

Marine Scotland Science

An assessment of the *de minimis* exemption in
the CFP discarding regulation for Scottish fleets



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CFP reform discarding regulation: the *de minimis* exemption

An assessment of *de minimis* for Scottish fleets

Introduction

The EC's new regulation on discarding has introduced new challenges to Member States. The *de minimis* exemption invites economic analysis to justify applicability. In summary, the *de minimis* exemption (Article 15 paragraph 3(c)) allows for discards of up to 5% (7% in years 1 and 2) of "total annual catches of all species" where either selectivity is deemed "very difficult" or there are "disproportionate costs of handling unwanted catches". It's widely agreed that the purpose of *de minimis* is to assist in balancing the catch.

Costs are disproportionate if they exceed the monetised benefits of achieving the policy condition or if they exceed benefits by a certain "safety margin". However, the fact that little to no revenue is achieved from the designated "unwanted" catch means that all costs associated with landing an "unwanted" species are essentially disproportionate.

This project assesses the potential implementation of the *de minimis* exemption in Scotland.

Methods

1. Evaluation of the policy as well as similar policy
2. Analysis of activity and performance of Scottish fleets in recent years
3. Assessment of technical criteria to enable implementation of *de minimis*
4. Economic modelling of potential scenarios to inform how the fleets could benefit from *de minimis* and the impact it could have on Scottish fleets

Results

To assess the applicability of *de minimis* to a fleet, operational inclusion criteria have been identified, allowing for an assessment of whether a vessel/fleet is immediately applicable to apply for *de minimis*. This test is based on a percentage of catch made by a vessel, group of vessels or a fleet against total catch of the vessel(s)/fleet or against total quota. That is:

Is the catch of a stock (i.e. stated species in stated area) by a fleet less than 10% of all catch in the Area (e.g. IV or VI) by that fleet OR is the catch of the fleet less than 10% of total UK quota?

This provides for a cross check between fleets and stocks. With both tests complementing each other they indicate metiers where fleets take a low proportion of the stock and where the contribution of that stock to the fleet is low. At this level, catch composition and disproportionate costs are implicitly included.

The dimensions for evaluation of whether *de minimis* is applicable is suggested at the metier level, that is by fleet using a specific gear, fishing in a certain area for given species. The stocks applicable for *de minimis* exemption are naturally those where quota regulation applies as they are biologically assessed on an annual basis.

The question of how much of a given stock is allowable under *de minimis* depends on the status of the stock and how much unwanted catch is caught by vessels applying for this exemption. It is important for biologists and policy makers to understand the impact that discarding currently has and will have in the near future on stocks.

De minimis in combination with other exemptions could well keep Scottish fleets fishing and maintaining economic viability.

Conclusions

- An economic evaluation of *de minimis* is an important step in European regulation. It should be used with technical criteria and non-monetary data to make the case for use of *de minimis*, e.g. with the inclusion criteria investigated.
- Overall, the models indicate that *de minimis* can be applied operationally at the fleet level and could help to keep Scottish fleets fishing at close to current levels.
- The allocation of *de minimis* to fleet then needs to be considered in the light of biological advice to establish the amount allowed.

For further information Please contact the Marine Analytical Unit at Marine Scotland.

Disclaimer This one page summary is based on a report prepared for Marine Scotland. Views expressed and conclusions drawn are those of the author and not Marine Scotland and in no way pre-empt future policy in this area.

An assessment of the *de minimis* exemption in the CFP discarding regulation for Scottish fleets

Report for Marine Scotland

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This report was prepared by Simon Mardle for the Marine Analytical Unit at Marine Scotland. Note that the views expressed in this report are those of the author and not of Marine Scotland and in no way pre-empt future policy in this area.

Executive Summary

The EU's new regulation on discarding has introduced new challenges to Member States. For the most part these continue to be governed by quantitative non-economic measures, e.g. quotas. However, the *de minimis* exemption invites economic considerations to justify applicability. In summary, the *de minimis* exemption (Article 15 paragraph 3(c)) allows for discards of up to 5% (7% in years 1 and 2; 6% in years 3 and 4) of "total annual catches of all species" where either selectivity is deemed "very difficult" or there are "disproportionate costs of handling unwanted catches". It's widely agreed that the purpose of *de minimis* is to assist in "balancing" the catch (e.g. STECF 2014).

This new approach for policy requires that economic considerations are used to evaluate this trade-off. Disproportionate costs are directly related to cost-benefit analysis. That is, costs are disproportionate if they exceed the monetised benefits of achieving the discard ban or if they exceed benefits by a certain "safety margin". In addition to the comparison of costs and benefits, the distribution of costs among the affected parties, and the difference between affected parties also needs to be taken into account in the decision-making process.

Two underlying questions that this work will investigate include:

- at what level the exemption might be evaluated (i.e. fleets and stocks), and
- at which fleets the exemption can be targeted to help.

To assist in determining the outcomes, the options identified are evaluated using scenarios for key Scottish fleets; pelagic fleet, North Sea and West of Scotland TR1 and TR2 fleets.

Observations

- *De minimis* is not designed to be applied to situations that negatively affect the long term status of stocks, which is in the interest of fleets. Issue (ii) of Para 3c states that unwanted catches of stocks applicable to this exemption should not exceed a certain percentage per fishing gear.
- Catch designated *de minimis* would be unwanted and discarded at sea, so no revenue could be directly gained from discarded species however *de minimis* could allow the fleet to continue to access other species for which they still have quota.
- Even though *de minimis* is a balancing tool, conditions of *de minimis* need to be known to fleets before and not after the event as *de minimis* catch is discarded at sea.

- The evaluation of *de minimis* needs to consider the option to use *de minimis* vs the option to land the catch. This requires costs of handling unwanted catch to be taken into account:
- Traditionally vessels target species for which they have quota (e.g. based on fixed quota allocations, FQAs). However, the relative applicability of *de minimis* across fleets must be judged on all species, not necessarily those where a fleet has quota. For Scottish fleets therefore, the basis for allocation may not follow FQAs. *De minimis* is there to provide better balance.

Implementation

Practically, the allocation has to be done before and not after the event – e.g. pre-allocated to POs, similarly to quota. It is likely therefore that POs would then have direct input into which vessels receive exemption. It is worth noting that gaming issues are thought to be minimal if guidelines can be clearly specified. Alternately *de minimis* allocations could be held centrally and managed by Marine Scotland if it was felt this would provide more effective use of *de minimis*.

Even if the unwanted catch is sent for fishmeal, the value received is unlikely to be offset by the costs of sorting, recording, storing (at the potential expense of wanted catch), landing and transporting the unwanted catch. Any catch sent for fishmeal will be below market value for consumer bound fish. If the unwanted catch is not sent for fishmeal then no financial benefit will be gained. Therefore, as argued by STECF (2014) it is reasonable to assume that all costs relating to the unwanted catch are disproportionate.

To measure whether a vessel/fleet is eligible for *de minimis*, a technical criterion can be established to ensure that unwanted catch is identified correctly. Priority for *de minimis* should be to stocks and fleets where quota is not readily available. For example, the TR1 fleet indicates very low landings of pelagic species¹ and could apply for *de minimis* exemption when catching herring and mackerel over their assigned quota. Similarly, for pelagic trawlers catching whitefish.

The main operational test therefore would be based on a percentage of catch made by a vessel, group of vessels or a fleet against total catch of the vessel(s)/fleet or against total quota. A test with a percentage of 10% is applied (note 10% is used as an example):

¹The landings reported in logbooks of pelagic species by TR1 vessels (i.e. vessels predominantly using TR1 gear) comprises less than 1% of the value of landings of the fleet.

***De minimis* inclusion criteria:**

Is the catch of a stock (i.e. stated species in stated area) by a fleet less than 10% of all catch in the Area (e.g. IV or VI) by that fleet OR is the catch of the fleet less than 10% of total UK quota?

This test is designed to cross-check fleets and stocks to,

- establish the importance of a given stock to a fleet, and
- establish the impact that a fleet has on a stock.

Related tests of assessing if quota is available to land a species from an area and ensuring that a stock remains within safe biological limits are tests that should be applied through the discard plan or management plan at the allocation stage of *de minimis*.

Discussion

It is a requirement of the regulation that use of *de minimis* is properly recorded. This suggests that *de minimis* even where it is allocated will be limited and will be included in ICES annual management advice, and will influence TACs.

Though considered a “balancing” tool to keep vessel fishing under the constraints of the discarding regulation, its ability to do so must be set against the likely impact its use will have on TACs. Therefore, prioritisation of who will be allowed to access a *de minimis* allocation becomes a key consideration. This is particular challenge is for multi-species fisheries where quota allocations have not necessarily in the past reflected catch composition. In future they will likely converge more closely over time, helping to drive changing behaviour in the industry.

Defining clear objective criteria will ensure a transparent and impartial decision making process. It is hoped that this highlights the usefulness of such approaches and reduces reservations towards the use of economics in this area.

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Introduction

The new ‘basic’ regulation of the Common Fisheries Policy (1380/2013), for the first time in EU waters, introduces an obligation to land all catches and for them to be counted against quotas.

As an exception, *de minimis* (Article 15 paragraph 3(c)) allows for discards of up to 5%² (7% in years 1 and 2; 6% in years 3 and 4) of “total annual catches of all species” where either selectivity is deemed “very difficult” or there are “disproportionate costs of handling unwanted catches”.³

The application of this rule is a new approach in fisheries policy. Theoretically, costs are disproportionate if they exceed the monetised benefits of achieving the discard ban or if they exceed benefits by a certain “safety margin”. However, in practice, this can be shown for catch that is “unwanted” across a period of time, for example several months or a year. Considering this at a trip level would increase the complexity of implementation as the short term behaviours of fishermen could influence the determination of species that for the most part add little to no economic value to a vessel’s catch. Therefore, as argued by the STECF working group on landing obligations, the fact that little to no revenue is achieved from the designated “unwanted” catch means that all costs associated with landing an “unwanted” species are disproportionate. This is evident by considering the net benefit a vessel gains for each species, proportioning out costs based on landed weight.

This project has been commissioned to assess the options available to policy makers regarding the potential implementation of the *de minimis* exemption in Scotland.

Aims

The expected outcomes of this work are to define what constitutes a disproportionate cost providing guidelines which help to identify a disproportionate cost and to provide guidelines to help calculate that cost. A methodological approach has been taken in order to provide consistent policy guidelines for the application of the *de minimis* exemption.

²Note that proposals have been put forward to increase the basic percentage (e.g. the Omnibus proposal at 10%)

³“Unwanted” catches at a vessel level here mainly refers to catch where quota is not available, although it refers to any catch that adds little to no value to a vessel and would likely be discarded in the current regime.

Several observations can be made about *de minimis*:

- *De minimis* is not designed to be unlimited. Article 15 (5)(c) limits the total *de minimis* available to 'only 5% of total annual catches' and Article 15(5)(c)(ii) places a further condition where unwanted catches of stocks applicable to this exemption should not exceed a certain percentage per fishing gear.
- Catch designated *de minimis* would be unwanted and discarded at sea, so no revenue could be directly gained from discarded species however *de minimis* may enable the fleet to continue to access other quotas.
- To be useful, conditions of *de minimis* need to be known to fleets before they sail as *de minimis* catch is discarded at sea.
- The evaluation of *de minimis* needs to consider the option to use *de minimis* Vs the option to land the catch.
- Traditionally vessels target species for which they have quota (e.g. based on fixed quota allocations, FQAs). However, the relative applicability of *de minimis* across fleets must be judged on all species, not necessarily those where a fleet has quota. For Scottish fleets therefore, the basis for allocation may not follow FQAs.

Discarding

Discarding, of bycatch, or unwanted catch, is commonplace in multi-species fisheries. Currently, vessels are legally obliged to discard fish for which they lack either a permit or quota. As a result, the Common Fisheries Policy recognises that discarded fish do not count towards a fisherman's quota. The impact of discarding varies by gear and species: some have low survivability when discarded (e.g. cod, haddock etc) whereas others may have higher survival rates (e.g. sharks or crustaceans, such as Nephrops). From an economic point of view, discards add no value to a vessel's income, but because of the difficulties in multi-species selectivity discards enable the use of quota allocated to a vessel to be maximised.

Currently, discarding happens for several reasons⁴:

- lack of quota,
- fish that are below the legal minimum landing size,
- catch composition rules, limiting the percentage of a species within the catch
- to retain only the most valuable fish in order to maximise the value of quota (high grading), or
- species for which there is no or low market value.

⁴ All but the fourth and fifth are legal requirements. Note also that this list is not necessarily exhaustive.

The reformed Common Fisheries Policy (CFP) will change this. From 2015 to 2019 in a phased approach, it will become mandatory for fishermen to land all catch caught. Pelagic fisheries will start with a discard ban in 2015, demersal fisheries in 2016 and across all TAC species by 2019. This will affect the fishing operation significantly and is considered by many to be the greatest change in fisheries management in Europe since the initialisation of the CFP in 1983 and possibly before that.

In general, there are three possible means of bycatch reduction:

- modifying fishing methods including gear, timing or location of fishing or other aspects of the methodology, such as the introduction of bycatch reduction devices
- changing fishing gear or fishing methods entirely, e.g. the change from trawls to traps
- reducing fishing effort and therefore the amount of fishing gear in use overall

Any one of these methods alone does not necessarily guarantee the reduction of bycatch, but one or more must be a component of any conservation program to reduce the loss of resources due to bycatch. Better aligned catch composition to the quota system would reduce unwanted catch but in a management system built on relative stability with variable stock dynamics this is difficult to attain.

The discarding ban promotes the premise that as soon as a vessel has caught its quota (or landing limit) of a particular species it must stop fishing. This means that a vessel must stop fishing as soon as one of its permitted species goes beyond its quota. Therefore, fishermen will not be able to catch fish where they have remaining quota for the likelihood of catching a species already at their limit. One option open to fishermen in this case includes purchasing (or leasing) additional quota. However, the new CFP discard regulation does not distinguish between a vessel's main species (for which they often have quota) and the vessel's other species (for which they don't have quota). Therefore if a vessel has minimal or no quota for a species then that species, sometimes referred to a 'choke' species, if caught will prevent the vessel fishing.

In addition, landing all catch will change the market for quota dramatically as vessels from different fleets and using different technology will be chasing the same quota. In past years, it can be observed in some instances that fishermen will pay up to the same price for a tonne of quota for a given species (e.g. cod) as they will obtain when landing that same tonne. When the discard regulation becomes a reality, this will undoubtedly be amplified as it may make financial sense for a fisherman to pay more than the landed value of a quota if it allows him to continue fishing for those species where he still has quota.

The regulators are aware of this and have as a result also introduced a number of exemptions to the discard regulation, including the *de minimis* exemption. The *de minimis* exemption appears⁵ to be specifically designed to deal with the above example, allowing vessels to catch more of an unwanted species (including some 'choke' species) to enable continuation of fishing for a time.⁶

The magnitude of this change regarding the impact of discards to fishermen⁷, will be significant as quota will equal catch rather than landings (i.e. catch minus discards).

For species that are targeted by a vessel where it has a good allocation of quota, discards will be minimal (if not zero), however for species where this is not the case and other exemptions do not apply (e.g. based on high survivability) then two options are available:

- landed and sold (where quota is found via leasing or transfer), or
- discarded at sea as *de minimis*.

TACs will continue to be set in line with MSY objectives and it is expected, where there is high confidence that there is no discarding, that TACs will increase relative to a business-as-usual baseline to include the amount of fish ICES currently estimates are discarded. However, the industry does not believe that current ICES estimates take full account of the current level of discards.

The Scottish Government has already taken a number of steps to reduce discarding in the Scottish fleet by promoting behavioural change through Conservation Credits, for example:

- using more selective fishing nets and other gear;
- observing temporary closures, or seasonal closures;
- CCTV scheme and observer programmes to monitor vessels on agreed trials;

⁵The use of the word 'appears' in this sentence will not be a surprise to many readers as the exemptions in regulation are written simply and offer no guidance as to actual interpretation.

⁶ The requirements for fish under the minimum conservation reference size will be determined by agreed policy, e.g. fish meal, and are not specifically considered in this report.

⁷Note that fishermen cannot benefit financially from the sale of discards in either the 'old world' or the 'new world'.

The discard regulation and the *de minimis* exemption

In order to cater for unwanted catches that cannot be avoided even when all measures for their reduction are applied, certain *de minimis* exemptions can be established for the fisheries concerned under Article 15(5)(c)t:

“provisions for de minimis exemptions of up to 5% of total annual catches of all species subject to an obligation to land as set out in paragraph 1.

The de minimis exemption shall apply in the following situations:

- i) where scientific evidence indicates that increases in selectivity are very difficult to achieve; or*
- ii) to avoid disproportionate costs of handling unwanted catches, for those fishing gears where unwanted catches per fishing gear do not represent more than a certain percentage, to be established in the plan, of total annual catch of that gear.*

Catches under this provision shall not be counted against the relevant quotas, however, all such catches shall be fully recorded.”

The regulation itself does not provide any guidance on this, but leaves it to the Member States to substantiate the concept.⁸ It is clear however that economic considerations are invited to justify activity. Several observations regarding the interpretation of the above can be made:

Observation	Comment
Paragraph 3(c) states that the 5% <i>de minimis</i> allowed is measured against “total annual catches of all species”. This could be interpreted in a number of ways. .	<ul style="list-style-type: none"> • Quota is managed at the stock level. For example, scientists identify discrete stocks of specific species where the population can be measured and it is on this basis that quota is determined yearly. • To maintain stock integrity suggests that proportionality within and across quotas are maintained. If this was not the case then some stocks could be severely impacted. Of course this impact would still be known as there is a responsibility of the exemption to fully record all catches.
Mobile gear (i.e. nets) are typically used in multi-	<ul style="list-style-type: none"> • It is clear that advice regarding suitability of different mesh sizes is taken into account when defining minimum

⁸An STECF working group on landing obligations has been established to consider this exemption with others in the new regulation.

<p>species fisheries and are most relevant to discards. Gear technology with regard to nets is a highly developed field.</p>	<p>mesh sizes. This can be seen in different regulation applied for the main nets and the cod ends, e.g. whitefish to Nephrops to flatfish to pelagic.</p> <ul style="list-style-type: none"> • As a result, if voluntarily an increase in gear from the current regulation is taken then this would mean that increases in selectivity are difficult to achieve.
<p>Disproportionate costs of handling unwanted catches are on the surface difficult to define.</p>	<ul style="list-style-type: none"> • Unwanted catch for fishmeal would likely gain less than market value. Costs proportioned to unwanted catch would be similar to catch landed at market value. • Handling of unwanted catches implies that landing would invoke a net cost (including sorting, recording, transporting etc). • Measuring the net cost of handling unwanted catches might also include taking account of lost revenue that may result from not being able to make full use of quotas.
<p>The “certain percentage” referred to in the <i>de minimis</i> exemption paragraph requires guidance from fisheries scientists.</p>	<ul style="list-style-type: none"> • Any percentage could be acceptable but given the general aims of the reformed CFP the main objective is likely to be minimisation of discarding per fishing gear where the minimisation is constrained at an agreed and accepted level using current levels of estimated discarding as the basis for setting the level. • For example, 5% might be the level in one case but in another it might be 80%. On formulation of the regional management plan, this will likely be agreed for each “unwanted” stock by main gear type. • It should be kept in mind that if the discard percentages quoted are generally based on volume caught and not in relation to then the additional mortality placed on the stock through the application of <i>de minimis</i> should be considered in relation o the health of the stock.
<p>Issue (ii) of Paragraph 3(c) states that unwanted catches of stocks applicable to this exemption should not exceed a certain percentage per fishing gear.</p>	<ul style="list-style-type: none"> • This implies that there should be a third qualifying criteria in addition to selectivity and disproportionate costs, where only a fleet catching a <i>de minimis</i> level of the stock should be allowed to access a <i>de minimis</i> exemption. • This would indicate that the main management of the regulation should be at the fleet level, where fleet is defined by the dimensions of country, main gear and area fished.

In practice, there are several practical observations regarding the interpretation of the *de minimis* exemption that can be made.⁹ Principally, the aim of the exemption should be to keep fleets fishing, acknowledging catch composition in multi-species fisheries.¹⁰ The incentive to improve behaviour with regard to maximising selectivity is a bonus that both supports the regulation and fisheries. The number of choices for how to interpret and implement the *de minimis* exemption is many and varied. However, *de minimis* is analogous to a safety valve to allow discarding under certain conditions.

The first applicable 'situation' of the *de minimis* exemption is where "increases in selectivity are very difficult". For many Scottish fleets the minimum mesh-size used by many vessels is specified. Increasing the mesh size beyond the minimum may increase selectivity, but may also result in lower catches of the target species. As the vessel must remain economically viable in order to continue fishing significant reductions in target species associated with an increase in mesh size make improving selectivity very difficult. Of course it is technically possible to improve selectivity to some degree to meet targets, however an assessment of economic viability under those conditions must be considered. Other measures to increase selectivity include spatial and temporal measures, as well as the design of gear (e.g. escape panels).

The second applicable 'situation' of the *de minimis* exemption is where there are "disproportionate costs of handling unwanted catches". The statement in this second situation states that this exemption can apply where "unwanted catches per fishing gear do not represent more than a certain percentage". This might imply that only fleets with low levels of unwanted catch of a given species can apply for *de minimis* exemption. It is unclear what this percentage might be and how the "fishing gear" that makes up the denominator for this percentage is defined. It is left for this to be agreed in the regional management plan. However, if it is interpreted that "a certain percentage" means low then could this be 20% or 50% subject to supporting evidence of catch that cannot be avoided. What does constitute small or large discards where such a percentage is measured on unwanted catch and not on wanted catch or on stock status. It is clear that guidance regarding acceptable levels must be advised by Scientists and agreed by policy makers. It is also clear that the volume of fish discarded versus level of stock biomass is a key consideration in this process. Furthermore, considerations regarding undersized or small fish and unavailable or difficult to catch fish should be taken into account.

⁹Note that discarding by definition takes place at sea. If catch is landed then this cannot be discarding as inferred by the regulation.

¹⁰Complexities such as the identification of species (i.e. from catch to sorting to recording to discarding) are not considered in this report, making the assumption of full enforcement.

With these two situations in mind, the level at which the policy operates must be defined. It is the big picture that matters, as allocation can happen in many ways, i.e. that the 7%-5% *de minimis* is not exceeded at a national level, but clearly this is built upon the activity of vessels. It can be recognised that there is scope for variability in the percentage allowed by fleet (e.g. 10% *de minimis* for one fleet and 1% for another). That is the regional group's responsibility in defining the management plan. However, it is also clear that there is only so much *de minimis* that can be moved around.¹¹

This issue relates closely with 'quota flexibility' in the discard regulation which enables the potential movement of mainspecies quota to other species quota. Although this issue is not directly addressed in this study, it is worth noting that as a result the mortality on choke species could be impacted. It is possible that under the new rules, mainspecies quota will not be able to be fully caught as choke species dominate whether the fishery is open and for the better management of the stock regional coordination is advised.

With this in mind, there are two key issues to confirm:

- What fishing conditions (i.e. fleet, main gear used and area fished) are species considered applicable for *de minimis* exemption?
- How the 5% *de minimis* is allocated to fleets identified as eligible?

In line with scientific assessment and management, *de minimis* would be most easily aggregated up from the level of single stocks. The stock defines the area so it is therefore the activity of fleets with gear used that are required to be assessed for *de minimis* exemption.

The economic inference in Paragraph 3(c) regarding disproportionate costs could imply that some benefit might accrue from *de minimis* catch. It is generally considered that *de minimis* catch is returned directly to the sea. The benefit comes about through the effect of *de minimis* allowing more of an unwanted species (5-7%) to be caught enabling more of the allocated quota of main quotaspecies to be realised.

Therefore the cost to the fishermen could be described as the total additional benefit that a vessel obtains from being allowed to discard through *de minimis*.

¹¹This study does not consider the relationship between movement of quota between fleets and species.

Allocation of *de minimis*

The allocation of *de minimis* across fleets is difficult. Traditionally quota is allocated based on targeted species only and as *de minimis* is as applicable to non-target species the relative eligibility of fleets for *de minimis* must be judged. Therefore an operational approach that minimises the need to prioritise between fleets is required to ensure a fair deal is obtained.

Practically, the allocation has to be done before and not after the event – e.g. pre-allocated to POs. It is likely therefore that POs would then have direct input into which vessels receive exemption. It is worth noting that gaming issues are thought to be minimal if guidelines can be clearly specified. Alternately, *de minimis* allocations could be managed centrally by Marine Scotland if it was felt this would enable more effective use of the facility.

It is worth noting that with the implementation of the discard regulation, leasing costs will be in flux as the market for quota will diversify from those who target species to make a living to include those who predominantly target other species so that they can maximise the benefits of allocated quota. As a result, it's likely that in the early stages of the regulation quota will be held resulting in decreased liquidity with consequent upward pressure on prices.

If quota is exceeded then the same action as now is most likely, from bottom up:

- If vessel exceeds quota then it answers to the PO
- If PO exceeds quota then it answers to the UK
- If UK exceeds quota then it answers to the EC
- If over quota is less than 5% then straight reduction next year
- If over quota is >5% then 1.1*quota next year

Regulation and economics

The implementation of disproportionate costs within a policy framework is a new approach. The only other policy area that has initiated such an approach is the water framework directive (WFD) where some aspects of disproportionate costs are incorporated to improve the behaviour of actors with regard to the policy. It follows the same idea of accepting (in cases that are disproportionately costly) the complexity of achieving the environmental objectives and allowing some small degree of flexibility as a result. Of course such flexibility is subject to conditions of fairness and appropriateness (e.g. they cannot make the situation knowingly worse), but ultimately direct activity to the aims of the policy. In a new approach for policy,

economic considerations can not only be used to evaluate this trade-off but are required.

The typical approach in economic analysis for assessing an issue like unwanted catch is:

- to establish inclusion criteria, allowing for an assessment of whether a vessel/fleet is immediately eligible to apply for *de minimis*; and/or
- to undertake economic impact assessment for groups of similarly operating vessels at fleet (or sub-fleet) and area level.

It is the first step that defines a practical and operational approach to identify the species/stocks that vessels that can apply for *de minimis*. The second step helps to understand the impact of the proposed approach on a fleet. An approximation to this could be to use an assessment of revenue achieved (or estimated) Vs break even revenue taking into account the minimum income that a vessel must obtain to covers all costs resulting in zero profit.¹²

The criteria for inclusion are expanded upon in Figure 1 and includes non-economic criteria as well as economic criteria. It should be noted that an operational implementation should follow rules specified in step 1 which would allow the identification of vessels/fleets and associated species eligible for *de minimis*. The disproportionality of costs would be a natural consequence of these criteria being fulfilled.

Figure 1. Inclusion criteria for *de minimis* (fishing gear, species and area)

<p>Inclusion criteria</p> <ul style="list-style-type: none"> • Species is not part (or within acceptable level) of expected catch composition • Species does not have a local market • Fishmeal plant location is outside acceptable distance • Quota cannot be realised due to unwanted catch (i.e. uptake << 100% of quota) • Unused quota is not available for re-allocation* • Gear used (i.e. selectivity) is above minimum regulation • There is no risk of activity this year reducing activity next year • Other indications of disproportionality or lost opportunities • Cost effectiveness of fishing with unwanted catch << expected • Catch composition has changed dramatically due to unforeseen increases / decreases in certain stocks (e.g. hake) 	<p><i>De minimis</i> exemption may be acceptable if these conditions are met at the allocation stage</p> <p>IF...</p> <p>Vessels are not being constrained by quota and days at sea</p> <p>AND...</p> <p>The impact on given stocks is within agreed biological limits</p>
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*Availability of quota for purchase in this context is an operational decision and is not included here as a criteria as it cannot be pre-assessed.

¹²The STECF working group on landing obligations has suggested this as a preferred approach for impact assessment if required.

Implementation of *de minimis*

In recent years, trials of catch-quota management in the North Sea have been undertaken in Scotland and the rest of the UK. This has been a voluntary scheme designed to inform and lead towards the implementation of the CFP Reform discard regulation. The main features for vessels participating in the scheme and fishing in the North Sea are that:

- a) all caught fish are recorded;
- b) all species specified in the scheme caught shall be landed and count against quota;
- c) all participating vessels are exempted from effort controls; and
- d) if a vessel's quota for species specified in the scheme is reached it must stop fishing.

The framework that *de minimis* must fit into is likely to be based on such an approach, even if not exactly the same.

For a vessel to be allocated *de minimis*, as already discussed, several conditions must be satisfied, in particular ensuring in the management plan that stocks outside or close to being outside safe biological limits have clearly defined limits of acceptable bycatch. This must be done in collaboration with stock assessment scientists. In addition, other conditions that could be considered in an application *de minimis* include activity, market and economic based conditions.

As discussed, unwanted catch adds little to no economic value to a vessel's income. Even if the unwanted catch is sent for fishmeal, the value received is unlikely to be offset by the costs of sorting, recording, storing (at the potential expense of wanted catch), landing and transporting the unwanted catch. Any catch sent for fishmeal will be below market value for consumer bound fish. Therefore, all costs relating to the unwanted catch are disproportionate compared to wanted catch.¹³ In the current situation, the cost of unwanted catch is subsumed within the landings as a whole. However, if the landing obligation limits landings to a level lower than quota allocated then the cost of the unwanted catch becomes an explicit cost (see STECF reports on landing obligation exemptions)

For example, simplistically in the new transparent conditions a vessel receives income for its allowable catch but no income for non-allowable catch, but costs of crew and handling relate equally to allowed and non-allowed catch. The net profit from the unwanted catch element will always be negative unless quota can be

¹³Disproportionate does not necessarily have to result in a loss but it is likely that unwanted catch sent for fishmeal will not result in a vessel obtaining a profit from that catch. Note that data is not readily available to prove this categorically.

obtained enabling landing and an income greater than costs. It can therefore be argued that there is an immediate case for disproportionality with regard to unwanted catch.

To measure whether a vessel / fleet is eligible for *de minimis* a technical criterion should be developed to ensure *de minimis* eligible unwanted catch is identified correctly. Priority for *de minimis* should be to stocks and fleets where quota is not readily available. For example, the TR1 fleet indicates very low landings of pelagic species¹⁴ and could apply for *de minimis* exemption when catching herring and mackerel over their assigned quota. Similarly, for pelagic trawlers catching whitefish.

The main operational test therefore would be based on a percentage of catch made by a fleet against total catch of the fleet or against total quota. The following test results with a percentage of 10% applied¹⁵:

***De minimis* inclusion criteria:**

Is the catch of a stock (i.e. stated species in stated area) by a fleet less than 10% of all catch in the Area (e.g. IV or VI) by that fleet OR is the catch of the fleet less than 10% of total UK quota?¹⁶

This test is designed to cross-check fleets and stocks:

CHECK 1: Calculate the percentage of each fleet's catch of a stock against the total catch of the fleet.

This provides the importance of a given stock to a fleet. (Note that value would indicate economic importance but volume indicates the biological importance)

CHECK 2: Calculate the percentage of each fleet's catch of a stock against quota.

This provides the impact that a fleet has on a stock.

The following example considers 3 fleets and 3 stocks, and landings volume is used:

¹⁴The landings reported in logbooks of pelagic species by TR1 vessels (i.e. vessels predominantly using TR1 gear) comprises less than 1% of the value of landings of the fleet.

¹⁵Note that other percentages could be considered but testing 5% as the threshold resulted in similar results being obtained.

¹⁶Note that lower levels of "fleet" could be considered, but the test against quota would have to be adjusted accordingly.

LANDINGS	Fleet1	Fleet2	Fleet3	TAC
Stock1	247	14	73	0
Stock2	1	435	31	507
Stock3	475	198	36	900
TOTAL fleet landings	723	647	139	

The two checks are applied in turn:

CHECK1	Fleet1	Fleet2	Fleet3
Stock1	34%	2%	52%
Stock2	0%	67%	22%
Stock3	66%	31%	26%

CHECK2	Fleet1	Fleet2	Fleet3
Stock1	100%	100%	100%
Stock2	0%	86%	6%
Stock3	53%	22%	4%

The importance of stocks to fleets (CHECK1) shows that there is 1 stock of little importance to fleet1 and 1 stock of little importance to fleet2 (as highlighted above).

The importance of the fleet on the stock (CHECK2) shows that fleet1 has little impact on stock2 and fleet3 has little impact on stocks2&3 (as highlighted above).

These checks work together (as long there are a representative number of stocks). In this simple example, only stock2 for fleet1 would be eligible for *de minimis* under this test as it meets both checks. Stock1 for fleet1 exceeds the max Quota (Zero in this example) but is of little importance to the fleet, and stocks2&3 are important to fleet3 but that fleet takes a low proportion of the stock.

So, if the test is satisfied for a fleet then that vessel/fleet can apply for *de minimis* against a specific species in a specific area. Encompassed within this test is the assumption that there is a market for a species in landing port (i.e. first part of the test) and that the unwanted catch is of low economic importance to a vessel / fleet (i.e. second part of the test).

Related tests of assessing if quota is available to land a species from an area and ensuring that a stock remains within safe biological limits are tests that should be applied through the management plan as time of allocation stage of *de minimis*.

Implications of inclusion criteria

The dimensions for evaluation of whether *de minimis* is applicable is suggested at the metier level, that is by fleet (or sub-fleet) using a specific gear, fishing in a certain area for a (set of) given species. The stocks applicable for *de minimis* exemption are naturally those where quota regulation applies as they are biologically assessed on an annual basis.

It should be kept in mind that the purpose of *de minimis* is commonly agreed to keep the fleet fishing. That implies that is not designed to allow an increase in vessels quota and/or days at sea, they should remain within their yearly allocation.

Applying the *de minimis* inclusion criteria above for the three main mobile gears in the 2 main areas to which *de minimis* applies for the Scottish fleets results in the following (Table 1 and Table 2). The first criterion is shown in Table 1 and the second criterion in Table 2. The status of inclusion is then dependent on both being met, i.e. first that landings of a stock by a fleet are less than 10% of the total landed for that fleet and second that landings of a stock by a fleet are less than 10% of the UK quota.¹⁷ Those stock/fleet combinations that are shaded in both tables are suitable for inclusion subject to the stock conditions in the management plan. The key species indicated are those that dominate the indicated landings in 2012 for the gear groups used (e.g. TR1, TR2 and pelagic)

Note that a 5% Vs 10% threshold results in few differences between stocks that are identified as *de minimis*. Pelagics have the same stocks identified, TR1 have 1 stocks different (i.e. cod) and TR2 have 2 stocks different (i.e. cod and haddock).

¹⁷Landings in 2012 are used with Quota in 2013 in this example.

Table 1. Identification of *de minimis* metiers: orange<= 10% landings Vs total landings

10% Threshold Species	Pelagic gear		TR1 gear		TR2 gear		UK Quota 2013	
	Area IV	Area VI	Area IV	Area VI	Area IV	Area VI	NS	WOS
Whitefish								
Cod	16	-	9,615	122	232	9	12,381	45
Haddock	71	-	19,379	3,672	1,676	540	30,408	4,870
Hake	18	-	2,467	413	35	39	1,245	-
Monks	2	-	3,003	1,462	561	126	7,871	2,107
Saithe	18	-	6,709	4,226	129	10	10,968	4,486
Whiting	7	-	6,043	140	1,508	56	11,773	167
Pelagics								
Herring	54,865	12,370	2	0	1	0	58,991	16,315
Horse								
Mackerel	623	2,844	6	8	0	-	4,692	14,489
Mackerel	73,375	72,876	40	3	8	0	64,908	97,332
Flatfish								
Lemon sole	1	-	561	47	209	4	3,935	-
Megrim	0	-	1,220	579	23	68	2,044	1,179
Plaice	1	-	6,271	29	1,211	9	22,836	388
Sole	-	-	31	0	176	3	1,163	11
Shellfish								
Nephrops	0	-	737	408	8,312	11,503	16,310	17,699
TOTAL ALL	130,133	89,652	60,212	13,199	14,832	13,133		

Table 2. Identification of *de minimis* metiers: blue <= 10% landings Vs UK quota

10% Threshold Species	Pelagic gear		TR1 gear		TR2 gear		UK Quota 2013	
	Area IV	Area VI	Area IV	Area IV	Area VI	Area IV	NS	WOS
Whitefish								
Cod	16	-	9,615	122	232	9	12,381	45
Haddock	71	-	19,379	3,672	1,676	540	30,408	4,870
Hake	18	-	2,467	413	35	39	1,245	-
Monks	2	-	3,003	1,462	561	126	7,871	2,107
Saithe	18	-	6,709	4,226	129	10	10,968	4,486
Whiting	7	-	6,043	140	1,508	56	11,773	167
Pelagics								
Herring	54,865	12,370	2	0	1	0	58,991	16,315
Horse Mackerel	623	2,844	6	8	0	-	4,692	14,489
Mackerel	73,375	72,876	40	3	8	0	64,908	97,332
Flatfish								
Lemon sole	1	-	561	47	209	4	3,935	-
Megrim	0	-	1,220	579	23	68	2,044	1,179
Plaice	1	-	6,271	29	1,211	9	22,836	388
Sole	-	-	31	0	176	3	1,163	11
Shellfish								
Nephrops	0	-	737	408	8,312	11,503	16,310	17,699
TOTAL ALL	130,133	89,652	60,212	13,199	14,832	13,133		

In the real data presented in the report, Cod in Area VI taken by TR1 and TR2 is a good example. This stock is indicated to have little economic importance to both fleets based on landings in 2013 however there is a very low Quota. Similarly, Horse mackerel for the pelagics. There appear to be no examples where CHECK1 dominates CHECK2, that is landings of a species compared to quota rather than total fleet landings, for this case study, however it doesn't mean that there couldn't be as shown above in the example. So CHECK2 might be viewed as the dominant check for the fleets, stocks evaluated, but CHECK1 is required to ensure that levels are established in both dimensions.

Note that if transfer of *de minimis* across species types is required then suitable conversion rates could be considered using a similar principle to some situations of quota transfer currently

Note also that *de minimis* is part of a toolkit of approaches to enable practical implementation of the discard ban. Other approaches are available (e.g. quota

transfer) for instances that are not deemed applicable for *de minimis* under the agreed management plan.

The question of how much of a given stock is allowable under *de minimis* depends on the status of the stock and how much unwanted catch is caught by vessels applying for this exemption. It is important for biologists and policy makers to understand the impact that discarding currently has and will have in the near future on stocks. In most cases, the level of discarding for a fleet is reported to be the relationship between the volume of fish landed and the volume of fish caught. Discarding is zero when these are equal and high when catch is significantly greater than landings. However, a simple percentage (as inferred in the Paragraph 3(c)) does not necessarily tell the whole story as the volumes caught by fleet must have reference to all other fleets and to the stock biomass.

Discussion and conclusions

The *de minimis* exemption is the first piece of EU fisheries legislation that specifically involves economic tools and approaches. Given its newness, this is a challenge for decision makers throughout Europe. It appears that the first response is to argue away the economic component and not address it thoroughly but to use non-monetary data to make the case. There are indeed non-monetary elements that should be used to make the complete business case for using *de minimis*, but the economic dimension should not be ignored.

It is likely that the implementation of *de minimis* in 2015/16 for Pelagic and Demersal fleets will formalise the implementation of these concepts and ideas leading to workable approaches rather than methodologies. Economic approaches should make a key contribution, however how the discarding exemptions, particularly *de minimis*, are implemented will determine the achievement levels attained with the ambitious objectives of the landing obligation.

The *de minimis* exemption is widely thought of as a “balancing” tool to keep vessel fishing under the constraints of the discarding regulation (e.g. STECF 2014). It should be noted that current quota allocation is not necessarily a fair indication of future quota allocation and in this transition, other tools will be available to policy makers to ensure the regulation is adhered to and the fleets remain economically viable, e.g. quota uplift and quota transfer. The biggest challenge is for multi-species fisheries where quota allocations have not necessarily in the past reflected catch composition. This will likely converge more closely over time, and will help drive changing behaviour in the industry.

As with all policy of this kind it is a political decision that will guide achievement but it should be recognized that defining clear objective criteria will ensure a transparent and impartial decision making process.

As disproportionate costs are not defined in the *de minimis* exemption it is up to Member States to define the concept and devise ways of making it operational. It should also be noted that it is not a common term in environmental economics.

This study has attempted to bring together the arguments for a “balanced” application of *de minimis* and not one that ignores a key element of disproportionate costs. A main operational inclusion test has been investigated using a percentage of catch made by a fleet against total catch of the fleet or against total quota with a percentage of 10% applied. It is hoped that this highlights the usefulness of such approaches and reduces reservations towards the use of economics in this area.

Related tests of assessing if quota is available to land a species from an area and ensuring that a stock remains within safe biological limits are tests that should be applied through the management plan as time of allocation stage of *de minimis*.

It is worth noting that the allocation of *de minimis* year on year will improve as data available and catch assessment improves with greater transparency of recording all catch.



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