SEAFISH
the authority on seafood

Final Report

Profitable Futures for Fishing

Final Report

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1 Executive summary

The Scottish Fisheries Council fuel task force agreed to take a segment by segment approach to identifying actions that might help to improve fleet profit during a period of very high fuel prices. The fuel task force intended that the actions identified should not come from external parties but rather from vessel owners, based on their experience and ideas about how to improve fleet profit. Although fuel prices decreased, the project was considered to be still worthwhile and after a tender process, the project started in December 2008.

Consultation events were held for each fleet segment, to find out from members of each major fleet segment in Scotland, their views on what actions could be taken to improve fleet profit. The attendees at the events were very enthusiastic in their participation and nearly 200 proposed actions arose during the events. The project team, consisting of Seafish, AEA Technology and Anderson Solutions, then analysed the ideas and outputs from the consultation events and evaluated the actions using a multi-criteria analysis system.

The ideas and proposed actions which arose during the consultation events did not match well with the areas that the Scottish Government had expected and specified in their project brief, namely: fuel efficiency, value added, cutting costs and structural adjustment. While there was a great deal of interest in and ideas around value and structural adjustment, there was very little contribution relating to cutting costs or fuel efficiency. Ideas to improve business profit related mostly to elements outside the control of any individual business. There was little or no in-depth discussion of how to improve business efficiency by actions taken within the control of individual vessel business owners.

Attendees found the meetings to be a very interesting and beneficial experience, enjoyed the opportunity to speak and discuss ideas in small break-out groups and several people met new contacts and carried out business at the events.

The project team was charged with recommending four or five of the proposed actions per fleet segment that should be considered top priority or most worthwhile. This report contains the analysis of the actions which made the first cut in the analysis process and highlights the recommended actions.

The consultation events also provided insight into the longer term aims and ambitions of the participants in the different fleet segments and a review of these ambitions, and how the proposed actions could help to achieve them is also included in this report.

The key ambitions and themes which arose from the consultation events were:

1. Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability. Four priorities are identified under this ambition:
    a. Improve negotiation and agreement regarding fishing rights to ensure the optimum environmental, economic and social outcome is achieved for Scotland and its fishing communities;
    b. Improve the quality of information upon which decision-making is based; in particular recognise and value the knowledge and experience of fishermen;
    c. Reduce excess capacity within the fleet, in particular in sectors where latent entitlement continues to be a threat to the active fleet;

   d. Ensure the sustainable harvesting of stocks by the Scottish fleet and reward good practice; and pursue the sustainable harvesting of stocks by other fleets fishing in our waters or affecting our markets.
2. Pursue product and market development that will improve the value fishermen obtain for their landings. Three priorities are identified under this ambition:
   a. Improve the quality of information on the Scottish fleet and its products which is widely available; and reduce the incidence of widely believed inaccurate information;
   b. Develop stronger working relationships between vessels and processors to improve the exchange and transparency of information on supply and demand conditions;
   c. Differentiate the Scottish product where appropriate to increase the value of the product; and use product differentiation to grow the market for Scottish products.
3. Develop an efficient and effective modern Scottish fleet which can attract young people to the industry.
4. Ensure that communities which are engaged in the fishing industry experience direct economic and social benefits from the activity of the fleet and the value chain.

Two key requirements for the profitable and sustainable operation of the Scottish fleet, across all fleet segments, emerged during the events. These were ambition one, which seeks to achieve the optimum balance between fishing opportunity and fleet capacity, and ambition two, which seeks to increase the value fishermen obtain for their catch

The recommended actions which seek to achieve these ambitions in each fleet segment are given below. The project team notes that others may evaluate the proposed actions differently, especially with regard to the scale and cost of an action, and that it is therefore entirely legitimate and to be expected that some may choose different actions as their priorities for implementation.

Scallops

- Remove latent entitlement
- Study tours to learn from others about effort management
- True and traceable weighing system
- Scientific research to understand the impact of the fishery
- Vessels, processors and Seafood Scotland to work together to develop new markets. Includes skipper study visits to Euro markets

WoS nephrops

- Limit number of creels per sea area
- Introduce limits on the use of static gear per boat
- Develop closer integration along whole value chain, especially between catching and processing
- Promote nephrops products to increase UK market demand for seafood
- Provide clear guidance (a fact sheet) on fuel duty and VAT implications. Or circulate existing guidance more widely
- Illustrate the practice and benefits of matching catch rate to suit seasonal market demand

Demersal

- Adopt a multi-year and regional approach to fisheries management
- Research into impacts of closed areas so that they are better understood as a management tool
- Use positive incentives to reward good practice
- Cooperative fuel purchase scheme
- Promote Scottish white fish product in the UK
- Pursue certification as a sustainable fishery

NS nephrops

- Improve the science/industry partnership and understanding of stock assessment methods
- Adopt a long term management plan for the North Sea nephrops fishery
- Remove nephrops vessels from the impacts of the cod recovery plan
- Develop new ways to reward conservation innovations with improved fishing opportunities (continue current efforts)

Crab and lobster

- Implement new rule on compulsory escape hatches for small shellfish in pots / creels
- Pursue certification as a sustainable fishery
- Introduce code of good practice for vessels
- Remove unused vessel licenses if not used for three years
- Empower Inshore Fisheries Groups and Fishermen to take strategic local decisions. Value fishermen's knowledge

Pelagic

- Create a system of UK credit supply or guarantee for exports
- Promotional programme to increase demand and consumption of oily fish
- Maximise advantage through better international negotiations
- Evaluate use of onboard cameras to monitor and detect discards
- Research and trials to improve sampling e.g. sampling nets, non-daylight jigging

There are many actions not included in the recommended list or even in the detailed analysis phase which are also worthy of attention, and some of which members of the industry would be able to pursue on their own initiative.

Some of the actions proposed in the consultation events are already underway to extent or about to start in some form. The proposals were then to continue or expand these activities. Some of these types of actions have been included in the recommendations.

The results of the analysis are to be considered by the Fuel Task Force and the Scottish Fisheries Council before decisions are made about implementing any actions.

2 Introduction and background

This is the final report of the Profitable Futures for Fishing project conducted for the Scottish Government Marine Division (SGMD), requested by the Fuel Task Force of the Scottish Fisheries Council. The project team conducted consultation events with members of industry to help identify and prioritise actions which might be taken to improve the profitability of the various segments of the Scottish fishing fleet.

This report is intended to present an overview of the work carried out with industry, the analysis of key proposed actions and the key recommended actions to improve profit in each of the fleet segments included in the project. This report can be read in conjunction with the two Interim Reports generated during the study, which cover the material presented at and created during the consultation events.

An overview of the consultations events is given in Table 2.1 below. An additional small meeting was held in Lerwick to enable some Shetland demersal skippers and vessel owners to contribute, as none of them had been able to attend the demersal event in Peterhead.

Event no. :	1	2	3	4	5	6	7	2
Segment:	**Scallops**	**Nephrops – trippers, any length: meeting a.**	**Demersal**	**Nephrops – trippers, any length: meeting b.**	**Nephrops - Day Boats trawl & creel: meeting a.**	**Crabbers – any length**	**Pelagic**	**Nephrops - Day Boats trawl & creel: meeting b.**
Consultants:	HC, TR, SM, JA, DO	HC, AB, SM, JA, DO	HC, TR, SM, JA, DO	HC, TR, SM, JA, DO	HC, TR, DO, SM, +1 seafish	HC, TR, SM, JA, DO	HC, KG, SM, JA, DO	HC, AB, SM, JA, DO
Town:	**Edinburgh**	**Fort William**	**Peterhead**	**Fraserburgh**	**Glasgow**	**Inverness**	**Aberdeen**	**Fort William**
Venue:	Marriot Hotel Glasgow Road	Moorings Hotel	Waterside Hotel	Fraserburgh Leisure Centre	SECC Crowne Plaza Hotel	Longman House, SG building	Airport Thistle Hotel	Moorings Hotel
Day:	**Friday**	**Friday**	**Friday**	**Saturday**	**Friday**	**Thursday**	**Friday**	**Friday**
Date:	**16th Jan**	**23rd Jan ***	**30th Jan**	**31st Jan**	**20th Feb**	**5th March**	**6th March**	**23rd Jan ***
Time	1030 - 1530	1030 - 1530	1030 - 1530	0900 - 1200	1030 - 1530	1030 - 1530	1030 - 1530	1030 - 1530

Table 2.1 List of consultation events for the project

2.1 Purpose and origin of project

This project was proposed by the Fuel Task Force of the Scottish Fisheries Council at the time of very high fuel prices in summer 2008. The members of the task force wanted the project to identify actions which would improve vessel business profit in each major segment of the Scottish fleet.

The Scottish Government Marine Directorate commissioned the study to consider how different identified parts of the Scottish sea fishing fleet can evolve so as to maintain and enhance their profitability; and what action including public sector interventions might be contemplated in pursuit of this. The study was intended to be principally for the attention of Ministers, Government officials and representatives of the fishing industry in Scotland. The study was commissioned as part of the Government's implementation of a three year plan designed to help the fishing industry adjust to higher fuel costs.

By the time the study contract was let, fuel prices had declined substantially, however there were other major threats to profit in the fleet, most notably the credit crunch and economic recession, which meant that the project sponsors and the SGMD decided it was relevant to continue with the project.

2.2 Expected next steps

The project team understands that recommendations will be considered by the Fuel Task Force who will then report to the Scottish Fisheries Council.

2.3 Structure of this report

This report is split into six main sections:

1 Executive Summary
2 Introduction and background
3 Overview of consultation events
4 Ambitions and proposed actions
5 Actions analysis
6 Appendices

3 Overview of consultation events

The project brief specified that the project team should hold consultation events with industry members from each of the main fleet segments and should use the ideas of the industry members to generate proposals for actions.

Following discussion with the project steering group, the project team took advice from several industry sector representatives and designed a plan for the consultation events so that best use of time and budget created opportunities for people to contribute to the events.

Before each event, the project team undertook desk-based research and analysis using information from Seafish, Seafood Scotland and SGMD to characterise the fleet segments. Relevant segment-specific information was presented to attendees at the start of each consultation event to confirm understanding of the situation and to trigger thoughts and ideas for the facilitated exercises.

3.1 Segments

The steering group and project team agreed to replace the original list of fleet segments with a list which better reflected the business types within each segment. In particular, the steering group and project team rejected the idea of consultation event for all types of under 10m vessels, as their business models would differ greatly depending on main target species. The segments which were agreed were:

1. Scallops, any length of vessel
2. Nephrops trippers, any length
3. Demersal, any length
4. Nephrops day boats, any length
5. Crab and lobster, any length
6. Pelagic

In reality, the nephrops events ended up effectively being split into east coast (trippers) and west of Scotland (mostly day boats). It should be noted that vessels from Fife and the south east of Scotland are predominantly day boats or short trip vessels.

3.2 Locations

The steering group and project team accepted the principle that locations should be chosen carefully in consultation with sector representatives to try to ensure maximum attendance at events. The final locations selected are shown in Table 2.1 on p7.

The team chose venues for each event based on advice from sector representatives, the aim being to choose a venue in which the attendees would be comfortable and relaxed.

3.3 Attendees

The project team contacted many industry organisations to obtain contact lists of likely attendees and sought advice on which individuals were likely to attend and make a positive contribution to the event. As well as vessel skippers and owners, a few representatives of industry associations attended most meetings. People from the processing sector, the environmental sector and community representatives were also invited and most events included one or more of these non-catching sector attendees.

Attendance numbers varied between events with two meetings having fewer than 10 attendees but most having 15 or more attendees present.

3.4 Structure of events

The project team designed the events with the aim of finding out the views of attendees on a future vision for their sector of industry, the blockages to achieving that vision, and the actions that could be taken to overcome blockages and achieve the vision.

Each event opened with a presentation of a segment and market overview and then attendees split into small break-out groups, each with at least one facilitator, to participate in a series of facilitated exercises.

At the end of each event and in the following days, project team members collected feedback and comments from attendees on how they had found the event. Some of the types of comments which occurred repeatedly were:

1. *I felt more confident and free to speak out in the small break-out groups than I would at a larger public or association meeting*
2. *I met some good business contacts and did some business at the event*
3. *It was very useful to hear experiences from others in my sector, I already have some good ideas from attending this meeting*
4. *This felt like a really productive day, I hope something actually comes of it*

Some of these comments and the overall success of the consultation events could be useful for the design of future engagement between Government and industry.

3.4.1 The fleet and fish stocks

Fleet segment characterisation was conducted by Seafish based on survey and official data. This process continued and further refinements were made with input from attendees at the consultation events, in particular at the Fraserburgh nephrops event.

For the purposes of this study, Scottish boats are defined as those whose port of administration is in Scotland. It was noted in some of the events that there are vessels which habitually operate in Scottish waters and from Scottish ports, which contribute to the Scottish economy, but are not categorised at Scottish.

The Fishery Research Service (FRS) in Aberdeen provided up-to-date comment on the most recently available stock analysis from ICES and ensured that the most recent data were used on presentations to the events. Susan Lusseau from FRS attended the crab and lobster event and presented stock overviews during the presentations at the start of the event.

3.4.2 Financial performance of the fleet and drivers of profit

Analysis of the financial performance of the fleet is based on data from vessel accounts, collected by Seafish and on data relating to activity and landings, submitted by vessels to SGMD.

Figures were presented which highlighted the average costs and earnings of vessels in each segment, often split into smaller sub-categories of segments. These tables are included in the Interim Reports of this study, available on the Marine Scotland and Seafish websites. During some events, attendees gave comments on the financial performance figures which lead the project team to adjust their analysis, particularly with regard to segment definition by gear type.

3.4.3 Markets for the catch

Market information was collected from Seafood Scotland and Seafish and key elements were included in the presentations to attendees at the start of each event. Several attendees commented that the information presented triggered and influenced their thinking during the events and this comment is reflected in the priority areas and actions that arose during the events. In some events, the attendees queried some of the market figures and Seafish undertook to look into these and confirm or update the figures presented.

3.5 Outputs from events

After each event, facilitators produced summary documents of the flip charts generated from each break-out table. These summaries were then reviewed by one author for each event who combined outputs into one report to reflect the outputs of the whole event.

Attendees at events received a copy of the interim report which included the event they had attended and they were invited to give comments or further thoughts to the project team.

The two Interim Reports were submitted to the SGMD on the agreed dates of 9th February 2009 and 20th March 2009.

Following the events, members of the project team contacted members of industry and Government to obtain further information as required to complete the detailed analysis of the actions.

Further analysis of the visions and proposed actions for each segment is included in the following sections of this Final Report.

4 Ambitions and Proposed Actions

Scotland's fishing fleet is faced with numerous challenges which threaten the profitability and therefore the viability of the fleet. The challenge for this study was to identify and select, within each segment, key ways in which these challenges could either be overcome or potentially mitigated in order to improve fleet profit levels.

The break-out sessions within the consultation events began by asking attendees for their vision of the future under two scenarios, the first was a positive scenario, where the industry has been able to react well to its challenges; and the second, a more negative scenario, where the industry has not been able to react well to its challenges or for other reasons, things have not gone well. This exercise helped to identify the key issues which face each segment and helped to establish the foundation for the rest of the session and the more detailed discussions which followed.

The outcome from the scenario discussion was a wide-ranging set of ambitions and fears for the future of the different segments. These findings have been analysed and grouped together under common themes. The analysis of the findings demonstrates that many of the issues are the same across segments. However differences do exist, and while the broad characteristics of the issue might be the same, the factors which cause the issue, the degree of importance associated with the issue, and the potential solutions to the issue do vary across the different segments. For example, two segments may share a similar difficulty but for one segment the problem may exist at a very local level and for another segment the problem may exist at an international level.

On the basis of the analysis undertaken following the consultation events, this section of the report presents the findings on:

- what the overarching ambitions are for the Scottish fleet, regardless of segment; and
- the extent to which the ambition is a priority for the different fleet segments at this time.

The action plan which follows in Chapter 5 identifies practical pathways which could help each segment achieve its ambitions.

4.1 Overarching ambitions

Two key requirements for the profitable and sustainable operation of the Scottish fleet, across all fleet segments, emerged during the events. These were achieving the optimum balance between fishing opportunity and fleet capacity, and increasing the value fishermen obtain for their catch.

In the analysis which follows, the shared characteristics of the priorities for each segment are brought together under overarching ambitions for the whole of the Scottish fleet, regardless of whether or not the solution will have to vary across different fleet segments.

The following four ambitions represent the overarching ambitions for change based on what consultees would like to see happen in Scotland.

1. Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability. Four priorities are identified under this ambition:

   a. Improve negotiation and agreement regarding fishing rights to ensure the optimum environmental, economic and social outcome is achieved for Scotland and its fishing communities;
   b. Improve the quality of information upon which decision-making is based; in particular recognise and value the knowledge and experience of fishermen;
   c. Reduce excess capacity within the fleet, in particular in segments where latent entitlement continues to be a threat to the active fleet;
   d. Ensure the sustainable harvesting of stocks by the Scottish fleet and reward good practice; and pursue the sustainable harvesting of stocks by other fleets fishing in our waters or affecting our markets.
2. Pursue product and market development that will improve the value fishermen obtain for their landings. Three priorities are identified under this ambition:
   a. Improve the quality of information on the Scottish fleet and its products which is widely available; and reduce the incidence of widely believed inaccurate information;
   b. Develop stronger working relationships between vessels and processors to improve the exchange and transparency of information on supply and demand conditions;
   c. Differentiate the Scottish product where appropriate to increase the value of the product; and use product differentiation to grow the market for Scottish products.
3. Develop an efficient and effective modern Scottish fleet which can attract young people to the industry.
4. Ensure that communities which are engaged in the fishing industry experience direct economic and social benefits from the activity of the fleet and the value chain.

4.2 A new way of working

In addition to these long-term ambitions for the fleet, there was one common theme which existed across almost every issue and that is the need for better and more effective cooperative working whether in relation to fisheries management or market development. This issue was raised time and time again and often centred around the following concerns:

- fishermen's knowledge is not utilised, or worse is not valued;
- environmental groups have too strong a voice and bring a great deal of harm to the industry but don't get actively involved in finding a solution;
- fishermen and scientists need to work more closely together;
- decision-making is too often top-down; and
- Government is too remote from the industry and as a result is not sufficiently informed to make effective decisions.

There was recognition in some cases that the situation was improving. However, overall there was a belief that fishermen are in a constant battle to survive, and that other organisations which are involved do little to enhance the likelihood of success. There was a widespread wish, across all segments, to see this situation turned around so that all parties can feel engaged in the solutions and benefit as a result.

4.3 About the ambitions

The background to the four ambitions and related priorities is discussed in more detail below.

Ambition 1: Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

The scope of the study was to investigate actions which could be taken to improve the fleet's profitability. In many industries the focus of actions would be on ways in which to reduce the cost per unit of production or improve the price per unit. However, during the consultation events, it was immediately apparent that many of the greatest challenges to profitability that are faced by different fleet segments are believed to be caused by inappropriate, poorly informed, and/or inadequate management of the fishery.

One issue that was frequently raised is that fishermen are rarely valued for the experience and information which they hold. It is believed that without meaningful engagement in the decision-making process of those with first-hand experience it will always be difficult to achieve a solution which achieves the optimum benefits for all concerned. For some segments the solution is believed to lie with empowering Inshore Fisheries Groups to be effective local managers, for other segments the solution lies in improving the information available to decision-makers and strengthening Scotland's negotiating position during international discussions. Regardless of how it is achieved there is significant concern that too often environmental success is the only indicator of success. Fishermen are keen to see this balanced and management targeted at achieving the optimum environmental, economic and community value from the fleet's activity.

Across many of the segments there is also concern about the impacts of excess capacity and the threat that this poses to future profitability. In segments where there is latent capacity there is concern that even when price improves the active fleet's ability to benefit from this, and to a degree compensate them for the more difficult times, is threatened because when prices improve it is likely to encourage those with latent entitlement to enter the segment. This makes it very difficult for the segment to become more profitable. In some segments there is also concern that the number of active vessels is too high and that efforts should be made to reduce the overall fleet size.

However, perhaps the issue causing greatest concern, and linked to the previous point, is the existence or threat of unsustainable fishing practices. For those in the static gear segments there are concerns about excessive creel numbers, in the pelagic segment there is concern about the unilateral increasing of quotas by nations such as Iceland and in other segments there are concerns about the practices of some vessels, often non-Scottish vessels, operating in our waters. The concern about sustainable harvesting is two-fold for the fleet. The first and biggest concern is the obvious negative impact it has on the health of the stock and as a result the knock-on negative consequences for the fleet and the communities; and the second concern is the impact that excess supply whether at a local or international level has on the market value of sustainably harvested product.

In addition, and linked to concerns over unsustainable practices, there is a wish to see positive incentives for those that abide by sustainable principles and contribute positively to stock health. Interlinked with many of the points made, it was considered that it would be a significant step forward to see some positive recognition for the fleet where stocks are improving through good management practices. This would significantly help the pursuit of sustainable practices in areas where progress is still required. The perception is that despite

good sustainable practices the fleet is still being 'chipped away at'. This sentiment was particularly evident in the demersal segment.

On the basis of the findings from the consultation events, four priorities are identified under the ambition to improve decision-making and achieve an appropriate balance between fish stocks and fishing activity in the future:

a) Improve negotiation and agreement regarding fishing rights to ensure the optimum environmental, economic and social outcome is achieved for Scotland and its fishing communities;
b) Improve the quality of information upon which decision-making is based; in particular recognise and value the knowledge and experience of fishermen;
c) Reduce excess capacity within the fleet, in particular in segments where latent entitlement continues to be a threat to the active fleet;
d) Ensure the sustainable harvesting of stocks by the Scottish fleet and reward good practice; and pursue the sustainable harvesting of stocks by other fleets fishing in our waters or affecting our markets.

Ambition 2: Pursue product and market development that will improve the value fishermen can obtain for their landings.

All of the segments identified the need for product and/or market development to support future profitability. There was widespread belief that, in general, the quality of the product landed in Scotland is not recognised in the price that fishermen obtain; and that the market is not well-informed about the provenance and quality of the Scottish product.

A wide range of issues were raised about product and market development. In general there is a desire to see greater differentiation both within the product which is landed in Scotland but also differentiation of Scotland's product against other countries products. A number of segments believe that the UK market is under-developed and that benefits could be achieved by targeting increased consumption and added-value markets within the UK. However, there are also concerns about the amount of inaccurate and negative information which often turns into widely held beliefs about the fishing industry in the UK and that this might affect attempts to develop the UK market.

Certification was often seen as one potential solution. However, there is also widespread recognition that the fishermen have only limited control over change in this area and that to succeed the fishermen and the processors, and potentially others in the value chain, must work more closely together. In most segments there was a clear ambition to ensure that landings, both quality and volume, better match market demand.

However, there is a concern that processors have no desire for greater differentiation and that some processors are happy to combine, and may benefit from combining, high and lesser quality product together. If processors are not interested in developing higher value markets this effectively removes the incentive to fishermen to invest time and money in landing higher quality product.

There were also concerns about the transparency and fairness of current selling mechanisms between the fishermen and processors. There is a perception that more often than not the fisherman loses out in the transaction. However, there was also recognition that more often than not the catch which is landed is sold and that processors often carry a risk when buying what is landed.

On the basis of the findings from the consultation events, three priorities are identified under the product and market development ambition to improve the value of the catch to fishermen:

a) Improve the quality of information on the Scottish fleet and its products which is widely available; and reduce the incidence of widely believed inaccurate information;
b) Develop more successful working relationships between vessels and processors;
c) Differentiate the Scottish product where appropriate to increase the value of the product; and use product differentiation to grow the market for Scottish products.

Ambition 3: Develop an efficient and effective modern Scottish fleet which is profitable and can attract young people to the industry.

With the exception of the pelagic segment, there is widespread concern about the state of the fleet. Many vessels are old and the average age of vessels in many of the segments is over 20 years. This has a range of impacts on the profitability and future viability of the fleet. Issues which arise from this include poor working conditions making it difficult to attract young crew, fuel inefficiency, the high cost of maintaining an old vessel which erodes profitability and safety concerns.

For many of the segments a key component of ensuring a profitable future is a mechanism which can enable fleet renewal. The constraints which are believed to have hindered investment in new vessels include:

- a lack of certainty. It is difficult to invest when your income and/or profitability can be significantly affected on an annual basis by either a reduction in TAC, losing days at sea or a requirement to buy new gear;
- there are difficulties in accessing affordable finance, which is likely to be linked to the lack of certainty highlighted in the previous point; and
- inadequate profits which makes reinvestment into the business more challenging.

Ambition 4: Ensure that communities which are engaged in the fishing industry experience direct economic and social benefits from the activity of the fleet and the value chain.

The final ambition for the future is related to the fleet's relationship with its home communities. The importance of retaining employment and economic opportunity within fishing communities around the Scottish coast was often the motivation behind many of the potential solutions identified. However, this ambition by itself is not regarded to be of critical importance as in the short-term the survival of the fleet is of greatest concern. However for many fishermen this relationship between the vessels and their home port is key to the future of the segment.

For some segments, particularly those operating where there is currently a critical mass of on-shore fishing related activity which supports the fleet, the ability to ensure the many different benefits of this inter-dependent relationship are retained in their community is extremely important. Issues such as maintaining skills and knowledge, retaining vibrancy within their port, continuing family involvement, tradition, were all raised in relation to this issue.

Furthermore, there appeared to be a concern that the path which could be taken by the industry is one where the commercial focus becomes greater, which on its own may not be a problem, but the concern is that this will be accompanied by a deterioration in the social and environmental focus within the fleet. If this occurs it is likely some sustainability issues may be resolved but that other sustainability problems will be created.

4.4 Priority ambitions by segment

The level of importance associated with the ambitions does vary by segment. In some segments the need to reduce excess capacity may be one critical issue whereas for others the need to differentiate the product may be considered critical. Table 4.2 summarises by segment the degree of priority which is understood to be attached to the different ambitions. The Table represents the study team's analysis of the findings from the events and therefore by its nature represents the main issues of the day at the time of consultation.

Table 4.2 uses the scale shown in Table 4.1 to describe the degree of importance which each segment is understood to place on the different issues.

Achieving this ambition is considered to be **Critical** to the future profitability of the segment at this time	✓✓✓
Achieving this ambition is considered to be **Important** to the future profitability of the segment at this time	✓✓
Achieving this ambition is considered to be **of Value** to the future profitability of the segment at this time	✓
This ambition is not considered to be a priority for the segment at this time	-

Table 4.1 Degree of Importance associated with each Ambition

Table 4.2, on p18, shows that, in general, issues surrounding fisheries management are considered to be most critical. Particularly high priority is given to the issues of sustainable harvesting and excess capacity, which are often interlinked issues. This is followed by the ambition to improve catch value and there is some urgency related to the issues of product differentiation and developing more effective working between vessels and processors.

The allocation of a 'low' score should not suggest that any of the ambitions are unimportant to a particular segment but rather that at this moment in time they are not considered to be a high priority. For each segment, no more than three of the ambitions and priorities are identified as 'critical'.

The action plan contained in Chapter 5 reflects the actions which are considered best able to address the issues of greatest priority to each segment. However, the action plan also includes some detailed actions to deal with very specific challenges, potentially not highlighted in the long-term ambitions of the fleet.

	1. Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability. .				2. Pursue product and market development that will improve the value fishermen can obtain for their landings.			3. Develop an efficient, and effective modern Scottish fleet which is profitable and can attract young people to the industry	4. Ensure that communities which are engaged in the fishing industry experience direct economic and social benefits from the activity of the fleet and the value chain
	a. Improve negotiation and agreements on fishing rights to achieve optimum value	b. Improve the quality of information upon which decision-making is based	c. Reduce excess capacity	d. Sustainable harvesting in Scotland and reward for good practice; pursue sustainable harvesting by other fleets	a. Improve information on the fleet and its products and reduce misinformation	b. Develop more successful working relationships between the fleet and processors	c. Differentiate the Scottish product to improve value; and use differentiation to grow the market		
Scallops	✓	✓✓	✓✓✓	✓✓	✓	✓✓✓	✓✓	✓	-
Demersal	✓✓✓	✓✓✓	✓	✓✓✓	✓✓	-	✓	✓✓	✓✓
Pelagic	✓✓✓	✓✓	-	✓✓✓	-	✓	✓	-	✓✓
Crab and Lobster	✓✓	✓✓	✓✓✓	✓✓✓	-	✓✓	✓✓	✓✓	✓
West of Scotland Nephrops	✓✓	✓	✓✓✓	✓✓✓	-	✓✓✓	✓✓	✓	-
North Sea Nephrops	✓✓✓	✓✓	✓✓	✓✓✓	-	✓✓	✓	✓✓	✓✓

Table 4.2 Prioritisation of the Ambitions by Segment (derived from the Consultation Events)

4.5 Action and goal themes

Following the identification of long-term goals and the priority areas for each segment the break-out groups at the events considered what actions could be taken to achieve a profitable and successful future. During analysis of the proposed actions, the project team identified several themes of actions which were common across the various fleet segments. These are highlighted as their repetition across several fleet segments suggests that they are areas which members of industry commonly feel are worth attention.

The nature of the actions which were common across the segment groups were measures which are designed to:

- improve fishing opportunity
- protect or improve price
- expand the size of the market and increase demand
- protect stocks
- reduce costs

The remainder of this report provides the detail on the individual actions proposed to achieve these measures and the long-term ambitions for Scotland's fishing fleet.

5 Action analysis

The project team analysed and evaluated the proposed actions in three stages, as follows:

1. All proposed actions were allocated a score ranging from -3 to +3, indicating the preference of the industry members at the consultation events, the project team and a Government feasibility score. The total of these three scores was added for each action.
2. Those actions scoring 6 or more points in the first level of analysis were then analysed in more detail using the multi-criteria approach illustrated in Table 5.1 and an individual action analysis sheet was prepared for each action.
3. Once the full analysis was complete, the team selected the most positive actions for each segment, in line with the original project brief to recommend four or five actions per segment. It may be that others in industry or Government have other views about which are the priority actions, but those recommended by the project team are highlighted in this section.

Impacts, definitions and scoring system	**£ costs / benefits analysis**	Benefits to businesses in terms of increased turnover and profit, and the costs of the action, are estimated here In many cases the costs and benefits are dependent on the scale of the action and this is shown in the detailed analysis sheet for each action
	Impact on fish stocks	How much the action would affect the abundance and size composition of fish stocks (including impacts on reproductive success e.g. changes in regard to discards), and associated impact on sustainability of the fishery. Likely impacts will be directional & by range of impact.
	Impacts on communities	How much the action would affect economic and social development of communities; this could be impacts on wages, local employment in catching, processing and / or in other fishing related activities; establishment of new enterprises or expansions of existing businesses (changes in household disposable income could also impact on the local economy)
	Overall feasibility	Combined judgement on the: - acceptability to stakeholder groups (e.g. no. of interested parties, level of influence) - practicality (no. and difficulty of practical / technical barriers to overcome) - feasibility (political will, broad level of sector or industry support)
	Impact on brand / reputation / image	How much the action would influence (improve or disadvantage) the brand position / reputation of Scottish landed species / fishing industry, resulting in changes in market / consumer perception, and ultimately changes in sales of Scottish species

Table 5.1 Multi-criteria analysis of proposed actions

Scores were allocated under each of these criteria against stated definitions, and these definitions are given in Appendix One on p150.

Although many of the proposed actions did not make the cut for the detailed analysis or for the final recommendations, the project team members believe that many of these other actions are also potentially valuable and should still be considered by private investors and policy makers.

5.1 Estimation of costs and benefits

For most of the proposed actions, it is not possible within the scope of this project to carry out detailed costing exercises. For many it is not possible to estimate with certainty how great the profit improvements of an action might be.

The project team has in many cases used assumptions about the scale of benefit in relation to the current level of revenues and profit margins. Fisheries data supports the expectation that a reduction in volume supplied to the market should result in an increased average price. The arithmetic of these calculations is shown in the detailed sheets. These estimations are not guarantees that these benefits will arise if the action is taken, but are indications of the order of magnitude of potential benefits. For instance, if the total value of landings in a given fleet segment is £20 million, and the total profit generated is of the order of £2 million, then a measure which might improve profit slightly, but which will cost £3 million, does not look like a good investment.

Many of the proposed actions which look reasonable at first glance would require or merit further detailed cost-benefit analysis before any investment is made, simply because of the scale of the investment. A greater degree of certainty about the likelihood of benefits arising may be required.

Many of the actions proposed could potentially be carried out at different scales. For example, there could be a minor, a medium or a large increase in enforcement effort to reduce the landing of under-size crab and lobster. There could be a modest, a medium-sized or a major marketing campaign. The project team has given examples of what might be effective in some of these cases, but these should be taken as only one possibility of the scale of intervention or action which could be considered by decision makers.

Some of the actions proposed for a segment are related and the benefits of all of them, if implemented, are not likely to be the sum of the individual benefits estimated for each action. This applies in particular to actions aiming to increase the price paid to vessels – there is a limit to what the market will support. So if four price-rising actions are implemented, the estimated benefits should not be summed for all actions, although the costs of all actions must be incurred.

5.2 Risks associated with actions

Any actions implemented may not deliver the benefit expected. For any action taken, there is a risk that the intended consequence will not arise, or not arise to the expected extent, or that other, possibly negative consequences will arise instead of or as well as the intended consequence. For all of the proposed actions, there is the chance that they won't deliver the hoped-for benefits.

There is no scientific approach to analysis or estimation which means that the suggested costs and benefits will definitely arise to the exact extent indicated. In the detailed analysis sheets, the project team has commented on the type and degree of risks that might be attached to proposed actions. These are for decision makers to consider before they choose to invest private or public funds in any of the proposed actions.

5.3 Decommissioning schemes

Fisheries buyback schemes have been carried out with varying degrees of success around the world in an attempt to address fleet over-capacity (overinvestment). The overcapacity can be either in terms of what the stock can withstand or what the market can withstand at a price sufficient to generate a profit from fishing. The project team evaluated the various proposed actions based on the specific aims for each segment. The project team endorse the conclusions regarding fisheries buybacks drawn by Rögnvaldur Hannesson in his chapter entitled *Do Buyback Programs Make Sense?,* which is contained in the book Fisheries Buybacks edited by Rita Curtis and Dale Squires:[1]

> Buyback programs alone are not the solution to the problem of overinvestment in the fishing industry. They would bring some relief in the short term, but if nothing is done about the underlying incentives to over-invest, they might actually make the problem worse by strengthening such incentives. Combined with adequate controls on investment, buyback programs could be helpful; they would facilitate the

[1] Fisheries Buybacks. Curtis, R and Squires, D. Blackwell Publishing. 2007.

necessary reduction in fleet capacity, and they could lead to a more rapid adjustment toward the desired long-run solution. Since the justification of buyback programs lies in the realization of expected future benefits, it seems reasonable to require that buybacks should be ultimately funded by those who remain in the industry and enjoy the said benefits once they are realized, even if general taxpayer money is used to initially finance buyback. Furthermore, without such industry funding, the cost of the buybacks could exceed the rent generated by the buybacks and even the maximum rent that could be obtained in the fishery.

5.4 Recommended actions

This section contains a summary of action evaluations for each segment and the detailed analysis of the actions which the project team recommends to the Government and industry for implementation.

The project team notes that others may evaluate the proposed actions differently, especially with regard to the scale and cost of an action, and that it is therefore entirely legitimate and to be expected that some may choose different actions as their priorities for implementation.

There are many actions not included in the recommended list or even in the detailed analysis phase which are also worthy of attention, and some of which members of the industry would be able to pursue on their own initiative. The full lists of actions proposed for each segment are included in the Interim Reports for this project.

Some of the actions proposed in the consultation events are already underway to some extent or about to start in some form. The proposals were then to continue or expand these activities. Some of these types of actions have been included in the recommendations.

Appendix Two on p.151 contains reference lists of all the actions which were included in the detailed analysis phase of the assessment.

Action reference numbers are carried over from the Interim Report sections for each consultation meeting. For instance, if an action from the crab and lobster consultation event was reported as Action 3 in the Interim Report section on crab and lobsters, then that action will retain that reference number.

Some of the actions reported in the Interim Reports included specific bullet point sub-actions under one heading. This was done for ease of layout and reading convenience in the interim reports. These sub-actions are now numbered as Action 14.1, 14.2 etc. For instance, in the interim report for the pelagic sector, all the actions relating to discards were listed as Action 14, which may have appeared to mean there was one action on discards. But there were actually many separate actions under the discards heading.

For West of Scotland Nephrops actions, there is a prefix of “f” for actions which arose from the Fort William meeting and “g” for actions which arose from the Glasgow meeting.

5.4.1 Scallops recommended actions

The actions which the project team recommends for the scallops sector are shown below in Table 5.2.

Action 1.1	Remove latent entitlement
Action 3	Study tours to learn from others about effort management
Action 6	True and traceable weighing system
Action 9	Scientific research to understand the impact of the fishery
Actions 12.1; 12.2	Vessels, processors and Seafood Scotland to work together to develop new markets. Includes skipper study visits to Euro markets

Table 5.2 Recommended actions for the Scallop sector

A summary of the analysis scores of all scallop sector actions which were analysed in detail is given in
Table 5.4, page 24. For those actions not included in the recommended list, reasons are given below in Table 5.3.

Action 1.2 Provide financial assistance for fleet restructuring	This action was not included in the recommended list because it seemed the least likely to improve the profit of the vessels that would remain in the fleet. The benefit to the vessels which would be decommissioned is not counted as a benefit of this action since actions are assessed against the test of improving fleet profit. The basis of expected benefits in this case was that an overall reduction in supply resulting from the removal of some vessels, would create a price increase to the remaining vessels. Since this fleet segment is not a majority supplier of scallops into the ultimate market places, there is a high risk that any price increase might be very short-lived, only until onshore businesses found alternative supplies.

Table 5.3 Reasons for Scallops actions not being included in the recommended list

5.4.2 Scallop actions summary table

Action Title	Total cost of measure (£)	Direct profit impact	Indirect profit impact	Multi Criteria Analysis score	Benefit per £ of cost	Risk that profits will not improve	In list of recommended actions?
		£	£				
Remove latent entitlement (Action 1.1)	£21,000	£0	£480,000	4	£22.86	Low to medium	Yes
Provide financial assistance for fleet restructuring (Action 1.2)	£2,700,000	£0	£1,700,000	3	£0.63	High	No
Study tours to learn from others about effort management (Action 3)	£17,000	£0	£240,000	5	£14.12	Low	Yes
True and traceable weighing system (Action 6)	£40,000	£240,000	£0	3	£6.00	Low to medium	Yes
Scientific research to understand the impact of the fishery (Action 9)	£75,000	£0	£480,000	4	£6.40	Medium	Yes
Vessels, processors and Seafood Scotland to work together to develop new markets. Includes skipper study visits to Euro markets (Action 12.1; 12.2)	£100,000	£0	£1,650,000	5	£16.50	Medium to high	Yes

Table 5.4 Summary of detailed analysis result for **Scallop** sector actions

To give context to the estimated potential profit improvements, the total turnover (gross earnings) of the North Sea and WoS Scottish scallop dredge segment in 2008 was around £16 million, and the total value of landings of scallops by all Scottish registered vessels (including Area VII dredgers) was around £25 million (source: Marine Scotland and Seafish).

5.4.3 Detailed analysis for scallops sector actions

Sector	Scallops	**Action Ref**	1.1

Action	Remove latent entitlement
Description	Measure to protect or improve price. Attendees believed that there is excess capacity within the scallop fishery. The excess is not necessarily in terms of how much pressure the stock can withstand but in how much market demand there is for the product. Competing overseas supplies put pressure on prices to vessels and the segment believe that to improve prices there must be a reduction in volume landed. They believe that there should be a reduction in vessel numbers through decommissioning, but this would have to happen in concert with a revocation of inactive scallop entitlements on licences, to ensure that no more vessels can enter the fishery. One proposed solution is to permanently remove entitlement that has not been used for a proposed period of three years. It is proposed that this action is combined with Action 1-2 to maximise the benefit to the fleet.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Administrative cost of identifying unused licences and writing to licence holders. Of the 258 entitlements, 155 have not been used in the last three years. Legal fees to check legality and handle appeals. 20 staff days (£500 per staff day) - mailing (£1000) - Legal fees (£10,000)
Who will incur costs	Scottish Government
Cost Estimate	£21,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact is expected.
Direct Impact Estimate (£)	£0

Potential Indirect Impact (describe)	A removal of the threat that at any time there can be an increase in the number of active vessels supplying the market could protect prices for the vessels currently active. In addition, maintaining a stable fleet could improve profits when the price improves. It is not possible to make a definite prediction of how much benefit might arise from this action but it is useful to estimate a potential ball-park figure. Assume a 1% in revenues due to higher prices than would have been achieved if more vessels had entered the fishery and over-supplied the market. 1% improvement on c. £16m of landings value would be £160,000 total per year. Because the extra revenue is due to higher prices, it will be all profit. Over 3 years, extra profit would be £480,000.
Potential Indirect Impact Estimate (£)	£480,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected.
Fish Stocks – Indirect Impact	1	Reducing the capacity of the fleet reduces the risk of over-fishing should the fishery become more attractive to those with entitlement but not currently active. However, fish stocks only benefit from this action if the latent entitlement would have otherwise been used at some time in the future.
On-shore Economy – Direct Impact	0	No direct impact is expected.
On-shore Economy – Indirect Impact	1	There is a possibility that the action will improve confidence in the sector and encourage active vessels to invest more in their business. This could have some knock-on benefits to related businesses on-shore.
Image – Direct Impact	0	No direct impact is expected.
Image – Indirect Impact	0	No indirect impact is expected.

Feasibility / how likely	2	This action is feasible. The only resistance would come from the holders of unused entitlements that might appeal the process

Risk	This action cannot be taken without first consulting owners of licences who would lose their entitlements. There is a risk that they will opposse this action and that the Government will not proceed to remove latent entitlements.

Sector	Scallops	**Action Ref**	1.2

Action	Provide financial assistance for fleet restructuring
Description	Measure to protect and or improve prices and protect stocks. The action proposes that following the removal of latent entitlement (Action 1-1), financial support is provided for decommissioning within the scallop fleet. The aim of the scheme is to reduce volume supplied to the market and achieve higher prices and therefore more profit for remaining vessels. This would mean that to be effective, there would need to be secure mechanisms to ensure that the remaining vessels do not increase their volumes landed post-decommissioning and that no more vessels become active in the segment.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Grants to vessel owners, assuming removal of 900 GT at £3,000 grant per tonne, total grants would be £2,700,000. In addition there would be significant additional administrative costs which would also need to be funded, and costs associated with the additional mechanisms which would be required to ensure that decommissioning achieved its intended aims and benefits.
Who will incur costs	Scottish Government
Cost Estimate	£2,700,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact is expected
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	Would need some additional mechanism, e.g. effort limitation, to restrict volume supplied to the market and protect prices. The aim of this scheme is to reduce total volume landed by fleet, rather than spread current volume among fewer vessels, so that prices would rise and remaining vessels would be more profitable. If volume landed in the NSWoS segment were reduced from around 8,500 tonnes per year to around 6,800 tonnes per year (by removing several vessels), and, average prices increased by 5% (from around £1,671), then the additional revenue, and therefore profit, to the remaining vessels, would be around £570,000. Over 3 years that would be c.£1,700,000. [Over 5 years that would be c. £2,840,000.]
Potential Indirect Impact Estimate (£)	£1,700,000 (over 3 years)

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	1	If effort is permanently reduced it is expected that fish stocks will benefit.
Fish Stocks – Indirect Impact	0	No indirect impact is expected.
On-shore Economy – Direct Impact	-1	A reduction in fleet size is expected to reduce demand for on-shore services and supplies.
On-shore Economy – Indirect Impact	1	In the long-term, a more profitable and sustainable fleet should provide more certainty and continuity on-shore. In addition, money invested as a result of decommissioning support could create new activity.
Image – Direct Impact	0	No direct impact is expected.
Image – Indirect Impact	0	No indirect impact is expected.

Feasibility / how likely	2	This measure is likely to be welcomed by many in the industry. It is important to emphasise that these actions are intended to provide benefits to the active fishing fleet, so in the case of decommissioning, the scheme must be designed with the aim of helping remaining vessels operate more profitably. This action should not be seen in terms of benefits to those owners who accept decommissioning grants, the purpose of doing this action is not to help them, but rather the remaining vessels.

Risk	This is a high risk action. Profit will only improve if decommissioning leads to improvements in price. Price will only increase if total volume supplied to the market does not increase after decommissioning, so there would have to be some strong mechanisms in place to ensure that did not happen, either by new boats coming into the scallop segment or by remaining boat landing higher volumes each. There is a risk that although this fleet segment might reduce volumes landed, other UK vessels might make up the difference and there would be no increase in market price. There is a risk that other factors might come into play and prevent an increase in market price for the remaining vessels. It would be prudent to explore the potential value of positive outcomes further.

Sector	Scallops	**Action Ref**	3

Action	Study tours to learn from others about effort management
Description	Measure to protect and optimise fishing opportunities in the longer run. Attendees at the consultation events recognised that while it is easy to identify many of the problems, solutions were more difficult. This action suggests learning lessons from sectors outside of the UK that may have developed good or best practice in the management of their fishery and, where appropriate, seek to implement similar good practice within Scotland.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Travel costs for attendees. Costs of facilitator / project manager - could be civil servant, might have to be consultant. Costs of writing up findings and preparing proposals for specific changes based on findings of study tours. Cost estimates based on two study visits, five days, of 3 people plus leader per visit. Visits could include England.
Who will incur costs	Attendees should contribute to costs.
Cost Estimate	£17,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact is expected.
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	If practices that exist elsewhere are adopted to reduce costs, improve prices, reduce risks or improve longer term opportunities for the fleet, then these will help to improve profit in the longer run. It is not possible to estimate accurately until lessons are learned and further actions to implement change identified. However, to give an indication of potential benefits, assume a 0.5% increase in revenues due to improved prices. 0.5% improvement on £16m of landings value (for the NSWoS scallop segment) would be £80,000 total per year, which would be all profit. Over 3 years that would be £240,000 extra profit.
Potential Indirect Impact Estimate (£)	£240,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected.
Fish Stocks – Indirect Impact	1	Attendees were keen to identify solutions that would lead to improvements in stock management in order to protect stocks. If a new management method is introduced this could lead to benefits in the health and abundance of stocks.
On-shore Economy – Direct Impact	0	Dependent on subsequent action taken.
On-shore Economy – Indirect Impact	1	Dependent on subsequent action taken. Minor positive impact assuming that improvements to fisheries management are made.
Image – Direct Impact	1	The fact that the industry are participating in study visits to improve fisheries management could be used to improve image and show a responsible approach to fishing.
Image – Indirect Impact	1	If changes are implemented to improve fishery management in Scotland this could have a positive knock-on benefit for the reputation of the fleet and its products.

Feasibility / how likely	1	Will require strong industry support and willingness to contribute to own travel costs as an indication of the value that they can expect from a successful outcome.

Risk	Low risk but may lead to further investment demands so that lessons learned can be implemented.

Sector	Scallops	**Action Ref**	6

Action	True and traceable weighing system
Description	Measure to protect or improve prices. A true and traceable weighing system within primary processors is proposed as one way to address significant concerns about potentially inadequate prices for landed product and a lack of transparency in the sales process and value chain.
Key ambition supported	Pursue product and market development that will improve the value fishermen obtain for their landings.

Cost of Implementation	
Nature of Costs	Organisation of five workshops with vessel owners and processors (£1,000 per meeting). Travel costs for attendees (£3,000 per meeting). Cost of facilitator and project manager: 30 staff days (£500 per staff day). Cost of trials of the new system (assume £5,000). If a successful system is devised, there could be capital investment required in weighing equipment.
Who will incur costs	Government, industry
Cost Estimate	£40,000

Impact on Fleet Profit	
Direct Impact (describe)	There is an expectation that a true and traceable weighing system will lead to a higher average price for landed catch. It is not possible to estimate accurately what the benefit would be, however, to give an indication of potential benefits, we can assume a 0.5% increase in revenues due to improved prices. 0.5% improvement on £16m of landings value (for the NSWoS scallop segment) would be £80,000 total per year, which would be all profit. Over 3 years that would be £240,000 extra profit.
Direct Impact Estimate (£)	£240,000
Potential Indirect Impact (describe)	No indirect impact is expected.
Potential Indirect Impact Estimate (£)	£0

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected.
Fish Stocks – Indirect Impact	0	No indirect impact is expected.
On-shore Economy – Direct Impact	0	May result in additional costs to processors which could affect profits, at least in the short-term. These costs are considered negligible.
On-shore Economy – Indirect Impact	1	If the action generates a more positive and trusting relationship between vessels and processors this could have many benefits. One benefit could be that improved understanding could lead to vessels better matching their catch to the needs of the processors and the wider market. This could be positive if it results in greater focus on profitability and value rather than volume.
Image – Direct Impact	0	No direct impact is expected.
Image – Indirect Impact	0	No indirect impact is expected

Feasibility / how likely	2	The catching sector will be keen to participate in this project. The main difficulty will be to keep the processors on board and to have them adopt any new practices agreed.

Risk	Processors may not engage in a process which the fleet believes will benefit the vessels more than the processors and may even be a net cost to processors.

Sector	Scallops	**Action Ref**	9

Action	Scientific research to understand the impact of the fishery
Description	Measure to protect prices by enhancing market perception of the environmental impacts of the fishery. This action is proposed in order to address two issues. The first purpose is to try to counter negative opinions that exist surrounding the impact of the fishery and improve the reputation of the fishery. The second purpose is to gather facts regarding the effect that the scallop fishery and its catching methods have on the environment. If necessary, the information could lead to improvements in catch methods and changes in areas targeted.
Key ambition supported	Pursue product and market development that will improve the value fishermen obtain for their landings.

Cost of Implementation	
Nature of Costs	Research project - 50 staff days per year (£500 per staff day) = £25,000 Project expenses: £50,000 Marine Scotland Science (the Marine Laboratory) suggestion to include pilot of VMS for vessels below 15m.
Who will incur costs	Scottish Government - Marine Scotland Science, possible that industry would contribute.
Cost Estimate	£75,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact is expected.
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	There is a possibility that new information about the fishery could lead to more profitable ways of working. The fact that the study is being conducted could be used to promote the responsible approach to fishing being taken by the scallop sector and could improve their image and protect volume demanded and / or prices. If the study does show information to improve the environmental credentials of the fishery, or how to make changes which will do that, then there could be image improvement and potential revenue protection. It is not possible to accurately predict outcomes, however the ultimate intention and expectation is to achieve higher prices. Assume a 1% increase in revenues due to higher prices. 1% improvement on £16m of landings (for the NSWoS segment) value would be £160,000 total per year, which would be all profit. Over 3 years that would be £480,000.
Potential Indirect Impact Estimate (£)	£480,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected.
Fish Stocks – Indirect Impact	1	It is possible that there could be positive benefits to fish stocks if improvements are made in order to minimise unintended consequences from the fleet's activities.
On-shore Economy – Direct Impact	0	No direct impact is expected.
On-shore Economy – Indirect Impact	0	No indirect impact is expected.
Image – Direct Impact	2	If the findings of the research are positive, as the fleet expects, this could lead to significant benefits to the image of the sector. However, this positive outcome is not guaranteed.
Image – Indirect Impact	0	No indirect impact is expected.

Feasibility / how likely	1	Benefits other than those sought could arise. Research could lead to changes in practice which protect stock abundance.

Risk	There is a risk that the findings of the research are negative and as a consequence do not support the fleet's current views or activities.

Sector	Scallops	**Action Ref**	12.1; 12.2

Action	Vessels, processors and Seafood Scotland to work together to develop new markets. Include skipper study visits to European markets. Aimed at trade buyers rather than final consumers.
Description	Measure to expand the size of the market and increase volume demanded. There is concern that the potential value of Scottish scallop products is not being realised. The purpose of the action is to develop new markets for Scottish scallop products and realise the true potential value of the product. To achieve this will require the vessels and processors to work more closely together as the fleet on its own can do little to affect the market which the primary processors sell into. The actions would be targeted at trade buyers, persuading them to buy Scottish product, rather than advertising to the wider consumer market.
Key ambition supported	Pursue product and market development that will improve the value fishermen obtain for their landings.

Cost of Implementation	
Nature of Costs	There are two strands to this action. First, one or more study visits by processors and vessel owners to potential new markets and to meet trade buyers. (Travel costs eg. £15,000) Organising those visits would require e.g. Seafood Scotland and / or a consultant to do some desk-based research first. (Fees, e.g. £15,000). Then, depending on findings of the study visits, there would be promotional activities aimed at trade buyers in the chosen new markets. This would require a budget to pay an agency (e.g. £70,000) and would require a Scottish-based co-ordinator, which could potentially be Seafish or Seafood Scotland.
Who will incur costs	Industry, Government, Seafood Scotland, potentially Seafish (via IPF)
Cost Estimate	£100,000

Impact on Fleet Profit	
Direct Impact (describe)	Promotional activities in new markets should lead to increased sales into those markets by Scottish processors
Direct Impact Estimate (£)	£0

Potential Indirect Impact (describe)	Increased sales to new markets by Scottish processors should either protect or increase volume demanded from Scottish vessels and / or increase prices that Scottish processors can pay to Scottish vessels. Total scallop revenues to Scottish vessels are around £25 million. Assume a 5% increase in revenues, £1,250,000, due to increased volume sold and to increased prices. Any increase in revenues to the fleet due to higher prices is all profit. Increase in revenue due to higher volume sold is subject to the costs of fishing, unless it is due to an increase in catch per unit of effort (which is not what we would expect to result from this action). Assume that 2 of the 5% increase is due to higher prices, so £500,000 increase in revenues would be profit. Assume that 3 of the 5% improvement is due to higher volumes, so £750,000 extra revenue would be subject to fishing costs. Assume profits are 7% of revenues, so additionnal profit would be c. £52,000 per year. Add the two sources of profit together, to get £552,000 extra profit per year. That would be c. £1,650,000 over 3 years.
Potential Indirect Impact Estimate (£)	£1,650,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected.
Fish Stocks – Indirect Impact	0	No indirect impact is expected.
On-shore Economy – Direct Impact	1	If new and more profitable markets can be created for Scottish scallop products the direct beneficiaries should be the processing sector in Scotland. The scale of this benefit will depend on the extent to which new markets can be successfully developed.
On-shore Economy – Indirect Impact	0	No indirect impact is expected.
Image – Direct Impact	2	By actively promoting Scottish scallops there is a potential to create a strong positive benefit in the market place.
Image – Indirect Impact	0	No indirect impact is expected.

Feasibility / how likely	2	There will need to be substantial commitment and buy-in from processors and vessel owners to take part in this effort, both the study visits and any subsequent promotion activities.

Risk	Targeting overseas markets is likely to require sustained effort and investment by all within the sector. The facilitation and resourcing of this effort and investment could be challenging.

5.4.4 West of Scotland Nephrops recommended actions

Actions which the project team recommends for the West of Scotland nephrops sector are shown below in Table 5.5.

Action f-4.1	Limit number of creels per sea area
Actions f-4.2; g-14;	Introduce limits on the use of static gear per boat
Action f-8; f-10	Develop closer integration along whole value chain, especially between catching and processing
Actions f-12.1-12.3; g-9.2-9.5	Promote nephrops products to increase UK market demand for seafood
Action g-1	Provide clear guidance (a fact sheet) on fuel duty and VAT implications. Or circulate existing guidance more widely
Action g-7	Illustrate the practice and benefits of matching catch rate to suit seasonal market demand

Table 5.5 Recommended actions for the West of Scotland Nephrops sector

A summary of the analysis scores of all West of Scotland nephrops sector actions which were analysed in detail is given in
Table 5.7, page 39. For those actions not included in the recommended list, reasons are given below in Table 5.6. It should be remembered that the project team were asked to select the top four or five actions per fleet segment and that some of the actions which did not make the list are still considered to be worthwhile actions.

Action f-4.3 Restrict use of mobile gear in certain areas, to reduce conflict with creels	This action was less attractive than those in the recommended list because of the high risk that an agreement would not be reached and that if it was, it might be difficult to enforce, meaning that the hoped-for profit improvements might not arise. This action could work however and the fact that it might be difficult is not necessarily a reason not to attempt it.
Actions g-3; f-14 Restructure the fleet	This action had low cost benefit ratio and high risk of not delivering the hoped-for profit improvements for the vessels remaining in the fleet.
Action g-8 Investigate the possibility of increasing the minimum landing size	This action would require a more detailed analysis to evaluate whether and to what extent it might have a positive effect on fleet profit in the short, medium and longer term.
Action g-13 Remove west coast nephrops fleet from the impacts of the cod recovery plan by adopting a by-catch limit of 1.5% cod	This action did not make the top list because there was judged to be a higher risk of not achieving the hoped-for benefits from this action due to the need for agreement from the Commission and other member states. This does not mean however that we advocate that the Government should not attempt this.
Action g-9.1 Promote Scottish nephrops in emerging markets	This action could be successful. However there are six actions with higher MCA scores and/or higher benefit per £ of cost than this one and we were asked to recommend just four or five top actions per segment.

Table 5.6 Reasons for West of Scotland nephrops actions not being included in the recommended list

Action Title	Total cost of measure (£)	Direct profit impact	Indirect profit impact	Multi Criteria Analysis score	Benefit per £ of cost	Risk that profits will not improve	In list of recommended actions?
		£	£				
Limit number of creels per sea area (Action f-4.1)	£155,000	Not estimated	Not estimated	4	Not estimated	Medium - high	Yes
Introduce limits on the use of static gear per boat (Actions f-4.2; g-14;)	£155,000	Not estimated	Not estimated	4	Not estimated	Medium	Yes
Restrict use of mobile gear in certain areas, to reduce conflict with creels (Action f-4.3)	£20,000	£945,000	£0	1	£47.25	High	No
Develop closer integration along whole value chain, especially between catching and processing (Action f-8; f-10)	£7,500	£0	£420,000	6	£56.00	Low – medium	Yes
Promote nephrops products to increase UK market demand for seafood (Actions f-12.1-12.3; g-9.2-9.5)	£1,000,000	£0	£2,700,000	6	£2.70	Medium	Yes
Promote Scottish nephrops in emerging markets (Action g-9.1)	£200,000	£0	£2,700,000	3	£13.50	Medium	No
Restructure the fleet (Actions g-3; f-14)	£1,505,000	£0	£3,300,000	2	£2.19	High	No
Provide clear guidance (a fact sheet) on fuel duty and VAT implications. Or circulate existing guidance more widely. (Action g-1)	£5,000	£0	£90,000	3	£18.00	Low	No
Illustrate the practice and benefits of matching catch rate to suit seasonal market demand (Action g-7)	£10,000	£0	£600,000	5	£60.00	Low - medium	Yes
Investigate the possibility of increasing the minimum landing size (Action g-8)	£30,000	£0	Not estimated	4	Not estimated	Medium	No
Remove west coast nephrops fleet from the impacts of the cod recovery plan by adopting a by-catch limit of 1.5% cod (Action g-13)	£15,000	Not estimated	£0	3	Not estimated	Medium - high	No

Table 5.7 Summary of detailed analysis result for **West of Scotland nephrops** sector actions

To give context to the estimated potential profit improvements, the total turnover (gross earnings) of Scottish West of Scotland nephrops vessels in 2008 was around £40 million (source: Marine Scotland and Seafish).

5.4.5 Detailed analysis for West of Scotland nephrops sector actions

Sector	WoS Nephrops	**Action Ref**	f-4.1

Action	Limit number of creels per sea area
Description	Measure to protect or improve prices and stocks. Also some intention to ensure local fisheries are available only to smaller (local) boats and not to larger boats from elsewhere. Attendees considered that there needed to be restrictions in some areas on the amount of static gear that could be used, that is a limit on static gear effort. One proposal was to restrict the number of creels that can be set e.g. 20,000 - 25,000 in a given sea area. Restrictions would need to be designed as local solutions as specific requirements may change from one area to another. Inshore Fisheries Groups could be well placed to organise and facilitate the necessary discussions, particularly to ensure the inclusion of fishermen.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Fleet investment in equipment e.g. tags for creels: assuming 350 vessels, an average of 800 creels per vessel and the unit cost for tag £0.50 (paid by vessels) = £140,000; Policy development: consultation and legislation design: 20 staff days, £500 per staff day = £10,000. consultation costs direct spend = £5,000; Enforcement costs – could potentially be a proportion of existing enforcement spend, which would mean other enforcement activities might have to be reduced. Or, could be additional to existing spend.
Who will incur costs	Scottish Government, industry
Cost Estimate	£155,000

Impact on Fleet Profit	
Direct Impact (describe)	Vessels bear cost of creel tags, so profit down by that amount in year one and some ongoing replacement costs as creels are lost. Reduction in revenues for some vessels if they have to reduce the number of creels they set. Possible increase in costs, if some vessels have to move some of their creels to further away areas. Possible reduction in volumes landed and increase in prices. This is not possible to estimate accurately, as it would depend entirely on whether any vessels currently fishing in a given sea area had to reduce their number of creels. Any such schemes would have to be carefully designed with detailed expected practical and economic effects estimated per scheme

Direct Impact Estimate (£)	Not estimated
Potential Indirect Impact (describe)	If volumes landed are reduced then prices should increase, stock abundance and possible increase in average size of nephrops (and therefore price). Possible benefits of improved image through better environmental credentials. Possible protection of benefits to smaller vessel businesses in local communities.
Potential Indirect Impact Estimate (£)	Not estimated

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	1	If effort is reduced in an area, it is expected that there will be a positive impact on fish stocks.
Fish Stocks – Indirect Impact	1	This measure could lead to long term improvement in and protection of nephrops stocks in the target areas. There could also be a positive impact on other fish species as effort and disturbance stabilise at a reduced level.
On-shore Economy – Direct Impact	0	No direct impact expected (total number of creels may not decline)
On-shore Economy – Indirect Impact	0	If the amount of nephrops landed to Scottish processors decreases, then there is potential for a decrease in the number of processing jobs.
Image – Direct Impact	0	No direct impact expected
Image – Indirect Impact	1	If limiting effort in an area is recognised as a positive measure for sustainable management the fishery, then this is expected to improve the image of the sector and Scottish seafood products.

Feasibility / how likely	1	Strong support from industry attendees at the Fort William meeting.

Risk	Care will be needed to ensure that the views of creel boat operators / owners are taken into account as they may be in the minority in some IFGs. Each proposed restricted area will have to be custom desgined and will need a detailed impact assessment to improve the certainty that the scheme will deliver the intended benefits. Risk that measures will not be agreed. Previous attempts to agree limits on static gear have not been successful. Enforcement of any agreement could be very difficult.

Sector	WoS Nephrops	**Action Ref**	f-4.2; g-14;

Action	Introduce limits on the use of static gear per boat
Description	Measure to protect stocks and to protect or improve prices by reducing supply to the market. Concerns were expressed about volume supplied versus market demand, large number of traps being laid and number of berried females being caught. Attendees considered that there needed to be more restrictions on amount of gear being used in some areas; one proposal was to limit the number of creels per boat e.g. based on length of vessel, crew, etc. Restrictions would need to be designed as local solutions i.e. specific requirements may change from one area to another. Gear could be tagged and therefore owner easily identified.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Fleet investment in equipment e.g. tags for creels: assuming 350 vessels, an average of 800 creels per vessel and the unit cost for tag £0.50 (paid by vessels) = £140,000; Policy development: consultation and legislation design: 20 staff days, £500 per staff day = £10,000. Although if more than one action requiring tags is implemented, the tags need only be purchased once. Consultation costs direct spend = £5,000; Enforcement costs - proportion of existing enforcement spend
Who will incur costs	Scottish Government, industry
Cost Estimate	£155,000

Impact on Fleet Profit	
Direct Impact (describe)	To implement a limit on the number of creels / pots per vessel, a system of gear identification will be required. These costs will fall on the vessel owners / operators, and in the short term this may lead to a reduction in profits. Some creelers may also see a reduction in income if the number of creels they can lay is reduced due to new limits. Operating costs may rise if vessels need to fish in other areas to maintain their income. Possible reduction in volumes landed and increase in prices. This is not possible to estimate accurately, as it would depend entirely on whether any vessels currently fishing in a given sea area had to reduce their number of creels. Any such schemes would have to be carefully designed with detailed expected practical and economic effects estimated per scheme
Direct Impact Estimate (£)	Not estimated

Potential Indirect Impact (describe)	Limiting the number of creels / pots per vessel will reduce overall effort by the fleet and reduce pressure on stocks and protect nephrops grounds, ultimately maintaining or improving viability of the fishery. Fishing incomes in general may increase in the longer term as the average size of nephrops increases, commanding higher prices. If volumes landed are reduced then prices could increase, stock abundance and possible increase in average size of nephrops (and therefore price). Possible benefits of improved image through better environmental credentials. Possible protection of benefits to smaller vessel businesses in local communities.
Potential Indirect Impact Estimate (£)	Not estimated

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	1	Reducing effort through limiting the amount of gear available for deployment is expected to have a positive impact on nephrops stocks.
Fish Stocks – Indirect Impact	1	This measure would lead to long term improvement in and protection of nephrops stocks. In addition, there is also likely to be a positive impact on other fish species as effort stabilises at a reduced level.
On-shore Economy – Direct Impact	0	Reducing the number of creels / pots used by the fleet may adversely impact on local suppliers of equipment and therefore jobs (likely to be small - will depend on whether suppliers are local / Scottish)
On-shore Economy – Indirect Impact	0	Overall reductions in effort may also impact on local processing jobs if there is less material to handle.
Image – Direct Impact	0	No direct impact expected
Image – Indirect Impact	1	Reducing effort is expected to lead to a more sustainable sector, and therefore positively impact on the image of Scottish nephrops products

Feasibility / how likely	1	Strong support from the nephrops sector on action to limit the amount of static gear being used within the fleet.

Risk	There are risks that individual schemes may not be well designed, such that there is no increase in price to offset loss of volume and revenues and margins both decrease rather than increase. There is a risk that any scheme(s) will not be effectively enforced and that some individuals may not abide by the rules, thus profiting at the cost of others.

Sector	WoS Nephrops	**Action Ref**	f-4.3

Action	Restrict use of mobile gear in certain areas, to reduce conflict with creels
Description	Measure to reduce costs of gear conflict. Attendees expressed concern that the use of mobile gear in the same areas as static gear was resulting in damage to, movement or loss of static gear. The consequence is higher costs to the creelers e.g. repairing and replacing gear, loss of fishing time and therefore income and stress and upset caused by the losses and the conflict. This is seen as a local problem and one proposed solution is to allocate zones which are solely for use of static gear. particularly coastal zones. It might also be possible to allocate zones which are exclusively for use of mobile gear, although this was deemed less necessary, since there is a natural divide created by the need for static gear to be kept relatively close inshore.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Government: Policy design, negotation and development; implementation and enforcement; industry: identification scheme for gear (e.g. tags), time for discussion and negotation (e.g. vessels owners , IFGs) estimate 30 staff days @ £500 = £15,000. Travel to and conducting meetings, c.£5,000. Costs should fall within existing administrative budgets. Potential for additional steaming costs for some mobile gear vessels if they are excluded from certain coastal zones. Not possible to estimate.
Who will incur costs	Government, industry
Cost Estimate	£20,000

Impact on Fleet Profit	
Direct Impact (describe)	Introducing a ban on mobile gear (possibly together with restrictions on static gear) would be expected to reduce the loss of static gear and improve annual catch rates due to less lost fishing time. There would be a reduction in stress caused to static gear skippers if incidents of lost or damaged gear reduced or were eliminated. Whether the net impact on fleet profit is positive or negative will depend on the the number and size of vessels affected (reduction in income of large, mobile gear vessels unable to fish in designated areas could outweigh increase seen by the creelers). Assume a cost saving of 30 creels per vessel per year, = 30 x 350 vessels x £30 per creel = £315,000. Over 3 years that would be £945,000.
Direct Impact Estimate (£)	£945,000

Potential Indirect Impact (describe)	Reduced stress and improved relationships between mobile and static gear operators.
Potential Indirect Impact Estimate (£)	£0

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	1	If effort is reduced in 'restricted' areas, there could be a positive impact on stocks. If as a result, other areas become more intensively fished there is a potential for negative impacts on stock in those areas. Selection of the areas, regulations, and design of implementation will all affect whether and to what extent the net impact is positive or negative.
Fish Stocks – Indirect Impact	-1	As indicated under direct impacts, there is potential for negative impacts on stocks in other areas if a ban on mobile gear is introduced in designated areas, and a sufficient number of vessels move to new grounds. There is also a potential for new conflict with any static gear users in these areas, and other vessels traditionally fishing there.
On-shore Economy – Direct Impact	0	No direct impact expected.
On-shore Economy – Indirect Impact	-1	As a result in the positive impact of reduced need for replacement of static gear, those businesses involved in these activities may experience a drop in income.
Image – Direct Impact	0	No direct impact expected.
Image – Indirect Impact	1	If the area becomes known for landing high quality nephrops (catch by from creels), this will positively impact on the image of Scottish / area products (it may also be possible to develop a local brand).

Feasibility / how likely	1	Likely to be opposition from mobile gear vessels - suggested that IFGs may be able to help in organising and facilitating discussions betweent the various stakeholders. In some locations, a ban on mobile gear use could reduce local jobs (vessel / onshore). Would be worth looking at other schemes in place, e.g. South Devon.

Risk	The presence of conflict between static gear and mobile gear in an area could make local management plans difficult to agree. This is a long running issue and various efforts to reach agreement between the static and mobile gear operators on this issue have not succeeded. Relatively successful schemes in England, e.g. Devon, could provide useful study visits.

Sector	WoS Nephrops	**Action Ref**	f-8; f-10

Action	Develop closer integration along whole value chain, especially between catching and processing
Description	Measure to improve the market value per tonne by improving fit to market needs. Workshop discussions indicated that there needed to be more communication between vessel owners and operators, and those buying their catches, and greater understanding of each others needs and practices. The creation of an initiative or forum focused on west coast nephrops which would enable mutual sharing of information between these sectors. There was strong support for facilitated factory visits for vessel owners / operators as this would provide an excellent opportunity to learn more about the practical aspects of how the products are processed and prepared for the retail market (both home and exports).
Key ambition supported	Pursue product and market development that will improve the value fishermen can obtain from Scottish fisheries products.

Cost of Implementation	
Nature of Costs	Organisation of 5 factory visits of 8 skippers each. Attendees to fund own time and travel. Factory to receive no fee. Facilitator fee and travel is the only cost (£1,500 per visit).
Who will incur costs	Potentially Industry, Seafood Scotland, Seafish, or Scottish Government
Cost Estimate	£7,500

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	More understanding of the needs of particular markets (e.g. quality specification priorities) might inspire fishermen to adapt their practices to better deliver these products. Greater transparency from processors on their costs and earnings would also help to provide insight into the gap between the price paid to vessels and the retail price. This could result in improved prices as vessels are more able to meet market demand. Assume a 0.5% increase in price is achieved across the WoS fleet segment from changes made resulting from these visits. Based on 2007 landings of around £40 million, that would be £200,000. Depending on the changes to practices made, there may be some additional one-off investments or costs and / or some increases in operating costs, e.g. ice. We do not assume any increase in fuel use or other major vessel costs. We could assume for illustration that 70% of the additional revenues due to price increases is profit. Total extra profit then would be £140,000. Over 3 years that would be £420,000.

Potential Indirect Impact Estimate (£)	£420,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected
Fish Stocks – Indirect Impact	1	Improved knowledge and better communications along the value chain would enable vessels to more effectively catch for the market, and be able to react to changes in market demand e.g. by adapting their practices. This is expected to have an overall positive impact on fish stocks e.g. through reduced discards and landing of inappropriately sized products.
On-shore Economy – Direct Impact	0	No direct impact is expected
On-shore Economy – Indirect Impact	1	Improved collaboration amongst vessels and onshore processors could lead to catches and processed products that are more suited to market demand. Any overall increase in demand / new (joint) product development from the Scottish processors could create more local jobs.
Image – Direct Impact	0	No direct impact is expected
Image – Indirect Impact	1	A coordinated approach along the value chain will create a positive image of a well-managed sector; catching for the market must also be sustainable and delivered through responsible fishing (better communications will support these aims).

Feasibility / how likely	3	Measure easily applicable, which would have strong support from the industry.

Risk	There are risks that vessel owners would learn nothing useful on the visits or despite having learned, would decide not to make any changes. There are risks that the changes made take time to deliver consistent improved quality to processors sufficient to allow them to seek a new and more profitable route to market for the product.

Sector	WoS Nephrops	**Action Ref**	f-12.1 to 12.3; g-9.2 to 9.5

Action	Promote nephrops products to increase UK market demand for seafood
Description	Measure to protect or improve prices. Attendees recognised that there is a potential opportunity to grow UK market demand for Scottish seafood, and strongly supported more promotion to increase awareness of the products and educate UK households on how to buy and prepare nephrops. A wide range of promotional activities was suggested to increase demand, including targeted advertising, showcasing products to the UK market, getting TV chefs to use and promote langoustines, activities in schools and on childrens TV, and healthy eating campaigns.
Key ambition supported	Pursue product and market development that will improve the value fishermen can obtain from Scottish fisheries products.

Cost of Implementation	
Nature of Costs	Would depend on target audience selected and campaign activities; e.g. low cost could be leaflets, cooking and recipe promotion, and web campaigns; high cost would be TV and advertising. Advice from Seafish Marketing in relation to their current promotional activities in the UK is that to impact on consumer behaviour would require a 3 year campaign of a consistent message with a total spend of at least £1 million over the 3 year period.
Who will incur costs	Scottish Government (Seafood Scotland); processing companies (potential for Seafish to contribute)
Cost Estimate	£1,000,000

Impact on Fleet Profit	
Direct Impact (describe)	It is unlikely that there will be short term direct benefits to vessel and fleet profitability as a result of awareness raising and promotional activities
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	In the medium to longer term, if promotional activities are effective in changing consumer behaviour and increasing demand, then sales volume would increase and processors would be demanding more volume from and/or paying higher prices to the Scottish fleet. If the market focus is for high quality products then it is likely that prices will reflect this, and profits margins should improve. Total revenue to the whole Scottish fleet for nephrops in 2008 was c.£90 million. If this action resulted in a 1% increase in revenue due to increased prices, then all additional revenue would be profit. That would be £900,000 extra revenue and extra profit per year. Over 3 years that would be £2,700,000.

Potential Indirect Impact Estimate (£)	£2,700,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact expected
Fish Stocks – Indirect Impact	-1	Potential for sales volume to increase significantly in the UK from current low levels. If this is supplied from Scottish fisheries and share of the market occupied by Scottish products also increases, then it is possible that stocks may come under more pressure, however they are protected by quota.
On-shore Economy – Direct Impact	0	Possible increased demand to Scottish processors.
On-shore Economy – Indirect Impact	2	Increasing catch volumes to meet growth in UK market demand could lead to an increase in shore-based jobs in Scotland. Could be in support / engineering services (if overall vessel activity also increased).
Image – Direct Impact	1	As this action is specifically focused on increasing UK demand for Scottish seafood, it is expected that promotional activities would be designed to raise awareness of nephrops products in general and Scottish products specifically. These campaigns would be expected to have a direct positive impact on image / Scottish branded products.
Image – Indirect Impact	2	The outcomes achieved as a result of promotional campaigns tend to grow over time as consumer knowledge deepens and messages are reinforced as a result of indirect effects, such as word of mouth, recommendations, message boards, etc.

Feasibility / how likely	2	Justifying potential benefits against budget is not easy for promotional activities, but the fleet were strongly in favour of attempting to sell more product in the UK partly because they and the processors then have less expensive and less risky routes to market for a bigger proportion of their catch.

Risk	Promotional activities can be low cost or very expensive. In both cases, impacts are often not immediate and initially even raised awareness may not translate into the desired changes in behaviour (more sales). It is likely that sustained promotional activities will be required to deliver increased sales of Scottish products in the UK, and that increases in vessel and fleet profit may not be achieved for some time after the start of an activity.

Sector	WoS Nephrops	**Action Ref**	g-9.1

Action	Promote Scottish nephrops in emerging markets
Description	Measure to protect or improve revenues by expanding markets. Russia, the Far East and the Middle East have been identified as the most rapidly growing seafood markets, and Seafood Scotland have indicated that Scottish nephrops has the potential to become a niche provider. This action is focused on providing greater understanding (research) of the specific quality requirements of these markets, clearer definition of attractive market segments and the development of entry / growth strategies. Wide dissemination to both the processing and catching sectors is required to stimulate interest, and encourage and support processors (and possibly vessels themselves) to actively explore new / niche markets.
Key ambition supported	Pursue product and market development that will improve the value fishermen can obtain from Scottish fisheries products.

Cost of Implementation	
Nature of Costs	Detailed market research for target countries; Collation of data & publication in appropriate formats Dissemination, raising awareness among exporters in Scotland Promotional activities in country aimed at trade buyers Supporting Scottish exporters to visit target markets for trade shows or meet the buyer programmes £40K for detailed market research & publication, dissemination of findings £10K for one supported visit and Scotland stand at a trade fair £100K for combined campaign of meeting buyers and promoting to buyers, some support materials for them to use with their consumers. Advice from Seafish Marketing suggests necessary to plan 3 year consistent campaign to build image and relationships.
Who will incur costs	Government (Seafood Scotland); processing companies; possibly some vessels owners (specifically targeting emerging markets). Could apply for some support from Seafish.
Cost Estimate	£200,000 (Nb. this is a cost estimate for targeting trade buyers which is significantly lower than promoting direct to consumers)

Impact on Fleet Profit	
Direct Impact (describe)	It is unlikely that vessel and fleet profit will be increased as a direct result of market research, awareness raising and promotional activities; benefits more likely to accrue over the longer term
Direct Impact Estimate (£)	£0

Potential Indirect Impact (describe)	In the longer term, if market research enables Scottish vessels and processors to understand and provide products that meet the needs of buyers and consumers in emerging markets, and they are effective in penetrating these markets in the face of competition from products exported from other countries, then it is expected that sales volume will increase. If these market demand high quality products then it is also likely that prices will reflect this, and profits margins should be improved. Total revenue to the fleet for nephrops in 2008 was c.£90million. If this action resulted in a 1% increase in revenue due to improved prices to the fleet, then all the additional revenue is profit to the fleet. That would be £900,000 extra revenue and extra profit per year. Over 3 years that would be £2,700,000.
Potential Indirect Impact Estimate (£)	£2,700,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact expected
Fish Stocks – Indirect Impact	-1	Potential for sales volume to increase if Scottish products can capture a significant share of emerging export markets. Will be important to ensure a balance between stock protection and effort restrictions (so that the fleet is able to benefit from increased turnover and profit as a result of sales / growth in new markets).
On-shore Economy – Direct Impact	0	No direct impact expected
On-shore Economy – Indirect Impact	2	Increasing catch volumes to meet demands from new export markets could lead to an increase in shore-based jobs in Scotland. Could be in processing sector and support / engineering services (if overall vessel activity also increased).
Image – Direct Impact	0	No direct impact expected
Image – Indirect Impact	1	Whether the image of Scottish products could be influenced by sales into emerging markets depends on the type of products being supplied. Could be a positive impact on image if products are high quality.

Feasibility / how likely	1	If successful will increase volume demand (needs to remain sustainable if demand grows significantly therefore -1 for fish stocks; needs to retain onshore processing jobs in the UK to be positive

Risk	Threat of competition from other countries who may access these markets more quickly or more effectively than the Scottish exporters.

Sector	WoS Nephrops	**Action Ref**	g-3; f-14

Action	Restructure the fleet (aimed at building a profitable sector)
Description	Measure to protect or improve prices. Participants considered that the sector suffers from low profitability (which reduces necessary investment in boats & equipment), old vessels with poor crew conditions, poor wages and emphasis on quantity not quality (with an adverse impact on the catch and prices). Expectation was that reducing the number of vessels would enable those remaining to operate more profitably due to a combination of higher volume and higher price per vessel, and enabling vessel owners to solve many of the practical problems identified. In order to restrict the volume landed, it is suggested that only half of the decommissioned quota units are redistributed equally to the remaining vessels, at no cost to those vessels.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Grant to vessel owners, assuming average of 43 GT per boat, and £2,500 grant per GT. Assume 14 vessels decommissioned. In addition there would be significant administrative costs and costs associated with the additional mechanisms which would be required to ensure that decommissioning achieved its intended aims and benefits.
Who will incur costs	Scottish Government
Cost Estimate	£1,505,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact is expected
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	Assume a 3% increase in price from £2,977 to £3,066 per tonne, due to decreased volume landed. Any increase in revenues to the fleet due to higher prices is all profit: landing on average 79 tonnes, each vessel would increase annual profit by c. **£7,000**. Assume the 130 remaining vessels can land 6.7 tonnes more each, at the new price of £3,066 per tonne, due to quota redistribution. This would increase the vessel turnover by c. £20,600. Increase in revenue due to higher volume sold is subject to the costs of fishing, unless it is due to an increase in catch per unit of effort (which is not what we would expect to result from this action). Assume profits are 7% of revenues, so additionnal profit would be c. **£1,440** per year, per vessel. Add the two sources of profit together, to get c. **£8,440** extra profit per year and per vessel. At the segment level, that would be c. £1,100,000 per year. Over 3 years this would be c. £3,300,000.

Potential Indirect Impact Estimate (£)	£3,300,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	1	If effort is permanently reduced it is expected that fish stocks will benefit.
Fish Stocks – Indirect Impact	0	No indirect impact is expected.
On-shore Economy – Direct Impact	-1	A reduction in fleet size is expected to reduce demand for on-shore services and supplies.
On-shore Economy – Indirect Impact	1	In the long-term, a more profitable and sustainable fleet should provide more certainty and continuity on-shore. In addition, money invested as a result of decommissioning support could create new activity.
Image – Direct Impact	0	No direct impact is expected.
Image – Indirect Impact	0	No indirect impact is expected.

Feasibility / how likely	1	The measure is likely to be welcome by the industry.

Risk	Profitability will only improve if decommissioning leads to improvements in price and revenues, without substantial further capital investment in the fleet. It is important that there are mechanisms in place to prevent further over-investment in the industry which might mean that potential profits would not be an acceptable return on the total invested.

Sector	WoS Nephrops	**Action Ref**	g-1

Action	Provide clear guidance (a fact sheet) on fuel duty and VAT implications. Or circulate existing guidance more widely.
Description	Measure to reduce costs. It is linked to improving cash flow and profit margins through lower fuel costs. Although some guidance on fuel duty and VAT implications has been produced, attendees suggested that wider distribution of the guidance and raising awareness of the information would benefit vessel owners / operators.
Key ambition supported	Develop an efficient, and effective modern Scottish fleet which is profitable and can attract young people to the industry

Cost of Implementation	
Nature of Costs	Preparation of a factsheet on fuel duty and VAT rules (5 staff days). Costs of design, printing and distribution among fishermen associations and agents. The factsheet would be distributed widely among the Scottish industry.
Who will incur costs	Scottish Government or Seafish
Cost Estimate	£5,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact expected
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	Wider availability of clear information on fuel duty and VAT implications would ensure vessels owners are well informed. Assume a 0.5% reduction in fuel cost due to accurate duty claim and improved cashflow, based on an average turnover of £187,000 and fuel costs at 25% of turnover, this would save £230 per boat annualy. For 130 boats, this would save c.£30,000 in first year. Over three years that would be £90,000.
Potential Indirect Impact Estimate (£)	£90,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impacts
Fish Stocks – Indirect Impact	0	No indirect impacts
On-shore Economy – Direct Impact	0	No direct impacts
On-shore Economy – Indirect Impact	0	No indirect impacts
Image – Direct Impact	0	No direct impacts
Image – Indirect Impact	0	No indirect impacts

Feasibility / how likely	3	Straightforward action which will benefit all boats in Scotland, not only this segment of the fleet.

Risk	No risks have been identified for this action

Sector	WoS Nephrops	**Action Ref**	g-7

Action	Illustrate the practice and benefits of matching catch rate to suit seasonal market demand
Description	Measure to improve prices. Individual vessel owners do not routinely time their catching activity (volumes landed) to match market demand. A collective approach could enable co-ordination of landing activity and maximise value (quality / prices paid). The confidence of vessel owners to take this type of action would be enhanced by clear evidence of the financial benefits. This action is for a study to produce suitable analysis illustrating the difference between co-ordinated, timed activity and the uncoordinated approach to landings volumes. Lessons learned from the pelagic sector (which to some extent tries to co-ordinate landings to suit processing capacity) may also be valuable.
Key ambition supported	Pursue product and market development that will improve the value fishermen can obtain from Scottish fisheries products.

Cost of Implementation	
Nature of Costs	Cost of research project, 20 staff days (£500 per staff day)
Who will incur costs	Scottish Government, Seafish
Cost Estimate	£10,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact is expected
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	Potential increases in revenues if landings are co-ordinated to optimise volume landed during high price periods. Assume a 0.5% increase in price is achieved across the WoS fleet segment from this action. Based on 2007 landings of around £40 million, that would be £200,000, which should be almost entirely profit. Over 3 years that would be £600,000.
Potential Indirect Impact Estimate (£)	£600,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact
Fish Stocks – Indirect Impact	1	It is likely that market demand will be for high quality (larger) products. There is potential for a positive impact on nephrops stock as there will be less pressure to catch quantity rather than quality; less catching of immature / small products. Care needs to be taken that this approach remains sustainable.
On-shore Economy – Direct Impact	0	No direct impact
On-shore Economy – Indirect Impact	1	Some increase in onshore jobs may be expected but these could also be (more) seasonal
Image – Direct Impact	0	No direct impact
Image – Indirect Impact	0	No indirect impact is expected

Feasibility / how likely	3	Research project which should not encounter any resistance from the sector.

Risk	Not all vessels and processors will be involved and, although these will be business partnerships, care will be needed to ensure that 'closed shop' or anti-competitive practices are not created.

Sector	WoS Nephrops	**Action Ref**	g-8

Action	Investigate the possibility of increasing the minimum landing size
Description	Measure to improve the price of the Nephrops landed. Concern was expressed that nephrops are being landed that are too small for market preference. Landing the same number or weight of nephrops with a larger average size could increase the total value of the catch. Action is to convene a working group (Marine Scotland Science, Scottish Government, Fishermen, Processors, Seafood Scotland and Seafish) to investigate potential market, stock and economic impacts of increasing the MLS, and consider implementation and enforcement of any new regulation. This work (e.g. a commissioned study) would then inform IFGs and the Scottish Government.
Key ambition supported	Pursue product and market development that will improve the value fishermen can obtain from Scottish fisheries products.

Cost of Implementation	
Nature of Costs	Cost of investigation, and consultation with industry (e.g. need to increase mesh size). Research project of 50 staff days (£500 per staff day) and 5 meetings with industry (£1,000 per meeting).
Who will incur costs	Scottish Government (Seafish, Marine Scotland Science)
Cost Estimate	£30,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	This work could lead to a decision to increase the minimum landing size. If vessels were then able to land the same number or weight of nephrops but with a larger average size, the total value of the catch would be greater (larger average size gives higher prices). Although in the short term, depending on the minimum size decided, the effects could be either positive or negative. Without a more detailed proposal of the extent of size increase proposed, and detailed prices per size, it is not possible to make a useful estimate of potential price and profit improvements. That estimation should be made as part of the proposed investigation.
Potential Indirect Impact Estimate (£)	Not estimated

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected
Fish Stocks – Indirect Impact	1	If MLS were to be increased as a result of this work, vessels would no longer be landing nephrops that are too small for market preference. Effort will be focused on mature (larger) products, which will further protect stocks.
On-shore Economy – Direct Impact	0	No direct impact is expected
On-shore Economy – Indirect Impact	0	No indirect impact is expected
Image – Direct Impact	0	No direct impact is expected
Image – Indirect Impact	1	Focusing catching effort on larger products will increase sustainability of the sector and is likely to have a positive impact on sector / brand reputation

Feasibility / how likely	2	Research project which shouldn't encounter any resistance from the sector.

Risk	There is a risk that the investigation recommends a change in MLS which would implicate short term losses for some vessels, and that their owners would not support the measure.

Sector	WoS Nephrops	**Action Ref**	g-13

Action	Remove the west coast nephrops fleet from the impacts of the cod recovery plan by adopting a by-catch limit of 1.5% cod
Description	Measure to protect revenues. Concern was expressed that the nephrops sector is being penalised and restricted because of the need to recover cod. Many nephrops vessels can demonstrate very low (<5%) cod bycatch, and therefore that they do not have a large impact on cod stocks; industry members believe that they should not be penalised to protect a stock that they do not catch. Action is needed to promote and adopt a revised by-catch limit of 1.5% cod.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Main nature of costs is non-financial and instead is a matter of negotiating priorities in Brussels. Government staff to identify nephrops vessels catching less than 1.5% of cod and have the case accepted by Commission to exclude these vessels from the days at sea regulation: 30 staff days (£500 per staff day). Costs should be within current adminsitrative budget. Costs may vary depending on the approach of the Commission and time taken to secure derogation.
Who will incur costs	Scottish Government, industry
Cost Estimate	£15,000

Impact on Fleet Profit	
Direct Impact (describe)	Removing nephrops vessels from the impacts of the cod recovery plan would remove some of the day at sea restrictions and allow some vessels to restore their volume landed to last year's levels. This would allow the vessels to maintain the level of activity they had prior the days at sea regulation. There is no detailed data yet available to show the actual reduction in days at sea which this segment has experienced, so it is not yet possible to estimate what impact the removal of the restriction would make. If detailed data for this year to date could be made available, it would be possible to estimate the potential impact on profit of the restrictions this year.
Direct Impact Estimate (£)	Not estimated
Potential Indirect Impact (describe)	No indirect impact is expected
Potential Indirect Impact Estimate (£)	£0

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impacts expected
Fish Stocks – Indirect Impact	0	No indirect impacts expected
On-shore Economy – Direct Impact	0	No direct impacts expected
On-shore Economy – Indirect Impact	1	Increased fishing opportunity is expected to result in increased landings. This would require increased processing activity and potentially increase the need for other onshore support services (extent of positive impact would be dependent on the scale of increase in days at sea)
Image – Direct Impact	0	No direct impacts expected
Image – Indirect Impact	0	No indirect impacts expected

Feasibility / how likely	2	Some movement already seen on this issue; strong support amongst nephrops fleet (all meetings) for further change to be implemented

Risk	This measure will only benefit vessels which catch less than 1.5% cod. Vessels may need to adopt new gear or fishing practices to benefit from this measure.

5.4.6 Demersal recommended actions

Actions which the project team recommends for the demersal sector are shown in Table 5.8.

Action 1	Adopt a multi-year and regional approach to fisheries management
Action 3.2	Research into impacts of closed areas so that they are better understood as a management tool
Action 4	Use positive incentives to reward good practice
Action 10	Cooperative fuel purchase scheme
Actions 11.1 - 11.3	Promote Scottish white fish product to UK consumers
Action 11.4	Pursue certification as a sustainable fishery

Table 5.8 Recommended actions for the Demersal sector

A summary of the analysis scores of all demersal sector actions which were analysed in detail is given in
Table 5.10 on page 63.

For those actions not included in the recommended list, reasons are given below in Table 5.9. The project team were asked to select the top four or five actions per fleet segment but consider that some of the actions not in the recommended list are still worthwhile actions.

Action 3.1 Improve scientific stock assessments	Although a well-managed fishery certainly requires accurate stock assessments, there is a risk that any improvement in stock assessment accuracy may not lead to an improvement in fleet profit.
Action 5 Impose bigger mesh sizes to increase TACs	It was difficult to estimate the potential benefits of this action without further details of a proposal and there is a medium to high risk that this proposal would not be accepted by other European member states.
Action 8 Fleet restructuring - assist license combination with VCU reduction, with no loss of quota	This action may be effective but was not judged to be among the most likely to significantly improve fleet profit.
Action 17 Scottish Government to ensure vessels have enough days to catch their quota	This action may be effective but was not judged to be among the most likely to significantly improve fleet profit.

Table 5.9 Reasons for Demersal actions not being included in the recommended list

Action Title	Total cost of measure (£)	Direct profit impact	Indirect profit impact	Total MCA score	Benefit per £ of cost	Risk that profits will not improve	In list of recommended actions?
		£	£				
Adopt a multi-year and regional approach to fisheries management (Action 1)	Not estimated	£0	£3,000,000	8	Not estimated	Medium - high	Yes
Improve scientific stock assessments (Action 3.1)	Not estimated	£0	£420,000	5	Not estimated	Medium - high	No
Research into impacts of closed areas so that they are better understood as a management tool (Action 3.2)	£40,000	£0	Not estimated	6	Not estimated	Low	Yes
Use positive incentives to reward good practice (Action 4)	Part of existing administration budgets	£210,000	£0	6	Not estimated	Low - medium	Yes
Impose bigger mesh sizes to increase TACs (Action 5)	£11,500	Not estimated, likely negative at first, depends on TAC	£0	4	Not estimated	Medium	No
Fleet restructuring - assist license combination with VCU reduction, with no loss of quota (Action 8)	Not estimated	£2,325,000	£0	1	Not estimated	Low - medium	No
Cooperative fuel purchase scheme (Action 10)	£15,000	£3,500,000	£0	0	£233.33	Low	Yes
Promote Scottish white fish product in the UK (Actions 11.1; 11.2; 11.3)	£1,500,000	£0	£3,000,000	5	£2.00	Medium	Yes
Pursue certification as a sustainable fishery (Action 11.4)	£270,000	£0	£3,000,000	6	£11.11	Low – medium	Yes
Scottish Government to ensure vessels have enough days to catch their quota (Action 17)	Not estimated	£111,000	£0	1	Not estimated	Medium	No

Table 5.10 Summary of detailed analysis result for **Demersal** sector actions

To give context to the estimated potential profit improvements, the total turnover (gross earnings) of the main Scottish demersal segments in 2008 was around £100 million (source: Marine Scotland and Seafish).

5.4.7 Detailed analysis for demersal sector actions

Sector	Demersal	**Action Ref**	1

Action	Adopt a multi-year approach to fisheries management
Description	Measure to reduce costs and in the longer run, improve prices. The annual revision of rules and regulations under which the demersal fleet must operate is highly disruptive. The short timeframe under which they operate makes it difficult for the fleet to engage in long-term decision-making and investment as any investment may be rendered worthless in less than 12 months. Furthermore enforced changes can mean an activity that was profitable one year can be unprofitable the following year. This action seeks to reduce uncertainty by reducing the potential for significant annual shifts in TAC, upwards or downwards, and through the creation of a management plan which operates over a longer timeframe, preferably at least three years. The action could also incorporate a longer lead-time between decision-making and implementation.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Main nature of costs is non-financial and instead is a matter of negotiating priorities in Brussels and other coastal states. Costs may vary depending on attitude of other partners. This work already forms a key part of the Scottish Government's involvement in fisheries.
Who will incur costs	Scottish Government
Cost Estimate	Not estimated

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	Multi-annual quotas could enable fishermen to secure better longer-term contracts with processors. Assuming an increase of 1% in whitefish prices, this would increase the value landed of c.£1,000,000 by the whitefish fleet for the first year. Over 3 years that would be £3,000,000.
Potential Indirect Impact Estimate (£)	£3,000,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	1	One of the key aims of a long term management plan for the fishery would be to protect the viability and sustainability of fish stocks. Once adopted the plan would therefore be expected to have direct and immediate positive impacts on demersal stocks.
Fish Stocks – Indirect Impact	1	In the longer term, the effective implementation of a management plan might also benefit other species in fishing grounds.
On-shore Economy – Direct Impact	1	Having a long term management plan in place for the fishery could lead to increased stability and profitability of businesses within the catching sector.
On-shore Economy – Indirect Impact	1	In the longer term, a stable operating environment will continue to boost business confidence within the catching sector. Mid to long term improvements in profit of the fleet is likely to further increase demand for supplies and services onshore.
Image – Direct Impact	0	No direct impact
Image – Indirect Impact	1	If a long term management plan is adopted and is seen to be effective in protecting fish stocks and delivering improvements in fleet stability and profitability, this could positively impact on the image of the sector and fishery.

Feasibility / how likely	3	The sector would strongly support a multi-annual approach. The European Commission is also in favour of a such approach. Scottish Government is currently pursuing multi-annual management plans for a number of stocks where TACs are limited to +/- 15% a year

Risk	Adoption of a multi-year management system will require negotiation with the Commission, other EU Member States and coastal states outside the EU, all with different approaches on stock mangement. Long term management plans are favoured by the Commission and most member states but multi-annual sets of limits are more controversial. If similar or more fishing opportunity can be secured alongside greater stability and certainty this will have a significant positive effect on the fleet.

Sector	Demersal	**Action Ref**	3.1

Action	Improve scientific stock assessments
Description	Measures to improve fishing opportunities by improving quality of stock assessments. The events raised a number of issues about scientific methodology. It was recognised that the relationship between the fleet and the scientific community has improved but there remains a belief that fishermen's knowledge and experience is not respected. In general there is a desire for greater engagement and improvements in methodology that could bring benefits to all parties. Some of the specific actions proposed included: develop more up-to-date advice and more real time stock advice; more commercial vessels participating in stock surveys, innovative charter arrangements and wider roles for observers. Comments from Marine Scotland Science suggest that the observer programme is already extensive and they have no problem using observer data. This scheme could potentially be further extended. Costs would depend on how much the scheme was extended. MSS comment that stock advice was brought forward in the year at the request of the Commission, Member States and the fishing industry in order to allow more time to discuss it before making decisions based on it. In order to have the most recent advice by decision-time, there would have to be less discussion time.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Costs for changes or expansions of stock assessment work would be incurred by Marine Scotland Science under their stock assessment budgets. Estimates of costs would have to depend on detailed proposals. The suggested scheme to allow vessels to keep the catch from a survey trip (as is the case at present) and MSS would only pay for the fuel used, rather than paying to charter the vessel. This could potentially result in less costly survey trips, but would need to be evaluated in details by MSS.
Who will incur costs	Marine Scotland Science, industry
Cost Estimate	Not estimated

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact is expected.
Direct Impact Estimate (£)	£0

Potential Indirect Impact (describe)	If improvement in the scientific stock assessment leads to increased fishing opportunities for the Scottish fleet this could enhance profit. However, there is uncertainty over whether or not this outcome would be achieved from changes in the stock assessment methods. Taking an optimistic view, assume that improved stock assessment would increase fishing opportunity and improve revenues to the fleet by 2%. Total earnings for the main demersal sectors was c.£100 million in 2007, so a 2% increase in earnings would be c. £2 million. Assume an average 7% net profit rate and the extra profit would be £140,000. Over 3 years that would be £420,000.
Potential Indirect Impact Estimate (£)	£420,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	2	More accurate information should enable better decision-making and therefore better management of the fishery.
Fish Stocks – Indirect Impact	0	No indirect impact is expected
On-shore Economy – Direct Impact	1	In the longer term, increased volume of landings might help create or sustain onshore jobs.
On-shore Economy – Indirect Impact	1	If the fishery is better managed and the fleet becomes more sustainable this should have positive knock-on benefits for shore-side businesses.
Image – Direct Impact	0	No direct impact is expected
Image – Indirect Impact	0	No indirect impact is expected

Feasibility / how likely	1	Although fishermen realised that improved stock assessments would not immediately give them an increase in profits, there was a strong belief that the longer term profitability of fishing businesses needed to be underpinned by accurate understanding of the state and behaviour of stocks.

Risk	There is a risk that substantial investment in improved scientific methodology may result in very little impact on or improvement in the way in which the demersal fleet and the fishery is managed. There is also a risk that improved stock assessment methods may result in a more sustainable approach to harvesting in the longer run but would not result in higher or more stable TACs and therefore not in improved profits in the short to medium term.

Sector	Demersal	**Action Ref**	3.2

Action	Research into impacts of closed areas so that they are better understood as a management tool
Description	Measure to maintain revenue by improving fisheries management. A number of actions were proposed which target better decision-making through improvements in the information available to decision-makers. This particular action requests that research is undertaken into the impacts of closed areas so that they can be understood, and potentially more valued, as a tool for managing the fishery.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Research project industry/FRS/Seafish exploring the impact of closed areas (based on litterature and closed areas around Scotland), 80 staff days (£500 per staff day).
Who will incur costs	Industry or Scottish Government
Cost Estimate	£40,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact is expected
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	If closed areas are found to be an effective management tool for the fishery, this could lead to greater stability in the way in which the fishery is managed. Over the long-term this has the potential to improve fishing opportunities. Alternatively, if it is found that closed areas do not benefit the fishery overall in terms of stock protection and recovery, then it could be decided not to use them any longer and the costs to the fleet of observing these areas would be removed, although possibly to be replaced by the costs of alternative stock recovery measures. It is not possible to accurately estimate what impact on profit might result indirectly from a better understanding of the effects of closed areas, especially since the effect might be positive or negative.
Potential Indirect Impact Estimate (£)	Not estimated

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected

Fish Stocks – Indirect Impact	2	If closed areas are an effective management tool and are therefore utilised, instead of less effective mechanisms, there should be direct benefits to fish stocks. If closed areas are found not to be effective, fish stocks could still benefit if the knowledge means that more effective tools are used instead.
On-shore Economy – Direct Impact	0	No direct impact is expected
On-shore Economy – Indirect Impact	0	No indirect impact is expected
Image – Direct Impact	0	No direct impact is expected
Image – Indirect Impact	1	If there is evidence that Scotland is adopting a robust approach to ensuring maximum benefit from their conservation measures this could be used for positive marketing purposes.

Feasibility / how likely	3	The study would receive a strong support from the fishing industry.

Risk	Low risk. Benefits may not be achieved if closed areas are found to be ineffective but even this knowledge would be of value.

Sector	Demersal	**Action Ref**	4

Action	Use positive incentives to reward good practice
Description	Measures to improve fishing opportunities and protect revenues. Although recent actions have resulted in positive benefits such as improvements in certain fish stocks, there was concern that the management regime continues to reduce opportunity and restrict the livelihoods of fishermen. Attendees wanted to change the emphasis to more positive fisheries management tools which provide reward for good practice. Specific ideas were along the lines of improved fishing opportunities in return for taking part in good practice, such as has been agreed this year with the opportunity to "buy-back" days at sea. Any such scheme would have to be designed such that it is possible to plan the business and make a profit on the quota allowed. There were specific comments about the inequity of allowing vessels to hold a certain amount of quota but not allowing enough days to catch their quota entitlement. Attendees also suggested other incentives, not related to fisheries management, to help maintain effective crews. These included: tax rebates for offshore working; and income tax incentives for dangerous working.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Costs would be administrative for Government and would include consultation. Ideas would need to be discussed among industry at associations, federations and RACs. It is assumed that administrative budgets would not have to change to incorporate the development and adoption of some of these ideas.
Who will incur costs	Government, industry
Cost Estimate	Not estimated

Impact on Fleet Profit	
Direct Impact (describe)	If the fleet is rewarded for success through enhanced fishing opportunities or increased flexibility this could have positive and direct implications for the profit of the sector. Increased volumes landed through fishing for more days means that the extra revenues are achieved at the usual rate of variable costs. As long as there was no associated increase in variable or one-off costs, assuming c. £100 million of revenues to the main white fish sectors, a 1% increase in value of landings by the main demersal sectors could result in extra profit (at 7% of sales) of £70,000 in a year, £210,000 profit over 3 years.

Direct Impact Estimate (£)	£210,000
Potential Indirect Impact (describe)	No indirect impact is expected
Potential Indirect Impact Estimate (£)	£0

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected
Fish Stocks – Indirect Impact	1	Using a positive approach should provide a more sustainable approach to fisheries management and encourage greater buy-in to the management process. This could have knock-on benefits to the stocks.
On-shore Economy – Direct Impact	0	No direct impact is expected
On-shore Economy – Indirect Impact	1	A more sustainable fleet has long-term benefits to the on-shore economy.
Image – Direct Impact	0	No direct impact is expected
Image – Indirect Impact	1	A positive approach to fisheries management could be used as a marketing tool for Scottish whitefish products.

Feasibility / how likely	3	The scheme this year is a first attempt and although the principle is desired, the details are not popular. There was a keen enthusiasm among event attendees that the details of any proposed schemes should be assessed in detail to show the likely practical and financial impacts on the fleet before being adopted.

Risk	This concept has been adopted this year, but the added optional incentives appear to the vessel owners to be insufficient to make up an appropriate number of days to catch their quota. There is a risk that schemes which are not well designed in detail will not result in the desired effects of stock protection and fleet profit.

Sector	Demersal	**Action Ref**	5

Action	Impose bigger mesh sizes to increase TACs
Description	Measure to improve fishing opportunities and revenues in the longer run. The cost of hiring in quota is a significant constraint on profitability. Frustration was evident within the sector at the extent of this additional cost. Therefore one proposed solution was simply to increase TACs. However, it was recognised that to increase TACs would require the fleet to develop and agree workable and beneficial technical measures including discard reduction measures. One proposed action was to introduce a bigger mesh size to achieve higher TACs. For this action to work as intended, it would have to co-incide with the action to ensure that there are sufficfient days at sea permitted to catch the allowable quota. This is because an increased mesh size will initially reduce catch per unit of effort and therefore more days at sea will be required to catch the allowable quota. Since the larger mesh size would also reduce discards, this might be possible.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Cost of consultation and legislation: 20 staff days (£500 per staff day) and 3 meetings (£500 per meeting) Cost of nets: assume vessels would have replaced nets in the next year anyway.
Who will incur costs	Scottish Government and Industry
Cost Estimate	£11,500
Impact on Fleet Profit	
Direct Impact (describe)	In the short term, larger mesh size would probably reduce CPUE but if days at sea allow, should not reduce total volume landed. With lower CPUE, cost of fuel per tonne landed will be higher. With a bigger average size of fish, average price per tonne should be higher. It is quite complicated to estimate the potential impact on profit. It would require detailed knowledge of likely changes to CPUE and there is currently not enough evidence to make the estimations. However the following assumptions show how the logic chain could deliver an estimate if data were available to make robust assumptions about changes in CPUE and profit margins. Assume that days at sea allowance is adequate to catch the permitted increased quota. Assume that CPUE decreases in the first two years and that therefore net profit margin decreases to 4% of revenues. Assume volume landed increases by 5% due to increased TACs. Assume average prices rise by 2% due to increase in average size of fish landed. Assume only some vessels adopt this scheme and that their total annual turnover in 2008 was around £50 million. Assume that CPUE and profit margins recover to previous levels in the third and subsequent years as average size of fish in the sea increases.

Direct Impact Estimate (£)	Not estimated, likely negative in first few years, depends on TAC increase
Potential Indirect Impact (describe)	No indirect impact is expected
Potential Indirect Impact Estimate (£)	£0

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	2	If the action reduces discards this will have a positive impact on fish stocks.
Fish Stocks – Indirect Impact	0	No indirect impact is expected
On-shore Economy – Direct Impact	1	The action is expected to have positive benefits on-shore. Greater consistency in the size of the product is likely to have some positive benefits and the need for new gear will create short-term activity for net suppliers.
On-shore Economy – Indirect Impact	0	No indirect impact is expected
Image – Direct Impact	0	No direct impact is expected
Image – Indirect Impact	1	If the measure provides evidence as part of a wider campaign which focuses on the sustainable nature of Scotland's fishery this could have a positive impact on the image of the sector and its products.

Feasibility / how likely	0	This proposal would require detailed investigation to estimate more reliably the potential impact on profits of a given scheme.

Risk	There is a risk that bigger mesh sizes may not suit the mixed nature of the demersal fishery and that changes to CPUE would mean that profits declined significantly in the first few years. It should also be noted that any TAC increase would need to agreed at the EU/Norway negotiations and that it may be necessary to seek similar moves from all EU members before any such scheme could proceed.

Sector	Demersal	**Action Ref**	8

Action	Fleet restructuring - assist license combination with VCU reduction, with no loss of quota
Description	Measure to improve volume landed and revenues per vessel and reduce fixed cost as percent of revenues. Although the white fish fleet is not thought to be seriously over capacity, there was a suggestion that to optimise profit levels, vessels should be used more intensively and the same volume currently landed by the entire segment should be landed by fewer vessels fishing more days at sea on average. One suggestion was that two vessels and licences and total FQA holdings could be combined into one new vessel, one licence, which would be of lower catching capacity than the sum of the two original vessels. This suggestion would then result in one more profitable vessel than either of the two previous vessels, and in an overall reduction of fleet catching capacity. Currently, this could happen without Government assistance if two owners agreed to it, but there is a suggestion that the Government could assist financially in exchange for a greater reduction in overall capacity than is currently required for merging twolicences. The result would be that one modern vessel would have the same catching entitlement as two previous vessels, but with only one set of fixed costs and more intensive use of the fixed asset. It might require higher maintenance costs due to higher activity levels, but on the other hand, would be newer and should have fewer maintenance problems.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Administrative costs: consultation and legislation design - 25 staff days (£500 per staff day). Associated expenses. Costs should fall within existing adminsitration budget. Costs of grants to vessels decommissioned / merged onto one licence - amounts would depend on details of scheme and number of vessels involved.
Who will incur costs	Scottish Government
Cost Estimate	Not estimated

Impact on Fleet Profit	
Direct Impact (describe)	If two vessels licences are combined into one (with lower total capacity), the new single vessel would not need to lease or buy quota units and days at sea and would be able to reduce substantially some of the fixed costs, such as vessel insurance, compared to the total of the two previous vessels. Assume an average turnover of £750,000 per boat. Assume costs of leasing quota and buying days account for 2% of sales for each vessel, £15,000 per vessel giving a saving of £30,000 since this cost is eliminated for the new vessel. Assume also that fuel use is more efficient for the single new vessel than for the two original vessels, such that total fuel original fuel cost of £200,000 per boat, is now replaced with fuel cost of £350,000 for the single vessel to catch the same volume of fish as the two original vessels, saving £50,000. There would also be savings in vessel costs, assume these were previously 20% of revenues in the original vessel but only 15% of the same level of revenues in the new vessel. That would be a saving of £75,000. These savings would represent a potential cost reduction of £155,000 per combined licence vessel. Assume ten boats combining their licences into 5 new vessels. Total annual savings could be £775,000 for the same level of revenues, therefore that would all additionanl profit. Over 3 years that would be £2,325,000. Clearly, if more than 10 vessels were involved, the savings would be greater.
Direct Impact Estimate (£)	£2,325,000
Potential Indirect Impact (describe)	No indirect impact is expected
Potential Indirect Impact Estimate (£)	£0

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected
Fish Stocks – Indirect Impact	0	No indirect impact is expected
On-shore Economy – Direct Impact	-1	A reduction in fleet size is expected to reduce employment within the fleet and reduce demand for on-shore services and supplies in the short-term.
On-shore Economy – Indirect Impact	1	In the long-term, a more profitable and sustainable fleet should provide more certainty and continuity on-shore.
Image – Direct Impact	0	No direct impact is expected
Image – Indirect Impact	0	No indirect impact is expected

Feasibility / how likely	1	Good support from industry attendees at the Peterhead meeting.

Risk	Licence combination would allow Scotland to tackle overcapacity in an efficient way and to demonstrate at the European level its commitment to support a sustainable fleet. The scheme would require careful design in particular in relation to the amount of total capacity reduction required and the amount of financial assistance provided, in order to evaluate whether there is value for money invested.

Sector	Demersal	**Action Ref**	10

Action	Cooperative fuel purchase scheme
Description	Measure to reduce costs. A specific action which targets cost reduction, and is linked to activity already underway, is the desire to cap the fuel price to fishing vessels for the next three years. The most appropriate route to achieve this is believed to be a cooperative fuel purchase scheme, run by industry representative bodies for the benefit of the whole fleet segment.
Key ambition supported	Develop an efficient, and effective modern Scottish fleet which is profitable and can attract young people to the industry

Cost of Implementation	
Nature of Costs	Negotiation with a fuel trader to provide fuel in bulk to different ports. Staff time:10 staff days per year (£500 per staff day). Legal fees for contract with fuel supplier £10,000.
Who will incur costs	Industry
Cost Estimate	£15,000

Impact on Fleet Profit	
Direct Impact (describe)	A reduction in the cost of fuel to the Scottish fleet would have a direct and positive impact on fleet profit, should all other factors remain stable. The 5 whitefish segments detailed in this study spent c. £45 million on fuel in 2007, when the fuel price was on average 30p per litre, so they used around 150 million litres. Assuming that the arrangement allows a saving of 1p per litre, this would save £1.5 million per year and increase profit by the same amount. Over 3 years that would be £3,500,000.
Direct Impact Estimate (£)	£3,500,000
Potential Indirect Impact (describe)	No indirect impact is expected
Potential Indirect Impact Estimate (£)	£0

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected
Fish Stocks – Indirect Impact	0	No indirect impact is expected

On-shore Economy – Direct Impact	-1	A consolidated purchase agreement may have a negative net effect on fuel suppliers around the coast of Scotland. However, one business, the approved supplier, may experience significant benefits.
On-shore Economy – Indirect Impact	0	No indirect impact is expected
Image – Direct Impact	0	No direct impact is expected
Image – Indirect Impact	0	No indirect impact is expected

Feasibility / how likely	1	Sector would be supportive, however, fuel agents might be strongly opposed to the measure.

Risk	There is a significant risk that the scheme would backfire if it involved an element of hedging on future fuel prices.

Sector	Demersal	**Action Ref**	11.1 to 11.3

Action	Promote Scottish white fish product in the UK
Description	Measure to increase demand and prices. Industry members want more positive promotion of Scottish whitefish products, particularly in the UK. A wide range of potential approaches were proposed during the consultation events, these included: promote Scottish whitefish direct to UK consumers; promotional activity in schools; and Seafood Scotland to run a joint promotion with large retailers or restaurant chains. Other actions proposed for the demersal sector also have the potential to support a promotional campaign.
Key ambition supported	Pursue product and market development that will improve the value fishermen can obtain from Scottish fisheries products.

Cost of Implementation	
Nature of Costs	Costs for consumer promotional campaign: actual cost depends on size of scheme and chosen activities such as project manager, advertising, PR, instore materials etc. Advice from Seafish Marketing suggests that it would be possible to achieve some impact with a spend of £1million over 3 years. Members of industry volunteered an additional levy specifically to contribute to the cost of this, e.g. x pence per tonne landed or x% of value of landings, per vessel. There was also suggestion that vessel agents and POs might contribute to the costs. Joint campaign with restaurants / retailers: it could be possible to run a scheme with an input from Seafood Scotland and industry of £50,000. Promotional activity in schools could be run in a campaign similar to the Seafish SuperHumans campaign, at a cost of around £300,000 for promotional material, specialists, agency and design fees, etc.
Who will incur costs	Industry, Government, Seafood Scotland, possibly Seafish
Cost Estimate	£1,500,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact is expected on fleet profit.
Direct Impact Estimate (£)	£0

Potential Indirect Impact (describe)	It is hoped that if demand is stimulated within the UK that the price fishermen achieve for their landed product will increase, particularly if the product can compete more successfully against other fish and protein products. Taking an optimistic view, assume that improved demand would improve earnings to the fleet by 1%, at no extra cost, so that extra revenue is all profit. Total earnings for the main demersal sectors was c.£100 million in 2007, so a 1% increase in earnings and in profit would be £1 million. Over 3 years that would be £3 million.
Potential Indirect Impact Estimate (£)	£3,000,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected
Fish Stocks – Indirect Impact	0	No indirect impact is expected
On-shore Economy – Direct Impact	1	If new, and in particular more profitable markets, can be created for Scottish whitefish products the direct beneficiaries should be the processing sector in Scotland. The scale of this benefit will depend on the extent to which new markets within the UK are created.
On-shore Economy – Indirect Impact	0	No indirect impact is expected
Image – Direct Impact	2	By actively promoting Scottish whitefish products there is a potential to create a strong positive impact on the image of the product and of the fleet.
Image – Indirect Impact	0	No indirect impact is expected

Feasibility / how likely	2	There was a great deal of industry support for promotion to improve demand and this was particularly emphasised by the fact that owners of large whitefish vessels at the demersal event were in favour of paying an additional levy to support such a campaign.

Risk	These promotional activities are likely to require significant and ongoing investment which may not be available from the fleet. The effectiveness of the marketing may be constrained by state aid rules if the Scottish Government chooses to fund it. There is also a risk that a promotional campaign would generate demand which processors choose to fill with imported supplies rather than Scottish landed supplies. This risk would have to be taken seriously in the design of any promotional campaign and to avoid this happening, it would be important to involve both Scottish fleet and UK processors in the design of the campaign.

Sector	Demersal	**Action Ref**	11.4

Action	Pursue certification as a sustainable fishery
Description	Measure to protect or improve prices. The proposed action is to pursue certification of the whitefish fishery in Scotland as a sustainable fishery. This could be Responsible Fishing Scheme or MSC accreditation.
Key ambition supported	Pursue product and market development that will improve the value fishermen can obtain from Scottish fisheries products.

Cost of Implementation	
Nature of Costs	Certification process to achieve 1- RFS for all vessels: overall cost £1,000 per vessel (training by Seafish + independent audit), based on 130 boats: £130,000. 2- MSC accreditation for a specific set of fisheries: £30,000 for the accreditation + £2,500 per year when accredited: £35,000 per fishery. Assume 4 accreditation processes.
Who will incur costs	Industry, Seafish
Cost Estimate	£270,000

Impact on Fleet Profit	
Direct Impact (describe)	The certification process may lead to higher costs for the vessels and may not be immediately justified through improvements in the price for landed product. Therefore there may be a negative immediate impact on profits. However, there is also a risk that if the Scottish demersal fleet do not achieve certification that their competitive position will become increasingly weakened as more and more fisheries achieve certification. Therefore the impact on profits could be positive as a result of certification hindering further decline in profitability through a weak competitive position.
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	It is hoped that certification of the fishery would lead to sustainable improvements in the price for landed product. Taking an optimistic view, assume that improved demand would improve prices and therefore earnings to the fleet by 1%, at no extra cost, so that extra revenue is all profit. Total earnings for the main demersal sectors was c.£100 million in 2007, so a 1% increase in earnings and in profit would be £1 million. Over 3 years that would be £3 million.
Potential Indirect Impact Estimate (£)	£3,000,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	1	The certification of the fishery should restrict any practices which damage fish stocks.
Fish Stocks – Indirect Impact	0	No indirect impact is expected.
On-shore Economy – Direct Impact	1	The ability to sell products from sustainable certified sources may provide a competitive advantage to the processors who focus on Scottish caught whitefish. If higher value markets can be attracted this could result in higher prices for the processed product.
On-shore Economy – Indirect Impact	0	No indirect impact is expected.
Image – Direct Impact	2	The majority of negative publicity about fisheries in the UK is often focused on the North Sea whitefish sector. Therefore any factual and robust counter to those negative stories should, if implemented and adhered to, provide a powerful marketing tool for the sector.
Image – Indirect Impact	0	No indirect impact is expected.

Feasibility / how likely	2	Some of the Scottish fisheries have already engaged a certification process. There would be a strong support of the sector.

Risk	There is a risk that this may result in additional costs for the fleet with limited immediate return on investment in terms of price.

Sector	Demersal	**Action Ref**	17

Action	Scottish Government to ensure vessels have enough days to catch their quota
Description	Measure to protect fishing opportunities and revenues. A wide range of comments were made about the management of the fishery. The arrangements for 2009 became a significant focus of conversation as the likely impacts became apparent during our consultation phase. One reaction, and proposed action, was for the Scottish Government to ensure that vessels have the opportunity to catch the quotas in which they have invested. This was believed to be immediately critical to profitability.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Costs are mainly non-financial and are a matter of negotiating priorities in Brussels. Work is already a core part of the Scottish Government's involvement in fisheries. Costs already fall within current administrative budgets.
Who will incur costs	Scottish Government
Cost Estimate	Not estimated

Impact on Fleet Profit	
Direct Impact (describe)	If, as a result of the measure, 38 of the smaller vessels buy 5 days less every year, then based on total power for these vessels of c.18,300 kW and price of 40 pence per kW-day, then the saved cost per year for these 38 vessels would be c. £37,000. Over 3 years that would be £111,000. The 38 vessels assumed are those in sub-segments NSWOS twin rig trawl and NSWOS single rig trawl <24m. In some cases there might be quota which is not caught due to lack of days, so there could potentially also be an increase in uptake of quota and volume of landings.
Direct Impact Estimate (£)	£111,000
Potential Indirect Impact (describe)	No indirect impact is expected
Potential Indirect Impact Estimate (£)	£0

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	-1	Depending on impact of other restrictions, there might be an increase in mortality of target and associated species.
Fish Stocks – Indirect Impact	0	No indirect impact is expected
On-shore Economy – Direct Impact	0	No direct impact is expected
On-shore Economy – Indirect Impact	1	If landings of target species increase due to ability to catch more of the quota, then there could be positive impacts on the processing businesses and wider local economy.
Image – Direct Impact	0	No direct impact is expected
Image – Indirect Impact	0	No indirect impact is expected

Feasibility / how likely	1	The sector would be highly in favour of such a measure. However, the results would be also constrained by the negotiation capacity of the UK delegation during the Autumn negotiations.

Risk	Risk that there might be higher negotiation imperatives which would not allow the UK delegation to achieve this objective.

5.4.8 North Sea Nephrops recommended actions

The actions which the project team recommends for the North Sea nephrops sector are shown below in Table 5.11.

Action 6	Improve the science/industry partnership and understanding of stock assessment methods
Action 7	Adopt a long term management plan for the North Sea nephrops fishery
Action 8	Remove nephrops vessels from the impacts of the cod recovery plan
Action 10	Develop new ways to reward conservation innovations with improved fishing opportunities (continue current efforts)

Table 5.11 Recommended actions for the North Sea Nephrops sector

A summary of the analysis scores of all North Sea nephrops sector actions which were analysed in detail is given in
Table 5.13 on page 87. For those actions not included in the recommended list, reasons are given below in Table 5.12. It should be remembered that the project team were asked to select the top four or five actions per fleet segment and that some of the actions not in the list are still considered to be worthwhile actions.

Action 1 Develop and implement a decommissioning scheme	The likely benefit in relation to cost does not appear attractive and there is a fairly high risk that the required price increases to deliver a benefit to the remaining vessels would not arise sufficiently. Benefit to the vessels which are decommissioned is not counted as the test is to improve profit for the fleet.
Action 5 Plan in a time lag between agreeing new management rules and implementing them	Although this would be helpful to the fleet, there is a high risk that it would not be agreed by other member states and the Commission.

Table 5.12 Reasons for North Sea nephrops actions not being included in the recommended list

Action Title	Total cost of measure (£)	Direct profit impact	Indirect profit impact	Total MCA score	Benefit per £ of cost	Risk that profits will not improve	In list of recommended actions?
		£	£				
Develop and implement a decommissioning scheme (Action 1)	£4,050,000	£0	£7,900,000	2	£1.95	Medium - high	No
Plan in a time lag between agreeing new management rules and implementing them (Action 5)	Not estimated (low)	£0	£450,000	2	Not estimated (high)	High	No
Improve the science/industry partnership and understanding of stock assessment methods (Action 6)	Not estimated (low)	£0	£540,000	5	Not estimated (high)	High	Yes
Adopt a long term management plan for the North Sea nephrops fishery (Action 7)	Not estimated (low)	£0	£1,500,000	8	Not estimated (high)	Med	Yes
Remove nephrops vessels from the impacts of the cod recovery plan (Action 8)	Not estimated (low)	£840,000	£0	3	Not estimated (high)	Medium	Yes
Develop new ways to reward conservation innovations with improved fishing opportunities (continue current efforts) (Action 10)	£25,000	£0	£450,000	6	£18.00	Medium - high	Yes

Table 5.13 Summary of detailed analysis result for **North Sea Nephrops** sector actions

To give context to the estimated potential profit improvements, the total turnover (gross earnings) of the main North Sea nephrops segments in 2008 was around £50 million (source: Marine Scotland and Seafish).

5.4.9 Detailed analysis for North Sea nephrops sector actions

Sector	NS Nephrops	**Action Ref**	1

Action	Develop and implement a decommissioning scheme
Description	Measure to protect stocks and protect prices by reducing volumes landed. Aim to remove the older, poorer quality vessels from the fleet to improve the overall quality of the remaining fleet and overall quality of landed product. Attendees noted that previous schemes had allowed "slipper skippers" and the selling or leasing of quota held by the previous owners of decommissioned vessels. Specific efforts would be needed to prevent this is any new scheme. Potential reductions in cost of leasing quota could also increase profit for vessels. Only a portion of the decommissioned quota would be redistributed at no cost to remaining vessels, to ensure that total volume landed by the segment decreases. It would be necessary to apply mechanisms to ensure that decommissioning did not lead to further over-investment in the segment, otherwise, profit as a proportion of invested money would not improve.
Key ambition supported	Develop an efficient, and effective modern Scottish fleet which is profitable and can attract young people to the industry

Cost of Implementation	
Nature of Costs	Grants to vessel owners, assuming average of 108 tonnes GT per boat, and £2,500 grant per tonne. Assume 15 vessels decommissioned. In addition there would be significant administrative costs and costs associated with the additional mechanisms which would be required to ensure that decommissioning achieved its intended aims and benefits.
Who will incur costs	Scottish Government
Cost Estimate	£4,050,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact is expected
Direct Impact Estimate (£)	£0

Potential Indirect Impact (describe)	Assume a 3% increase in price due to decreased volume landed from £2,977 to £3,066 per tonne. Any increase in revenues to the fleet due to higher prices is all profit. Landing on average 172 tonnes, each vessel would increase its profit by c. £15,300. Assume the 135 remaining vessels can land 9.5 tonnes more each, at the new price of £3,066 per tonne, due to quota redistribution. This would increase vessel turnover by c. £29,300. Increase in revenue due to higher volume sold is subject to the costs of fishing, unless it is due to an increase in catch per unit of effort (which is not what we would expect to result from this action). Assume profits are 14% of revenues, so additionnal profit would be c. £4,100 per year and per vessel. Add the two sources of profit together, to get c. £19,400 extra profit per year and per vessel. At the segment level, that would be c. £2,630,000 per year. Over 3 years this would be around £7,900,000.
Potential Indirect Impact Estimate (£)	£7,900,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	1	If effort is permanently reduced it is expected that fish stocks will benefit.
Fish Stocks – Indirect Impact	0	No indirect impact is expected.
On-shore Economy – Direct Impact	-1	A reduction in fleet size is expected to reduce demand for on-shore services and supplies.
On-shore Economy – Indirect Impact	1	In the long-term, a more profitable and sustainable fleet should provide more certainty and continuity on-shore. In addition, money invested as a result of decommissioning support could create new activity.
Image – Direct Impact	0	No direct impact is expected.
Image – Indirect Impact	0	No indirect impact is expected.

Feasibility / how likely	1	It is expected that this measure will be welcomed by the industry.

Risk	Profitability will only improve if decommissioning leads to improvements in efficiency or price and there is a risk that these will not arise as a result of decommissioning.

Sector	NS Nephrops	**Action Ref**	5

Action	Plan in a time lag between agreeing new management rules and implementing them
Description	Measure to reduce costs. Business owners expressed concern that they are given very little time to prepare for rule changes; these often require management changes and investment in new equipment and having to do these at short notice can make the adjustment more costly than it otherwise would be (no time to select from alternative choices). This would also remove some of the stress involved in making significant business changes, annually at short notice.
Key ambition supported	Develop an efficient, and effective modern Scottish fleet which is profitable and can attract young people to the industry

Cost of Implementation	
Nature of Costs	Main costs are non-financial and are a matter of negotiating priorities at Brussels. Work is already a core part of the Scottish Government's involvement in fisheries. Costs should fall within current administrative budgets.
Who will incur costs	Government; fishermens associations
Cost Estimate	Not estimated (low)

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact expected
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	Cost savings would be expected as business owners would have time to consider their options for complying with new rules / regulations and cost out their choices, and to identify the most profitable way of complying. The approach taken is likely to be more considered and cost effective, and need for later changes would be reduced. Other indirect benefits relate to the removal of the stress associated with making significant business decisions annually at short notice. As an example, if the vessels could save 5% of the cost of their fishing net by being able to shop around, this would represent £1,000 per vessel (assuming nephrops trawls at an average price of £20,000). At the segment level, this could save an annual cost of £150,000.
Potential Indirect Impact Estimate (£)	£450,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact expected
Fish Stocks – Indirect Impact	0	No indirect impact expected
On-shore Economy – Direct Impact	0	No direct impact expected
On-shore Economy – Indirect Impact	1	Makes a contribution to safeguarding onshore jobs as their customers (vessels / businesses in the catching sector) will be more secure as a result of more considered expenditure decisions.
Image – Direct Impact	0	No direct impact expected
Image – Indirect Impact	0	No indirect impact expected

Feasibility / how likely	1	Industry support would be strong but would be difficult to achieve in the CFP.

Risk	There is a risk that current ways of working may prevail. Any change will need to be approved at an EU level and it is likely this will take to time to occur.

Sector	NS Nephrops	**Action Ref**	6

Action	Improve the science/industry partnership and understanding of stock assessment methods
Description	Measure to improve quality of stock assessments and fishing opportunities. There is a feeling that fishing opportunities are being unnecessarily restricted because stock assessments are over-cautious. Alongside this there is also a corresponding desire amongst fishermen to help to improve the stock assessments. There was a specific suggestion that small group meetings should be held involving scientists and fishermen, outside of usual association meetings. This would improve transparency of the stock assessment process, allow fishermen to input their knowledge, build trust and increase faith in the stock assessments
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Work to improve stock assessments is already a core part of the Scottish Government's involvement in fisheries. Costs should fall within current administrative budgets.
Who will incur costs	Marine Scotland Science, industry
Cost Estimate	Not estimated

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact expected (although some fishermen would incur costs for attending small group meetings)
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	Better mutual understanding of stock assessments (through more cooperation between science and industry) may enable a less cautious approach to stock assessments and to improved fishing opportunities, with a positive impact on fleet income and profit. If increased volumes are achieved by fishing for more days at sea, then the extra revenues also have the usual variable costs attached, so benefit would be the additional operating profit of increased volumes. An optimistic assumption could be to assume a 2% increase in revenues, with a 15% operating profit margin. Assume landings of NS nephrops by Scottish vessels are c. £60million, and that these measures result in an increase in revenues of 2% that would be £1.2million. If increased volume is achieved by fishing for more days at sea, then the revenue also has the usual variable costs attached. Assume an operating profit at 15%, that would give extra profit of £180,000. Over 3 years that would be £540,000.
Potential Indirect Impact Estimate (£)	£540,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact expected
Fish Stocks – Indirect Impact	2	Greater inclusion of fishermen's knowledge and experience could yield positive impacts on stock assessments and ultimately on the health and abundance of fish stocks (nephrops and other species).
On-shore Economy – Direct Impact	0	No direct impact expected
On-shore Economy – Indirect Impact	1	If improved fishing opportunities are created this could increase incomes of individual vessels and the fleet. Fishermen may be more willing to invest in their vessels, resulting in an increased demand from shore-based suppliers and services. Higher landing volumes may also require additional processing capacity. This is expected to create a small number of new jobs.
Image – Direct Impact	0	No direct impact expected
Image – Indirect Impact	0	No indirect impact on fleet profit expected (although improved cooperation amongst stakeholders in the sector will always be seen as a positive step forward)

Feasibility / how likely	2	It is worth considering that this issue relates to people's understanding of risk and willingness to take risks and behave in a risky way. Fishermen have a vested interest in the health of the stocks, but are more likely to be willing to take risks than fisheries managers. The choice about how much risk to take with the health of the fish stocks is a value judgement and not a question of scientific fact.

Risk	There is a significant risk that more meetings are held and scientists and fishermen understand each others' activities better, but this does not result in any change to stock assessments or to TACs or to the profit of the fleet. Any change to stock assessments would need to be agreed by ICES and the Commission.

Sector	NS Nephrops	**Action Ref**	7

Action	Adopt a long term management plan for the North Sea nephrops fishery
Description	Measure to protect or increase price. Long term management plans are seen as the alternative to the currently perceived crisis management situation, and a necessary change related to improving long term profitability. This action links with a number of others that are also aimed at reducing business uncertainty and the costs associated with having to react to major changes at short notice. Attendees (at several workshops) favoured the development and adoption of a sector management plan for 5 or more years with limits to annual changes in TACs.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Work is already a core part of the Scottish Government's involvement in fisheries. Costs should fall within current administrative budgets.
Who will incur costs	Scottish Government
Cost Estimate	Not estimated

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact is expected
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	Greater certainty over quotas would allow fishermen to secure better contracts with processors. Assuming an increase of 1% of the Nephrops prices, and assuming North Sea nephrops landings of c.£50 million by Scottish vessels, this would increase the value of Nephrops landed by £500,000 for the first year. Because this is due to an increase in prices it would be all profit. Over 3 years, additional profit would be £1,500,000. Attendees considered this to be crucial step in reducing the costs being incurred as a result of reacting to short notice, short term changes in rules and measures (e.g. for stock protection). Making decisions (e.g. on business operations and marketing strategies) under pressure and at short notice increases the chance that inappropriate actions will be taken, and is likely to incur higher costs if decisions subsequently need to be changed. A more stable operating environment would enable businesses to plan and better manage their costs and longer term investments, ultimately reducing costs and improving profits in the longer run. Attendees felt strongly that having a management plan for 5 years or more would have a significant positive impact.
Potential Indirect Impact Estimate (£)	£1,500,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	1	One of the key aims of a long term management plan for the fishery would be to protect the viability and sustainability of fish stocks. Once adopted the plan would therefore be expected to have direct and immediate positive impacts on nephrops stocks.
Fish Stocks – Indirect Impact	1	In the longer term, the effective implementation of a management plan might also benefit other species in fishing grounds.
On-shore Economy – Direct Impact	1	Having a long term management plan in place for the fishery is expected to lead to increased stability and profitability of businesses within the catching sector. As vessels owners and operators become more confident, their willingness to invest in maintenance, repair and improvements is likely to directly benefit onshore suppliers and services. As well as safeguarding jobs, it is possible that additional work / businesses may also be generated.
On-shore Economy – Indirect Impact	1	In the longer term, a stable operating environment will continue to boost business confidence within the catching sector. Mid to long term improvements in profit of the fleet is likely to further increase demand for supplies and services onshore.
Image – Direct Impact	0	No direct impact
Image – Indirect Impact	1	If a long term management plan is adopted and is seen to be effective in protecting fish stocks and delivering improvements in fleet stability and profitability, this could positively impact on the image of the sector and fishery.

Feasibility / how likely	3	The sector would strongly support a multi-annual approach. The European Commission is also in favour of a such approach.

Risk	Risk that plans may not be agreed. Target fishing rates may be less than current activity.

Sector	NS Nephrops	**Action Ref**	8

Action	Remove nephrops vessels from the impacts of the cod recovery plan
Description	Measure to protect revenues. Concern was expressed that the nephrops sector is being penalised and restricted because of the need to recover cod. Many nephrops vessels can demonstrate very low (<5%) cod bycatch, and therefore that they do not have a large impact on cod stocks; they should not be penalised to protect a stock that they do not catch. Action is needed to promote and adopt a revised by-catch limit of 1.5% cod.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Main costs are non-financial and are a matter of negotiating priorites at Brussels. Total costs and time taken will vary depending on the approach of the Commission and the number of vessels seeking to be derogated. Vessels may need to adopt more selective gears at additional cost.
Who will incur costs	Scottish Government, industry
Cost Estimate	Not estimated

Impact on Fleet Profit	
Direct Impact (describe)	Removing nephrops vessels from the impacts of the cod recovery plan would remove some of the day at sea restrictions and allow some vessels to restore their volume landed to previous levels. This would allow vessels to maintain the level of activity they had prior the days at sea regulation. There is no detailed data yet available to show the actual reduction in days at sea which this segment has experienced, so it is not yet possible to estimate what impact the removal of the restriction would make. If detailed data for this year to data could be made available, it would be possible to estimate the potential impact on profit of the restrictions this year.
Direct Impact Estimate (£)	£840,000
Potential Indirect Impact (describe)	No indirect impact is expected
Potential Indirect Impact Estimate (£)	£0

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impacts expected
Fish Stocks – Indirect Impact	0	No indirect impacts expected
On-shore Economy – Direct Impact	0	No direct impacts expected
On-shore Economy – Indirect Impact	1	Increased fishing opportunity is expected to result in increased landings. This would require increased processing activity and potentially increase the need for other onshore support services (extent of positive impact would be dependent on the scale of increase in days at sea)
Image – Direct Impact	0	No direct impacts expected
Image – Indirect Impact	0	No indirect impacts expected

Feasibility / how likely	2	Some movement already seen on this issue; strong support amongst nephrops fleet (all meetings) for further change to be implemented

Risk	This measure will only benefit vessels who catch less than 1.5% cod. Vessels may need to adopt new gear or fishing practices to benefit from this measure.

Sector	NS Nephrops	**Action Ref**	10

Action	Develop new ways to reward conservation innovations with improved fishing opportunities (continue current efforts)
Description	Measures to improve fishing opportunities and revenues. Attendees felt that there were opportunities for the Scottish Government and industry to continue to work together to build new initiatives (e.g. increases in days at sea) to reward fishermen's conservation measures. Recognising that adjustments are already underway to reduce discards and that there is a stock recovery situation for cod, parties should build on their previous work and identify new sustainable fishing opportunities and appropriate 'rewards' for vessels that actively follow these conservation opportunities.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Consultation between Government, Industry and Marine Scotland Science to identify which conservation measures (e.g. square mesh panel, area closure…) will be the more effective and how to reward them - 50 staff days (£500 per staff day)
Who will incur costs	Scottish Government, IFGs, Fishermens associations, Marine Scotland Science
Cost Estimate	£25,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact expected (fishermen would need to implement new measures and be able to take advantage of increased fishing opportunities).
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	If a scheme is established under which vessels can implement conservation measures and take advantage of increased fishing opportunities, then higher revenues and profits would be expected from the landing of increased volumes, and possibly larger average size of nephrops (and therefore higher price) depending on which measures are adopted. Benefits are difficult to estimate and may not arise. However, taking an optimistic view, assume landings of NS nephrops by Scottish vessels are c. £50million, and that these measures result in an increase in revenues of 2% that would be £1 million. If increased volume is achieved by fishing for more days at sea, then the revenue also has the usual costs attached. Assume an operating profit at 15%, that would give extra profit of £150,000. Over 3 years that would be £450,000.
Potential Indirect Impact Estimate (£)	£450,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact expected (conservation measures need to be implemented, time required for impact)
Fish Stocks – Indirect Impact	1	Any new conservation innovations (e.g. gear or ways of operating aimed at reducing discards) would have to be designed to protect and improve fish stocks, and enhance stock recovery; effective implementation of these measures would be expected to improve fish stocks (rewards in terms of increased fishing opportunities would need to be carefully defined to ensure that the combined package remains sustainable).
On-shore Economy – Direct Impact	0	No direct impact expected
On-shore Economy – Indirect Impact	1	If vessels are worked harder as a result of increases in fishing opportunities, then the demand for onshore supplies and services will rise. This would be expected to have a positive impact on local businesses, and it is likely that a small number of new jobs could be created (the extent of the impact will be dependent on the relative scale of the increases in fishing opportunities - unlikely be large given the current recovery situation).
Image – Direct Impact	0	No direct impact expected (might be +1 if both the conservation measures and sustainable fishing opportunities are seen as positive)
Image – Indirect Impact	1	Potential for the overall package of conservation measures and 'rewards' to be designed to create a positive overall impact on the image of the fishery and nephrops sector; likely to need careful 'marketing' to maintain overall positive impact on perceptions. If the fishery becomes widely recognised as sustainably managed, there is likely to be a positive impact on brand / image.

Feasibility / how likely	3	Combined packages of conservation innovations and increases in fishing opportunities will need to be very carefully designed, marketed, implemented and monitored.

Risk	There is a risk actions may not result in increased fishing opportunities or that the costs involved in achieving those opportunities would exceed the benefits. It is possible that such measures could create short term reductions in profit but due to improved stocks, longer term improvements in fishing opportunities and in profits. There is a risk that increases in fishing opportunity will be viewed negatively by consumers and detract from the positive benefits of proposed conservation innovations; potential for good ideas to be de-railed.

5.4.10 Crab and lobster recommended actions

The actions which the project team recommends for the crab and lobster sector are shown in below in Table 5.14.

Action 1.3	Implement new rule for compulsory escape hatches for small shellfish in pots / creels
Action 1.5	Pursue certification as a sustainable fishery
Action 1.6	Introduce code of good practice for vessels
Action 2.1	Remove unused vessel licenses if not used for three years
Actions 14.0; 15.1 - 4	Empower Inshore Fisheries Groups and Fishermen to take strategic local decisions. Value fishermen's knowledge.

Table 5.14 Recommended actions for the Crab and Lobster sector

A summary of the analysis scores of all crab and lobster sector actions which were analysed in detail is given in
Table 5.16 on page 101. For those actions not included in the recommended list, reasons are given below in Table 5.15. It should be remembered that the project team were asked to select the top four or five actions per fleet segment and that some of the actions not in the list are still considered to be worthwhile actions.

Actions 1.1; 1.2 Improve enforcement and effectiveness of current regulation	This action may be effective if implemented, but there is a limited budget for enforcement and a very large coast line to cover for enforcement purposes.
Action 1.4 Provide continuous education opportunities on care of catch for fishermen	Less likely than other actions to lead to significant improvement in profit.
Action 1.7 Introduce quality standard for shellfish onshore	Less likely than other actions to lead to significant improvement in profit.
Action 2.2 Set limitations for the number of pots per vessel	Less likely than other actions to lead to significant improvement in profit. Difficulties may arise in implementation and enforcement. Costs may exceed benefits.
Action 2.3 Ban mobile gear vessels from the most valuable crab and lobster grounds	Very difficult to achieve and risk that even if agreement is reached by the majority, the minority may ignore the agreement. Less likely than other actions to lead to significant improvement in profit.
Action 2.4 Introduce compulsory closed areas to preserve stocks (e.g. via IFGs)	Difficult to achieve and risk that even if agreement is reached by the majority, the minority may ignore the agreement. Less likely than other actions to lead to significant improvement in profit.
Actions 6.1; 6.2; 6.3; 6.4 Promote Scottish crab and lobster fishery activities and products in the UK	Cost-benefit analysis is negative.
Action 10 Decommissioning in conjunction with other measures	Cost-benefit analysis is negative. Benefits to remaining vessels may not arise and could be much lower than the cost of a scheme.

Table 5.15 Reasons for Crab and Lobster actions not being included in the recommended list

Action Title	Total cost of measure (£)	Direct profit impact	Indirect profit impact	Total MCA score	Benefit per £ of cost	Risk that profits will not improve	In list of recommended actions?
		£	£				
Improve enforcement and effectiveness of current regulation (Actions 1.1; 1.2)	Not estimated	£1,800,000	£0	5	Not estimated	Low – medium	No
Implement new rule on compulsory escape hatches for small shellfish in pots / creels (Action 1.3)	£754,000	Not estimated	£0	7	Not estimated	Low	Yes
Provide continuous education opportunities on care of catch for fishermen (Action 1.4)	£70,000	£0	£900,000	4	£12.86	Low – medium	No
Pursue certification as a sustainable fishery (Action 1.5) (MSC and RFS)	£1,070,000	£0	£900,000	5	£0.84	High	Yes
Introduce code of good practice for vessels (Action 1.6)	£12,500	Not estimated	£900,000	6	£72.00	Medium	Yes
Introduce quality standard for shellfish onshore (Action 1.7)	£12,500	£0	£900,000	3	£72.00	Medium	No
Remove unused vessel licenses if not used for three years (Action 2.1)	£21,000	£0	£900,000	4	£42.86	Medium	Yes
Set limitations for the number of pots per vessel (Action 2.2)	£372,000	Not estimated	Not estimated	4	Not estimated	Low – medium	No
Ban mobile gear vessels from the most valuable crab and lobster grounds (Action 2.3)	Not estimated	£1,674,000	£0	0	Not estimated (high)	Medium – high	No
Introduce compulsory closed areas to preserve stocks (e.g. via IFGs) (Action 2.4)	£20,000	Not estimated	Not estimated	5	Not estimated	High	No
Promote Scottish crab and lobster fishery activities and products in the UK (Actions 6.1; 6.2; 6.3; 6.4)	£1,000,000	£0	£900,000	5	£0.90	High	No
Decommissioning in conjunction with other measures (Action 10)	£3,680,000	£0	£900,000	2	£0.24	High	No
Empower Inshore Fisheries Groups and Fishermen to take strategic local decisions. Value fishermen's knowledge (Actions 14.0; 15.1 - 4)	Not estimated / within current budgets	£0	Not estimated	6	Not estimated	Low	Yes

Table 5.16 Summary of detailed analysis result for **Crab and Lobster** sector actions

To give context to the estimated potential profit improvements, the total turnover (gross earnings) of Scottish crab vessels in 2008 was around £30 million (source: Marine Scotland).

5.4.11 Detailed analysis for crab and lobster sector actions

Sector	Crab & Lobster	**Action Ref**	1.1; 1.2

Action	Improve enforcement and effectiveness of current regulation
Description	Measure to protect or improve prices. Concerns over minimum landing sizes not being adhered to led to a proposed action to more effectively enforce the regulation by increasing inspections of first-sale buyers and suspending the licenses of vessels caught landing undersize shellfish. It was felt that smaller, illegal sized crabs and lobsters on the market reduced the value of legal sized individuals, reducing the overall value of each animal harvested and damaging stocks for the longer run. The action is to design a more comprehensive and effective enforcement scheme aimed at covering more locations and actively discouraging catchers and buyers from dealing in under-sized crabs and lobsters.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Focus the attention of the SFPA on the control of small crabs and lobsters. This could possibly be achieved within current budgets by adopting a new set of enforcement practices or may require additional budget, especially if the aim is to cover more landing sites to effect enforcement. Detailed budget implications would have to be discussed with SFPA.
Who will incur costs	Scottish Government
Cost Estimate	Not estimated

Impact on Fleet Profit	
Direct Impact (describe)	The removal of small shellfish from the market could have a negative impact on vessels landing a substantial proportion of smaller shellfish. However, overall, if supply is reduced, it is likely that price will improve and this could improve profit. The total value achieved for each animal harvested ought to be higher if all animals are left to grow to the legal minimum landing size, so the value of the harvest should be maximised if MLS is well enforced. It is difficult to estimate what the value of the advantage would be since it is not possible to know exactly how much under-size material is landed and to what extent it affects the total revenues to the Scottish fleet. There is evidence to suggest however that when illegal landings are effectively restricted, the average price for legal landings increases. An optimistic assumption could be that if prices rise, revenues increase by 2%, at no extra cost, so the increased revenue will be all profit. Based on approximate value of crab and lobster landings by UK vessels into Scotland of £30 million, that would be an increase in revenue, and therefore in profit, of £600,000. Over 3 years that would be £1,800,000.

Direct Impact Estimate (£)	£1,800,000
Potential Indirect Impact (describe)	No indirect impact on fleet profit is expected.
Potential Indirect Impact Estimate (£)	£0

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	2	Depending on the scale of the problem of undersize landings there is a potential that this action could have a substantial impact on the stocks of crabs and lobsters as shellfish are allowed to mature and create knock-on benefits to stock levels.
Fish Stocks – Indirect Impact	0	No indirect impact is expected.
On-shore Economy – Direct Impact	1	The impact to on-shore businesses is likely to arise from a mix of small benefits and some negative consequences through reduced supply. However, in time the impacts should all be positive through improved health within the stocks and therefore the fleet.
On-shore Economy – Indirect Impact	0	No indirect impact is expected.
Image – Direct Impact	0	No direct impact is expected.
Image – Indirect Impact	1	Stringent enforcement could lead to positive image benefits if information is utilised in this manner.

Feasibility / how likely	1	

Risk	The crab and lobster fleet is widely dispersed around the coast of Scotland and the potential return on investment from this action will depend on the scale of the current problem. If undersize shellfish make up a substantial proportion of the catch, investment in improved enforcement could reap substantial rewards to both the stocks and the fleet. The challenge will be to balance the investment and focus of the action against the potential benefits. If there is a large proportion of landings currently undersize, there could potentially be a negative impact on revenues and profit for some vessels until the average size of animals caught increases such that a larger proportion of the catch is of legal MLS.

Sector	Crab & Lobster	**Action Ref**	1.3

Action	Implement new rule on compulsory escape hatches for small shellfish in pots / creels
Description	Measure to protect stocks. Escape hatches can be fitted to each creel or pot at a small cost (estimated to be less than £1) and some fishermen are already using escape hatches for small shellfish. The proposed action will make escape hatches compulsory on all pots and creels.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Cost of new gear for fishermen (additional cost of £1 per pot), assuming 930 vessels, 800 pots per vessel: £744,000 Consultation for defining the minimum size of the escape hatches (22 staff days - £500 per staff day): £10,000 Enforcement cost: proportion of existing enforcement spend
Who will incur costs	Fishermen, Scottish Government
Cost Estimate	£754,000

Impact on Fleet Profit	
Direct Impact (describe)	It is expected that escape hatches will improve efficiency on board vessels by reducing the time required to sort out the catch and dispose of undersize shellfish. The cost of the new gear would reduce profit in the immediate term.
Direct Impact Estimate (£)	Not estimated
Potential Indirect Impact (describe)	No indirect impact is expected
Potential Indirect Impact Estimate (£)	£0

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	2	The introduction of compulsory escape hatches is expected to reduce the number of undersize shellfish retained in creels and pots. The introduction of escape hatches should also reduce the incidence of shellfish crippled through unnecessary handling.
Fish Stocks – Indirect Impact	0	No indirect impact is expected.
On-shore Economy – Direct Impact	0	No direct impact is expected.
On-shore Economy – Indirect Impact	1	There could be benefits to the on-shore economy if there is greater consistency in the catch landed and if the fleet's activities become increasingly sustainable through improved stocks.
Image – Direct Impact	0	No direct impact is expected.
Image – Indirect Impact	1	The use of escape hatches could be used in promotional activities if considered to provide evidence of qualities that are valued by the market.

Feasibility / how likely	3	Since some vessel owners have already adopted this measure it should be popular. It is practically relatively simple, although the time of the vessel owner and crew will be required for initial fitting.

Risk	There may be a risk that some designs of creels or pots may not be suitable for escape hatches and this should be investigated further. Furthermore, if there are areas of Scotland where shellfish are naturally smaller, this fishery may be disadvantaged.

Sector	Crab & Lobster	**Action Ref**	1.4

Action	Provide continuous education opportunities on care of catch for fishermen
Description	Measure to improve prices. Continuous education opportunities have the potential to enhance the value of the catch and efficiency of operation if lessons learned are practical and implemented on return to the fishery.
Key ambition supported	Pursue product and market development that will improve the value fishermen can obtain from Scottish fisheries products.

Cost of Implementation	
Nature of Costs	Holding seminars and other learning media, eg web-based. Development of the seminars and the different media (£10,000) Staff time (40 staff days per year - £500 per staff day): £20,000 per year Total for three years: £70,000
Who will incur costs	Industry - Seafish
Cost Estimate	£70,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact is expected.
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	If lessons learned lead to changes in the way that a vessel operates in order to improve the quality of the catch and therefore the quayside price. Based on crab and lobster landings of c. £30 million for Scottish vessels, assume that the price increases by 1%, this would result in an increase of £300,000 of the value landed by the three segments detailed in this study, without extra cost for the fleet. Over three years, this would generate £900,000.
Potential Indirect Impact Estimate (£)	£900,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected.
Fish Stocks – Indirect Impact	0	No indirect impact is expected.
On-shore Economy – Direct Impact	0	No direct impact is expected.
On-shore Economy – Indirect Impact	1	If lessons are implemented and the quality and consistency of landed product is improved this could benefit processors through improved efficiency and greater confidence to sell into higher value markets.
Image – Direct Impact	1	Improving the care devoted to the catch would help improve the general quality landed by the fleet, which would have a positive effect on the image of the sector.
Image – Indirect Impact	0	No indirect impact is expected.

Feasibility / how likely	2	Processors will be in favour of this measure which should improve the quality of the supply.

Risk	There is a risk that improving the quality of the catch does not result in higher prices to the fishermen and therefore does not alter the profitability of the fleet.

Sector	Crab & Lobster	**Action Ref**	1.5

Action	Pursue certification as a sustainable fishery
Description	Measure to protect or improve prices. The proposed action is to pursue certification of the crab and lobster fishery in Scotland as a sustainable fishery.
Key ambition supported	Pursue product and market development that will improve the value fishermen can obtain from Scottish fisheries products.

Cost of Implementation	
Nature of Costs	Certification process to achieve 1- RFS for all vessels: overall cost £1,000 per vessel (training by Seafish + independent audit), based on 930 boats: £930,000. 2- MSC accreditation for a specific set of fisheries: £30,000 for the accreditation + £2,500 per year when accredited: £35,000 per fishery. Assume 4 accreditation processes (eg. Crab, Lobster on both East and West coasts).
Who will incur costs	Industry, Seafish (training)
Cost Estimate	£1,070,000

Impact on Fleet Profit	
Direct Impact (describe)	The introduction of certification may result in increased costs for the vessels and may not have an immediate impact on price. However, if the fishery is not certified sustainable the Scottish crab and lobster sector may find that its market opportunities reduce over time as certification becomes increasingly common-place. Therefore the action may result in maintaining current price, which could be considered a success if the alternative is price reduction.
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	It is hoped that certification of the fishery would lead to sustainable improvements in the price for landed product. Based on crab and lobster landings of c. £30 million for Scottish vessels, assume that the price increases by 1%, this would result in an increase of £300,000 of the value landed by the three segments detailed in this study, without extra cost for the fleet. Over three years, this would generate £900,000.
Potential Indirect Impact Estimate (£)	£900,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	1	The certification of the fishery should restrict any practices which damage fish stocks.
Fish Stocks – Indirect Impact	0	No indirect impact is expected.
On-shore Economy – Direct Impact	1	The ability to use the certification in marketing activities could alter the markets into which processors of Scottish crab and lobster sell. If higher value markets can be attracted this should result in higher prices for the processed product and therefore improvements in profitability. This could support further employment.
On-shore Economy – Indirect Impact	0	No indirect impact is expected.
Image – Direct Impact	2	Certification of the fishery is likely to encourage positive PR and enhance the image of Scottish crab and lobster products.
Image – Indirect Impact	0	No indirect impact is expected.

Feasibility / how likely	1	The catching sector is likely be supportive. However, the number of vessels involved in the fishery might hinder the process.

Risk	If this action is not undertaken as part of a package with other activities targeting new markets or improving the quality of the catch there is a risk that on its own it may do little to improve price and the costs to vessels associated with introducing and maintaining the certification may not be recovered. In addition, even if market improvements are experienced, there is a risk that processors may retain any benefit from improvement in market prices.

Sector	Crab & Lobster	**Action Ref**	1.6

Action	Introduce code of good practice for vessels
Description	Measures to protect stocks and protect fishing opportunities for the longer run. A proposal to introduce a code of good practice for fishermen included consideration of compulsory v-notching of a minimum number of lobsters per month, v-notching of berried females during key months of the year and reducing the proportion of crippled shellfish that are landed. To ensure that this action results ultimately in extra profits for the fleet, it would be necessary to ensure that the code was widely publicised to improve image and that improvements in the overall quality of landings were acknowledged by buyers and that they made the most of that by seeking the most profitable routes to market. Adoption of the code would not mean that processors were instantly able to pay higher prices to the fleet unless they too change their marketing due to the impacts of the code, so this will be longer term outcome.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Definition of the code: several meetings between fishermen and processors with facilitators (venue: £1,000 per meeting + 3 facilitators: £500 per facilitator per meeting, attendees to fund their travel expenses). Assumption of 5 meetings to define new standards and agree plan for implementation.
Who will incur costs	Industry, Seafish or Seafood Scotland, Scottish Government
Cost Estimate	£12,500

Impact on Fleet Profit	
Direct Impact (describe)	A direct impact may be that some vessels reduce the number of crabs and lobsters they land in order to comply with the voluntary code of good practice, so some vessels may experience a decline in revenues and profits in the immediate term after adopting the code. There is not enough information to estimate what proportion of vessels would be affected and to what extent.
Direct Impact Estimate (£)	Not estimated

Potential Indirect Impact (describe)	Industry members proposed this action to counter damage to the reputation of the sector and too much variety in the quality of the product landed. They hoped that adoption of a code of good practice would improve quality and image so that prices to the fleet would eventually increase. In order for improved prices to be realised, there would have to be associated actions promoting the environmental credentials of the sector and asking processors to make the most of the improved standards of reliable quality through their routes to market. So, improved prices to the fleet would be an indirect result of this and associated actions. If a 1% increase in revenues was achieved, assuming current revenues of around £30million for crab and lobster, that would be a revenue increase of £300,000. Assuming that the extra revenue was at no increase in costs of operating, then the increase would be all profit. Over 3 years that would be £900,000 extra profit.
Potential Indirect Impact Estimate (£)	£900,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	2	If the code includes return of berried lobsters, then this ought to have a positive impact on stocks.
Fish Stocks – Indirect Impact	0	No significant indirect impact is expected.
On-shore Economy – Direct Impact	1	In the immediate term it is possible that there might be a slight decrease in the volume of landings. In the longer term, if quality and image help to improve prices, then the processing businesses may also enjoy improved profits.
On-shore Economy – Indirect Impact	0	No indirect impact is expected.
Image – Direct Impact	0	No direct impact is expected
Image – Indirect Impact	1	If promotional activities accompany the creation and adoption of the code, there could be positive impact on the environmental credentials of the sector.

Feasibility / how likely	2	Benefits from this action will take a lot of work to achieve however and may not arise for some years after adopting the code and taking the required associated actions of promotion and improving routes to market.

Risk	There is a risk that the improvements envisaged do not actually lead to improved prices to vessels, but only to improved quality to the end consumer or to businesses further along the value chain.

Sector	Crab & Lobster	**Action Ref**	1.7

Action	Introduce quality standard for shellfish onshore
Description	Measures to protect or increase prices. Attendees at the event were keen to identify activities that would maintain the reputation of the Scottish product. One proposal was to create a new set of standards for gauging the quality of crab and lobster products processed in Scotland. The standards could go further than simply the size of the product to include condition of the shell, quality of the meat or hygiene practices.
Key ambition supported	Pursue product and market development that will improve the value fishermen can obtain from Scottish fisheries products.

Cost of Implementation	
Nature of Costs	Define standards: several meetings between processors with facilitators (venue: £1,000 per meeting + 3 facilitators: £500 per facilitator per meeting, attendees to fund their travel expenses). Assumption of 5 meetings to define new standards. Scottish Government to enforce (with the help of the FSA)
Who will incur costs	Industry - Scottish Government
Cost Estimate	£12,500

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact expected.
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	If new standards enable greater differentiation of the Scottish product within the market place, and higher value customers are attracted, there could be knock-on price benefits to the fleet. If a 1% increase in vessel revenues was achieved due to higher prices to vessels, assuming current revenues of around £30 million for crab and lobster, that would be a revenue increase of £300,000. Assuming that the extra revenue was at no increase in costs of operating, then the increase would be all profit. Over 3 years that would be £900,000 extra profit.
Potential Indirect Impact Estimate (£)	£900,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No indirect impact expected.
Fish Stocks – Indirect Impact	0	No indirect impact expected.
On-shore Economy – Direct Impact	0	No direct impact expected.
On-shore Economy – Indirect Impact	1	If the standards allow the Scottish product to be achieve a premium price in the market place the processors could benefit and if more intensive processing is required this could result in new jobs.
Image – Direct Impact	1	If Scottish crab and lobster products are differentiated within the market place and this is promoted in a targeted way there could be positive benefits to the image of the fleet and its catch.
Image – Indirect Impact	0	No indirect impact expected.

Feasibility / how likely	1	

Risk	The processing sector may not be willing to engage in new and more complex quality standards unless there is a clear potential benefit to their profitability. Even if overall standards of quality improve, it is possible that processors will not be able to find more profitable routes to market, and will not be able to pass on price increases to the vessels.

Sector	Crab & Lobster	**Action Ref**	2.1

Action	Remove unused vessel licenses if not used for three years
Description	Measure to protect prices. Concern was expressed that there is excess capacity in the crab and lobster sector that although not being utilised at the moment, could emerge into the fishery should price improve, damaging the potential for the currently active fleet to achieve profitability improvements as a result. The proposal is that entitlement which has not been used for three years is removed and the capacity of the fleet is reduced.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Administrative cost of identifying unused licences and writing to licence holders. Legal fees to check legality and handle appeals. 20 staff days (£500 per staff day) - mailing (£1000) - Legal fees (£10,000)
Who will incur costs	Scottish Government
Cost Estimate	£21,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact is expected.
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	A removal of the threat that at any time there can be an increase in the number of active vessels supplying the market could protect prices in the future. It is not possible to estimate with certainty exactly what might happen and to what extent fleet profit would be improved as a result of this action. However, to get an approximate idea, we can assume a 1% increase in revenues could be achieved due to higher prices to vessels. Assuming current revenues of around £30 million for crab and lobster, that would be a revenue increase of £300,000. Assuming that the extra revenue was at no increase in costs of operating, then the increase would be all profit. Over 3 years that would be £900,000 extra profit.
Potential Indirect Impact Estimate (£)	£900,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected.
Fish Stocks – Indirect Impact	1	Reducing the capacity of the fleet reduces the risk of over-fishing should the fishery become more attractive to those with entitlement but not currently active. However, fish stocks only benefit from this action if the latent entitlement would have otherwise been used at some time in the future.
On-shore Economy – Direct Impact	0	No direct impact is expected.
On-shore Economy – Indirect Impact	1	There is a possibility that the action will improve confidence in the sector and encourage active vessels to invest more in their business. This could have some knock-on benefits to related businesses on-shore.
Image – Direct Impact	0	No direct impact is expected.
Image – Indirect Impact	0	No indirect impact is expected.

Feasibility / how likely	2	This action is highly feasible. The only resistance would come from the holders of unused licences that might appeal the process

Risk	There is a risk that by taking this action there would be reduced flexibility for individuals to earn income and balance cyclical activities elsewhere in the local economy. Holders of unused licences may object and the Government may choose not to proceed if there is strong objection.

Sector	Crab & Lobster	**Action Ref**	2.2

Action	Set limitations for the number of pots per vessel
Description	Measure to protect stocks and protect prices. This action arose from concerns about excess capacity and activity within the fleet. There were concerns that a number of vessels within the fleet were setting unfeasibly high creels compared to the capacity of the vessel. The main concerns surrounding this were that this practice resulted in wasted or poor quality shellfish as creels could not be checked sufficiently frequently; and that some grounds were being dominated by poor fishing practices and potentially non-profitable activity, to the detriment of other fishermen. The proposal was therefore to introduce effort control and the preferred option appeared to be pot/creel limits in line with the capacity of a vessel.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Fleet investment in equipment e.g. tags for pots: assuming 930 vessels, an average of 800 pots per vessel and the unit cost for tag £0.50: £372,000; Policy development: consultation and legislation design: 20 staff days, £500 per staff day = £10,000. Although if more than one action requiring tags is implemented, the tags need only be purchased once. Consultation costs direct spend = £5,000; Enforcement costs - proportion of existing enforcement spend
Who will incur costs	Scottish Government, industry
Cost Estimate	£372,000

Impact on Fleet Profit	
Direct Impact (describe)	To implement a limit on the number of pots per vessel, a system of gear identification will be required. These costs will fall on the vessel owners, and in the short term this may lead to a reduction in profits. Some creelers may also see a reduction in income if the number of creels they can lay is reduced due to new limits. Operating costs may rise if vessels need to fish in other areas to maintain their income. Possible reduction in volumes landed and increase in prices. This is not possible estimate accurately, as it would depend entirely on whether any vessels currently fishing in a given sea area had to reduce their number of creels. Any such schemes would have to be carefully designed with detailed expected practical and economic effects estimated per scheme
Direct Impact Estimate (£)	Not estimated

Potential Indirect Impact (describe)	Limiting the number of pots per vessel will reduce overall effort in the fleet. This should reduce pressure on stocks, ultimately improving viability of the fishery. Fishing incomes are likely to increase in the longer term as the average size of the stocks and catch increases and prices increase. If volume landed is lower then prices should increase. Possible benefits of improved image through better environmental credentials. Possible protection of benefits to smaller vessel businesses in local communities.
Potential Indirect Impact Estimate (£)	Not estimated

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	1	Reducing effort through limiting the amount of gear available for deployment is expected to have a positive impact on crab and lobster stocks.
Fish Stocks – Indirect Impact	2	This measure would lead to long term improvement in and protection of crabs and lobster stocks. In addition, there is also likely to be a positive impact on other fish species as effort stabilises at a reduced level.
On-shore Economy – Direct Impact	-1	Reducing the number of pots used by the fleet may adversely impact on local suppliers of equipment and therefore jobs (likely to be small - will depend on whether suppliers are local / Scottish)
On-shore Economy – Indirect Impact	0	Longer term, less gear being used within the fleet will reduce the need for replacement; some loss of local jobs may result and / or reduction in business income. Overall reductions in effort may also impact on local processing jobs if there is less material to handle.
Image – Direct Impact	0	No direct impact expected
Image – Indirect Impact	1	Reducing effort is expected to lead to a more sustainable sector, and therefore positively impact on the image of Scottish crab and lobster products

Feasibility / how likely	1	Strong support from the crab and lobster sector on action to limit the amount of static gear being used within the fleet.

Risk	There are risks that individual schemes may not be well designed, such that there is no increase in price to offset loss of volume and revenues and margins both decrease rather than increase. There is a risk that any scheme(s) will not be effectively enforced and that some individuals may not abide by the rules, thus profiting at the cost of others.

Sector	Crab & Lobster	**Action Ref**	2.3

Action	Ban mobile gear vessels from the most valuable crab and lobster grounds
Description	Measure to reduce costs. Concerns were raised that conflict between static-gear and mobile gear was harming the static-gear fishery. This often resulted in loss of or damage to equipment and as a consequence higher costs to the vessel owner. The action proposed was to ban mobile gear vessels from specific areas which are valuable to the static-gear sector.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Government and Industry: Policy design, negotation and development; implementation and enforcement; industry: identification scheme for gear, time for discussion and negotation (e.g. vessels owners, IFGs) Difficult to estimate time required since previous attempts have not been successful. Potential for additional steaming costs for some mobile gear vessels if they are excluded from certain coastal zones. Not possible to estimate.
Who will incur costs	Government, industry
Cost Estimate	Not estimated

Impact on Fleet Profit	
Direct Impact (describe)	Introducing a ban on mobile gear (possibly together with restrictions on static gear) would be expected to reduce the loss of static gear and improve annual catch rates due to less lost fishing time. There would be a reduction in stress caused to static gear skippers if incidents of lost or damaged gear reduced or were eliminated. Whether the net impact on fleet profit is positive or negative will depend on the the number and size of vessels affected (reduction in income of large, mobile gear vessels unable to fish in designated areas could outweigh increase seen by the poters). Assume a cost saving of 20 pots per vessel per year, = 20 x 930 vessels x £30 per creel = £558,000. Over 3 years that would be £1,674,000.
Direct Impact Estimate (£)	£1,674,000.
Potential Indirect Impact (describe)	Reduced stress and improved relationships between mobile and static gear operators.
Potential Indirect Impact Estimate (£)	£0

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact expected.
Fish Stocks – Indirect Impact	0	No indirect impact is expected.
On-shore Economy – Direct Impact	0	No direct impact expected.
On-shore Economy – Indirect Impact	-1	As a result in the positive impact of reduced need for replacement of static gear, those businesses involved in these activities may experience a drop in income.
Image – Direct Impact	0	No direct impact expected.
Image – Indirect Impact	0	No indirect impact is expected.

Feasibility / how likely	1	Likely to be opposition from mobile gear vessels - suggested that IFGs may be able to help in organising and facilitating discussions between the various stakeholders. In some locations, a ban on mobile gear use could reduce local jobs (vessel / onshore). Would be worth looking at other schemes in place, e.g. South Devon.

Risk	The presence of conflict between static gear and mobile gear in an area could make local management plans difficult to agree.

Sector	Crab & Lobster	**Action Ref**	2.4

Action	Introduce compulsory closed areas to preserve stocks (e.g. via IFGs)
Description	Measures to protect stocks and fishing opportunities. Concerns about a lack of control over effort raised a number of proposed actions. This action suggested compulsory closed areas as a way to protect vulnerable stocks. If action is taken it is proposed that monitoring should be undertaken to gauge whether or not this is a successful tool in preserving stocks.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Consultation to identify and define zones: 6 meetings (venue £1,000 per meeting) + 3 facilitators per meeting (£500 per facilitator day) Design of the regulation - 10 staff days (£500 per staff day) Enforcement
Who will incur costs	Scottish Government, IFGs
Cost Estimate	£20,000

Impact on Fleet Profit	
Direct Impact (describe)	Some vessels may operate over a small geographic area and could experience negative effects from a closed area within their normal working zone. There may be some displacement impacts as vessels move to fish outside a designated area. It is not possible to estimate financial impacts of an unspecified designated zone, and it is beyond the scope of this project to actually give an example area.
Direct Impact Estimate (£)	Not estimated
Potential Indirect Impact (describe)	If the measure helps to create a stronger stock of crab and lobsters, with a larger average size, this should help to sustain a viable fleet in the longer run. The aim of this action is to ensure that stocks are not depleted, so the action should preserve the opportunity to fish.
Potential Indirect Impact Estimate (£)	Not estimated

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	2	If successful as a method for protecting stocks this should have a direct benefit on the health and abundance of crab and lobster.
Fish Stocks – Indirect Impact	0	No indirect impact expected.
On-shore Economy – Direct Impact	0	No direct impact expected.
On-shore Economy – Indirect Impact	1	More sustainable stocks and fleet should help to create stability and activity in the on-shore economy.
Image – Direct Impact	0	No direct impact expected.
Image – Indirect Impact	1	No indirect impact expected.

Feasibility / how likely	1	This action could be possible if the IFGs work effectively and there is wide support. It may be possible to pilot this action on a very localised basis before wider adoption.

Risk	To operate compulsory closed areas is likely to require a sophisticated decision-making and communication structure, otherwise the designations may not arise, may not be well designed, or may not be well enforced, especially since it is difficult to enforce closed areas when vessels do not have vessel monitoring systems.

Sector	Crab & Lobster	**Action Ref**	6.1 - 6.4

Action	Promote Scottish crab and lobster fishery activities and products in the UK
Description	Measure to improve demand and prices. Attendees believed that there is an opportunity to stimulate growth in the UK market for Scottish crab and lobster products. Several ideas were proposed including PR activities to promote omega 3 and good cholesterol benefits of crab; emphasise the environmentally friendly credentials of crab fishing; promote the product as a value for money source of protein, not a luxury product; get real people to promote the product at different stages of the value chain; undertake more work in schools to educate children about shellfish; and encourage supermarkets to promote shellfish. The proposal is to incorporate different ideas into a coherent UK marketing strategy for Scottish static-gear crab and lobster products. This action may create additional benefit if combined with some other actions, for example, Action 1.7 which could differentiate the product from potential substitutes.
Key ambition supported	Pursue product and market development that will improve the value fishermen can obtain from Scottish fisheries products.

Cost of Implementation	
Nature of Costs	Marketing campaign to consumers. Advice from Seafish Marketing suggests that a consistent 3 year campaign of promotion and advertising would be required to make an impact on demand. It might be possible to achieve an impact with a budget of £1 million over 3 years.
Who will incur costs	Government, industry, Seafood Scotland, Seafish
Cost Estimate	£1,000,000

Impact on Fleet Profit	
Direct Impact (describe)	If the campaign were successful, the direct impact would be on Scottish (and other) processors. The effect might be a demand for more volume at existing prices, or for the same volume at higher prices, or some combination of those effects.
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	If demand can be stimulated within the UK then the price fishermen achieve could increase, particularly if the product can compete more successfully against substitute products through some form of differentiation. If a 1% increase in revenues was achieved due to higher prices to vessels, assuming current revenues of around £30 million for crab and lobster, that would be a revenue increase of £300,000. Assuming that the extra revenue was at no increase in costs of operating, then the increase would be all profit. Over 3 years that would be £900,000 extra profit.
Potential Indirect Impact Estimate (£)	£900,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected
Fish Stocks – Indirect Impact	0	No indirect impact is expected
On-shore Economy – Direct Impact	1	Direct promotion of Scottish product should benefit local processors.
On-shore Economy – Indirect Impact	0	No indirect impact is expected
Image – Direct Impact	2	The creation of a marketing strategy is expected to have a direct impact on the image and reputation of the Scottish product.
Image – Indirect Impact	0	No indirect impact is expected

Feasibility / how likely	2	Advice from specialist marketing firms should be sought regarding the budget that would be required to achieve an increase in demand sufficient to provide a 1% price increase, via processors, to vessels.

Risk	There is a risk that the campaign would not be sufficiently effective to improve demand. There is a risk that processors would not be able to attract and pass on any extra value to the fleet.

Sector	Crab & Lobster	**Action Ref**	10

Action	Decommissioning in conjunction with other measures
Description	Measure to protect stocks and prices. The action proposes financial support to reduce the size of the fleet. The motivation is to reduce effort within the fishery and reduce volumes landed, so that price might increase. However, the fleet is very varied and any decommissioning scheme must be careful to ensure resources are used to the maximum benefit. At minimum funded decommissioning is only recommended after Action 2.1 and Action 2.2 have been considered.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Grants to vessel owners, assuming average 46 GT per boat (under 10m), and £1,000 per GT. Assume 80 vessels decommissioned.
Who will incur costs	Scottish Government
Cost Estimate	£3,680,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact is expected
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	This action would need effort limitation or another additional mechanism in order to restrict volume supplied to the market and protect prices. Aim is to reduce total volume landed by fleet so that prices will increase. This would mean that remaining vessels could not increase their volume of landings. If a 1% increase in revenues was achieved due to higher prices to vessels, assuming current revenues of around £30 million for crab and lobster, that would be a revenue increase of £300,000. Assuming that the extra revenue was at no increase in costs of operating, then the increase would be all profit. Over 3 years that would be £900,000 extra profit.
Potential Indirect Impact Estimate (£)	£900,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	1	If effort is permanently reduced it is expected that fish stocks will benefit.
Fish Stocks – Indirect Impact	0	No indirect impact is expected.
On-shore Economy – Direct Impact	-1	A reduction in fleet size is expected to reduce demand for on-shore services and supplies.
On-shore Economy – Indirect Impact	1	In the long-term, a more profitable and sustainable fleet should provide more certainty and continuity on-shore. In addition, money invested as a result of decommissioning support could create new activity.
Image – Direct Impact	0	No direct impact is expected.
Image – Indirect Impact	0	No indirect impact is expected.

Feasibility / how likely	1	It is expected that thishe measure will be welcome by the industry.

Risk	Profit will only improve if decommissioning leads to improvements in price. The fleet is large in number and does appear to be significantly over-capacity for recent catch levels. However, a substantial proportion of the fleet may only operate on a part-time basis. Prior to investment in funded decommissioning it would be prudent to explore criteria which may minimise the cost of decommissioning whilst maximising the desired benefits.

Sector	Crab & Lobster	**Action Ref**	14.0; 15.1 - 15.4

Action	Empower Inshore Fisheries Groups and Fishermen to take strategic local decisions. Value fishermen's knowledge
Description	Measures to protect stocks and fishing opportunities. Attendees at the event believe that there could be better quality decision-making in the management of their fishery. One route to achieve this is more local control through the IFGs. Another proposal is that during decision-making processes, whether local or national, more value should be attributed to the knowledge that fishermen can bring to the decision-making process, including their knowledge of the environment and stock behaviour. This could mean that agreements on the fisheries managment regime agreed in the Fisheries Council should not be made without getting expert input from active skippers about the practical implications. Proposals specific to the IFGs included: introduce a locally management conservation scheme; ensure each IFG has an unbiased Chair; ensure fishermen have a strong voice within the IFG and elsewhere; and ensure fishermen are recognised for their environmental knowledge.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Costs of running IFG meetings, and consulting with local vessel owners, which we assume is already catered for in IFG budgets.
Who will incur costs	Government, IFGs
Cost Estimate	Not estimated / within current budgets

Impact on Fleet Profit	
Direct Impact (describe)	An improvement in the decision making process won't have any direct impact on the profit of the fleet until actual decisions affecting management rules are made which incorporate fishermen's knowledge.
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	If local decision-making takes a strategic view of the long-term economic and environmental health of the fleet and the fishery it should lead to a sustainable fleet and profitable businesses. Impact on fleet profit cannot be estimated accurately, since it will depend on how much better any individual decision is as a result of taking into account fishermen's knowledge. Expected impacts seemed to be in terms of protecting current catching opportunities rather than increasing opportunities, volume landed or prices achieved by the fleet. This means that there may not be any improvement to fleet profit from this action compared to current levels, but that without this action, sector vessel owners fear that there is a risk of their profit declining.

Potential Indirect Impact Estimate (£)	Not estimated

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected
Fish Stocks – Indirect Impact	2	Local decision-making should encourage IFGs to take more responsibility for the long-term health of the stocks and the industry. This long-term view is expected to have positive benefits for stocks. In addition, it is believed that by using fishermen's experience to inform decision-making that better decision-making will be possible through the IFGs.
On-shore Economy – Direct Impact	0	No direct impact is expected
On-shore Economy – Indirect Impact	1	More sustainable stocks and better decision-making should help to create a vibrant and sustainable fleet which can support related on-shore activity.
Image – Direct Impact	0	No direct impact is expected
Image – Indirect Impact	1	If local fisheries are better managed this should support a more positive image of the local fishery but only if the information is pro-actively used for this purpose.

Feasibility / how likely	2	

Risk	IFGs will need to be sufficiently empowered to be able to take decisions which can affect the health of stocks and the profitability of the fleet. If this is achieved there is a further risk that short-term pressures on profitability may hinder longer-term strategic views from dominating the decision-making. Furthermore local pressures could interfere further and conflict between different sectors within the IFGs may make consensus on the way forward difficult.

5.4.12 Pelagic recommended actions

The actions which the project team recommends for the pelagic sector are shown below in Table 5.17.

Action 1	Create a system of UK credit supply or guarantee for exports
Action 3	Promotional programme to increase demand and consumption of oily fish
Actions 11.1 - 11.9	Maximise advantage through better international negotiations
Action 14.2	Evaluate use of onboard cameras to monitor and detect discards
Actions 14.3; 14.8	Research and trials to improve sampling e.g. sampling nets, non-daylight jigging

Table 5.17 Recommended actions for the Pelagic sector

A summary of the analysis scores for all pelagic sector actions which were analysed in detail is given in
Table 5.19 on page 129. For those actions not included in the recommended list, reasons are given below in Table 5.18. It should be remembered that the project team were asked to select the top four or five actions per fleet segment and that some of the actions not in the list are still considered to be worthwhile actions.

Action 4 Evaluate the possibility of a Scottish auction for pelagic fish	The evaluation itself may well conclude that there is no expected gain to Scottish fleet. If the evaluation looks positive, there is then a significant change in practice to achieve and it will be necessary to attract investment in the auction business.
Action 8 Strengthen involvement of vessel owners in stock assessment	This is a positive step and good stock assessment is required for a profitable fishery, but improved stock assessment may not lead to improved profit for the fleet except in the very long run.
Action 14.5 Introduce legislation to reduce discarding	This may come in any event, via the CFP. In this assessment however, likely profit improvements were hard to assess and did not immediately appear to be positive.
Action 14.6 Establish an observer scheme to enforce legislation on discards	This seems to be a difficult scheme to implement effectively in practice. If it was successful, the cost compared to potential improved profit for the fleet does not appear favourable compared to other methods of monitoring and reducing discards.

Table 5.18 Reasons for Pelagic actions not being included in the recommended list

Action Title	Total cost of measure (£)	Direct profit impact	Indirect profit impact	Total MCA score	Benefit per £ of cost	Risk that profits will not improve	In list of recommended actions?
		£	£				
Create a system of UK credit supply or guarantee for exports (Action 1)	Not estimated	£0	£2,000,000	3	Not estimated	Medium	Yes
Promotional programme to increase demand and consumption of oily fish (Action 3)	£1,000,000	£0	£3,000,000	8	£3.00	Medium	Yes
Evaluate the possibility of a Scottish auction for pelagic fish (Action 4)	£15,000	£0	Not estimated	3	Not estimated	High	No
Strengthen involvement of vessel owners in stock assessment (Action 8)	£10,000	£0	£750,000	4	£75.00	High	No
Maximise advantage through better international negotiations (Actions 11.1 - 11.9)	Not estimated / low	£0	£1,500,000	4	Not estimated	Medium – High	Yes
Evaluate use of onboard cameras to monitor and detect discards (Action 14.2)	£40,000	£0	Not estimated / potentially very high	6	Not estimated	Medium	Yes
Research and trials to improve sampling e.g. sampling nets, non-daylight jigging (Actions 14.3; 14.8)	£30,000	£0	Not estimated / high	7	Not estimated	Low – medium	Yes
Introduce legislation to reduce discarding (Action 14.5)	Not estimated	£0	Not estimated, poss negative, then positive	4	Not estimated	Medium - high	No
Establish an observer scheme to enforce legislation on discards (need 2 per boat at any time) (Action 14.6)	£540,000	Not estimated, poss negative in short run	Not estimated, possibly high in long run	5	Not estimated	High	No

Table 5.19 Summary of detailed analysis result for **Pelagic** sector actions

To give context to the estimated potential profit improvements, the total turnover (gross earnings) of Scottish pelagic vessels in 2008 was around £100 million (source: Marine Scotland).

5.4.13 Detailed analysis for pelagic sector actions

Sector	Pelagic	**Action Ref**	1

Action	Create a system of UK credit supply or guarantee for exports
Description	Measure to protect routes to market and protect prices to Scottish vessels. Scottish processors are currently facing difficulties in getting export guarantees, which means that they are operating in a riskier way or have fewer potential customers. Scottish processors therefore may not be able to offer the highest prices to Scottish vessels, which may encourage Scottish vessels to land in Norway. Industry and finance or insurance providers need to work together to create an innovative scheme that can help to reduce risk to processors; ideas put forward included an industry funded scheme (levy), Scottish Government to strongly encourage cooperation from relevant companies in the finance sector (Scottish Government support for this already evident).
Key ambition supported	Pursue product and market development that will improve the value fishermen can obtain from Scottish fisheries products

Cost of Implementation	
Nature of Costs	Costs of meetings to establish the scheme and costs of insurance premiums. These cannot be estimated within the scope of this project and will depend on the number of trades and the destinations to which deliveries are being made.
Who will incur costs	Commercial financial & insurance companies
Cost Estimate	Not estimated

Impact on Fleet Profit	
Direct Impact (describe)	The direct impact will be on Scottish exporters of pelagic products. No direct impact on fleet profit is expected.
Direct Impact Estimate (£)	£0

Potential Indirect Impact (describe)	In a number of overseas markets higher prices can be achieved for quality products. Introducing an export guarantee scheme would increase the confidence of UK processors in selling to export markets, improving their willingness to invest in exploring and marketing their products into these markets. Less risky and more profitable routes to export markets would mean that Scottish processors could compete better for vessel landings by offering higher prices to vessels. If Scottish vessels were able to get top prices for their landings from Scottish processors, they could save the cost of fuel to get to Norway or Denmark where they otherwise might have gone to get top prices. To estimate the indirect impact of this action then, we can assume that more landings which were made in Norway and Denmark, might be made at the same sales price but in Scotland, therefore at lower cost to the vessel. In 2007 Scottish vessels made 117 landings in Norway and Denmark and we can assume that the majority of these were for pelagic landings. Assume that the export guarantee scheme, if successful, might enable Scottish pelagic vessels to make 40 landings in Scotland which otherwise they might have made in Norway or Denmark. The cost of steaming to Norway or Denmark and back is about 70 hours steaming on average and assuming an average fuel use of 600 litres per hour, that would be 42,000 litres of fuel. Assume a duty free fuel price of 40p, and that would be a cost saving of around £17,000 per trip. Over 40 trips that would be about £670,000 in one year. Over 3 years that would be just over £2 million. It is also very important to note the overall, ongoing importance to the Scottish fleet of supporting the success of Scottish processors. Landing in Norway and Denmark takes much more time out of a short catching season and is costly in that way too. The support of the overall pelagic catching and processing community is important to the vessel owners.
Potential Indirect Impact Estimate (£)	£2,000,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact on fleet profit expected
Fish Stocks – Indirect Impact	0	No indirect impact expected (this action would not affect fishing opportunity or quotas)
On-shore Economy – Direct Impact	0	No direct impact expected

On-shore Economy – Indirect Impact	2	The risks currently being felt by Scottish processors would be reduced and the prices that they can offer to Scottish vessels could increase. With higher prices being offered, the number of Scottish vessels landing to Scottish processors would be expected to increase. Growth in the volume of product being handled by the processors would be expected to safeguard existing jobs and is also likely to result in a increase in staff numbers (in both technical and sales & marketing positions).
Image – Direct Impact	0	No direct impact expected
Image – Indirect Impact	0	No indirect impact expected

Feasibility / how likely	1	There are risks attached to not solving this issue. If this particular action is not taken, it seems to be quite important to the fleet and processors overall to find another solution to the issue or find ways to ensure that Scottish processors can attract the maximum proportion possible of landings by Scottish vessels. An additonal impact worthy of note is that if this action could succeed in helping to reduce landings overseas, there could be a significant reduction to the carbon footprint of the fleet.

Risk	Price achieved is a key consideration for vessel owners / operators in selecting a processor to land to. There is a risk in the current economic climate that prices in export markets may not be high enough for processors to offer higher prices to Scottish vessels. Risk that appropriate financial institutions may not be willing to establish guarantee schemes for this sector.

Sector	Pelagic	**Action Ref**	3

Action	Promotional programme to increase demand and consumption of oily fish
Description	Measure to improve prices and revenues. Attendees recognised that there is a potential opportunity to grow UK market demand for Scottish pelagic (oily) fish species, and strongly supported the need for promotional campaigns to increase awareness of the products and educate UK households, particularly on the health benefits. A wide range of activities were suggested to increase demand, including showcasing products to the UK market e.g. tastings at regional shows and supermarkets, getting TV chefs to use and promote oily fish, and working with restaurants.
Key ambition supported	Pursue product and market development that will improve the value fishermen can obtain from Scottish fisheries products

Cost of Implementation	
Nature of Costs	To be effective in changing consumer behaviour and generate a significant increase in UK demand, a promotional campaign would need to combine direct consumer activities (e.g. product advertising) with a PR campaign (e.g. to promote the health benefits of eating oily fish). Precise activities depend on the audience (e.g. young children, teenagers, families) being targeted e.g. low cost could be leaflets, cooking and recipe promotion, and web campaigns; high cost would be TV and radio advertising. Advice from Seafish Marketing suggests that a comprehensive and consistent campaign might cost £1 million over 3 years.
Who will incur costs	Industry, Scottish Government, Seafish, Seafood Scotland
Cost Estimate	£1,000,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact on fleet profit is anticipated.
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	If UK volume demanded increases, it might increase total volume that UK processors supply, or they might export less, if UK prices were higher than export prices. If UK processors could make economies of scale due to increased volumes processed, they might be able to pass on some price increases to vessels. A marketing campaign could generate higher retail prices which could be passed on to Scottish vessels. To give some scale to the possible knock-on effects to fleet profit, we could assume an increase in prices to vessels, giving an overall increase in revenues which would be all profit, since there would be no change to volume or variable costs. Total value of landings to the Scottish pelagic vessels was around £100 million in 2008. Assuming a 1% increase in sales revenue to vessels due to price increases give £1 million extra profit. Over 3 years that would be £3 million.

Potential Indirect Impact Estimate (£)	£3,000,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact
Fish Stocks – Indirect Impact	0	Under current management systems, TACs would not be increased to meet market demand.
On-shore Economy – Direct Impact	0	No direct impact would be expected
On-shore Economy – Indirect Impact	2	Increasing landings in Scotland to meet growth in UK market could lead to more shore-based jobs in Scotland.
Image – Direct Impact	2	These campaigns would be expected to have a significant direct positive impact on image / Scottish branded products.
Image – Indirect Impact	3	Outcomes achieved as a result of promotional campaigns tend to grow over time as consumer knowledge deepens. An effective promotional campaign for oily fish could raise awareness of other Scottish fish, creating a strong positive impact on the image of Scottish seafood in general.

Feasibility / how likely	2	Justifying potential benefits against budget requests is not easy for most promotional activities. If quantities demanded in the UK increase, need to consider source of supply.

Risk	Promotional activities can be low cost or very expensive. In both cases, impacts are often not immediate and initially even raised awareness may not translate into the desired changes in behaviour (more sales). It is likely that sustained promotional activities will be required to deliver increased sales of Scottish products in the UK, and that increases in vessel and fleet profitability may not be achieved for some time after the start of an activity.

Sector	Pelagic	**Action Ref**	4

Action	Evaluate the possibility of a Scottish auction for pelagic fish
Description	Measure to investigate potential improvements to marketing routes. There is an auction in Norway for pelagic fish and there are several identified advantages and disadvantages of setting up such an auction in Scotland. A detailed study could be carried out to accurately evaluate costs and benefits, and advantages and disadvantages, to the fleet and processors in Scotland. This study would then provide evidence to inform a decision on whether to set up a Scottish auction for pelagic fish.
Key ambition supported	Pursue product and market development that will improve the value fishermen can obtain from Scottish fisheries products

Cost of Implementation	
Nature of Costs	Consultant to detail how the Norwegian auction functions and work with Scottish industry players to design and estimate costs and benefits of a Scottish auction. Consulting contract should be for no more than 15 days staff time and travel expenses.
Who will incur costs	Pelagic fleet, pelagic processors, Lerwick, Fraserburgh and Peterhead port authorities. Possibly Scottish Government
Cost Estimate	£15,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impacts expected
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	No indirect impact expected as a result of carrying out the study. In the longer term, if the study reached a positive conclusion and if a Scottish auction was established and was effective in stabilising and improving volume throughput and prices, then fleet profit should improve.
Potential Indirect Impact Estimate (£)	Not estimated

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact expected
Fish Stocks – Indirect Impact	0	No indirect impact expected
On-shore Economy – Direct Impact	0	No direct impact expected
On-shore Economy – Indirect Impact	1	In the longer term, if a Scottish auction was established this would create new local jobs and as a result would be expected to have a positive impact on the regional / local economy (maybe positive impact across whole of Scotland)
Image – Direct Impact	0	No direct impact expected
Image – Indirect Impact	0	No impact on image expected

Feasibility / how likely	2	The action itself (an evaluation) would not be expected to deliver any direct impacts, although there would be a number of indirect impacts should an auction be established

Risk	There is a risk that the evaluation study will conclude that a Scottish auction would not give an acceptable return on investment or improve prices to the Scottish fleet, and that no benefit to the fleet will arise.

Sector	Pelagic	**Action Ref**	8

Action	Strengthen involvement of vessel owners in stock assessment
Description	Measure to protect or improve fishing opportunities and revenues. Attendees considered that there is an opportunity to improve the accuracy of stock assessment through the active involvement of skippers and vessel owners, in particular to enable the inclusion of fishermen's knowledge and experience at sea. This action specifically proposes that a structured, externally facilitated discussion is held between FRS and vessel owners focused on stock assessment methods, aims and objectives. This would help to improve communications and understanding, and would aim to find ways of working more closely together.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Costs would include meetings between Marine Scotland Science and vessel owners. If held at the Marine Lab in Aberdeen, costs would be travel for vessel owners, which they could fund themselves. Staff time for MSS would be from within existing budget. If discussions lead to changes in stock assessment practice, those changes might have their own cost implications.
Who will incur costs	Scottish Government (MSS); vessel owners
Cost Estimate	£10,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact on fleet profit.
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	The meetings and discussions proposed could potentially lead to improved methods of stock assessment and to improved fishing opportunities. For these benefits to arise however, there would probably be significant costs involved. As with other proposals to improve stock assessment accuracy, we can assume an optimistic outcome that in the longer run, fishing opportunities do improve. If revenues increased due to improved fishing opportunities, then the normal variable costs would apply. A 1% increase in revenues would be £1 million. Assume a 25% operating profit margin, that would be extra profit of £250,000. Over 3 years that would be £750,000.
Potential Indirect Impact Estimate (£)	£750,000.

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impacts expected
Fish Stocks – Indirect Impact	1	The proposed meetings would be aimed at improving stock assessments through increased understanding and transparency, as a result of improved cooperation between scientists and industry. Greater inclusion of fishermen's knowledge and experience is expected to yield positive impacts on stock assessments and ultimately on the health and abundance of fish stocks (nephrops and other species).
On-shore Economy – Direct Impact	0	No direct impacts expected
On-shore Economy – Indirect Impact	1	Increased fishing opportunities is expected to increase incomes of individual vessels and the fleet. Fishermen may be more willing to invest in their vessels, resulting in an increased demand from shore-based suppliers and services. Higher landing volumes may also require additional processing capacity. This is likely to create a small number of new jobs.
Image – Direct Impact	0	No direct impacts expected
Image – Indirect Impact	1	No indirect impact expected (although improved cooperation amongst stakeholders in the sector will always be seen as a positive step forward)

Feasibility / how likely	1	FRS has specific vessels for this task; involvement of the fishermen unlikely to be through using their highly specialised vessels (other ways to include fishermens knowledge within stock assessments would need to be identified)

Risk	There is a risk that more meetings are held but this does not result in recognised improvement in understanding or implementation of stock assessments or in any improvement to fishing opportunities

Sector	Pelagic	**Action Ref**	11.1 - 11.9

Action	Maximise advantage through better international negotiations
Description	Measures to protect or improve fishing opportunities and to reduce or remove any unfair competitive advantage held by competing nations. All discussion groups identified a need to ensure that the Scottish fleet does not have any disadvantage compared to other nations' fleet and that the most is made of negotiations and relationships with other nations (particularly mentioned were Norway and Iceland). Included under this heading are several specific suggestions: 1. Address issue of small mackerel not being counted against quota in Norway 2. Create standard enforcement rules between EU / Norway for reporting in and out of each others' waters 3. EU must act in a consistent manner with regard to breaches of catch restrictions by any member state 4. Icelandic landings should be sampled. They must be prevented from destroying the mackerel stock in order to build up a track-record before joining the CFP. 5. Involve the Pelagic RAC in pressuring other MS to practice strong enforcement of catch limits. 6. Pressurise Norway to be visibly on the same terms as Scotland on matters such as accuracy of scales, percent water tolerance, adhering to quota etc 7. Undertake a detailed study / assessment of the threat to UK mackerel relative stability from non-EU countries.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Costs are likely to be ongoing Government and administrative costs, many of which could be covered by existing budgets for staff time and travel. For the proposed detailed study into threat to UK mackerel relative stability, there might be a consultant fee of, say, £10,000.
Who will incur costs	Government, to some extent industry, RACs.
Cost Estimate	Not estimated / low

Impact on Fleet Profit	
Direct Impact (describe)	Some of the proposed detailed actions could result in better outcomes for the fleet in international negotiations such that the allowable catch is increased. However the main types of desired outcomes appeared to be about stopping third countries from unduly exploiting the stocks, ruining the market by dumping product or operating more cheaply than the Scottish fleet due to lighter touch enforcement of other nations' vessels than Scottish vessels experience in third country waters. If these outcomes were achieved, there would be no direct impact on profit for the Scottish pelagic vessels.

Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	If the desired outcomes of reducing or removing unfair competitive advantage of third countries were achieved, then an indirect impact on Scottish fleet profit might arise if total volume available to the global market was reduced and prices increased. A price increase to vessels gives extra revenues which are all profit, as there is no increase in catching costs. In the event it would nearly impossible to prove cause and effect, but, it could be optimistically assumed that if all these activites took place and resulted in global price rises due to reduced global supplies, then the Scottish fleet would benefit. Assume a 0.5% price rise resulting indirectly from these actions. At current revenues of c. £100 million, that would be £500,000 extra revenues and profit. Over 3 years that would be £1.5 million.
Potential Indirect Impact Estimate (£)	£1,500,000

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	Not likely to be a direct impact.
Fish Stocks – Indirect Impact	1	If overall pressure on stocks was reduced there could be an improvement in abundance.
On-shore Economy – Direct Impact	0	No direct impact expected.
On-shore Economy – Indirect Impact	1	If Scottish vessels and processors benefit from improved prices, there could be onshore benefits due to improved profits.
Image – Direct Impact	0	No direct impact expected.
Image – Indirect Impact	0	No indirect impact expected.

Feasibility / how likely	2	Some of the specific actions listed under this heading are more likely to occur and to succeed than others.

Risk	There is a risk that any advantages gained might not result in any indirect impact on Scottish pelagic fleet profit.

Sector	Pelagic	**Action Ref**	14.2

Action	Evaluate use of onboard cameras to monitor and detect discards
Description	Measure to reduce discards and thereby protect stocks, protect catching opportunities, improve image, and improve revenues. Discarding fish is seen as a risk to stock sustainability, to catching opportunity and to marketing potential, apart from being a wasteful practice. The proposed action is to undertake an evaluation to assess the costs, advantages and technical feasibility of using special cameras on board vessels to monitor and detect discards. These have been trialled successfully elsewhere. The study could also audit this information against entries in the log book. Since the consultation event, the Scottish Government has progressed with the design of a pilot study of this kind of onboard camera system and intends to let a contract shortly to cover several fleet segments. At present (late May) however, no pelagic vessel owners has yet volunteered their vessel to take part in the pilot study.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Staff costs for study design, analysis, evaluation and reporting; testing camera equipment and installation onboard vessels. It might be possible to persuade the camera system suppliers to lend a system and temporarily install it and contribute to trials.
Who will incur costs	Industry, Seafish, Scottish Government, processing industry
Cost Estimate	£40,000

Impact on Fleet Profit	
Direct Impact (describe)	Not likely to be any direct impact or improvement on vessel profit as a result of carrying out the study.
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	If the study concludes that onboard cameras can help reduce discards or demonstrate low discards rates, then their implementation across the fleet could help improve stock sustainability and protect catching opportunities. If catch composition and quality is more consistent, then vessel and fleet profit could increase. It is difficult to make a useful estimate of the potential improvement to profit that would result if a successful camera scheme were introduced to monitor discards. Potentially, it might in futures years be illegal under the CFP to fish unless a vessel can adequately demonstrate discard rate below a certain level. Cameras might be a cost effective way of protecting the right to fish.
Potential Indirect Impact Estimate (£)	Not estimated / potentially very high

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact expected (although the evaluation itself might result in a small reduction in discards from the vessels involved, this would have not have any discernable impact on fish stocks)
Fish Stocks – Indirect Impact	2	If the study concludes that onboard cameras are a suitable way of reducing discards, their implementation across the fleet would be expected to have a positive impact on stock sustainability.
On-shore Economy – Direct Impact	0	No direct impact expected
On-shore Economy – Indirect Impact	1	If stock sustainability improves as a result of the implementation of onboard cameras across the Scottish pelagic fleet, the consistency and quality of landings would also be expected to improve. If the volume of 'quality' product being handled by processors increases it is possible that a small number of new jobs may be created.
Image – Direct Impact	0	No direct impact expected
Image – Indirect Impact	1	Implementation of any scheme that would reduce discards would be seen as contributing to the sustainability of the fishery and would be expected to have a positive impact on the image of the sector.

Feasibility / how likely	2	A pilot study has been designed by Marine Scotland (c/o Allan Gibb) and is likely to commence summer 2009. In order for the pelagic segment to benefit from the findings of the pilot however, there will need to be a pelagic vessel involved in the pilot study.

Risk	Risk that the study shows that the camera system is not suitable. However, since the discard question will not go away, some solution must be found to reduce discards and to demonstrate acceptably low rates of discards. This possible solution appears to be worth investigating.

Sector	Pelagic	**Action Ref**	14.3; 14.8

Action	Research and trials to improve sampling e.g. sampling nets, non-daylight jigging
Description	Measure to reduce discards and thereby protect stocks, protect catching opportunities, improve image, and improve revenues. Discarding fish is seen as a risk to stock sustainability, to the right to fish and to marketing potential, apart from being a wasteful practice. Attendees suggested that more research was needed into ways of improving sampling a school of fish before shooting the main nets. Two specific areas were highlighted: 1) improving jigging for non-daylight hours and 2) funding for trials of sampler nets e.g. catch IT (supplementary research into their use could be undertaken by Seafish via their Industry Project Fund)
Key ambition supported	Develop an efficient, and effective modern Scottish fleet which is profitable and can attract young people to the industry

Cost of Implementation	
Nature of Costs	Research study costs, might be carried out by MSS, Seafish, NAFC, gear manufacturers.
Who will incur costs	Scottish Government (industry in kind e.g. vessels space & time), Seafish
Cost Estimate	£30,000

Impact on Fleet Profit	
Direct Impact (describe)	No direct impact expected.
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	If jigging could be improved to be suitable to use during darkness, then the successes already realised from its use during daylight hours could be enjoyed for all hauls and slippages of undersized fish could be reduced. This could improve the image of the sector and also protect their right to fish, if it becomes necessary under the CFP to prove low rate discards in order to continue fishing. If that were the case then the entire sectors revenues and profits depend on finding solutions to reduce and demonstrate low rates of discards.
Potential Indirect Impact Estimate (£)	Not estimated / high

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact is expected
Fish Stocks – Indirect Impact	2	If the study finds a way to improve sampling / jigging, their use across the fleet would be expected to have a positive impact on stock sustainability.
On-shore Economy – Direct Impact	0	No direct impact expected
On-shore Economy – Indirect Impact	1	If stock sustainability improves as a result of improved sampling methods across the Scottish pelagic fleet, the consistency and quality of landings would also be expected to improve. If the volume of 'quality' product being handled by processors increases it is possible that a small number of new jobs may be created.
Image – Direct Impact	0	No direct impact expected
Image – Indirect Impact	2	Implementation of any scheme that would reduce discards would be seen as contributing to the sustainability of the fishery and would be expected to have a positive impact on the image of the sector.

Feasibility / how likely	2	Research and trials may incur costs initially for vessel owners; long term benefits include higher catch quality, less discards and improved profitability; positive impact on brand as a result

Risk	Risk that the research cannot find a way to make jigging successful in darkness.

Sector	Pelagic	**Action Ref**	14.5

Action	Introduce legislation to reduce discarding
Description	Measure to reduce discards and thereby protect stocks, protect catching opportunities, improve image, and improve revenues. Discarding fish is seen as a risk to stock sustainability, to the right to fish and to marketing potential, apart from being a wasteful practice. It was felt that legislation to reduce and eventually eliminate discarding of marketable species will be needed. Legislation should not require a total outright ban on all discards over night, but should take a phased approach to enable vessels to adjust. This may happen at CFP level in any event, outside the control (although not outside the influence) of the Scottish Government. But there was a suggestion that the Scottish Government should be leading on the introduction of legislation, either at a Scottish or CFP level.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Costs of preparing drafts and consulting on proposed legislation. Should fall within existing Government administrative budgets.
Who will incur costs	Scottish Government (technical, policy & legislative)
Cost Estimate	Not estimated

Impact on Fleet Profit	
Direct Impact (describe)	The impostition of legislation would have limited direct impact on fleet profits. If vessels comply with the legislation then impacts might occur.
Direct Impact Estimate (£)	£0
Potential Indirect Impact (describe)	The imposition of legislation to reduce discards may have no impact on fleet profit if vessels are already within or can easily operate within the allowed thresholds. In order to estimate profit impacts, direct or indirect, of any discard reduction legislation, there would need to be a detailed proposal as to the required limits and how the fleet would be likely to achieve those limits. It is also the case that the imposition of legislation regarding discards does not necessarily mean that businesses will comply with the legislation. Potentially, vessels may become less profitable in the immediate term as they incur costs or suffer reduced revenues or prices due to complying with the legislation. In the longer run, if legislation is effective, fishing opportunities would be protected and if volumes supplied decreased, then it is possible that prices might increase, so profit might be maintained.
Potential Indirect Impact Estimate (£)	Not estimated, possibly negative immediately, followed by long term positive

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	1	No direct impact is expected
Fish Stocks – Indirect Impact	2	If legislation is effectively enforced and widely complied with, then fish stocks could improve.
On-shore Economy – Direct Impact	0	No direct impact is expected
On-shore Economy – Indirect Impact	0	If legislation is effectively enforced and widely complied with, then volume of landings could decrease and onshore jobs might decline.
Image – Direct Impact	0	There could be some direct improvement to image even with the adoption of legislation, as long as it was promoted and there was expectation that vessels would comply.
Image – Indirect Impact	1	If there is evidence of widespread compliance with the legislation, and this is well promoted (e.g. by Seafish) then there could be very positive impacts on the image of the sector.

Feasibility / how likely	0	Fairly likely via European legislation

Risk	There is a risk that if Scotland introduces discard reduction legislation before any other state, that the Scottish fleet would incur additional costs of complying with the legislation but not enjoy any better sales prices as a reward for their environmentally friendly credentials.

Sector	Pelagic	**Action Ref**	14.6

Action	Establish an observer scheme to enforce legislation on discards (need 2 per boat at any time)
Description	Measure to reduce discards and thereby protect stocks, protect catching opportunities, improve image, and improve revenues. Discarding fish is seen as a risk to stock sustainability, to fishing opportunities and to marketing potential, apart from being a wasteful practice. One suggestion to reduce discarding was that an observer scheme should be established to enforce low discards rates and potential new legislation. It was considered that this would need 2 observers per boat at any time.
Key ambition supported	Develop cooperative, well-informed and effective decision-making at local, national and European levels to ensure the balance between fish stocks and catching activity is appropriate for long-term sustainability.

Cost of Implementation	
Nature of Costs	Average pelagic season of 90 days at sea, with 2 observers on board. Therefore for 20 vessels would need 3,600 days of observers at £150 per day
Who will incur costs	Industry, possibly Scottish Government, this could be discussed.
Cost Estimate	£540,000

Impact on Fleet Profit	
Direct Impact (describe)	Direct impact on profit would depend whether vessels had to contribute to funding. The action might mean that landings reduced or average CPUE reduced, giving a negative impact on profit in the short term.
Direct Impact Estimate (£)	Not estimated, possibly negative in the short run
Potential Indirect Impact (describe)	Potentially, in the longer term, if a reduction in discards improved stocks, there could be higher quotas and more secure revenues, which would have a positive impact on profit for the fleet.
Potential Indirect Impact Estimate (£)	Not estimated, possibly high in the long run

Other Impacts		
	Score	Description
Fish Stocks – Direct Impact	0	No direct impact expected
Fish Stocks – Indirect Impact	2	If discards are reduced as a result of onboard observers, then fish stocks could improve.
On-shore Economy – Direct Impact	1	Some more observer jobs would be created.
On-shore Economy – Indirect Impact	0	Volume of landings could decrease and onshore jobs might decline.
Image – Direct Impact	1	There could be some direct improvement to image with the adoption of an observer scheme as long as it was promoted.
Image – Indirect Impact	1	no indirect impact expected

Feasibility / how likely	0	Not so popular with industry, possible difficulty in recruiting and funding enough observers.

Risk	Observer schemes have a risk of failure due to difficulty in hiring enough adequately skilled and suitable people to act as observers.

6 Appendices

6.1 Appendix One. Multi-criteria analysis scores and definitions.

Impacts: definitions and scoring system	
Impact on fish stocks	How much the action would affect the abundance and size composition of fish stocks, and associated impact on sustainability of the fishery. Likely impacts will be directional & by range of impact.
+3: major improvement in health, abundance, SSB or recruitment of target species and other species; significant overall improvement in the fishing opportunity	
+2: major improvement in health, abundance, SSB or recruitment of target species only, improvement in fishing opportunity for target species	
+1: some improvement in health, abundance, SSB or recruitment of target species; noticeable improvement in fishing opportunity of target species	
0: no net impact on fish stocks (stable in terms of abundance and size composition, and no unusual seasonal variations) OR action has no influence on fish stocks	
-1: some decline in health, abundance, SSB or recruitment of target species only; noticeable decline in fishing opportunity for target species	
-2: major decline in health, abundance, SSB or recruitment of target species only; decline in fishing opportunity for target species	
-3: major decline in health, abundance, SSB or recruitment of target and other species (adverse long term impact on viability of fish stocks); significant overall decline in fishing opportunity	
Impacts on communities	How much the action would affect economic and social development of communities; could be impacts on wages, local employment; establishment of new enterprises or expansions of existing businesses, or changes in household disposable income
+3: creates or protects large number (>50) of new jobs, brings benefits to several regions, possibly all of Scotland	
+2: creates or protects some (20-50) new jobs, brings benefits to local communities in one region	
+1: creates a small number (<20) of new jobs (could be small number of jobs concentrated in a community or more jobs over a larger area)	
0: no net change in levels of employment OR this action has no impact on jobs / communities	
-1: loss of small number (<20) of jobs (but not resulting in high local impact)	
-2: loss of some (20-50) jobs, results in high local / community impact or some impact in one region	
-3: loss of large number (>50) of jobs, results in significant impact in several regions, and possibly all of Scotland (could be through closure of a company or cutbacks in several companies)	
Impact on reputation / image	How much the action would influence (improve or disadvantage) the brand position / reputation of Scottish landed species / fishing industry, resulting in changes in market / consumer perception, and ultimately changes in sales of Scottish species
+3: results in significant improvements in the market position of several Scottish species (becomes a recognised, high quality brand)	
+2: positive movement of the market position of several Scottish species (recognised as differentiated product) OR strong positive movement for single species	
+1: results in positive movement of the market position of a single Scottish species (clear recognition as differentiated product)	
0: no change in market position of Scottish species; no change in consumer awareness OR action does not impact on market position	
-1: results in negative movement in the market position of a single Scottish species (e.g. reduces ability to differentiate product)	
-2: results in negative movement of the market position of several Scottish species OR strong negative movement for single species	
-3: results in significant negative movement in the market position of several Scottish species	
Overall feasibility	Combined judgement on the acceptability to stakeholders, practicality of implementing and political desirability
+3: acceptable to all stakeholders; in line with government strategy and plans; no practical obstacles envisaged	
+2: acceptable to majority of stakeholders; generally in line with government strategy and plans; few practical barriers but not difficult to overcome	
+1: acceptable to most stakeholders but some opposition; generally in line with government strategy and plans; some practical barriers, solutions require effort / budget	
0: potentially positive outcome but number of stakeholder / technical or political barriers to be overcome; pros and cons negate each other e.g. may be strong support but also strong	
-1: not acceptable to most stakeholders but has some support; has potential to fit with current strategy / plans; some practical barriers, solutions but would require effort / budget	
-2: not acceptable to majority of stakeholders; does not fit well with current government strategy and plans; few practical barriers but difficult to overcome	
-3: not acceptable to all key stakeholders, and significant practical, political, etc barriers which would need to be overcome	

Table 6.1 Definitions and scores for multi-criteria analysis of impacts of proposed actions.

6.2 Appendix Two. First selection of actions.

Priority Area	Description	Priority	Score
Fisheries Management	1.1 Reduce Access to the Fishery - remove latent entitlement;	High	8
Fleet renewal	1.2 Provide financial help for fleet restructuring.	High	7
Fisheries Management	3. Study Tours - Learn from others about effort management	High	7.5
Marketing	6. True and Traceable Weighing System	High	7
Marketing	9. Scientific Research to Understand Impact of the Fishery	Medium / High	5.5
Marketing	12.1 Vessels, processors Seafood Scotland to work together to develop new markets	Medium	7
Marketing	12.2 Study visits to European markets for vessel owners	Medium	6

Table 6.2 List of actions for detailed analysis for scallop sector actions

Priority Area	Description	Priority	Score
Fisheries Management	f-4.1 Limit number of creels per area	High	7
Fisheries Management	f-4.2 Limit number of creels per boat, must be capable of laying and retrieving number laid	High	7
Fisheries Management	f-4.3 Restrict use of mobile gear in certain areas, to reduce conflict with creels	High	6
Marketing	f-8. Build trust and understanding - develop closer integration along whole value chain, especially between fishing and processors	High	8
Marketing	f-10. Facilitated visits to processing factories	Medium	6
Marketing	f-12.1 Seafish to put as much effort into promoting nephrops as they do for fish & chips	High	6
Marketing	f-12.2 Strengthen the UK market for seafood - encourage TV chefs to promoted & use langoustines	High	7
Marketing	f-12.3 Strengthen the UK market for seafood - targeted advertising, retail outlets, supermarkets	High	7
Marketing	g-9.1 Promote nephrops in emerging markets	High	7
Marketing	g-9.2 Promote nephrops products to improve demand - direct promotion campaign: grab before they go to Spain! Healthy eating campaign	High	7
Marketing	g-9.3 Promote nephrops products to improve demand - promote to celebrity chefs, TV, books etc	High	7
Marketing	g-9.4 Promote nephrops to children – children's TV	High	7
Marketing	g-9.5 Promote nephrops to children - schools activities, campaign, try & handle them.	High	7
Fleet renewal	f-14. Develop a 'scrap and build' scheme. Assess this action as scrap only - no money to be made available for rebuilding	High	7
Fleet renewal	g-3. Restructure the fleet into a profitable sector	Medium	6
Cost Reduction	g-1. Provide clear guidance (a fact sheet) on fuel duty and VAT implications. Or circulate existing guidance more widely.	High	7
Marketing	g-7. Illustrate the practice and benefits of matching catch rate to suit seasonal market demand	Medium	6
Marketing	g-8. Investigate the possibility of increasing the minimum landing size	High	6
Fisheries Management	g-13. Remove the west coast nephrops fleet from the impacts of the cod recovery plan by adopting a by-catch limit of 1.5% cod	High / Medium	8.5
Fisheries Management	g-14. Limit effort on static gear	High	7

Table 6.3 List of actions for detailed analysis for West of Scotland nephrops sector actions

Priority Area	Description	Priority	Score
Fisheries Management	1. Adopt a multi-year and regional approach to Fisheries Management	High	7
Stock Management	3.1 Develop more real-time stock advice, or more up to date advice	High	7
Stock Management	3.2 Research into impacts of closed areas so they are better understood as management tool	High	7
Stock Management	3.3 Improve Scientific Stock Assessment Methods	High	6
Fisheries Management	4. Use Positive Incentives (fishing opportunities) to Reward Good Practice (conservation, discards reductions)	High	6
Fisheries Management	5. Impose bigger mesh sizes - to allow increased TACs	High	5
Fleet renewal	8. Fleet Restructuring - assist licence combination, with VCU reduction, with no loss of quota	Medium	6
Cost Reduction	10. Cooperative Fuel Purchase Scheme	Medium	6
Marketing	11.1 Seafood Scotland to run joint promotion with large restaurant / fast food chains	Medium	6
Marketing	11.2 Promote Scottish white fish product to UK consumers. Fleet / PO could pay.	Medium	6
Marketing	11.3 Promotional activity in schools, more fish in schools meals to build market demand	Medium	6
Marketing	11.4 Get the white fish fisheries accredited under something like MSC	Medium	6
Fisheries Management	S. Gov to ensure enough days to catch quota so vessels don't go out of business	Medium	5

Table 6.4 List of actions for detailed analysis for demersal sector actions

Priority Area	Description	Priority	Score
Fleet renewal	1. Decommissioning scheme - better planned than previous schemes	High	7
Fisheries Management	5. Plan in a time lag between agreeing new management rules and implementing them	High	7
Fisheries Management	6. Improve the science/industry partnership and understanding of stock assessment methods: hold small group meetings with scientists and fishermen, outside of usual association meetings.	Medium	6
Fisheries Management	7. Adopt a long term management plan for the North Sea nephrops fishery	High	8
Fisheries Management	8. Find a way to exclude nephrops vessels from the impacts of the cod recovery plan	High	6
Fisheries Management	10. Continue to develop ways to reward conservation innovations with improved fishing opportunities	Medium / High	6.5

Table 6.5 List of actions for detailed analysis for North Sea nephrops sector actions

Priority Area	Description	Priority	Score
Fisheries Management	1.1 Suspend licence of vessels caught landing undersize shellfish	High	8
Fisheries Management	1.2 Enforce minimum landing size more widely & effectively. Inspect more lorries and factories	High	7
Stock Management	1.3 Adopt rule to have compulsory escape hatch for small shellfish in pots / creels.	High	7
Fisheries Management	1.4 Run more care of catch seminars and provide continuous education for fishermen	High	7
Marketing	1.5 Certify the crab fishery as sustainable	High	7
Fisheries Management	1.6 Introduce quality standard for shellfish onshore, quality of meat, condition of shell	High	6
Stock Management	1.7 Introduce code of practice for vessels. E.g. v-notching, landing of crippled shellfish	High	6
Fisheries Management	2.1 Remove unused vessel licences, not used for 3 years	High	8
Fisheries Management	2.2 Limit no. of pots per vessel, by capacity of vessel, no transfer allowed	High	7
Fisheries Management	2.3 Ban mobile gear from most valuable crab grounds	High	6
Stock Management	2.4 Introduce compulsory closed areas to preserve stocks, e.g. via IFGs	High	6
Marketing	6.1 Stimulate UK market growth	High	8
Marketing	6.2 Promote shellfish in schools via educating children about shellfish	High	8
Marketing	6.3 Seek public sector funding for promotion activities	High	8
Marketing	6.4 PR activities: promote omega 3 & good cholesterol benefits of crab, environmentally friendly credentials; crab as value for money; encourage supermarkets to promote shellfish; get hero / real people to promote at stages of the value chain	High	8
Fleet renewal	10. Scrap and build / decommissioning. Score as scrap only. No rebuild.	Medium	6
Fisheries Management	15.1 IFGs should strive to give fishermen a strong voice within the group and elsewhere	High	7
Fisheries Management	15.2 Fishermen recognised within Inshore Fisheries Groups for their environmental knowledge	High	7
Fisheries Management	15.3 Empower Inshore Fisheries Groups - ensure they have an unbiased person in the chair	High	7
Fisheries Management	15.4 Empower Inshore Fisheries Groups - locally managed conservation schemes	High	7
Fisheries Management	14. More value attributed to the knowledge of fishermen - incorporate into management decision making	High	6
Fisheries Management	17. Stop trading fish for political purposes (Ireland)	Medium	6

Table 6.6 List of actions for detailed analysis for crab and lobster sector actions

Priority Area	Description	Priority	Score
Marketing	1. Create a system of UK credit supply or guarantee for exports	High	6
Marketing	3. Promotion programme to increase demand and consumption. 6 specific ideas	High	8
Marketing	4. Evaluate possibility of a Scottish auction for pelagic fish	Medium	7
Fisheries Management	8. Strengthen involvement of vessel owners in stock assessment	High	6
Fisheries Management	11.1 Address issue of small mackerel not being counted against quota in Norway	High	7
Fisheries Management	11.2 Create a level playing field EU/Norway for reporting in and out of each others' waters. Put these rules onto Norwegian vessels	High	6
Fisheries Management	11.3 EU take action in consistent way against member states in breach of catch restrictions. Apply pressure on the EU to ensure that MS strengthen their monitoring and enforcement in line with existing agreements.	High	9
Fisheries Management	11.4 Icelandic landings to be sampled. Need to prevent them destroying the mackerel stock to build up track record for EU entry.	High	8
Fisheries Management	11.5 Involve the Pelagic RAC in pressurising other MS to practice strong enforcement of catch limits.	High	7
Fisheries Management	11.6 Pressurise Norway to be visibly on the same terms as Scotland on matters such as accuracy of scales, percent water tolerance, etc.	High	6
Fisheries Management	11.7 Scotland / UK / EU should be more vigorous with Norwegians not landing over quota (e.g. 8% water tolerance)	High	7
Fisheries Management	11.8 SFPA - do more spot checks on Norwegian vessels at EU/Norway line	High	6
Fisheries Management	11.9 Undertake a detailed study / assessment of the threat to UK mackerel relative stability from non-EU countries.	High	8
Fisheries Management	14.1 Evaluate possibility of using special Cameras on board (these have been trialled successfully elsewhere) Audit against log book	High	7
Fisheries Management	14.2 Gear technology research - improving jigging for non-daylight hours	High	8
Fisheries Management	14.3 Legislate to reduce discarding - aim to eliminate [don't have a total outright ban on all discards overnight - need time to adjust]	High	7
Fisheries Management	14.4 Observer scheme - to enforce legislation, need 2 per boat at any time	High	7
Fisheries Management	14.5 Sampler nets - funding for trials e.g. catch IT. Seafish could do secondary research into their use	High	7

Table 6.7 List of actions for detailed analysis for pelagic sector actions