SFO response to Scottish Government 'Economic Link' licence condition proposals

Introduction

The Scottish Fishermen's Organisation (SFO) is the largest Fish Producer Organisation (PO) in Scotland, the UK and one of the largest in Europe. With around 180 member vessels, the SFO has around one third of the Scottish fishing fleet in its membership, covering all sectors (demersal, pelagic, shellfish, offshore and inshore), and most fishing regions within Scotland. SFO members collectively landed around 130 thousand tonnes of fish and shellfish in 2016, with a value of approximately £170 million. The SFO has one third of the Scottish pelagic fleet in its membership. SFO pelagic vessels landed around 90 thousand tonnes of pelagic species in 2016, with a value of approximately £75 million. Around 31% of SFO pelagic landings were made into Scotland, while 69% were landed abroad.

The SFO wishes to make clear that it supports the Scottish Government's aim of increasing the volume of pelagic fish landings into Scotland. However, the SFO wishes to make it equally clear that it does not support the Government's proposed current approach of regulatory intervention in tackling this issue. Instead, the SFO firmly believes that a combination of non-regulatory approaches such as those detailed within this consultation response will better achieve the objective of increased pelagic landings into Scotland in a non anti-competitive manner and without the unintended consequences which will almost certainly result from the Scottish Government proposals. The SFO is also disappointed to discover several of what it perceives to be either illogical flaws or misleading inaccuracies in both the consultation letter dated 30th August 2017 outlining proposals for amendments to Economic Link criteria and the accompanying partial Business and Regulatory Impact Assessment (BRIA). The SFO wishes to make clear that it has been receiving legal advice on this issue since Marine Scotland issued their first letter on the subject of a 'Scottish Landings Target' on the 22nd August 2016. The SFO also, in conjunction with the Shetland Fish Producers Organisation (SFPO), commissioned the consultancy firm Poseidon Aquatic Resources Ltd to undertake an independent Economic Impact Assessment (EIA) and alternative options appraisal of a Landings Target on the Scottish pelagic sector during the summer months of 2017. Scottish pelagic processors declined an invitation to form part of that Project's steering group. The study is now complete and is attached as an annex to this consultation response.

Consultation Questions

Q1: Do you agree that landings into Scotland provide the best economic link to Scotland, and that they should form the main basis of the economic link licence condition, and that therefore the present options to demonstrate a link through crewing and/or operating expenditure should be removed?

SFO response: No

Q2: Do you agree that the landings target included in the economic link licence condition should in general be 55 per cent?

SFO response: No

Q3: Do you agree that there should be transitional arrangements in relation to pelagic fish?

SFO response: Not applicable

Q4: Do you agree that there should continue to be arrangements whereby fishing vessels that do not meet the landings target should instead be able to meet the economic link licence condition by making quota gifts to the Scottish Government?

SFO response: Not applicable

Comments on the Economic Link consultation letter and the partial BRIA

In response to point 7 of the consultation document, in which the Scottish Government proposes to relate the economic link licence condition to Scotland, the SFO does not understand the economic rationale for *"amending the licence condition so that landings into Scotland form the main basis of the condition"*, and does not consider *"devolution of sea fisheries"* as sufficient justification for doing so. More importantly, the SFO does not believe that this particular amendment would be compatible with the current (2012) Concordat between UK Fisheries Administrations on Management Arrangements for Fishing Opportunities and Fishing Vessel Licencing in the United Kingdom. Article 15 of the 2012 Concordat clearly states that *"Administrations will continue to include within their licences the same UK-wide condition relating to the economic link."* Article 15 goes on to state; *"Administrations will also cooperate in an urgent review of this condition to see whether there are ways in which it could be strengthened."* However, section 3.1 of the partial BRIA confirms that the Scottish Government have not consulted any other UK Administration and in particular DEFRA on the contents of the economic link amendment proposals, instead choosing only to consult with Marine Scotland Sea Fisheries Division, Marine Scotland Analytical Unit, Scottish Government Food and Drink Division, and Marine Scotland Compliance.

In response to point 8 of the consultation document, which presents the Scottish Government's rationale for establishment of an economic link through landings into Scotland, the SFO does not agree with the assertion that *"Landings into Scotland, as opposed to crewing and vessels' operating expenditure.. offer a stronger economic link as in general they will result in increased economic activity."* There is no supporting evidence provided within the consultation documents which indicate that the 'landings' economic link condition is 'stronger' than the 'crewing' or 'operating expenditure' conditions, as suggested. What is true is that benefits derived from 'operating expenditure' are realised upstream of the catching sector, benefits derived from 'landings' are realised downstream of the catching sector, and benefits derived from 'crewing' are realised in both the local and wider economy. Indeed, section 2.4 of the Poseidon study demonstrates that the indirect and induced effects of both upstream and downstream impacts resulting from pelagic fishing and pelagic processing are broadly similar, or greater for fishing in the case of employment:

"Multipliers reflect the change from a unit increase in final demand. For fishing, an additional results in £1.6 million of activity in the economy, and a similar result, £1.7

million, is calculated for an additional £1 million in fruit and fish processing. Increases in employment in the two sectors result in similar increases across the Scottish economy (0.3)."

"Differences are evident with the employment effect; an additional £1 million output from fishing results in 16.4 FTEs through direct, indirect and induced expenditure, while the same additional output from processing results in 12 additional jobs."

The SFO wish to highlight that the Scottish pelagic catching sector is 100% owned by Scottish companies and crewed almost entirely by Scottish domiciled individuals that make substantial contributions to the North-East economy as well as the national exchequer. As pelagic fishing is seasonal in nature, most repair and maintenance occurs at home ports. The vast majority of spend and benefits (operating surplus, taxes and wages) accrue in Scotland, irrespective of where the fish is landed.

The SFO also wish to question the assertion that *"its relatively low levels of labour intensity limit the scope to spread economic benefits through crewing"*. A comparison of the total number employed, average remuneration levels and domiciled status of workers in both the pelagic catching and processing sectors diminishes this argument somewhat; while the pelagic processing companies that stand to benefit from a Landings Target support more FTEs (450 FTEs in processing versus 250 FTEs in catching), average wages levels are considerably lower in processing; and with an estimated proportion of non-UK, EU workers of 70%[1] in the North-East processing sector, a significant proportion of processing sector wage surplus will likely leave the North East economy without stimulating significant benefit within the local area.

Linked to this point, the SFO wishes to highlight what it perceives to be a significant inaccuracy in the pelagic processing sector site and employment data for 2014 contained within the annex of the partial BRIA. It indicates that there were nine pelagic only processing sites in Scotland in 2014 with 1,106 FTE jobs. However, in reality, only four Scottish pelagic processing companies stand to benefit from a Landings Target and section 2.4 of the Poseidon study indicates that total employment in those companies amount to around 450 FTE jobs, which is approximately one third of the figure published within the partial BRIA. As a result, the SFO believes that the publication of the data within the partial BRIA does not reflect the reality of the situation and is therefore clearly misleading.

To conclude on this aspect of the consultation, the SFO wish to highlight the following excerpts from section 2.4 of the Poseidon study:

"Pelagic fishing companies have developed over many years to become profitable enterprises that benefits the vessel owners, but also the share fishermen and the exchequer through taxation of the companies and individuals. The owners have invariably re-invested substantial sums in their fishing businesses as well as in other Scottish businesses. Fishing company accounts available on Companies House illustrate the extensive investment made by fishing companies in other North-East companies. This investment supports associated pelagic and demersal sub-sectors including processing and cold storage and also includes a diverse range of sectors such as agriculture, renewable energy and property.

[1] https://www.fishupdate.com/scotland-heavily-reliant-eu-workers/

Reduced revenues to the catching sector will reduce the contributions described above and the induced spend in the local economy through the comparatively well-paid jobs on pelagic vessels. Together these equate to substantial and consistent contributions to the local economies in the home ports of Scottish pelagic vessels. The relative contributions of the catching and processing sectors in these economies should be taken into account, not simply the total numbers employed in each sector."

Regardless of the debate around which of the current economic link criteria provide the greatest economic benefits to Scotland, the SFO believes that there is a more fundamental issue with the underlying logic behind the proposed licence condition amendments. On the face of it, the proposed amendments do not introduce a compulsory requirement for licensees to land a fixed proportion of their catch into Scotland because there is an alternative option (current licence condition option d (ii)). This proposed option is however extremely vague and gives no indication of what other criteria might be acceptable, while it appears to be purely at the discretion of Marine Scotland whether it is acceptable or not. Indeed, it is in complete contrast to the other options, which are precise and capable of objective verification. The SFO therefore requests that the Scottish Government clarify what exactly the scope of the 'alternative option' is before concluding the consultation process. For instance, could the "other criteria" in the proposed alternative option include the criteria in options 2, 3 and 4 in the present licence condition? The fact that those options have been excluded from the proposed licence condition amendment suggests that it is not the intention, but does not confirm it either, which is extremely confusing. Unless the Scottish Government clarifies the scope of the alternative option, the SFO believes that the proposed amendment will in effect not be an option but create a mandatory landings requirement, and therefore has the same concerns over the legality of the proposals as those communicated to Fergus Ewing in writing on the 7th February 2017 (see annexes).

In further relation to this point, the SFO notes and wishes to highlight an inconsistency between the options presented in the main consultation letter and the partial BRIA. In section 4.1 of the partial BRIA, the option to comply with the economic link 'through other means' does not feature, which leads the SFO to conclude that this option was belatedly introduced to the main consultation letter in order to give the impression that the landings requirement was not, in effect, mandatory. The SFO is therefore concerned with what it perceives to be an element of disingenuity surrounding the proposals. Certainly, at the very least there appears to be a disconnect between those tasked with developing the policy and those tasked with producing the Impact Assessment. Further validating SFO concerns on this point are the following sentences in section 4.3 of the partial BRIA; *"the net benefits.. are difficult to quantify. They will vary depending on the choices fishing vessels make between meeting landing targets or gifting quota."* There is no mention or consideration of vessels achieving the economic link through the 'other criteria' option, as stipulated in the annex of the consultation letter. This further underlines the SFO's belief that the proposed licence amendments will effectively result in a mandatory Landings Target. The SFO is firmly of the view that as a mandatory requirement for Scottish licensees to land a specified proportion of catch in Scotland would limit the amount of catch that could be landed in other EU member states or Norway, this would be a quantitative restriction on exports, in breach of Article 35 TFEU (in the case of landings in another EU member state) or Article 1 of Regulation 2015/470 (in the case of landings in Norway). The SFO therefore concludes that the logic used to derive the new economic link options is either erroneously flawed, purposefully misleading, or both.

In response to point 12 of the consultation document, The SFO does not share the Scottish Government's view that the small number of demersal vessels who may be affected will "readily be able" to find alternative landing opportunities in Scotland. This will cause displacement and either impact on catch quality due to increased steaming times or put greater pressure on stocks closer to home. The SFO is disappointed that the Scottish Government seem willing to negatively impact the business models of a small number of Scottish owned demersal vessels that split landings between Scotland, Northern Ireland and England. The SFO suggests that this level of intervention is excessive and unnecessary; it would appear these vessels are effectively being treated as collateral damage in the pursuit of increased pelagic landings into Scotland, something the SFO considers to be extremely unfair.

In response to point 23 of the consultation document, where the Scottish Government indicate that they would be willing to consider alternative proposals that would achieve benefits broadly equivalent to those envisaged in paragraphs 8 and 9 of the consultation document, the SFO wish to make the following comments:

- The Scottish Government has been trying to impose a 'voluntary Landings Target' on the Scottish pelagic fleet for over a year now, following the letter issued by Marine Scotland on the 22nd August 2016 which proposed that pelagic vessels land at least 50% of their catch into Scotland during the forthcoming autumn/winter mackerel fishery, or increase landings into Scotland by at least 10 percentage points if they landed less than 50% of their catch into Scotland during the preceding fishery.
- Once it became obvious that the fleet and processors were not making any significant progress towards achieving these targets, Fergus Ewing, the Cabinet Secretary, wrote to affected parties, lamenting this lack of progress and informing industry of his decision to retain 12% of the 2017 Scottish mackerel quota, in an apparent attempt to 'energise' more landings into Scotland. The decision to withhold mackerel quota from FQA holders ultimately proved ineffective, as it has been confirmed under point 22 of the consultation document that the quota has been returned to FQA holders before the start of the current autumn mackerel fishery, calling into question the wisdom of withholding the quota in the first place.
- On the 19th June 2017 Fergus Ewing wrote once more to interested parties, indicating *"the resolve of the Government to see a Scottish Landings Target established, but also my strong preference that a target be introduced not through regulatory action but rather because of positive co-operation … I much prefer this approach".* He acknowledged that a meeting had been arranged between Scottish pelagic catching and processing sector representatives (at the initiation of the SFO) to discuss the subject of increased pelagic landings into Scotland and was looking forward to hearing the outcome of that meeting. Mr Ewing's letter went on the elaborate what he would deem to be an acceptable outcome: "*We would be content, for example, for each Scottish pelagic vessel now landing less than 30 per cent into Scotland to land at least this percentage in the twelve-month period from 1 September 2017; for the minimum percentage into Scotland to increase to 40 per cent from 1 September 2018; and, for all Scottish pelagic vessels to land 55 per cent or more into Scotland from 1 September 2019."* This proposal is exactly the same as the economic link proposals.
- Prior to the meeting between the pelagic catchers and the processors in July 2017, the SFO received legal advice that any arrangement agreed between the catching and processing sectors about increased landings in Scotland (and therefore reduced landings elsewhere within the European Economic Area (EEA)) as had been suggested by the Cabinet Secretary in his letter dated 19th June 2017, would cause a

partitioning of the EEA market for pelagic species and as such likely breach anti-competition laws. The SFO was made aware that penalties for Competition Law breaches can be severe, involving fines and in some instances imprisonment. The SFO therefore requested Marine Scotland's comment in writing on the legal position on the fixing of supply levels to Scottish processors at below market prices on offer from Norwegian processors. Clearly, if the advice the SFO has received was correct, it would have to be very careful about the content of future discussions with processors and avoid any agreement which may be regarded as illegal and therefore open to challenge from disaffected parties. However, as things stand no clarification on the legal position of this particular point has been forthcoming from Marine Scotland, which has effectively halted the SFO's willingness to further consider agreeing to a voluntary Landings Target at PO level, because clearly it would be illogical in the extreme for the SFO to agree to do something voluntarily when it had already been advised by legal experts that the act of doing so was highly likely to be illegal and certainly open to legal challenge from disaffected parties.

- While voluntary agreements to fix supply levels to a specific group of geographically defined processors at PO level are likely to breach anti-competition laws, the SFO understands that this may not apply at the level of individual businesses, and therefore the SFO's members are free to enter arrangements with processors whereby they agree to fix supply levels should they so wish. However, and with that in mind, the SFO's pelagic members currently find themselves in a situation where they are being asked to do something voluntarily that, from their own viewpoint, is not only completely irrational, but also ignores the legal responsibilities and due diligence obligations associated with them acting in the best interests of their own businesses. They are being asked to accept lower prices for their catches than those on offer from more lucrative markets they know they can supply (and indeed have spent many years developing) abroad because Scottish processors are either unwilling or unable to match those prices, while they are also being asked to increase the level of risk within their own business operations by choosing to reject a guaranteed payment mechanism via the Norges Sildesalgslag in favour of no such guarantee from Scottish processors.

In response to Section 4.5 of the partial BRIA, the Scottish Government appear to be in favour of amending the economic link conditions without any certainty that Scottish pelagic processors will be able to increase capacity and competitiveness. Should the processors fail to do so, the Scottish Government appear to be content with *"a fall in prices"* and *"displaced economic activity"* and a *"transfer of income from vessel operators to processors".* The consultation documents suggest that there will still be an increased overall economic benefit but provide no supporting evidence to back up that assertion. The SFO has genuine and serious concerns about the implementation of a policy that supports the transfer of income or profitability from one part of the supply chain (catchers) to another (processors). Rather, the SFO firmly believes that the Scottish Government should be supporting an approach that focuses on maximising returns at each point of the value chain.

In response to Section 4.6 of the partial BRIA, the SFO disagrees with the Scottish Government where it states; *"The impacts – positive or negative - on these vessels are difficult to quantify."* This is untrue. Section 3.3 of the Poseidon study provides a detailed assessment of the likely economic impacts on the pelagic fleet of a 55% Landings Target, which are as follows:

"Based on 2016 landings data and prices from sales note data provided by Scottish pelagic vessels, the proposed landings target of 55% into Scotland would reduce potential revenue to the groups of vessels affected by the landings target by £4.1 million annually if Norwegian landings were required to fulfil the landings target into Scotland and the landings target were applied equally to mackerel and herring landings (i.e. 55% of each species)."

"This net cost will not be shared across the fleet equitably. The vessels with a vested interest in Scottish processors already land over 55% into Scotland (i.e. the Lunar and Klondyke vessels). If those vessels already achieving the landings target do not change their landings arrangements, there will be no change in costs for that group of vessels. The vessels currently landing into Norway will bear the cost to the fleet, i.e. 13 vessels in the fleet that landed less than 50% into Scotland."

"For vessels currently landing 100% into Norway, based on 2016 data, achieving the 55% landings target will result in an average net cost of £514,571 in lost revenue primarily due to the lower prices achieved in Scotland compared to Norway."

In addition, section 3.4 of the Poseidon report goes on to highlight further consequences of a 55% Landings Target:

"Based on 2016 data and assuming the landings target is achieved for both mackerel and herring catches, the result would be an additional 28,900t of mackerel and 13,547t of herring landed into Scotland. Based on average landings volumes this equates to an additional 27 mackerel landings and 21 herring landings (48 additional landings in total)."

"The main assumed benefit of the landings target is from more mackerel and herring being landed into Scotland to supply Scottish processors. In 2016 landings into Scotland were 99,239 tonnes of mackerel and 33,100 tonnes of herring. If as assumed by Marine Scotland, the vessels currently landing into Scotland maintained their landings, the landings target would result in a 29% increase in mackerel and a 41% increase in herring landings. While processors will welcome and can absorb more fish, it is not evident that there is the capacity to receive the scale of increase proposed.

Many of the skippers consulted speculated that if the landings target forces landings previously destined for Norway to be diverted to Scotland, it could enable those vessels currently supplying Scottish processors to offer some of their catch to Norwegian processors. If this does occur, then the landings target will not only adversely impact a small number of individual Scottish companies disproportionately, it will result in a smaller number of other Scottish companies benefiting from Scottish Government action"

"The proposed landings target compels Scottish vessels to land, irrespective of demand from processors. With limited capacity to absorb the substantial additional herring and mackerel landings into Scotland, demand from Scottish processors could be expected to reduce, leading to lower prices. This would increase the difference between Norwegian and Scottish prices and with it the opportunity cost to affected vessels resulting from the landings target."

"There is genuine concern that the market intervention of the landings target will depress the prices paid to in Scotland due to:

a) *Processors will know Scottish skippers are required to land more into Scotland and have very limited buyer options;*
b) *The increased number of landings could result in vessels waiting longer to discharge to Scottish factories (with associated quality and cost implications); and*
c) *The current physical capacity of the pelagic factories means that to receive more landings, the fishing seasons must be extended, resulting in vessels catching fish in sub-optimal conditions"*

"The consequences for the processing sector would therefore certainly be an increase in turnover. However, credit lines could be stretched to accommodate such large increases in raw material purchases. Another implication for the profitability of the processors is that without very swift growth in market share of high value markets, the available export markets will be those that command comparatively lower prices. Turnover may increase without an equivalent increase in profitability for processors."

"Another key uncertainty is the impact of Brexit. Should the UK achieve a greater share of pelagic stocks after Brexit as a Coastal State, which would be argued through Zonal Attachment with so much of the catches within the UK EEZ. Therefore after 2019 the overall volume being accessed by the Scottish fleet could well increase substantially without the landings target."

Overall, the SFO finds the consultation document and accompanying partial BRIA to be considerably misleading and are concerned that it seems perfectly acceptable for the Scottish Government to support its consultation with inaccurate data, insufficient analysis of the impacts and no detail whatsoever on the legal justification when SFO has brought it to the attention of the Scottish Government in previous correspondence that the measures proposed would breach EU law. Should this information have been available to respondents, the SFO believes this would have had significant bearing on their views on this matter. A comprehensive BRIA should have been carried out well in advance of the consultation period but instead we have a partial BRIA of relatively poor quality compared with the Impact Assessment carried out by Poseidon Aquatic Resources Ltd.

The way forward

At this juncture, the SFO wish to highlight several alternative, non-regulatory options for increasing pelagic landings into Scotland that are elaborated on in some detail in section 4 of the Poseidon study:

"During the industry consultation, the consultees were asked to suggest any potential alternative options for policy and/or markets to incentivise increased landings of pelagic fish into Scotland. All suggestions related to support for Scottish processors to enable them to better compete with Norwegian counter parts. Those interviewed all believed that the emphasis should be on bringing the Scottish pelagic processing sector up to the standard and prices of Norway instead of interventions like the landings target that could push down prices. This is effectively what many years of ongoing investment in the catching sector has achieved; Scottish vessels are now landing mackerel and herring to the same high standard as Norwegian vessels and can therefore sell to the Norwegian processors demanding that quality.

Three areas of support for Scottish pelagic processors were discussed:

1. *Targeted marketing support to enable growth in high-value export markets (particularly Japan & Korea);*
2. *Support investment in plant modernisation to ensure the quality required of high-value markets; and*
3. *Support to Scottish processors in bidding for fish on the Norwegian auction system to enable fair access to the fish that is available.*

Option 1 – Marketing support

The Japanese/Korean pelagic markets pay the highest prices. This is the main reason why Norwegian companies can pay higher prices. Some Scottish companies have made in-roads and continue to seek more customers in these markets[2]. However, the 2014 loss of the Russian market has mostly been addressed through greater supplies to lower-value growth markets such as African countries.

The Norwegian Seafood Export Council has been instrumental in Norwegian processors developing their market share in key overseas markets. A concerted effort could be made to target higher value markets for Scotland's pelagic products, particularly in the Far East. This would take the form of government support in developing appropriate marketing strategies and materials for those markets as well as facilitating B2B meetings to develop relationships and where customer requirements can be fully understood. This is expected to link with Option 2, as plant investment may be required to ensure those customer requirements can be delivered.

Option 2: Plant investment

Automation appears to be the future of the high-volume production that characterises pelagic processing. There are examples of fully-automated plants (e.g. at Eskja[3]). This supports the objective of ensuring Scotland has competitive businesses, but goes against the intention of maintaining jobs. It is arguable that supporting an un-competitive business will only secure those jobs for the short-term. It is also posited that Brexit may result in labour shortages in sectors such as fish processing that is so dependent on seasonal immigrant labour.

There are investments being made by some processors in temperature control and in new processing equipment that ensure quality is maintained throughout the process. These do not directly impact the current jobs in processing and can be supported with the current funding programmes available to the sector.

Option 3: Bidding on Norwegian auction system

Norges Sildesalgslag is the Norwegian auction system through which all Norwegian-landed pelagic products must be sold. Scottish processors have previously bid on this system, but in recent years have only used it for price information, access to which is now being restricted. It is a well-established system on which other non-Norwegian companies (Danish, Icelandic, Faroese, etc.) currently trade. Therefore, this option assumes that there is little value in establishing a new Scottish auction system, but there should be support to processors to

[2] Lunar was one of several Scottish companies at a Japanese food expo in August, 2017: https://www.undercurrentnews.com/2017/08/23/scottish-delegation-heads-to-japan-for-a-slice-of-asian-market/

[3] See: https://www.youtube.com/watch?v=grnaLzsdNHk

ensure there is an 'even playing field' for them to bid for fish on the Norwegian auction system.

Other than an ability to compete on price, there are two aspects that potentially deter Scottish processors from participating in the auction:

a. *The Payment Guarantee: a bond is required of all buyers to ensure sellers will be paid (the system pays the sellers within 14, but insists buyers pay in full within 30 days);*

b. *An auction filter that allows sellers to specify the geographic area that they wish to consider bids from (this mechanism was for small Norwegian vessels with limited range, but could in theory be used to exclude potential Scottish buyers).*

The Scottish government could explore how it can support companies in providing the necessary payment guarantee. One approach may be through a financial instrument, a mechanism that can be funded with European Structural Funding and one that is advocated by the European Investment Bank .

The SFO wishes to emphasise once more its willingness to work with both the Scottish pelagic processing sector and the Scottish Government to achieve the ambition of increased landings of pelagic fish in Scotland, by pursuing each of the non-regulatory options highlighted within the Poseidon report. The SFO believes that all of the options identified need to be addressed in combination if Scottish processors are to find themselves in a position to compete with their Norwegian counterparts in the future. Specifically, in relation to marketing support, it has been suggested by Scottish processors that Scotland is currently 30 years behind Norway and they do not believe anything other than a Landings Target will enable them to compete in the more lucrative markets such as Japan and Korea. In the agreed minutes of the meeting between Scottish catchers and processors on the 24th July 2017, the following is stated:

"The domestic processors are not currently in a position to match the price paid in Norway for mackerel because of a number of factors, but primarily because the Norwegian pelagic industry has, with the help of their Government, persuaded the Japanese buyers and processors that Norwegian mackerel is better than Scottish mackerel. Norway has a strong and continuing presence in Japan promoting their fish products whilst the Scottish effort pales into insignificance."

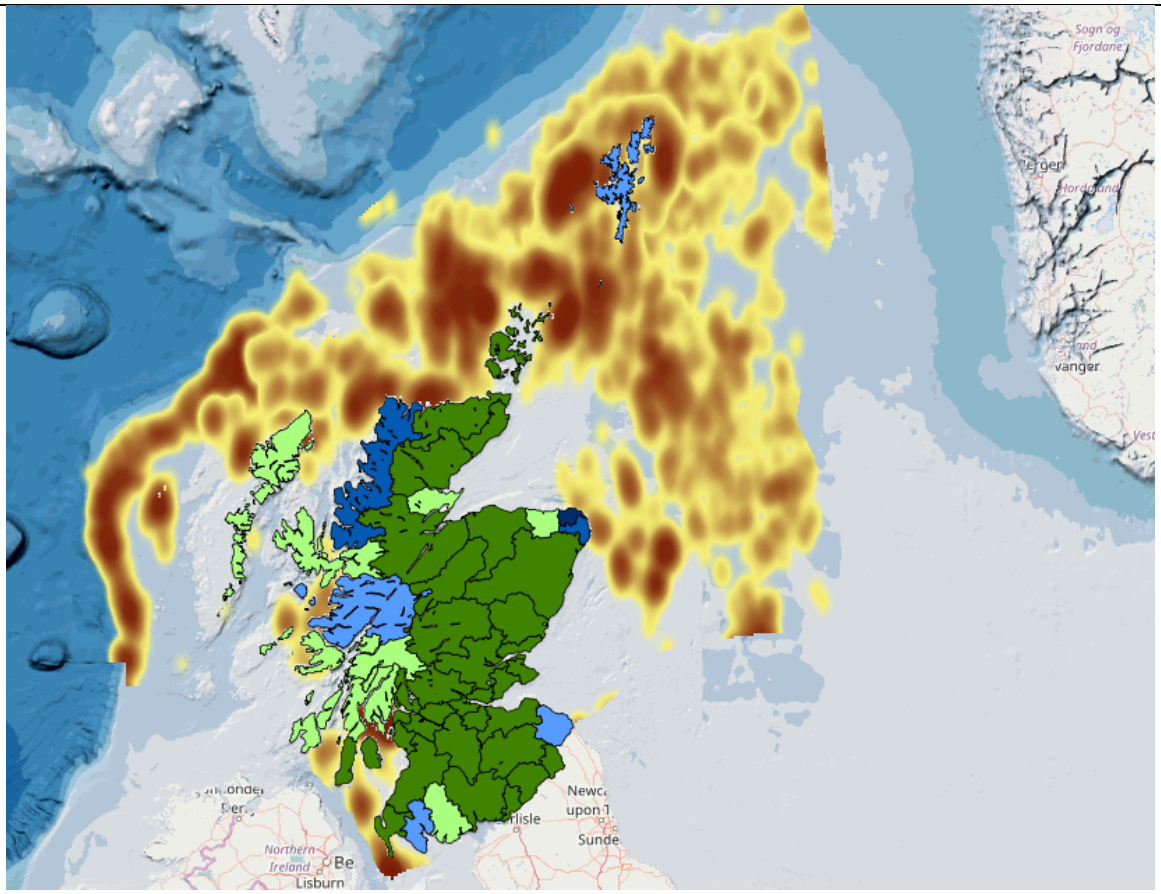
Seafood Scotland is the Inter-Branch Organisation (IBO) tasked by Scottish industry to promote Scottish fish exports abroad and they receive government and EMFF funding to do so. Clearly there needs to be a comprehensive review and rethink of how Seafood Scotland, POs, Government and the processing sector currently approach the marketing of Scottish pelagic species in the Far East in order to improve the effectiveness of marketing efforts, for mackerel in particular. The SFO is willing to dedicate funding to improve marketing efforts for pelagic species on the proviso that other affected POs are also willing to do so. It is disappointing that the Scottish processors desire for the imposition of a Landings Target coupled with the Scottish Government's decision to support that approach has; a) resulted in the prospect of a blunt regulatory instrument being introduced that will likely result in unintended negative consequences, and b) created unnecessary division within industry at this time, particularly with Brexit on the horizon and all the potential additional opportunity and raw material that it brings with it. It would have been far more beneficial for all affected parties to work together in a positive manner to develop strategies that would enable Scottish

industry to maximise the value of Scottish pelagic resources at each point of the value chain and compete with the Norwegians and others in terms of quality, rather than effectively sleepwalking into a scenario that permanently consigns the Scottish pelagic industry to 'the second division' for the long-term.

John Anderson
Chief Executive
Scottish Fishermen's Organisation
31/10/17

Assessing the impact of the Scottish Landings Target and possible alternatives.

FINAL REPORT



Mackerel-targeted VMS density 2009-2013, Marine Scotland NMPi

SUBMITTED TO

SCOTTISH FISHERMEN'S ORGANISATION (SFO)

&

SHETLAND FISH PRODUCERS ORGANISATION (SFPO)

OCTOBER 2017

POSEIDON
AQUATIC RESOURCE MANAGEMENT

WINDRUSH, WARBORNE LANE
PORTMORE, LYMINGTON
HAMPSHIRE SO41 5RJ
UNITED KINGDOM

TELEPHONE: +44 2825 820 928
ROD@CONSULT-POSEIDON.COM
http://www.consult-poseidon.com

Ref: 1332-GBR

TABLE OF CONTENTS

1 INTRODUCTION

This report by Poseidon Aquatic Resource Management Ltd (**Poseidon**) assesses the

"Impact of the Scottish Government's pelagic landing target and possible alternatives".

The Scottish Fishermen's Organisation (SFO) and Shetland Fish Producers Organisation (SFPO) commissioned Poseidon to undertake this independent assessment, which utilises information from a range of sources, including nationally published statistics and consultation with the Scottish fishing industry, processing sector and Government.

1.1 STUDY BACKGROUND

The Scottish Government has recently communicated to the Scottish fishing industry its desire to increase the proportion of landings made by Scottish-registered fishing vessels into Scotland, which was one of the key policy manifesto pledges made by the Scottish National Party (SNP) in 2016. To achieve this policy objective, in August 2016 the Scottish Government introduced a voluntary 'landings target' initiative, requesting owners of Scottish vessels to increase the proportion of their landings into Scottish based ports to at least 50% of their total landings, incrementally, over a specified period. This initiative currently affects the pelagic sector of the fleet, where several vessels currently land a significant proportion of their catch overseas, most notably into Norway and Denmark. Some demersal vessels, landing into other UK countries and/or abroad, may also be affected, but are not considered within this assessment.

Background to the landings target initiative comes from the economic link attached to sea fisheries licences. This places a condition on licences to demonstrate an economic link to the UK by one or more of the following means: by making 50% of quota landings into the UK, having 50% of crew resident in the UK; by incurring 50% of operating expenditure in the UK. The Scottish Government currently proposes to remove the options to demonstrate a link through crewing and/or expenditure, and focus the Scottish economic link on a landings target into Scotland.

In January 2017, the Scottish Government sought to energise voluntary compliance with its landings target initiative, by announcing it would retain, and not initially allocate, 12% of the Scottish pelagic fleet's 2017 mackerel quota.

In August 2017, the Scottish Government published a landings target consultation with details of the proposed transitional arrangements for pelagic fish, such that:

- From 1 January 2018: 30% of total landings of quota species will be made into Scotland;
- From 1 January 2019: 40%
- From 1 January 2020: 55%

This assessment considers the expected impact and consequences this landings target on the catching sector and the Scottish pelagic sector as a whole. It goes on to consider some of the alternatives proposed during consultation with the pelagic industry.

1.2 OBJECTIVES

The specified objectives of this research are to:

a) Identify key determinants in pelagic vessel operator decisions on where to land catch;

b) Assess the impact that the landings target initiative will have on the economic performance of the Scottish pelagic catching sector in the short, medium and long term;

c) Consider the wider impacts of the landings target initiative on the Scottish pelagic sector, including Scottish processors, and;

d) Appraise alternative policy and market led options that would incentivise increased landings of pelagic fish into Scottish-based processing facilities.

1.3 RESEARCH APPROACH

The Poseidon team used a combination of background research, data collection and consultation to inform the development of an economic model to explore the impact of the landings target.

The economic model was used to analytically quantify impacts of the proposed transitional landings target initiative on the catching sector. The model also assisted in identifying alternative approaches to the landings target initiative that could deliver positive outcomes.

Consultation across a range of stakeholders was key in understanding the complexities of the pelagic market place, both from a Scottish perspective and globally. This highlighted a range of important determinants and impacts on the fleet (such as payment guarantees and commercial linkages) that may have an economic bearing on decision-making, but are not quantifiable within a model. These, together with wider impacts on the pelagic sector, particularly the processing sector, are assessed qualitatively throughout the report.

2 STRUCTURE AND PERFORMANCE OF THE SCOTTISH PELAGIC SECTOR

The Scottish pelagic sector is currently composed of approximately 19 vessels and 5 pelagic processing companies with many business linkages and investments across the catching and processing sectors.

2.1 SCOTTISH PELAGIC CATCHING SECTOR

Scottish pelagic vessels are the largest in the Scottish fishing fleet, averaging 66m in length, 4,700kW and 2,027 GT (Seafish, 2016). They also fish the fewest days at sea; 75 days compared to a Scottish fleet average of 150. The number of vessels in the Scottish fleet has reduced to around 20 vessels, compared to approximately 30 in 2013. Exact numbers vary within the year as several fishing companies are in the process of commissioning replacement vessels, which are invariably larger than their current vessel.

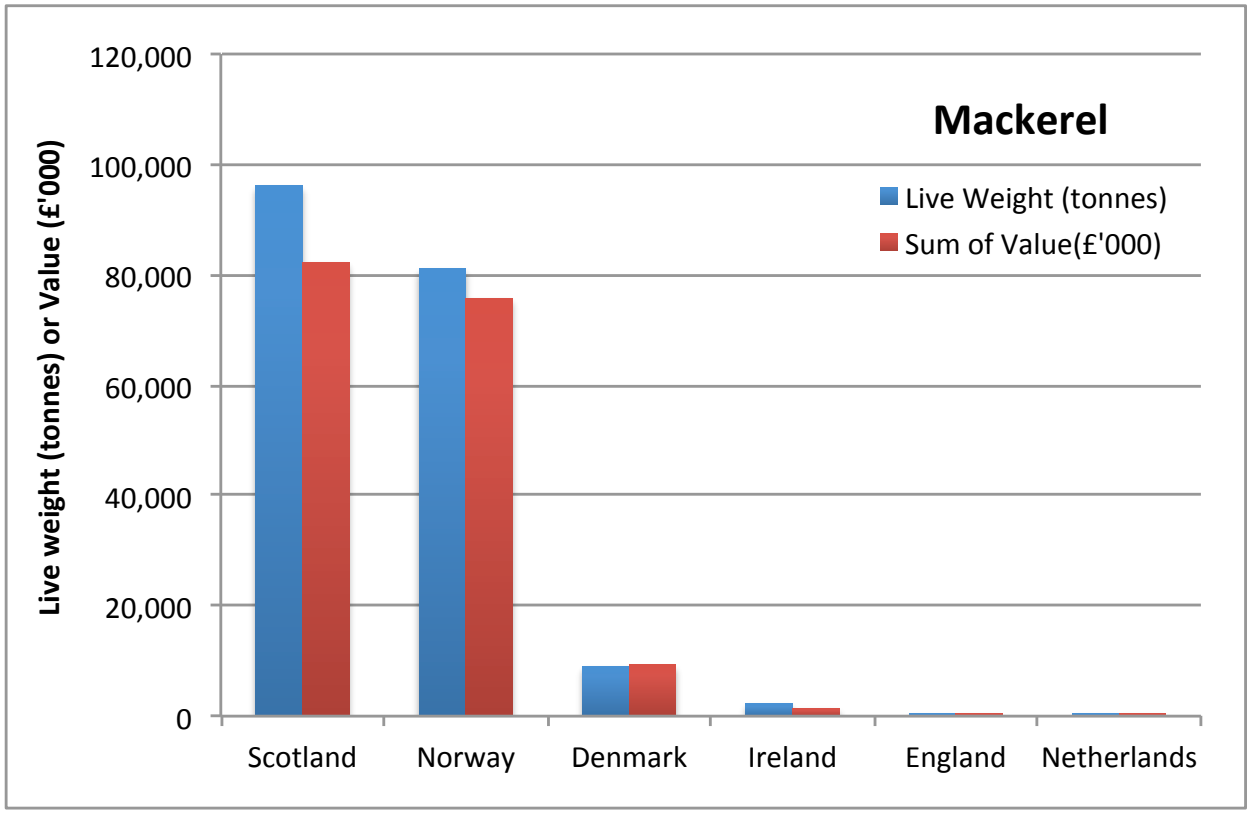
The fleet mainly targets mackerel (the most important single species fishery for Scotland) and herring, with some vessels also fishing blue whiting and horse mackerel. Catches can vary from a few hundred tonnes to over 1,000t depending on the species, season and customer requirements. Some processors prefer vessels to land lower volumes than the maximum possible for quality and/or capacity reasons.

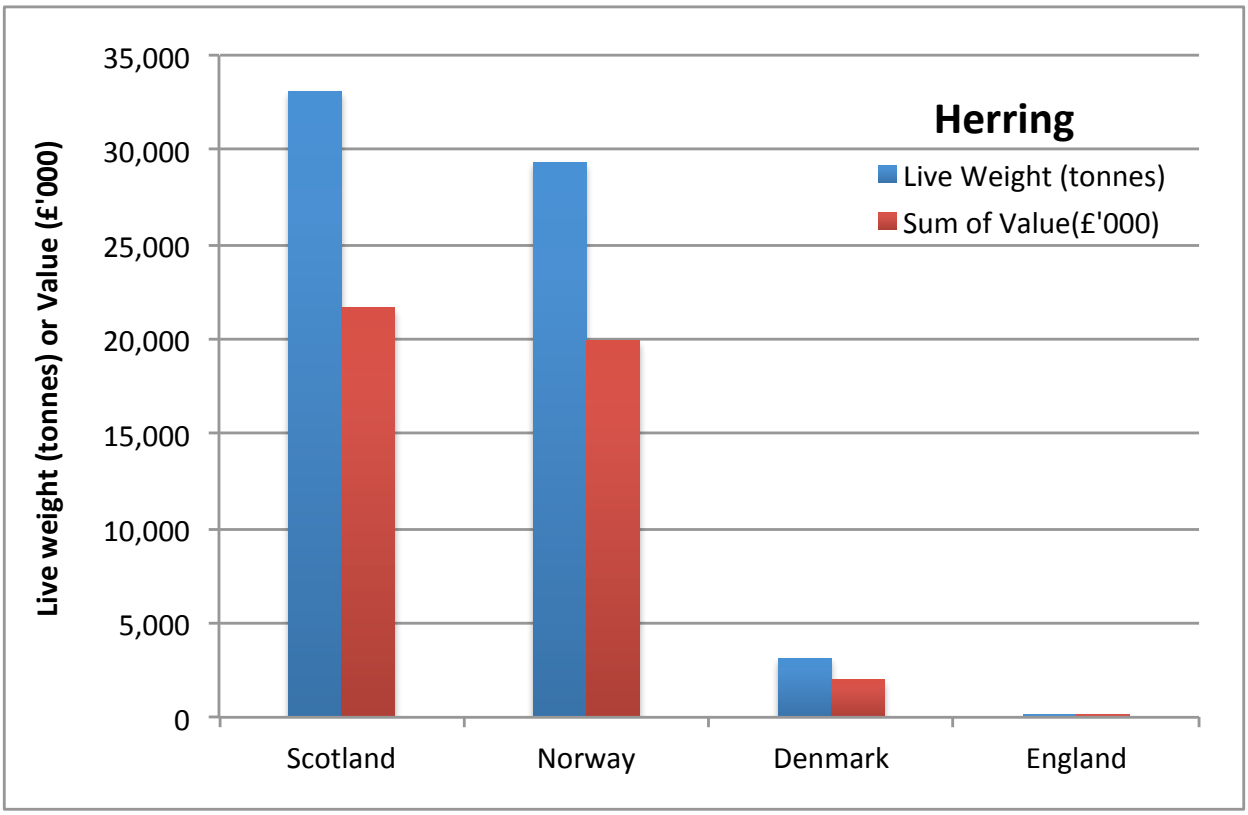
In 2016 Scottish vessels landed 188,487 tonnes of mackerel worth £168.6 million, and 65,543 tonnes of herring, worth £43.6 million. The majority of landings are into Scottish and Norwegian ports (Figure 1). For Scottish vessel landings of mackerel, 51% by weight was landed into Scotland and 43% into Norway, and for herring 50% was landed into Scotland and 45% into Norway.

The mackerel and herring fisheries are highly seasonal, resulting in long non-fishing periods when repair and maintenance work is undertaken to ensure the vessels are fully prepared for the intensive periods of fishing, which typically last one-two weeks per fishery/season.

All consultees confirmed that pelagic fishing patterns are dictated by where the fish are, and when the condition of the fish fits the quality requirements of processors. For example, the herring roe fishery, or the onset of the mackerel migrations when stronger, larger individuals can be targeted.

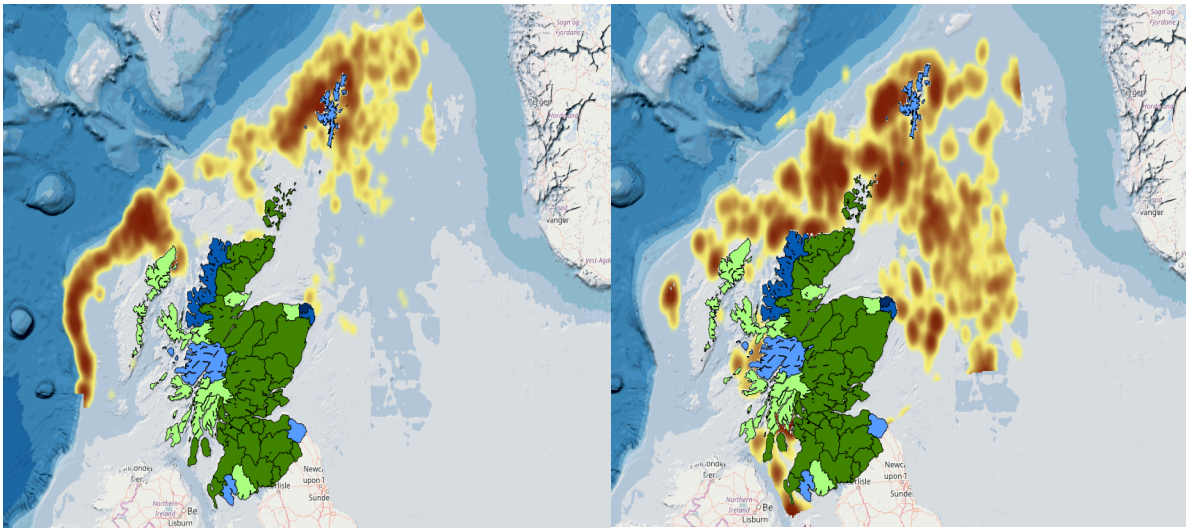
Figure 1: Statistics for mackerel and herring landed in 2016 by Scottish registered vessels, indicating country of landing (Source: Marine Scotland, 2017)





Fishing intensity maps shows the focus of activity in recent years has mainly been around Shetland, moving down to the west of Scotland for both mackerel and herring, and also in the northern North Sea off NE Scotland for herring (Figure 2).

Figure 2: Fishing intensity for mackerel (left) and herring (right) based on VMS data, 2009-2013



Source: Marine Scotland NMPi, 2017

Scottish pelagic vessel operators fall within one of three categories in terms of links with processors:

- **Group 1**: Vessels within a vertically integrated company or with vested interests in Scottish processing companies (7 vessels*);
- **Group 2**: Those without direct vested interests, but with established arrangements with some processors (7 vessels*); and
- **Group 3**: Those operating independently to processors (5 vessels*).

*Number of vessels in each group approximate as new vessels overlap in year with replaced vessels.

The table below presents the tonnages landed by each group landings less than 55% into Scotland in 2016. The vessels within Group 2 and Group 3 that would be affected by the landings target accounted for 32% of mackerel landings and 40% of herring landings by Scottish vessels in 2016.

Table 1 Breakdown of mackerel and herring landings in 2016 by Scottish vessels per group

2016 landings	Mackerel		Herring	
by Scottish vessels		% of total		% of total
Group 1	129,307	69%	39,350	60%
Group 2	29,406	16%	14,196	22%
Group 3	29,774	16%	11,997	18%
Total tonnes	188,487	100%	65,543	100%

source: Poseidon analysis of Marine Scotland landings & sales note data.

In Shetland, the only pelagic processor, Pelagia Shetland (formerly Shetland Catch) is a joint venture between Pelagia AS, SFPO, Lerwick Port Authority and Jaytee Seafoods. Vessel owners are independent of Pelagia Shetland, but the proximity of the processing facilities, together with directorship of SFPO, brings inevitably close links with the Shetland catching sector. Shetland vessels are therefore within Group 2.

2.2 SCOTTISH PELAGIC PROCESSING SECTOR

Marine Scotland (2017) provides the following table in the Annex to its partial Business and Regulatory Impact Assessment (BRIA) for the economic link proposals.

Table 2 Scottish processing sites handing pelagic fish only 2008-2014

	2008	2010	2012	2014
Number of sites	8	6	5	9
FTE jobs	653	535	682	1,106
Turnover (£million)	133.8	125.8	144.2	No data
GVA (£million)	42.5	21.6	20.9	No data

source: Marine Scotland, 2017

It is not clear how the increase in pelagic sites and jobs shown for 2014 is derived and this trend is contrary to all other published data on the UK processing sector. The latest Seafish processing industry report (2016) notes that consolidation continues in the UK processing sector and this may be a consequence of excess capacity and pressure on profit margins. This reduction in number of businesses is evident in Scotland, where only five large-scale pelagic processors are trading: Pelagia Shetland (formerly Shetland Catch), Lunar, Denholms, North Bay Pelagic (now part-owned by Interfish) and International Fish Canners. Other members of the Scottish Pelagic Processors Association (SPPA) include companies supplying the pelagic sector, such as fish agents, and companies buying from processors, such as secondary processors and fish meal producers.

The latest available accounts from the key primary processing companies indicate that:

- Lunar employ 282 staff in total, including those associated with operating its fleet of whitefish and pelagic vessels. Assuming 7 per whitefish and 12 per pelagic with some PO/operational staff, at least 60 of this total are in fishing, not processing) suggesting around 220 in processing and management;
- Pelagia Shetland (previously Shetland Catch) report 30 full time and 50 seasonal), but this has reduced significantly since the Pelagia take over this year and now totals around 50 FTE;
- Northbay Pelagic employed 100 in 2015. No further details on a breakdown between activities are available;
- Denholms Seafoods employed 86 staff in 2015. In addition to processing they operate freezing and cold storage facilities, but the division of labour is unknown; and
- International Fish Canners employed 196 production staff in 2016 down from 200 in 2015.However this business uses frozen imported fish as raw material and does not buy Scottish fresh landings from the Scottish pelagic fleet.

Based on the most recent information on the above companies, the total number directly employed by the Scottish processing sector that is dependent on Scottish pelagic landings, numbers approximately 450 and the seasonal nature of the work means total employment amounts to a lower Full Time Equivalent (FTE). This total continues to decline with automation increasing production per FTE and further reducing staff.

Of these Scottish pelagic primary processors, the only companies reporting a profit in 2016 were Lunar & Denholms, which as well as processing and cold storage operations, have fishing vessels

associated with their business groups[1]. This internationally competitive sector has seen European production move to Eastern Europe due to cheaper labour costs and further automation to increase efficiencies, which make for a difficult trading environment for Scottish pelagic processors.

2.3 RECENT DEVELOPMENTS

Processing and marketing

The Scottish pelagic fishing sector is of a substantial scale in economic terms, but involves relatively few companies and operators. Developments and issues associated with any of the businesses are known across the sector. In recent years the consolidation and difficulties faced by the processing sector are well documented.

Pelagia took a 75% controlling interest in Shetland Catch earlier this year (2017). This takeover by the largest Norwegian processor group has put it on a firmer financial footing, and catalysed a range of structural and operational changes including improved efficiency (which may lead to potential job losses) and improved performance, e.g. through the introduction of herring roe processing lines in time for the 2017 summer fishery.

In 2014 Northbay Pelagic was taken over by a joint venture between Interfish and Fresh Catch. A major fire in 2015 affected performance of the company and well-publicised issues at board level[2] continue to create an air of uncertainty surrounding the company.

As the mackerel and herring seasons are so concentrated around a few very high value landings, any vessel operators seek certainty on demand, price and payment. In recent years that certainty has been provided by Norway, with payment being guaranteed through the auction system.

The prospect of additional landings from vessels could put Scottish pelagic processors at risk as cash flow can be a major issue. In the recent past, skippers have been well aware of the precarious financial position of some Scottish buyers and the strain on finances that purchasing more raw material has placed on the business. This is particularly the case if the additional volumes landed to Scottish factories can only enter the established lower-value markets.

2.4 CONTRIBUTION TO LOCAL ECONOMIES

Pelagic processing in Scotland is confined to Fraserburgh and Peterhead in Aberdeenshire and Shetland[3]. Seafish (2014) estimates that the Grampian region has 3,199 FTE in seafood processing. Scottish Sea Fisheries Statistics (2015) indicate that 1,394 are employed in fishing in Aberdeen and Aberdeenshire and 399 are employed in fishing in Shetland. These figures relate to all sea fisheries, i.e. demersal and shellfish as well as pelagic. When considering only the pelagic sector, it can be estimated that around 240 individuals have direct employment on the 20 Scottish pelagic vessels (skippers and crew), with additional staff employed ashore in support roles for the fishing companies (including managers, fishing associations, producer organisations and fish selling agents).

The Scottish pelagic catching sector directly employs 250 FTE compared to the 450 FTE estimated to be directly employed in processing pelagic landings into Scotland. However, these jobs differ significantly in terms of stability, income and their broader contribution to local economies.

---

[1] E.g. see: https://www.undercurrentnews.com/2017/06/14/high-mackerel-prices-see-scotlands-lunar-cash-in/

[2] https://www.undercurrentnews.com/2016/07/13/legal-battle-developing-after-interfish-fires-andersons-from-northbay-pelagic/

[3] The Banffshire and Buchan Coast parliamentary constituency contains Peterhead and Fraserburgh but little economic data at this or district level. More disaggregated information is available for Shetland.

The latest input-output tables for the Scottish economy were published by the Scottish Government in July 2017 and provide data up to 2014. These calculate multipliers and effects for Scottish industry groups, with the two most relevant categories to the pelagic catching and processing sectors being 'Fishing' and 'Fish & Fruit Processing' respectively (Table 3).

Table 3 Scottish economic multipliers and effects for 'Fishing' and 'Fish & Fruit Processing'*, 2014

↓ Industry group ↓	Output multiplier (rank)	Income effect	Employment effect	GVA effect	Income multiplier	Employment multiplier	GVA multiplier
Fishing	1.6 (28)	0.3 (84)	16.4 (31)	0.7 (59)	2.3 (7)	1.4 (78)	1.6 (49)
Fish & fruit processing	1.7 (11)	0.3 (77)	12.0 (60)	0.6 (90)	1.9 (16)	2.1 (20)	2.4 97)

Source: Scottish Government, 2017[4]

*(numbers in brackets are the rank of each industry sector compared to other sectors in Scotland)

Multipliers reflect the change from a unit increase in final demand. For fishing an additional £1million results in £1.6million of activity in the economy and a similar result, £1.7million, is calculated for an additional £1million in 'fish and fruit processing'. Increases in employment in the two sectors result in similar income increases across the Scottish economy (0.3).

Differences are evident with the employment effect: an additional £1million output from fishing results in 16.4 FTEs through direct, indirect and induced expenditure, while the same additional output from processing results in 12 additional jobs.

The landings target is not proposing changes to output from fishing[5]. Instead it is attempting to redistribute some of the output from Norway to Scotland. However, the supply of fish to processors is only part of the economic contribution by the catching sector. Consultation with pelagic operators has identified that even though fish is landed into Norway, most services are still supplied from Scotland. The supply and use tables illustrate the proportion of the output from the fishing sector that can be attributed to these suppliers.

Table 4 below shows that the majority of supplies derive from a vessel's home port. A key supply, vessel construction, could be from a shipyard anywhere in the world, as could a major repair and maintenance job. Denmark has the necessary scale of shipyard services to make it a popular choice with the Scottish pelagic fleet.

Fuel provision, electricity, water and accommodation could be provided at the point of landing as well as the home port. These elements amount to 24% of total supplies to the fishing sector and for the Scottish pelagic vessels landing into Norway it is clear that the provision of supplies and services from Norway is very limited. Fishing seasons are a matter of weeks and the long periods of non-fishing when vessels are based at home ports allow supplies and services to be provided there with only top-up requirements at point of landing during the season.

The operating surplus, taxes and wages that contribute to the GVA from fishing are also all still accrued in Scotland, which in 2014 represented 45% of Scottish fishing sector's total output of £360.4 million (Scottish Government, 2017).

[4] http://www.gov.scot/Topics/Statistics/Browse/Economy/Input-Output/Downloads

[5] the I-O tables do illustrate a loss to the Scottish economy would result from withholding available quota.

Table 4 Total intermediate consumption by the Fishing sector at purchasers' prices, 2014

↓ Product group ↓	Fishing	Comment
Other transport equipment	47.9	Vessel construction could be anywhere
Coke, petroleum & petrochemicals	32.3	From home & landing port
Insurance & pensions	16.6	Home port
Electricity	14.5	From home & landing port
Repair & maintenance	14.5	Home port or elsewhere
Construction	12.1	Home port
Electrical equipment	9.6	Home port
Financial services	8.6	Home port
Support services for transport	4.9	Home port
Employment services	4.8	Home port
Wholesale & Retail - vehicles	3.8	Home port
Meat processing	2.8	Home port
Other food	2.4	Home port
Textiles	2.4	Home port
Fabricated metal	2.3	Home port
Telecommunications	1.9	Home port
Other professional services	1.8	Home port
Water transport	1.8	Home port
Other land transport	1.7	Home port
Wood and wood products	1.6	Home port
Other manufacturing	1.5	Home port
Health	1.3	Home port
Water and sewerage	1.3	From home & landing port
Bakery & farinaceous	1.2	Home port
Rubber & Plastic	1.1	Home port
Accounting & tax services	0.5	Home port
Other personal services	0.5	Home port
Legal activities	0.5	Home port
Wearing apparel	0.4	Home port
Pharmaceuticals	0.4	Home port
Leather goods	0.3	Home port
Cleaning & toilet preparations	0.3	Home port
Machinery & equipment	0.2	Home port
Paper & paper products	0.1	Home port
Accommodation	0.1	From home & landing port
Food & beverage services	0.1	Home port
Total intermediate consumption	197.9	
total supplies from home or landing port	48.2	From home and landing port
As % of total supplies	**24%**	

Source: Scottish Government, 2017

Pelagic fishing companies have developed over many years to become profitable enterprises that benefits the vessel owners, but also the share fishermen and the exchequer through taxation of the companies and individuals. The owners have invariably re-invested substantial sums in their fishing businesses as well as in other Scottish businesses. Company accounts available on Companies House illustrate the extensive investment made by fishing companies in other North-East companies. This investment supports associated pelagic & demersal sub-sectors including processing and cold storage and also includes a diverse range of sectors such as agriculture, renewable energy and property.

Reduced revenues to the catching sector will reduce the contributions described above and the induced spend in the local economy through the comparatively well-paid jobs on pelagic vessels. Together these equate to substantial and consistent contributions to the local economies in the home ports of Scottish pelagic vessels. The relative contributions of the catching and processing sectors in these economies should be taken into account, not simply the total numbers employed in each sector.

3 ECONOMIC MODEL

A fleet financial model was developed to estimate the potential impact of the Scottish Government's landing target on the pelagic fleet based on 2016 fleet activity. This is further detailed below and quantifies the net opportunity cost resulting from the landings target due to the price differentials and the differing costs associated with fishing, steaming, landing and selling into the key landing ports in Scotland and Norway.

3.1 MODEL STRUCTURE AND ASSUMPTIONS

The model is based on 2016 data, the most recent full year of operations, although it should be noted that mackerel fishing seasons run across years.

The model is structured with separate calculations for mackerel and herring in relation to the groups of vessels described in section 2.1:

Group 1: These vessels already meet the landings target. It is assumed that there would be **no direct impact** to these vessels from introducing the landings target. This group is not included in the model as it assumes no change in operation.

Group 2: This group of vessels land into Norway, Shetland and Peterhead. Only one vessel in this group achieved the landings target based on 2016 landings and sales data. All other vessels must change landing patterns to some extent to achieve the landings target.

Group 3: These independent vessels generally land 100% of their mackerel and herring into Norway, with the exception of one vessel that landed 100% of its herring into Scotland in 2016. Therefore 55% of the recorded 2016 landings into Norway by these vessels would be required to be diverted from Norway to Scotland with the introduction of the landings target.

Landings into Norway and Scotland are treated distinctly with consideration of the current revenues, prices and costs that would change with alternative landings destinations and the quantum of these changes, together with the switch in volumes of catch required to meet the government's proposals. The net financial implication of switching some Norwegian landings to Scotland to meet the 55% landings target is then computed for each species before being combined to derive an estimate of the financial implications for each group of vessels.

The model calculates the number of landings of each species made into Norway that would need to be switched to Scotland by Group 2 and Group 3 vessels in order to achieve the 55% target. All increased landings into Scotland are assumed to come from landings currently made into Norway, rather than catches from other landing locations.

The differences in price and costs per trip is then multiplied by the number of landings that are required to be switched to Scotland to achieve the 55% landings target for group 2 & group 3 vessels. The model allows the impact of alternative landings targets (as a % of total landings) to be calculated, and thereby the transitional landings target proportions can be explored.

The model assumes that herring and mackerel landings are made on discrete/different trips, hence a separate worksheet for each species.

3.2 DATA SOURCES, USES AND ASSUMPTIONS IN THE MODEL

3.2.1 Secondary data sources

Landings data

The model uses reported landings (volumes and values) of mackerel and herring in 2016 by group 2 and group 3 vessels in mainland Scotland, Shetland and Norway based on sales notes. As Group 3 vessels do not currently land into Scotland, Group 2 vessels are the only group that land to all three main landing locations: Norway, Peterhead and Shetland.

2016 data are used as the basis as:

a. This is the most recent complete year available

b. In 2015 the pelagic market was impacted by consequences of high fishmeal prices, impacting supplies to canneries and a reliance on cold store reserves. 2016 saw a return to more purchasing of fresh product at much improved prices.

Norway was selected for the base case model as this accounted for the largest proportion of foreign landings by UK vessels (see Table 5) and some of the Scottish fleet has well-established arrangements with Norwegian processors, which would be the most directly affected by the Government's proposals.

Table 5 Main landing destinations for mackerel and herring landed by Scottish registered vessels (tonnes and proportion of landed weight in 2016)

	Mackerel		Herring	
Scotland	96,093	51%	33,092	50%
Other UK	2	0%	0	0%
Norway	81,043	43%	29,325	45%
Denmark	9,082	5%	3,126	5%
Ireland	2,267	1%	-	0%
Other EU	1	0%	-	0%
Total	188,487		65,543	

Source: Marine Scotland, 2017

Vessels landed 5% of mackerel and herring to Denmark, with 1% of mackerel landed to Ireland. For both species, the average price achieved in Denmark was higher than the Norwegian average price (9% higher for mackerel and 3% higher for herring). Using Norway as the base case model is appropriate given the far larger proportion of landings compared to any other member state. It results in a more conservative outcome compared to using Denmark.

The table below shows a comparison of 2016 prices in Norway and Scotland (averaged between Shetland and Peterhead prices) using Marine Scotland data and sales note data provided by the industry. This shows substantial differences between Norway and Scotland, but also the differences between the Marine Scotland data and the industry data.

Marine Scotland data show an 9% higher mackerel price and a 4% higher herring price in Norway compared to Scotland. While industry data show a 10% higher mackerel price and a 17% higher herring price. Some of the differences may be attributable to exchange rate fluctuations (see Figure 3). The more significant difference in herring prices is in part due to the additional value agreed between processors and skippers for the herring roe.

The difference between Marine Scotland prices derived from average volumes and values and the direct prices shown in sales notes results in 5% higher industry-derived prices for mackerel and a 9%

difference in Norwegian herring prices, but a 3% lower industry prices for herring landed into Scotland. As industry supplied copies of sales notes reporting the prices paid on specific days, enabling exact exchange rate conversions, this data is considered more accurate than the averaged Marine Scotland data, which incorporates smaller volume landings from a range of Scottish vessels not just these pelagic vessels. However, the model presents results based on both sources of data.

Table 6 Comparison of 2016 mackerel and herring prices from annual data and industry sales notes

Differences in Marine Scotland & Sales note data	MACKEREL			difference	HERRING			difference
	Marine Scotland		Sales notes		Marine Scotland		Sales notes	
NOR Sales price	£	934	£ 986	106%	£	679	£ 742	109%
Scot Sales price	£	855	£ 897	105%	£	655	£ 635	97%
Difference per tonne	£	79	£ 90	£ 11	£	24	£ 107	£ 83

source: Marine Scotland, SFO & SFPO vessel sales notes.

Figure 3 Five-year trend in exchange rate for Norwegian krone to Sterling (GBP) 2012-2017

source: XE.com

Catch data per ICES rectangle

Data on catches of mackerel and herring per ICES rectangle are available for 2015 (latest year available) from the MMO, and are used in the computation of steaming distances from the point of capture to Peterhead, Shetland, and Egersund in Norway.

Steaming distances were estimated for the ICES rectangles accounting for 75% of catches (see appendix 1) in relation to Shetland, Peterhead and Egersund in Norway (the main landing point for Scottish vessels landing into Norwegian processors). Each ICES rectangle being approximately 30 nautical miles across enables calculation of distance from each ICES rectangle.

Costs are calculated proportionally in relation to the tonnage from each of these ICES rectangle to produce a weighted average steaming cost for landing into Norway and Peterhead[6]. The Irish Sea herring fishery (in 37E5) representing 2% of the total UK herring catch was not included as it is assumed landings from this fishery are not by Scottish vessels and not landed back to the Scottish or Norwegian ports.

[6] Peterhead is considered rather than Shetland as more capacity is available to receive landings, however the relative costs for all three main landing points (Egersund, Peterhead and Shetland) are calculated.

3.2.2 Data from consultations

Consultation was undertaken from June to August 2017 in North East Scotland and Shetland, involving interviews with pelagic skippers/vessel owners and their representatives, pelagic processors, harbour authorities and the Norwegian auction operators.

Sales/revenues

Detailed data on the Shetland fleet provided to Poseidon corroborates the general situation shown in the Marine Scotland data for the fleet as a whole, but shows that price differences (with higher prices in Norway) can be even greater, and that Shetland landings have a higher average price than Peterhead landings. This is because Norwegian processors sell into the herring roe market and Shetland vessels target the early herring fishery to land into Norway specifically for that market.

In addition to the price premium on landing into Norway, at the end of 2016 Norwegian processors made a bonus payment to Scottish vessels amounting to 4% of total landed value of herring for the herring roe extracted. This additional payment is represented within the model as a 4% increase in the sales note landed price.

Price differentials for mackerel were less marked, with around 10% higher prices in Norway than in Peterhead, and similar prices to Norway being achieved for Shetland landings.

The effect of using an annual average combining Peterhead and Shetland into a general 'Scotland' price may therefore reduce the calculated impact of the landings target compared to only using Peterhead prices, but this is appropriate as additional Scottish landings would be destined for Shetland as well as Peterhead.

Cost variables for Norwegian & Scottish landings

Trip costs

The costs associated with a fishing trip, including landing costs, were obtained from industry consultations, and are assumed to be the same irrespective of species, unless costs relate to the value of landings (i.e. harbour dues in Scotland and auction commission in Norway). Justification for this approach is based on the seasonality of landings for the two species demonstrated in the MMO data, which show that the main months for landings of mackerel into Norway are January, February, October and November, with the main months for landings of herring to Norway being August and September. This assumption is supported by consultation with Scottish pelagic skippers.

Steaming cost

The steaming cost from fishing grounds to key landing points is included in the model, with data on fuel costs per hour (at 50% throttle and full throttle), costs per litre, and speed sourced from industry consultations. A reduced steaming distance is a clear benefit to landing into Scotland rather than Norway, even though all those consulted stated that fuel cost was not a consideration when deciding where to land. Aside from cost implications, shorter steaming times in rough weather are also a recognised benefit.

The current focus of catching activity is around Shetland and therefore landing into Shetland is the most economical in terms of steaming time, but this is constrained by capacity as there is only Pelagia Shetland (formerly Shetland Catch) to receive landings. The additional landings to achieve the landings target is therefore most likely to be to processors in Peterhead/Fraserburgh.

The changing qualities of the fish (roe content in the case of herring and fat content in the case of mackerel) define the likely end markets. Therefore, an optimal arrangement in terms of steaming costs (whereby vessels land into Scotland when further West, then land into Norway when further

East) is not realistic: processor demand and the price offered dictate where the vessels land to, not steaming costs. A weighted average to estimate steaming costs is thus justified.

A steaming cost (per mile) is calculated from:

fuel use per hour x speed x fuel price

Fuel use per hour differs substantially by size of engine and whether at full throttle or half speed. An average for half speed of 550 litres/hour and 800 litres/hour full throttle was used, based on responses from skippers. These differences in fuel use are substantial and the speed increase (and reduced time to cover the same distance) only partially counterbalances the increased cost. The results presented are based on steaming at 50% as skippers recognise the fuel savings of steaming at 50% and with planning seek to operate on this basis. One skipper explained that:

"Egersund is further but as landing and discharging is well-planned, we usually only need to go at 50%, not full throttle, saving a lot of fuel. We work closely with the processors to minimise waiting times. We find waiting to discharge longer in Scotland and discharge time is longer. So fish may be a few hours older in Egersund, but this is more than compensated for by discharging quicker."

A constant fuel price of 45p/litre is used in the model. Fuel prices between Norway and Scotland are reported to be similar as both are duty-free to the commercial fishing sector. Prices mainly differ due to currency exchange rate fluctuations between Sterling and the Norwegian krone (Figure 3). Marine diesel fell from nearly 50p per litre in June 2014 to 26p per litre in December 2015 (Seafish,2016) but this gradually increased again throughout 2016.

Entry dues

Entry into Peterhead port costs £0.50 per Gross Tonne (GT) per vessel. Seafish (2016) gives an average tonnage for the pelagic fleet of 2,027 GT. This amount is higher than the equivalent cost in Norway.

Skippers landing into Norway suggested they pay a small amount (£100-£200 per landing) to harbours for piloting services. The piers where catches are discharged are owned by the processing companies who do not charge for their use.

Landing dues

The difference in landing dues between Scottish ports and Norwegian ports is significant. Norwegian costs are negligible by comparison to the 2.5% standard charge on landed value in Scottish ports.

In Lerwick a new scheme has been introduced in Jan 2017: first £1.5 million of landings (of all species) is at the rate of 2.5%, then anything above that over the period of the year is charged at a 35% reduction (i.e. 1.63% of landing value).

The Peterhead discount scheme is linked to price: 2.5% up to £850 per tonne and 1.25% on anything >£850 per tonne. This is achieved for mackerel in 2016 and this discounted charge is applied in the model to landed value for mackerel landed into Scotland in 2016.

By contrast, the Norwegian auction system charges 0.65% of catch value in commission. It is mandatory for all sales to be within the system, irrespective of whether sold through open auction or not and therefore this cost is included in the model.

It is also interesting to note that other countries ports encourage substantial landings. In Denmark there is a £3,800 landing cap with further benefits for large volume landings e.g. if land >£1.5 million, then berthing/lay-up cost? is very low.

Vessel supplies

Supplies per trip are minimal as most are sourced from local businesses in the vessels' Scottish home ports. Operators will top up with fresh fruit, vegetables and milk while landing. The price of these commodities is more expensive in Norway (estimated to be 50% more than Scotland), but the total amounts are minimal (£200 per trip for Scotland and £300 per trip for Norway).

Repairs and maintenance costs

Repair and maintenance is minimal during landing. The vessels employ engineers to undertake these services throughout the season and the purchase of external services per trip is only occasional and on an ad hoc basis. The amount is therefore difficult to estimate and for each trip 2 days (16 hours) of services are assumed. The cost of labour in Norway as reported by Eurostat indicates industrial labour per hour in the UK in 2015 was €25.8, while in Norway it was more than double at €60.2 (Eurostat, 2016).

3.2.3 Cost elements not included in model

Electricity costs in Norway are low, but the use by vessels is limited and these are not included in the model.

Berthing, maintenance and gear costs are not included in the model as these are incurred outside of the fishing seasons and are not impacted by the choice of landing destination.

The proxy cost of borrowing (bank interest rates) could be included for the average time it takes Scottish processors to pay compared to Norwegians. This can be calculated by multiplying borrowing rate for days before payment by the average value of each landing. Payment is guaranteed under the Norwegian auction system and therefore the cost can be assumed to be zero. The payment terms with Scottish processors are highly variable and lengthy periods of several weeks before payment do represent a cost to the catching sector. As interest rates are currently low (Bank of England base rate remains at 0.25%) and there are no data to derive an average payment period, this is not included as a quantifiable cost in the overall impact of implementing the landings target.

Processing sector impacts are not quantified in the model. Qualitative opinion as to the impacts of the policy proposals, particularly in light of the ability of the processing sector in Scotland to absorb increased landings, has however been obtained from industry consultations and used to inform the conclusions.

3.3 ECONOMIC MODEL RESULTS

The results of the model are summarised in Table 7 and Table 8. The Group 1 vessels with a vested interest in Scottish processors already land over 55% into Scotland (with some landings into Norway). If those vessels already achieving the landings target do not change their landing arrangements, there will be no change in costs for that group of vessels. There is assumed to be no direct cost from the introduction of the landings target to this group of vessels.

Table 7 presents the cost differences between landing in Norway and into Scotland based on Marine Scotland and sales note data. The costs in black illustrate where the landing in Norway results in gain compared to landing into Scotland. 90% of the gain for mackerel trips and 88% of the gain for herring trips results from the differences in sales value due to higher prices in Norway. However, there is also a significant difference in the cargo handling costs between Norway and Scotland with the 2.5% harbour dues incurred in Scotland compared to negligible costs in Norway. Port entry charges are also slightly higher in Scotland than Norway.

A move to landing in Scotland creates some specific cost savings for the fleet, related to specific variables. The steaming distances calculated between the main ICES catch areas to landing points (Egersund compared to Peterhead) show fuel cost savings of over £3,200 per mackerel trip. These savings are higher for herring trips, increasing to over £3,800 per trip, given the closer proximity of

fishing areas to Scotland. A substantial saving is also associated with selling direct to Scottish processors without incurring the Norwegian auction commission of 0.65% of landed value. For mackerel, this represents 65% of the cost savings resulting from landing in Scotland and 43% of savings for herring. However, the landing dues in Scotland are a significantly higher cost than the auction commission in Norway.

Overall the net cost of landing into Scotland rather than Norway in 2016 (dominated by the sales values achieved) averages £102,628 per mackerel trip and £79,939 per herring trip based on sales note data.

Table 7 Cost differences per trip landing into Scotland instead of Norway

Variables changing with a switch to landings in Scotland (£)	MACKEREL		proportion of gain/loss	HERRING		proportion of gain/loss
	Marine Scotland	Sales notes		Marine Scotland	Sales notes	
Sales value	£ 89,902.00	£ 101,990	90%	£ 17,280	£ 77,007	88%
Port entry charges	£ -	£ -	0%	£ 814	£ 814	1%
Cargo dues per landing*	£ 11,328.75	£ 11,883	10%	£ 10,444	£ 10,125	12%
Fuel cost (£) steaming from l	-£ 3,274.08	-£ 3,274	29%	-£ 3,868	-£ 3,868	48%
Vessel supplies per trip	-£ 100.00	-£ 100	1%	-£ 100	-£ 100	1%
Av costs of repairs and maint	-£ 564.16	-£ 564	5%	-£ 564	-£ 564	7%
Auction commission	-£ 6,908.80	-£ 7,297	65%	-£ 3,178	-£ 3,474	43%
Total cost per trip	£ 90,383.71	£ 102,638		£ 20,828	£ 79,939	

source: Poseidon analysis based on 2016 Marine Scotland & industry data

Table 8 Opportunity cost for those Scottish vessels switching Norwegian landings to Scotland to achieve 55% landings target (2016 Marine Scotland and sales note data)

	Group 2 vessels		Group 3 vessels		Total	
	Marine Scotland	Sales notes	Marine Scotland	Sales notes	Marine Scotland	Sales notes
Mackerel	£ 996,330	£ 1,131,411	£ 1,312,301	£ 1,488,654	£ 2,308,631	£ 2,620,065
Herring	£ 201,003	£ 771,467	£ 190,874	£ 732,594	£ 391,877	£ 1,504,061
Total	£ 1,197,333	£ 1,902,878	£ 1,503,175	£ 2,221,247	**£ 2,700,508**	**£ 4,124,126**

source: Poseidon analysis based on Marine Scotland & industry data

The costs per trip are extrapolated to reflect the altered landing pattern of those vessels not currently achieving 55% landings into Scotland[7]. This derives the total impact for each group of affected vessels. Based on 2016 industry-supplied sales note data, it is calculated that switching landings from Norway to Scotland to meet the 55% target, would result in a total opportunity cost of over £4.1 million annually for the two groups of Scottish vessels not currently achieving the landings target (Table 8).

Using the 2016 Marine Scotland data results in an estimated impact of £2.7 million (compared to £4.1 million based on sales note data). As discussed above, the use of sales notes explicitly stating the prices paid for each landing and when (to inform exchange rate) is expected to be more precise than the annual Marine Scotland data.

Most significantly for this exercise, the difference between Norwegian and Scottish herring prices is higher in the industry data (a 17% difference compared to just 4%). If prices between Norway and Scotland were as close as the MS annual data indicates, owners would not choose to incur the extra steaming time and costs to land into Norway. The price difference shown in the sales note data

[7] Six of the seven group 2 vessels did not meet the 55% landings target in 2016.

better reflects the reported differences during consultation where the targeting of herring for Norwegian processors selling into the roe market has yielded significantly higher prices in Norway. It is notable that since the Pelagia take-over, Shetland has now established a roe processing capabilities.

The vessels currently landing into Norway will bear this cost, i.e. the 13 vessels in the fleet that landed less than 50% into Scotland[8]. The distribution of these opportunity costs within this group will not be the same as the vessels hold different amounts of quota. Some may only be required to divert 1 or 2 landings to Scotland, while others (the Group 3 vessels) will have to move from 0% to 55% being landed in Scotland. For vessels currently landing 100% into Norway, based on 2016 data, achieving the 55% landings target will result in an average net cost of £514,571 in lost potential revenue primarily due to the lower prices in Scotland compared to Norway (see Table 6).

Table 9 Average costs per vessel for those currently landing 100% into Norway

AV PER VESSEL	Marine Scotland	Sales notes
Mackerel	£ 298,266	£ 338,705
Herring	£ 45,821	£ 175,866
Total	£ 344,088	£ 514,571

source: Poseidon analysis based on Marine Scotland & industry data

The impact for individual vessels will vary depending on their particular quota holdings, fishing patterns and how they choose to achieve the landings target, i.e. across both herring and mackerel or mainly through landing mackerel.

The proposed transitional arrangements of incremental increases to the landings targeted were also explored within the model, with the following findings:

- 2018: 30% of total landings into Scotland would result in an opportunity cost of £2.1 million for group 2 and group 3 vessels.
- 2019: 40% of total landings into Scotland would result in an opportunity cost of £2.9 million for group 2 and group 3 vessels.

3.4 FURTHER CONSEQUENCES OF THE LANDINGS TARGET

Based on 2016 data and assuming the landings target is achieved for both mackerel and herring catches by both Group 2 and Group 3 vessels, the result would be an additional 28,900t of mackerel and 13,547t of herring landed into Scotland. Based on average landings volumes this equates to an additional 27 mackerel landings and 21 herring landings (48 additional landings in total).

Assuming more landings into Scotland are made, the benefits to the catching sector will be reduced steaming times and associated fuel costs. These do not make up for the reduced returns from lower prices compared to Norway.

As outlined in Section 2 (see Table 4), with such concentrated fishing seasons, most of the economic activity for the ancillary sector supplying the catching sector is associated with the vessels home

[8] As stated in the Marine Scotland letter to POs 1st March, 2017

port. Other major costs such as vessel construction and gear supplies could be from anywhere in the world. Relatively few operational costs are associated with the point of landing. With more landings into Scotland will come additional fuel sales and some top-up supplies, which are comparatively minor benefits.

The main assumed benefit of the landings target is from more mackerel and herring being landed into Scotland to supply Scottish processors. In 2016 the landings into Scotland amounted to 99,239t mackerel and 33,100t herring. If, as is assumed by Marine Scotland, the vessels currently landing into Scotland maintained their landings, the landings target would result in a 29% increase in mackerel and a 41% increase in herring landings. While processors will welcome and can absorb some additional fish, it is not evident that there is the capacity to receive the scale of increase proposed.

The proposed landings target compels Scottish vessels to land, irrespective of demand from processors. With limited capacity to absorb the substantial additional herring and mackerel landings into Scotland, demand from Scottish processors could be expected to reduce, leading to lower prices. This would increase the difference between Norwegian and Scottish prices and with it the opportunity cost to affected vessels resulting from the landings target.

Many of the skippers consulted speculated that if the landings target forces landings previously destined for Norway to be diverted to Scotland, it could enable those vessels currently supplying Scottish processors to offer some of their catch to Norwegian processors. If this does occur, then the landings target will not only adversely impact a small number of individual Scottish companies disproportionately, it will result in a small number of other Scottish companies benefiting from Scottish Government action.

There is a genuine concern that the market intervention of the landings target will depress the prices paid in Scotland due to the following:

(a) processors will know skippers are required to land into Scotland and have very limited buyer options;

(b) the increased number of landings could result in vessels waiting longer to discharge to Scottish factories (with associated quality and costs implications); and

(c) the current capacity of the pelagic factories means that to receive more landings, the fishing seasons must be extended, resulting in vessels catching fish in sub-optimal condition.

Another key uncertainty is the impact of Brexit. Should the UK achieve a greater share of pelagic stocks after Brexit as a Coastal State, which would be argued through Zonal Attachment with so much of the catches within the UK EEZ. Therefore after 2019 the overall volume being accessed by the Scottish fleet could well increase substantially without the landings target

The consequences for the processing sector of all the resulting additional raw material could certainly be an increase in turnover. However, credit lines could be stretched to accommodate such large increases in raw material purchases. Another implication for the profitability of the processors is that without very swift growth in market share of high-value markets, the available export markets will be those that command comparatively lower prices. Turnover may increase without an equivalent increase in profitability for processors.

4 OPTIONS

4.1 OPTIONS IDENTIFICATION

During the industry consultation, the consultees were asked to suggest any potential alternative options for policy and/or markets to incentivise increased landings of pelagic fish into Scotland.

All of the suggestions related to support for Scottish processors to enable them to better compete with Norwegian counter-parts. Those interviewed all believed that the emphasis should be on bringing the Scottish pelagic processing sector up to the standard and prices of Norway instead of interventions like the landings target that could push down prices. This is effectively what many years of ongoing investment in the catching sector has achieved; Scottish vessels are now landing mackerel and herring to the same high standard as Norwegian vessels and can therefore sell to the Norwegian processors demanding that quality.

Three areas of support for Scottish pelagic processors were discussed:

1. Targeted marketing support to enable growth in high-value export markets (particularly Japan & Korea);
2. Support investment in plant modernisation to ensure the quality required of high-value markets; and
3. Support to Scottish processors in bidding for fish on the Norwegian auction system to enable fair access to the fish that is available.

These three options, proposed as alternatives to the landings target, are explored in the section below.

It is interesting to note that despite the cost of landing into Scottish ports exceeding the equivalent costs in Norway, there was no suggestion of pushing for a reduction in those costs. Consultees recognised that:

a. The price paid for the fish is the primary determinant in who to sell to and where to land;
b. Skippers do recognise the discounted fees being proposed by ports to attract more landings;
c. Scottish ports must make substantial investments to support the fishing fleet, particularly with the larger size of vessel entering the pelagic fleet; and
d. The ownership and payment systems in Norwegian ports differ to those in Scotland and these are not likely to be replicated.

4.2 DESCRIPTION OF OPTIONS

This section provides some further detail on the options considered. There may be different ways of structuring or delivering the options to what is proposed below and this should be the subject of further discussions between the sector and Marine Scotland.

Landings target
The landings target is as proposed in the Marine Scotland consultation paper on revisions to the economic link: Scottish fishing vessels will be required to land 55% of their catch into Scotland.

Option 1 – Marketing support
The Japanese/Korean pelagic markets pay the highest prices. This is the main reason why Norwegian companies can pay higher prices. Some Scottish companies have made in-roads and continue to seek

more customers in these markets[9]. However, the 2014 loss of the Russian market has mostly been addressed through greater supplies to lower-value growth markets such as African countries.

The Norwegian Seafood Export Council has been instrumental in Norwegian processors developing their market share in key overseas markets. A concerted effort could be made to target higher value markets for Scotland's pelagic products, particularly in the Far East. This would take the form of government support in developing appropriate marketing strategies and materials for those markets as well as facilitating B2B meetings to develop relationships and where customer requirements can be fully understood. This is expected to link with Option 2, as plant investment may be required to ensure those customer requirements can be delivered.

Option 2: plant investment

Automation appears to be the future of the high-volume production that characterises pelagic processing. There are examples of fully-automated plants (e.g. at Eskja[10]). This supports the objective of ensuring Scotland has competitive businesses, but goes against the intention of maintaining jobs. It is arguable that supporting an un-competitive business will only secure those jobs for the short-term. It is also posited that Brexit may result in labour shortages in sectors such as fish processing that is so dependent on seasonal immigrant labour.

There are investments being made by some processors in temperature control and in new processing equipment that ensure quality is maintained throughout the process. These do not directly impact the current jobs in processing and can be supported with the current funding programmes available to the sector.

Option 3: Bidding on Norwegian auction system

Norges Sildesalgslag[11] is the Norwegian auction system through which all Norwegian-landed pelagic products must be sold. Scottish processors have previously bid on this system, but in recent years have only used it for price information[12]. It is a well-established system on which other non-Norwegian companies (Danish, Icelandic, Faroese, etc.) currently trade. Therefore this option assumes that there is little value in establishing a new Scottish auction system, but there should be support to processors to ensure there is an 'even playing field' for them to bid for fish on the Norwegian auction system.

Other than an ability to compete on price, there are two aspects that potentially deter Scottish processors from participating in the auction:

a. The Payment Guarantee: a bond is required of all buyers to ensure sellers will be paid (the system pays the sellers within 14, but insists buyers pay in full within 30 days);

b. An auction filter that allows sellers to specify the geographic area that they wish to consider bids from (this mechanism was for small Norwegian vessels with limited range, but could in theory be used to exclude potential Scottish buyers).

[9] Lunar was one of several Scottish companies at a Japanese food expo in August, 2017: https://www.undercurrentnews.com/2017/08/23/scottish-delegation-heads-to-japan-for-a-slice-of-asian-market/

[10] See: https://www.youtube.com/watch?v=grnaLzsdNHk

[11] See: https://www.sildelaget.no/en

[12] As a result the auction company no longer allows full access to information for users where there has been no bidding activity on the auction for several months.

The Scottish government could explore how it can support companies in providing the necessary payment guarantee. One approach may be through a financial instrument, a mechanism that can be funded with European Structural Funding and one that is advocated by the European Investment Bank[13] .

4.3 OPTIONS APPRAISAL

An options appraisal is a technique for reviewing options and analyzing the costs and benefits of each one. It helps to ensure informed decision-making by providing a process that requires:

- The key objectives that must be achieved to be identified;
- The different ways of achieving these objectives to be described; and
- The pros and cons of each of these ways to be considered in terms of the benefits (financial and non-financial) that they can deliver.

A PESTEL (Political, Economic, Social, Technological, Environmental and Legal) analysis was undertaken by the Poseidon team to ensure the various aspects of each option are considered. A summary of this is presented in Table 10 overleaf.

4.4 BUSINESS AND REGULATORY IMPACT ASSESSMENT

The Scottish Government states that "All policy changes, whether European or domestic, which may have an impact upon business or the third sector should be accompanied by a Business and Regulatory Impact Assessment (BRIA). The BRIA helps policy makers to use available evidence to find proposals that best achieve the policy objectives while minimising costs and burdens. Through consultation and engagement with business, the costs and benefits of the proposed legislation can be analysed. It also ensures that any impact on business, particularly small enterprises, is fully considered before regulations are made."

"Partial BRIAs should accompany the consultation document for a new piece of legislation. These partial BRIAs are designed to inform and assess the impact on and encourage comment from those who may be affected by the proposals. A final BRIA should then be produced, building on the partial BRIA in light of the consultation and further information and analysis."

The partial BRIA accompanying the economic link consultation states in relation to the proposed landings target that:

- *The processing sector may need to invest in their businesses in order to adapt to increased quantities of fish.*
- *There may be a cost to some elements of the catching sector due to a price difference between processors in Scotland and abroad.*

This research concurs with these general statements: it identifies that there is a substantial opportunity cost to the catching sector resulting from the landings target that will be incurred by a small number of individual Scottish businesses, but also all of the fishermen associated with those vessels that are paid on a share basis.

Consultation has indicated that while the Scottish processing sector could absorb a higher volume of fish overall (as evidenced by quota changes year to year) it is not currently equipped to adequately manage the additional landings that would result from the landings target unless seasons are extended. This would be to the further detriment of the catching sector as fishing would be less efficient: operational costs would increase and the prices paid may well reduce.

[13] See: www.fi-compass.eu

Table 10: PESTEL Analysis of landings target & alternative pelagic sector support options

Landings Target	**Option 1: Marketing support**	**Option 2: Plant investment**	**Option 3: Bidding on auction system**
Political: To what extent is the option likely to be politically acceptable – is the government likely to intervene in this manner or support such an option?			
++ proposed by gov , supporting jobs.	+ export market development advocated by gov in Ambition 2030	+ innovation advocated by gov in Ambition 2030	? uncertain as could be seen as linking with competitors
Economic: What is the likely economic impact of the option on the key sectors and overall?			
– Reduced revenue for catching sector. +Increased turnover for processors – increased risk for processors if marginal viability/cash flow.	– Resources required in short term ++ Increased revenues for processors if more lucrative markets can be accessed.	– Capital investment in short term, but + increased revenues in medium term as operating costs reduced.	+ Increased payment certainty through trading on auction system with payment guarantees.
Social: What is the likely impact on employment, communities and social linkages?			
+ Processing jobs could be maintained	++ Processing jobs could be created through new market development	– increased automation could replace some jobs. Higher skilled jobs required (+)	+ Processing jobs could be maintained
Technology: Are there new ways of achieving the option? can technology assist delivery of the option?			
Not a technology-driven option	+ The use of technology to overcome language barriers and appropriate social media marketing in far eastern markets	++ This option is based on the introduction of new processing technologies	+ There may be technical approaches to enable better engagement with the Norwegian auction system
Environmental: What are the environmental consequences resulting from the option? (e.g. change in emissions through reduced steaming)			
+ reduced steaming from more landings into Scotland	+ reduced steaming from more landings into Scotland	++ reduced steaming from more landings into Scotland Modern equipment/process likely to address waste	+ reduced steaming from more landings into Scotland
Legislation: Would a change to legislation be required? This impacts cost and timing of implementation			
Yes?	No	No	No

5 CONCLUSIONS

The Scottish pelagic catching sector is 100% owned by Scottish companies and crewed by individuals that make substantial contributions to local economies and the national exchequer. As pelagic fishing is very seasonal, most repair and maintenance occurs at home ports and only 24% of total supplies to the sector is potentially from the point of landing. The majority of spend and benefits (operating surplus, taxes and wages) accrue in Scotland, irrespective of where the fish is landed.

Based on 2016 landings data and prices from sales note data provided by Scottish pelagic vessels, the proposed landings target of 55% into Scotland would reduce potential revenue to the groups of vessels affected by the landings target by £4.1 million annually if Norwegian landings were required to fulfil the landings target into Scotland and the landings target were applied equally to mackerel and herring landings (i.e. 55% of each species).

This opportunity cost is primarily due to the higher prices paid by Norwegian processors (90% of the opportunity cost for a typical mackerel landing), but also due to lower landing costs (10%).

The proposed landings target compels Scottish vessels to land irrespective of demand from processors. With limited capacity to absorb the substantial additional herring and mackerel landings, demand from Scottish processors could be expected to reduce leading to lower prices. This would increase the difference between Norwegian and Scottish prices and with it the opportunity cost to affected vessels resulting from the landings target.

The benefits of reduced steaming distances and no Norwegian auction commission only partially off-set the differences resulting from this switch in landings from Norway to Scotland.

The proposed transitional arrangements of a 30% target in year 1 would result in an opportunity cost of £2.1 million for the affected vessels. In year 2, again based on 2016 data, a 40% target would reduce potential revenues to this group of vessels by £2.9 million.

The distribution of the impact on the catching sector is not equitable. This reduced revenue will be incurred by the 13 vessels that did not reach the landings target in 2016 as there will be no opportunity cost for the vessels already achieving the target. For a vessel currently landing 100% into Norway, the annual average cost of achieving the landings target (assuming this is achieved landing 55% of both mackerel and herring landings and based on 2016 data) would be £514,571.

The costs of the landings target that are identified will not only impact the vessel owners, but also the crews of those affected vessels that are paid on a share basis.

The estimated opportunity costs relate to the groups of vessels not currently achieving the target and this assumes that those vessels already achieving the target do not change their fishing pattern, i.e. reduce their landings into Scotland. However, there is no guarantee that this will occur and it is possible that vessels already landing more than 55% into Scotland will seek the higher prices offered in Norway.

The pelagic fishing fleet continues to make efficiency gains and works with processors to land fish in order to supply specific markets, e.g. determined by the presence of herring roe and the fat content of mackerel. The current capacity of the Scottish processing sector indicates that it could not accept all of the additional landings resulting from the landings target during the existing fishing seasons. Were seasons to extend, the quality of the fish landed (and the markets into which it can be sold) may be compromised. This would reduce the price that could be offered to vessel operators. An extension of the fishing season also risks an increase in operational costs as vessels are not able to fish in the most efficient manner possible.

Alternatives to the landings target are proposed to incentivise increased landings of pelagic fish into Scotland, as follows:

Support Scottish processors in growing high value export markets by:

(a) targeted export marketing assistance and

(b) plant investment to achieve the quality required of those markets.

Support Scottish processors in bidding for fish on the Norwegian auction system by:

(a) enabling Scottish processors to give the payment guarantees needed to bid; and

(b) negotiating improved arrangements with the system operators to avoid Scottish processors being precluded from bidding.

The support proposed above would help Scottish processors to better compete with Norwegian processors and so avoid the reduced fleet revenues resulting from a landings target.

The impact on pelagic fisheries of post-Brexit arrangements with the UK negotiating catch shares as a Coastal State, makes it difficult to predict future catches and landing levels. For the next few years until 2020, the intervention proposed by the landings target risks creating unforeseen market consequences.

REFERENCES

EUMOFA (2017) Monthly price trends https://www.eumofa.eu/monthly-trends

Eurostat (2016) Labour costs in the EU, April 2016. http://ec.europa.eu/eurostat/documents/2995521/7224742/3-01042016-AP-EN.pdf/453419da-91a5-4529-b6fd-708c2a47dc7f

MMO (2017) UK Fleet Landings by ICES rectangle 2015 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/624436/UK_fleet_landings_by_ICES_rectangle_2015.csv/preview

MMO (2016) UK Sea Fisheries Annual Landings statistics https://www.gov.uk/government/collections/uk-sea-fisheries-annual-statistics

Scottish Government (2017) Scottish Sea Fisheries Statistics 2016 http://www.gov.scot/Publications/2017/09/4462/downloads

Scottish Government (2017) Supply and Use tables for the Scottish Economy http://www.gov.scot/Topics/Statistics/Browse/Economy/Input-Output

Seafish (2016) Fleet Economic Performance Data http://www.seafish.org/research-economics/industry-economics/seafish-fleet-economic-performance-data

ANNEX A: MODEL OUTPUTS

Group 2 vessels	Mackerel	Marine Scotland	
	2016 data for SFPO Shetland vessels landing >50% into Norway		
Catches (from MS dataset)			
	Norway	**Scotland**	**Total**
Volume (t)	25,777	3,629	29,406
Value (£)	24,076,064	3,102,692	27,178,756
Ave value (£) per tonne	934.0	855.0	924.3
Proportion of volume of total catches	87.7%	12.3%	
Months of landing			
Weighted ave value (£) per tonne for months of Norwegian landings	934	855	
Ave vol (t)per landing	1,138	1,060	
Ave val (£)per landing	1,062,892	906,300	

	2016	**Landings target**
Required landing in Scotland for 55% of total landings (t)	16,173	**55%**
Required catch switch from Norway to Scotland to achieve 55% landings target (t)	12,545	
Number of changed landings to make landings target	11	
% reduction Norway landings	49%	

Group 2 vessels	Mackerel	Sales notes	
	2016 data for SFPO Shetland vessels landing >50% into Norway		
Catches (from MS dataset)			
	Norway	**Scotland**	**Total**
Volume (t)	25,777	3,629	29,406
Value (£)	25,427,505	3,254,399	28,681,903
Ave value (£) per tonne	986.4	896.8	975.4
Proportion of volume of total catches	87.7%	12.3%	
Months of landing			
Weighted ave value (£) per tonne for months of Norwegian landings	986	897	
Ave vol (t)per landing	1,138	1,060	
Ave val (£)per landing	1,122,554	950,614	

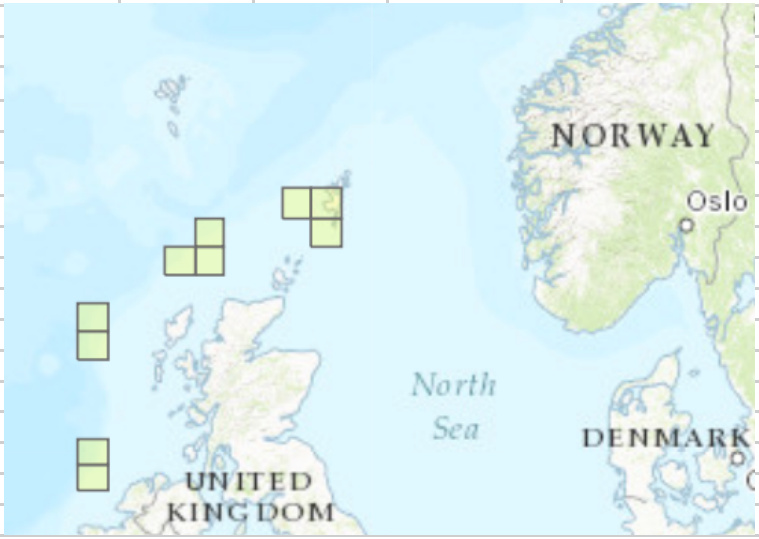
	2016	**Landings target**
Required landing in Scotland for 55% of total landings (t)	16,173	**55%**
Required catch switch from Norway to Scotland to achieve 55% landings target (t)	12,545	
Number of changed landings to make landings target	11	
% reduction Norway landings	49%	

Group 3 vessels:	Mackerel	Marine Scotland		
Catches (from MS dataset)				
	Norway	**Scotland**	**Total**	
Volume (t)	29,774	-	29,774	
Value (£)	27,808,542	-	27,808,542	
Ave value (£) per tonne	934.0	855.0	934.0	
Proportion of volume of total catches	100.0%	0.0%		
Months of landing				
Weighted ave value (£) per tonne for months of Norwegian landings	934	855		
Ave vol (t)per landing	1,138	1,060		
Ave val (£)per landing	1,062,892	906,300		
	2016	**Landings target**		
Required landing in Scotland for 55% of total landings (t)	16,375	**55%**		
Required catch switch from Norway to Scotland to achieve 55% landings target (t)	16,375			
Number of changed landings to make landings target	14			
% reduction Norway landings	55%			

Group 3 vessels:	Mackerel	Sales note data	
Catches (from MS dataset)			
	Norway	**Scotland**	**Total**
Volume (t)	29,774	-	29,774
Value (£)	29,369,890	-	29,369,890
Ave value (£) per tonne	986.4	896.8	986.4
Proportion of volume of total catches	100.0%	0.0%	
Months of landing			
Weighted ave value (£) per tonne for months of Norwegian landings	986	897	
Ave vol (t)per landing	1,138	1,060	
Ave val (£)per landing	1,122,554	950,614	
	2016	**Landings target**	
Required landing in Scotland for 55% of total landings (t)	16,376	**55%**	
Required catch switch from Norway to Scotland to achieve 55% landings target (t)	16,376		
Number of changed landings to make landings target	14		
% reduction Norway landings	55%		

Steaming distances*										
distance to Peterhead		weighted averag	distance to Shetland		weighted average	disance to Norway**		weighted average	difference Norway/Peterhead	difference Norway/Shetland
150	£2,583	£952.61	30	£517	£190.52	210	£3,616	£1,333.66	£1,033	£3,099
120	£2,066	£449.90	30	£517	£112.47	210	£3,616	£787.32	£1,550	£3,099
150	£2,583	£196.00	120	£2,066	£156.80	330	£5,682	£431.19	£3,099	£3,616
210	£3,616	£261.93	150	£2,583	£187.09	390	£6,715	£486.44	£3,099	£4,132
450	£7,748	£358.04	360	£6,198	£286.43	540	£9,297	£429.65	£1,550	£3,099
360	£6,198	£294.72	270	£4,649	£221.04	450	£7,748	£368.40	£1,550	£3,099
150	£2,583	£121.53	120	£2,066	£97.22	330	£5,682	£267.37	£3,099	£3,616
180	£3,099	£148.66	30	£517	£24.78	240	£4,132	£198.21	£1,033	£3,616
360	£6,198	£246.71	270	£4,649	£185.03	450	£7,748	£308.39	£1,550	£3,099
450	£7,748	£282.54	360	£6,198	£226.03	540	£9,297	£339.04	£1,550	£3,099
258	£8,884		174	£5,992		£369	£12,706		£3,822	£6,715
ge	£6,625			£3,375			£9,899		£3,274	£6,524

Fuel cost	litres per hour	price per litre	miles per hour	cost for 100 miles
50% throttle	550	£0.45	14.375	£1,722
full throttle	800	£0.45	16.675	£2,159



* number of ICES rectangles taking most direct sea route x 30nmiles

**Egersund

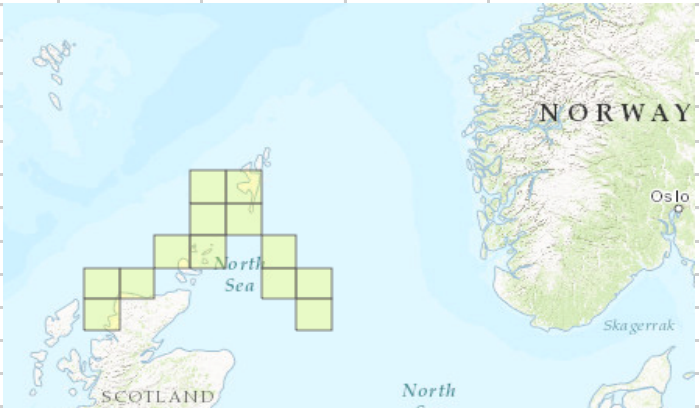
***based on standard speeds reported from consultation

Group 2 Vessels	Herring	Marine Scotland			Scottish Pelagic Landings Targe	Herring	Sales notes	
Catches (from MS dataset)					**Catches (from MS dataset)**			
	NORWAY	**SCOTLAND**	**2016**			**NORWAY**	**SCOTLAND**	**2016**
Volume (t)	13,337	859	14,196		Volume (t)	13,337	859	14,196
Value (£)	9,055,680	562,953	9,618,633		Value (£)	9,900,444	546,096	10,446,541
Ave value (£) per tonne	679.0	655.0	677.5		Ave value (£) per tonne	742.3	635.4	735.9
Proportion of volume of total catches	93.95%	6.05%			Proportion of volume of total catches	93.95%	6.05%	
Months of landing					Months of landing			
Weighted ave value (£) per tonne for months of Norwegian landings	679	655			Weighted ave value (£) per tonne for months of Norwegian landings	742	635	
Ave vol (t)per landing	720	650			Ave vol (t)per landing	720	650	
Ave val (£)per landing	488,880	425,750			Ave val (£)per landing	534,485	413,002	
	2016	**Landings target**				**2016**	**Landings target**	
Required landing in Scotland for 55% of total landings (t)	7,807.94	**55%**			Required landing in Scotland for 55% of total landings (t)	7,807.94	**55%**	
Required catch switch from Norway to Scotland to achieve 55% landings target (t)	6,948				Required catch switch from Norway to Scotland to achieve 55% landings target (t)	6,948		
Number of changed landings required to make landings target	10				Number of changed landings required to make landings target	10		
% reduction Norway landings	52%				% reduction Norway landings	52%		

Group 3 vessels	Herring	Marine Scotland			Scottish Pelagic Landings Targe	Herring	Sales notes	
Catches (from MS dataset)					**Catches (from MS dataset)**			
	NORWAY	**SCOTLAND**	**2016**			**NORWAY**	**SCOTLAND**	**2016**
Volume (t)	11,997	-	11,997		Volume (t)	11,997	-	11,997
Value (£)	8,145,963		8,145,963		Value (£)	8,905,864		8,905,864
Ave value (£) per tonne	679.0	655.0			Ave value (£) per tonne	742.3	635.4	
Proportion of volume of total catches	100.00%	0.00%			Proportion of volume of total catches	100.00%	0.00%	
Months of landing					Months of landing			
Weighted ave value (£) per tonne for months of Norwegian landings	679	655			Weighted ave value (£) per tonne for months of Norwegian landings	742	635	
Ave vol (t)per landing	720	650			Ave vol (t)per landing	720	650	
Ave val (£)per landing	488,880	425,750			Ave val (£)per landing	534,485	413,002	
	2016	**Landings target**				**2016**	**Landings target**	
Required landing in Scotland for 55% of total landings (t)	6,598.35	**55%**			Required landing in Scotland for 55% of total landings (t)	6,598.35	**55%**	
Required catch switch from Norway to Scotland to achieve 55% landings target (t)	6,598				Required catch switch from Norway to Scotland to achieve 55% landings target (t)	6,598		
Number of changed landings required to make landings target	9				Number of changed landings required to make landings target	9		
% reduction Norway landings	55%				% reduction Norway landings	55%		

Steaming distances*									difference	difference
distance to Pet	cost	weighted avera	distance to She	cost	weighted avera	disance to Norway**		weighted avera	Norway/Peterhead	Norway/Shetland
150	£2,583	£898.71	30	£517	£179.74	240	£4,132	£1,437.94	£1,550	£3,616
120	£2,066	£238.74	30	£517	£59.68	210	£3,616	£417.79	£1,550	£3,099
90	£1,550	£113.47	60	£1,033	£75.65	180	£3,099	£226.94	£1,550	£2,066
150	£2,583	£201.59	120	£2,066	£161.27	360	£6,198	£483.81	£3,616	£4,132
90	£1,550	£109.00	90	£1,550	£109.00	300	£5,165	£363.32	£3,616	£3,616
120	£2,066	£118.47	90	£1,550	£88.85	150	£2,583	£148.08	£517	£1,033
150	£2,583	£117.85	30	£517	£23.57	210	£3,616	£164.98	£1,033	£3,099
90	£1,550	£66.30	90	£1,550	£66.30	300	£5,165	£221.00	£3,616	£3,616
180	£3,099	£117.46	120	£2,066	£78.31	330	£5,682	£215.35	£2,583	£3,616
60	£1,033	£36.53	90	£1,550	£54.80	180	£3,099	£109.60	£2,066	£1,550
60	£1,033	£34.70	120	£2,066	£69.40	150	£2,583	£86.75	£1,550	£517
90	£1,550	£46.71	60	£1,033	£31.14	240	£4,132	£124.57	£2,583	£3,099
180	£3,099	£99.43	30	£517	£16.57	240	£4,132	£132.57	£1,033	£3,616
118	£4,052.71		74	£2,542.88		238	£8,184.88		£2,066	£2,821
ge	round trip cost	£4,397.90			£2,028.56			£8,265.42	£3,867.51	£6,236.85

Fuel cost	litres per hour	price per litre	miles per hour	cost for 100 miles
50% throttle	550	£0.45	14.375	£1,722
full throttle	800	£0.45	16.675	£2,159



* number of ICES rectangles taking most direct sea route x 30nmiles

**Egersund

***based on standard speeds reported from consultation