

# SR690 Potential Implications of the Landing Obligation on Onshore Seafood Supply Chains in the UK.

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# POTENTIAL IMPLICATIONS OF THE LANDING OBLIGATION ON ONSHORE SEAFOOD SUPPLY CHAINS IN THE UK

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Nathan de Rozarieux  
*Tegen Mor Fisheries Consultants*

Lelant, St Ives, Cornwall, TR26 3JX  
nathan@tegen-mor.co.uk  
07870 154910



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## ACRONYM LIST

ABP	Animal By-Products
AC	Advisory Council
APHA	Animal and Plant Health Agency
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CFP	Common Fisheries Policy
CFPO	Cornish Fish Producers Organisation
Defra	Department for rural affairs
EDF	Environmental Defense Fund
EFF	European Fisheries Fund
EHO	Environmental Health Officer
EMFF	European Maritime Fisheries Fund
eNGO	Environmental Non-Government Organisation
EU	European Union
FAO	Food and Agricultural Organisation of the UN
ICES	International Council for the Exploration of the Seas
IFCA	Inshore Fisheries and Conservation Authority (England)
ITQ	Individual Transferable Quota (ITQ)
LO	Landing Obligation
MCRS	Minimum Conservation Reference Size
MCS	Marine Conservation Society
MMO	Marine Management Organisation
MSC	Marine Stewardship Council
PA	Port Authority / Harbour Master
PO	Producer Organisation
PTA	Plymouth Trawler Agents
RBS	Registration of Buyers and Sellers
STECF	Scientific Technical and Economic Committee for Fisheries
TAC	Total Allowable Catch
WG	Welsh Government



## EXECUTIVE SUMMARY

The key driver for the landing obligation (often referred to as the discard ban) emanates from the basic regulation text of the new Common Fisheries Policy (CFP) agreed by the European Union (EU) Council of Ministers in June 2013 and which entered into force in January 2014. The implementation of these new rules, aimed at preventing the practice of discarding, represents perhaps the most significant change in European fisheries policy since the introduction of the Common Fisheries Policy (CFP) in 1983.

In recent years, the attention of industry, scientists and national administrations has focused on implementation of the landing obligation at the catching sector end of the supply chain. However, the new rules could pose a range of potential risks to supply chains (e.g. through reduced landings, changing catch compositions or premature closure of a fishery). This study sought to explore the range of potential implications (both positive and negative) for all links in the onshore seafood supply chain (from harbour to consumer) in order to better understand, and prepare for, the full range of potential challenges that could arise following the full implementation of the landings obligation.

In order to investigate the potential impacts of the landing obligation (LO) on the onshore seafood supply chain in the UK, the project approach was divided into four distinct phases: i) desk-top research; ii) conducting interviews with stakeholders, either face-to-face or via telephone; iii) providing analysis of stakeholder views gathered and iv) report qualitative findings and actionable insight.

Desk-top research from a range of sources provided background and context for the stakeholder interviews. Due to the array of policy levers that could trigger various exemptions within the landings obligation, this report did not attempt to forecast all of the possible permutations. However, broad scenarios were developed to elicit 'what if' responses from stakeholders.

In total, 79 stakeholder interviews were conducted with individuals and businesses throughout the wild capture seafood supply chain (from catching sector to retailers and foodservice) at 23 locations visited across the United Kingdom.

Throughout the onshore seafood supply chain, there was a good general level of awareness about the impending implementation of the landing obligation. There was strong demand for detailed forecasting of landings under the new rules in order that business planning and possible intervention mechanisms could be put into place.

The greatest concern among stakeholders was the impact a 'choked' fishery would have on the wild seafood supply chain. Depending on the timing of a fishery closure and the fisheries concerned, this could have a serious economic impact on parts of the seafood supply chain.

The ability of individual vessels to access quota was identified as a critical factor in determining to what degree landings and catch compositions will change from current levels. Although access to quota and quota management are not normally associated with supply chains, the ability of vessels to access quota will be fundamental to compliance and the impact of the landing obligation on the whole supply chain.

It was anticipated that of the onshore supply chain the local (port based) processing businesses would be affected most acutely due to their proximity to the supply chain source and dependence on local landings. Further downstream in the supply chain, it was believed that even the most extreme impacts of the landing obligation would become increasingly diluted as it was perceived

to be just one of many fluctuating variables (e.g. fish prices, exchange rates, global demand). The severity of potential impacts / risks appeared to decrease through the supply-chain, with the impacts appearing manageable to retailers and almost certainly un-noticeable to consumers.

While few sectors believed they would see economic opportunities under the landing obligation, the fishmeal sector, pot bait sector and transport sectors all appeared to see potential benefits under the new rules.

Representing the interface between the offshore and onshore supply chains, the ports and harbours sector faces the greatest challenges posed by the regulation onshore. Potential solutions to handling discarded fish below the Minimum Conservation Reference Size (MCRS) exist at most larger and many medium sized ports, but ownership of the issue, practical engagement and management are needed at port level. Port and market operators do not have spare human resource capacity, and some time-limited assistance could be needed to aid transition of the new rules.

In the absence of absolute facts on future landings, port and market operators were wary about committing to significant investments in infrastructure (e.g. cold stores, freezers, bio-digesters etc.) to deal with the issue. Many small ports were without the most basic of handling facilities and there was concern from this sector that they would be unable to comply with the new regulation.

There was strong demand across the supply chain for continued cross-sector dialogue and improved co-ordination and dissemination of forward landings information from vessels to markets and onwards to processors, fishmeal producers, pot bait users and road hauliers.

The findings of this study suggest that if the 'worst case' scenario of premature choking of fisheries could be avoided, then the whole seafood supply chain could and would adapt to the new era of fisheries management with limited outside intervention. Therefore, the use of national / EU grant assistance should be prioritised to assisting ports and harbours prepare and handle discards through the transitional period.

**Table 1: Summary of potential impacts of the landing obligation on the UK Seafood supply chain**

Sector	Potential +ve effect	Potential -ve impact	Comments
Ports / harbours / sales agents		Red	There is an expectation from the catching sector that port / harbours / agents will develop supply chains and infrastructure to accommodate the disposal of discards. Any new services provided will be on a 'cost recovery' basis. There will be significant challenges in some areas.
Pot bait suppliers	Green	Amber	Although there is increased scope for significant volumes of raw material, these could displace existing products or cause a drop in bait prices.
Fishmeal producers	Green		There appears to be only a strong positive upside as the sector has demand and the capacity to provide a 'discard solution' for larger ports.
Pet food producers	Amber		This is a new and emerging sector that has some potential to be an outlet for discards.

Road transport sector	Green		There appears to be only a strong positive upside as the sector has demand and the capacity to provide a 'discard solution' for most larger ports.
Local processors	Amber	Red	Limited impact overall as any potential upside of increased landings and wider availability of different sizes of fish is balanced against the potential risk of interrupted supplies due to fishery choking.
National processors	Amber	Amber	Due to the significant scale of businesses in this sector, any impacts or benefits will be small in scale and un-likely to de-stabilise the businesses.
Foodservice sector	Grey	Grey	Supply chains are highly risk assessed, robust and adaptive and therefore any impacts are likely to be absorbed by suppliers.
Retail	Grey	Grey	Supply chains are highly risk assessed, robust and adaptive any impacts are likely to be absorbed by suppliers.

Key

- Red** potential serious economic impact
- Amber** some impact but manageable through some business adaptation
- Green** potential economic benefit
- Grey** potential impact that is manageable through minor adaptation

## Recommendation 1:

### Establish a network of regional discard management co-ordinators:

As the point of landing (and first point of handling), efforts to assist the onshore supply chain in adapting to the new landing obligation rules should, in the first instance, focus on supporting the ports / harbours / sales agents. In most of the larger, commercially significant fishing ports and harbours the key ingredients that appear lacking are co-ordination and communication. Therefore, it is recommended that consideration be given to employing regional discard supply chain co-ordinators to work alongside harbour managers, sales agents, vessel owners, bait suppliers, hauliers and POs.

These posts, either at port or regional level, would be dedicated to working alongside existing supply-chain stakeholders to develop and implement detailed discard handling plans for each port / harbour. The focus would be on discards that are under MCRS and which cannot be sold for direct human consumption.

The plan would be unique to each port but would cover the following areas:

- i. Communication – to improve short-term forecasting of supplies to assist harbours, agents with logistics planning
- ii. Landing – handling communication and forward landing information
- iii. Storage – work with local Environmental Health Officers (EHOs) to ensure segregated storage arrangements and facilities meet ABP requirements
- iv. Fishmeal – ensure there is awareness of quality expectations, arrange the most efficient use of transport and ensure there are the correct number of bins
- v. Bait – working with local bait supplies to understand demand by species, size, handling capacity, storage arrangements and price
- vi. Administration – ensure relevant auditable administrative procedures are in place to ensure that discard landings are attributed to the correct vessels

Effectively, these discard officers would be trouble-shooters, providing a short-term intervention as once the relevant discard handling mechanisms become tried and tested the assistance would no longer be required. Such posts could be funded via EMFF and be hosted by a PO, local sales agent or harbour authority. The key focus of this role would be to open and support communication channels between supply chain partners to ensure discards, and in particular those with no human consumption market value, are dealt with in a professional and efficient manner.

[ACTION: devolved administrations, POs]

## Recommendation 2:

### Develop a clearer communication strategy through the supply chain (B2B and B2C)

Media perception and public opinion surrounding the implementation of the landing obligation will be important to the whole seafood supply chain, but critically so to the foodservice and retail sectors. While devolved administrations focus on detailed implementation plans, there is a need for a cross-sector working group to agree messaging and develop a bank of FAQs. A vehicle for this could be a sub-group of the Seafish DAG as this provides a unique cross-sector supply chain forum.

[ACTION: Seafish]

**Recommendation 3:****Facilitate EMFF grant investment in temporary infrastructure and capital items (e.g. temporary cold stores, bins)**

Investment in large infrastructure projects solely to accommodate additional landings arising from the landing obligation is not recommended, as landings of unwanted fish should decrease over time as the catching sector adapts to the new rules and fishes more selectively. There is, however, a strong case to permit the use of EMFF grants to support temporary cold storage structures that would enable the industry to deal with additional landings during the transitional period from 2016 to 2019 in a flexible and cost effective fashion.

[ACTION: Devolved administrations]

**Recommendation 4:****Provision of more detailed information**

To enable all sectors of the seafood supply chain to better plan and prepare for the introduction of the landings obligation, more detailed estimates of the potential volumes landed of fish landed are required. These, of course, would be based only on the best available data (currently the 'discard atlases') but would provide the supply chain with some tangible numerical information to work with. The focus of this work should be with POs, port managers, sales agents and, in some cases, fishmeal producers.

[ACTION – Cefas, Marine Scotland, AFBI and devolved administrations]

**Recommendation 5:****Explore the grounds for providing exemptions for smaller ports**

Policy around implementation of the landing obligation at smaller ports is not clear, and operators and managers are concerned that the costs of providing facilities to deal with potentially small volumes of discards are grossly disproportionate. In many cases, they may also be practically unfeasible for a number of reasons, such as lack of suitable drainage and electrical supply. Even essential items, such as weighing scales, are not present at many small port locations. It is, therefore, suggested that the case for granting exemptions based on disproportionate costs for the inshore sector be investigated.

[ACTION – devolved administrations]

## 1. INTRODUCTION

### 1.1 Background to the study

Discarding is the practice of returning unwanted catches to the sea, either dead or alive, because either they are too small, the fisherman has no quota, certain catch composition rules or the fish have low or no market value. One of the key objectives of the new Common Fisheries Policy (CFP) is to end the wasteful practice of discarding through the introduction of a landing obligation (LO) or discard ban. This change in regime serves as a driver for improved selectivity, and provides more reliable catch data to better inform the science that underpins fisheries management.

To allow fishermen to adapt to the change, the landing obligation will be introduced gradually, between 2015 and 2019 for all species managed under a Total Allowable Catch (TAC) in European waters, and Mediterranean stocks subject to minimum landing sizes (MLS). Under the landing obligation, all catches have to be kept on board, landed and counted against the quotas. Undersized fish that are below the minimum conservation reference size (MCRS) and designated as an animal by-product (ABP) cannot be marketed for human consumption purposes.

The landing obligation will be applied fishery by fishery. Details of the implementation will be included in multiannual plans (or in specific Discard Plans when no multiannual plan is in place) presented to the Commission by Member States. These details include the species covered, provisions on catch documentation, minimum conservation reference sizes, and exemptions (for fish that may survive after returning them to the sea, and a specific *de minimis* discard allowance under certain conditions). Quota management will also become more flexible in its application to facilitate the landing obligation.

As such, the implementation of the landing obligation represents perhaps the most significant change in European fisheries policy since the introduction of the Common Fisheries Policy (CFP) in 1983.

Details of implementation in the UK are still emerging but recent consultations by devolved administrations suggests that the landing obligation will initially cover whiting, *Nephrops*, hake, haddock, plaice and sole across UK fleets in 2016. The remaining quota species will then be phased in between 2017 and the end of 2019 (see Tables 2 and 3).

Until recently, the attention of industry, scientists and national administrations has focused on implementation of the landing obligation at the catching sector end of the supply chain. However, it is apparent that without significant change to fishermen's fishing patterns and behaviours, the landing obligation has the potential to present a wide range of significant challenges at multiple points downstream in the seafood supply chain.

The new rules are likely to require changes to fishing practices (both gear and fisher behaviour) across most fleets targeting demersal TAC species resulting in changing landing patterns (i.e. quantities landed, catch composition and size composition). These changes could provide potential risks or benefits to supply chains and currently the capacity of all parts of the onshore supply chain (both human and non-human consumption) to land, store, process, transport, administrate and market is not fully understood.

Harbour stakeholders and supply chain sectors suggested to Seafish that the scope of potential impacts needed to be developed to provide an opportunity for informed discussion between all supply chain partners to identify information gaps and opportunities to develop solutions.

**Table 2: Timescale for phased implementation of the landing obligation in the North Sea**

Gear	2016	2017	2018	2019
Trawls & seines > 100mm (TR1)	Haddock, plaice	Whiting, cod, sole, <i>Nephrops</i>	Saithe	All quota species
Trawls & seines < 100mm (TR2)	<i>Nephrops</i> , sole	Whiting, haddock	Plaice, saithe, cod	All quota species
Beam trawls > 120mm (BT1)	Plaice	<i>Nephrops</i> , sole, haddock, whiting	Saithe, cod	All quota species
Beam trawls < 120mm (BT2)	Sole	<i>Nephrops</i> , haddock, whiting	Saithe, cod, plaice	All quota species
Gillnets and trammel nets	Sole	<i>Nephrops</i> , haddock, whiting, cod	Saithe, plaice	All quota species
Hooks and lines	Hake	<i>Nephrops</i> , sole, haddock, whiting, cod	Saithe, plaice	All quota species
Pots and traps	<i>Nephrops</i>	Sole, haddock, whiting	Saithe, cod, plaice	All quota species

(source: Defra)

**Table 3: Timescale for phased implementation of the landing obligation in the English Channel, Western Approaches, Celtic Sea and Irish Sea**

Gear	2016	2017	2018	2019
Gillnets, trammel nets, hooks and lines (areas VIa, VII and EU waters of Vb)	Hake	tbc	tbc	All quota species
Trawls & seines (areas VIa, VII and EU waters of Vb)	Hake, <i>Nephrops</i>	tbc	tbc	All quota species
Trawls & seines < 100mm (area VIId)	Sole	tbc	tbc	All quota species
Trawls & seines (area VIa, VIIa and EU waters of Vb)	Haddock	tbc	tbc	All quota species
Trawls & seines (area VII b-k)	Whiting	tbc	tbc	All quota species
Gillnets and trammel nets (area VII b-k)	Sole	tbc	tbc	All quota species
Pots and traps	<i>Nephrops</i>	tbc	tbc	All quota species

## 1.2 Objectives of the study

This study aims to explore a range of potential outcomes (both positive and negative) for all links in the onshore UK seafood supply chain (from harbour to consumer) in order to better understand, and prepare for, the full range of potential challenges that could arise following the full implementation of the landings obligation.

Working within the bounds of existing research, the study seeks to:

- Map the UK supply chain to identify existing and perceived issues for each sector, in the context of policy framework and supply chain operations.
- Assess the impact of issues in respect of changes in policy that will impact on the supply chain in context of how industry will react to these changes.
- Discuss potential consequences for each sector; for example, changes in operational behaviour, policy issues, loss of supply or loss of market.
- Identify gaps in information and suggest better use of existing information. The analysis is qualitative, evaluating potential changes in behaviour of one sector in response to changed behaviours of other sectors in the supply chain.

Analysis was undertaken at a regional level (England, Scotland, Wales and Northern Ireland) and considered possible impacts and benefits on supply chains, both vertically (boat to plate) and horizontally (small scale to larger scale across each sector).



## 2. LEGISLATION

### 2.1 Regulatory framework

The key driver for the landings obligation (often referred to as discard ban) emanates from the basic regulation text of the new Common Fisheries Policy (CFP) agreed by the European Union (EU) Council of Ministers in June 2013 and which entered into force in January 2014. Specifically, Article 15 lays the foundation for the “*obligation to land all catches*”, setting out the timescale for implementation across EU waters and potential cases in which exemptions from the regulation are permitted e.g. under conditions where survivability of discards is demonstrated. A number of other potential scenarios where exemptions could be granted are also included and the implications of these are considered later in this report.

### 2.2 Implementation timescale

In England, Defra are leading on the phased implementation of Article 15 of the CFP, starting with pelagic fisheries from the 1<sup>st</sup> January 2015 and then continuing with demersal fisheries from 1<sup>st</sup> January 2016 and then all TAC fisheries by 2019.

In the intervening period, Member States will be required to present multi-annual plans and formal Discard Plans to the European Commission. Where exemptions from Article 15 are requested, it is envisaged that these would be supported by clear rationales and strong evidence bases. Much of this work will be discussed at Advisory Council (AC), AC working group and the Scientific Technical and Economic Committee for Fisheries (STECF) level. The EU Discard Plans for 2016 have been approved by the Commission, and work on Discard Plans for 2017-2019 will start early in 2017.

Although untested as the implementation process is in its infancy, the following exemptions from the landings obligation exist within the regulation text:

- i. Species in respect of which fishing is prohibited and that are identified as such in a Union act adopted in the area of the CFP;
- ii. Species for which scientific evidence demonstrates high survival rates, taking into account the characteristics of the gear, the fishing practices and the ecosystem;
- iii. Catches falling under *de minimis* exemptions of up to 5% of total annual catches which shall apply in the following situations
  - a. where scientific evidence indicates that increases in selectivity are very difficult to achieve; or
  - b. to avoid disproportionate costs of handling un-wanted catches, for those fishing gears where unwanted catches per fishing gear do not represent more than a certain percentage, to be established in the annual plan for that gear.

Other derogations and flexibilities are also stated in the regulation as follows:

- i. As a derogation from the obligation to count catches against relevant quotas, catches of species that are subject to the landings obligation and that are caught in excess of quotas of the stocks in question, or catches of species in respect of which the Member State has no quota, may be deducted from the quota of the target species provided that they do not exceed 9% of the quota of the target species. This provision shall only apply where the stock of the non-target species is within safe biological limits.
- ii. For stocks subject to the landings obligation, Member States may use a year-to-year flexibility of to 10% of their permitted landings.

## 2.3 Legislation for handling of not for human consumption discards (Animal By-Product (ABP) regulations)

The main regulatory framework associated with the use of discards not intended for human consumption is EU regulation 1069/2009, known as the EU animal by-product regulations. This controls the handling, use or disposal of high and low-risk animal by-products. Fish and shellfish automatically become an animal by-product when the decision is made that they are not intended for human consumption. This decision is irreversible. EC Regulation 1069/2009 (EU control Regulation) and its corresponding implementing EU Regulation 142/2011 (EU Implementing Regulation) therefore form the key European regulations related to fish discards. Wild-caught fish landed but not intended for human consumption typically fall into Category 3 animal by-products provided they do not show signs of disease communicable to humans or animals in which case they would be a higher risk category. Category 3 is the lowest risk category and therefore has the greatest number of potential uses.

The EU regulations also stipulate that, with certain exceptions, any persons wishing to handle animal by-products must be registered or in most cases approved to do so. This includes transporting, storing, processing and end use (if it has not been transformed to a final product which is out of scope of the Regulation). It is the legal person who has the animal by-products under their actual control that has a duty to ensure it is handled in compliance with these regulations and ensure that any contractors are approved or registered to handle animal by-products.

ABPs are defined as:

- entire animal bodies,
- parts of animals,
- products of animal origin, or
- other products obtained from animals that are not fit or not intended for human consumption.

Landings of fish below the Minimum Conservation Reference Size (MCRS) are defined as fit for human consumption but not intended for direct human consumption. Current 'guidance' from the European Commission is that if there is doubt where undersized fish will be directed, it should be handled according to food hygiene rules so that it could go to either non-direct human uses OR non-human consumption uses.

However, the moment the decision is made to direct fish to non-human consumption uses, then ABP rules apply and the fish will be classified as a Category 3 ABP. Category 3 represents the lowest risk ABP material. Given the low level of risk attached to catches below MCRS destined for non-human consumption uses, Marine Scotland, Animal and Plant Health Agency (APHA) and Food Standards Scotland have agreed that ABP regulations will be applied to this proportion of the catch in a 'light-touch' and proportionate manner. Similar guidance was expected to follow shortly from the other three devolved administrations.

### 2.3.1 Application of ABP regulations to storage and handling discards on board vessels, at fish markets and during transport

#### i. Vessels

At sea, a vessel and its catch are out-with the remit of ABP regulations and therefore fishing vessels do not need to apply for ABP approval. The regulatory instrument that determines how the catch is handled and stored is the Common Fisheries Policy (CFP) that applies 'ABP-like'

controls. These 'ABP-like' controls apply from the point at which fish designated for non-human consumption uses is sorted on-board the vessel. If catch is handled and stored as intended for non-direct human consumption uses, then vessels will not be subject to 'ABP-like' controls; however, the catch must be handled according to food hygiene rules.

The Omnibus Regulation (EU regulation 2015/812) requires that:

- Catches below MCRS destined for non-human consumption must be stored separately from the catch destined for human consumption. They must be stored in boxes separate from the rest of the catch. Boxes of below-MCRS catch can be stored in the hold or on the deck with the rest of the catch.
- Below MCRS catch can be stored in standard fish boxes.
- Below MCRS catches do not need to be separated by species.
- Catches below MCRS destined for non-human consumption uses must be labelled 'not for human consumption' with the label detailing the vessel's name, PLN and landing port for traceability purposes.
- All catches below MCRS must be recorded by species and weight in the landings declaration and logbook or elog, and declared under the 'buyers and sellers' regulations..

#### ii. Markets and harbours

Ports and markets, where below MCRS catch will be stored as an ABP, will need to be registered and be approved as 'handling and storage sites' by the APHA in UK before 1 January 2016. A handling and storage site covers premises carrying out storing, cutting, chilling, freezing or salting and other low risk handling processes but not processing. There is currently no cost to register or become approved; however, a consultation has just been launched on introducing charging. Details of the process and the ABPR3 registration form can be found at: <https://www.gov.uk/guidance/animal-by-product-categories-site-approval-hygiene-and-disposal>

In line with the light-touch application of ABP regulations, market / port operators will be able to handle and store the Category 3 designated material alongside the catch intended for direct and non-direct human consumption, provided it is labelled correctly and segregated. This reflects current practices concerning unsold fish and the very low risk posed by the below-MCRS-catch.

Adequate separation of the Category 3 material and the fish destined for human consumption should be stored in an identifiable area or corner of the market that allows for visible separation from the catch destined for direct human consumption. Similarly, if discards are to be stored in the market in a chill facility alongside catch for direct human consumption, suitable separation should be implemented. For example, catches below MCRS should be stored on a separate shelf or in an identifiable corner of the store or sealed with industrial plastic wrapping to prevent possible contamination and tampering.

#### iii. Hauliers

When fish below MCRS is being transported as an ABP to market or elsewhere, it should be accompanied by a commercial document that details:

- The date of transport,
- A description of contents including ABP category and quantity,
- An address of origin and destination, and contact names at both,
- Approval or registration numbers for the factory or vehicle,
- The signature of whoever is responsible for the contents.

If Category 3 designated material is being transported in a vehicle also carrying fish destined for human consumption, then appropriate physical segregation will be required.

## **2.4 Legal responsibilities and ownership of discards**

Marine Scotland guidance (issued September 2015) states that: “the vessel owns and is responsible for the catch that it catches and lands”. This remains the case until there is a change of ‘ownership’; either at the point of first registered sale when responsibility for handling, use and storage of the catch in line with ABP regulations is then transferred to the buyer, or when the catch is not sold but responsibility for the catch is assumed by someone else (e.g. the port). The vessel is responsible for disposing of catch that is not sold. Vessels landing ABP material are expected to land only to approved facilities and/or ensure that the catch is transported on ABP-approved vehicles.

The site owner is responsible for ensuring that a given landing point or storage space is approved to handle and store ABP products, and is responsible for its maintenance - including structural, operational or record-keeping issues.

### 3. APPROACH

In order to investigate the potential impacts of the landing obligation on the onshore seafood supply chain in the UK, the project was divided into five distinct phases:

- i. to undertake desk-top research focusing on, but not restricted to, a review of recent reports and consultation papers prepared by the four national administrations (Defra, Marine Scotland, Dard and WG) and Seafish; scientific literature produced by fisheries science providers (Marine Scotland, ICES & Cefas); the discard atlases (published for the North Sea, North Western waters and for pelagic species); position papers prepared by the Advisory Councils (ACs); Member State implementation plans; UK quota uptake figures from MMO; Seafish market data and the landings obligation legal text;
- ii. to plan and co-ordinate stakeholder interviews at locations across the UK;
- iii. to conduct a series of face-to-face interviews with stakeholders (identified in phase ii), with supplementary interviews being conducted via telephone, teleconference and, if necessary, internet survey;
- iv. to collate, analyse and review information and data gathered to provide qualitative results and actionable insight; and
- v. to draft a report of key findings and actionable recommendations.

#### 3.1 Desk-top research

The aims of the desk-top research exercise were three-fold:

- i. to understand and review any issues that have been identified as potential impacts of the landing obligation for the onshore supply chain;
- ii. to inform the development of a range of scenarios and to be explored during interviews with stakeholders; and
- iii. to identify relevant stakeholders and to inform the targeting of locations to be visited.

Although much research has been conducted with respect to the landings obligation and its potential impacts on the offshore (catching) sector of the UK seafood supply chain, studies of the potential onshore impacts are limited. These existing studies indicated that both the potting and the fishmeal sectors could provide outlets for significant volumes of discards, subject to the development of the necessary logistics and shore side infrastructure.

In the absence of more formal research studies, the desk-top research on the potential impacts of the landing obligation on sectors further downstream in the supply chain (i.e. processors, retailers and foodservice sectors) was limited to presentations and minutes from various fora such as the Seafish Discards Action Group (DAG) and Defra onshore landings group. These groups had reflected that the impact of the pelagic landing obligation (Jan 2015) had been limited to-date, although this had been expected due to the homogeneity of catches in these fisheries.

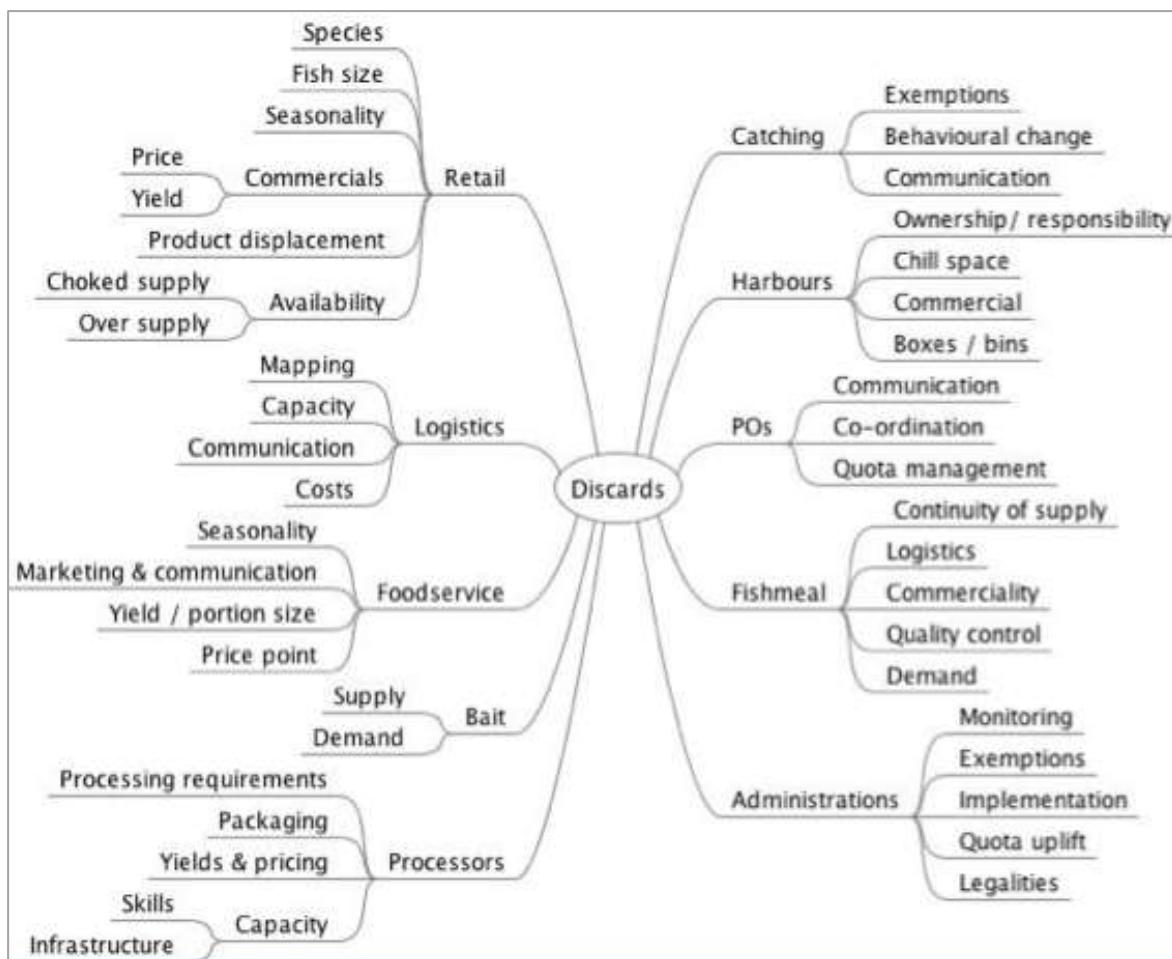
Limited quantitative forecasts on the impact of the landing obligation landings across UK fleet segments were available (see 3.1.1) and, where lacking, expert stakeholder opinion was used to inform the understanding of potential issues that may present challenges to the onshore supply chain. In order to achieve this, a number of areas were researched, including:

- Timeline for the phased implementation of the landing obligation
- Discard rates
- Quota management and the quota trading market
- UK fleet landing statistics

- Animal By-Product (ABP) regulations
- Reports on the drivers for discarding
- Landing obligation simulation trials
- Seafish economics reports
- Seafish market insight data
- Previous studies (by Seafish and Cefas) on the pot bait market and on bulk uses of discards

The issues identified during the desk-top research phase were explored and recorded using a 'mind-map' approach (see Figure 1) and used to develop interview questions.

**Figure 1: Mindmap of issues considered through the study**



### 3.1.1. Discard data

Discard data was gathered from four main sources:

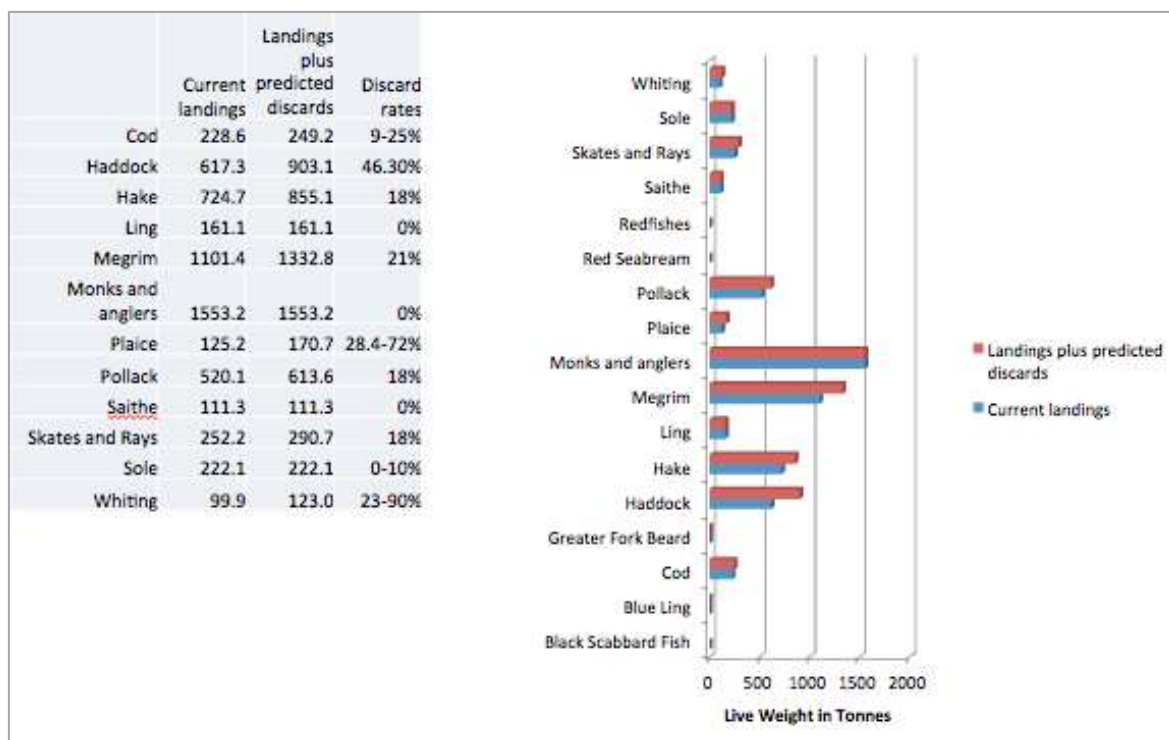
- Cefas reports (from discard observer data)
- Discard Atlases
- Fisheries Science Partnership (FSP) and Catch Quota Trial reports
- Seafish economics work

The data covered the four main fisheries management areas of relevance to the majority of the UK. These were the North Sea, English Channel, West of Scotland, Celtic Sea and Irish Sea (i.e.

ICES sub areas IV, VI, VIIe,f,g,h,j,k and VIIa respectively). The data was then grouped by gear codes and sorted into commercially significant quantities of TAC species.

For English ports with significant landings of TAC species, Defra had used this information to provide top line forecasts of landings under the landings obligation (see Figure 2 below). The estimates provided did not attempt to take account of the possible exemptions or derogations and so were therefore seen as a 'worst case' scenario.

**Figure 2: Estimate of landings and discards to be landed at Newlyn under the fully implemented landing obligation**



(source: Defra)

### 3.2 Scenarios

Based on the desk-top research undertaken, expert opinion and parallel work being undertaken by Seafish economics team in the catching sector, three key scenarios were developed to inform stakeholder interviews. These scenarios were:

#### i. Status quo

This scenario assumes that gears, fishing patterns, fisher behaviour and landings all remain constant at 2013-2015 levels. It assumes limited impact of quota uplift as it was not clear yet how the uplift could be allocated most equitably.

#### ii. Selectivity max

This scenario assumes that, within the fishery, key quota stocks are highly restrictive and therefore the catching sector adopts a highly precautionary approach. Under this scenario, every attempt would be made to reduce discarding of the potential choke by maximising gear selectivity and / or changing behaviour to avoid juvenile aggregations. It was assumed that less small-sized fish would be caught and landed, and overall landings of others species in the same fishery would

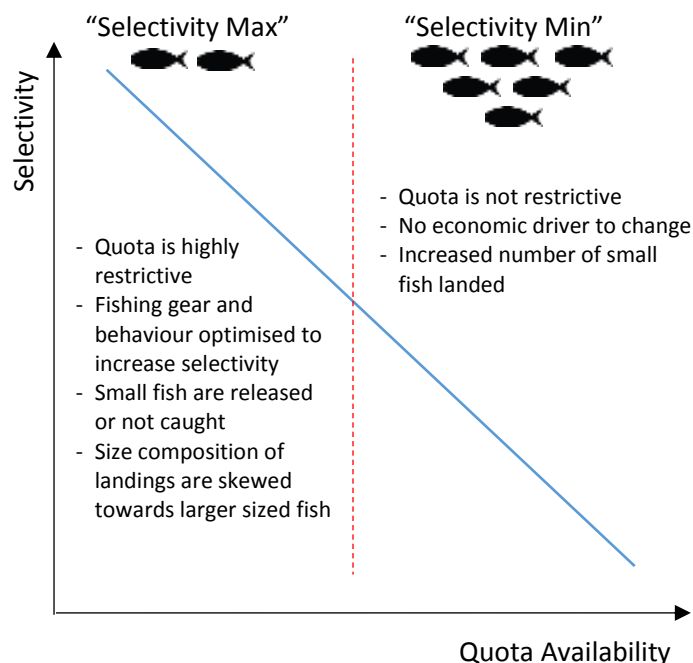
be reduced. This scenario also assumes that there is no quota uplift or that the effect of quota uplift is minimal.

### iii. Selectivity min

In this scenario, it was assumed that quota availability was not restrictive and therefore unlikely to change gear selectivity or fisher behaviour, and, as a result, small fish that are currently caught and discarded would be landed. Landings would increase in line with any quota uplift although the size of fish landed would be skewed towards a smaller length-frequency distribution than was currently seen. This scenario also assumes maximum use of quota uplift by those vessels that generated the discard rate shown in the discard atlas.

All scenarios assumed that survivability exemptions would be applied to most significant flatfish fisheries, but most importantly plaice and ray.

**Figure 3: Relationship between quota availability (at vessel level) and selectivity and its potential impact on size of fish landed under the landing obligation**



#### 3.2.1 Limitations (known unknowns)

Consideration was given to developing a wider range of potential scenarios that could arise by considering the full array of policy levers permitted within the regulation (e.g. *de minimis*, inter-species flexibility, dis-proportionate costs etc). However, although regional Discard Plans for the implementation of the landing obligation in 2016 were developed by devolved administrations and agreed with the European Commission (EC) during the life of the project, at the time of the study, there were many known unknown variables and almost certainly some other, yet to emerge, so-called ‘unknown unknowns’ which provided considerable limitation on the development of scenarios. The most significant of these ‘known unknowns’ were:

- Length-frequency data for discarded fish
- Reasons for discarding
- Amount of any quota uplift



- Distribution of any quota uplift
- Utilisation of full range of flexibilities (ie. survivability exemptions, inter species flexibility etc)
- Limited forecasting of the quantities to be landed at each port
- Legal responsibilities
- Definitive legal opinion on ownership of discards once landed

As a result of these un-certainties and for the ease of understanding by stakeholders, the scenarios developed were based on differing levels of quota availability as this was identified as being the most significant single biggest factor in determining the impact of the landing obligation on gear selectivity, fisher behaviour and therefore the variety and volume of fish landings available to the onshore supply chain.

### 3.3 Interviews

Working within the bounds of existing research, the main tool for gathering detailed stakeholder views was through a process of qualitative interviews with key actors across through the supply chain; vertically (from catcher to retailer/foodservice), horizontally (from small to large within each sector) and across a UK wide geographical range (see Table 4).

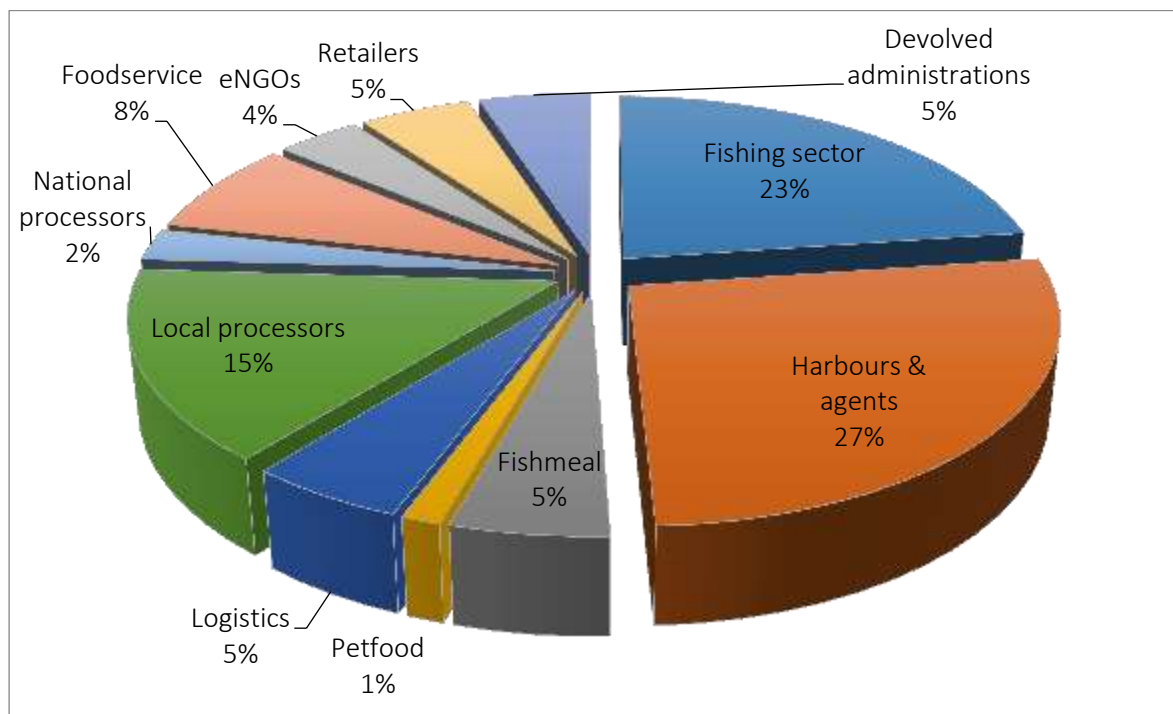
The preferred method of interview was face-to-face (65%) with telephone interviews used to fill any gaps identified or to follow-up additional leads (35%). Each interview was structured around an introductory summary to ensure that every interviewee was provided with basic information about the landing obligation and started from the same minimum level of knowledge.

Within each interview, stakeholders were asked to give their informed opinion on the probable response of their business (or sector) to a range of policy scenarios and potential issues developed through the desk-top research (see 3.1).

Potential interviewees were targeted through the production of a matrix that mapped supply chain sectors geographically and which drew on intelligence from sector experts (Figure 5). Interviews were structured with both open and closed questions designed to capture qualitative data (Annex III).

**Table 4: Number of interviews by supply chain sector**

Supply chain sector	Number of consultees
Fishermen, POs and representative bodies	18
Harbours, agents and port auction managers	21
Fishmeal	4
Petfood	1
Logistics	4
Local processors	12
Remote processors	2
Foodservice	6
NGOs	3
Retailers	4
Devolved administrations	4

**Figure 4: Breakdown of interviews by sector****Figure 5: Map of supply chain engagement**

### 3.4 Analysis of potential impacts on seafood supply chain

Stakeholder information from the interviews was summarised and analysed in order to identify key themes and insight for each supply chain sector, as follows:

- Awareness and engagement of the sector with the landing obligation
- Potential scale and range of impacts by sector
- Potential scale and range of opportunities by sector
- Identifying issues that could impact the supply chain vertically (up or down)
- Identifying issues that could impact the supply chain horizontally (across any given sector)
- Understanding issues and barriers to dealing with the impacts identified
- Providing a summary of sector insight actionable

The report draws conclusions and provides actionable insight in the form of strategic recommendations.

## 4. RESEARCH FINDINGS

This section presents detailed qualitative information gained from stakeholder interviews, which is presented by sectors within the supply chain.

For each link (sector) in the supply chain (catching sector; ports and harbours; fishmeal producers; pot bait users & suppliers; logistics; local processors; national processors; food service and retail) there is a detailed description covering:

- i. Sector awareness
- ii. Potential impacts and opportunities
- iii. Challenges and issues
- iv. Extent of vertical supply chain impact
- v. Extent of horizontal supply chain impact
- vi. Summary of findings
- vii. Summary table

The summary tables provide information under three headings:

Uncertainties / issues / risks: This heading describes sectoral concerns, the issues that stakeholders are most concerned with or those that require more information before they can be addressed.

Potential impacts: This heading describes the likely direct result of the issues / risks raised and what the consequence of that would be both within the sector and on any other sector in the supply chain.

Potential outcomes: This heading explores possible scenarios (changed situations/ behaviours) that could occur in response to the corresponding impacts. Some are more likely than others and the information provided covers a range of outputs to a range of possible scenarios. In some situations, the potential outcomes in one sector might also be a risk/uncertainty of an upstream (i.e. towards the supply chain source – the catching sector) or downstream (i.e. towards the end - consumer (both retail and foodservice) sector in the supply chain.

## 4.1 Catching sector / Producer Organisations (POs)

Although outside of the scope (onshore supply chain) of the study, a number of individual skippers and fishermen's representative organisations were interviewed in order to inform the development of scenarios. The group was drawn from a range of fisheries and geographic locations across the UK.

Interviewees were asked to consider the impact of the landing obligation on landing patterns, including quantities, seasonal changes, changes in species composition, changes to the size composition of fish landed and overall economic performance. The results of these interviews, along with reference to the ICES /Cefas Discard Atlases and domestic quota uptake spreadsheets, were used to develop the range of questions and scenarios to be explored during interviews with onshore supply partners.

### 4.1.1 Awareness and engagement

Fishermen and POs were very well informed about the landings obligation and the emerging timeline for phased implementation. The catching sector was advanced in its thinking although focused largely on offshore issues as opposed to onshore issues that could emerge when the landing obligation was fully implemented.

For the most part, fishermen, POs and other representative organisations had been engaged in discussions around the implementation of the landings obligation with the relevant devolved administration and devolved science leads (i.e. AFBI, Marine Scotland, Cefas and WG) for some time. Development of detailed guidance in preparation for commencement of the implementation phase in 2016 was ongoing, although at the time of the interviews there was insufficient detail available to fully predict the use of all possible exemptions and use of quota flexibilities and in turn how these would impact on landings.

### 4.1.2 Potential impacts or opportunities on sector

i) Choking – the greatest concern expressed by all catching sector stakeholders was the shortage of key quotas for choke species resulting in the closure of fisheries before the year end. The sector believed that quota 'chokes' should be addressed through a hierarchy of: a) reduction of unwanted catch at vessel level; b) mitigation through national and sub-national quota management arrangements; c) international swaps and transfers, and d) legislative changes at EU level to bring the fisheries management systems fully into line with a management approach based on total catches.

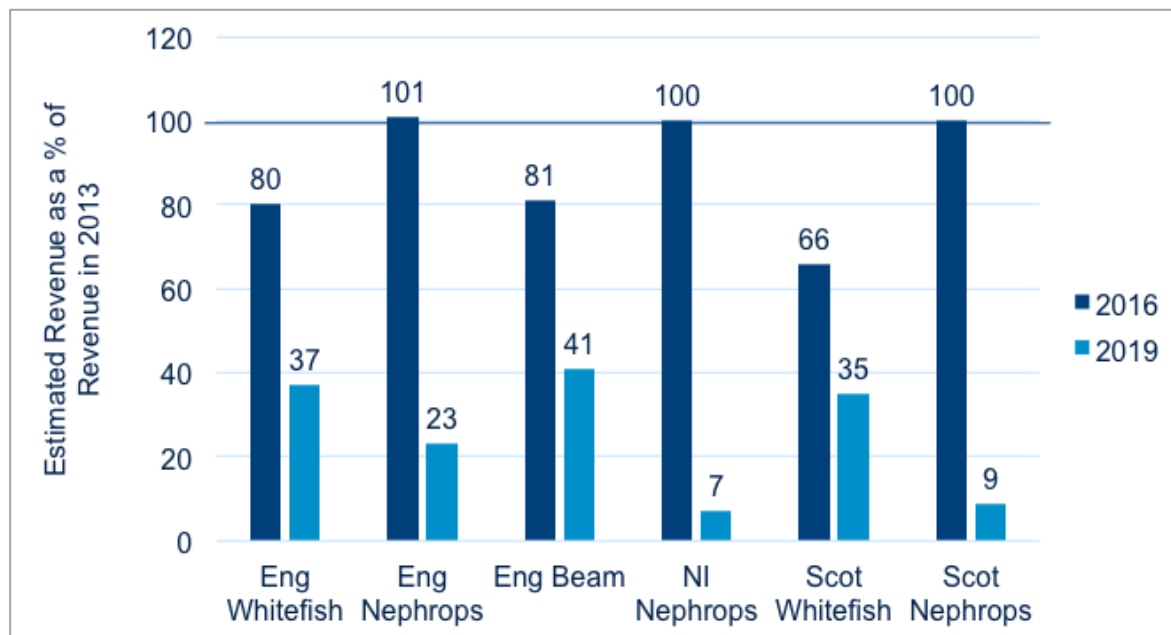
There was particular concern for those species for which there was no solution to the current perceived imbalance between quota availability (and TAC) and catchability (prevalence on fishing grounds), such as N Sea saithe and N Sea hake.

ii) Size composition of landings – in the short term, it was thought that landings of most species would be made up of greater numbers of smaller size grades above the MCRS. It also was reported that volumes of fish landed below the MCRS would remain small, as many fisheries had already adapted to reduce discards of under-sized fish to a low level. Most discarding was believed to be 'high grading' due to low quota availability in certain fisheries. In the longer term, it is possible that further improvements to selectivity / gear design would be made to make the most effective economic use of the quota available.

iii) Increased volatility in landings – faced with tight quotas for some species, vessel owners believed the landing obligation would put further pressure on them to undertake non-fishing commercial operations, such as guard-ship work. In turn, it was felt this could lead to increasingly interrupted and volatile supplies to fish markets.

iv) Reduced profitability – catching sector stakeholders believed that ultimately the landing obligation would result in economically sub-optimal fishing practices, either through filling the fish room with low value (small) fish or through increased operating costs (specifically quota leasing) and paying to dispose of discards. This view was supported by a recent Seafish Economics report that attempted to forecast fleet revenues under the landing obligation (see Figure 6 below). It was felt that certain sectors of the whitefish fleet were already operating at minimum profit levels and had been for some time, and any further drop in profitability would lead to more vessels leaving the industry.

**Figure 6: Seafish economics forecasting of fleet revenues under the landings obligation**



v) Supply chain impacts - the catching sector recognized the inextricable link between the fortunes of the catching sector and the onshore elements of the seafood supply chain. The sector recognized that the greatest risk and potential impact of the landing obligation to the onshore supply chain was a choke scenario, whereby even a relatively minor species in the catch could trigger a total closure in a given fishery. The concern was that in the event of such an eventuality, local port-based processors would struggle to survive for any period of time and the critical mass of processors required to ensure competitive markets would be lost.

vi) Inshore sector / remote ports - representatives of the under 10m sector believed that the bulk of discards emanating from the under 10m fleet would be due to quota restrictions, with very little undersized fish (<MCRS). There was concern from this sector that inshore fishermen operating from many geographically isolated harbours remote from markets, processors and links to the main seafood supply chain hubs in the UK would struggle to find outlets for the small quantities of < MCRS discards likely to be landed.

#### 4.1.3 Key challenges and issues:

##### i) Quota management

There was universal agreement amongst the catching sector stakeholder group that access to quota at both fleet (or PO) and individual vessel level was the key driver in determining the impact of the landing obligation on fishing businesses and downstream supply chains. Where quota was readily available, it was believed that there would be little change to gear selectivity, seasonal or spatial fishing patterns and therefore landings too would remain similar. In contrast,

it was believed that where quota availability was highly restrictive (i.e. potential 'choke' species) the landing obligation, once implemented, would intensify the quota leasing trade for these species with the effect of driving up quota lease prices. There was also concern that individuals or companies that held significant holdings of quota would hold onto quota for longer to both maximize price and also to ensure greater reserves to cover their own vessels' quota requirements (if applicable). The effect would be to further intensify the concentration of quota into fewer companies.

Discussions focused on quota management both at national administration and PO level. The treatment of quota uplift was seen as a particularly important issue with a strong preference for the uplift being available to those fleets that generated the discards in the first place. Within the context of PO quota management, there was discussion around the 'pool' quota management system vs Individual Transferable Quotas (ITQs) and the potential changes that maybe required at PO level. In particular, some POs believed that they would need greater powers, such as the licensing of individual vessels, in order to control any errant members.

#### 4.1.4 Vertical supply chain issues

At the source of the supply chain, a viable UK catching sector is important to the whole UK seafood supply chain. The catching sector recognized that there was a high degree of mutual dependence between fishermen and local fish processors that process domestic catch, with fishermen requiring a strong processing base to provide a competitive market for catches, and processors needing regular supplies of raw material. Due to significant rationalisation in the fleet and onshore processors in some areas (e.g. NE Scotland and N Ireland) over the last 10 years, there was concern that implementation of the landing obligation could further impact on local processors in these areas.

There was great resolve throughout the sector to remain viable through the correct application of exemptions, gear adaptation, diversification and changing fishing patterns. Devolved administrations, too, were positive in their approach, recognising that the aim of the new rules was not to put fleets out of business. However, there were many known unknowns and almost certainly some unknown unknowns; consequently, none of the stakeholders interviewed could offer a confident prediction on the effect of the landing obligation in 2019 on landings and possible impacts downstream in the supply chain.

The greatest concern from the catching sector was the long-term effect that a 'choke' scenario would have on the onshore supply chain. In ports with a strong local processing base (e.g. Peterhead, Brixham, Newlyn or Kilkeel) it was felt that the effects on the local economy and wider community of a choked fishery would be devastating.

Although relatively few in number, vertically integrated businesses with both fish catching and processing interests believed they would be sheltered from the worst impacts of the landing obligation.

#### 4.1.5 Horizontal supply chain issues

Skippers were interviewed from a range of vessels from 8m to 40m. Although the scale of operations were significantly different, it was found that issues faced across the sector were common across all vessel sizes, with fishery 'choking' due to low quota levels being the greatest concern among all parts of the fleet. Access to quota was again the key issue, and concerns were expressed that further intensification of the trade in quotas could impact on the operators of small vessels.

#### 4.1.6 Summary

It is clear that the economic fortunes of the catching sector are linked inextricably to those of local processors, agents/harbours, ancillary businesses and the downstream wild seafood supply chain in the UK. Vessel skippers and owners in many areas have made great strides to improve gear selectivity and better understand (and mitigate against) issues that could surface when the landing obligation is fully introduced.

With the exception of Northern Ireland, the challenges presented by the landing obligation to demersal fleets in 2016 appear to be modest. At this stage, fishermen, their representatives and national administrators all recognise that the level of challenge will increase to a peak in 2019 when all demersal TAC species will be subject to the landing obligation.

The catching sector is proactively developing solutions and, within the realms of what is economically possible, will adapt gear and behaviour to avoid premature closure or 'choking' of a fishery. Key to minimizing the potential impacts is access to quota, and here the role of devolved administrations and POs in allocating and managing any 'quota uplift' is important, with those needing it most taking priority.

**Table 5: Summary of potential impacts and outcomes of the landing obligation on the catching sector**

Uncertainties / issues / risks	Potential impacts	Potential outcomes
Quota availability	Choking	Low quota availability could lead to choking, resulting in total closure of that fishery. The result would be fleet tie-up for that sector, resulting in serious consequences for the local port based processing sector. Vessels could be economically unviable.
	Quota lease market	Quota lease market prices are likely to rise where quota is 'short' (or scarce). The market could slow down if major quota holders either wait for prices to rise or retain quota for own vessels.
	Increased landings	Where quotas are not highly restrictive, the additional quota available would permit vessels to land the previously discarded element of the catch, which would result in more fish being landed; potentially offering increased opportunity to the onshore processing sector (through increased volume available).
Quota management	Use of uplift	The use of quota uplift is critical in distributing quota and its availability to those vessels that require it; used poorly these rules could intensify and not alleviate quota issues.
	POs management	POs are responsible for the management of > 90% of demersal quotas. Existing systems and internal PO quota management rules are likely to be stressed by the implementation of the LO and POs may require additional legal powers in order to control members / manage



		quotas
<b>Port/harbour Infrastructure (fridges, quay space)</b>	Landings exceed capacity	Vessels might have to land elsewhere, involving additional steaming time and cost. Investment in temporary / permanent infrastructure solutions would be required at port / harbour level, with costs being shared with industry. Potential availability to offset costs through EMFF support.
	Landings decrease resulting in excess capacity	Fleet adaptation and changes to fisher behaviour could result in reduced landings in some areas / fisheries, or different landings profile, with consequential impacts on the onshore sector.
<b>Changes to catch composition and landing patterns</b>	Improved selectivity and behaviour	Reducing the % of smaller sized fish in landings would impact on processors in some areas that have developed specialised markets for small fish. Additional gear costs for vessels. Additional fuel costs if changing behaviour results in steaming to fishing grounds further afield.
	Lower value catches (i.e. made up of small, typically lower value fish)	In fisheries where greater quantities of small sized fish were retained (often of lower value) and where fishroom capacity was a limiting factor, the overall value of a 'full trip' could be reduced resulting in reduced economic viability.
	Safety and crewing	Larger vessels may require additional crew to undertake catch sorting / handling. On smaller vessels, skippers will require a full appreciation of the effect of increased loading on their vessel's stability so as not to compromise crew and vessel safety.
<b>Reduced economic viability</b>	Fleet reduction	Reduced continuity of landings impacting on local processing sector, downstream supply chain and onshore support sector.
		Reduced port income that could force some ports into down-sizing or diversification into non-fishing activities that could utilise space in the port.
<b>Legislation (ABP)</b>	Port / harbour requirements	Cost of port administration to comply with ABP regulations will be passed back to catching sector either directly or as increased landing dues / commission.
		Catching sector is responsible for the appropriate disposal of < MCRS fish for non-human consumption and will need to communicate with harbours / markets and national enforcement bodies to ensure arrangements are auditable and compliant with rules.

<b>Implementation of LO</b>	Increases un-certainty	Erosion of confidence across sector, which could result in banks seeing the sector as increasingly 'risky'.
		Knock-on effect causing reduced confidence (and therefore investment) across the whole supply chain.

<b>Summary</b>	The landing obligation is likely to provide significant challenges to the UK demersal catching sector	Implementation of the landing obligation could result in further rationalisation of the fleet, as operators face higher quota lease prices and reduced returns. Such a position would be economically un-sustainable for many parts of the fleet. The result of any further fleet reduction would impact on the local (port based) processing sector.
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## 4.2 Harbours / port managers / sales agents

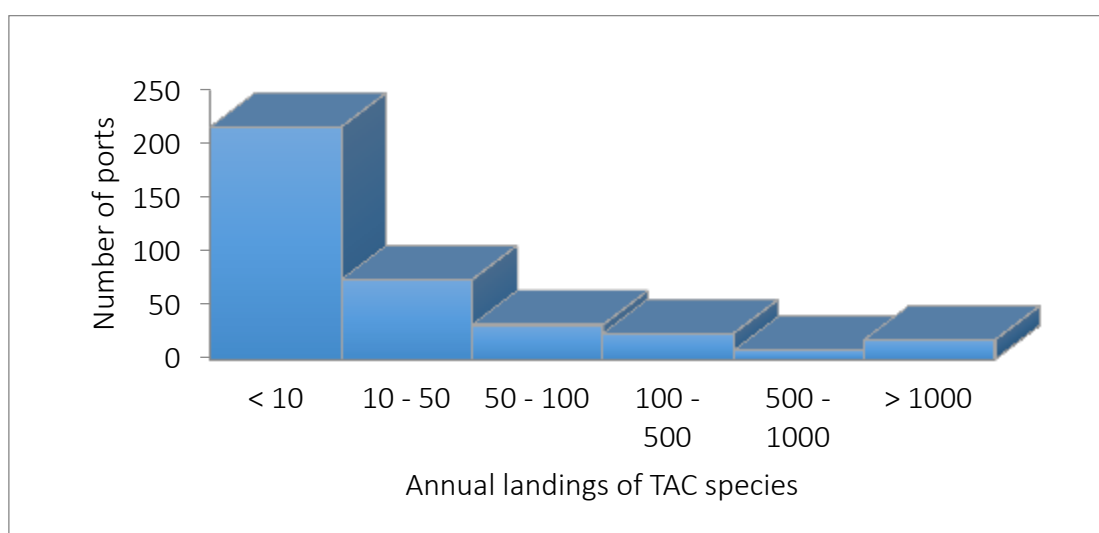
### 4.2.1 Awareness and engagement

The UK has 372 ports and harbours where commercial landings of TAC species of fish and shellfish (*Nephrops*) are recorded. Of these ports, 18 recorded annual landings of over 1000 tonnes of TAC species and, at the other end of the spectrum, 216 ports recorded TAC landings of less than 10 tonnes per year (see Figure 7 below). With such variance in landings, the range of potential impacts and challenges for stakeholders varied significantly.

The majority (88%) of port authorities, sales agents or market managers interviewed were aware of the impending implementation of the landings obligation. As might be expected, larger fishing ports were generally well informed and smaller ports or those ports focussed on other maritime activities (such as commercial shipping or leisure boat sector) were less well informed as to the potential implications of the landing obligation. The common theme across all ports was the requirement for more detailed information to enable appropriate plans to be put in place.

All ports or harbours with a fish auction had engaged to some degree with the relevant devolved administration but the degree of detailed planning for discard handling was variable. Some ports and markets were more engaged in solutions than others, with North Shields and Fraserburgh being well prepared and others having yet to overcome some of the fundamental political obstacles. Both N Shields and Fraserburgh ports had undertaken operational planning and demonstrated a positive 'can do' attitude to addressing potential issues at port level. English and Scottish devolved administrations had both held meetings of onshore supply chain interests and disseminated information on implementation. Further guidance was issued in the Autumn of 2015.

**Figure 7: Breakdown of UK ports by landings of TAC species in 2013**



#### 4.2.2 Potential impacts or opportunities for sector

Located at the interface between the offshore and onshore seafood supply chain, the ports / harbours / landing areas are critical to the UK wild seafood supply chain. Port operators believed that there was already an expectation from vessel operators that harbour or agents would deal with any discards on their behalf.

Unlike businesses further downstream that choose to buy fish with a view to making an economic return, ports and harbours provide a service to the fishing industry. As such, there was an expectation that the ports / harbours and agents would come up with solutions and would not refuse vessels wishing to land discards.

Harbour managers and agents believed there would be little (if any) value to the discards landed and therefore the most significant impact would be a burden on them requiring time, space, staff and, in the longer-term, possibly significant investment in infrastructure (for example in a new discard holding chill store). With one exception, all port and market operators stated that these extra costs would ultimately be levied back onto the catching sector.

No opportunities for the ports / market sector were identified.

#### 4.2.3 Key challenges and issues:

- i. Manpower – small and medium ports had limited human resource available and were concerned about the possible additional burden. The smallest of ports have no full-time staff and there was concern that fish could be left to rot and become a hazard to public health
- ii. Capacity issues – harbour managers were asked to consider potential constraints to increased landings such as chilled store space, quayside space, boxes and ice costs.

Chilled (refrigerated) storage - With the exception of Plymouth, Ardglass and possibly Lerwick markets, most fish markets were built at a time when annual landings were considerably higher than they are today. Therefore, a rise in the quantity of fish landed should be easily accommodated 95% of the time, although it was noted that at times of heavy landings, the chill store space in many ports could still become full in exceptional circumstances.

Boxes – in the SW and SE of England, vessels used their own boxes while in Scotland and Northern Ireland boxes were typically rented through a box pool scheme. Box usage, however, was not expected to change much as vessels were already using the full capacity of boxes i.e. fishroom capacity was thought to be the limiting factor and only the box contents would change.

Ice – although it was not thought ice-use would increase significantly (as described above under b) above, volumes of fish stored on board were expected to be roughly the same, as many vessels were already operating to full fishroom capacity), ice was readily available in all larger ports.

Bin storage - harbour /market managers seeking to sell discards into the fishmeal supply would require a secure area to store bins supplied by the fishmeal producers.

- iii. Legal responsibility – many harbour operators sought definitive legal guidance on the respective responsibilities of vessel masters, owners and harbour authorities in order to deal with disputes that could arise. Legal guidance provided by Defra and Marine Scotland suggested that the legal responsibility was on the vessel owner until the first point of sale, or when responsibility for the catch is assumed by someone else (eg port). For some operators, this still raised the issue

of which party was responsible for discards that were being stored in a harbour chill store prior to collection by the discard buyer (e.g. fishmeal), which could take up to a week. In the event of this fish spoiling, they felt it was not clear who would be responsible for the cost of disposal and cleaning etc.

iv. Un-certainty – a number of leading fishing port operators and sales agents had been involved in working groups to discuss the response of the onshore sector to the impacts of the landings obligation. The availability of grants under the forthcoming European Marine Fisheries Fund (EMFF) scheme has been discussed with administrations but uncertainty over the volumes of discards coming ashore and likely evolution of the landing obligation towards reduced discard landings was deterring investment by the ports/harbour sector.

v. Location – the location of a port / harbour, relative to its proximity to the main seafood road transport network in the UK, will play a crucial factor in how and where discards are disposed of and utilised.

vi. Animal By-Products (ABP) – English harbour managers and agents welcomed work by Defra's animal health team, to clarify the Animal By- Products (ABP) regulation in respect of the storage requirements for fish that would be prevented from entering the human consumption supply chain. Fish under the MCRS and designated for non-human consumption could not enter the human consumption supply chain and would therefore be classified as Category 3 food waste, and would be treated as 'low risk'. The result being that the requirements to segregate human consumption fish products from Category 3 classified fish product were not as stringent as had first been thought. For example, the storage of both product types in the same chill store would be permissible subject to the clear labelling and segregation within the fridge. Furthermore, ABP regs would only apply after a product had been designated as not for human consumption and this decision could be deferred post landing, thereby allowing unwanted catch to be stored with fish destined for the human consumption market until deciding the best outlet for it.

vii. Admin burden increase – sales agents and port offices were concerned at the potential administrative burden required to support the implementation of the landing obligation, again pointing to the fact that administration is a cost to business. Furthermore, sales agents in particular suggested that the IT software used by agents, POs, MMO and Marine Scotland for RBS would need updating.

#### 4.2.4 Vertical supply chain issues

The ports / harbours / markets represent the source of the UK wild seafood supply chain and are therefore an essential feature in the vertical supply chain. Almost all operate a charging structure based on a commission for landing dues and sales agency fees levied on vessels using the harbours and / or related services.

There was agreement from all harbour managers that dealing with discards (in whatever shape or form that took) would require staff time and use of harbour facilities (be that cold stores, forklifts, boxes etc). With the exception of one small harbour, every harbour / market manager interviewed stated that such services could not be provided for free and any costs incurred would be charged back to the fishermen responsible, on a 'user pays' principle. These costs would therefore impact on the economic viability of the upstream supply chain (i.e. the catching sector).

Some fish auction operators charged processors for the use of the auction, again through a commission basis although it was believed that the landing obligation would have little impact on this arrangement or the wider downstream supply chain.

Port managers and market operators were concerned about the possibilities of vessels being tied up for long periods of time as a result of a choke scenario. It was believed that businesses in the supply chain downstream of ports would only be impacted in extreme circumstances.

#### 4.2.5 Horizontal supply chain issues

Competition exists between auction markets in some areas (e.g. Plymouth, Newlyn and Brixham) but typically ports / harbours are geographically well spaced and have little impact upon each other.

The scale of port or market is a critical point to consider, with the scale of landings (in terms of value of landings) at any port being inversely proportional to the potential impact on the harbour as the costs of compliance could be disproportionately high for the disposal of low volumes of discards. This could result in a significant cost burden on some of the smaller ports and should therefore provide a case for exemption (permitted under the regulation) on grounds of 'disproportionate costs'.

It was not thought that the action of one port would impact negatively on the other; however, there could be cost-sharing benefits across the sector where ports in an area work together either to set-up a discard hub or co-ordinated transport network. Both Milford Haven and North Shields were known to have discussed such collaboration with the respective surrounding ports.

#### 4.2.6 Summary

The ports / markets sector was perhaps the most diverse as it ranged from ports such as Conwy in North Wales where less than 10 tonnes of TAC species were landed in 2014 to Peterhead where 45,309 tonnes of demersal TAC stocks were landed. Despite the needs of each port being different due to differing fleet components, catch compositions and access to transport links, a 'discard handling plan' will need to be developed on a port by port basis. The plan could be based on a common template, due to similarity of issues, and complement the Responsible Fishing Port Scheme.

The ability of ports to deal with discards depends on a number of factors:

- Distance – the distance (and therefore cost) from potential discards users (e.g. fishmeal, bait etc) will have a significant impact on the discard outlet chosen. Some remote ports (such as Milford and Scrabster) saw great potential in the use of aerobic or anaerobic digesters to deal with discards although many were unaware of the associated legislative requirements.
- Quantities and continuity of discards landed – it was anticipated that regular landings of large volumes of discards would be easier to deal with than occasional landing of two boxes of discard
- Cold storage – whether storing discards for the potting sector, pet food market or fish meal producers, ports / harbours will be required to store discards in a segregated chilled environment that would reduce further product spoilage.
- Transport – the accessibility of a port to the national seafood transport network has a significant bearing on how and where discards could be sold. For example, ports and markets with well-established transport links into Grimsby would be well placed to supply the fishmeal sector.
- Co-ordination & communication – emerging examples of best practice demonstrate the need for leadership in establishing clear roles, responsibilities and expectations of all those concerned to support effective communication and co-ordination of activities.

- Charging structure – for any port /market intervention in handling discards to be a sustainable activity all costs through the handling process (e.g. labour, port transport, cold storage, box tipping, box washing etc) would need to be identified and charged back to the vessel

Although lacking the level of detail required to make absolute planning possible, in most larger ports it was clear that some degree of planning had taken place. It is believed that with supported communication and co-ordination between the relevant discard handling stakeholders (i.e. vessel operators, market / port managers, agents, hauliers, fish meal producers, pot fishermen and pot bait supplier and POs) these ports would be able to assist to meet the industry's needs of complying with the landings obligation. Albeit, within an agreed charging structure to enable those organisations providing the intervention to recover the costs incurred of providing that service. Where discards are destined for use as pot bait or fishmeal, it is hoped that the small value of the product will be enough to cover the handling costs (i.e. the value of discards depends on the proximity of the fishmeal processor to the vessel's port of landing)

The fate of the smaller ports is less clear as the guidance for smaller ports does not reflect operational realities or infrastructure available at many of the smallest ports. Managers of these ports cannot draw comfort from assurances that these ports will be low risk and afforded a 'light touch'. While efforts thus far have rightly focussed on dealing with larger ports, it is hoped that greater consideration is now given to smaller ports to better understand the restrictions they work under and to develop appropriate workable solutions.

**Table 6: Summary of potential impacts and outcomes of the landing obligation on the ports / harbours sector**

Uncertainties / issues / risks	Potential impacts	Potential outcomes
Disposal of discards (esp <MCRS)	Dumped fish	Environmental health risk.
		Cost burden.
	Storage / disposal of fish <MCRS in accordance with ABP rules	Costs need to be recovered from vessels as the vessel is legally responsible. Investment required in infrastructure or staff.
Infrastructure (fridges, quay space)	Landings exceed capacity	Investment required in temporary or permanent infrastructure solutions, particularly an issue in many smaller ports where there is currently little or no infrastructure or minimal staff availability.
	Landings decrease resulting in excess capacity	Rationalisation of fishing activities and potential diversification into other sectors (e.g. renewables).
Changing landing patterns	Harbour revenue increases	Potential for investment in new facilities supported with EMFF.
	Harbour revenue decreases	Rationalisation of port operations or diversification. Increased residence time of vessels in port – quayside space less available for other uses.
Legislation (ABP)	Increased administration	Increased harbour operating costs resulting in increased charges to vessels.
Fleet reduction	Volatile landings	Reduced port income.

		Impact on local processors.
Un-certainty	Forward planning a challenge	Erodes confidence through industry.
		Prevents investment across supply chain.
		Emphasises need for strong communication to co-ordinate landing, storage and transport to end user.

<b>Summary</b>	Of the onshore supply chain sectors, the ports and harbours sector appears to face the greatest number of challenges adapting to the new landing obligation. These will vary from port to port depending on size of the local fleet and target fisheries	All ports, harbours and markets handling quota species will be required to make some modifications to operational and administrative practices to facilitate fleet compliance with the landing obligation. In many ports, additional infrastructure will also be required, although this maybe temporary in nature. Operating costs of the sector will be increased and these will be passed back to the catching sector.
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## 4.3 Fishmeal producers

### 4.3.1 Awareness and engagement

The fishmeal sector has been proactively engaged with the devolved administrations (where applicable) and the Seafish Discards Action Group (since its inception) and has collaborated in trials and studies with Cefas to pilot the 'discard to fishmeal' supply chain. Consequently, the sector feels that it is well placed to play an important role in the disposal of both landed discards and also fish that are over the MCRS but for which there is no market.

### 4.3.2 Potential impacts or opportunities for sector

Although there has been a slight drop in global demand (and price) in recent years, demand for fish products to enter the fishmeal supply chain remains high. It is a capital-intensive industry and there has been significant investment by UK producers to ensure that they remain competitive in the global marketplace. This investment in infrastructure has increased efficiency, providing the sector with significant spare processing capacity that could potentially utilise all of the estimated landed discards. The sector therefore sees the landing obligation as a significant opportunity to increase production volumes.

### 4.3.3 Key challenges and issues:

Interviews with the fishmeal sector identified a number of potential issues and operational details that would require development prior to the landing obligation being introduced.

i) Quality – the quality of the raw material was highlighted as an issue of paramount importance. The sector operates to tight raw material specification and quality management systems so all material would be quality checked prior to processing. In order to meet the quality specification required, the fish would effectively need to be treated like the rest of the catch i.e. boxed, well iced, refrigerated and kept for no longer than 10 days. If a sample is rejected due to poor quality, the supplier would not be paid and would be required to cover the transport costs and subsequent disposal costs (@ £50-80/tonne).

ii) Port Storage – the sector recognised that daily collections from ports would not be economically viable in almost all cases (with the possible exception of Peterhead) and as a result port storage would be needed. In all but the coldest ambient temperatures storage of discards destined for fishmeal should be under chilled conditions. There was some concern around the interpretation of the Animal By-Product regulations in the respect of the requirement to segregate storage of ABP materials from fish destined for human consumption. Seafish Legislation team, Marine Scotland and Defra food standards team provided useful and timely input into this discussion, with the opinion that fish discards posed a very low risk to public health (relative to bovine brain and spinal cord etc). Discards classified as ABP Category 3 waste would therefore be treated with a 'light touch', commonsense approach. Such flexibility should allow discards to be stored in the same port chill store as fish destined for human consumption provided there is appropriate labeling, control and segregation.

iii) Transport – fishmeal processors were keen to work closely with all ports, agents and vessel owners where discards will be landed to build a supply chain forecast to plan for the efficient use of discards as a raw material. Transport costs were identified as a significant factor and every effort would be made to either ensure loads are full and / or to utilise spare capacity of hauliers transporting fish bound for processing prior to human consumption. Again, this area related to the interpretation and application of the ABP regulations as the need for segregation between ABP classified and non-ABP classified materials could be interpreted as requiring separate vehicles. After discussion with Defra, fishmeal processors were hopeful that ABP classified fish could be

transported in a compartmentalised articulated lorry trailer unit or securely sealed containers as this would provide much greater flexibility in transport arrangements.

iv) Bins – fish destined for processing into fishmeal is typically stored in 660L or 1000L insulated plastic bins. Based on the pilot discard trial with Cefas, the leading fishmeal operator in UK concluded that they would require three times the number of existing bins. These would be needed to cover bins at the processing plant, bins in transit (each way) and a bank of bins ready at the ports. In order to ‘gear up’ for the implementation of the landing obligation on demersal species, fishmeal operators sought guidance on the eligibility of such items for European Maritime and Fisheries Fund (EMFF) grant support, with each bin costing c. £350. The issue of safe / secure storage of ports was also raised.

v) Critical mass – experience of dealing with small volumes (i.e. a few boxes a week in some cases) from small ports during the Cefas trial suggested that fishmeal would provide less of a solution in these cases as the cost of transport was typically greater than the value of the discards transported. It was felt that there could be scope for a collection ‘round’ smaller ports where these were close to larger ports or processors like in SW England. The South East of England and Wales were identified as ‘blackspots’ by fishmeal operators as, even by combining transport with human consumption fish products or fish by-products from processing factories, the dispersed nature of the landing ports’ beaches results in un-economic transport costs. The West coast of Scotland was identified as another problematic area but it was hoped that collaboration with the aquaculture sector might provide shared transport arrangements.

vi) Communication – the sector explained that good communication through close day-to-day contact would be essential in order to ensure that the use of fish discards was commercially viable for them. Ideally, this communication would provide a daily forecast of fish being landed in order to ensure that bins were organised to be in the right place at the right time and that transport costs were minimized through the use of storage, load sharing or multi-stop collections.

vii) Limitations – fishmeal plant operators reported that while they could utilise almost any species of demersal or pelagic fish, they would be unable to deal with *Nephrops* waste as that was reported to be difficult to store and the shells caused blockages within the processing line.

#### 4.3.4 Vertical supply chain issues

The research suggested that the majority of fish processing by-products (or fish waste) generated by UK processors entered the fishmeal supply chain. Some processors expressed concern that fishmeal producers would preferentially source whole discards over fish processing by-products that were currently used. Fishmeal operators stressed this would not happen, but if the intake of fish processing by-product did reduce it would have an economic impact on processors through increased waste disposal costs. If landings did increase, this could further exacerbate the potential problem.

The road transport / logistics sector recognised that greater volumes of landings destined for fishmeal would lead to an increased demand for transport and therefore would benefit their sector. The degree though in which the transport sector could benefit will depend on their ability to ‘load share’ – carrying segregated loads of fish destined human consumption with ABP classified fish destined for fishmeal on the same transport. If there were a requirement for separate transport for ABP classified fish then the cost of disposal for the producer would increase and the ability of the fish meal sector to use utilise would be reduced as it requires flexible transport chains to deal with the fluctuating inward supply chain.

#### 4.3.5 Horizontal supply chain issues

Four dedicated fishmeal producing plants were identified in the UK. These were geographically spread from Shetland to Plymouth, with the two largest plants (at Grimsby and Aberdeen) being owned by the same company. The plant at Plymouth does not currently take material from outside the company's own vessels and factory, and there is no ambition to change this approach. Despite the potential for a significant uplift in the quantity of fish discards being processed, it was believed there that there would be no competition for raw materials between plants due to the degree of geographical separation.

#### 4.3.6 Summary

Although not without challenges, it is likely that fishmeal industry in the UK will provide a significant potentially cost-neutral market for fish landed and classified as Category 3 animal by-product (non-human consumption uses below the MCRS), and any small fish above the MCRS but below the economic processing size.

The fishmeal supply chain has been well tried and tested in the past when it received fish withdrawn from markets under PO withdrawal price schemes. The sector deals in high volume, low value raw material sourcing where the transport costs determine the viability of the supply chain. For this reason, the fishmeal supply route is best suited to larger ports where significant quantities should be available on a regular basis and unlikely to provide an outlet for smaller ports where quantities are small and are sporadic in frequency.

**Table 7: Summary of potential impacts and outcomes of the landing obligation on the fishmeal sector**

Uncertainties / issues / risks	Potential impacts	Potential outcomes
<b>Quality</b>	Poor quality Refused consignments	Responsibility on vessels and ports to maintain quality handling practices (i.e. proper icing, storage) to maintain adequate quality.
		Costs of disposing of rejected consignments of discard material will be recovered from the vessel(s) concerned.
<b>Capacity issues</b>	Increased number of bins to meet demand	Investment required by sector
		Requirement of ports to provide space for secure storage could be a challenge for some ports.
	Increased transport requirements	Potential to explore EMFF. Subject to ABP conditions being met (see below) there will be an increased need for transport, providing significant benefit to the sector.
<b>Legislation (ABP)</b>	Transport	Official guidance issued by Defra and Marine Scotland suggests a pragmatic approach to the need to segregate Category 3 ABP.
	Storage	
	Administration	Fishmeal producers are already registered as ABP processors and have the necessary administration and audit procedures in place.

<b>Availability / supply volumes</b>	Critical mass requirements	<p>Costs of transporting small volumes of discards would result in increased costs being passed back to the vessels, or a refusal to transport consignments, with high alternative disposal costs for fishermen.</p> <p>Communication and co-ordination is required between fishermen, ports and fishmeal producers to maximise efficiency and minimise cost to vessels.</p>
<b>Limitations</b>	<i>Nephrops</i> cannot be processed into fishmeal	Fishmeal sector provides little solution to the <i>Nephrops</i> catching sector, although <i>Nephrops</i> waste can be composted.

<b>Summary</b>	The landing obligation appears to provide significant opportunity for the fishmeal sector	The fishmeal sector could provide a strategically important outlet for the bulk of discards, with minimal (if any) cost to the catching sector. Benefits of increased supplies to the fishmeal sector would also benefit the road transport / haulage sector.
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## 4.4. Bait

### 4.4.1 Awareness and engagement

Across the UK, the demand for cheaper bait from the crab potting sector is strong, as prices for traditional baits such as mackerel or scad have increased to c. £1/kg in recent years. After the cost of fuel, the bait costs represent the biggest cost to vessels in the potting sector. Bait is sourced typically by pot fishermen through one or more of the following channels:

- a) fishermen catch their own bait and either freeze it or salt it for later use;
- b) fishermen source bait on an ad-hoc basis from local demersal or pelagic fishing vessels;
- c) fishermen use fish processing by-products (frames, heads, etc); and
- d) fishermen buy bait from a dedicated bait supplier.

Most pot fishermen were aware of the impending implementation of the landings obligation, but had not formally engaged in consultations or onshore sector meetings organised by Defra and Marine Scotland or the Seafish DAG. Similarly, awareness of the landings obligation amongst bait processors and bait suppliers was high but, again, engagement outside the sector was low.

### 4.4.2 Potential impacts or opportunities for sector

Crab pot fishermen across the UK saw the landing obligation as a significant opportunity to improve access to bait and potentially reduce their expenditure on bait, as it was hoped that discard bait would be cheaper than through commercial bait suppliers. Although, in most cases the mechanics of how this would happen in practice had not been considered in detail.

The response of processors selling by-products as bait and commercial bait suppliers was more cautious. Processors, in particular, were concerned that if whole fish bait was readily available at quayside then the market for fish frames would be negatively impacted upon. In this event, processors costs would increase, as they would potentially be required to pay for disposal of processing by-products.

Dedicated bait suppliers typically traded in larger volumes of frozen bait fish (redfish, haddock frames, mackerel frames etc). These suppliers believed the potential impacts of the landings would outweigh the benefit of any opportunities. The main concern was that fishermen would source discards direct from vessels or port facilitators, undermining existing suppliers and making them un-viable. There was also a view that the buying of discards for bait would displace under-utilised species, such as small gurnards that were currently landed as bait, and could result in increased discarding of these species.

### 4.4.3 Key challenges and issues

Bait suppliers expressed three main concerns:

- i. Matching supply and demand – the matching of discard landings to the demand for bait was seen as the biggest challenge as it was suggested that in some areas (e.g. SW England) the highest demand for bait (Summer) would come at a time when discards would be at their lowest. It was believed unlikely that supply and demand could be matched while the discards were fresh and hence the additional cost (and infrastructure – see below) to freeze and store bait would have to be considered. At smaller ports where there was no cold storage available, there was concern that discards left for use as bait could be left to spoil should adverse weather result in a potting vessel cancelling a planned trip.
- ii. Information - bait suppliers did not believe there was enough clarity around the volumes that might be landed at this stage to support any new investment in capacity to deal with discards or

the switching away from existing bait products. Inconsistency in the quality of information around the landing of discards was highlighted as another issue that needed to be addressed.

iii. Infrastructure – the need for sufficient cold storage at port level was raised as an issue for ports of all size but particularly for smaller ports where currently there was little or no chilled storage infrastructure. However, due to uncertainties highlighted (see above ii) information), it was not clear whether ports would have the appetite to invest in further chilled storage infrastructure until the volumes of discards landed were clear.

iv. Administration and auditing - there was a need for greater clarity and around audit and administrative requirements to buy and sell fish that have been landed as discards and sold on as bait to ensure that vessels landing the discards could provide a clear audit trail to verify logbook / landing declaration. Fishermen suggested that if the process of using discards were too onerous (for example if they had to produce sales notes or report online) it would serve as a barrier to the use of discards by the sector.

#### 4.4.4 Vertical supply chain issues

The increased use of discards as bait by potters could provide significant benefits to both vessel operators in the demersal sector looking to dispose of discards and to potting vessel operators looking to source cheaper fresh bait. However, such a shift would almost certainly have a negative impact on existing bait suppliers, be they processors selling by-products or dedicated bait suppliers. The role of harbours in this 'new' supply chain would need to be fully explored, as the provision of cold storage for bait would not be without cost.

#### 4.4.5 Horizontal supply chain issues

Vessels across the sector tend to source bait in different ways depending on size of operation and frozen storage capacity. Smaller operators typically have limited chilled or frozen storage capacity and generally have enough bait in store to fish for three or four days. Operators adjacent larger ports or processors often had arrangements in place for longer-term storage.

Most ports and harbours were happy to accommodate and encourage the use of discards as bait. Ports such as Milford Haven and North Shields were particularly proactive in this regard. Smaller companies supplying bait were seen to be more flexible in their sourcing compared with larger bait suppliers and therefore less likely to be affected by the landing obligation. Larger companies in the sector though were effectively trading large volumes of frozen fish products and potentially at greater risk of being negatively impacted by the landing obligation. There was also a view that if ports charged commercial rates for handling, freezing and cold storage that the existing bait suppliers would provide the cheaper solution.

#### 4.4.6 Summary

The use of discards as bait sounds appears to offer a significant outlet for discards, offering one of the most practically feasible and cost effective solutions; subject to the provision of suitable administration, communication and cold storage at port level. In particular, the use of discards as pot bait appears to be the best solution at the hundreds of smaller ports dotted around the UK coast where there are few other realistic alternatives.

However, it should not be seen as a panacea as there are several limitations in the use of discards as potting bait:

- a) Most pot fishermen targeting lobster prefer to use a salt preserved oily fish such as a mackerel or herring as bait;

- b) Previous work by Seafish suggests that matching the supply of discarded fish supply to the demand for bait geographically and seasonally is likely to require some co-ordination and almost certainly refrigerated or frozen storage facilities, which are absent in many smaller ports; and
- c) There was strong evidence to suggest that significant quantities of fish processing by-product were currently being used as pot bait. The use of discards could displace processing by-products from the supply chain in some areas with the resulting impact being an additional disposal cost for processors.

**Table 8: Summary of potential impacts and outcomes of the landing obligation on the pot bait sector**

Uncertainties / issues / risks	Potential impacts	Potential outcomes
<b>Infrastructure / capacity issues</b>	Requirement for quayside storage across all size of ports / harbours	Investment required by ports / harbours or catching sector to facilitate chilled storage.
		Could be a challenge for smaller ports with limited infrastructure or staffing levels.
		Potential to explore EMFF to fund infrastructural improvements.
<b>Legislation (ABP)</b>	Transport	Official guidance issued by Defra and Marine Scotland suggests a pragmatic approach to the need to segregate Category 3 food waste.
	Storage	
	Administration	Sales direct to individual pot fishermen will require an auditable document trail.
<b>Availability / supply volumes</b>	Critical mass requirements	Availability of small volumes located in numerous/remote areas might compromise financial viability. Communication and co-ordination will be required to match supply of discards to demand for bait.
<b>Displacement</b>	Increased availability of discards for pot bait could undermine or displace others baits in the market	Possible displacement of fish processing by-products used as bait could result in increased waste handling costs to processors.
		Reduced demand for non-TAC (non-quota) species currently bought from markets or direct from vessels for bait, resulting in increased discarding of these species (e.g. small gurnards).

<b>Summary</b>	The landing obligation appears to provide opportunities to pot fishermen and the pot bait supply sector	The pot bait sector could provide a strategically important outlet for the bulk of discards with minimal (if any) cost to the catching sector, in particular at smaller ports where discards volumes are un-likely to be viable for the fishmeal sector. Pot fishermen could benefit economically
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		through access to cheaper bait; however, processors could lose an important outlet for processing by-products.
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## 4.5 Pet food manufacturers

### 4.5.1 Awareness and engagement

The sector was not studied in depth as research suggested that the majority of fish by-products in pet feeds were through the use of fishmeal (covered above in detail); however, the pet treat category within the pet food sector was identified as a potential user of whole fish. This sector had some awareness of the landings obligation but had not formally engaged in either government consultations or the Seafish DAG.

### 4.5.2 Potential impacts or opportunities for sector

In the UK, pet food sales have been relatively stable at 1,326,000 tonnes per annum for the last five years in a market worth £2,575m. Pet food manufacturers produce products in line with the FEDIAF (European Pet Food Industry Federation) Nutrition Guidelines. Strict legislation governs what ingredients can be used in the manufacture of pet food. This legislation is laid down by Europe and also applies to imported commercially prepared pet foods.

The use of fishmeal-derived dry pellet pet food (cats, dogs and rodents) or fish in processed (canned) cat food has been a feature of the sector for many years as the benefits of fish in the diets of cats and dogs in particular is well known. In more recent years, pet food producers reported an increased demand for pet treats, and specialist producers within the sector wish to explore whole fish treats for dogs.

### 4.5.3 Key challenges and issues:

Interviews with the pet treats sector identified a number of potential issues and operational details that would require development prior to the landing obligation being introduced.

i) Quality – the quality of the raw materials must be the same as for those destined for the human consumption market

ii) Experience – the pet treats sector is potentially a new buyer within the UK seafood supply chain and as such it has limited experience of working with other supply chain partners. Development of this new market would require commercial relationships to be built with other supply chain partners including port based processors and hauliers.

iii) Continuity – the sector was concerned about investing in the development of a new supply chain when the volume and continuity was currently unknown. There was also concern over supplies in the longer term, given that the aim of the landing obligation was to reduce discards over time.

iv) Limitations – the cost of obtaining raw materials is likely to provide a price point ceiling for the sector and this price level was expected to be close to that paid by the fishmeal sector.

### 4.5.4 Vertical supply chain issues

Although offering a potential outlet for un-wanted small fish, the market for UK landed, whole, demersal fish species for use in pet treat production is new and as yet, un-tested. If supply chains can be developed, the sector would add further competition to the fishmeal and pot bait sectors already active in this market. As this would be a new activity, the degree to which it could impact upon these competing users of discards is unknown. Development of the sector would also benefit transport companies and local processors engaged to undertake buying and packing prior to dispatch for processing.

#### 4.5.5 Horizontal supply chain issues

Fishmeal for conversion into pet feeds is sourced globally and unlikely to be affected by changes in landings of fish of low economic value or those below the MCRS. The use of whole demersal fish within the UK pet treats category (a smaller sub-group of pet food sector as a whole) would be a new activity within the highly specialized sector. The impact that this new sourcing strategy would have is hard to predict but thought to be of low impact on other pet treat producers.

#### 4.5.6 Summary

With growing demand for whole fish products, the pet treat sector appears to offer a potential market for fish landed and classified as Category 3 animal by-product, and any small fish that are above the MCRS but below the economic processing size. However, the pet treat sector would be required to build supply chain. As with fishmeal, the sector deals in high volume, low value raw material sourcing where the transport costs determine the viability of the supply chain. For this reason, it is believed that the pet treat producers would develop commercial relationships with local fish processors and therefore providing benefits to that sector. As with fishmeal, the pet treats supply route is best suited to larger ports where significant quantities should be available on a regular basis. It is unlikely to provide an outlet for smaller ports where quantities are small and are sporadic in frequency.

**Table 9: Summary of potential impacts and outcomes of the landing obligation on the pet food sector**

Uncertainties / issues / risks	Potential impacts	Consequences
<b>Quality</b>	Poor quality	Responsibility on vessels and ports to maintain quality handling practices (i.e. proper icing, storage).
		Disposal costs of rejected consignments of discards will be recovered from the vessel(s) concerned.
<b>Experience - the sector currently has no experience of sourcing whole fish direct from UK ports</b>	Need to undertake new product development (NPD) work to understand how discards could be used by sector	Investment required by pet-food sector. Requirement of ports to provide space for secure storage could be a challenge for some ports. Potential to explore EMFF to assist this process.
	Logistics	The sector would require local supply chain partners (harbour, PO or local processor) to handle, store and transport discards from ports to the pet food producers. Subject to ABP conditions being met (see below), there would be an increased need for transport, which could provide significant benefit to the transport sector.
<b>Legislation (ABP)</b>	Transport	Official guidance issued by Defra and Marine Scotland suggests a pragmatic approach to the need to segregate Category 3 material.
	Storage	
	Administration	Most petfood producers are already registered as ABP processors and have the necessary administration and audit procedures in place.
<b>Availability</b> /	Critical mass	Costs of transporting small volumes of discards

<b>supply volumes</b>	requirements	would render the outlet un-viable; therefore, communication and co-ordination is required to maximise efficiency and minimise cost to vessels.
<b>Price</b>	Price point requirements not yet fully understood	The maximum price paid would be in line with that paid by the fishmeal sector, which might result in direct competition between the two sectors.

<b>Summary</b>	The landing obligation appears to provide opportunity for specialist pet food manufacturers	The pet food sector could potentially provide an important outlet for discards; however, limited experience means benefits are un-certain. Supplying discards to the pet food producers would benefit the road transport / haulage sector, local processors or harbours.
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## 4.6 Logistics / road hauliers

### 4.6.1 Awareness and engagement

The study found that there is a well-established transport network of specialised refrigerated seafood hauliers operating across the UK, linking larger port auction markets to seafood hubs and larger processors in Grimsby and on the continent. Around ten seafood transport companies serve the whole UK, one of which accounts for approximately 60% of seafood transported by road. The sector had limited prior awareness of the landings obligation and had not engaged in consultation with customers or government departments over the issue.

### 4.6.2 Potential impacts or opportunities for sector

The potential increase in tonnage of fish landed under the landings obligation was seen as a welcome opportunity by the sector. Due to the broad customer base of most hauliers in the sector, there was a belief that the sector would be insulated against the worst potential negative impacts of the landings obligation (i.e. choking).

### 4.6.3 Key challenges and issues

i. Drivers – all businesses interviewed reported that existing transport arrangements are flexible and would be able to meet fluctuations that regularly occur in the supply chain. However, in the event that volumes increased significantly it was felt that the availability of trained drivers would provide the biggest constraint on the transport sector's ability to meet demand. The availability of tractor units or refrigerated trailers was not thought to be limiting.

ii. Animal By-Product (ABP) regulations – hauliers were aware of the ABP rules in respect of fish destined for fishmeal production and sought clarification on what level of product segregation would be needed. It was explained that larger articulated lorry trailers often had moveable pull down panels to fully segregate parts of the load. It was hoped that this level of segregation would suffice to meet the ABP requirement in order to make the most efficient and cost-effective use of road transport. Other operators questioned whether palletised goods wrapped in industrial cling film would constitute sufficient segregation to meet ABP requirements.

iii. Communication / co-ordination – the sector is experienced and larger operators are highly specialised to meet industry needs, often providing additional capacity at short notice. It was explained that critical to the slick operation of these networks were timely and accurate communications, either directly with processors or through an intermediary. Hauliers were therefore keen to understand the timescale by which any additional business would be arranged.

### 4.6.4 Vertical supply chain issues

Landings of fish and shellfish into UK ports are typically made at locations remote from the leading processors and end-markets. Fresh fish is a perishable commodity with a limited shelf-life and as a consequence businesses forming the onshore seafood supply chain rely heavily on the road transport / logistics sector to move fish products from source, to processor, to customer in a timely and cost-effective fashion. The transport sector is therefore critical to the success of the supply chain and a failure in this sector would have significant impacts both upstream and downstream. The refrigerated (and frozen) transport sector, however, is highly adaptive and diversified in terms of the businesses it services and as a result barring a scenario of a prolonged closure of a significant fishery it considers itself to be well insulated from risks that would threaten the network.

#### 4.6.5 Horizontal supply chain issues

Companies in the sector ranged from driver-owned one vehicle businesses to national operators running over 150 vehicles. The transport sector is flexible and it was believed that trucks, trailers and drivers could easily move into other refrigerated goods areas (e.g. dairy or meat products) so in the event of significant decrease in fish landing patterns in the UK these business should remain viable through diversification. There was no evidence to suggest that smaller operators would benefit or suffer to any greater or lesser degree than larger operators.

#### 4.6.6 Summary

The potential increase in the tonnage of fish landed under the landings obligation was seen as a welcome opportunity by the sector. The fact that much of this fish would be of low value product (for fishmeal processing or bait) did not factor as an issue as transport costs were fixed, irrespective of the value of the product.

The interpretation and application of ABP regulations with respect to the segregation of ABP Category 3 fish products and fish destined for human consumption will have a critical bearing on how much the sector benefits. The sector is diversified and dynamic and could therefore quickly increase or decrease capacity to accommodate the range of impacts that could be experienced following the implementation of the landings obligation.

**Table 10: Summary of potential impacts and outcomes of the landing obligation on the road transport sector**

Uncertainties / issues / risks	Potential impacts	Potential outcome
<b>Ability to deal with increased volumes</b>	Driver availability	Potentially the most limiting factor, but not expected to be an issue unless increased demand was significant.
<b>Legislation (ABP)</b>	Requirement to segregate Category 3 food waste from fish destined for human consumption supply chain	<p>Official guidance issued by Defra and Marine Scotland suggests a pragmatic approach to the need to segregate Category 3 animal by-products, suggesting that loads of Category 3 discards could be transported in the same vehicle as fish for human consumption providing it is correctly labelled and segregated.</p> <p>Applied more vigorously, the requirements of the ABP regs could prevent the carriage of Category 3 classified discards with fish for human consumption. The consequence of this would be that separate lorries would be required for transporting Category 3 material. Given the low value of these products and estimated variation in supply volumes, the economic consequence could be that the fishmeal outlet for discards would be unviable financially.</p>
<b>Inadequate communication</b>	Failure to implement advance planning to maximise use of available load space /	There is a need for an organisation or sector to take on a role of organiser to co-ordinate landing information with harbours, fishmeal processors, bait suppliers and other relevant

	weight and back loading (for return journeys) to minimise cost per kg requires a regular flow of information	stakeholder groups. This is to ensure there is clear visibility in the forward pipeline to enable businesses to prepare and plan operational and logistical needs.
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<b>Summary</b>	The landing obligation appears to provide opportunities to the road transport sector	The sector is dynamic and flexible and should be able to upscale to meet any increased demand resulting from an increase in road transport requirements from ports to fishmeal processors.
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## 4.7 Local / port based processing sector (domestic catch processing)

### 4.7.1 Awareness and engagement

The local / port based processing sector was used to describe processors which sourced the majority of fish from nearby markets. Outside of Scotland, engagement with the sector was good. In Scotland, there was a mixture of dis-interest or stakeholder fatigue surrounding the landing obligation. Processors across all of the UK had some awareness of the landing obligation although knowledge levels varied. Sector engagement in groups such as DAG was low with processors either relying on trade associations (such as Scottish Seafood Association) to represent their interests or local catching sector interests to keep them abreast of developments in the sector. In other areas, there was a marked dis-connect between the catching sector and processing sector.

### 4.7.2 Potential impacts or opportunities for sector

Responses across the sector varied considerably depending on location, business size, customer profile (i.e. domestic or export; wholesale or retail etc) and species processed. Most source the majority of raw material from local market / port and therefore have high dependence on the UK fleet.

Sector views on potential impacts and possible opportunities were split regionally, with processors in NE Scotland and Northern Ireland seeing possible opportunities should landings of smaller fish and *Nephrops* increase due to uplift in quota under the landings obligation. Port-based processors in the SW of England saw less of an opportunity in increased landings of small fish, believing that in relatively small quantities the production cost per kg yield would be much higher than with larger fish. SW processors also suggested that increased landings of small whitefish, such as whiting, could simply displace other cheaper underutilised fish, such as dab or pouting, from the market.

Port-based processors in NE Scotland expressed concerns that a move to increase the selectivity of gears could reduce landings of small haddock, which would impact a number of processors in the area that specialise in 'block' filleting smaller haddock.

A common view shared across the port-based processing sector was that although there was potential for the landing obligation to impact on landings, the sector was generally highly resilient to fluctuations in supply, demand, availability and price of fish. Some suggested that such uncertainty was part of the landscape within which the sector operates and that not until the first landings are made would the full picture be clear.

### 4.7.3 Key challenges and issues

i. Size of fish – discussions around the usefulness of increased landings of small grades of fish varied around the UK. In the SW, SE and E coast of the UK there was little appetite for greater volumes of small fish, as it was felt that production costs (filleting) would be greater than the value of the finished item. It was also suggested that landings of small whitefish species, such as whiting, could displace other species of lower value whitefish, such as pouting, for which markets had been developed post the 'Fishing for the markets' project and sold in two of the UK's major retailers. In the NE of Scotland the situation was reversed, with processors and representatives expressing grave concerns that increases in gear selectivity that led to reduced quantities of small fish, in particular haddock, would present a serious challenge to the processing sector in the area which specialised in 'block' cutting small haddock.

ii. Resilience – the sector drew on examples of recent winter storms, extreme TAC cuts during the N Sea cod recovery plan and highly seasonal fishing patterns to demonstrate the resilience of the

sector to extreme fluctuations in the supply of raw materials. One large Scottish processor suggested that the impact of the landing obligation on landings would “just be something else for us to deal with”.

iii. Information / communication – across the whole processing sector, but in particular in NE Scotland there were calls for better forward-landing information from the catching sector. There were also calls for POs to provide greater transparency on fishing plans / patterns and to engage with processors so that market demand (and therefore price) could be factored into quota setting and quota management.

#### 4.7.4 Vertical supply chain issues

The processing sector across the UK had rationalised in recent years and in particular was a feature in the NE Scotland and Northern Ireland where de-commissioning schemes had significantly reduced the capacity of local fleets. The current level of landings was a concern in some areas and there were real concerns that if the implementation of the landings obligation further restricted landings, then further contraction of the UK fish processing sector would occur.

It was believed that the impact of further reduction in the local / port based processing sector could have serious implications for the upstream and downstream supply partners. Fishing vessels (upstream) were said to rely on healthy competition between buyers / processors at local markets to drive prices as high as possible. If this competition were reduced through further shrinkage in the sector, there was a fear (from the catching sector) that prices on markets would decrease. It was also stated that if the port-based processing sector reduced its customers, which included larger national processors, inland wholesalers and export markets, processors in other parts of the UK and foodservice sector could face increased prices through less competition in the sector.

#### 4.7.5 Horizontal supply chain issues

Most businesses across the sector buy fish at a local auction where there is already daily competition between all sizes of businesses. It was reported that a reduction in landings would further intensify the level competition and potentially force those less financially solvent to leave the industry. In the event of a local fishery choking and processors seeking to import supplies from outside of the region to meet customer demand, it was argued that smaller processors would be disadvantaged against the larger processors as buying at lower volume would potentially result in a higher cost price.

#### 4.7.6 Summary

The sector believed itself resilient to fluctuations in what was already seen as a highly volatile and often un-predictable supply chain. Port based processors recognised that the sector depended on fish landings at local markets and their fortunes were therefore closely linked to the fortunes of the catching sector. But, there was a belief that the catching sector equally depended on the processing sector and there was disappointment in some areas at the apparent lack of dialogue (and possibly trust) between the catching and processing sectors.

In some parts of the country, the processing sector has rationalised considerably, and there were concerns that further reductions in the sector would result in a loss of ‘critical mass’ to drive competition at some auctions. In other areas, the reduced availability of local landings had been offset by improved transport links, allowing the sourcing of wild and fresh products from within the UK and Europe, with the regular sale of fish from Shetland to Cornish processors cited as an example.



The sector saw any increase in landings as an opportunity, believing that markets would develop to cater for the increased supplies. In the NE Scotland, processors were concerned that further improvements in gear selectivity would restrict supply to a sector that specialised in the processing of small haddock.

Despite recognition of the risk posed by choking under the landings obligation, there was measured concern over the impact of the landing obligation on the sector as it was believed that cross Channel transport disputes, increases in TACs outside of the UK, exchange rate movements, TAC fluctuations and the wider state of the economy would have greater impact on their businesses.

**Table 11: Summary of potential impacts and outcomes of the landing obligation on the local processing sector**

Uncertainties / issues / risks	Potential impacts	Potential outcomes
<b>Reduced product availability due to interrupted or volatile supplies</b>	Less volume of fish to trade (processors).	Insufficient quantities available to fulfil customer order resulting in customers switching to alternate/ more reliable suppliers.
		Possible redundancies due to reduced staffing requirements.
		Reduced profitability due to decreased turnover.
		Reduced transport needs impacting on the road transport sector.
<b>Changes to availability of different sizes and species of fish</b>	Changes to product specifications	Possible economic impact on suppliers and possible loss of market share if specification could no longer be met.
	Opportunities for new product development (different sizes or species)	Increased availability of any size of fish would be viewed as positive, and new product lines would be developed wherever possible to provide the greatest economic benefits for the sector and upstream supply chain.
<b>Communication</b>	Poor planning / low awareness	In some areas, the sector requires more regular, detailed dialogue in order that processors are aware of the challenges faced by the catching sector and are able to develop plans to adapt to the new circumstances that could arise.
<b>Summary</b>	The landing obligation will provide challenges to the sector as landing patterns and size compositions of landings are likely to change	Despite a range of impacts being presented, the sector is highly resilient to volatile market conditions (price, availability and demand) on a day-to-day basis. As a result, the sector has a flexible and adaptive approach that should help it deal with many of the possible scenarios.

## 4.8 National processing sector (Larger processors)

### 4.8.1 Awareness and engagement

'Larger processors' were classified as processors that typically imported the majority of raw materials. Such businesses were part of multi-national companies with multiple sites, although in the UK these were principally the Grimsby and Humber region. These processors specialise in supplying fresh and frozen value-added products to UK and European retailers. Being directly responsive to retailers and eNGOs, companies in the sector had a high level of awareness and had been engaged in open discussions (such as Seafish DAG) and closed meetings (with customers and suppliers) for a number of years.

### 4.8.2 Potential impacts or opportunities for sector

The national / international processors source a range of whitefish, shellfish and pelagic fish through a number of intermediaries (primary processors) around the UK. Although these represent significant volumes from a UK catching sector perspective, the need for high volumes of product at consistent quality and price means the sector depends largely on imports to meet its contractual commitments.

These companies recognised the potential for the landing obligation to impact on business but, in the context of the global seafood market trade, it was considered to be only one of a number of important issues. Other factors, such as exchange rate fluctuations, trade to Russia and Icelandic quotas were cited as examples of external influences that could impact more significantly on businesses in the sector.

The sector was aware of potential scenarios and reported that in the event of a closure of a UK source fishery, the impact would be offset by switching to import to make-up shortfall, although noting that this would add cost. It was recognised that while this would have limited impact on the sector itself, the 'knock-on' effect upstream would be more significant.

The potential increase in the availability of Scottish haddock, *Nephrops* and moves towards the MSC accreditation of North Sea cod were all seen as positive opportunities to increase UK sourcing.

### 4.8.3 Key challenges and issues

i. Size – the sector is experienced in developing and marketing new products and sees some opportunity in exploring the uses of small fish as an ingredient in value-added lines, but until landings are made it is not possible to understand how the smaller sizes of fish that may be landed under the landing obligation could be utilized in new products.

ii. Availability – the sector typically deals in long-term price/volume contracts, in order to provide stability to customers. At present, the lack of detail around forecasted landings under the landing obligation from 2016-19 is preventing a full assessment of the potential risks and opportunities that may be presented.

iii. Industry reputation - (ethics & sustainability) and public perception is important to this sector's customers (i.e. retailers and consumers). If poorly implemented, it was believed that a negative public image could impact on the whole seafood supply chain.

### 4.8.4 Vertical supply chain issues

These processors focus on supplying multiple retail customers nationally and internationally through a diverse range of fresh and frozen retailer 'own label' products and company branded offerings. These businesses buy and sell considerable volumes of fish sourced from global supply

chains, and although they are significant in some UK markets (e.g. *Nephrops*, haddock and pelagics) the vast majority of their supply products are imported into the UK for processing.

UK sourcing is important, but in the event of restricted supply due to choking or closure under the landings obligation, companies would seek supplies from outside of the UK. Therefore, given the size and scale of these operators and their limited exposure to UK wild-caught supply chains, it is unlikely that the landing obligation will impact greatly on business in this sector. However, the impact on the catching sector upstream of these operators switching to non-UK supplies could be very serious as these are larger volume buyers in the UK marketplace. Downstream of these processors, the retail sector and consumers rely on these companies to act as buffer, absorbing the effects of a number of variables in the seafood supply chain globally (varying price and quantity) to provide cost competitive seafood products. Against this backdrop, the landing obligation is likely only to be a small variable among many other commercially important factors.

#### 4.8.5 Horizontal supply chain issues

The horizontal supply chain in this sector is narrow, as companies operating in this area are similar in size and function. A small number of these larger scale businesses in the sector already compete with each other and with competitors globally. The implementation of the landing obligation is unlikely to have a discernible impact on competition across the sector.

#### 4.8.6 Summary

Although these businesses source significant volumes of fish from UK markets, these account for a relatively small part of their operations and therefore they consider themselves 'insulated' against the worst potential impacts of the landing obligation in the UK. UK sourced fish products were reported as important to some customers but, in the event of a choked fishery turning off this supply route, it was explained that products would be easily substituted with imported product of similar specification.

Businesses in this sector already source through global and often vertically integrated supply chains. These are large, efficient companies that, through global reach, are highly adaptable and, as a result of this, the impact of the implementation of the landing obligation in the UK on this sector is thought to be minimal. However, while the impact of the landing obligation on the companies themselves is likely to be small, any changes to the sector's sourcing patterns could have significant impact on the UK catching sector.

**Table 12: Summary of potential impacts and outcomes of the landing obligation on the national processing sector**

Uncertainties / issues / risks	Potential impacts	Potential outcomes
<b>Reduced product availability due to interrupted or volatile supplies</b>	Switching suppliers (to imports or frozen) to reduce risk.	Product switching would result in economic implications for local processing sectors due to reduced demand from UK sources. Product switching or substitution with imports could have an economic impact on the national processing sector due to increased costs.
<b>Changes to availability of different sizes and species of fish</b>	Changes to product specifications	Negative economic implications for suppliers, with loss of market share if specification can no longer be met.
	Opportunities for new product	New product lines resulting in

	development (different sizes or species)	economic benefits to the upstream supply chain.
<b>Public / media and customer perception</b>	Reputational risk	Reduced fish sales resulting in economic consequences to suppliers upstream.

<b>Summary</b>	The landing obligation will provide challenges to the sector and few, if any, benefits; however, through global sourcing practices, the impacts to the sector appear manageable.	Potential impacts will be identified by the sector and mitigated against through the increased use of imports, with consequences for businesses in the existing upstream supply chain.
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## 4.9 Foodservice sector

### 4.9.1 Awareness and engagement

A cross-section of businesses specialising in the supply of seafood locally and nationally were interviewed. Larger businesses, operating at national sector, were aware of the impending implementation of the landing obligation and had been engaged in discussions with eNGOs and across supply chain groups, such as the Seafish DAG, for some time.

Awareness and engagement by smaller businesses operating locally and nationally was less defined, as these businesses reported that they did not have the resources to attend such meetings on a regular basis. Some of the smaller, port-based businesses had strong links to regional Seafish staff or regional catching sector organisations (POs and Associations) and relied on these sources for information on such issues.

### 4.9.2 Potential impacts or opportunities for sector

The foodservice (or catering industry) defines those businesses, institutions, and companies responsible for any meal prepared outside the home. This industry includes restaurants, school and hospital cafeterias, catering operations, and many other formats. In the UK, total spending on this out-of-home food consumption channel was worth an estimated £50.6bn [source: Seafish economics].

Fish and seafood forms an important part of this sector, with fish and chips alone accounting for an estimated £1.1bn (of spend). A diverse array of companies supply the sector, from micro-scale businesses supplying low volume niche products for top London restaurants to multi-location businesses supplying fresh and seafood products to hotel and pub chains with over 10,000 UK outlets. The sector's needs are diverse, with customers ranging from schools and hospitals to Michelin-starred fine dining establishments.

National food service suppliers suggested that the sector could be subdivided into fine-dining and pub / hotel chain, as the requirements of each sub-sector were significantly different:

a) Fine dining – this customer group depended on a variety of fresh, British, wild-caught fish species. This group had a high awareness of sustainability and ethical issues, and many customers within this group would source according to some external sustainability guidance (e.g. MCS fish online). Portion size was particularly important to this customer group (as diner's expected 'plate size' portions like a whole dover sole) and, consequently, it was felt that if the size composition of landings changed under the landing obligation, it would be hard to sell smaller grades of fish to the sector and would, in turn, impact on business.

The sector reported that even at the largest scale, customers in the restaurant sector were often positive and flexible towards changing menus to feature a 'special', which afforded some flexibility to suppliers to switch species under some circumstances. This flexibility, it was hoped, would not only provide a buffer to interrupted supplies but also present an opportunity to change diner's perceptions and tastes for different species and sizes of fish.

b) Pub / hotel – this customer group typically supplemented fresh fish with frozen fish and 'value-added' processed products, and was therefore much less dependent on the fresh seafood supply chain.

Foodservice sector suppliers suggested that any upstream supply chain changes to landings and supplies would have a much greater impact on the fine-dining customers than the pub/hotel trade. It was recognised that the landing obligation could have some impact on this trade but, on balance, businesses reported that impacts would be limited. This was based on the facts that

some wild species were already imported, others farmed (notably bass, bream and salmon) and others sourced through a diverse network of port-based suppliers across the UK in order to maintain a continuous supply and provide choice to its customers.

#### 4.9.3 Key challenges and issues

i. Size of fish – across the sector it was reported that demand for smaller size grades of fish was typically low, although it was recognised that there were exceptions, with some chefs being particularly inventive when using small fish. Customer expectation was typically for a plate-sized whole fish or fillet and, while not a hard barrier preventing the use of smaller fish, it was felt that reasons for using smaller fish would take some time to communicate to chefs and restaurateurs.

ii. Types of fish – due to the inherent volatilities in the UK wild seafood supply chain, the sector is already diversified in its sourcing, using many aquaculture products alongside imported fresh and frozen wild seafood in order to offer customers the diversity and availability demanded. When considering the species that would be subject to the landing obligation, it was reported that the sector was already sourcing large quantities of cod and haddock from Norway due to the consistency of supply and price.

iii. Frozen stock – there was mixed response across the sector in respect of whether companies would build up reserves of frozen stock as a contingency measure. Some felt this would happen, in part, although noted that it was not without risk and added additional costs, potentially reducing competitiveness in a price sensitive environment. Others did not have the physical infrastructure to freeze and store stock; and some felt the financial risk would be too great, especially if a species didn't choke and there was abundant fresh supply in the marketplace.

iv. Interrupted supplies – although there was some flexibility with restaurants menus, any prolonged period of interrupted supply would pose a challenge to the sector. A number of businesses reported that this would be managed by laying down frozen stock, although it was recognised that there were additional costs and financial risks associated with doing so.

v. Reputation – it was reported that leading restaurateurs, particularly those in the public eye, had become increasingly aware of fish sustainability issues in recent years, and therefore the industry's communication would need to be handled intelligently in order to avoid creating a negative public perception.

#### 4.9.4 Vertical supply chain issues

Buying directly, or via intermediaries across UK auction markets and in many cases direct from small-scale fishermen, processors supplying the foodservice sector drive the demand and market price for low volumes of high quality, larger sized fish. The sector is important to the catching sector and any rationalisation in the sector would impact on quayside (i.e. first sale) prices; however, the sector appears prepared for every eventuality that could emerge under the landings obligation and so the risk to both suppliers (upstream) and to customers (downstream) appears limited.

#### 4.9.5 Horizontal supply chain issues

Across the sector, the potential impacts were thought to be limited, as the smallest companies already competed directly against the very largest with most foodservice establishments already using more than one supplier. In the extreme event of a prolonged period of choking, smaller businesses in the sector might struggle to source product and lose market share to those businesses that have a broader supply base and / or laid down more frozen stock. Conversely, smaller businesses, suggested that being smaller allowed them to be more dynamic and flexible to adapt to changes in the market.

#### 4.9.6 Summary

Companies interviewed from the foodservice sector were knowledgeable and engaged. The sector, at both national and local scale, was generally positive and proactive and, whilst recognising the risk to the continuity of UK supply chains, companies believed they could manage these risks through product switching, the use of frozen stock or increased use of imported products. Most believed the greatest issue would be to challenge the size specification demands of the restaurant sector, which were typically for larger fish; however, the sector believed it could play a significant role in moving diners' perceptions and preferences to become accustomed to smaller size / portions of fish.

In addition, unlike other parts of the supply chain, sales contracts in the foodservice sector also tended to be less formal and without penalties in the event of shorted supply. Dependence on UK caught quota species was believed to be low, as many of the most popular species sold in restaurants were either non-TAC species, imported or farmed.

**Table 13: Summary of potential impacts and outcomes of the landing obligation on the foodservice sector**

Uncertainties / issues / risks	Potential impacts	Potential outcomes
<b>Reduced product availability due to interrupted or volatile supplies</b>	Switching suppliers (to imports or frozen) to reduce risk.	Product switching would result in economic impacts to processors in the national and local processing sectors.
<b>Changes to availability of different sizes of fish</b>	Need to change product specifications.	Possible economic impact on suppliers and possible loss of market share if specification can no longer be met.
	Opportunities for new product development (different sizes or species).	New product lines resulting in economic benefits to the upstream supply chain.
	Increase holding of frozen stock to mitigate against risk of choking.	Increased production cost (cost of freezing and cashflow implications of holding frozen stock over time).
		Risk that fresh market price could reduce, resulting in increased cost.
<b>Public / media and customer perception</b>	Reputational risk.	Switching menu choice from fish, resulting in economic impact to suppliers upstream.

<b>Summary</b>	Impacts or benefits for the sector appear marginal and manageable.	Minimal implications for foodservice sector but changes to de-risk supply chains (through increased use of imports) would impact on businesses in the upstream supply chain.
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## 4.10 Retail sector

### 4.10.1 Awareness and engagement

UK retailers were well informed about the landing obligation, as most had followed discussions through groups like the Seafish CLG or DAG for a number of years. All had discussed the landing obligation with suppliers, although a lack of detailed information around the sizes, species and quantities of fish landed had prevented discussion around commercial details. Retailers were positive about the policy in terms of growing the industry's sustainability credentials and were keen to use their collective influence on consumers to change perceptions (and increase markets) for lesser known species and / or smaller sizes of fish.

### 4.10.2 Potential impacts or opportunities for sector

In 2013, UK consumers purchased 351,000 tonnes of seafood products worth £3.2 billion with the most popular species (by value) being salmon, followed closely by tuna, cod, haddock and warm-water prawns and then cold-water prawns. With this in mind, retailers recognised that despite a range of promotions of British caught fish even before the implementation of the landing obligation, the sale of UK wild-caught fish formed a relatively small part of fish sales.

Furthermore, despite Scottish haddock lines being sold by some retailers, the lion's share of best-selling demersal whitefish lines (i.e. cod and haddock) typically depended on imported supply (from Iceland and Norway) to deliver consistent price, quality and availability.

To deliver the retail model of 24/7/365 product availability at a national scale and volume, UK retailers already undertake detailed supply chain mapping and risk assessment of suppliers. The retailers recognised that key to this was close working with trusted suppliers who effectively 'de-risked' supply chains by holding quantities of frozen stock or through sourcing via a diversified national supply base (i.e. from many different ports and fisheries). Although not complacent, the sector believed that the potential risks to supply chains were visible and could be managed through existing risk management measures.

The retail sector identified the risk of a total fishery closure as a worst-case scenario and recognised the serious implications this would have on UK fishermen and many processors. Retailers interviewed believed that the impact of such an event on counter sales would be limited, with customer perception likely to be a greater issue than a shortage of fish.

Retailers were positive about the potential to increase sales of UK-caught wild fish but would require greater detail about the volume and continuity / availability of supplies. There was also a view that if increased volumes of landings were made up of larger numbers of smaller fish then staff would require some training at counter level to assure customers that eating smaller fish was sustainable, as customer perception was likely to be that the fish were "undersized" or "too small".

### 4.10.3 Key challenges and issues

i. Risk assessment & contingency planning – retailers explained that stringent risk assessments of suppliers and supply chains were undertaken for all their fish and seafood products. Due to the elevated risk to supply posed by the chance of fisheries choking and cutting off supply, retailers would pay special attention to this area in future. The sector explained that contingency planning was, however, already an important element of working with suppliers to mitigate against any risks identified (e.g. bad weather, fishery failure, supplier failure etc).

ii. Reputation – it was reported that customer perceptions of sustainability are based on trust of the retailer brand. Retailers were alert to the reputational risk (or, worse still, damage) posed by



the landing obligation if not implemented properly. The landing obligation had been driven largely by public opinion, therefore it was important that the public sees the landing obligation being implemented and that the industry is reducing discards.

iii. Communication – the sector was positive towards potential challenges and believed that it could adapt to many of the issues surfaced by the landing obligation through active communication with suppliers and fishermen

iv. Product specifications – retailers were keen to understand potential impact of the landing obligation on product size, as specifications and other technical details could often take several weeks to change. The sector believed there was some flexibility to change specifications to increase the use of UK caught fish.

#### 4.10.4 Vertical supply chain issues

The sale of fish and seafood by multiple retailers is estimated to account for 80% of fresh fish sales in the UK and, therefore, the UK retail sector is a very important outlet for fish. The sector is also very important to a number of the UK's largest processors. However, the risks posed by the landing obligation to retailers appear limited and manageable within existing contingency plans and, as a result, the impact upstream (on suppliers) should be limited. Downstream in the supply chain are consumers, and it was believed that unless there were exceptional unforeseen circumstances, customers would not notice any difference in the price, species range or availability of fish in retailers.

#### 4.10. 5 Horizontal supply chain issues

Sales of fish and seafood were reported to account for around 2% of turnover for most retailers, so it appeared unlikely that, even in extreme circumstances, the implementation of the landing obligation would cause noticeable financial impact across the sector. It was reported that competition between supermarket retailers was strong and that the landing obligation was unlikely to have any bearing on this. At the other end of the scale, independent fish retailers (vans and specialist fishmongers) believed that the landing obligation would not change the level of competition through the retail sector.

#### 4.10. 6 Summary

The retail sector is a challenging and highly competitive environment. Processors supplying fish and seafood to retailers are usually tied into long-term price contracts that contain penalty clauses if supply is 'shorted' (i.e. orders are not fulfilled). To avoid penalties and possibly being de-listed, suppliers to the retail sector undertake detailed contingency planning to ensure suppliers are consistently supplied with product within specific requirements.

The main product lines driving sales turnover are cod, haddock, tuna and salmon, supplied mainly by imports from outside of the UK (with the exception of some Scottish haddock lines). As a result of these factors, the retail sector appears well insulated commercially against the worst potential impacts of the landing obligation.

The sector is keen to proactively promote and utilise fish that may become available in greater quantity, and on-going communication with suppliers and fishermen should be encouraged to identify potential opportunities.

**Table 14: Summary of potential impacts and outcomes of the landing obligation on the retail sector**

Uncertainties / issues / risks	Potential impacts	Potential outcomes
<b>Reduced product availability due to interrupted or volatile supplies</b>	Switching suppliers (to imports) to reduce risk.	Limited impact on the retail sector as any price increase could be passed on to consumers, but the de-listing of a UK sourced product would result in economic impacts to processors in the national and port processing sectors.
<b>Changes to availability of different sizes of fish</b>	Need to change product specifications.	Limited economic impact but would require significant work with suppliers and packaging / labelling suppliers'. Possible economic impact on suppliers and possible loss of market share if agreed specification can no longer be met.
	Opportunities for new product development.	New product lines resulting in economic benefits to the upstream supply chain.
<b>Communication</b>	Poor communication.	Supply chain partners seen as increasingly risky
<b>Customer perception</b>	Reputational risk.	Potential decrease in sales resulting in economic impact to retailers and suppliers upstream.
<b>Summary</b>	Impacts or benefits, at worst, look marginal.	Minimal impact on retailers but, under different scenarios, upstream processors could both lose business.

## **4.11 Environmental NGOs**

### **Marine Conservation Society (MCS)**

MCS recognised that the implementation of the landing obligation could impact on the onshore supply chain. Fundamentally, the organisation believed that the best place for small fish was in the sea and therefore the best solution was to try and not catch them in the first place through the use of selective gears. There was recognition of the practical challenges faced when trying to fish in a highly mixed fishery and of the need for a pragmatic approach to grant exemptions. There was concern though over the use of additional quota uplift as it could lead to over-exploitation if not managed correctly. The organisation also felt that the supply chain could do more to encourage greater use of under-utilised non-TAC species.

### **Environmental Defense Fund (EDF)**

The EDF was supportive of the implementation of the landing obligation as the organisation was committed to reducing discards. It had recently published a discard reduction manual and proactively engaged with fishermen but did not have a specific policy for discards once landed.

## 5. CONCLUSIONS

Based on the analysis of desk research and stakeholder intelligence gained through interviews, this section provides a review of findings and draws conclusions from which actionable recommendations are made (see section 6 below).

The landing obligation is a new and complex piece of legislation that represents the most significant to change to fisheries management in thirty years. The most significant impacts of the regulation are un-likely to be seen until 2019 when all TAC species will become subject to the land all obligation.

A number of studies have made significant efforts to forecast landings under the new regime but, ultimately, changes to fisher behaviour under the new rules are very hard to predict. Consequently, industry stakeholders had wide-ranging views on the impact of the landing obligation. Some believe that the highly adaptive and flexible industry would take the new rules in its stride, while others believed both fleets and processors would be forced out of business, resulting in serious socio-economic consequences up and down the supply chain.

Accessibility of quota at an individual vessel level will be the critical factor in determining to what degree landings and catch compositions will change from current levels. Although access to quota and quota management are not normally associated with supply chains, the ability of vessels to access quota will be fundamental to compliance and the impact of the landing obligation on the whole supply chain. For this reason, there has been much dialogue between catching sector organisations and devolved administrations to ensure implementation is pragmatic and practically achievable.

The greatest concern among stakeholders across the seafood supply chain was the impact a 'choked' fishery would have on the wild seafood supply chain. Depending on the timing of a fishery closure and the fisheries concerned, this could have a serious economic impact on parts of the seafood supply chain.

Most acutely affected would be those local processing businesses close to the supply chain source and heavily dependent on local landings. These businesses were concerned that further instability would reduce their competitiveness and potentially result in a loss of market share to greater imports, which, if extended over a long period, could lead to further consolidation in the sector. In turn, reducing competition at port markets / auctions and potentially impacting on the catching sector through lower quayside prices.

Further downstream in the supply chain, it was believed that even the most extreme impacts of the landing obligation would become increasingly diluted as it appeared to be just one of many fluctuating variables (e.g. fish prices, exchange rates, global demand). Larger processors selling into retail markets in the UK and across Europe sourced raw materials globally in order to meet demand. These companies source relatively small quantities of UK caught fish, which, in the event of a closure, would be substituted through imports. Similarly, although UK retailers sell a diverse range of seafood products, sales volumes and values are dominated by farmed species (e.g. salmon) or imported species (e.g. cod, haddock, prawns and tuna). Therefore, the severity of potential impacts / risks appears to decrease down supply-chain (i.e. from net to plate) with some posing the question whether consumers would notice at all.

While few sectors believed they would see economic opportunities under the landing obligation, the fishmeal sector, pot bait sector and transport sectors all appeared to see potential benefits under the new rules. The fishmeal sector is likely to be an important outlet for discards landed at

larger ports where there are good transport links to fishmeal processing facilities at Aberdeen and Grimsby. The pot bait sector too looks set to benefit although it could be the pot fishermen themselves and not the bait suppliers that see the greatest benefits.

At the axis of the offshore and onshore supply chains, the ports and harbours sector faces the greatest challenges posed by the regulation onshore. Potential solutions to handling fish below the Minimum Conservation Reference Size (MCRS) discards exist at most larger and many medium sized ports, but ownership of the issue, practical engagement and management are needed at port level. Port and market operators do not have spare human resource capacity, and some time-limited assistance could be needed to aid transition of the new rules.

It was difficult to determine future port / harbour infrastructure requirements as the full range of catching sector responses to the new rules were hard to predict. Furthermore, the very aim of the regulation is to provide a policy framework to shift fishing operations away from discarding. Faced with such an un-certainty and the possibility of reducing quantities of discards over time, port and market operators were wary about committing to significant investments in infrastructure (e.g. chill stores, freezers, bio-digesters etc.) to deal with the issue.

Many small ports are without the most basic of handling facilities (scales, ice-making facilities and refrigerated storage) and are geographically remote from transport links to potential outlets for discards. Therefore, it is suggested that the small and sporadic landings at such ports require separate guidance that reflects the practical realities and the minimal risk to undermining the regulation.

It is believed that the ability of supply chain partners to react and adapt to changing circumstances could be improved greatly through the co-ordination and dissemination of forward landings information from vessels to markets and onwards to processors, fishmeal producers, pot bait user and road hauliers.

The findings of this study suggest that if the 'worst case' scenario of premature choking of fisheries could be avoided then the whole seafood supply chain could (and would) adapt to the new era of fisheries management with limited outside intervention. Therefore, the use of national / EU grant assistance should be prioritised to assisting ports and harbours prepare and handle discards through the transitional period.

**Table 15: Summary of landing obligation impacts through the UK Seafood supply chain**

Sector	Potential +ve effect	Potential -ve impact	Comments
<b>Ports / harbours / sales agents</b>		Red	There is an expectation from the catching sector that port / harbours / agents will develop supply chains and infrastructure to accommodate the disposal of discards. Any new services provided will be on a 'cost recovery' basis. There will be significant challenges in some areas.
<b>Pot bait suppliers</b>	Green	Amber	Although there is increased scope for significant volumes of raw material, these could displace existing products or cause a drop in bait prices.
<b>Fishmeal producers</b>	Green		There appears to be only a strong positive upside as the sector has demand and the capacity to provide a 'discard solution' for most larger ports.
<b>Pet food producers</b>	Amber		This is a new and emerging sector that has some potential to be an outlet for discards.

<b>Road transport sector</b>	Green		There appears to be only a strong positive upside as the sector has demand and the capacity to provide a 'discard solution' for most larger ports.
<b>Local processors</b>	Amber	Red	Limited impact overall as any potential upside of increased landings and wider availability of different sizes of fish is balanced against the potential risk of interrupted supplies due to fishery choking.
<b>National processors</b>	Amber	Amber	Due to the significant scale of businesses in this sector any impacts or benefits will be small in scale and un-likely to de-stabilise the businesses.
<b>Foodservice sector</b>	Grey	Grey	Supply chains are highly risk assessed, are robust and adaptive and therefore any impacts are likely to be absorbed by suppliers.
<b>Retail</b>	Grey	Grey	Supply chains are highly risk assessed, are robust and adaptive any impacts are likely to be absorbed by suppliers.

#### Key

- Red** potential serious economic impact
- Amber** some impact but manageable through some business adaptation
- Green** potential economic benefit
- Grey** potential impact which is manageable through minor adaptation

## 6. RECOMMENDATIONS

In order to capitalise on some of the opportunities highlighted and to address some of the barriers raised the following recommendations are made for consideration by the appropriate authorities.

### Recommendation 1:

#### Establish a network of regional discard management co-ordinators

As the point of landing (and first point of handling), efforts to assist the onshore supply chain in adapting to the new landing obligation rules should, in the first instance, focus on supporting the ports / harbours / sales agents. In most of the larger, commercially significant fishing ports and harbours the key ingredients that appear lacking are co-ordination and communication. Therefore, it is recommended that consideration be given to employing regional discard supply chain co-ordinators to work alongside harbour managers, sales agents, vessel owners, bait suppliers, hauliers and POs.

These posts, either at port or regional level, would be dedicated to working alongside existing supply-chain stakeholders to develop and implement detailed discard handling plans for each port / harbour. The focus would be on discards that are under MCRS and which cannot be sold for direct human consumption.

The plan would be unique to each port but would cover the following areas:

- i. Communication – to improve short-term forecasting of supplies to assist harbours, agents with logistics planning
- ii. Landing – handling communication and forward landing information
- iii. Storage – work with local Environmental Health Officers (EHOs) to ensure segregated storage arrangements and facilities meet ABP requirements
- iv. Fishmeal – ensure there is awareness of quality expectations, arrange the most efficient use of transport and ensure there are the correct number of bins
- v. Bait – working with local bait supplies to understand demand by species, size, handling capacity, storage arrangements and price
- vi. Administration – ensure relevant auditable administrative procedures are in place to ensure that discard landings are attributed to the correct vessels

Effectively, these discard officers would be trouble-shooters, providing a short-term intervention as once the relevant discard handling mechanisms become tried and tested the assistance would no longer be required. Such posts could be funded via EMFF and could be hosted by a PO, local sales agent or harbour authority. The key focus of this role would be to open and support communication channels between supply chain partners to ensure discards, and in particular those with no human consumption market value, are dealt with in a professional and efficient manner.

[ACTION: devolved administrations, POs]

### Recommendation 2:

#### Develop a clearer communication strategy through the supply chain (B2B and B2C)

Media perception and public opinion surrounding the implementation of the landing obligation will be important to the whole seafood supply chain, but critically so to the foodservice and retail sectors. While devolved administrations focus on detailed implementation plans, there is a need

for a cross-sector working group to agree messaging and develop a bank of FAQs. A vehicle for this could be a sub-group of the Seafish DAG as this provides a unique cross-sector supply chain forum.

[ACTION: Seafish]

### **Recommendation 3:**

#### **Facilitate EMFF grant investment in temporary infrastructure and capital items (e.g. temporary cold stores, bins)**

Investment in large infrastructure projects solely to accommodate additional landings arising from the landing obligation is not recommended as landings of unwanted fish should decrease over time as the catching sector adapts to the new rules and fishes more selectively. There is, however, a strong case to permit the use of EMFF grants to support temporary cold storage structures that would enable the industry to deal with additional landings during the transitional period from 2016 to 2019 in a flexible and cost effective fashion.

[ACTION: Devolved administrations]

### **Recommendation 4:**

#### **Provision of more detailed information**

To enable all sectors of the seafood supply chain to better plan and prepare for the introduction of the landings obligation, more detailed estimates of the potential volumes landed of fish landed are required. These of course would only be based on the based available data (currently the 'discard atlases') but would provide the supply chain with some tangible numerical information to work with. The focus of this work should be with POs, port managers, sales agents and, in some cases, fishmeal producers.

[ACTION – Cefas, Marine Scotland, AFBI and devolved administrations]

### **Recommendation 5:**

#### **Explore the grounds for providing exemptions for smaller ports**

Policy around implementation of the landing obligation at smaller ports is not clear, and operators and managers are concerned that the costs of providing facilities to deal with potentially small volumes of discards are grossly disproportionate. In many cases, they may also be practically unfeasible for a number of reasons such as lack of suitable drainage and electrical supply. Even essential items such as weighing scales are not present at many small port locations. It is therefore suggested that the case for granting exemptions based on disproportionate costs for the inshore sector be investigated.

[ACTION – devolved administrations]



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## ANNEX I - CONSULTEES BY SECTOR GROUP

Consultees	Number
Fishermen, POs and representative bodies CFPO, SWFPO, SWFPA, SFO, NESFO, IFL PO Aberdeen PO, NFFO, NIFPO, ANIFPO, MNWFA, Shetland PO, NUTFA, WFA and 4 individual skipper / owners	18
Harbours, agents and port auction managers BTA, PTA, Looe fishselling, Peterhead harbour authority, Shetland Seafood auctions, Newlyn Pier & Harbour Commissioners (NPHC), Ardglass, Portavogie, Kilkeel, Fraserburgh harbour, Scrabster, Caley fisheries, B&N Fish (Shoreham), Eastbourne, Newhaven harbour authority, Milford, Mallaig, Oban, North Shields, Grimsby	21
Fishmeal IFFO, UFI (Grimsby & Aberdeen) and Shetland fishmeal plant	4
<u>Petfood</u> Sea Treats (Grimsby)	1
<u>Logistics</u> Quayside Transport, Cornwall Transport, RJ Transport (Peterhead)	4
<u>Local processors</u> Samways, Falfish, Interfish, Ian Perkes, Lunar filleting, Simpson & Ward, Kilkeel (Whitby) Seafoods, Sea Source, W Stevenson & Sons, Brighton & Newhaven fish, Scottish Seafood, Seafood Scotland	12
<u>Remote processors</u> Youngs, Icelandic	2
<u>Foodservice</u> Matthew Stevens & Son, Wing of St Mawes, M&J Seafoods, Bluesail fish, Direct Seafoods, Samways	6
<u>NGOs</u> MCS, EDF & WWF-UK	3
Retailers Morrisons, Tesco, Sainsburys and M&S	4
<u>Devolved administrations</u> Welsh Government, Marine Scotland, DEFRA and DARD NI	4

## ANNEX II - REFERENCES & BIBLIOGRAPHY

- AFBI report (2014), Investigation of options suitable for adding value to fish discards
- Catchpole, T.L. (2011) An analysis of discard data from Cefas observer programme
- Catchpole, T.L. *et al* (2014) Using inferred drivers of discarding behaviour to evaluate discard mitigation measures
- Catchpole, T.L. *et al* (2014) The English discard ban trial (Cefas / Defra report)
- Country Council for Wales (CCW), 2010, Sea Fishing Atlas for Wales
- Curtis *et al*, Seafish economic fleet survey, 2009-12
- Defra guidance: Guides on the discard ban, how the rules apply, selling undersized fish, reporting requirements and quota management. October 2015.
- [https://www.gov.uk/government/collections/fisheries-management-landing-obligation?cm\\_mid=5084503&cm\\_crmid=2e959938-c8b8-e311-853e-00155d00023d&cm\\_medium=email](https://www.gov.uk/government/collections/fisheries-management-landing-obligation?cm_mid=5084503&cm_crmid=2e959938-c8b8-e311-853e-00155d00023d&cm_medium=email)
- Defra guidance: handling undersized fish under the landing obligation. October 2015  
[http://www.seafish.org/media/1459996/defra\\_handlingundersizefishunderthelo\\_201510.pdf](http://www.seafish.org/media/1459996/defra_handlingundersizefishunderthelo_201510.pdf)
- Defra guidance: guidance for ports, markets, agents, and other businesses. October 2015.  
(Including how food hygiene and Animal By Products (ABP) rules apply to undersize fish.)
- <https://www.gov.uk/government/publications/guidance-for-ports-markets-agents-and-other-businesses>
- Discard atlases, <http://www.nwwac.org/publications/cefass-discard-atlas-of-the-north-western-waters-demersal-fisheries.1849.html> ; [http://www.nsrac.org/wp-content/uploads/2014/11/discardatlas\\_northsea\\_demersalfisheries\\_2014.pdf](http://www.nsrac.org/wp-content/uploads/2014/11/discardatlas_northsea_demersalfisheries_2014.pdf)
- European commission, DG Mare,  
[http://ec.europa.eu/fisheries/cfp/fishing\\_rules/discards/index\\_en.htm](http://ec.europa.eu/fisheries/cfp/fishing_rules/discards/index_en.htm)
- Fishing for the Markets (2011) Revill Nation Ltd commissioned by Defra
- Future management of Brown Crab in UK and Ireland (2009) Nautilus consultants
- ICES, Advice, 2015, <http://www.ices.dk/community/advisory-process/Pages/Latest-Advice.aspx>
- Mangi, S.C., Catchpole, T.L. (2012) Seafish report SR-661, Utilising discards not destined for human consumption in bulk uses
- Marine Management Organisation vessel data, accessed from:  
<http://www.marinemanagement.org.uk/fisheries/statistics/vessel.htm>
- Marine Management Organisation guidance on the demersal landing obligation  
<https://www.gov.uk/government/publications/demersal-landing-obligation-guidance/demersal-landing-obligation-guidance>

Marine Management Organisation (MMO), UK Sea Fisheries Annual Statistics,  
<https://www.gov.uk/government/collections/uk-sea-fisheries-annual-statistics>

Marine Management Organisation (MMO), UK Quota Use Statistics  
<https://www.gov.uk/government/statistical-data-sets/quota-use-statistics>

Marine Scotland, online resources <http://www.gov.scot/Topics/marine/Sea-Fisheries/discards>

NFFO, <http://nffo.org.uk/news>

Revill, Broadhurst and Millar (2013), Mortality of adult plaice *Pleuronectes platessa* and sole *Solea solea* discarded from English Channel beam trawlers

de Rozarieux, N.A. (2014) Seafish report SR-668, Use of discards in bait

STECF data, accessed from : <http://stecf.jrc.ec.europa.eu/data-reports>

Seafish, Landing obligation economic impact assessment, interim report two: scenario analysis

Seafish, Market Insight reports, <http://www.seafish.org/research-economics/market-insight/market-summary>

Seafish, Processing sector reports, <http://www.seafish.org/research-economics/industry-economics/processing-sector-statistics>

## ANNEX III - INTERVIEW GUIDANCE NOTE

Possible implications of the Landings Obligation on onshore supply chains: Processor sector questions (for interviewer only)

### Background

- The introduction of the LO is a 'game changer'; it represents the biggest change in fisheries management (CFP) since 1983
- The LO will require ALL catches of quota species to be landed (subject to exemptions: survivability etc).
- Landings will be taken off quota so the onus is on fishermen to maximise returns
- Once the quota for one species in a fishery is exhausted the whole fishery is closed, resulting in greater focus on so-called 'choke' species
- Any fish below MLS (now MCRS) cannot enter the human food supply chain

### Aim / purpose

- The aim of this work (for Seafish) is to understand the full range of possible implications – both positive and negative – of the LO on the onshore seafood supply chain by talking to a cross-section of supply chain stakeholders from across the UK
- Implications can be: financial / environmental / infrastructural / human / logistical / technical
- Where gaps in knowledge occur recommendations will be made for further interventions to fill those gaps.

### Questions

The questions seek to build a better understanding of the range of implications, along with the probability and severity of these implications (risks or opportunities):

- Q1 Name:
- Q2 Position / title:
- Q3 Company name:
- Q4 Location:
- Q5 Primary market sector (i.e. retail, foodservice, wholesale)
- Q6 Secondary market sector (if applicable)
- Q7 What are the main quota species processed?
- Q8 Where is the supply base (i.e. from domestic landings or imports)
- Q9 If domestic landings – which area or areas of the UK is product sourced

Exploration of scenarios: i) Choke – fishery closed, ii) Land all –as now but all catches landed (resulting in increased volumes of small fish > MCRS landed) or iii) Evolve (adapt behaviour (gear and operational) with result of landing less small fish).

*i) Choke – total closure of significant UK quota fishery*

Q10 In the event of supply from UK fishery being closed what effect would this have on the business, in the following areas:

- Ability to meet customer contracts / orders (penalties)
- Product pricing
- Overall economic performance
- HR – staffing levels / employment
- Logistics / transport arrangements
- Consequences downstream
- Others?

Q11 Do you have contingency plans in place already to smooth out fluctuations in the market (Y/N), and if so what are they (e.g. frozen stock, alternative suppliers, import from other countries, other etc)

*ii) Land all*

Q12 In the event of a change in the size distribution of fish landed – with a higher % of small fish landed – what impact would this have on the business (+ve or –ve or both) and in particular:

- Price (decrease of supply > demand)
- Cost of production
- Ability to process
- Ability to sell
- Alignment with customer specification

And,

- Ability to meet customer contracts / orders (penalties)
- Product pricing
- Overall economic performance
- HR – staffing levels / employment
- Logistics / transport arrangements
- Consequences downstream?
- Others?

*iii) Evolve -adapt behaviour gear and operational with result of landing less small fish*

Q13 In the event of a change in the size distribution of fish landed – with a lower % of small fish landed – what impact would this have on the business (+ve or –ve or both) and in particular:

- Price (increase as supply < demand?)
- Cost of production (higher yield per fish or per hr)
- Ability to process (machines, skills, staff)
- Ability to sell (markets / price)
- Alignment with customer specification

And,

- Ability to meet customer contracts / orders (penalties)
- Product pricing
- Overall economic performance
- HR – staffing levels / employment
- Logistics / transport arrangements
- Downstream consequences
- Others?

## Conclusion

Awareness of the LO – has the company made an internal impact assessment? Y/N

If, so what do you see as being the greatest opportunities or risks (ask to elaborate)

Risks?

- 
- 

Opportunities?

- 
- 
- 

Do you want help / advice / support in any areas, if so which?

- Funding
- Technical
- NPD
- Legal
- Other