purse seine operations rather than have different rules as proposed (i.e. 80% for mackerel and 90% for herring). With respect to c; For the exemption for the purse seine fishery on the basis of high survivability, STECF concludes that, assuming the results of the survival study are representative of survival rates under commercial fishing operations, the proportion of slipped fish surviving would likely be greater than 50%. However, it would be advisable to undertake further work to confirm that the experimental conditions are representative of commercial fishing operations. STECF considers that because of the similarity between ring nets and purse seines and their mode of operation, the survival rate of mackerel, herring and horse mackerel slipped by the Cornish ring net fishery is likely to be similar to the survival rates of these species slipped from purse seine fisheries for these species. Given that there is currently no reliable information on the survival

of mackerel, horse mackerel and herring after slipping from purse seines in addition to that previously reviewed (Huse and Vold, 2010; Tenningen et al., 2012), there are no grounds to change the conclusions in relation to exemptions a), b) and c) above and at present they represent the most appropriate conclusions to draw with respect to potential survival of mackerel herring and horse mackerel slipped in the Cornish Ring net fishery.

STECF conclusions

Request 1. On the basis of the available information on the operation of the ring net fishery and the supporting information supplied to support the exemptions for high survivability in purse seine fisheries whether an exemption for the ring net fishery is justifiable. In response to request 1 above, STECF considers that it is beyond the competence of STECF to answer the question of whether it is justifiable on the grounds of high survivability to grant an exemption from the obligation to land all catches of mackerel, herring and horse mackerel for the UK ring-net fishery in ICES Divisions VIIe and VIIf. STECF (PLEN 14-02) noted that the definition of what constitutes “high” survival is subjective and therefore such a decision requires an element of value judgement and is therefore the prerogative of managers. The STECF considers that it has competence to provide scientific advice on the survival of fish discarded/slipped in the fishery and whether the scientific evidence required under Article 15.4(b) (Regulation (EU) No 1380/2013) is sufficiently robust to support the conclusions on the reported survival rates. Such advice can be used by managers to take an informed decision on whether it is justifiable to grant an exemption on the basis of high survival.

STECF concludes that the supporting information provided on the Cornish ring-net fishery by Catchpole et al, (2015), is insufficient to determine the survival rate of slipped mackerel, herring, horse mackerel and sardine. Given that there is currently no additional reliable information on the survival of mackerel, horse mackerel and herring after slipping from purse seines other than that previously provided in support of proposed exemptions from the landing obligation which was reviewed during the STECF PLEN-14-02 meeting (Huse and Vold, 2010; Tenningen et al., 2012), the conclusions reached at that time remain valid. Furthermore, at present they represent the most appropriate conclusions to draw with respect to potential survival of mackerel herring and horse mackerel slipped in the Cornish Ring net fishery provided that the expected crowding densities in the Cornish ring net fishery are similar to or do not exceed those observed in survival experiments with purse seines (Huse and Vold, 2010; Tenningen et al., 2012).

Request 2. Identify whether additional information should be developed to support an exemption taking account of earlier advice on survivability experiments provided by STECF. The STECF considers that the conclusions given in sections 6.1.b, d, and e

of the STECF PLEN-1402 Report currently provide the most appropriate information on fish survivability to take into account when deciding whether to grant an exemption from the obligation to land all catches of mackerel, herring and horse mackerel taken in the Cornish ring net fishery.

If fishery-specific survival estimates for mackerel, horse mackerel and herring slipped from the Cornish ring net fishery are considered by managers to be necessary to inform their decision on whether to grant an exemption from the obligation to land each of these species, STECF concludes that ring net fishery-specific survival experiments , adopting the procedures outlined in the (STECF 13-23), would provide evidence to estimate survival rates of fish being slipped from ring nets.

References

Arregi, L. Onandia, I. Ferarios, J.M., Ruiz J. and Basurko O.C. 2014. Assessing fish survival from slipping in purse seine fisheries of European southern waters. AZTI-Tecnalia, Sukarrieta, 44 pp.

15. Annex 3 - A proposal for 'A 7% de minimis exemption for monkfish caught in beam trawlers ICES divisions VIId-j.'

Request

A request is made for a de minimis exemption for monkfish (*Lophius spp*; anglerfish) caught in the beam trawl fishery in ICES divisions VIId-j. The specific request is:

1. *By way of a derogation, the landing obligation shall not apply to catches of monkfish (Lophius spp.) taken in ICES division 7d, e, f, g, h and j made using beam trawl gears (gear codes: TBB). A quantity may be discarded which shall not exceed 7% of the UK total annual catches of that species.*

Introduction

There are around 58 UK vessels, fishing off the UK coast in ICES areas 7d-j (Table 1). The vessels catch monkfish both as a target species and a bycatch in mixed species. The vessels that would be affected by this survivability exemption were responsible for a total landing of monkfish of 1526.8 tonnes in 2019. Between 2015 and 2019 the Cefas observer programme estimates discard rates of monkfish in this fishery at 5.1-18.1% (average 10%) of all monkfish catches.

The exemption will apply to both commercial monkfish (anglerfish) species, *Lophius budegassa* and *L. piscatorius*. If granted, this de minimis exemption is estimated to result in an annual discard biomass of monkfish of approximately 212 tonnes. For context, the 2020 TAC is set at 35 299 tonnes in area 7 (6 348 UK). The objective of the exemption is to minimise unwanted mortality of the residual catches of small unwanted monkfish in a fishery where further enhancements in selectivity towards monkfish are not currently available.

Table 1. Fishery description for proposed de minimis exemption

Country	Species	Exemption applied to	Species as bycatch or target	Number of Vessels by year	Reported total wanted catch (landings)	Estimated total unwanted catch (discards)	Estimated total catch	Discard rate (% of unwanted catch relative to total catch)	Estimated de minimis volume (7% of UK TBB catch)
UK	Monkfish (ANF; anglerfish; Lophius spp)	ICES 7d-j** for beam trawlers (TBB)	Bycatch	2015 56	2015 2242.3	2015 495.4	2015 2737.7	2015 18.1%	141
				2016 54	2016 2297.5	2016 173.9	2016 2471.4	2016 7.0%	
				2017 57	2017 1685.9	2017 89.9	2017 1775.7	2017 5.1%	
				2018 58	2018 1254.7	2018 147.6	2018 1402.4	2018 10.5%	
				2019 58	2019 1526.8	2019 152.9	2019 1679.8	2019 9.1%	
					Average 1801.4	Average 211.9	Average 2013.4	Average 10.0%	

** UK waters

Background

There have been no previous submissions proposing a de minimis exemption for monkfish in the beam trawl fishery. There are several de minimis exemptions in place for other species in this fishery (whiting, common sole, haddock, horse mackerel, mackerel and megrim), as set out in EU Regulation 2019/2239:

De minimis exemptions

1.By way of derogation from Article 15(1) of Regulation (EU) No 1380/2013, the following quantities may be discarded pursuant to Article 15(5)(c) of that Regulation:

(a) for whiting (Merlangius merlangus), up to a maximum of 5 % of the total annual catches of that species by vessels using bottom trawls and seines with a mesh size equal to or greater than 80 mm (OTB, OTT, OT, PTB, PT, SSC, SDN, SPR, SX, SV, TBN, TBS, TB, TX), pelagic trawls (OTM, PTM) and beam trawls (BT2) with a mesh size of 80-119 mm in ICES divisions 7b to 7k;

(c) for common sole (Solea solea), up to a maximum of 3 % of the total annual catches of that species by vessels using TBB gear with a mesh size of 80-119 mm equipped with Flemish panel, to catch common sole in ICES divisions 7d, 7e, 7f, 7g and 7h;

(d) for haddock (Melanogrammus aeglefinus), up to a maximum of 5 % in 2020 of the total annual catches of that species by vessels using bottom trawls, seines and beam trawls (OTB, OTT, OT, PTB, PT, SSC, SDN SPR, SX, SV, TBB, TBN, TBS, TB, TX) with a mesh size greater than or equal to 80 mm in ICES divisions 7b, 7c and 7e to 7k;

(e) for horse mackerel (Trachurus spp.), up to a maximum of 7 % in 2020 of the total annual by-catches of those species, caught in demersal mixed fisheries, by vessels using bottom trawls, seines and beam trawls (OTB, OTT, OT, PTB, PT, SSC, SDN, SPR, SX, SV, TBB, TBN, TBS, TB, TX) in ICES subarea 6 and ICES divisions 7b to 7k;

(f) for mackerel (Scomber scombrus), up to a maximum of 7 % in 2020 of the total annual by-catches of that species, caught in demersal mixed fisheries, by vessels using bottom trawls, seines and beam trawls in ICES subarea 6 and ICES divisions 7b to 7k;

(g) for common sole (Solea solea), up to a maximum of 3 % in 2020 of the total annual catches of that species by vessels using beam trawls with a mesh size of 80-119 mm (BT2) with increased selectivity (Flemish panel) in ICES divisions 7a, 7j and 7k;

(h) for megrim (Lepidorhombus spp.) below MCRS, up to a maximum of 5 % in 2020 of the total annual catches of those species by vessels using bottom trawls (OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX) with a mesh size of 70-99 mm (TR2) and beam trawls (TBB) with a mesh size of 80-199 mm (BT2) in ICES subarea 7.

It should be noted that the de minimis exemptions set out in points (d) to (h) shall be applicable until 31 December 2020. EU Member States having a direct management interest were requested to submit, by not later than by 1 May 2020, additional scientific information supporting the exemption.

Evidence from selectivity trials and of the economic implications of handling unwanted catches were evaluated by STECF in 2018, 2019 and 2020. This related almost exclusively to otter trawl fisheries of Ireland and France. The STECF evaluations can be viewed in STECF EWG 18-06, EWG 19-08, and EWG 20-04.

In general, STECF concluded that 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, but this was not specific to any species. It was also stated that evidence illustrating 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.

<u>Evidence of difficulties to improve selectivity</u>

The proposal for de minimis exemption for monkfish is supported by evidence not previously evaluated by STECF and relates specifically to the UK beam trawl fishery. Here we provide a summary, and the full scientific technical report is made available:

- Selectivity improvements in the English SW beam trawl fishery: the legacy of Project 50% (in prep). Thomas Catchpole, Ana Ribeiro Santos, Leah Winpenny, Marieke Desender, Antonello Sala, John Hingley, Andrew Revill, Simon Armstrong, Bent Herrman.

In 2010, beam trawl operators working from the southwest English ports were motivated to modify the selectivity of their trawls. Skippers of nine vessels developed their own trawl designs to test against the standard trawl used in the fishery. All the experimental designs were different and incorporated larger meshes in several different sections of the trawl.

In 2017, information from skippers showed that the beam trawl designs used in this fishery were comparable to those tested in the trials of 2010. Since the Project 50% trials, none of the participating vessels had reverted to the previous standard trawls,

and some vessels that did not participate in the original trials had taken up the new more selective designs. Some reductions in mesh size in some sections of the trawl compared with the trial designs were noted, however, it is considered that the trawls currently in use, represent the most selective commercially viable designs available.

The results of the trials were not previously statistically assessed, and new methods have recently been applied to evaluate the performance of the tested designs. All the experimental designs demonstrated significant changes in selectivity. Reductions in catches of the main species caught in the fishery were observed. For all the trials, the significant differences in catch were estimated, and showed an average reduction in the weight of Common sole (-28%, [-9; -57%]), as well as whiting (-30% , [0; -69%]), plaice (-2%, [0; -8%]) and monkfish (-2%, [+9; -9%]). This equated to an average significant reduction across all trials of 162kg of Common sole, 57kg of monkfish, 25kg plaice and 55kg of whiting per fishing trip.

Additionally, there were substantial and significant reductions in analysed non-quota species, such as bib, lemon sole, tub gurnard, cuttlefish, and dab. As each of the new trawl designs contained several changes from a standard trawl, it was not possible to separate the relative effects on selectivity of the different modifications. However, the results supported other trials indicating that the belly section and cod end mesh size increases improve the selection towards plaice and Common sole, and mesh size increases in the upper back net sections improve selection towards bib and whiting.

The data show that while it was possible to make substantial changes to the selectivity of beam trawl towards Common sole and whiting, however, changes to monkfish were much less and in some cases more monkfish were caught using modified trawls. This is likely due to the morphology of the monkfish, which have a disproportionately large head with a wide gaping mouth, making it difficult to size select for this species and retain marketable catches of other species. For this species in particular there are difficulties to improve selectivity in the mixed species beam trawl fishery.

A key species in this mixed fishery is Common sole, which is of substantial economic importance. The beam trawls used historically were tuned to catch sole at the minimum legal size and because of the size and behaviour of sole, this species dictated the selectivity of the trawl towards other species. The gear designs tested and taken up by the English fleet did result in losses of marketable sole, but this came at a time of reductions to sole quota and so the losses were viewed as a mechanism to reduce sole catches. Since then the sole stock and the quota has increased, and while the fleet seem to be satisfied using variants of the trawl designs from P50%, further increases in mesh would likely result in unacceptable losses of Common sole. It should be noted that these changes have been taken up voluntarily

and are not reflected in new regulations, nonetheless the trawls currently in use, are considered to represent the most selective commercially viable designs available at this time.

Conclusions

The UK proposes a new de minimis exemption for monkfish whereby 7% of the total catches of monkfish taken by the UK beam trawl fleet operating in UK waters of ICES area 7 can be discarded in 2021. It is recognised that this does not cover all the estimated unwanted catches, the requirement to bring ashore unwanted catches above this level will maintain an incentive to avoid catching unwanted monkfish. Extensive scientific gear trials of modified beam trawls have illustrated that improvements to the selectivity of beam trawls for this fishery have been made and further improvements for monkfish are difficult if the fishery is to remain economically viable.

16. Annex 4 – A proposal for 'A 5% de minimis exemption for <MCRS whiting caught in TR2 fisheries in ICES area IV.'

A 5% de minimis exemption for <MCRS whiting caught in TR2 fisheries in ICES area IV

Request

A request is made for a *de minimis* exemption for <MCRS whiting (*Merlangius merlangus*) caught in ICES divisions 4a, b, and c, by vessels in fish directed fisheries using bottom trawls or seines (OTB, OTT, SDN, SSC) with a mesh size of 70-99 mm (TR2), and in fisheries for Norway lobster by vessels using highly selective trawls with cod ends of mesh size 80-99 mm. This request is proposed to amend the current time limited *de minimis* exemption (EU 2019/2238): '*in the mixed demersal fisheries by vessels using bottom trawls or seines (OTB, OTT, SDN, SSC) with a mesh size of 70-99 mm (TR2) in the Union waters of ICES divisions 4a and 4b: a combined quantity of whiting and cod (Gadus morhua) below the minimum conservation reference size..*', and the exemption currently applying only to 4c '*in the mixed demersal fisheries by vessels using bottom trawls or seines (OTB, OTT, SDN, SSC) with a mesh size of 70-99 mm (TR2) in the Union waters of ICES division 4c'*. The specific request is:

2. *By way of a derogation, the landing obligation shall not apply to catches of whiting (Merlangius merlangus) below the minimum conservation reference size caught by vessels with less than 30% of Norway lobster in the catch using bottom trawls or seines (OTB, OTT, SDN, SSC) with a mesh size of 70-99 mm (TR2), and by vessels with 30% or more of Norway lobster in the catch using selective trawls with cod ends of mesh size 70-99 mm, in ICES divisions 4a, b and c. A quantity of whiting below the minimum conservation reference size, shall not exceed 5 % of the UK total annual catches of whiting taken by the affected fleet. The exemption shall apply to vessels with 30% or more of Norway lobster in the catch using one of the following:*
    a) *Seltra panel*
    b) *Sorting Grid with 35 mm bar spacing as defined in Annex XIVa Regulation (EC) 850/981.*
    c) *NetGrid selectivity device*
    d) *Flip-Flap Trawl*
    e) *300 mm square mesh panel (for fishing vessels of 12 m or more LOA)*
    f) *200 mm square mesh panel (for fishing vessels under 12 m LOA)*
    g) *a selective gear or device independently assessed as having the same or higher selectivity characteristics for cod and whiting than the gear options a-f.*

'Seltra panel' means a selectivity device which: consists of a top panel of at least 270 mm mesh size (diamond mesh) or a top panel of at least 300 mm mesh size (square mesh), placed in a four-panel box section, in the straight section of a cod end; is at least 3 metres long; is positioned no more than 4 metres from the cod line; and (d) is

the full width of the top sheet of the box section of the trawl (i.e. from selvedge to selvedge).

'NetGrid selectivity device' means a selectivity device consisting of a four-panel section inserted into a two-panel trawl with an inclined sheet of diamond mesh netting with a mesh size of at least 200mm, leading to an escape hole in the top of the trawl'

'Flip-flap trawl' means a trawl equipped with a netting grid developed to reduce the capture of cod, haddock and whiting in Norway lobster fisheries'.

The de minimis exemptions for cod in the North Sea for TR2 vessels, in place in 2020, are removed. We are proposing to have no exemptions for cod across all regions due to the status of the cod stocks.

Table 1. Fishery description for proposed de minimis exemption

Country	Species	Exemption applied to	Species as bycatch or target	Number of Vessels by year (using conventional and selective gears)		Reported total wanted catch (landings) (using conventional and selective gears)		Estimated total unwanted catch (discards) (using conventional and selective gears)		Estimated total catch (using conventional and selective gears)		Discard rate (% of unwanted catch relative to total catch)		Estimated de minimis volume (5% of UK catch by affected fleet)
UK	whiting (WHG; *Merlangius merlangus*)	ICES 4** in the Norway lobster (Nephrops norvegicus) fishery, where catches comprise more than 30% of Norway lobster, using otter trawl gears (OTT, OTB,	Bycatch	2015	181	2015	765.8	2015	3824.1	2015	4589.9	2015	83.3%	133
				2016	166	2016	822.7	2016	1038.5	2016	1861.2	2016	55.8%	
				2017	159	2017	909.9	2017	1802.8	2017	2712.7	2017	66.5%	
				2018	133	2018	895.6	2018	1818.6	2018	2714.1	2018	67.0%	
				2019	147	2019	1606.8	2019	4821.7	2019	6428.5	2019	75.0%	
						Average	1000.2	Average	2661.1	Average	3661.3	Average	69.5%	

		TBS, TBN, TB, PTB, OT, PT, TX) of 70-99 mm (TR2)							
UK	whiting (WHG; *Merlangius merlangus*)	ICES 4** using otter trawl gears (OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX) of 70-99 mm (TR2) where catches comprise less than 30% of Norway		2015 2016 2017 2018 2019 Average	2015 2016 2017 2018 2019 Average	2015 2016 2017 2018 2019 Average	2015 2016 2017 2018 2019 Average	#DIV/0!	2015 2016 2017 2018 2019 Average	

** UK waters

Introduction

There is a non-time limited *de minimis* exemption for <MCRS whiting and cod caught by TR2 vessels in the southern North Sea, ICES division 4c. This recommendation is to maintain that exemption for whiting only and amend a time limited equivalent exemption in ICES division 4a and b. The proposed amendment is to include whiting only, and to make the exemption conditional on the use of highly selective fishing gears for vessels operating in the North Sea Nephrops fishery. Here we provide evidence to support the amendment of the exemption for 4a and b only, on the basis that the 4c exemption will be maintained in retained EU law. We are proposing to have no exemptions for cod across all regions due to the status of the cod stocks.

There are around 147 UK Nephrops (Norway lobster) vessels, fishing in ICES division 4a and b (Table 1); there are no Nephrops fisheries in the UK waters of ICES division 4c. The vessels catch whiting as bycatch in the Norway lobster fishery. The vessels that would be affected by this exemption were responsible for a total landing of 1 606 tonnes of whiting in 2019. Between 2015 and 2019 the Cefas observer programme estimated discard rates (by weight) of whiting in this fishery at 70% for ICES area IVb. These estimates are from sampled hauls in which the catch comprised of at least 30% Norway lobster using conventional trawls, and not the selective trawls listed above, which are currently not widely used.

If granted, this *de minimis* exemption is estimated to result in an annual discard biomass of whiting of approximately 133 tonnes. For context, the 2020 TAC is set at 17 158 tonnes in for whiting in ICES 4 and EU waters of 2a (10 293 UK). The objective of the exemption is to incentivise greater uptake of more selective trawls and minimise unwanted mortality of the residual catches of small unwanted whiting. It is considered that in this fishery, further enhancements in selectivity, beyond that demonstrated by the listed selective trawls, is difficult to achieve.

Background

A recommendation for a *de minimis* exemption for whiting in the North Sea TR2 fleet (70-99mm mesh) was first proposed in 2016, the justification was the difficulty in improving selectivity in the southern North Sea mixed fish fishery, evidence was provided only from France. The recommendation was extended to include cod in 2017, but with no additional evidence, and in 2018 an exemption was awarded, but only for TR2 fleet operating in area IVc for both cod and whiting (<MCRS). In 2018, 2019 and 2020 it was recommended by the Regional Group to extend the exemption to areas IVa and IVb; but the only additional evidence provided was on disproportionate costs associated with generic unwanted catches taken by the Dutch *Nephrops* fleet (not relevant to the UK). Since 2019, an exemption has been in place for cod and whiting (<MCRS), on the condition that evidence on selectivity trials were provided and Member States reported on the uptake of selective gears. So far, this evidence has not been provided. No evidence from UK vessels has been submitted to support this exemption (on selectivity or disproportionate costs or fishery description), and selectivity evidence for the TR2 Nephrops fleet has not been

submitted or evaluated by STECF. A more detailed summary of the history of this recommendation is given in Annex 1.

Proposed approach

Given the extensive work by the industry and scientists (and government investment) on developing more selective trawls in the North Sea UK Nephrops (Norway lobster) TR2 fishery, and the current requirement to use proven highly selective gears in the Celtic Sea and Irish Sea Nephrops trawl fisheries, there is not sufficient evidence to support a generic exemption for whiting and cod caught in the Nephrops TR2 fleet on the grounds of difficulties to improve selectivity. Moreover, it is recognised that the *de minimis* amounts will account for only a small proportion of the unwanted catches, and so improving selectivity is the most effective way of reducing handling costs. It is recommended that an exemption for <MCRS whiting be maintained for TR2 vessels targeting fish, but for those operating in the Norway lobster fishery, it should apply only to vessels using predefined proven selective *Nephrops* trawl designs. Substantial progress in developing more selective trawls has been made in this fishery, however, there remains residual catches of unwanted <MCRS whiting even when using these gears. The objective of this *de minimis* exemption is to minimise unwanted mortality of the residual catches of small unwanted whiting in a fishery where further enhancements in selectivity is difficult, beyond the proven selective gears. This is anticipated to increase the incentive to take up selective gear designs; it is also noted that the ability to include other designs that show selectivity equivalence should be available.

Selectivity evidence

There is a long history associated with, and many published studies relevant to, enhancing selectivity in the North Sea Nephrops (TR2) trawl fishery. The focus on this fishery has been motivated by the relatively high levels of unwanted fish catch when targeting Nephrops, and the requirement to reduce catches of cod in the North Sea. A recent review of 17 trialled designs including a summary of the results was compiled in Norman Graham and Olsen (2020)[1], which has been provided. Some of the designs have been previously assess by STECF (e.g. PLEN 12-01; PLEN-13-03; PLEN-15-02; STECF-17-02); and some were previously legislated for in the North Sea, as part of the Cod Recovery Plan.

Following these evaluations, the designs have been legislated for in the North Western Waters region (EU 2019/2239). In the Celtic Sea Protection Zone, all vessels catching >5% Nephrops are currently required to use either (a) 300 mm square mesh panel with a cod-end of at least 80 mm mesh size; vessels below 12 meters in length over all may use a 200 mm square mesh panel; (b) Seltra panel; (c) Sorting grid with a 35 mm bar spacing; (d) 100 mm cod-end with a 100 mm square

[1] Report of the EU-Norway Technical Group Meeting on additional technical measures aimed at the protection of both juvenile and adult cod. Compiled and edited by: Norman Graham (European Commission) Erik Olsen (Institute of Marine Research, Norway), 31 January 2020.

mesh panel; or (e) Dual cod-end with the uppermost cod-end constructed with T90 mesh of at least 90 mm and fitted with a separation panel with a maximum mesh size of 300 mm.

In the Irish Sea, all vessels with catches comprising more than 5 % of Norway lobster shall use one of the following gear options: (a) 300 mm square mesh panel; vessels below 12 meters in length over all may use a 200 mm squared mesh panel; (b) Seltra panel; (c) Sorting grid with 35 mm bar spacing; (d) NetGrid; or (e) Flip-flap trawl. These are the same options that would enable vessels to make use of this proposed *de minimis* exemption. Note that, unlike in the NWW region, the use of these gears is not a requirement, but the exemption would only be available when vessels are using one of the listed gears. This is expected to bring closer alignment across the Nephrops fisheries in the different regions.
The evidence, both directly from gear selectivity trials, and indirectly from the regulations associated with those designs, illustrates that Nephrops trawl selectivity can be improved with the uptake of existing designs, but also that those designs represent the best available technology at this time to reduce unwanted catches.

Conclusions

For the last three years, a one-year time limited *de minimis* exemption for <MCRS whiting and cod has been awarded for TR2 vessels operating in ICES 4a and b, on the condition that supporting evidence is provided, including on the uptake of selective gear. The UK has not provided evidence to support this exemption. A key fishery that makes use of this exemption is the UK Norway lobster fishery, for which it is considered improvements in selectivity are possible, based on evidence from trials and the requirement to use selective trawl designs in other regions. To manage the residual unwanted catches of <MCRS whiting in this fishery, it is recommended that a *de minimis* exemption be awarded for TR2 vessels, and for those TR2 vessels operating on the Norway lobster fishery only when using defined selective gear. It is intended that this will encourage uptake of more selective fishing methods for vessels operating in UK waters. We are proposing to have no exemptions for cod across all regions due to the status of the cod stocks.

Annex 1

2016
Recommendation: *a de minimis exemption for whiting (from 2018) in the North Sea; clarified by member states to apply to TR2 (90-99mm) in IIIaN (SWE), North Sea, TR2 <100mm (NL), whiting, IIIa + IV, TR2 <100mm (DK), whiting TR2 North Sea NON-NEP fishery (BEL), whiting TR2 North Sea NEP fishery (BEL), whiting TR2 area IV (UK).*
Evaluation: Supporting evidence, selectivity studies and vessels and catch and discards evidence only from French fleet operating in fish directed fishery IVc. STECF conclude that the assertion that it is difficult to improve selectivity in the short term without incurring loss of marketable catch is supported by the information provided but only for the French fleet. If the intention is to use the exemption beyond this fleet, then information including catches, discard rates and reports of any relevant selectivity trials need to be supplied.

Outcome: awarded exemption delayed in 2018 and only for IVc (2016/2250)- *(h) in 2018, for whiting, up to a maximum of 7 % of the total annual catches of Norway lobster, haddock, sole, Northern prawn, whiting, plaice, saithe and cod in the mixed fishery for sole, whiting and species without catch limits by vessels using bottom trawls (OTB, OTT) of mesh size 70-99 mm in ICES Division IVc.*

2017

Recommendation: *Whiting and cod caught by bottom trawls 79-99 mm (TR2) in the North Sea (ICES areas IVa, IVb and c)*

Evaluation: STECF note that the request is extended to include cod, but again information was predominantly on the French TR2 fishery in the southern North Sea. This fishery had high discards for whiting (46%) and cod (25%). An additional Dutch fishery was referred to and information on the fleets and catch information is provided, but the same supporting information on selectivity and handling costs were provided as in 2016 relating only to the French fleet. STECF stated that if the intention is for the recommendation to apply to fleets from Denmark, Belgium and the UK then information on the number of vessels, catches and discard rates as well as reports of any relevant selectivity trials should be supplied.

Outcome: awarded exemption for are IVc (2018/45) - *(f) in the mixed fishery for sole, whiting, plaice and species without catch limits by vessels using bottom trawls (OTB, OTT, SDN, SSC) of mesh size 70-99 mm in ICES Division IVc: a combined quantity of whiting and cod below minimum conservation reference sizes, which shall not exceed 6 % of the total annual catches of Norway lobster, haddock, sole, Northern prawn, whiting, plaice, saithe and cod; the maximum amount of cod that may be discarded shall be limited to 2 % of those total annual catches;..*

2018

Recommendation: *Whiting and cod caught using bottom trawls (OTB, < 100mm (TR2)*

Evaluation: STECF EWG note the intention is to increase the scope of this exemption to cover the whole of area IV, the justification for the exemption is largely the same as in 2017 and there is no new information supplied to support widening the scope of the exemption. The STECF EWG therefore cannot evaluate whether it is appropriate or not to extend it. Additional evidence of fishing effort in IVb was provided for the French fleet to the STECF PLEN 18-02 (VMS tracks for three vessels in June 2018). STECF concluded this information supports increasing the scope of this exemption for the French vessels but noted no information was provided by other Member States.

Outcome: awarded exemption by split by area with different conditions (2018/2035) - *(e) in the mixed demersal fisheries by vessels using bottom trawls or seines (OTB, OTT, SDN, SSC) of mesh size 70-99 mm (TR2) in Union waters of ICES division 4c: a combined quantity of whiting and cod below minimum conservation reference sizes, which shall not exceed 6 % of the total annual catches in 2019 and 5 % in 2020 and 2021 of species below minimum reference size that would fall under*

landing obligation; the maximum amount of cod that may be discarded shall be limited to 2 % of those total annual catches;
(f) in the mixed demersal fisheries by vessels using bottom trawls or seines (OTB, OTT, SDN, SSC) with a mesh size of 70-99 mm in Union waters of ICES divisions 4a and 4b:
a combined quantity of whiting and cod below minimum conservation reference size, which shall not exceed 6 % of the total annual catches in 2019 of species below minimum reference size that would fall under landing obligation; the maximum amount of cod that may be discarded shall be limited to 2 % of those total annual catches;
the de minimis exemption set out in this point (f) shall be provisionally applicable until 31 December 2019. Member States having a direct management interest shall submit as soon as possible before 31 May 2019, additional scientific information supporting the exemption. The Scientific, Technical and Economic Committee for Fisheries (STECF) shall assess the provided scientific information before 1 August 2019;

2019
Recommendation: *Whiting and cod below MCRS caught in mixed demersal fisheries using bottom trawls or seines with mesh size of 70- 99 mm in Union waters of ICES divisions 4a and 4b*

Evaluation: STECF noted that data on the fisheries was supplied for the French, Dutch and German fleets. The same supporting information was provided as in 2017 and 2018. A summary of an additional study to support the exemption based on disproportionate costs for the Dutch demersal fisheries was also supplied. The information provided showed the impact to be significant but not specific cod and whiting but was specific to only the Dutch fleet. STECF conclude that there was evidence that landing unwanted catches has an associated cost, but this is not sufficient to demonstrate those costs are disproportionate. Improving selectivity in the relevant fisheries should be the priority.

Outcome: awarded conditional exemption *(f) in the mixed demersal fisheries by vessels using bottom trawls or seines (OTB, OTT, SDN, SSC) with a mesh size of 70-99 mm (TR2) in the Union waters of ICES divisions 4a and 4b: a combined quantity of whiting and cod (Gadus morhua) below the minimum conservation reference size, which shall not exceed 6 % in 2020 of the total annual catches of whiting and cod; the maximum amount of cod that may be discarded shall be limited to 2 % of those total annual catches; the de minimis exemption set out in this point shall be provisionally applicable until 31 December 2020. Member States having a direct management interest shall submit, as soon as possible and not later than by 1 May 2020, additional scientific information supporting the exemption. The STECF shall assess the provided scientific information by 31 July 2020;*
It is also noted that - *Member States are expected to report on the uptake of further selectivity measures. The Member States concerned should undertake the additional trials and provide information as soon as possible and not later than by 1 May 2020, for assessment by the STECF. This exemption should therefore be applied provisionally until 31 December 2020.*

2020

Recommendation: *De minimis Exemption Whiting and cod below the minimum conservation reference size by vessels using bottom trawls or seines with mesh size 70-99 mm in ICES divisions 4a and 4b.*

Evaluation: STECF noted that there was no new information to support the exemption was provided. 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 and is based on previously submitted information. 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.

It should also be noted that according to ICES, fishing pressure on the North Sea cod stock is above FMSY, Fpa and Flim; spawning stock size is below MSY Btrigger, Bpa, and Blim. Therefore, it is imperative that measures be taken to reduce the level of unwanted cod catches in the fisheries concerned by this exemption and that if the exemption is granted rigorous monitoring of cod catches discarded under the exemption is carried out.

Outcome: pending

17. Annex 5 - A proposal for 'A survivability exemption for common sole (Solea solea) under MCRS caught in the inshore under 10m otter trawl fishery in ICES divisions VIIa, VIId, VIIe, VIIf and VIIg.'

A survivability exemption for Common sole (Solea solea) under MCRS caught in by inshore under 10m otter trawl fishery in ICES divisions VIIa, VIId, VIIe, VIIf and VIIg

Request

A request is made for a survivability exemption for sole (*Solea solea*) caught in the inshore under 10m otter trawl fishery in ICES divisions VIIa, VIId, VIIe, VIIf and VIIg. The request is an extension of an existing exemption in VIId. The specific request is:
1. By way of a derogation, the landing obligation shall not apply to catches of Common sole (Solea solea) below the minimum conservation reference size taken in ICES division 7a, d, e, f, g within six nautical miles of the coast made using otter trawl gears (gear codes: OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX) with a cod end mesh size of 80-99 mm, by vessels:
(a) having a maximum length of 10 meters and a maximum engine power of 221 kW; and
(b) fishing in waters with the depth of 30 meters or less and with tow durations of no more than 1:30 hours.

Introduction

There are around 76 UK under 10m vessels, fishing off the UK coast in ICES areas 7a, d, e, f, g (Table 1). The vessels catch sole both as a target species and a bycatch in mixed species fisheries on inshore fishing grounds. The vessels that would be affected by this survivability exemption responsible for a total landing of common sole of under 70.2 tonnes in 2019. The tonnes of sole landed within the 6 nautical miles will be a smaller figure, however landings data does not provide this level of detail. We use 160 tonnes as our closest estimate recognising the potential to overestimate the landings within 6 nautical miles. Cefas observer programmes between 2015 and 2019 place approximate discard rates of undersize sole in this fishery at 1% of sole catches. The very low discard rates indicate that trawls used by the affected fleet are highly selective towards Common sole.

If granted, this survivability exemption is estimated to result in an annual discard biomass of undersized sole of approximately 0.6 tonnes, this is based on the landings figure of 61.6 tonnes from all under 10m trawlers, so should be viewed as an overestimate. For context, the 2020 TAC is set at 4 577 tonnes in 7a (96 UK), 2 797 tonnes in 7d (538 UK), 1 478 in 7e (870 UK) and 1 652 tonnes in 7f, g, (465 UK).

A survivability exemption has been in place in 7d since 2018, restricted to otter trawl vessels working within 6nm of the shore, that are under 10 metres in length, with a maximum engine size of 221 kW, and fishing in depths of 30 metres of less, towing for no more than 1.5 hours and using a cod end mesh of 80-99mm. An equivalent exemption, with the same conditions has been in place in the southern North Sea (IVc) since 2016. Both exemptions were supported by robust scientific discard survival studies. The completion of a third study, further evidencing the high survival of sole caught in these fisheries, supports the geographical extension of the 7d exemption to the wider areas of 7a, e, f, g. The objective of the exemption is to minimise unwanted mortality of the small numbers of under MCRS sole, unavoidably caught in a highly selective inshore fishery.

Table 1. Fishery description for proposed Common sole survivability exemption

Country	Species	Exemption applied to	Species as bycatch or target	Number of Vessels by year	Reported total wanted catch (landings)	Estimated total unwanted catch (discards)	Estimated total catch	Discard rate (% of unwanted catch relative to total catch)	Discard survival %; and estimated deduction
UK	Common sole (SOL; Solea solea) below MCRS	ICES 7a,d,e,f,g** within 6nm* of coast for otter trawl gears (OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX) with a cod end mesh size of 80-99 mm, for vessels having a maximum length of 10 meters	Bycatch	2015 126 2016 118 2017 105 2018 66 2019 76	2015 45.0 2016 44.5 2017 68.1 2018 81.2 2019 69.2 Average 61.6	2015 1.3 2016 0.1 2017 0.0 2018 0.6 2019 1.0 Average 0.6	2015 46.3 2016 44.6 2017 68.1 2018 81.8 2019 70.2 Average 62.2	2015 2.8% 2016 0.3% 2017 0.0% 2018 0.7% 2019 1.4% Average 1.0%	50% (42-89%); (estimated deduction 0.3 tonnes)

* Data from all catches of <10m vessels not just those restricted to within 6nm

** UK waters

Background

Following the submission of a request and subsequent award for an exemption for Common sole in the North Sea in 2016, an equivalent exemption was requested and awarded in ICES area VIId in the North Western Waters region. Both these requests were supported by robust scientific studies on discard survival which were assessed by STECF (EWG 16-10; 17-08). The full STECF 17-08 evaluation is provided in Annex 1 and STECF 16-10 in Annex 2. Informed by the STECF evaluation, the EU Commission awarded the following exemption:

The survivability exemption provided for in Article 15(4)(b) of Regulation (EU) No 1380/2013 shall apply:

(b) to catches of common sole (Solea solea) below the minimum conservation reference size caught with otter trawl gears (Gear codes OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX) with cod end mesh size of 80-99mm in ICES division VIId within six nautical miles of the coast and outside identified nursery areas in the fishing operations meeting the following conditions: vessels with the maximum length of 10 meters, maximum engine power of 221 kW, when fishing in waters with the depth of 30 meters of less and with limited tow durations of no more than 1:30 hours. Such catches of common sole shall be released immediately.

In the latest round of submissions of proposed exemptions, the North Western Waters regions submitted the following joint recommendation:

Survivability exemption for: Common sole (Solea solea) in ICES division 7a, 7e, 7f and 7g caught with otter trawl gears (gear codes: OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX).

The request was supported by a new discard survival study (see below) and represented an expansion of the geographical area to which the existing exemption applies and a broadening of its applicability. The request was for a new exemption that was available to Common sole caught at all lengths (not only below MCRS), all vessel types (not just those under 10m in length), working at all depths (not just 30 metres and below) and towing for indeterminate durations (not only 1.5 hours or less). Therefore, this constitutes a considerable relaxation of the limitations of the current exemption.

In accordance with the STECF 20-04 evaluation, the UK considers that while the new evidence does support a geographical extension of the exemption, the existing limitations on the size of sole, the depth and duration of fishing should be retained. STECF 20-04 noted that it is not possible to evaluate whether the 50% survival estimate is valid for other otter trawl gears and fishing operations in the defined area. It was considered that evidence generated from a single study in an inshore fishery in 7b may not represent the sole discard survival from all otter trawl fisheries in 7a, e, f and g. It was also noted that equivalent evidence for other studies have supported exemptions that are limited to the fishing conditions under which the evidence was generated. The UK considers that the while the NWW proposal to expand the sole survivability exemption cannot be supported by the available evidence, a more conservation exemption focussed on the inshore fleet is justified.

Survival evidence

New discard survival evidence has been generated to support this geographically extended exemption. The exemption is supported by two scientific assessments of sole discard survival from the UK (Cefas) and one new study from Ireland (BIM). These studies provide robust estimates of discard survival indicating high levels of survival when caught

under the observed conditions. The evidence submitted and a summary of previous evaluations are given here:

1. Santos, A.R., Duggan K., and Catchpole, T. 2016. “Estimating the discard survival rates of Common sole (*Solea solea*) in the English east coast inshore otter trawl fishery,” Cefas, 2016.

The full assessment provided by STECF 16-10 is given in Annex 2. STECF 16-10 concludes that the approach and methodology selected to assess the discard survival during the sampled trips was conducted according to ICES guidelines (ICES, 2014). Fish vitality scores are combined with the likelihood of survival for each vitality category. The estimated survival rate for all vitality categories of undersized sole was 51% after an observation period of 15 days in vessels operating on inshore ground in ICES area IVc. The extension models show 42-43% and 47-48% discards survival of undersized sole beyond the time period.

While the estimates for discard survival generated were considered to be robust for the conditions observed, EWG 16-10 noted concerns about the representativeness of the trials carried out. In particular, they pointed to seasonality effects, the lack of proper controls in the study, the normal handling and sorting process on vessels participating in the fishery and the difficulty in extrapolating from this study to other areas and fisheries. It is noted here that the lack of controls would serve only to have underestimated the discard survival estimate. Informed this evaluation, the exemption was awarded; it is notable that this was the first demersal fish species caught using trawls or nets to have been awarded a survivability exemption, and therefore it received additional scrutiny.

2. Randall, P., Santos, A.R., Firmin, C., O’Sullivan, H., White E., and Catchpole, T. 2017. “Assessing the survival of discarded sole (*Solea solea*) in an English inshore trawl fishery,” CEFAS, 2017.

This study was conducted to compliment (Santos et al, 2016) and was described as a detailed and well-replicated survival study carried out later in 2016 (Randall et al., 2017). STECF EWG 17-03 recognised that the studies conducted by CEFAS provide valuable information on sole survivability in English East Coast Inshore otter fishery. These studies can be used as a methodological basis for further investigations including fishery with other types of fishing gears. The full STECF assessment is given in Annex 1.

Sole were sampled on-board during two fishing days in July (7 hauls), 4 days in August (the peak season of the fishery; 14 hauls) and October (12 hauls). In total, 744 sole (both < and > MCRS) were profiled for their vitality status and visible injuries. Of those, 290 sole were monitored on-board and at shore-based facilities for 14 days for any delayed mortality. Overall survival of sole below MCRS was estimated between 82 and 89% for fish caught on inshore grounds in ICES area VIId. EWG 17-03 concluded that the evidence provided is robust and underpins the existing (North Sea) exemption and also the proposed extension to include vessels of up to 221 kW power and those fishing at depths up to 30 m. Informed this evaluation, the exemption was awarded.

3. Sole survivability in the Irish otter trawl fishery (2019). Martin Oliver, Matthew McHugh, Shane Murphy, Cóilín Minto, Daragh Browne, Ronán Cosgrove. BIM Report, December 2019

STECF EWG 20-04 note that new survival evidence for < and > MCRS sole was provided from an empirical captivity study on an inshore otter trawl fishery in 7b (Oliver et al 2019). A census of 141 conventionally trawled-and-discarded sole catches were monitored in captivity for 8 days, alongside 19 sole from a benign treatment (30 min trawl). The study was done with one Irish otter trawler fishing with 80 mm cod end, and a 120-mm square-mesh panel in a single–rig configuration fishing for 4 days in late summer off the Irish West Coast.

Overall survival of conventionally trawled sole was estimated at 50%. Some mortality that occurred at day 8 of monitoring was excluded from the analyses. It was argued that these mortalities were unlikely to have been associated with the stressors of the catch and discard proves, but if included would have reduced the final survival estimate. An analysis of contributing factors associated with survival was not done. Overall, the method applied was robust, following a review using the ICES WKMEDS guidelines. It is noted here that the depth of fishing was deeper than for previous studies (28-70m), the vessel was larger (11.74 m), and tow duration longer tow duration 2-3 hours. If these variables have an influence on survival, they are more likely to reduce discard survival chances.

Conclusions

The UK request a geographical extension to an existing exemption for Common sole on the basis of existing and new scientific discard survival evidence. A conservative estimate of 50% discard survival is indicated from robust scientific studies. The exemption is requested for only the component of the fleet for which the evidence relates most closely to, and where discard survival is likely to be highest. The risk of introducing an exemption to the relevant Common sole stocks is negligible, with discards released under exemption equating to less than 0.1% of total catches by UK vessels.

Annex 1 STECF 17-08 evaluation of 7d sole survival exemption

6.2.3 High survivability exemption for common sole under MCRS caught by trawls with a mesh size of 80-89mm in ICES division IVc

Background

The 2017 JR proposes an exemption on the basis of high survivability for common sole caught by trawls with mesh size of 80-89 mm for ICES areas IV, and VIId. This exemption was first proposed in 2016 and the information provided on the fishery covered the North Sea and also for the English Channel. It was concluded that these were essentially the same fisheries and therefore combined the information from both JRs for its evaluation of the exemption request. In the 2017 request for this exemption, the scope has been extended to include fishing vessels of up to 221 kW power and those fishing at depths up to 30 meters. The main fishing gear to which this exemption shall apply are bottom otter trawls (EWG 16-10).

The basis for this exemption was a CEFAS study (Santos et al., 2016) on the survival of discarded sole in the English east coast inshore otter trawl fishery. The approach and methodology selected to assess the discard survival during the sampled trips was conducted according to ICES guidelines (ICES, 2014). Fish vitality scores were combined with the likelihood of survival for each vitality category. The study followed the same procedures as in recent CEFAS survival studies (Catchpole et al., 2015, and Smith et al., 2015). The estimated survival rate for all vitality categories of undersized sole was 51% after an observation period of 15 days. The extension models show 42-43% and 47-48% discards survival of undersized sole beyond the time period.

EWG 16-10 raised a number of concerns about the representativeness of the trials carried out. In particular they pointed to seasonality effects, the lack of proper controls in the study, the normal handling and sorting process on vessels participating in the fishery and the difficulty in extrapolate from this study to other areas and fisheries.

On this basis EWG 16-10 concluded that further research during the peak season in July-September and also in fishing depths, conditions, and fishing areas that meet those of the fishery for which the exemption is requested (the South East England inshore sole trawl fishery) would be desirable. Along with the currently provided study, provided a more complete picture of sole survivability caught in this fishery. EWG 16-06 considered it appropriate to await the outcome of the further research results so that new results can be considered by managers when deciding to grant the proposed high survivability exemption in this specific fishery.

Following the evaluation by STECF, the exemption was subsequently included under Article 5 of Regulation (EU) 2016/2250 on the condition that it would only apply to vessels with a maximum length of 10 meters, a maximum engine power of 180 kW, when fishing in waters with a depth of 15 meters or less and with limited tow durations of no more than 1:30 hours. In addition Member States were required to submit Commission additional scientific information supporting the exemption during 2017.

An assessment of the new information provided was completed by EWG 17-03. This included a descriptive assessment and the application of critical review questions which have been devised by the ICES Methods to Estimate Discard Survival Workshop (ICES WKMEDS) to assess the quality of discard survival studies (Annex 3).

Basis for the exemption
The justification is based largely on the previous study evaluated in 2016 and evidence from a detailed and well-replicated survival study carried out later in 2016 (Randall et al., 2017). In this study, carried out in ICES area VIId, catches of sole were monitored on-board a twin otter trawler (221 kW, 6.6 m in length fishing, 86 mm cod end mesh size) under representative, commercial conditions.

Sole were sampled on-board during two fishing days in July (7 hauls), 4 days in August (the peak season of the fishery; 14 hauls) and October (12 hauls). In total, 744 sole (both < and > MCRS) were profiled for their vitality status and visible injuries. Of those, 290 sole were monitored on-board and at shore-based facilities for 14 days for any delayed mortality. Overall survival of sole below MCRS was estimated between 82 and 89%. The results are summarised in table 6.2.3.1.

Table 6.2.3.1 Estimated overall survival rates for Sole caught with the inshore otter trawl. Table presents the weighted overall survival rate for each model, based on the catch vitality profiles, for the under minimum landing size sole (<24 cm) and all sole catches.

Species	SQA	Proportion at each vitality of catch	For the obs. period	Survival probability	Extension model 1 (ph)	Extension model 2 (Wei)
All catch	E	0.68	88%	88 (81-89)%	79%	79%
Sole	G	0.30				
	P	0.01				
	D	0.01				
<24 cm	E	0.74	89%	89 (69-96)%	82%	89%
	G	0.24				
	P	0.01				
	D	0.01				

Despite the seasonality in sampling, no effect on survival was observed. Sampling in August was confounded by the presence of seaweed forcing the skipper to haul the net after <20 min. Despite the warm water temperatures, shorter trawl duration may reduce capture stress on discarded fish. Although the sorting, sampling and handling procedures are described, at least average air exposure and handling times for the batches of fish are not detailed. Previous studies (e.g. Uhlmann et al., 2016) suggested that beam-trawled sole seem resilient to <30 min air exposure.

EWG 17-03 observations
EWG 17-03 recognises that the studies conducted by CEFAS provide valuable information on sole survivability in English East Coast Inshore otter fishery. These studies can be used as a methodological basis for further investigations including fishery with other types of fishing gears. Evidence has also been provided that for the additional experiment in VIId, no effect of seasonality was observed on survival between trips in August and October. EWG 17-03 notes that both studies were performed with a twin otter trawl (OTT), but the request for an exemption is expanded to a range of the otter trawl gears.

EWG 17-03 recommends listing technical, biological and environmental parameters aggregated across hauls per trip trip-level parameter estimates from the previous study in IVc to allow for comparisons of average catch volumes, and trawling speeds. This would be useful to allow an assessment of the representativeness of the experiments carried out. EWG 17-03 notes a more detailed description of the commercial handling and sorting procedures is provided, although it is not clearly stated for how long sampled fish have been exposed to air. Previous published studies suggest that sole seem to be robust to air exposure, so differences relating to handling times, may not affect survival.

EWG-17-03 notes that, although a detailed description of the UK and French fleets and fisheries involved, current catches and discard rates has been provided, it is unclear whether other fleets wish to avail of this exemption.

EWG 17-03 suggests that evaluating the relevance of factors contributing to the variability in survival estimates between the respective studies (51% vs 89%) may be useful. Generalized mixed effects logistic regression models or a survival analysis on a combined dataset could be used for this purpose. Exploratory Kaplan-Meier plots considering co-variates other than vitality status, such as trip length, season, temperature, and fish length, among others may indicate which factors are relevant in predicting survival. Figure 6.3.2.1 below shows such an analysis.

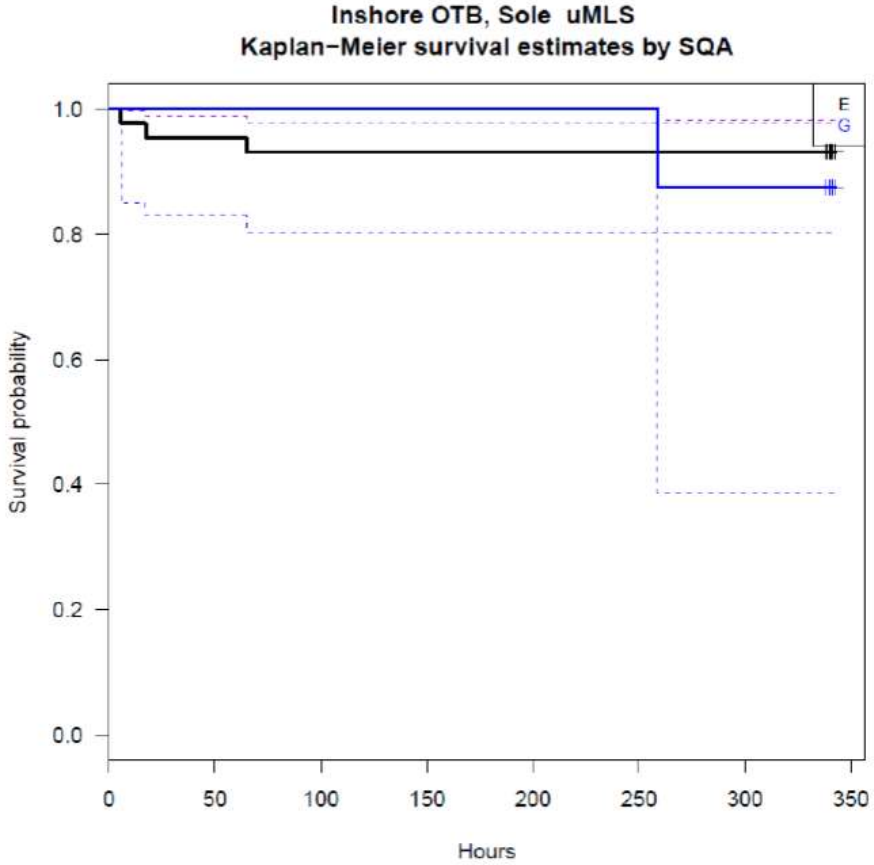


Figure 6.3.2.1 Kaplan-Meier estimates of survival are shown as solid lines and 95% pointwise confidence intervals as dashed lines for experimental sole below mcrs (<24cm) Note: The small crosses at the end and along the lines mark times when one or more surviving sole stopped being observed; the x-axis is the time from the beginning of the sort period until death or the end of the observation period. Curves were plotted by semi-quantitative vitality conditions class: E – Excellent (black line) and G – Good (blue line)

EWG 17-03 concludes that the evidence provided is robust and underpins the existing exemption and also the proposed extension to include vessels of up to 221 kW power and those fishing at depths up to 30 m. However, EWG 17-03 points outs that given the condition of the exemption to take effect outside of designated nursery areas, a clear description of where these nursery areas are and the fishing effort within and outside these areas is required. In this regard EWG 17-03 notes that at an earlier STECF plenary meeting (15-02), a working document by Vermard et al. 2014 provides detail on designated nursery areas of sole in VIId. It is estimated by Vermard et al. (2014) that around 1/3 of the catches are taken in these nurseries (average 2010-2012).

Annex 2 STECF 16-10 evaluation of 4c sole survival exemption

7.2.3.High survivability exemption for common sole under mcrs caught by trawls with a mesh size of 80-89mm in ICES division IVc

The basis for this exemption is a CEFAS study (Santos et al., 2016) on the survival of discarded sole in the English east coast inshore otter trawl fishery. EWG 16-06 notes this is a draft report.

The approach and methodology selected to assess the discard survival during the sampled trips was conducted according to ICES guidelines (ICES, 2014). Fish vitality scores are combined with the likelihood of survival for each vitality category. The study followed the same procedures as in recent CEFAS survival studies (Catchpole et al., 2015, and Smith et al., 2015). The estimated survival rate for all vitality categories of undersized sole was 51% after an observation period of 15 days. The extension models show 42-43% and 47-48% discards survival of undersized sole beyond the time period.

The study was undertaken in area IVc, rectangle 33F1, but the exemption was also requested for area VIId. Based on information provided to the EWG 16-06 it is expected that the fishing activity and marine conditions are similar in both areas but no evidence of this was provided in the study. EWG 16-06 suggests that a more detailed description of the English east coast inshore otter trawl fishery and the environment along the coast could be provided to allow easier extrapolation of the results of this study to the fishery can be made. It is not altogether clear whether the vessel used, the time of year when the study was conducted, and the study areas are entirely representative of the fishery.
The study was conducted with a vessel that operates out of Lowestoft. Considering the fishery and the presented operational area around the southeast coast, there are probably other harbours where this fishery is based. It would be informative to identify these ports and give the number of vessels from this metier per port. Also the number of trips that are executed during the fishing season and how many sole is caught on average per year in total and per vessel would be more informative to determine whether the vessel in the study is representative for the fishery.

The study was conducted in October and November. However, the fishing season is described as a period running from March to November with a peak in effort between July and September. Considering the seasonality around the Southeast coast it is expected that conditions (such as difference between water and air temperature) are significantly different and thus making it difficult to extrapolate the results from the study period to the whole fishing season.

EWG 16-06 notes that survivability may significantly differ between fishing seasons but cannot quantify that. From the other hand the South East England inshore common sole fishery described in the JR is expected to cause less stress to the fish caught, due to its fishing operations in shallower waters depths (10–15m, rather than 25m in the study), shorter tow times (typically 1:00–1:30 hours, rather than the described 1:30–2:00 hours in the study and the higher range of the 1:07-2:25 hours that is actually observed in the data adjoined to the study).

EWG 16-06 found it unclear what the common practice is in terms of handling and processing the catch on board of the fishery described in the study. During the sampled trips, landings and discards were sorted simultaneously and collected in baskets for vitality

assessments. It is not clear whether landings and discards are also sorted simultaneously as a common practice in the English east coast inshore otter trawl fishery. If this is not a common practice, then the survival rates resulting from this study can only be seen in light of the sorting process that was practiced during the survival study. Since the multinomial model in the study shows that maximum deck time is an important factor that affects survival rates it is important to clearly describe the common fishing practice and how it is related to the practice conducted during the study.

EWG 16-06 notes that no “real” controls were used in the study thus meaning that survival rates could have actually been higher than observed. The Kaplan-Meier plots show a slight decrease in survival probability towards the end. It is thus not clear whether the asymptotical probability of survival was reached after 15 days of monitoring. Without controls it is not possible to determine whether captivity affected the estimated discard survival rates of the sole kept in the tanks during the observation period.

EWG 16-06 concludes that further research during the peak season in July-September and also in fishing depths, conditions, and fishing areas (all sampled hauls were taken in area IVc, rectangle 33F1) that meet those of the fishery for which the exemption is requested (the South East England inshore sole trawl fishery) would be desirable. Along with the currently provided study, it will provide a more complete picture of sole survivability caught in this fishery. EWG 16-06 considers it appropriate to await the outcome of the further research results so that new results can be taken into account by managers when deciding to grant the proposed high survivability exemption in this specific fishery.

EWG 16-06 also notes that it is important not to extrapolate from this study to justify similar exemptions for sole by other fleets. This exemption is based around a specific inshore fishery and therefore any vessels that wish to avail of this exemption should ideally have similar characteristic in relation to size, engine power, gear used, operational parameters and catch volume per haul. Table 7.2.3.1 sets out the specifications of the typical vessel characteristics, gears used and operational parameters in this fishery based on the vessel used for the survival experiments.
Table 7.2.3.1 Typical vessel characteristics, gears used and operational parameters in the sole fishery.

Parameters	Specifications
Vessel length overall	9.82m
Engine power	179kW
Gear used	Single otter-trawl
Mesh size	80mm
Average haul duration	1:56hrs
Fishing depth	8.3 - 21m
Fishing speed	2-2.5 knots
Catch volume per haul	2.3 – 156.2kg
Average catch volume	79.37kg

Annex 3 STECF 20-04 evaluation of sole survival exemption for Common sole (Solea solea) in ICES division 7a, 7e, 7f and 7g caught with otter trawl gears (gear codes: OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX).

1. Exemption status
This is a request for a new exemption.

2. Survival evidence
New survival evidence for < and > MCRS sole was provided from an empirical captivity study on an inshore otter trawl fishery in 7b. A census of 141 conventionally trawled-and-discarded sole catches were monitored in captivity for 8 days, alongside 19 sole from a benign treatment (30 min trawl). The study was done with one Irish otter trawler fishing with 80 mm cod end, and a 120-mm square-mesh panel in a single–rig configuration fishing for 4 days in late summer off the Irish West Coast. Sole were retained from 4 conventional and 4 control deployments. None of the control fish died. Overall survival of conventionally trawled sole was estimated at 50%, which corresponded to earlier estimates from ICES 4c and 7d (Randall et al., 2016; Ribeiro Santos et al., 2016) for this species discarded from otter trawls. Some mortality that occurred at day 8 of monitoring was excluded from the analyses. It was argued that these mortalities were unlikely to have been associated with the stressors of the catch and discard proves, but if included would have reduced the final survival estimate. An analysis of contributing factors associated with survival was not done. Overall, the method applied was robust, following a review using the ICES WGMEDS guidelines and critical review criteria.

3. Fishery context
Additional information provided aggregated catches and discards of sole from otter-trawl fisheries in 7a, and 7f,g, alongside summaries of the ICES stock advice. In the Irish and Celtic Seas, between ~5% and 15% of sole catches were discarded (aggregated across all fleets based on ICES data in 2018). An Irish otter-trawl fishery for Nephrops in 7f,g recorded discard rates of sole of 44% (sole are a bycatch species and discarded due to a lack of quota). Catch and discard statistics by each member state would be needed to provide an appropriate context. BT2 fisheries generated 90% of the landings.

4. Survival and fishery compatibility
To place the fishing configuration and conditions of the study within the wider context of the fleets to which this exemption could apply to, more information would be needed, broken down by member states. Without an understanding of the contributing factors associated with survival, and a corresponding inventory of otter-trawl fishing activity with respect to prevailing key conditions (i.e. catch volumes, fishing depth, trawling and on-deck sorting times, and local weather data), it is not possible to evaluate whether it is sensible to assume that the 50% survival estimate is valid for other otter trawl gears and fishing operations. It is considered that evidence generated from a single study in an inshore fishery in 7b may not represent the sole discard survival from all otter trawl fisheries in 7a,e,f and g. EWG 20-04 note that equivalent evidence for other studies has supported exemptions that are limited to the fishing conditions under which the evidence was generated.

5. Additional evidence
The proposal extrapolates robust results from a single localized fishery to cover a large geographical area with insufficient information that the evidence is representative of the

wider area. Information on the operational and technical methods of fishing (e.g. seasonal patterns, haul duration and depth, trawl specifications, catch composition and sorting practices) compared with the studied fishery are needed. This will enable an assessment of the representativeness of the existing evidence for all potentially effected fleets. Also, analyses to understand factors influencing sole discard survival from existing studies would inform on the implications of extrapolating the current evidence.

For fisheries where sole is caught and discarded under different conditions to that of the studied fisheries, new directly observed discard survival evidence would provide the best means of a robust assessment.

18. Annex 6 - A presentation: UK SW beam trawl specifications 2020.

UK SW beam trawl specifications 2020

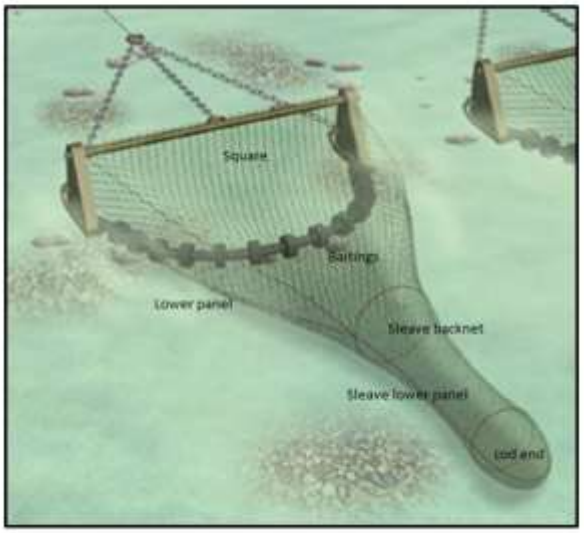
Industry data compiled by T Catchpole, Cefas, October 2020

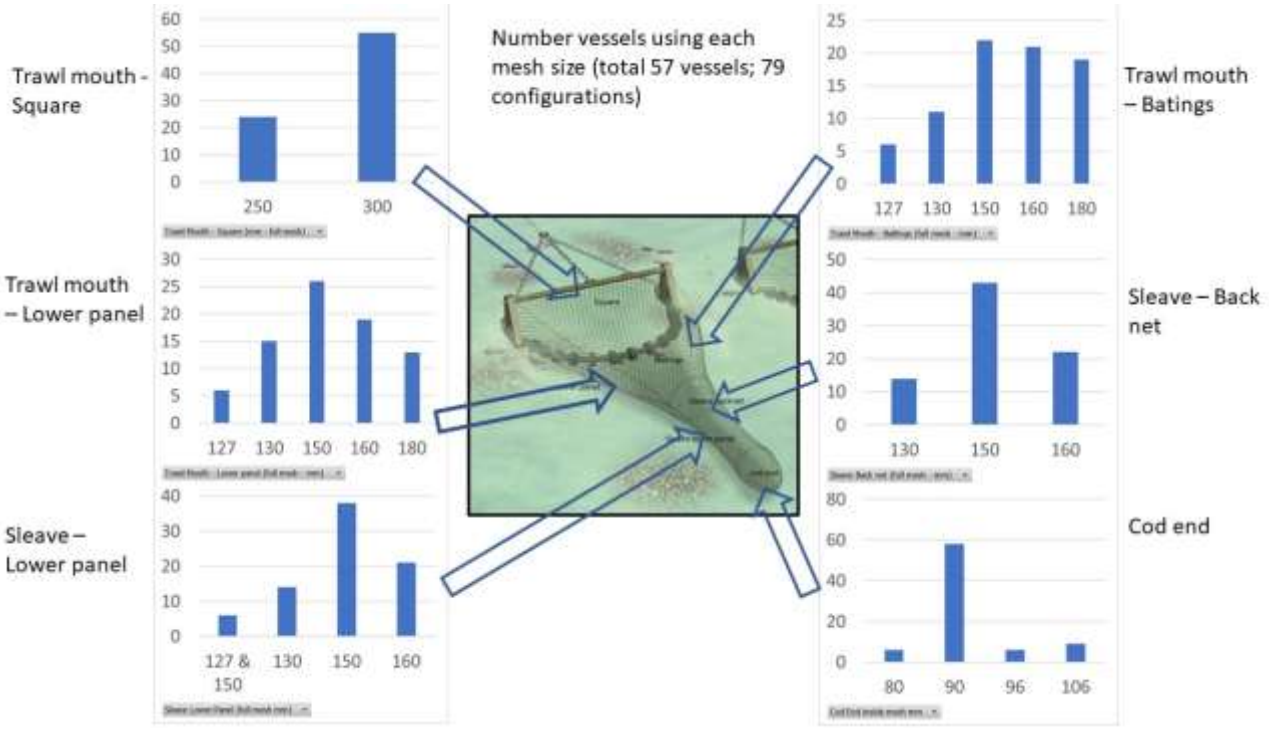
Responses included data on 57 vessels and 79 beam trawl configurations (thank you!)

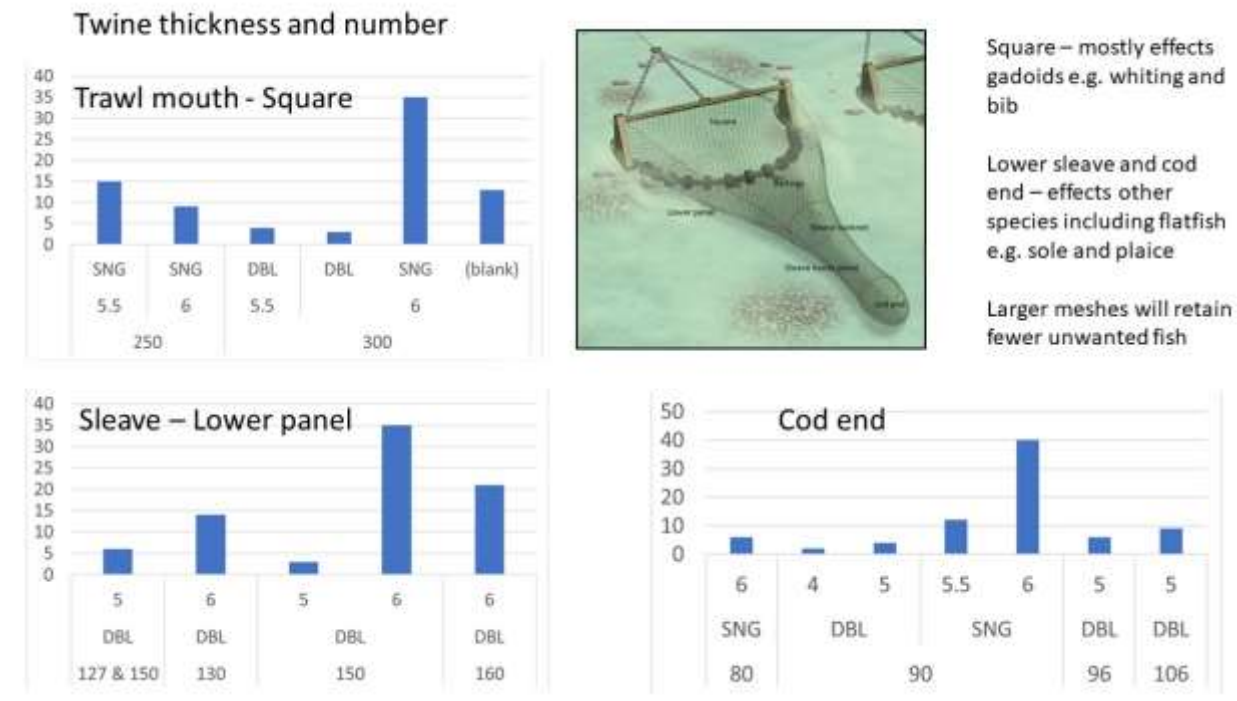
Port	Boats
BRIXHAM	30
FALMOUTH	1
MEVAGISSEY	1
NEWLYN	11
PENZANCE	3
PLYMOUTH	6
POLPERRO	1
SCOTLAND	1
SHOREHAM	3

6 sections of the trawl:

- mesh size
- twine thickness
- number of twines




Trawl mouth - Square
Number vessels using each mesh size (total 57 vessels; 79 configurations)
Trawl mouth – Batings
Trawl mouth – Lower panel
Sleave – Back net
Sleave – Lower panel
Cod end
250
300
127
130
150
160
180
127 & 150
80
90
96
106


Twine thickness and number
Trawl mouth - Square
SNG
SNG
DBL
DBL
SNG
(blank)
5.5
6
5.5
6
250
300
Square – mostly effects gadoids e.g. whiting and bib
Lower sleave and cod end – effects other species including flatfish e.g. sole and plaice
Larger meshes will retain fewer unwanted fish
Sleave – Lower panel
5
6
5
6
6
DBL
DBL
DBL
DBL
127 & 150
130
150
160
Cod end
6
4
5
5.5
6
5
5
SNG
DBL
SNG
DBL
DBL
80
90
96
106

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Pakefield Road, Lowestoft, Suffolk, NUMBER33 0HT

The Nothe, Barrack Road, Weymouth DT4 8UB

www.cefas.co.uk | +44 (0) 1502 562244