SEAFISH
the authority on seafood

SEAFISH ECONOMIC ANALYSIS

UK 15m & over Scallop Fleet Area VII

Economic analysis of the UK 15m and over scallop fishing fleet in ICES Area VII

March 2016

AUTHORS:

Arina Motova (Seafish)
Hazel Curtis (Seafish)
Marta Moran Quintana (Seafish)
Sébastien Metz (Sakana Consultants)

Seafish Report No SR692
ISBN No 978-1-906634-98-8

Seafish Economics
Seafish Industry Authority
18 Logie Mill
Logie Green Road
Edinburgh, EH7 4HS

TABLE OF CONTENTS

1. INTRODUCTION

In response to requests by the Scallop Industry Consultation Group (SICG), the Department for Environment, Food and Rural Affairs (DEFRA) and the Marine Management Organisation (MMO), Seafish has undertaken an economic analysis of scallop fishing in ICES Area VII by UK vessels of length 15m and over. The purpose of the analysis is to provide information to assess trends in the profitability of the sector in recent years and to support decision-making with regards to management measures (i.e., the Western Waters management regime for scallops in Area VII).

1.1. BACKGROUND AND PURPOSE OF THE ECONOMIC ANALYSIS

The Western Waters management regime (WWMR) for scallops applies to UK fishing vessels 15m and over in length fishing for king scallops (SCE) or queen scallops (QSC). As part of the management regime there is a limit in the annual number of days at sea (DAS) a vessel can spend fishing for scallops in Area VII. The DAS limits, first introduced in 2012, are shown in Table 1.

Table 1 Annual DAS limits per vessel under the Western Waters management regime for scallops in Area VII

	2012	**2013**	**2014**
DAS allocation	166	150	199

Three years into implementation, there have been discussions between DEFRA, MMO and SICG with regards to the profitability of the 15m and over scallop fishing fleet in Area VII under the WWMR. To inform these discussions, Seafish has conducted an analysis of the economic performance of the 15m and over scallop fleet in Area VII. The objectives of the analysis are:

- To provide a greater understanding of the drivers and factors affecting the profitability of the Area VII 15m and over scallop fleet;
- To determine if there has been a negative impact on the profitability of the 15m and over scallop fleet after implementation of the WWMR; and
- Should the analysis highlight a negative impact on the profitability of the 15m and over scallop fleet, to help determine its causes and whether intervention is needed.

1.2. STRUCTURE OF THE REPORT

The report is structured in the following sections:

- Section 2 provides an executive summary;
- Section 3 describes the data sources used and the methodology followed in the economic analysis;
- Section 4 provides an overall description of the 15m and over scallop fleet and its activity;
- Section 5 provides data on the economic performance indicators for the 15m and over scallop fleet;
- Section 6 provides a summary and discussion of results;
- Appendix A provides data tables that support the figures presented in the report; and
- Appendix B provides maps that support the figures presented in the report.

2. EXECUTIVE SUMMARY

From 2012, the UK 15m and over king scallop fishing fleet in ICES Area VII has been operating under the Western Waters management regime (WWMR), which limits the number of annual days at sea (DAS) a vessel can fish for scallop or queen scallops. Three years into the implementation of the WWMR, discussions between the Department for Environment, Food and Rural Affairs (DEFRA), the Marine Management Organisation (MMO) and the Scallop Industry Consultation Group (SICG) highlighted a concern on the profitability of the king scallop fleet in Area VII. To address these concerns, a study on the profitability of the sector was commissioned to Seafish in 2015, the results of which are presented in this report.

An analysis of the economic performance of the king scallop fishing fleet in Area VII was conducted for the period 2006-2014. The objectives of the analysis were to describe the drivers affecting the profitability of the fleet and whether the implementation of the WWMR has had an impact on it, in order to determine if intervention is needed. MMO data on trips by UK 15m and over vessels targeting and landing king scallops in the period 2006-2014 were used in combination with costs data at vessel level from Seafish to inform the analysis.

Results show that vessel numbers and fishing effort for king scallops in Area VII experienced a significant growth between 2006 and 2014. In particular, the years 2010 and 2011 saw a steep increase in fishing effort in Area VII, likely caused by an influx of vessels from other areas and higher fishing effort by vessels in Area VII due to switching from other activities and a growth in scallop numbers. In these years the productivity of the fishery increased and the volume and value of Area VII king scallop landings reached their highest levels during the period analysed. Costs for Area VII king scallop fishing vessels in this period increased in line with fishing effort, but the rise in fishing income meant that profitability of the fleet grew.

After the introduction of the WWMR in 2012, fishing effort in Area VII decreased, as a number of vessels using their full allocation of effort in Area VII moved into other areas. Fishing effort in Area VII however remained at higher levels than it had been prior to the rise in 2010, due to the number of vessels operating in the area having increased since then. In this period the volume of Area VII king scallop landings decreased, driving down overall fishing income. The productivity of the fishery decreased as well, indicating that this, and not the reduction in fishing effort after the implementation of the WWMR, is likely the main driver behind the declining weight of landings. At the same time, fishing costs for Area VII king scallop fishing vessels decreased from 2012 due to falling crew shares and fuel costs.

The reduction in costs however was not enough to compensate the deterioration in fishing income, resulting in a loss of profitability of the 15m and over king scallop fleet in Area VII in 2013 and 2014; although the fleet still remained profitable. The analysis points to the need of further investigation into the decline in productivity of the Area VII king scallop fishery in order to address the causes of the fall in profitability.

3. DATA SOURCES AND METHODOLOGY

The analysis presented in this report uses activity and economic data of the UK 15m and over scallop fishing fleet to characterise the economic performance of this fleet in recent years (2006-2014).

The data sources used include:

- Data on all trips undertaken by UK 15m and over vessels that targeted and landed any amount of king scallops in the calendar year during the period 2006 to 2014. This data was provided by MMO and contains information on the trip duration, area fished, gear used, composition of landings by species and value landed by species;
- Annual fleet economic performance time series produced by Seafish. These datasets contain information on costs (fishing costs and other costs) and revenues for the UK fleet at vessel level.

The following main indicators have been used to describe the activity and performance of the UK 15m and over scallop fishing fleet in Area VII:

- Fishing capacity (number of vessels);
- Fishing effort;
- Productivity of the fishery;
- Average price of landings per species;
- Fishing costs and income; and
- Profitability indicators.

A number of assumptions have been made in the analysis:

- In trip level data, no information was available on steaming and fishing times within the same trip. Therefore, the overall duration of a trip has been allocated to fishing effort;
- Similarly, when a trip straddled more than one ICES rectangle no information was available on the point at which the change occurred. The overall trip duration has been allocated to the initial area.

In this report a day at sea (DAS) has been defined as a calendar day, in line with the definition used for regulatory purposes.

We differentiate between king scallops (SCE) and queen scallops (QSC) throughout the report.

4. OVERVIEW OF THE UK 15M AND OVER SCALLOP FISHERY

In order to provide a background for the economic analysis of the 15m and over scallop fishing fleet in Area VII, this chapter presents a general overview of the fleet and fishery (fishing capacity, effort, temporal and spatial trends). The description is based on MMO data for all trips done by 15m and over vessels that, for each calendar year, targeted and landed any amount of king scallops during the period 2006 to 2014. For comparison purposes, the analysis includes fishing activity in ICES Areas IV and VI, as well as Area VII. Vessels targeting queen scallops have not been considered as part of this analysis.

The data and figures presented in this chapter are complemented by the information presented in Appendices A and B.

4.1. FISHING CAPACITY

Fishing capacity (expressed as the number of UK 15m and over vessels targeting and landing king scallops) did not change significantly from 2006 to 2010, comprising between 74 and 77 vessels. However from 2011 to 2014 the trend changed to an increasing one, growing up to 99 vessels in 2014. This is seen in Figure 1, which also splits the number of vessels by importance of king scallop in their annual income.

Vessels in the category ">95% fishing income from SCE" represented the largest fraction of the fleet, although with variable importance over the period analysed. They represented 65% of the fleet in 2009, but in 2011 this figure fell to 37%, increasing slightly in later years in line with the number of vessels.

An increasing trend is observed in the number of vessels in the "60%-80% fishing income from SCE" category, from 5% of the fleet in 2006 to 14% in 2014. Other groups of vessels partially dependent on king scallops also increased their presence in the fleet in recent years. Therefore, although vessels for which king scallops is their only source of income still represented the largest share of the fleet, the growth of the king scallop fishing fleet in 2011-2014 was mainly driven by vessels for which king scallops are an important, but not the only, source of income.

The data used in the preparation of Figure 1 can be found in Appendix A: Data Tables.

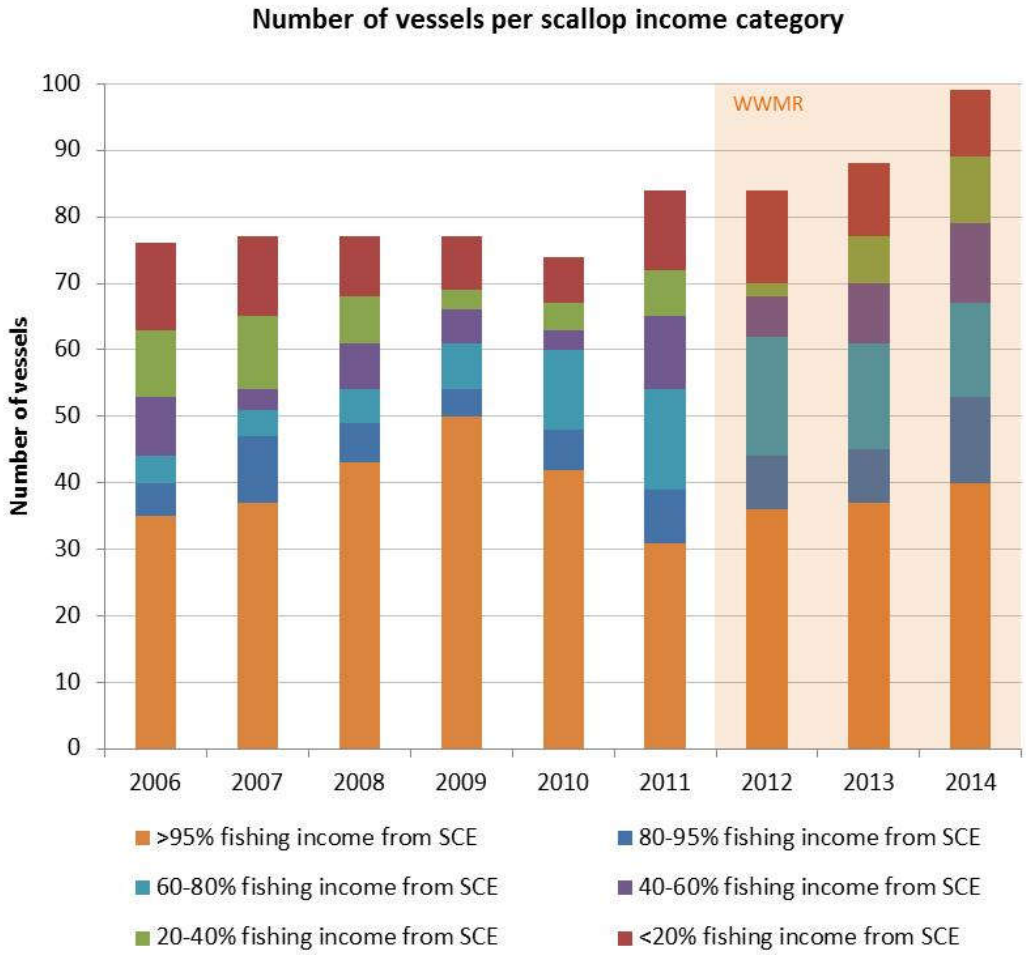


Figure 1 Number of vessels by income category (UK vessels targeting and landing any king scallops, 2006-2014)

4.2. FISHING EFFORT

This section describes the fishing effort (expressed as kW per day at sea) of the UK 15m and over vessels targeting and landing king scallops. The analysis is based on individual trip data and reveals patterns and trends in fishing effort by these vessels in sea areas IV, VI and VII.

4.2.1. BY GEAR TYPE

For the purpose of this analysis, the gears used by these vessels have been grouped into the following types:

- Dredges: boat dredges, mechanised dredges;
- Trawls: beam trawls, bottom trawls, *Nephrops* trawls, otter trawls, pair trawls;
- Other gears: handlines and polelines, pots, miscellaneous gear.

The main gear type used by these vessels in all areas analysed was dredges, followed by trawls in Area VII. The rest of gears represented a small fraction of total fishing effort or were not used, as seen in Table 2.

In 2009 and 2010, trawling effort in Area VII declined while dredging effort increased. A possible explanation for this is found in the STECF report on evaluation of the Management Plan for Western Channel sole[1]. According to this report, some beam trawlers that targeted sole in the Western Channel increased their scalloping activity in 2009-2013 due to a reduction of sole fishing opportunities in the area. In addition, as indicated by DEFRA in a 2011 Scallop Order consultation document[2], an apparent increase in scallop abundance in the Eastern Channel (Area VIId) led to an increase of dredging effort in this area up to 2010.

This trend was reversed from 2011 to 2014, when dredging effort was reduced and trawling fishing effort increased, representing a higher proportion of total effort. This indicates that after focusing on dredging in 2009/2010, other fishing activities grew in importance in Area VII for these vessels from 2011, although dredges were still the main gear used. This matches the pattern detected in Figure 1, which shows that a large proportion of the vessels targeting and landing king scallops in 2011-2014 were not solely dependent on this species for income.

In the same period (2011-2014), trawling also represented a higher fraction of total effort in Area VII than in areas IV and VI, indicating that vessels in these areas concentrated almost entirely on scalloping, as opposed to Area VII where other activities were also important for the vessels included in this analysis.

Table 2 Fishing effort per sea area and gear type (UK 15m and over vessels targeting and landing any SCE, 2006-2014)

Area	Gear Type	kW DAS (thousands)								
		2006	2007	2008	2009	2010	2011	2012	2013	2014
IV	Dredges	1,247	1,446	1,255	1,278	962	796	1,102	1,913	1,762
	Trawls	51	30	25	9	12	11	2	0	15
	Other	3	0	0	0	0	1	3	5	0
	Total	1,302	1,476	1,279	1,286	974	807	1,106	1,919	1,777
VI	Dredges	594	464	836	774	461	503	902	645	848
	Trawls	251	285	262	216	30	30	32	46	50
	Other	0	0	0	0	0	0	0	0	0
	Total	844	749	1,097	990	491	533	934	691	898
VII	Dredges	3,048	3,278	3,265	3,763	4,698	4,688	4,092	3,863	3,421
	Trawls	854	823	1,025	468	449	1,056	765	877	1,591
	Other	0	0	4	4	0	2	10	19	17
	Total	3,902	4,101	4,294	4,235	5,147	5,745	4,867	4,758	5,029

[1] Scientific, Technical and Economic Committee for Fisheries (STECF) - Evaluation/scoping of Management plans - Evaluation of the multiannual plan for the management of Western Channel sole (Regulation EC 509/2007)(STECF-14-04). 2014. Publications Office of the European Union, Luxembourg, EUR 26613 EN, JRC 89793, 50 pp.
https://stecf.jrc.ec.europa.eu/documents/43805/704266/2014-04_STECF+14-04+-+WC+sole+management+plan_JRC89793.pdf

[2] Department for Environment, Food and Rural Affairs (DEFRA) - Consultation on the evidence base for a proposed new English Scallop Order, 2011.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/82327/110826-scallops-condoc.pdf

4.2.2. BY SEA AREA

Total fishing effort was higher in Area VII than in other areas, and overall grew by 29% from 2006 to 2014 along with the number of vessels operating in this area, as seen in Figure 2.

This increasing trend was not uniform: as it can also be observed in Table 2, there was a significant increase in fishing effort in Area VII from 2009 to 2011, caused mainly by an increase in dredging effort, possibly due to a reduction in sole fishing opportunities and increased scallop abundance in the Channel area, as explained in Section 4.2.1. From 2012 to 2014, when the WWMR was enforced, fishing effort in Area VII decreased but still remained at higher levels than in the pre-2009 period, due to the higher number of vessels operating in the area.

The years of sharp increase in fishing effort in Area VII coincided with a decline in effort in Areas IV and VI from 2009 levels. Effort in these areas rose again in 2012, particularly in Area IV. This could indicate that part of the increase in fishing effort observed in Area VII in 2010 and 2011 was caused by vessels moving into this area from Areas IV and VI, as well as by additional fishing effort by vessels already operating in Area VII. These vessels then moved to Area IV once effort limitation measures were in place in Area VII. This is further investigated in Section 4.2.4.

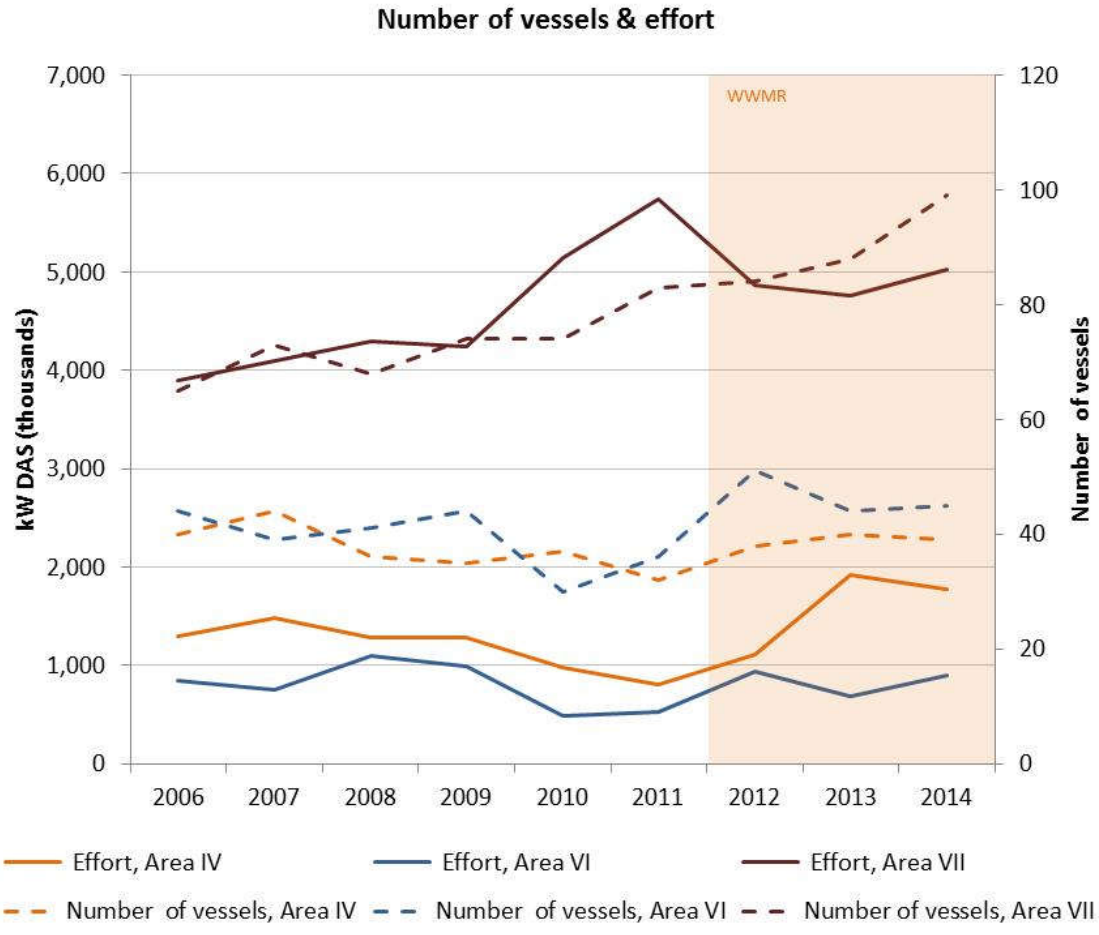


Figure 2 Number of vessels and total effort per sea area (UK vessels targeting and landing any SCE, 2006-2014)

Average fishing effort per vessel was also higher in Area VII than in Areas IV and VI, as seen in Figure 3. It remained stable around 60,000 kW DAS from 2006 to 2009 and experienced a sharp rise in 2010 and 2011 (21% over 2009 levels). It then decreased after 2011, reaching its lowest level during the period analysed in 2014.

Average effort in Areas IV and VI fell in 2010 and 2011, and remained at these lower levels in Area VI up to 2014, while in Area IV it increased in 2012 and particularly in 2013 when it reached its highest value during the period analysed. Similarly to Figure 2, this further suggests a displacement of effort from Areas IV and VI into Area VII in 2010 and 2011, with some vessels abandoning it after the implementation of the WWMR.

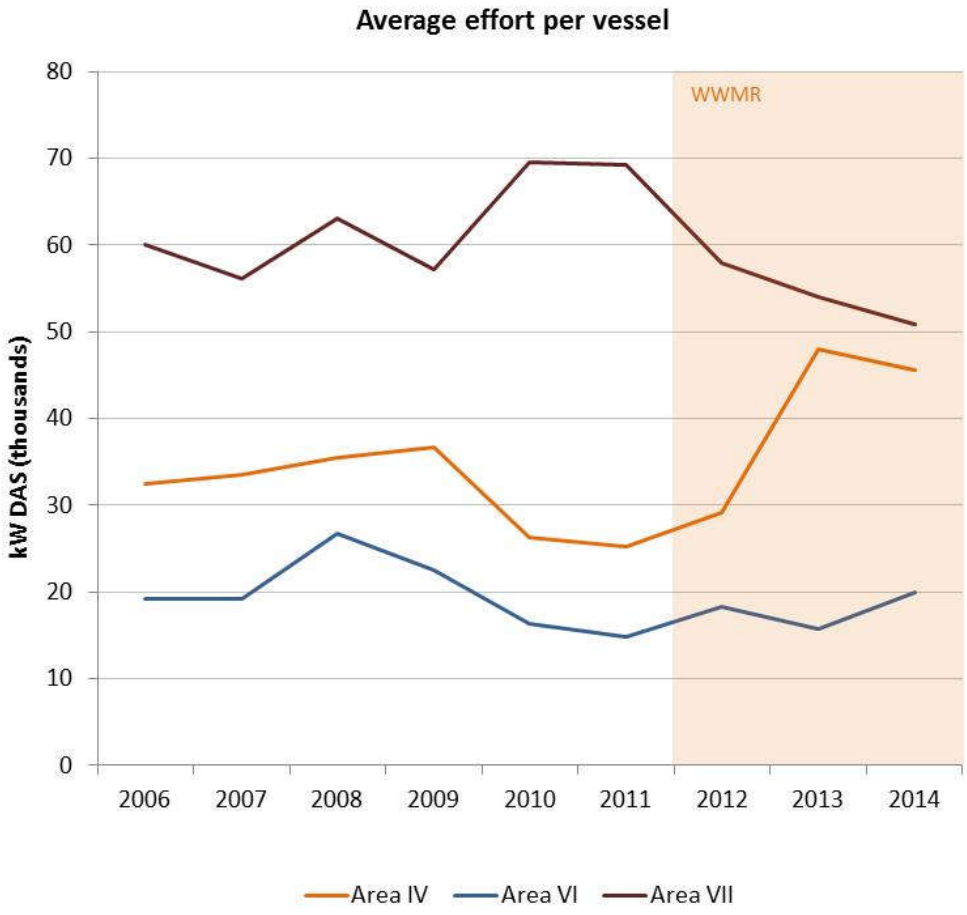


Figure 3 Average effort per vessel per sea area (UK vessels targeting and landing any SCE, 2006-2014)

4.2.3. SPATIAL DISTRIBUTION OF EFFORT

The information above indicated an increase in total fishing effort (largely comprised of dredging effort) in Area VII in the years 2010 and 2011. The increase can be attributed to both vessels already operating in Area VII and to vessels moving into this area from Areas IV and VI. Possible causes for this additional effort include greater scallop numbers in the Eastern Channel (VIId) and reduced sole fishing opportunities in the Western Channel (VIIe), as detailed in Section 4.2.1.

Maps of dredging effort in Area VII in 2009 and 2010 confirm this trend, as seen in Figure 4 and Figure 5, showing that this increase in effort occurred mostly in Area VIId (where numbers of scallops increased), and to a lesser extent in Areas VIIe and VIIa. In Area VIIa there was a concentration of effort around the Isle of Man.

Tables with the number of vessels per sea area can be found in Appendix A: Data Tables. The complete set of maps showing the spatial distribution of effort in the period 2006 to 2014 can be found in Appendix B: Data maps.

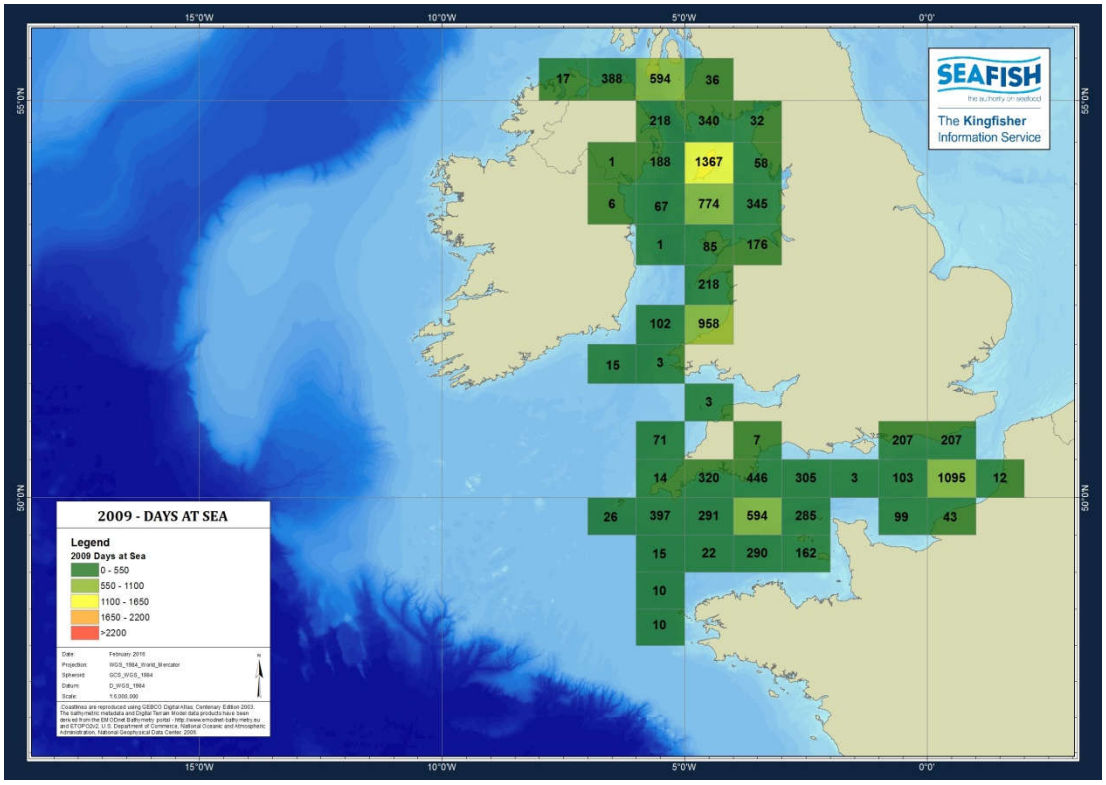


Figure 4 Spatial distribution of dredging effort (DAS) in 2009 (UK vessels targeting and landing any SCE)

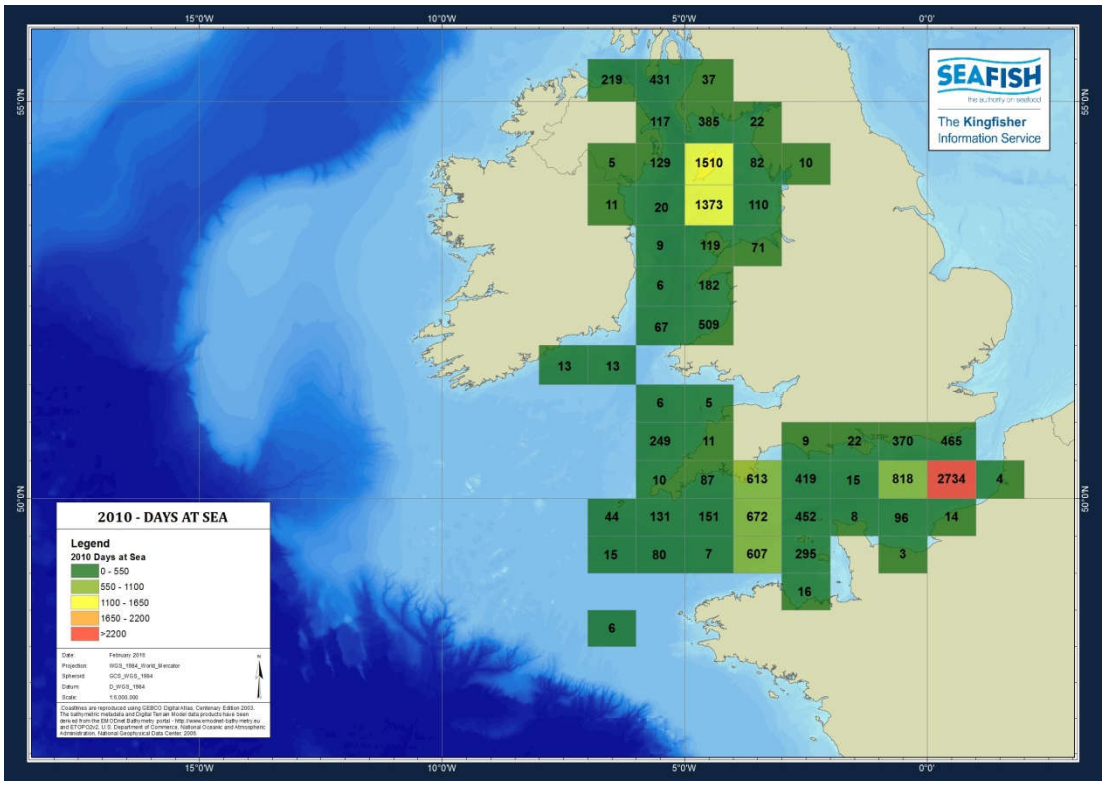


Figure 5 Spatial distribution of dredging effort (DAS) in 2010 (UK vessels targeting and landing any SCE)

4.2.4. EFFECT OF THE WESTERN WATERS MANAGEMENT REGIME

This section presents an analysis of how the implementation of the WWMR affected the king scallop fishing fleet in Area VII.

Results show that approximately 20% of the vessels used their full allocation of DAS in 2012 and 2013 under the WWMR, as seen in Table 3 . However, due to the increased allocation of DAS in 2014 no vessels were affected that year.

Table 3. Usage of DAS allocation in Area VII (UK vessels targeting and landing any king scallops, 2006-2014)

Number of vessels per DAS allocation usage	2012	2013	2014
Full DAS allocation used	18	19	0
90-100% of DAS allocation used	6	3	2
80-90% of DAS allocation used	5	4	1
60-80% of DAS allocation used	11	10	16
40-60% of DAS allocation used	21	33	30
20-40% of DAS allocation used	9	12	30
<20% of DAS allocation used	14	7	20
Total number of vessels	**84**	**88**	**99**

The effort limitation in Area VII is a potential explanation for the increase in fishing effort in Areas IV and VI in 2012-2014 observed in Figure 2, as vessels that used their full allocation of DAS in Area VII moved into these areas.

This is further supported by an analysis of the fishing effort by the 18 vessels (as shown in Table 3) that used their full allocation of DAS in 2012, presented in Figure 6. The analysis shows that the majority of their fishing effort concentrated in Area VII and grew significantly from 2007 to 2010-2011. After the implementation of the WWMR, their effort in Area VII fell back to 2006 levels, while effort in Area VI and in Area IV in particular increased.

This confirms that the implementation of the WWMR resulted in a number of vessels in Area VII having their fishing effort capped, which caused them to switch part of their fishing effort to other areas. The majority of the vessels however (approximately 80%) remained unaffected by the WWMR.

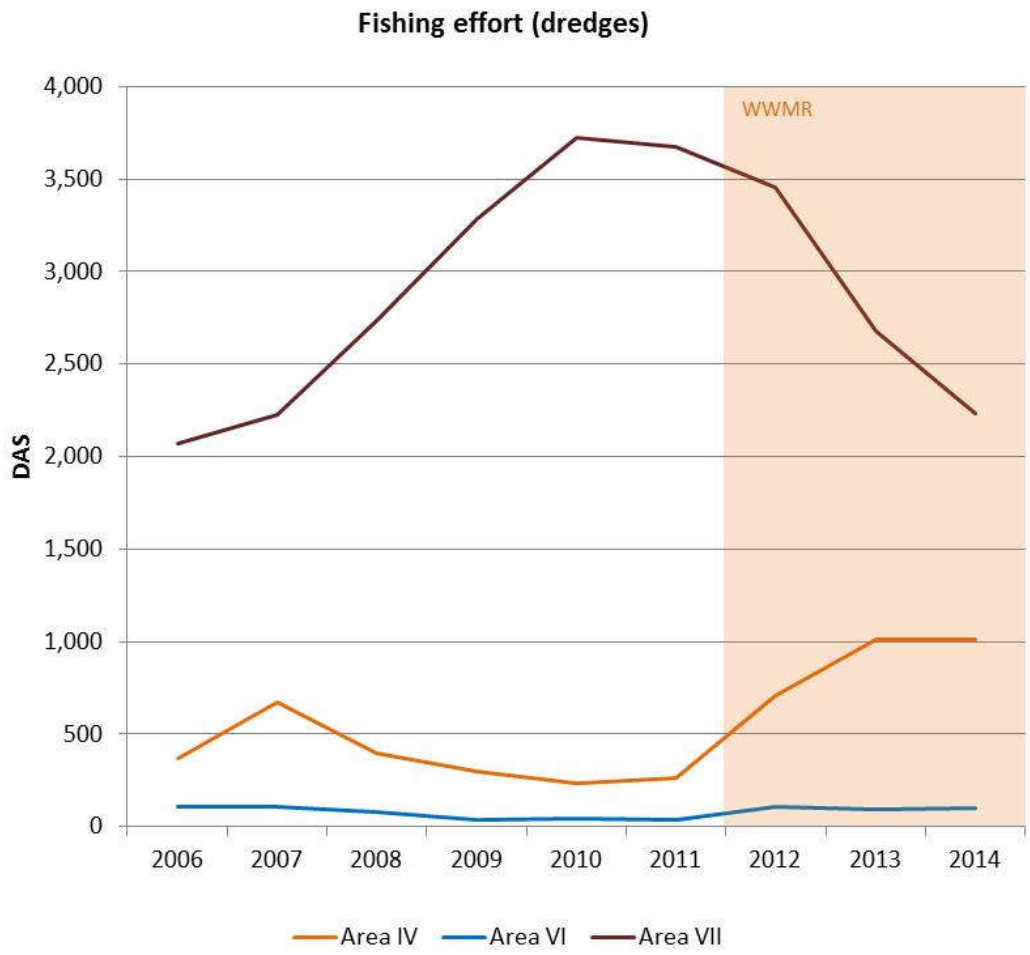


Figure 6 Fishing effort (dredges) by vessels that used their full allocation of DAS in Area VII in 2012

5. ECONOMIC PERFORMANCE OF THE UK 15M AND OVER SCALLOP FISHING FLEET IN AREA VII

5.1. MAIN FACTORS AFFECTING INCOME AND PROFITABILITY

The following section describes the main factors affecting revenues and profitability of the king scallop fishery in Area VII: king scallop prices and productivity of the fishery.

5.2. KING SCALLOP PRICES

Average king scallop price in Area VII remained roughly stable between £1,618 and £1,868 per tonne during the period 2006-2014, as seen in Figure 7.

Prices for king scallops caught in Areas IV and VI were higher, between £1,806 and £2,557 per tonne. The average price of king scallop per tonne landed decreased in Area VI from 2006 to 2014, reaching a similar price to that of Area VII in 2014.

The data used for the preparation of Figure 7 can be found in Appendix A: Data Tables.

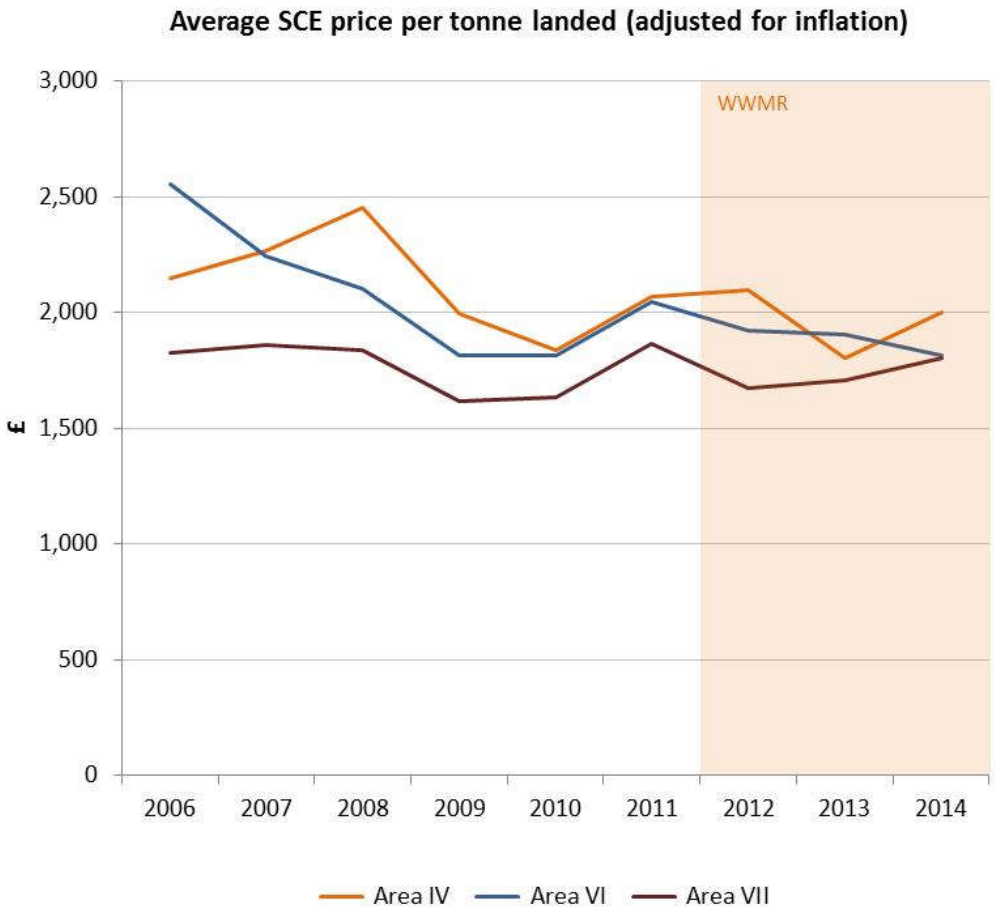


Figure 7 Average scallop price per tonne landed, Areas IV, VI and VII

5.3. KING SCALLOP FISHERIES PRODUCTIVITY

In order to estimate productivity of the fishery, landings per unit of effort (LPUE) have been calculated as the total volume and value of landings per DAS and sea area, based on trip level data. To focus the analysis on the productivity of king scallop fishery only trips where king scallops represented at least 90% of the total value landed were considered. Results are shown in Figure 8.

LPUE in Area VII showed a marked increase from 2006 to 2009 and decreased slightly in 2010 and 2011. In 2012, the first year of implementation of the WWMR, LPUE increased to 2009 levels, and dropped in subsequent years to 2006 levels. In Areas IV and VI, LPUE increased from 2006 to 2012-2013 and decreased afterwards, although in a smaller magnitude than the decline observed in Area VII.

These results point to a decline in the productivity of the king scallop fishery in Area VII from 2012. Previously there had been four years of high productivity, which are likely the reason behind the increased fishing effort and displacement of effort from other areas into Area VII in 2009-2011 observed in Section 4.2.

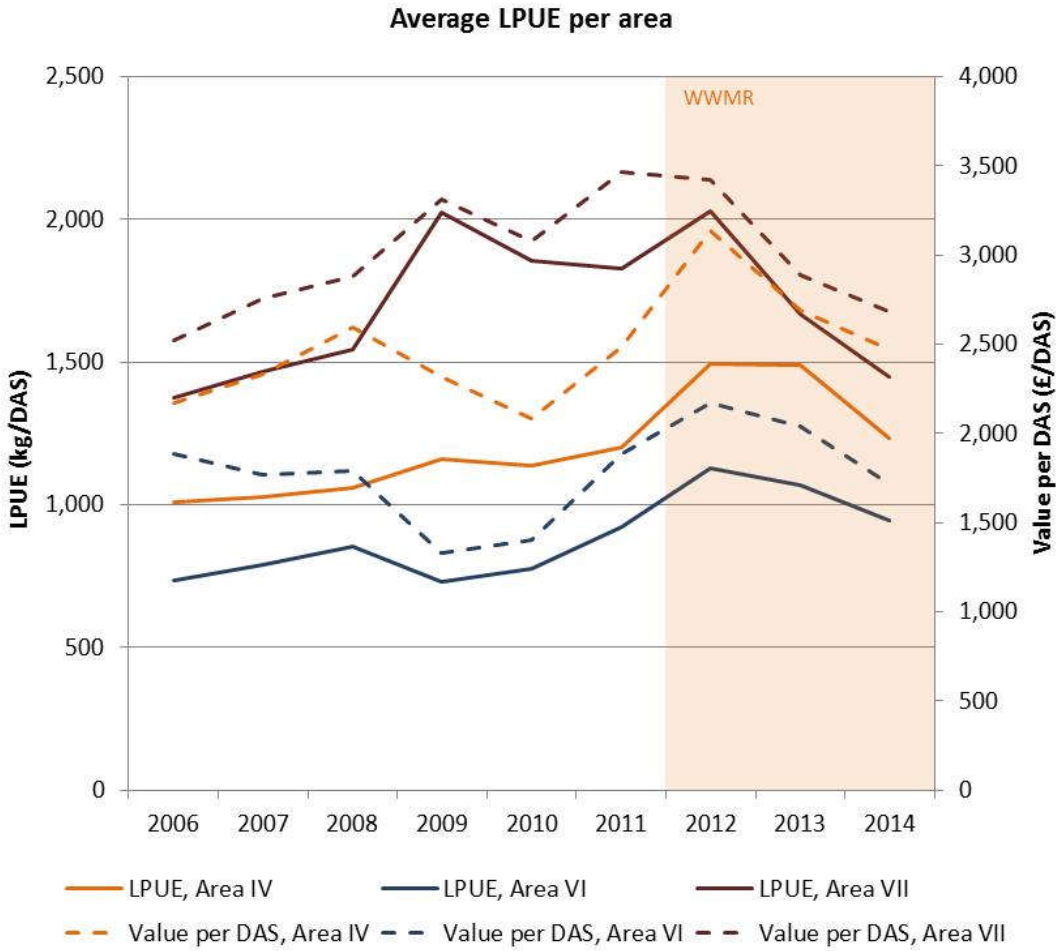


Figure 8 Landings per unit of effort (UK vessels targeting and landing any SCE, 2006-2014)

The spatial distribution of average LPUE in Area VII in 2009 and 2014 is shown in Figure 9 and Figure 10. These figures show a decrease of LPUE across Area VII, particularly in Area VIId and eastern Area VIIa. These are the areas where a high increase or concentration of fishing effort in 2010-2011 was observed in Sections 4.2.2 and 4.2.3.

The complete set of maps showing the spatial distribution of LPUE can be found in Appendix B: Data Maps.

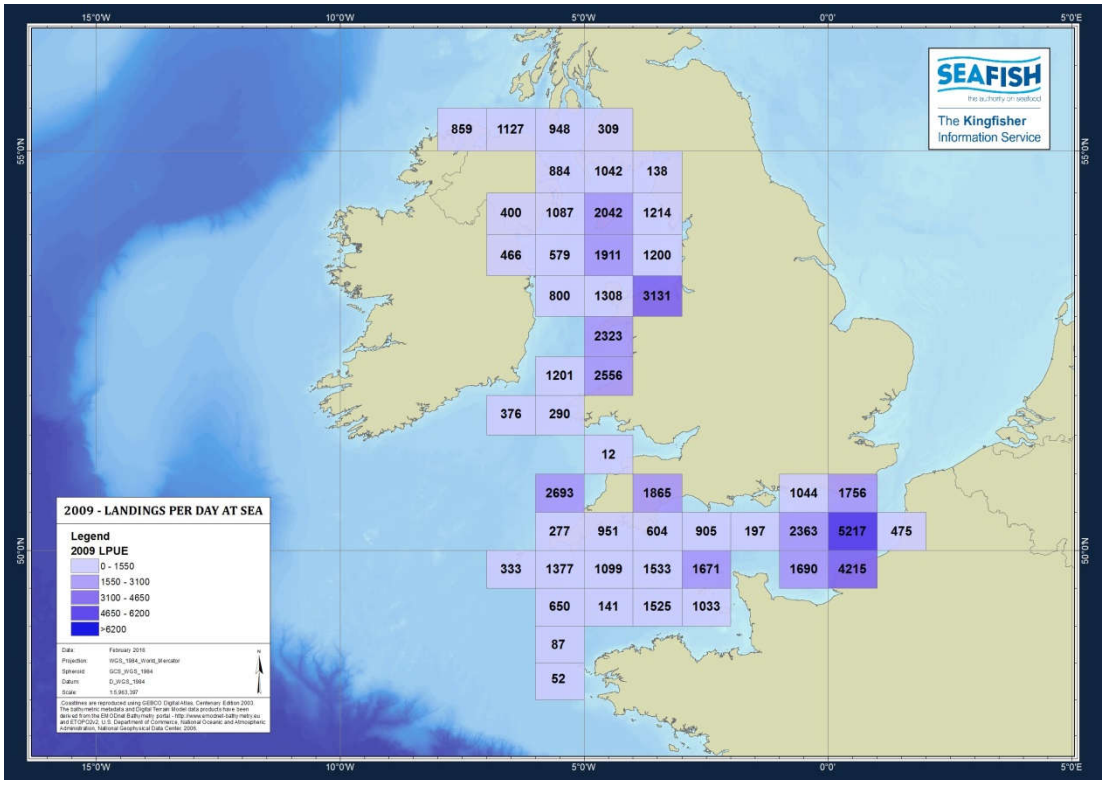


Figure 9 Spatial distribution of LPUE in 2009 (UK vessels targeting and landing any SCE)

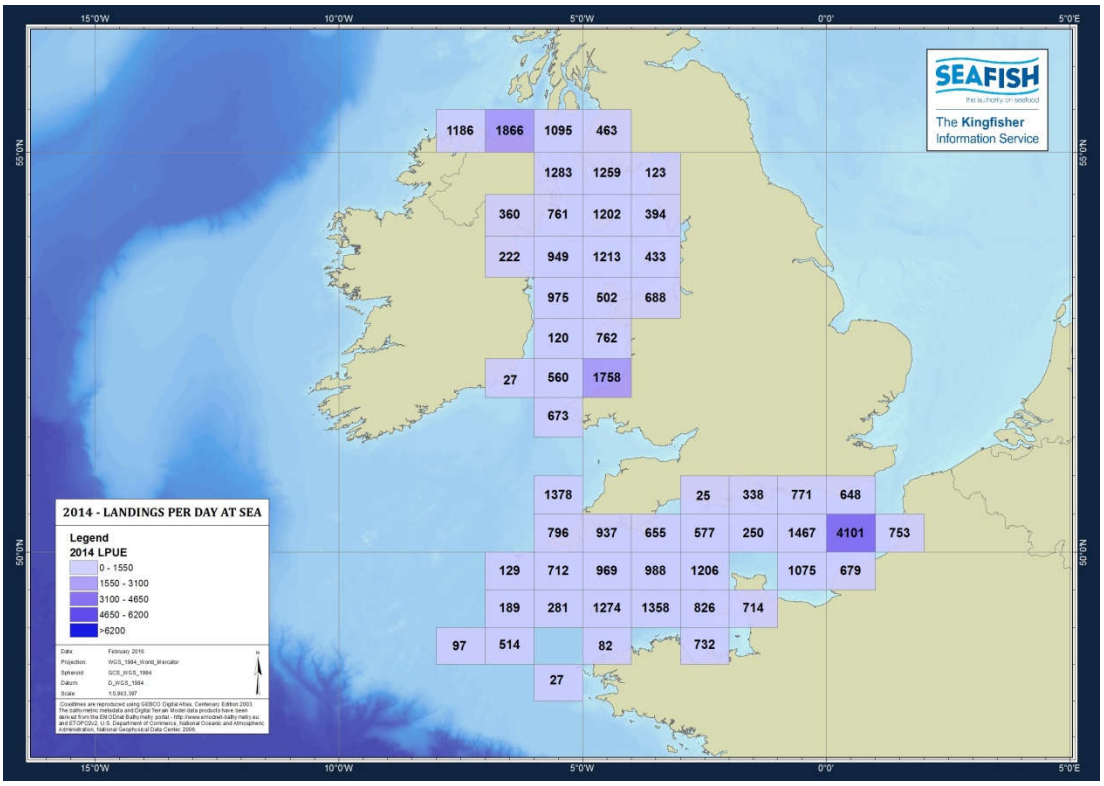


Figure 10 Spatial distribution of LPUE in 2014 (UK vessels targeting and landing any SCE)

5.4. COSTS AND EARNINGS ANALYSIS

The costs and earnings analysis presented in this chapter is shown in two stages. In the first stage, economic performance indicators have been calculated for all vessels targeting and landing king scallops for which trip data were available.

However, these vessels undertake a variety of operations, therefore in order to calculate fishing costs (and in particular costs associated to scallop fishing in Area VII) two sets of vessels have been used in the second stage of the analysis. The two sets have been extracted from the original list of all vessels that targeted and landed any amount of king scallop during the calendar year between 2006 and 2014:

- **UK king scallop fishing vessels:** Vessels whose revenue from king scallops from any area comprised at least 95% of their annual value landed in the calendar year between 2006 and 2014. This set is used as a proxy for costs of scalloping activity in general;
- **Area VII king scallop fishing vessels:** Vessels whose revenue from king scallops from Area VII comprised at least 80% of their annual value landed in the calendar year between 2006 and 2014[3]. This set is used as a proxy for costs of scalloping activity in Area VII.

Data on fishing costs for each group of vessels have been extracted from Seafish's multiannual fleet economic time series, which provides data on costs and earnings at vessel level. At the time of preparation of this report, costs and profit figures for 2014 were not available, therefore the 2014 figures used in the analysis are projections.

5.4.1. ALL VESSELS TARGETING AND LANDING KING SCALLOPS

Fishing costs of all vessels targeting and landing king scallops increased from 2006 to 2011 and remained stable at around £40m afterwards. At the same time, total fishing income increased to £50m in 2011 and deteriorated onwards to £45m in 2014, resulting in a reduction of GVA and profit margins from 2011 to 2014 as observed in Figure 11.

Average income and costs per unit of effort for these vessels followed the same trend as the totals, peaking in 2011 and decreasing afterwards, as seen in Figure 12. The reduction of fishing income per unit of effort however was higher than the reduction of fishing costs. The reduction in fishing income was mostly due to a deterioration of fishing income from king scallops in Area VII which was not compensated by income from other areas or species. The reduction of costs was mainly driven by a reduction of crew wages and salaries, which in UK fleets are based on crew shares of landings values and highly dependent on the fishing productivity and landings value.

[3] It was not possible to isolate a set of vessels whose revenue from Area VII king scallops comprised at least 95% of their annual value landed due to the very low number of vessels meeting this criteria.

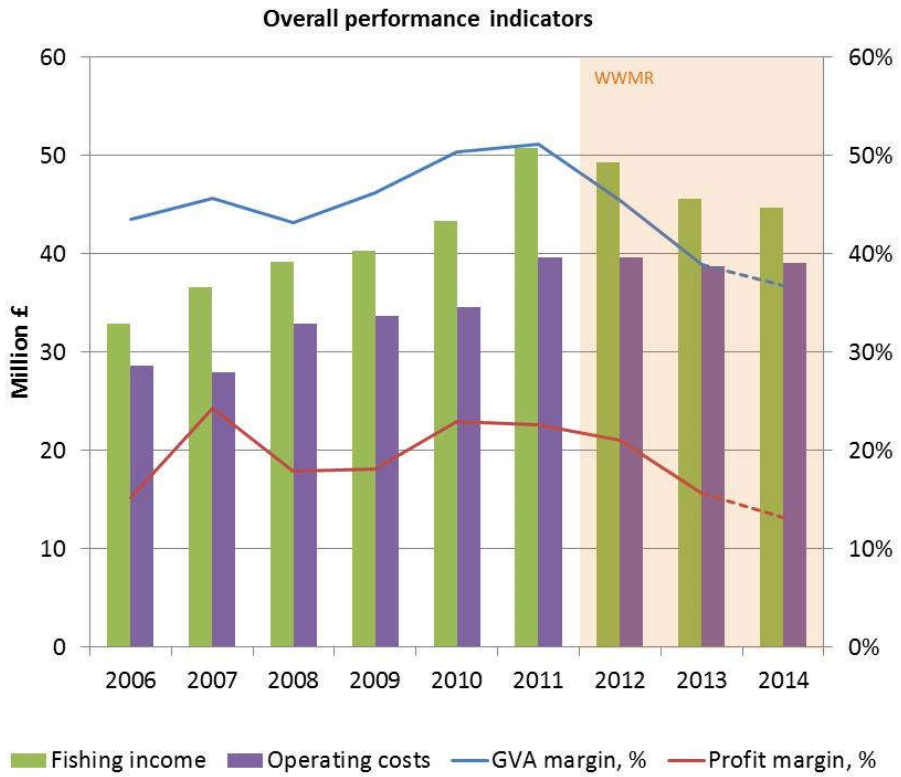


Figure 11 Overall performance indicators – all vessels, 2006-2014

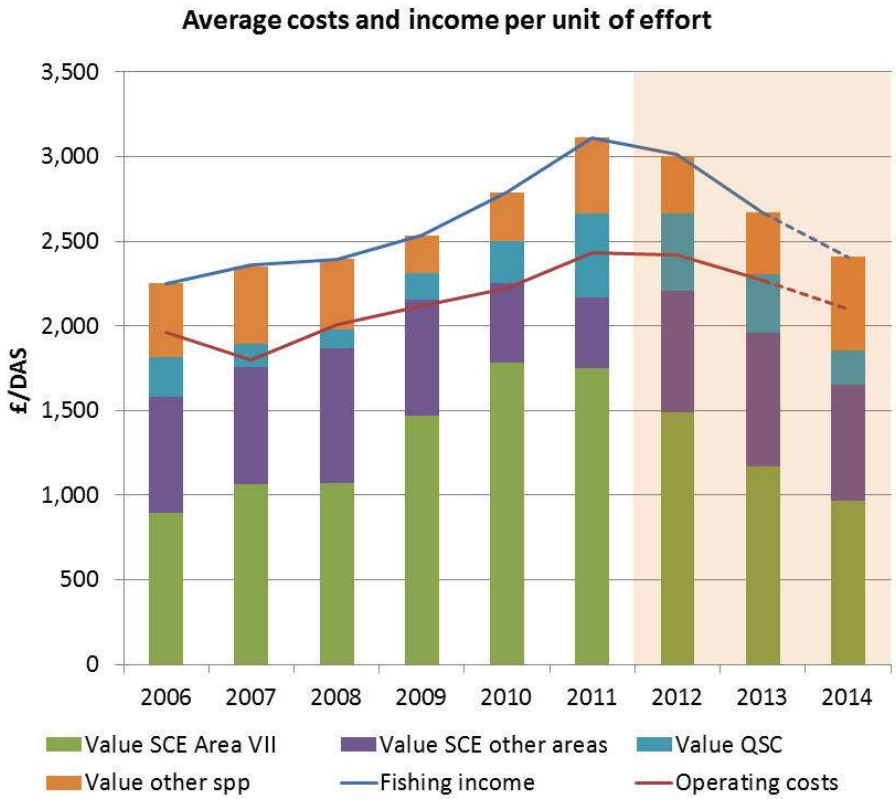


Figure 12 Average fishing costs and income per DAS – all vessels, 2006-2014

As observed in Figure 12 and in the fisheries analysis presented in the previous chapters, these vessels undertook different activities during the period analysed. Economic data is aggregated at an annual level for each vessel and separation of costs and earnings for each different activity is not possible. Therefore, the extracted subsets of vessels for which their main source of income was scalloping activity were analysed for this purpose.

5.4.2. UK KING SCALLOP FISHING VESSELS

Average fishing costs and income for UK 15m and over king scallop fishing vessels were obtained from analysing the subset of vessels for which at least 95% of total annual income came from king scallops.

Average fishing costs per day at sea for this subset of vessels increased from 2006 to 2011 (particularly from 2010 to 2011), followed by a decrease from 2012 to 2014, as shown in Figure 13. Average fishing income followed a similar trend, peaking in 2011 after a sharp increase from 2010 and decreasing after 2011, largely driven by a decline in income from the Area VII king scallop fishery. The steeper decrease in fishing income resulted in the decrease of net profit per unit of effort to levels similar to 2006.

The steep fall in revenues from 2011 to 2014 was therefore not sufficiently compensated by the reduction in costs, resulting in a fall of average profits and GVA margins, as seen in Figure 14.

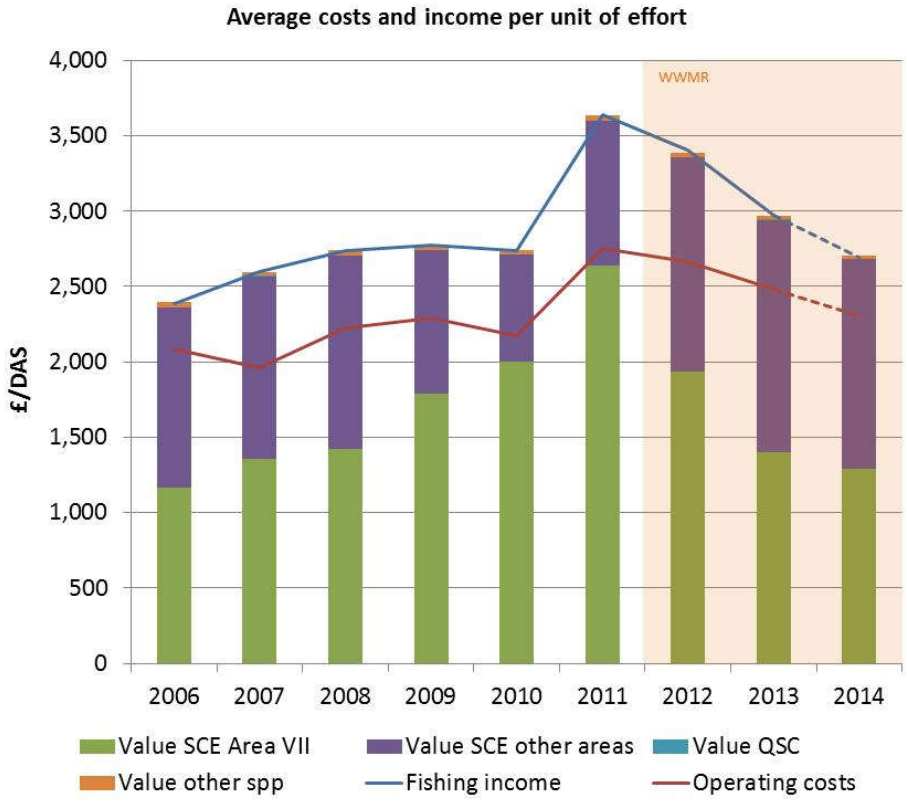


Figure 13 Average fishing costs and income per DAS – UK king scallop fishing vessels, 2006-2014

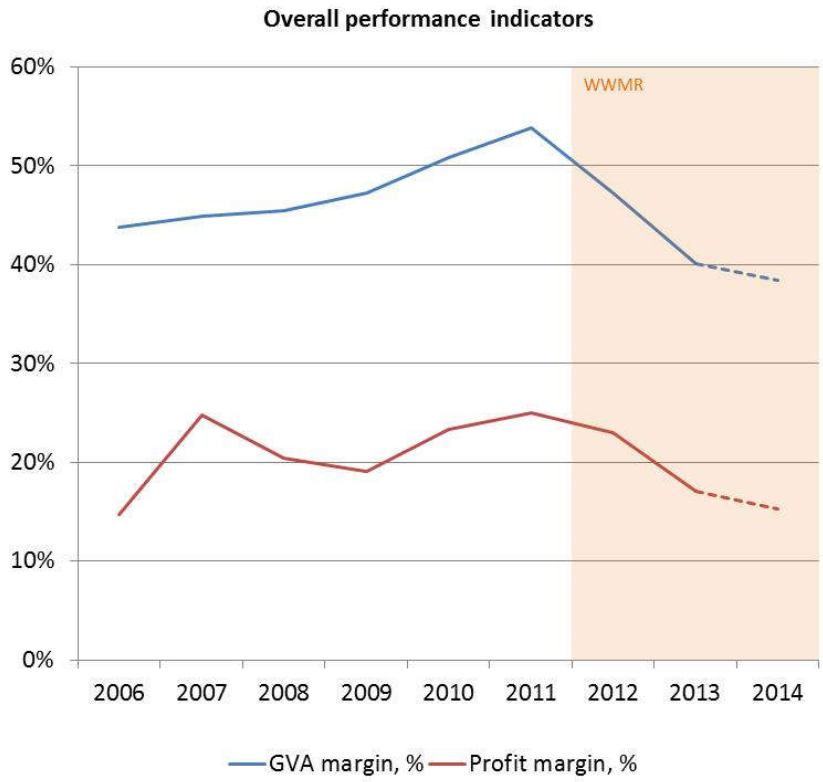


Figure 14 Overall performance indicators – UK king scallop fishing vessels, 2006-2014

5.4.3. AREA VII KING SCALLOP FISHING VESSELS

Average fishing income and costs for these vessels followed a similar pattern than that of UK king scallop fishing vessels; growing from 2006 to 2011 and decreasing from 2011 to 2014, as seen in Figure 15. The increase and decrease trends are however more significant than those of UK king scallop fishing vessels.

The decline in average fishing income from 2011 to 2014 was steeper for Area VII king scallop fishing vessels (46% decline compared to 26% for UK vessels). This corresponds with the trend observed in Figure 8, which showed a sharp decline in the productivity of the Area VII king scallop fishery in 2013 and 2014.

The reduction of costs per unit of effort in 2011-2013 for both groups of vessels was driven by a reduction of fuel costs and of crew costs, which are highly dependent on value of landings as most employees are paid a share of the landed value. For the Area VII king scallop fishing vessels, crew costs decreased by 46% in this time period, and fuel costs per unit of effort by 13%.

GVA margin and operating profit margins for Area VII king scallop fishing vessels were of a similar magnitude and followed similar trends to UK king scallop fishing vessels, as shown in Figure 16.

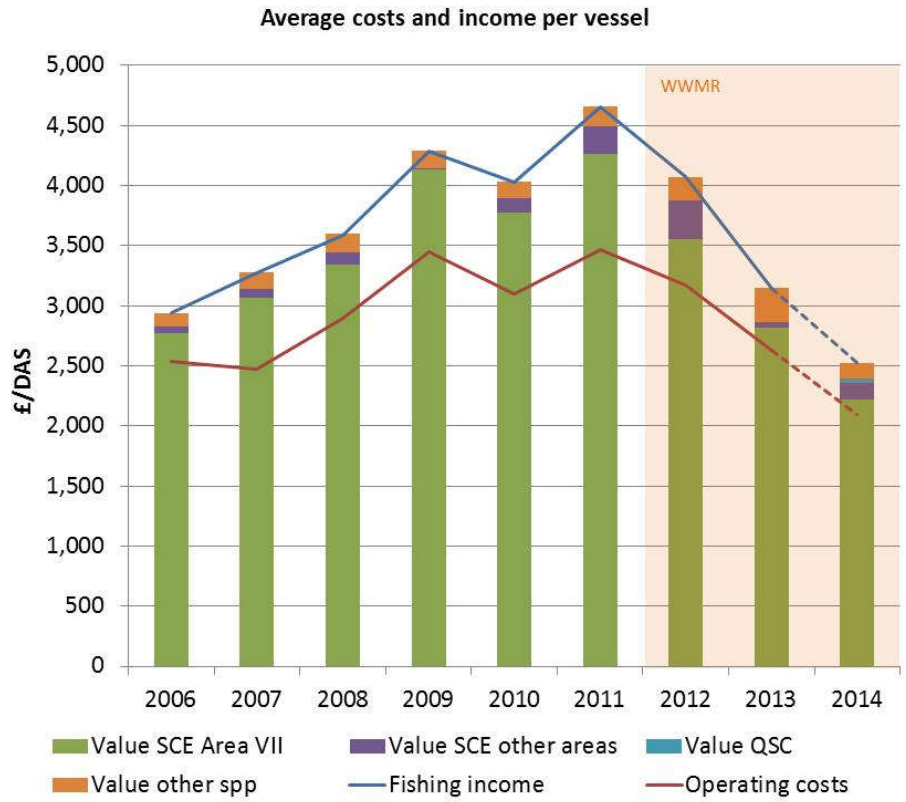


Figure 15 Fishing costs, income, GVA and profit margins – Area VII king scallop fishing vessels, 2006-2014

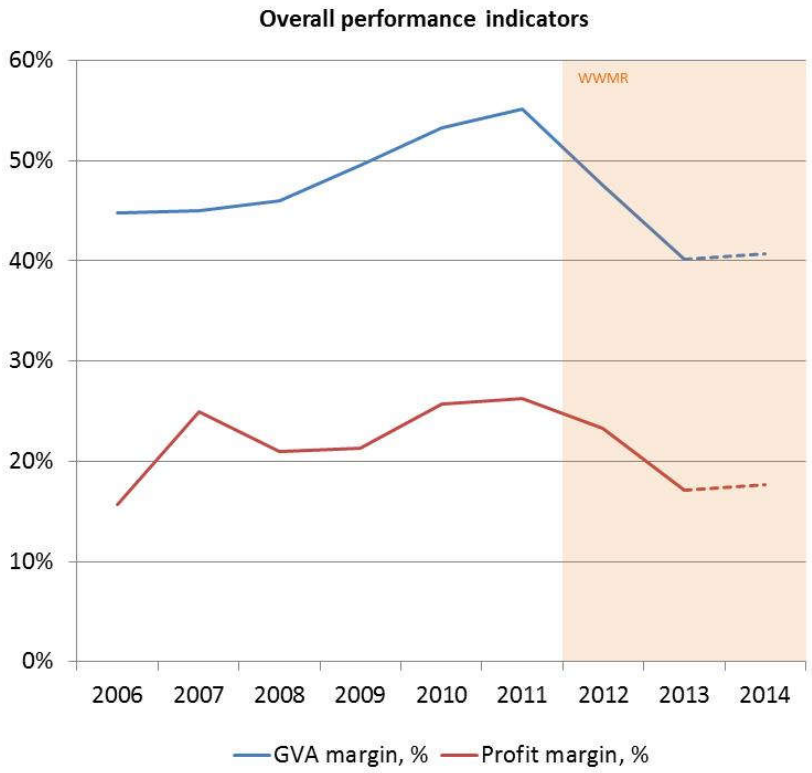


Figure 16 overall performance indicators – Area VII king scallop fishing vessels, 2006-2014

It is to be noted that while average king scallop income per DAS was higher for vessels operating in Area VII (when compared to average king scallop income across all areas), their operating costs per day at sea were also higher.

The difference in costs per day at sea between both groups of vessels (UK king scallopers and Area VII king scallopers) can be explained by a difference in technical characteristics of vessels: on average, vessels targeting scallops in Area VII were larger in terms of gross tonnage and had more powerful engines, as seen in Figure 17.

Tables containing detailed economic performance information for all groups of vessels are included in Appendix A: Data Tables.

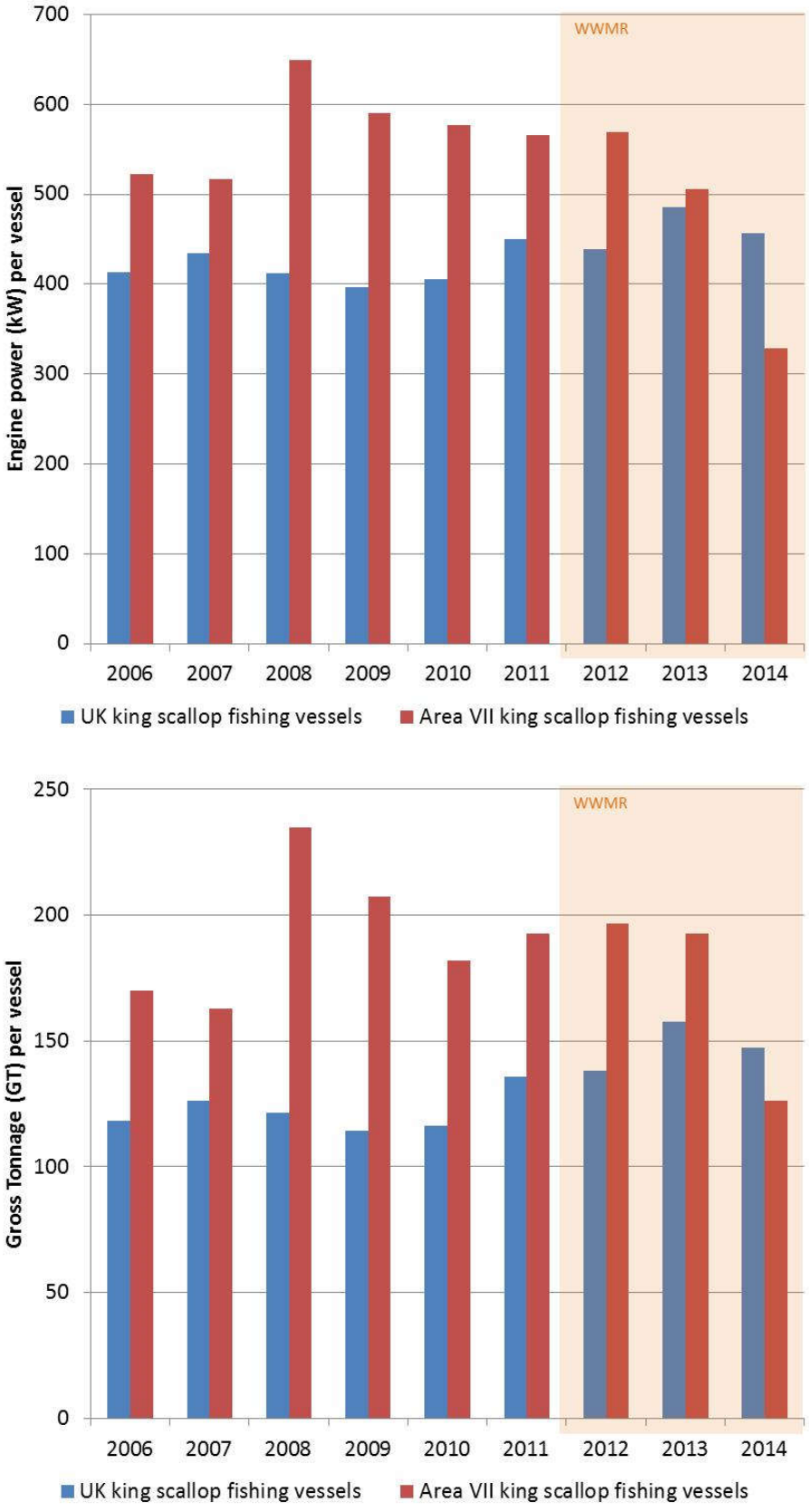


Figure 17 Average technical characteristics of UK and Area VII king scallop fishing vessels

6. CONCLUSIONS

The objectives and findings of the economic analysis carried out in this report are summarised in the following paragraphs in relation to the objectives of the work undertaken.

Objective 1: To provide a greater understanding of the economic drivers and factors affecting profitability of the Area VII 15m and over scallop fishing fleet.

- Fishing capacity in Area VII increased steadily from 2006 to 2014;
- There was a sharp increase in fishing effort in Area VII in 2010 and 2011, likely driven by an influx of vessels from Areas IV and VI and a partial switch to scallop fishing from trawling due to increased numbers of scallops in Area VIId, as indicated in Section 4.2. This is reflected in a high productivity of the fishery during these years, and the highest profit margins during the period analysed;
- Implementation of the Western Waters management regime in 2012 affected approximately 20% of the fleet, which responded by increasing their fishing effort in Area IV in 2013 and 2014. Fishing effort in Area VII declined, although it remained higher than it had been before 2010;
- At the same time as the early years of the WWMR, there was a marked decline in the productivity of the king scallop fishery in Area VII leading to reduced fishing income in this period (2013/2014);
- Fishing costs for king scallop fishing vessels decreased from 2011 to 2014, likely due to decreasing crew shares as fishing income fell in this period;
- The reduction in fishing income however was steeper than the reduction in costs, leading to a reduction in the profit margins of the fishery in 2013 and 2014;
- Despite the decrease in recent years, LPUE and value of landings per DAS in Area VII were the highest of the three areas analysed.

Objective 2: To understand whether there has been a negative impact on the operating profit of this sector of the fleet following implementation of management measures (i.e. Western Waters management regime).

- The profitability of the king scallop fishing fleet in Area VII appears to be determined by the productivity of the fishery, which has fluctuated significantly over the period 2006-2014. It reached its highest level in 2009-2012, and decreased afterwards;
- Therefore, although coinciding in time with the implementation of the Western Waters management regime, the loss of profitability observed in the 15m and over scallop fleet in Area VII is likely to have been driven by the recent decline in productivity (indicated by a decreasing LPUE in recent years, which was observed across all areas analysed) rather than as a result of effort limitation.

Objective 3: To help determine whether intervention is needed.

- Further investigation may be needed in order to analyse the reasons behind declining productivity and determine stock status, which is out of the scope of the current report.

7. APPENDIX A: DATA TABLES

7.1. NUMBER OF VESSELS

***Table 4**. Number of vessels by percentage of income from king scallops only (15m and over UK vessels targeting and landing any amount of king scallops, 2006-2014)*

% SCE in total annual income	No. of vessels								
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
0 – 20	13	12	9	8	7	12	14	11	10
20 – 40	10	11	7	3	4	7	2	7	10
40 – 60	9	3	7	5	3	11	6	9	12
60 – 80	4	4	5	7	12	15	18	16	14
80 – 95	5	10	6	4	6	8	8	8	13
95 - 100	35	37	43	50	42	31	36	37	40
Total	**76**	**77**	**77**	**77**	**74**	**84**	**84**	**88**	**99**

***Table 5**. Number of vessels operating on each sea area (15m and over UK vessels targeting and landing any amount of king scallops, 2006-2014)*

Area	No. of vessels								
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
IV	40	44	36	35	37	32	38	40	39
VI	44	39	41	44	30	36	51	44	45
VII	65	73	68	74	74	83	84	88	99

7.2. KING SCALLOP AVERAGE PRICES

Table 6. Average price per tonne of king scallop landed (UK vessels targeting and landing any king scallops, 2006-2014)

	Average SCE price* per tonne landed (£)		
	Area IV	**Area VI**	**Area VII**
2006	2,149	2,557	1,824
2007	2,269	2,243	1,862
2008	2,453	2,105	1,837
2009	1,996	1,816	1,618
2010	1,835	1,814	1,632
2011	2,071	2,044	1,868
2012	2,099	1,923	1,675
2013	1,806	1,907	1,707
2014	2,004	1,815	1,803

**Adjusted for inflation*

7.3. ECONOMIC PERFORMANCE DATASETS

From the complete list of UK 15m and over vessels targeting and landing king scallops, two sets have been extracted:

- **UK king scallop fishing vessels:** Vessels whose revenue from king scallops from any area comprised at least 95% of their annual value landed in the calendar year between 2006 and 2014. This set is used as a proxy for costs of scalloping activity in general;
- **Area VII king scallop fishing vessels:** Vessels whose revenue from king scallops from Area VII comprised at least 80% of their annual value landed in the calendar year between 2006 and 2014. This set is used as a proxy for costs of scalloping activity in Area VII.

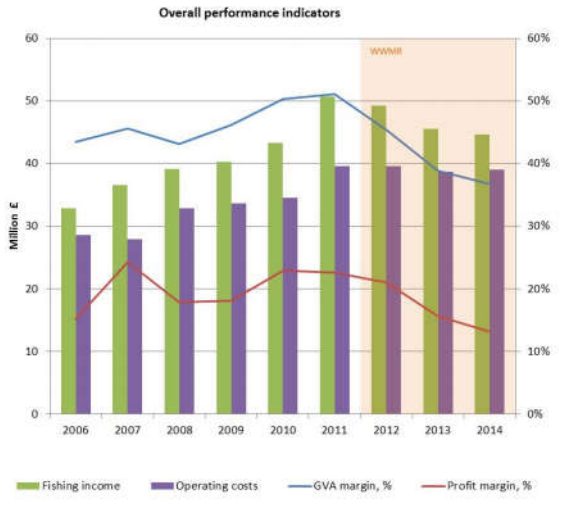
For comparison purposes two additional sets were extracted from the data available:

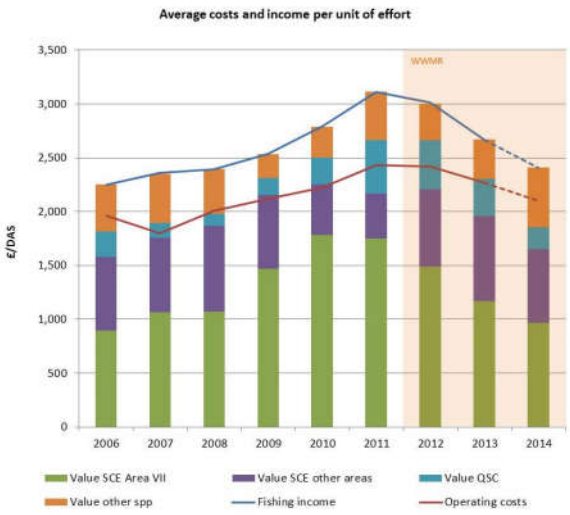
- **Vessels highly dependent on Area VII king scallops:** Vessels whose revenue from king scallops from Area VII comprised between 50% and 80% of their annual value landed in the calendar year between 2006 and 2014. This set is used as a proxy for costs for vessels for which scalloping in Area VII is an important source of income; and
- **Other vessels landing Area VII king scallops:** Vessels whose revenue from Area VII king scallops comprised less than 50% of their annual value landed in the calendar year between 2006 and 2014. This set is used as a proxy for costs for vessels for which scalloping in Area VII is a secondary source of income.

Economic performance tables for the whole of the UK 15m and over scallop fishing fleet and for the above vessel groups are presented below.

Table 7. All UK 15m and over vessels targeting and landing any SCE, all areas

	Variable	Trend 2006-2014	2006	2007	2008	2009	2010	2011	2012	2013	2014	% 2006-2014	% 2011-2014
Segment total	Active vessels (#)		75	77	77	77	74	84	84	88	99	32%	18%
	Power (kW)		28,424	29,329	28,908	28,882	28,823	32,956	32,110	35,002	37,999	34%	15%
	Registered Tonnage (GT)		7,976	8,502	8,149	8,190	8,402	9,820	9,994	11,080	12,466	56%	27%
	VCU		22,887	22,101	23,513	23,513	23,454	26,540	26,697	28,947	31,974	40%	20%
	Total landings (tonnes)		19,430	22,119	23,183	27,874	31,977	41,490	40,986	33,263	28,494	47%	-31%
	SCE landings (tonnes)		11,578	13,604	15,160	20,082	20,973	18,564	20,344	19,094	16,528	43%	-11%
	QSC landings (tonnes)		4,596	4,936	4,488	5,577	9,412	20,453	18,443	11,582	7,906	72%	-61%
	Total fishing income (million £)		32.9	36.6	39.1	40.4	43.4	50.8	49.3	45.6	44.7	36%	-12%
	All areas SCE fishing income (million £)		23.1	27.2	30.5	34.3	35.0	35.3	36.1	33.5	30.7	33%	-13%
	DAS (days)		14,602	15,507	16,332	15,927	15,538	16,305	16,371	17,081	18,581	27%	14%
	kW * DAS (1000)		6,048	6,326	6,670	6,512	6,613	7,085	6,907	7,368	7,704	27%	9%
	Operating costs (million £)		28.6	27.9	32.8	33.7	34.6	39.7	39.6	38.8	39.1	36%	-2%
	Annual operating profit (million £)		4.2	8.7	6.3	6.6	8.8	11.1	9.7	6.8	5.6	33%	-49%
Average per vessel	Average age (years)		28.0	28.5	29.9	30.9	31.5	33.3	34.4	35.0	35.4	26%	6%
	Length (m)		22.0	22.2	21.6	21.6	22.3	22.2	22.3	22.9	22.8	3%	3%
	Power (kW)		379	381	375	375	389	392	382	398	384	1%	-2%
	Registered Tonnage (GT)		106	110	106	106	114	117	119	126	126	18%	8%
	VCU		305	287	305	305	317	316	318	329	323	6%	2%
	DAS (days)		195	201	212	207	210	194	195	194	188	-4%	-3%
	kW * DAS		81	82	87	85	89	84	82	84	78	-4%	-8%
	Landings (tonnes)		259	287	301	362	432	494	488	378	288	11%	-42%
	All areas SCE landings (tonnes)		154	177	197	261	283	221	242	217	167	8%	-24%
	All areas SCE landings per DAS (tonnes)		0.8	0.9	0.9	1.3	1.3	1.1	1.2	1.1	0.9	12%	-22%
	Fishing income (£)		438,164	475,636	508,276	524,099	586,080	604,276	586,692	517,774	451,330	3%	-25%
	All areas SCE fishing income (£)		308,012	353,665	395,657	445,170	473,154	420,459	429,875	380,885	309,607	1%	-26%
	All areas SCE fishing income per DAS (£)		1,582	1,756	1,865	2,152	2,253	2,166	2,206	1,962	1,650	4%	-24%
	Average SCE price per tonne landed (£)		1,995	2,002	2,010	1,707	1,669	1,903	1,775	1,755	1,854	-7%	-3%
Performance indicators	Landings per kW DAS (kg)		3,212.8	3,496.3	3,475.6	4,280.6	4,835.8	5,855.7	5,934.4	4,514.3	3,698.8	15%	-37%
	All areas SCE landings per kW DAS (kg)		1,914.4	2,150.3	2,272.8	3,084.0	3,171.7	2,620.0	2,945.6	2,591.4	2,145.5	12%	-18%
	Fishing income per kW DAS (£)		5,433.8	5,789.0	5,867.4	6,197.4	6,558.8	7,163.9	7,135.5	6,183.8	5,800.2	7%	-19%
	All areas SCE fishing income per kW DAS (£)		3,819.7	4,304.5	4,567.4	5,264.0	5,295.0	4,984.7	5,228.3	4,548.9	3,978.8	4%	-20%
	Total cost per kW day at sea (£)		4.7	4.4	4.9	5.2	5.2	5.6	5.7	5.3	5.1	7%	-9%
	Operating profit per kW day at sea (£)		0.7	1.4	0.9	1.0	1.3	1.6	1.4	0.9	0.7	4%	-53%
Income, costs and profit (Average per vessel)	Fishing Income (thousand £)		438.2	475.6	508.3	524.1	586.1	604.3	586.7	517.8	451.3	3%	-23%
	Non-Fishing Income (thousand £)		12	4	11	11	20	6	10	4	3	-73%	-69%
	Total Income (thousand £)		**449.9**	**479.3**	**519.4**	**534.6**	**606.1**	**610.2**	**597.0**	**521.7**	**454.5**	1%	-24%
	Fuel (thousand £)		76	80	115	80	95	120	123	119	113	48%	-8%
	Crew share (thousand £)		127	102	131	150	166	174	146	122	107	-16%	-26%
	Total Fishing Costs (thousand £)		255	238	294	273	314	347	319	292	269	6%	-16%
	Total Costs (thousand £)		382	363	426	438	467	472	471	440	394	3%	-16%
	Gross Value Added (thousand £)		**195.6**	**219.0**	**224.4**	**247.2**	**305.0**	**312.3**	**271.3**	**203.0**	**167.2**	-15%	-38%
	Operating Profit (thousand £)		**68.3**	**116.6**	**92.9**	**96.9**	**139.0**	**137.9**	**125.7**	**81.4**	**60.0**	-12%	-52%



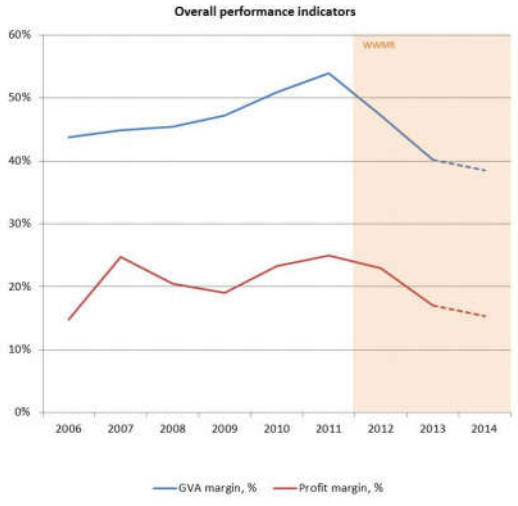


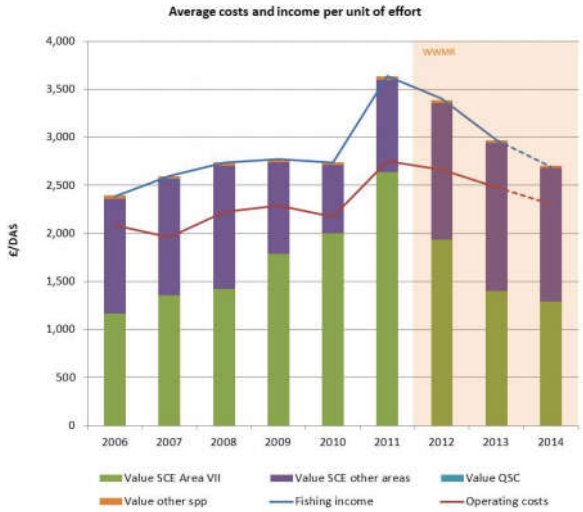
GVA margin and profit margin are calculated as percentage of GVA or operating profit to revenue.

Table 8. UK 15m and over king scallop fishing vessels

	Variable	Trend 2006-2014	2006	2007	2008	2009	2010	2011	2012	2013	2014	% 2006-2014	% 2011-2014
Segment total	Active vessels (#)		35	37	43	50	42	31	36	37	40	14%	29%
	Power (kW)		14,462	16,071	17,720	19,859	17,031	13,943	15,794	17,988	18,264	26%	31%
	Registered Tonnage (GT)		4,132	4,667	5,225	5,706	4,886	4,201	4,968	5,823	5,887	42%	40%
	VCU		11,661	12,078	14,244	16,005	13,612	11,025	12,957	14,506	14,835	27%	35%
	Total landings (tonnes)		8,729	10,141	12,285	17,035	15,308	11,615	14,125	13,059	11,247	29%	-3%
	SCE landings (tonnes)		8,645	10,039	12,216	16,947	15,228	11,551	14,032	12,954	11,185	29%	-3%
	QSC landings (tonnes)		2	49	3	12	0	1	26	43	2	35%	124%
	Total fishing income (million £)		17.2	20.8	25.4	29.6	26.3	22.6	26.0	23.5	21.5	25%	-5%
	All areas SCE fishing income (million £)		17.0	20.6	25.1	29.3	26.0	22.4	25.7	23.3	21.4	26%	-4%
	DAS (days)		7,213	8,002	9,291	10,668	9,581	6,213	7,652	7,910	7,989	11%	29%
	kW * DAS (1000)		3,223	3,659	4,170	4,622	4,166	3,097	3,679	4,040	4,019	25%	30%
	Operating costs (million £)		15.1	15.7	20.7	24.5	20.8	17.1	20.4	19.6	18.4	22%	7%
	Annual operating profit (million £)		2.2	5.1	4.8	5.1	5.4	5.5	5.7	3.8	3.2	46%	-42%
Average per vessel	Average age (years)		24.9	26.6	28.8	30.6	30.4	32.2	33.8	32.2	34.7	39%	8%
	Length (m)		22.3	23.0	22.5	22.1	22.1	23.8	23.9	25.1	24.0	8%	1%
	Power (kW)		413	434	412	397	406	450	439	486	457	11%	2%
	Registered Tonnage (GT)		118	126	122	114	116	136	138	157	147	25%	9%
	VCU		333	326	331	320	324	356	360	392	371	11%	4%
	DAS (days)		206	216	216	213	228	200	213	214	200	-3%	0%
	kW * DAS		92	99	97	92	99	100	102	109	100	9%	1%
	Landings (tonnes)		249	274	286	341	364	375	392	353	281	13%	-25%
	All areas SCE landings (tonnes)		247	271	284	339	363	373	390	350	280	13%	-25%
	All areas SCE landings per DAS (tonnes)		1.2	1.3	1.3	1.6	1.6	1.9	1.8	1.6	1.4	17%	-25%
	Fishing income (£)		491,989	561,726	591,368	591,904	625,007	729,086	723,300	634,771	538,727	9%	-26%
	All areas SCE fishing income (£)		487,019	555,611	584,436	585,293	618,615	721,454	713,262	629,163	536,152	10%	-26%
	All areas SCE fishing income per DAS (£)		2,363	2,569	2,705	2,743	2,712	3,600	3,356	2,943	2,684	14%	-25%
	Average SCE price per tonne landed (£)		1,972	2,048	2,057	1,727	1,706	1,936	1,830	1,797	1,917	-3%	-1%
Performance indicators	Landings per kW DAS (kg)		2,708.2	2,771.6	2,946.1	3,685.6	3,674.9	3,750.5	3,839.2	3,232.6	2,798.7	3%	-25%
	All areas SCE landings per kW DAS (kg)		2,682.4	2,743.8	2,929.6	3,666.4	3,655.7	3,729.8	3,814.1	3,206.5	2,783.3	4%	-25%
	Fishing income per kW DAS (£)		5,342.8	5,680.4	6,098.3	6,402.8	6,301.8	7,297.8	7,077.6	5,813.7	5,362.2	0%	-27%
	All areas SCE fishing inc. per kW DAS (£)		5,288.8	5,618.6	6,026.8	6,331.3	6,237.3	7,221.5	6,979.4	5,762.4	5,336.6	1%	-26%
	Total cost per kW day at sea (£)		4.7	4.3	5.0	5.3	5.0	5.5	5.5	4.9	4.6	-2%	-17%
	Operating profit per kW day at sea (£)		0.7	1.4	1.1	1.1	1.3	1.8	1.5	1.0	0.8	17%	-56%
Income, costs and profit (Average per vessel)	Fishing Income (thousand £)		492.0	561.7	591.4	591.9	625.0	729.1	723.3	634.8	538.7	9%	-26%
	Non-Fishing Income (thousand £)		12	2	13	12	22	7	12	5	4	-65%	-63%
	Total Income (thousand £)		**504.4**	**563.6**	**603.9**	**604.2**	**647.2**	**736.4**	**735.1**	**639.9**	**543.0**	8%	-26%
	Fuel (thousand £)		79	91	117	86	103	128	137	136	124	58%	-9%
	Crew share (thousand £)		146	114	151	170	178	213	179	148	126	-14%	-30%
	Total Fishing Costs (thousand £)		279	270	321	301	331	397	375	342	300	7%	-20%
	Total Costs (thousand £)		430	424	480	489	496	552	566	531	460	7%	-19%
	Gross Value Added (thousand £)		**220.7**	**253.1**	**274.5**	**285.3**	**329.2**	**396.8**	**347.3**	**256.8**	**208.8**	-5%	-40%
	Operating Profit (thousand £)		**74.3**	**139.5**	**123.4**	**115.0**	**150.9**	**184.1**	**168.8**	**109.1**	**83.2**	12%	-51%

Notes: All values are adjusted to 2014 prices. 2014 costs and profits are projections.



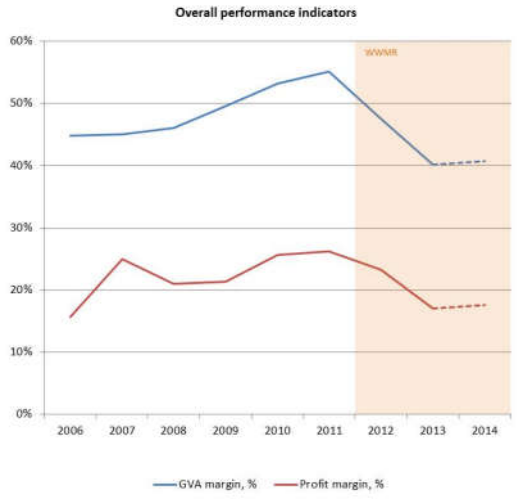


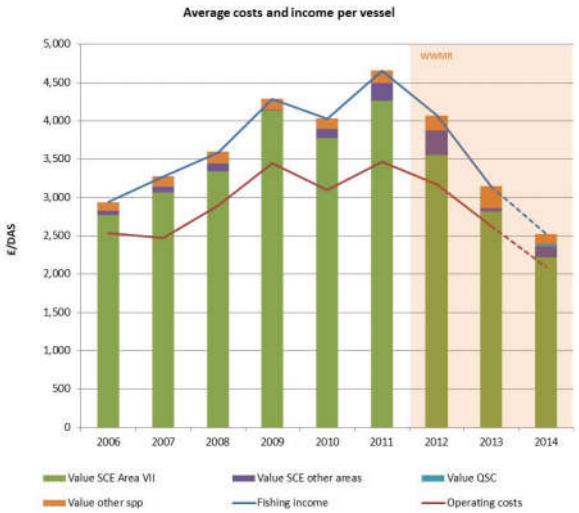
GVA margin and profit margin are calculated as percentage of GVA or operating profit to revenue.

Table 9. Area VII 15m and over king scallop fishing vessels

	Variable	Trend 2006-2014	2006	2007	2008	2009	2010	2011	2012	2013	2014	% 2006-2014	% 2011-2014
Segment total	Active vessels (#)		11	14	9	12	20	21	12	5	10	-9%	-52%
	Power (kW)		5,747	7,240	5,848	7,091	11,547	11,894	6,837	2,527	3,285	-43%	-72%
	Registered Tonnage (GT)		1,867	2,277	2,113	2,486	3,633	4,044	2,357	964	1,263	-32%	-69%
	VCU		4,229	5,306	4,793	5,851	9,079	9,534	5,556	2,119	2,935	-31%	-69%
	Total landings (tonnes)		3,707	4,845	4,604	8,177	11,558	10,333	5,221	1,309	1,355	-63%	-87%
	SCE landings (tonnes)		3,618	4,739	4,523	8,057	11,406	10,172	5,060	1,255	1,254	-65%	-88%
	QSC landings (tonnes)		7	0	0	0	0	1	0	0	65	774%	6458%
	Total fishing income (million £)		6.7	8.9	8.4	12.7	19.2	19.9	9.0	2.4	2.4	-64%	-88%
	All areas SCE fishing income (million £)		6.4	8.5	8.1	12.3	18.5	19.2	8.6	2.2	2.2	-65%	-88%
	DAS (days)		2,268	2,706	2,347	2,958	4,762	4,270	2,224	762	955	-58%	-78%
	kW * DAS (1000)		1,327	1,553	1,593	1,924	2,925	2,740	1,395	419	347	-74%	-87%
	Operating costs (million £)		5.8	6.7	6.8	10.2	14.8	14.8	7.1	2.0	2.0	-65%	-86%
	Annual operating profit (million £)		0.9	2.2	1.6	2.5	4.4	5.1	2.0	0.4	0.4	-55%	-92%
Average per vessel	Average age (years)		28.5	34.3	31.9	33.2	32.8	37.5	37.4	34.4	43.7	54%	17%
	Length (m)		27.4	28.2	31.8	30.2	27.9	29.0	28.5	28.0	22.6	-18%	-22%
	Power (kW)		522	517	650	591	577	566	570	505	329	-37%	-42%
	Registered Tonnage (GT)		170	163	235	207	182	193	196	193	126	-26%	-34%
	VCU		384	379	533	488	454	454	463	424	293	-24%	-35%
	DAS (days)		206	193	261	247	238	203	185	152	96	-54%	-53%
	kW * DAS		121	111	177	160	146	130	116	84	35	-71%	-73%
	Landings (tonnes)		337	346	512	681	578	492	435	262	136	-60%	-72%
	All areas SCE landings (tonnes)		329	338	503	671	570	484	422	251	125	-62%	-74%
	All areas SCE landings per DAS (tonnes)		1.6	1.8	1.9	2.7	2.4	2.4	2.3	1.6	1.3	-18%	-45%
	Fishing income (£)		605,724	633,051	934,429	1,056,906	958,953	946,833	753,980	479,046	241,228	-60%	-75%
	All areas SCE fishing income (£)		582,501	607,524	897,845	1,021,018	926,555	912,579	718,422	436,661	224,984	-61%	-75%
	All areas SCE fishing income per DAS (£)		2,825	3,143	3,443	4,142	3,891	4,488	3,876	2,865	2,356	-17%	-48%
	Average SCE price per tonne landed (£)		1,771	1,795	1,786	1,521	1,625	1,884	1,704	1,740	1,795	1%	-5%
Performance indicators	Landings per kW DAS (kg)		2,794.1	3,119.3	2,889.5	4,250.7	3,951.9	3,770.9	3,742.3	3,122.0	3,905.3	40%	4%
	All areas SCE landings per kW DAS (kg)		2,727.2	3,050.8	2,839.0	4,188.1	3,900.2	3,712.1	3,627.2	2,992.3	3,612.8	32%	-3%
	Fishing income per kW DAS (£)		5,022.4	5,705.7	5,278.5	6,593.0	6,557.9	7,256.3	6,485.4	5,712.4	6,951.4	38%	-4%
	All areas SCE fishing inc. per kW DAS (£)		4,829.8	5,475.6	5,071.9	6,369.1	6,336.4	6,993.8	6,179.5	5,206.9	6,483.3	34%	-7%
	Total cost per kW day at sea (£)		4.3	4.3	4.3	5.3	5.0	5.4	5.1	4.8	5.8	33%	7%
	Operating profit per kW day at sea (£)		0.7	1.4	1.0	1.3	1.5	1.8	1.4	0.9	1.2	73%	-36%
Income, costs and profit (Average per vessel)	Fishing Income (thousand £)		605.7	633.1	934.4	1,056.9	959.0	946.8	754.0	479.0	241.2	-60%	-68%
	Non-Fishing Income (thousand £)		15	2	20	22	34	9	12	4	2	-87%	-84%
	Total Income (thousand £)		**621.0**	**635.1**	**954.2**	**1,078.9**	**993.0**	**956.3**	**766.3**	**482.9**	**243.2**	-61%	-68%
	Fuel (thousand £)		91	102	180	129	135	155	141	103	50	-45%	-64%
	Crew share (thousand £)		180	128	239	304	274	276	186	112	56	-69%	-70%
	Total Fishing Costs (thousand £)		338	303	503	514	484	504	389	258	129	-62%	-67%
	Total Costs (thousand £)		523	477	754	849	738	705	588	400	200	-62%	-66%
	Gross Value Added (thousand £)		**277.9**	**286.2**	**439.1**	**534.3**	**528.6**	**527.0**	**364.2**	**194.0**	**99.1**	-64%	-73%
	Operating Profit (thousand £)		**97.7**	**158.3**	**200.4**	**230.1**	**255.0**	**250.8**	**178.2**	**82.5**	**42.9**	-56%	-76%

Notes: All values are adjusted to 2014 prices. 2014 costs and profits are projections.



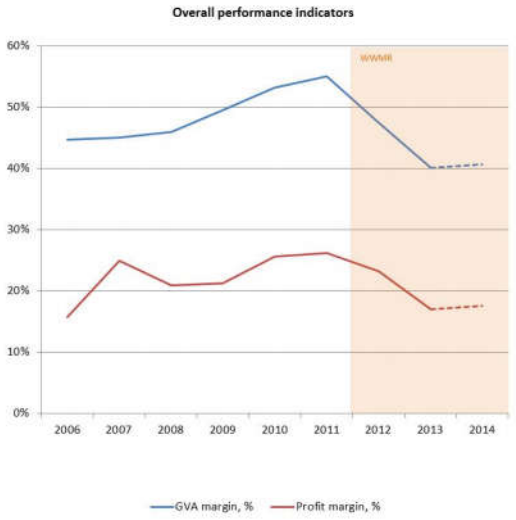


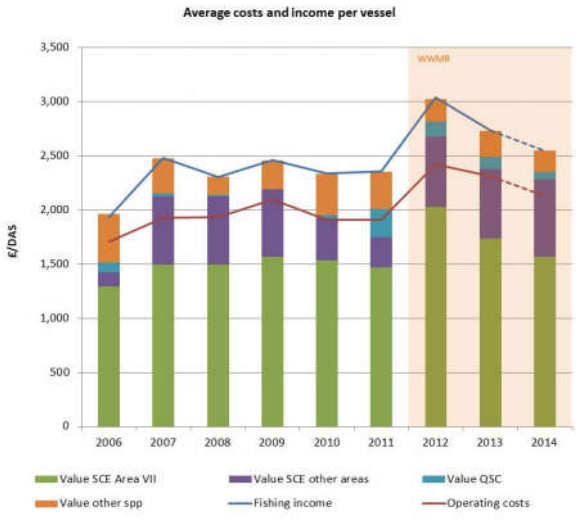
GVA margin and profit margin are calculated as percentage of GVA or operating profit to revenue.

Table 10. 15m and over vessels highly dependent on Area VII king scallops

	Variable	Trend 2006-2014	2006	2007	2008	2009	2010	2011	2012	2013	2014	% 2006-2014	% 2011-2014
Segment total	Active vessels (#)		7	14	21	22	23	27	35	42	39	457%	44%
	Power (kW)		2,482	6,116	7,138	8,947	7,663	7,987	13,240	18,055	17,241	595%	116%
	Registered Tonnage (GT)		655	1,761	1,852	2,336	2,043	2,160	4,087	5,516	5,325	713%	146%
	VCU		2,080	4,928	5,920	7,031	6,379	6,737	11,124	14,717	14,037	575%	108%
	Total landings (tonnes)		2,572	3,558	4,856	6,203	6,155	8,223	13,139	13,239	10,586	312%	29%
	SCE landings (tonnes)		1,017	3,086	4,469	5,709	5,288	4,479	10,426	10,671	9,089	793%	103%
	QSC landings (tonnes)		284	144	108	6	323	3,221	2,233	1,837	898	216%	-72%
	Total fishing income (million £)		2.6	7.3	9.7	11.2	10.7	11.5	20.4	20.8	18.5	613%	62%
	All areas SCE fishing income (million £)		1.9	6.3	9.0	9.9	8.9	8.5	17.9	18.1	16.6	769%	95%
	DAS (days)		1,340	2,947	4,208	4,530	4,603	4,866	6,702	7,620	7,266	442%	49%
	kW * DAS (1000)		517	1,382	1,570	1,921	1,678	1,609	2,897	3,746	3,590	595%	123%
	Operating costs (million £)		2.3	5.7	8.1	9.5	8.8	9.3	16.2	17.6	15.5	575%	66%
	Annual operating profit (million £)		0.3	1.6	1.5	1.7	2.0	2.2	4.1	3.2	3.1	893%	41%
Average per vessel	Average age (years)		24.7	25.6	28.9	29.8	31.3	35.0	37.6	38.3	36.8	49%	5%
	Length (m)		21.7	23.5	20.7	22.6	21.1	19.7	22.8	23.6	23.8	10%	21%
	Power (kW)		355	437	340	407	333	296	378	430	442	25%	49%
	Registered Tonnage (GT)		94	126	88	106	89	80	117	131	137	46%	71%
	VCU		297	352	282	320	277	250	318	350	360	21%	44%
	DAS (days)		191	211	200	206	200	180	191	181	186	-3%	3%
	kW * DAS		74	99	75	87	73	60	83	89	92	25%	54%
	Landings (tonnes)		367	254	231	282	268	305	375	315	271	-26%	-11%
	All areas SCE landings (tonnes)		145	220	213	260	230	166	298	254	233	60%	41%
	All areas SCE landings per DAS (tonnes)		0.8	1.0	1.1	1.3	1.1	0.9	1.6	1.4	1.3	65%	36%
	Fishing income (£)		370,811	521,385	461,778	507,162	467,070	424,340	581,908	495,483	474,541	28%	12%
	All areas SCE fishing income (£)		272,851	447,943	426,290	450,751	385,208	315,401	512,292	431,410	425,684	56%	35%
	All areas SCE fishing inc. per DAS (£)		1,425	2,128	2,127	2,189	1,925	1,750	2,675	2,378	2,285	60%	31%
	Average SCE price per tonne landed (£)		1,877	2,032	2,003	1,737	1,675	1,901	1,720	1,698	1,826	-3%	-4%
Performance indicators	Landings per kW DAS (kg)		4,979.3	2,574.5	3,092.5	3,229.9	3,668.1	5,110.2	4,534.7	3,534.0	2,949.2	-41%	-42%
	All areas SCE landings per kW DAS (kg)		1,969.3	2,233.1	2,846.3	2,972.7	3,151.6	2,783.1	3,598.3	2,848.5	2,532.2	29%	-9%
	Fishing income per kW DAS (£)		5,024.4	5,281.7	6,175.9	5,809.5	6,402.4	7,119.7	7,029.2	5,555.0	5,155.8	3%	-28%
	All areas SCE fishing inc. per kW DAS (£)		3,697.1	4,537.7	5,701.3	5,163.3	5,280.2	5,291.9	6,188.3	4,836.7	4,625.0	25%	-13%
	Total cost per kW day at sea (£)		4.4	4.1	5.2	4.9	5.2	5.8	5.6	4.7	4.3	-3%	-25%
	Operating profit per kW day at sea (£)		0.6	1.2	1.0	0.9	1.2	1.3	1.4	0.9	0.9	43%	-37%
Income, costs and profit (Average per vessel)	Fishing Income (thousand £)		370.8	521.4	461.8	507.2	467.1	424.3	581.9	495.5	474.5	28%	-18%
	Non-Fishing Income (thousand £)		11	2	11	11	17	4	9	4	4	-65%	-60%
	Total Income (thousand £)		**381.5**	**523.1**	**473.2**	**517.7**	**483.6**	**428.4**	**591.4**	**499.5**	**478.3**	25%	-19%
	Fuel (thousand £)		67	96	104	87	88	95	118	111	100	49%	-15%
	Crew share (thousand £)		109	105	118	146	133	123	144	115	110	0%	-24%
	Total Fishing Costs (thousand £)		219	262	266	271	258	254	310	272	256	17%	-17%
	Total Costs (thousand £)		327	405	388	432	382	344	464	419	396	21%	-15%
	Gross Value Added (thousand £)		**163.8**	**223.2**	**203.7**	**231.6**	**234.7**	**207.9**	**271.5**	**195.4**	**191.5**	17%	-29%
	Operating Profit (thousand £)		**54.6**	**117.8**	**85.2**	**85.6**	**101.7**	**84.5**	**127.9**	**80.1**	**82.0**	50%	-36%

Notes: All values are adjusted to 2014 prices. 2014 costs and profits are projections.



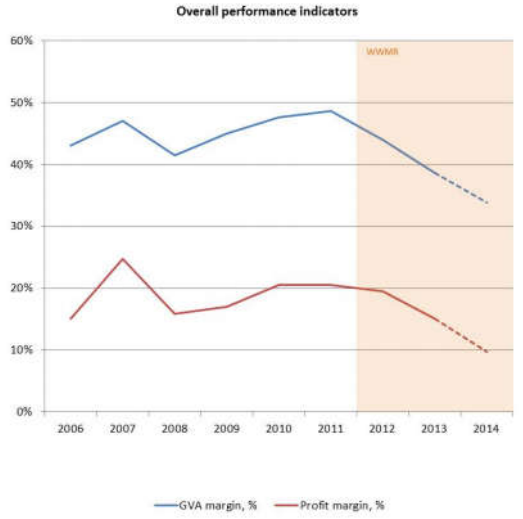


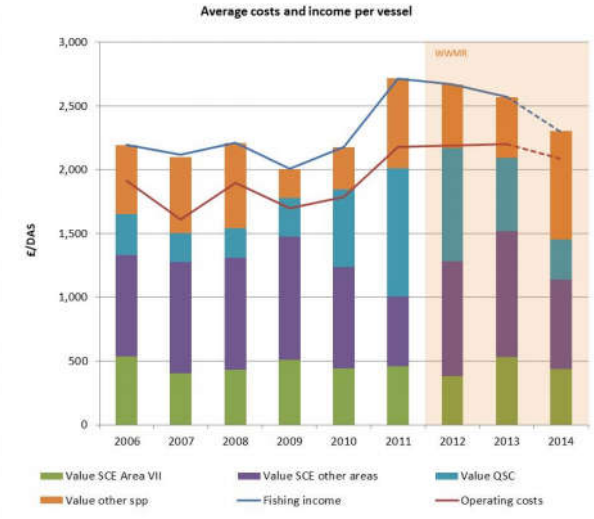
GVA margin and profit margin are calculated as percentage of GVA or operating profit to revenue.

Table 11. Other vessels targeting and landing Area VII king scallops

	Variable	Trend 2006-2014	2006	2007	2008	2009	2010	2011	2012	2013	2014	% 2006-2014	% 2011-2014
Segment total	Active vessels (#)		46	45	38	40	31	35	37	41	50	9%	43%
	Power (kW)		17,123	14,976	13,620	12,285	9,612	12,557	12,032	14,420	17,472	2%	39%
	Registered Tonnage (GT)		4,734	4,122	3,612	3,235	2,725	3,488	3,549	4,601	5,878	24%	69%
	VCU		14,042	11,116	10,821	10,076	7,997	9,901	10,017	12,112	15,002	7%	52%
	Total landings (tonnes)		11,655	13,320	12,139	12,966	14,264	22,585	22,626	18,715	16,552	42%	-27%
	SCE landings (tonnes)		5,878	5,477	4,767	6,075	4,278	3,564	4,858	7,169	6,185	5%	74%
	QSC landings (tonnes)		4,019	4,792	4,377	5,307	9,090	17,231	16,210	9,745	6,943	73%	-60%
	Total fishing income (million £)		20.6	19.6	17.3	15.9	13.4	18.7	19.9	22.4	23.8	15%	27%
	All areas SCE fishing income (million £)		12.5	11.8	10.3	11.7	7.6	6.9	9.6	13.2	11.8	-6%	70%
	DAS (days)		9,389	9,251	7,845	7,909	6,173	6,894	7,445	8,699	10,360	10%	50%
	kW * DAS (1000)		3,695	3,259	2,966	2,571	2,010	2,594	2,614	3,203	3,767	2%	45%
	Operating costs (million £)		18.0	14.9	14.9	13.4	11.0	15.0	16.3	19.1	21.6	20%	44%
	Annual operating profit (million £)		2.6	4.7	2.4	2.4	2.4	3.7	3.6	3.2	2.2	-18%	-41%
Average per vessel	Average age (years)		28.5	27.5	28.7	30.3	30.8	30.1	30.4	31.8	32.6	14%	8%
	Length (m)		21.8	20.1	20.5	18.8	19.5	20.1	19.9	21.5	22.0	1%	9%
	Power (kW)		372	333	358	307	310	359	325	352	349	-6%	-3%
	Registered Tonnage (GT)		103	92	95	81	88	100	96	112	118	14%	18%
	VCU		305	247	285	252	258	283	271	295	300	-2%	6%
	DAS (days)		204	206	206	198	199	197	201	212	207	2%	5%
	kW * DAS		80	72	78	64	65	74	71	78	75	-6%	2%
	Landings (tonnes)		253	296	319	324	460	645	612	456	331	31%	-49%
	All areas SCE landings (tonnes)		128	122	125	152	138	102	131	175	124	-3%	21%
	All areas SCE landings per DAS (tonnes)		0.6	0.6	0.6	0.8	0.7	0.5	0.7	0.8	0.6	-5%	15%
	Fishing income (£)		448,150	434,955	456,365	396,625	433,815	534,846	536,961	545,331	475,247	6%	-11%
	All areas SCE fishing income (£)		271,902	262,467	269,835	291,381	245,887	198,275	258,332	322,325	235,991	-13%	19%
	All areas SCE fishing income per DAS (£)		1,332	1,277	1,307	1,474	1,235	1,007	1,284	1,519	1,139	-15%	13%
	Average SCE price per tonne landed (£)		2,128	2,156	2,151	1,918	1,782	1,947	1,968	1,844	1,908	-10%	-2%
Performance indicators	Landings per kW DAS (kg)		3,154.4	4,087.4	4,092.7	5,042.4	7,096.5	8,708.2	8,655.7	5,843.3	4,394.2	39%	-50%
	All areas SCE landings per kW DAS (kg)		1,590.8	1,680.8	1,607.3	2,362.6	2,128.4	1,374.2	1,858.4	2,238.2	1,641.9	3%	19%
	Fishing income per kW DAS (£)		5,579.4	6,006.3	5,847.0	6,169.7	6,690.5	7,217.8	7,600.3	6,981.0	6,308.1	13%	-13%
	All areas SCE fishing inc. per kW DAS (£)		3,385.1	3,624.4	3,457.2	4,532.6	3,792.2	2,675.7	3,656.5	4,126.2	3,132.4	-7%	17%
	Total cost per kW day at sea (£)		4.9	4.6	5.0	5.2	5.5	5.8	6.2	6.0	5.7	18%	-1%
	Operating profit per kW day at sea (£)		0.7	1.4	0.8	1.0	1.2	1.4	1.4	1.0	0.6	-19%	-60%
Income, costs and profit (Average per vessel)	Fishing Income (thousand £)		448.2	435.0	456.4	396.6	433.8	534.8	537.0	545.3	475.2	6%	-11%
	Non-Fishing Income (thousand £)		12	5	9	7	13	5	10	4	3	-76%	-72%
	Total Income (thousand £)		**460.3**	**440.0**	**465.8**	**404.0**	**447.3**	**540.0**	**547.4**	**549.2**	**478.2**	4%	-13%
	Fuel (thousand £)		82	72	113	65	74	117	121	128	135	65%	11%
	Crew share (thousand £)		129	98	119	113	121	152	134	129	116	-10%	-14%
	Total Fishing Costs (thousand £)		263	221	277	213	246	322	305	317	308	17%	1%
	Total Costs (thousand £)		391	331	392	335	355	429	441	467	432	11%	-2%
	Gross Value Added (thousand £)		**198.4**	**207.3**	**193.2**	**182.0**	**213.0**	**262.5**	**240.9**	**211.9**	**161.8**	-18%	-33%
	Operating Profit (thousand £)		**69.4**	**109.1**	**73.7**	**68.6**	**91.9**	**110.7**	**106.7**	**82.5**	**46.2**	-33%	-57%

Notes: All values are adjusted to 2014 prices. 2014 costs and profits are projections.

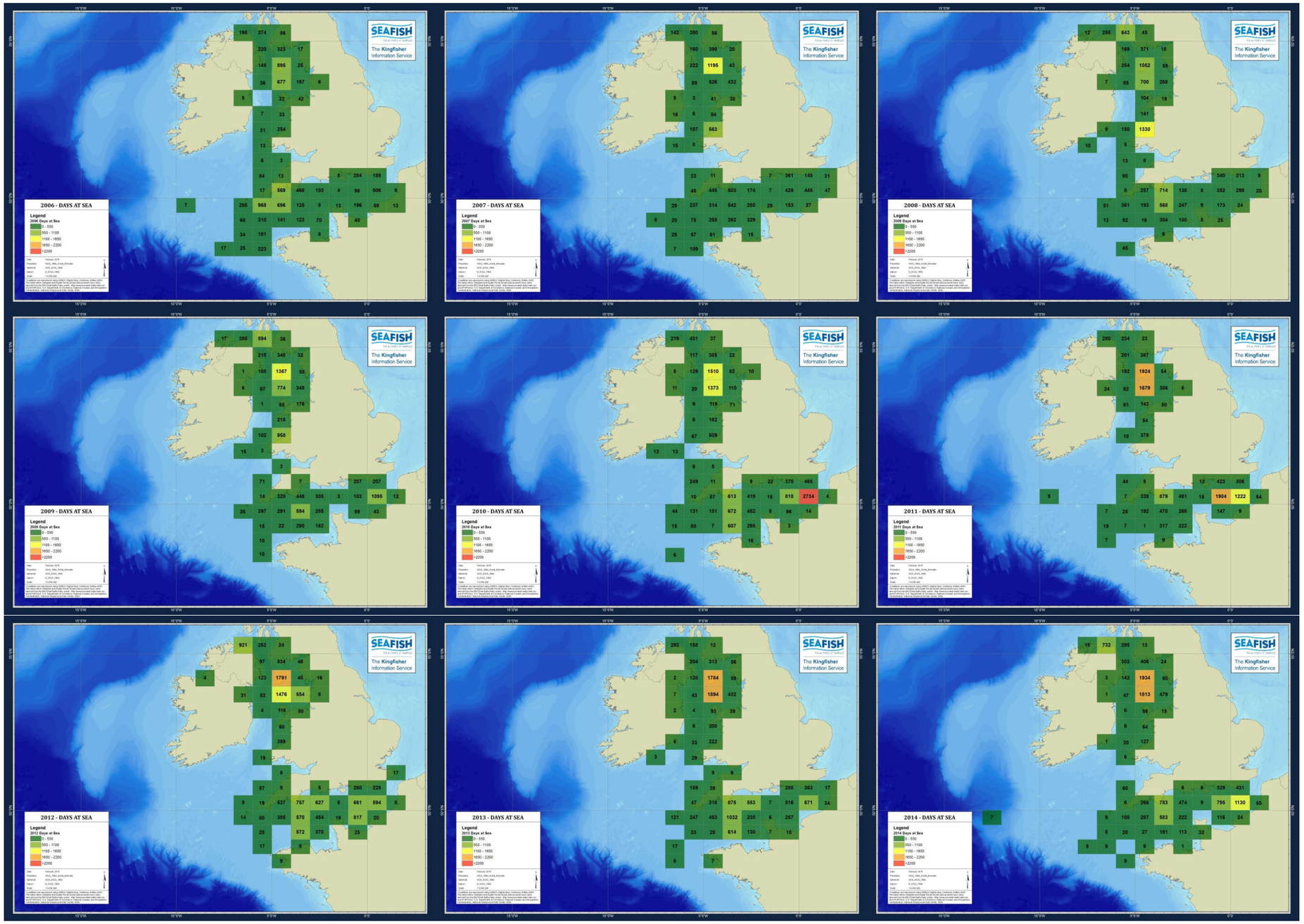




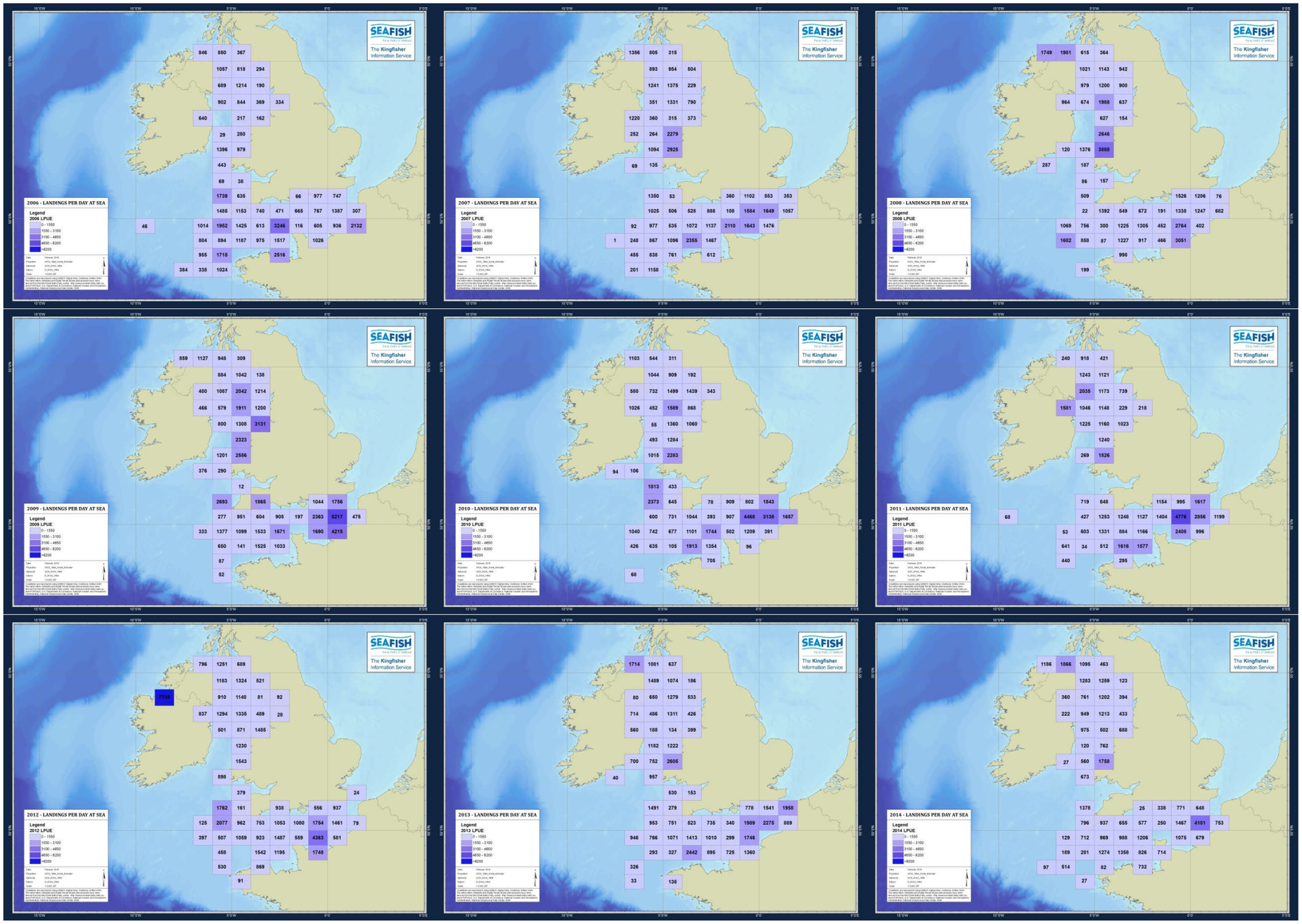
GVA margin and profit margin are calculated as percentage of GVA or operating profit to revenue.

8. APPENDIX B: DATA MAPS

8.1. ALL UK 15M AND OVER VESSELS TARGETING AND LANDING KING SCALLOPS - DAYS AT SEA IN AREA VII 2006-2014



8.2. ALL UK 15M AND OVER VESSELS TARGETING AND LANDING KING SCALLOPS – KING SCALLOP LPUE IN AREA VII 2006-2014



Seafish
18 Logie Mill, Logie Green Road,
Edinburgh EH7 4HS

t: 0131 558 3331 f: 0131 558 1442
e: info@seafish.co.uk
w: www.seafish.org

Our Mission: *supporting a profitable, sustainable and socially responsible future for the seafood industry*