



THE EU FISHING FLEET

TRENDS AND ECONOMIC RESULTS

ECONOMIC PAPERS N° 01/2016

A series of short papers on economic analysis and indicators produced by the Directorate-General for Maritime Affairs and Fisheries



Fisheries

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Economic Papers are published by the Directorate-General for Maritime Affairs and Fisheries (DG MARE) and are intended to increase awareness of the economic performance of the EU fisheries, aquaculture and fish processing sectors. DG MARE welcomes comments on the report's utility and content and any suggestions for future enhancements. The findings and interpretations expressed in this document do not necessarily reflect the views of the European Commission.

The Economic Paper n° 01/2016 was produced by experts of the Structural Policy and Economic Analysis Unit of DG MARE and experts of the Institute for the Protection and Security of the Citizen at the Joint Research Centre (JRC).

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EXECUTIVE SUMMARY

This paper summarises the key findings of the Scientific, Technical and Economic Committee for Fisheries (STECF) '2015 Annual Economic Report on the EU Fishing Fleet', and provides additional insight on trends in economic performance and the potential drivers of such trends. It also includes supplementary analyses focusing on trends by main fishing region and type of fishing activity (small-scale coastal fleets (SSCF) and large-scale fleets (LSF)). Results are based on data collected under the European Union (EU) Data Collection Framework (DCF) and additional information taken from fleet reports submitted by Member States (MS).

The good news...

- Data show that the overall economic performance of the EU fleet was positive and significantly improved over the 2008-to-2013 period. The net profit margin generated by the EU fleet increased over this period, registering record-high profits in 2013. Preliminary results for 2014 and economic projections for 2015 also point towards positive outcomes.
- Fuel consumption and fuel use intensity decreased by 11 % from 2008 to 2013, as a result of efficiency gains in the way many EU fleets operate.
- The general economic improvement coincides with the efforts of MS to match their capacity to the available fishing opportunities, and with the increase in the number of fish stocks being fished at the maximum sustainable yield (MSY) exploitation rate.

The challenges ahead...

- The economic performance of EU fleets in the Mediterranean region continues to stagnate.
- The overall economic performance of the EU SSCF continues to deteriorate though still profitable, in contrast to the overall improvement of the EU LSF.
- Employment in the EU fleet continues to decline, together with the decrease in capacity.

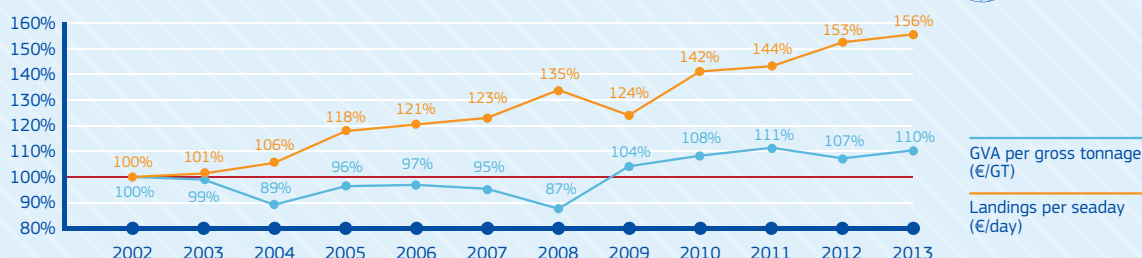
What are the main drivers?

- Several drivers may have directly or indirectly contributed to improved economic performance: the recovery of some EU fish stocks, and progress made towards achieving MSY through the reduction in exploitation rates; an increase in the indicator **landings per unit of effort (LPUE)** (an index of relative fish abundance); fuel price reductions and improvement in first sales prices of several commercially important species. Other potential contributing factors include measures funded under the European Fisheries Fund (EFF) and national support such as innovation projects; implementation of certification schemes; increasing investment; more fuel-efficient fishing techniques; and capacity reduction.
- Conversely, other drivers may have contributed to declining economic performance: over-exploitation of some stocks, particularly in the Mediterranean Sea; the effects of the global economic crisis and the limited access to credit; poor marketing and market saturation; environmental factors; and a shortage of local crews.

Economic performance of the EU fishing fleet

THE GOOD NEWS

The EU fishing fleet's economic performance is improving and having a positive impact on many EU coastal communities, according to figures for 2008-2013.



CHALLENGES AHEAD

1

The economic performance of the EU fleets in the **Mediterranean and Black Sea regions** continues to stagnate

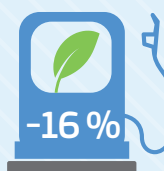
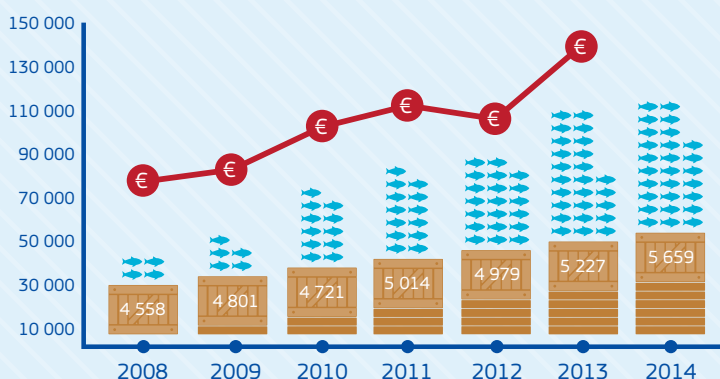
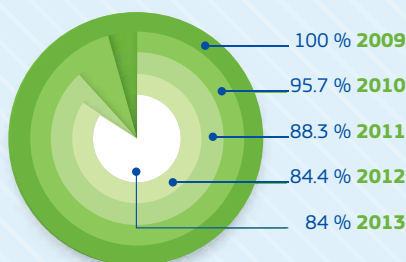
Northeast Atlantic, North Sea & Baltic Sea

Mediterranean & Black Sea

Improvement factors

1 Increased number of sustainable fish stocks, leading to increased productivity
(Northeast Atlantic, North Sea & Baltic Sea)

2 Greater fuel efficiency

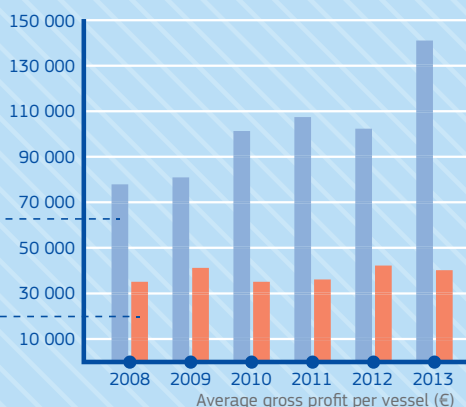


Fuel use intensity decreased by 16% between 2009 and 2013

average gross profit per vessel (€)

number of fish stocks exploited sustainably

landings per seaday (kg/day)



2



The economic performance of small-scale coastal fleets continues to deteriorate, while that for the large-scale fleet is improving.

3

Employment within the EU fleet continues to decline. There is a need to create jobs and growth in coastal communities





Main Findings

1. Economic performance of the EU fishing fleet

1.1 Main results

In 2013, the EU fleet generated over EUR 6.8 billion in revenue (income from landings plus other non-fishing incomes), amounting to EUR 3.4 billion in gross value added (GVA)⁽¹⁾.

GVA, which measures the direct contribution of the fish catching sector to the coastal economies through wages and gross profit, was positive in all the MS fleets covered.

GVA as a proportion of revenue was estimated at 49%. In other words, the EU fishing fleet transforms roughly half of its total revenue into salaries and profits, indicating that the sector produces a positive impact on the economies of EU coastal regions and their fishing communities.

After deducting all operating costs, including wages, energy, repair and maintenance, other variable costs and fixed costs, totalling EUR 5.2 billion, the EU fleet generated EUR 1.3 billion in gross profit. That is, 20% of revenue generated by the fleet was converted into profit for vessel owners.

When accounting for capital costs, i.e. annual depreciation and the opportunity cost of capital ⁽²⁾, the EU fleet generated a net profit of EUR 506 million. In other words, 7.8% of the fleet's revenue was retained as net profit in 2013, a significant improvement compared to the estimated 5.5% in 2012 (Figure 1).

Results for 2013 show that all MS fleets analysed generated positive gross profits, while three MS ⁽³⁾ fleets suffered net losses. It should

be noted that these results do not account for subsidies to the fleet or for income and costs related to intangible assets, i.e. fishing rights.

Box 1 Main factors influencing the economic performance of the EU fleet

The EU fleet's improved economic performance in 2013 can be attributed to several factors: (1) **higher landings per unit of effort**, coupled with (2) **higher average first sale prices** of several commercially important species, and (3) **lower overall costs**, which declined compared to previous years ⁽⁴⁾.

For several MS fleets, increased investment (e.g. Germany, Spain and the United Kingdom,) and the introduction of transferable fishing concessions (TFCs), such as individual transferable quotas (ITQs) (e.g. Denmark, the Netherlands and Sweden), may also have played a role, improving efficiency in these fleets.

The general **economic improvement since 2008 is reflected in MS fleet capacity reports and action plans** ⁽⁵⁾, which indicate that there is no widespread overcapacity in most MS fishing fleets. However, pockets of fleet segments that were assessed not to be in balance with their fishing opportunities remain in many MS. In order to redress these imbalanced fleet segments, MS propose to use different combinations of scrapping with public support ⁽⁶⁾ and other measures, such as voluntary exits, licensing, effort restriction, quota redistribution and diversification, and, for some MS, the progressive adoption of rights-based management systems.

The observed overall improvement in the economic performance of the EU fleet coincides with a similar **improvement in stock status** (see also the communication on fishing opportunities for 2016 ⁽⁷⁾), where the number of stocks fished at or below the MSY

¹ All monetary values have been adjusted for inflation, to 2014 constant prices. Due to confidentiality issues, not all vessels are covered.

² Opportunity cost of capital, calculated using the real rate of return obtained from investing in long-term, low-risk market instruments such as government bonds, and the current tangible asset value of the fleet. It shows the potential return that owners could obtain if they invested elsewhere instead of in their businesses. There is an economic profit when the returns of the invested capital surpass the opportunity cost.

³ The national fleets of Belgium, Finland and Portugal, were in a loss-making position in 2013.

⁴ Labour costs and fuel costs declined by 6%, and capital costs (mainly depreciation) fell by 13%.

⁵ Prepared under Article 22.4 of the CFP Regulation.

⁶ Scrapping with public support under the European Maritime and Fisheries Fund (EMFF) can be carried out until 31 December 2017.

⁷ Communication from the Commission to the European Parliament and to the Council 'Consultation on fishing opportunities for 2016 under the Common Fisheries Policy' (COM(2015) 239).

exploitation rate (FMSY) in the North-East Atlantic, North Sea and Baltic Sea has increased from 2 to 26 over the period from 2002 to 2015. However, this is not the case for stocks in the Mediterranean and Black seas, where not only stocks are largely overfished but the economic performance of fishing fleets has also deteriorated or stagnated.

Maximum Sustainable Yield (MSY), B_{MSY} and F_{MSY}

MSY is the maximum average amount of catch that can be continuously taken from a fish stock under existing environment conditions.

MSY is sustained by a stable population size known as B_{MSY} - 'biomass MSY'.

While MSY is a catch and B_{MSY} is a population size (a biomass), F_{MSY} - 'fishing mortality MSY' - is a catch rate.

B_{MSY} is the spawning stock biomass that results from fishing at F_{MSY} for a long time.

The overall positive economic results did not apply to all MS fleets. Even in fishing regions where biological productivity appears to be improving (the North-East Atlantic, North and Baltic seas), three national fleets ⁽⁸⁾ experienced net losses in 2013.

When examining the performance of these MS fleets over time, two general trends emerge.

- Certain MS national fleets consistently perform poorly and accumulate losses over time. In these cases, fleet size tends to reduce quite rapidly in terms of number of vessels (e.g. Belgium).
- Some MS fleets are profitable on the whole but occasionally suffer a bad year (e.g. Finland and Portugal). These fleets are relatively resilient in the face of short-term losses, depending on resources accumulated in good years and/or depending on continuous access to credit, which can contribute to the long-term viability of their operations.

⁸ It should be noted that examining profitability at the level of aggregated national fleets is useful for gaining a sense of the broad picture, but it is not really informative. A precise understanding of the situation requires examination at the level of the fleet segment or — preferably — the fishing unit.

Direct income subsidies may also contribute to helping some fleets to stay operational in the face of low or negative profitability. Subsidies that increase revenue or lower costs may allow vessels that year after year suffer losses to remain in business. In the long run, this situation could undermine the resilience of the fleet.

It is also the case that some fishers may perform consistently better than others due to a higher standard of fishing skills and managerial capabilities. The implication of this is that some may earn profits in situations where the majority are making losses. This raises the possibility that some of these profits will be reinvested in the sector, and may explain why new vessels enter the fleet even when the sector as a whole is performing poorly or to fleet segments that show some imbalance with their fishing opportunities. More information on the behaviour of fishers and investment dynamics in the sector could increase our understanding of the trends and drivers behind the fleets' economic performance.

Nonetheless, the available empirical evidence suggests that profitability varies greatly across fishing vessels, and that profits are volatile and affected by fluctuations in catch rates, total allowable catches (TACs), input costs and market conditions.

The EU fleet is highly diverse with respect to the size of its vessels, the types of fishing gear used, the stocks targeted and the size and profitability of individual fishing firms. Given such heterogeneity, it is not possible to pinpoint precisely the determining factor(s) behind the improved performance at the EU level. However, it is likely that several actions under the Common Fisheries Policy (CFP), particularly the progressive implementation of longer term management plans, decommissioning schemes and EFF support, **have contributed to the improvement in the status of many commercially important stocks and to the overall economic development of the EU fleet** ⁽⁹⁾ ⁽¹⁰⁾. This is explained in more detail in the following sections.

⁹ For example, in the Baltic Sea cod management plan, economic performance in the fleets analysed increased by 40 % between 2008 and 2012.

¹⁰ Also corroborated in the scientific literature for example in Cardinale et al. (2012) and Fernandes and Cook (2013).

1.2 Trends in economic performance

1.2.1 Recent evolution (2008-2013)

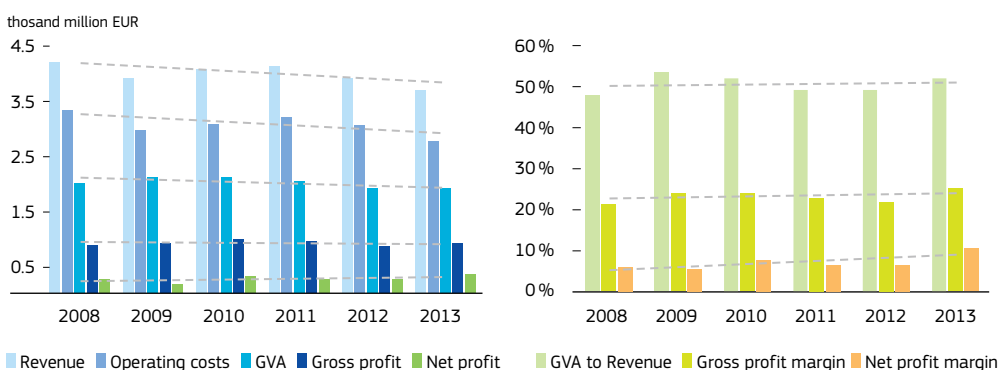
Over the period from 2008 to 2013, the overall economic performance of the EU fleet improved (Figures 1 and 2). This improvement appears to have been largely driven by increases in fish stock abundance and decreases in fuel consumption and capital costs.

- **Increased number of stocks fished at the MSY exploitation rate** in the North-East Atlantic, North and Baltic seas, but not in the Mediterranean Sea (of 97 stocks with scientific advice, 91 % were overfished) and Black Sea (5 of 7 assessed stocks were overfished).
- **Fuel consumption and fuel use intensity** ⁽¹¹⁾ decreased 11 % from 2008 to 2013. The 2008 fuel crisis made vessel owners more aware of the importance of reducing fuel use and provided an incentive for developing new strategies to improve fuel efficiency ⁽¹²⁾ and reduce costs. Furthermore, the decreasing trend in fuel prices witnessed during 2014 and 2015 without a corresponding increase in consumption suggests a structural change, which is expected to continue to help improve the overall performance of the EU fleet in the near future.

- **The average number of employees per vessel remained stable, except for the distant-water fleet**, which showed some substitution of labour by capital, and may have contributed to the increasing profitability of this fleet.
- **The reduction in capital costs** (mainly depreciation) is due to the exit of vessels from the fleet and the ageing of the EU fleet (average vessel age increased from 24 years in 2008 to 28.4 years in 2013).

The revenue generated by the EU fleet has decreased, but this decrease has been accompanied by a larger decrease in operating costs, meaning that the GVA and gross profit margins have, in fact, increased. Furthermore, due to significant reductions in capital costs, as described above, the EU fleet has been able to improve on its net profit margin (Figure 1).

Figure 1 - Trends in economic performance indicators for the EU fishing fleet ⁽¹⁾ from 2008 to 2013. Trends are indicated by horizontal dashed lines



¹¹ Fuel use intensity measured as litres of fuel consumed per tonne of fish landed (litres/tonne).

¹² Such a decrease is due to a variety of factors including the shift to more fuel-efficient fishing gears, fleet reduction, improved stock abundances, and changes in fishing behaviour and fleet dynamics.

Box 2 The indicator 'Landings Per Unit of Effort (LPUE)'

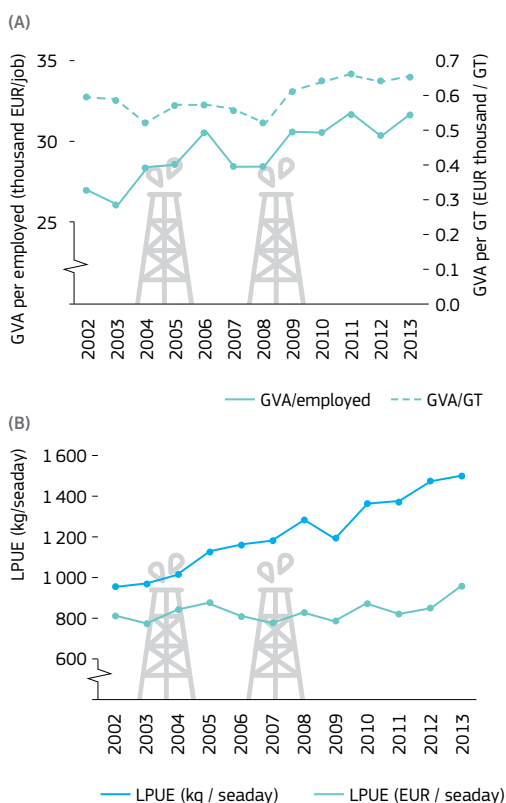
The LPUE is a relative measure of stock abundance. An increasing trend in this indicator may be an indication of improved stock status. It also implies that fishers either obtain more landings with the same amount of fishing effort (the number of fishing days, crew, hooks, nets, etc.), or take the same landings with less effort. Less fishing effort generally implies lower operating costs, leading to higher profits for constant first sale market prices.

1.2.2 Retrospective analysis (2002-2013)

With the exception of two periods in 2003 and from 2007 to 2008, both of which coincide with major increases in fuel prices, **the relative economic performance of the EU fleet expressed as GVA per fisher has gradually improved over the period from 2002 to 2013** (Figure 2 (A)).

The general **steady increase in LPUE (kg per day at sea)** (Figure 2 (B)), together with the observed higher average first sale prices ⁽¹³⁾ (see Subsection 1.2.3), have contributed to the overall improvement in economic performance of the fleet, by reducing costs and increasing income from landings.

Figure 2 – Trends in relative GVA (GVA per fisher employed and GVA per vessel GT) (A) and LPUE (landings per day at sea) (B) from 2002 to 2013, highlighting the fuel crises (2003 to 2005 and end 2006 to late 2008, respectively)



Box 3. Regional differences in economic performance

It is noteworthy that the EU fleet's improved economic performance is not universal, and varies distinctively across the two main European fishing regions: the North-East Atlantic, North and Baltic seas (Area 27), and the Mediterranean and Black seas (Area 37).

Contrary to the overall good economic performance in Area 27, where stock status has improved, the general economic performance of the fleets fishing in Area 37 and the status of most stocks have deteriorated.

These differences are evident in the trends discussed below and explained in Section 2.

¹³ Trends in market prices vary greatly for some species, depending on the fishing gear and region: SSCF and selective fishing gears (longlines and traps) tend to fetch higher prices for the same species than large-scale and industrial trawlers; the first sale prices for the same species tend to be higher in the Mediterranean than in other fishing regions.

Table 1 - Variations in first sale prices for the main species landed by the EU fishing fleet from 2008 to 2013. Trends are in average price by species, with high values over the time period identified by the blue bars

Species	Δ2008-09	Δ2009-10	Δ2010-11	Δ2011-12	Δ2012-13	Δ2013 - average (2008-2012)	Trend in average price
Atlantic cod	-19 %	9 %	6 %	24 %	-5 %	15 %	
Atlantic herring	-16 %	15 %	-4 %	27 %	-13 %	4 %	
Atlantic mackerel	5 %	6 %	-1 %	-2 %	5 %	6 %	
Common shrimp	-5 %	4 %	23 %	1 %	-2 %	12 %	
Common sole	-9 %	15 %	3 %	5 %	-3 %	6 %	
Edible crab	-13 %	10 %	-3 %	8 %	7 %	13 %	
European pilchard (=Sardine)	0 %	-6 %	16 %	-7 %	17 %	18 %	
European plaice	18 %	-30 %	14 %	8 %	1 %	3 %	
European seabass	-2 %	4 %	9 %	9 %	5 %	20 %	
Great Atlantic scallop	-27 %	-2 %	20 %	-5 %	1 %	0.2 %	
Haddock	-12 %	1 %	5 %	8 %	16 %	25 %	
Jack and horse mackerels nei	9 %	6 %	-29 %	-14 %	45 %	8 %	
Saithe (=Pollock)	13 %	12 %	14 %	12 %	-9 %	15 %	
Sandeels (=Sandlances) nei	-6 %	38 %	-26 %	42 %	-15 %	4 %	
Albacore	10 %	-2 %	-1 %	-8 %	-6 %	-11 %	
Anglerfishes nei	-71 %	7 %	11 %	-1 %	-2 %	-28 %	
Blue whiting (=Poutassou)	26 %	83 %	-42 %	-18 %	-10 %	-30 %	
Chub mackerel	2 %	11 %	-19 %	-12 %	11 %	-8 %	
European hake	-8 %	7 %	6 %	4 %	-10 %	-3 %	
European sprat	-70 %	-14 %	36 %	-9 %	-18 %	-41 %	
Monkfishes nei	1 %	2 %	-9 %	-14 %	-2 %	-18 %	
Norway lobster	-7 %	13 %	1 %	-3 %	-5 %	-4 %	

1.2.3 Trends in first sale prices

The first sale price in real terms improved for key species such as cod, herring, mackerel, sardine, shrimp and sole over the period from 2008 to 2013 (Table 1). Extending the time series and using more recent data from the European Mar-

ket Observatory for Fisheries and Aquaculture Products (EUMOFA) ⁽¹⁴⁾ shows that first sales prices in 2014 continued to increase in line with the trends observed for 2008 to 2013. Yet results for the first 9 months of 2015 reveal a somewhat mixed picture.

¹⁴ See <http://www.eumofa.eu/> online.

An interesting observation is the existence of different trends at regional level concerning decreases in the average first sale price: (1) these were mostly observed in the Mediterranean and Black seas; and (2) they were more pronounced over recent years, coinciding with the decrease in the number of stocks fished at MSY levels. By contrast, average price increases were observed in the North-East Atlantic, North and Baltic seas, where the status of important stocks improved.

It is also interesting to note that the reduction in landings from stocks in the Mediterranean and Black seas does not appear to have triggered a market response in terms of higher prices. This may be partly an effect of the economic crisis in the region and of diminishing consumer purchasing power, but may also be due to the globalised nature of the fish trade market, the substitution effect between some fish species and the EU's high dependence on imports. On the other hand, the increase in average market prices in the North-East Atlantic, North and Baltic seas may be attributable in part to the increasing consumer awareness for sustainably fished seafood.

There is also a large variation in price trends, based on fishing gear. Landings from small-scale coastal fisheries and selective fishing gears (longlines and traps) tend to fetch higher prices for the same species than industrial trawlers, due to differences in the quality of landings.

1.2.4 Projections for 2014 and 2015

Projected results suggest that of the MS analysed, all will have experienced gross profits in 2014, while three ⁽¹⁵⁾ will have suffered net losses.

Forecasts for 2015 by fishing activity suggest that in general, **the economic performance will improve for large-scale fisheries but will continue to deteriorate for small-scale coastal fleets.** The continuing deterioration in performance of the SSCF may be influenced by a combination of biological factors (overexploitation and lack of scientific knowledge for many of the stocks targeted by these fleets) and socio-economic factors (for example, the part-time nature of the activity,

economic accounting of the remuneration to the owner working on board), coupled with a decrease in the average first sale prices.

2. Regional and fleet differences

2.1 Regional differences in economic performance

In the North-East Atlantic, North and Baltic seas (Area 27), trends in the LPUE indicator increased almost 4% over the period from 2008 to 2014, coinciding with reduced fishing mortality rates and an increase in abundance of number of stocks (Figure 3).

On the other hand, LPUE in the Mediterranean and Black seas (Area 37) decreased by 2% over the same period, where fishing mortality rates have generally increased. Such trends are reflected in the economic performance of the fleets in each area (Figure 3).

Similar trends in the main economic indicators were observed for MS fleets operating in the different sea basins of the North Atlantic, namely the North-East Atlantic, Baltic and North seas ⁽¹⁶⁾ (Figure 4).

2.2. Fleet differences in economic performance: variations and trends for the SSCF and LSF segments

The economic performance of the LSF improved over the period from 2008 to 2013. By contrast, the performance of the SSCF, although still profitable overall, tended to deteriorate (Table 2, Figures 5 and 6).

Table 2 highlights the contrasting trends and different economic performance results for the two main components of the EU fleet: the SSCF and the LSF. The overall deteriorating performance observed for the SSCF in the Mediterranean and Black seas (Area 37) is likely to be a consequence of high running costs and stagnated or decreasing LPUEs, together with a decrease in average first sale prices for several key species.

¹⁵ Belgium, Poland and The Netherlands.

¹⁶ Disaggregation of economic data provided at the supra-region level (Area 27 and Area 37) to the main fishing region is based on several assumptions and correlations with landings and effort data, provided by subregion (FAO fishing areas Level 3 or Level 4).

Figure 3 - Trends in LPUE (kg per day at sea) (left) and average gross profit by main fishing region (AREA 27 and AREA 37) (right), 2008-2013. Bars represent the number of stocks fished at MSY exploitation rate

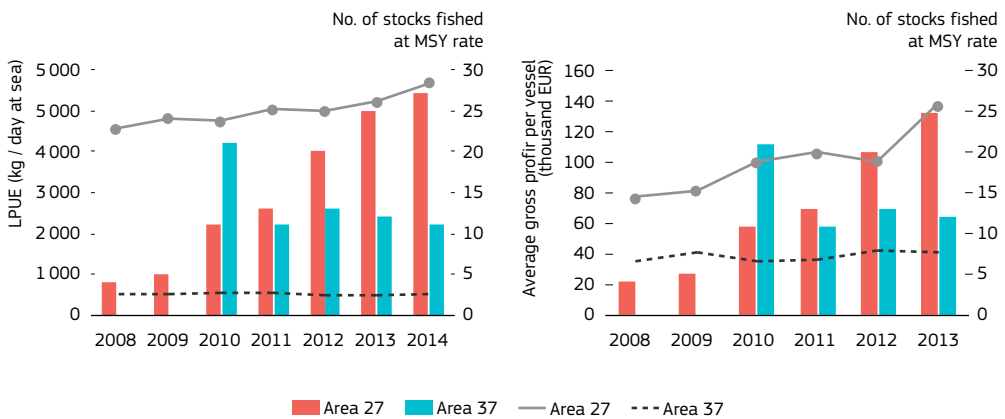


Figure 4 - Trends in main economic performance indicators (A – revenue; B – GVA to revenue; C – gross profit margin) estimated for the EU fishing fleet from 2008 to 2013 operating in AREA 27 (the North-East Atlantic, Baltic and North seas), and number of stocks fished at or below MSY exploitation rates (2010-2014)

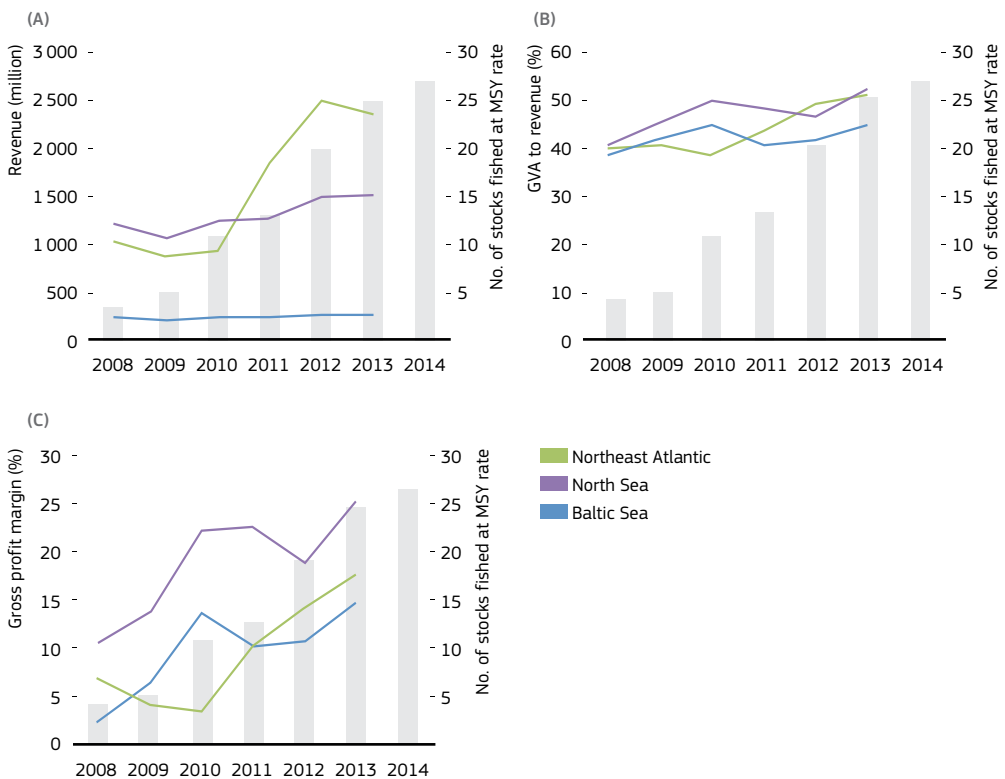



Table 2 - Main performance indicators estimated by type of fishing activity (small- and large-scale) in 2013, and the variation compared to the average (2008-2012)



Indicator	2013	Δ 2013 to average 2008-12	2013	Δ 2013 to average 2008-12
GVA to revenue	57 %	- 9 %	51 %	+ 5 %
Gross profit	EUR 115 million	- 43 %	EUR 1 billion	+ 7 %
Gross profit margin	13 %	- 37 %	21 %	+ 20 %
Net profit	- EUR 26 million	- 140 %	+ EUR 324 million	+ 39 %
Net profit margin	- 3 %	- 133 %	7 %	+ 72 %
Labour productivity	EUR 17 900	- 22 %	EUR 47 600	+ 9 %
Average salary (FTE)	EUR 13 900	- 13 %	EUR 27 900	0 %
Investments in 2013	EUR 71 million	- 19 %	EUR 350 million	0 %

Figure 5 - Trends in LPUE (landings per day at sea) by type of fishing activity (SSCF (left) and LSF (right)) and fishing region, 2008-2013

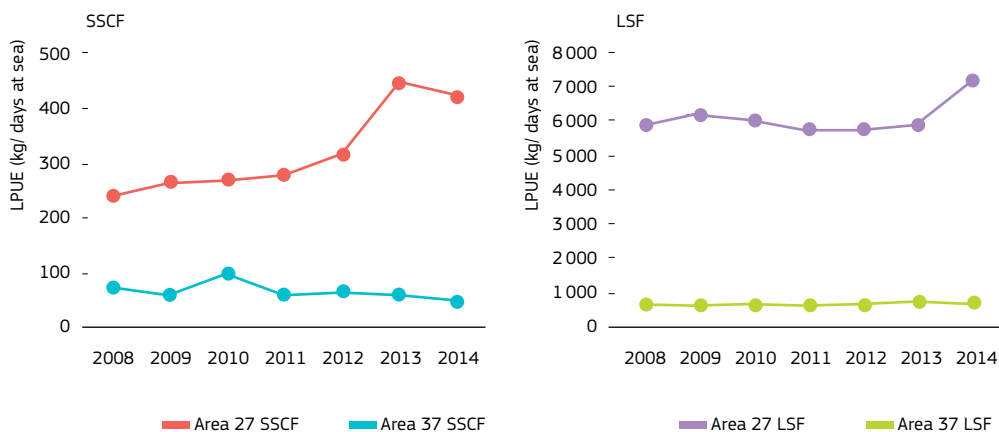
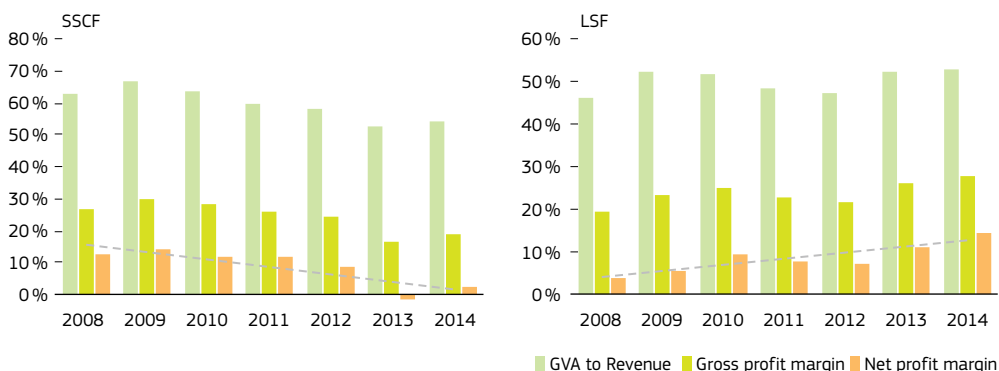


Figure 6 – Trends in economic performance indicators by type of fishing activity (SSCF (left) and LSF (right)), 2008-2013



2.3. Trends in employment and average salaries

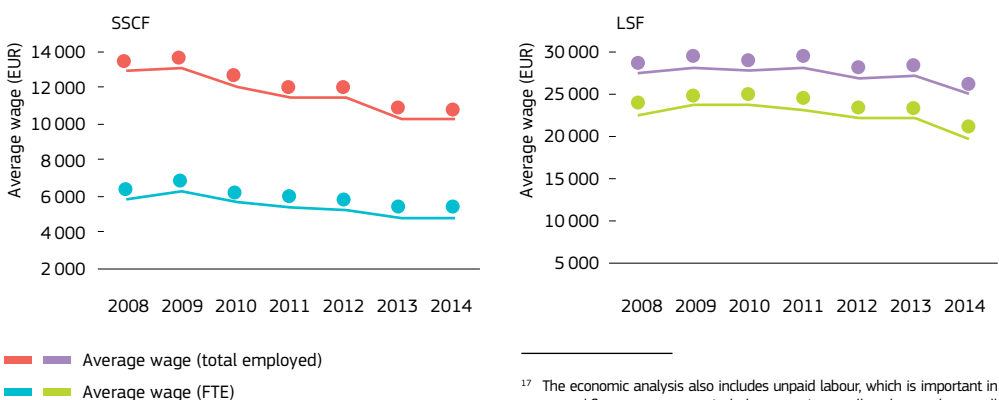
Employment in the EU fleet, which was estimated at around 150 000 fishers in 2013, corresponding to 110 000 FTE (full-time equivalent), has on average decreased 2 % per year over the period from 2008 to 2013.

Employment by main fishing activity has remained fairly stable, with the SSCF accounting for roughly 50 % of the total. In FTE, the picture is somewhat different, with the coastal fleet accounting for 36 % of the total, implying a high rate of part-time employment. The large-scale and distant-water segments lost the

highest number of jobs (3 400 and 392 FTEs, respectively) over the period, coinciding with the observed reduction in number of vessels, but also suggesting some substitution of labour for capital. The SSCF, losing only 180 FTEs over the period, remains highly labour intensive.

Average wages decreased slightly over the period from 2008 to 2013 (0.5 % per FTE, Figure 7). Due to the remuneration scheme practised on many EU vessels (commonly based on a share of the income), it is not surprising that average wages decreased, as income from landings has also fallen. However, the proportional decrease in average wages is less than the decrease in revenue (¹⁷).

Figure 7 – Trends in average wage by main fishing activity (SSCF (left) and LSF (right)), 2008-2013



¹⁷ The economic analysis also includes unpaid labour, which is important in several fleet segments, particularly concerning small-scale vessels, as well as non-fishing income. Unpaid labour is a DCF variable that estimates the value of the labour that works for the firm but is not paid, usually consisting of family members. It may also include what the vessel owner would earn if he or she was paid a salary. It was estimated at EUR 223 million. Non-fishing income includes complementary activities such as tourism or leasing out fishing rights. It represents less than 3 % of the fishing income.

2.4. Trends in labour and capital productivity

Labour productivity, defined here as GVA per FTE (thousand EUR/FTE), measures the amount of output produced by unit of input (in this case, labour) and gives an indication of how efficient the sector is. Average labour productivity for the EU fleet was estimated at EUR 39 000 per FTE in 2013 ⁽¹⁸⁾, with Danish fishers being by far the most productive: on average, they generated EUR 152 000 in GVA per FTE. Results suggest that for those EU fleet components for which a complete time series is available ⁽¹⁹⁾, average labour productivity has remained relatively stable over the period from 2008 to 2013, but was highest in 2010 (Figure 8).

While labour productivity measures the efficiency of the fleet in terms of labour use, capital productivity, defined as the rate of return on investment (RoI ⁽²⁰⁾), is used to evaluate the efficiency of the capital invested in the fleet. Capital productivity showed a similar trend to labour productivity over the years from 2008 to 2012, but the value for 2013 was the highest in the time series (Figure 8).

Figure 9 highlights that the SSCF is characterised by low labour and capital productivity, consistent with the prevalence of part-time activity for many SSCF fleets. Both show a decreasing trend since 2009, with capital productivity falling sharply in 2013. Conversely, productivity in the LSF shows an overall increasing trend over the period.

Figure 8 - Trends in labour and capital productivity in the EU fleet, 2008-2013

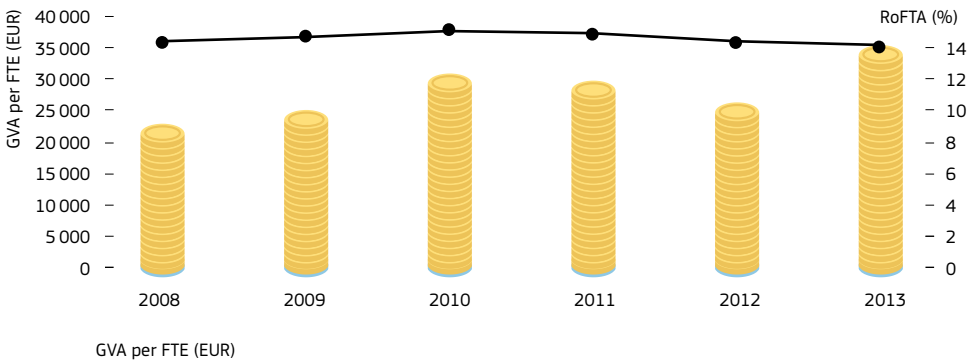
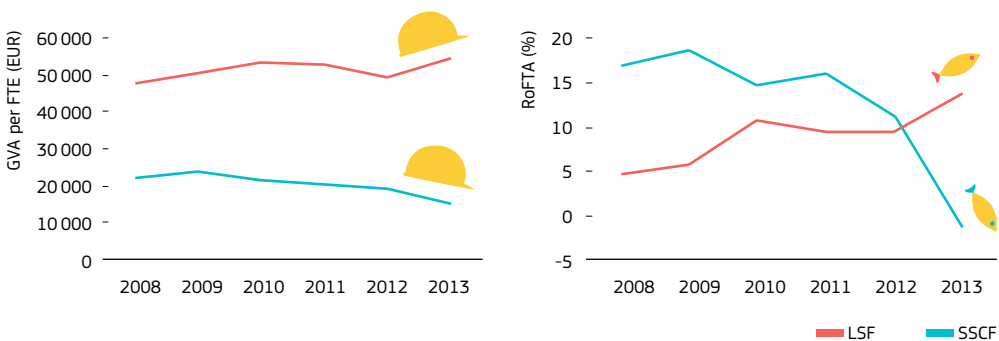


Figure 9 - Trends in labour (left) and capital (right) productivity by fishing activity (SSCF and LSF), 2008-2013



¹⁸ Excludes Bulgaria, Cyprus, Greece and Malta.

¹⁹ Excludes Bulgaria, Croatia, Cyprus, France, Greece, Malta and Spain.

²⁰ As data on intangible assets, for example, fishing rights and natural resources, are not always available in fisheries, the return on fixed tangible assets (ROFTA) is used as an approximation of RoI.

2.5. Trends in fleet capacity

According to the data ⁽²¹⁾, the number of vessels decreased steadily between 2008 and 2013. While the number of SSCF and LSF vessels decreased on average by 1.5 % and 3 % p.a., respectively, the decrease in the distant-water fleet was more pronounced (around 12 % p.a. on average, and 39 % from 2012 to 2013).

The same trend of fleet capacity reduction is observed in the number of inactive vessels ⁽²²⁾. Over the period from 2008 to 2013, the capacity of the inactive fleet fell by 5.5 % in number of vessels, 19 % in gross tonnage and 12 % in kilowatts. The number of inactive vessels represented around 22 % of the entire EU fleet in 2013.

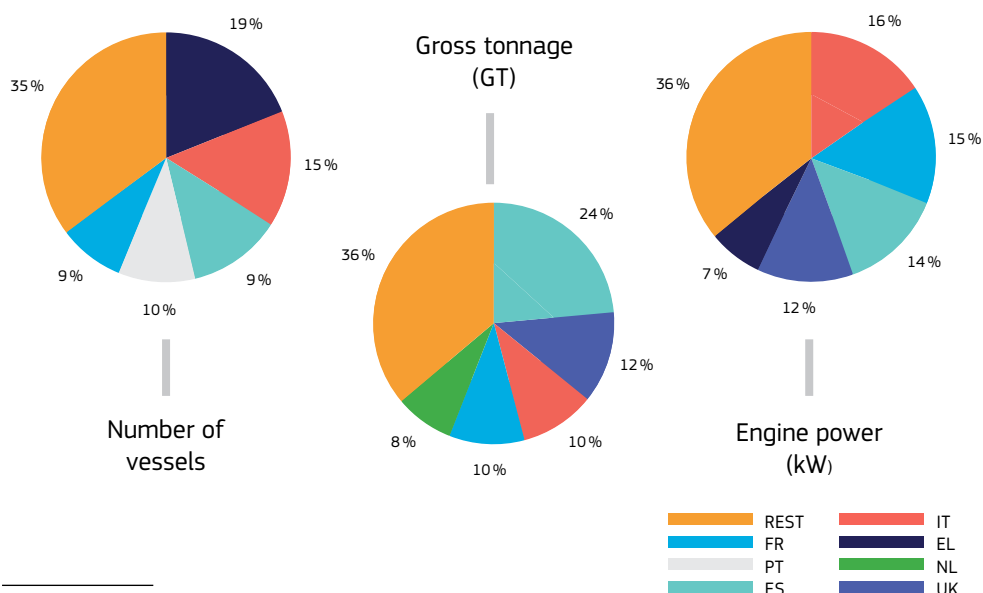
3. General overview of the EU, and main results by fishing region

3.1 General overview of the EU fleet by MS

Europe's fishing fleet comprised over 83 734 registered vessels in 2013, of which almost a quarter were inactive. Greece had the most vessels, with almost 16 000, followed by the Italian and Spanish fleets comprising 12 635 and 10 167 vessels, respectively.

While Greece accounted for 19 % of the total number of vessels, its fleet represented only 5 % of the gross tonnage and 7 % of the kilowatts of the EU fleet, indicating a fleet mostly made up of small-scale vessels. The average capacity of vessels in the Greek fleet is 4.7 GT and 28.5 kW. In this respect, the Greek fleet is a contrast to the Belgian fleet, the smallest of the national fleets with only 83 vessels but with an average vessel capacity of 181 GT and 574 kW (Figures 10 and 11).

Figure 10 - Proportion of the main capacity indicators, highlighting the five most important MS fleets in terms of each indicator (number of vessels (left), gross tonnage (centre) and engine power (right)), 2013



²¹ Trend analyses were based on data for 16 MS fleets for which full time-series data (2008-2013) were available.

²² Latent capacity which could at some point re-enter the fishery.

Figure 11 - Main capacity indicators by MS fleet. Circle size reflects the number of vessels

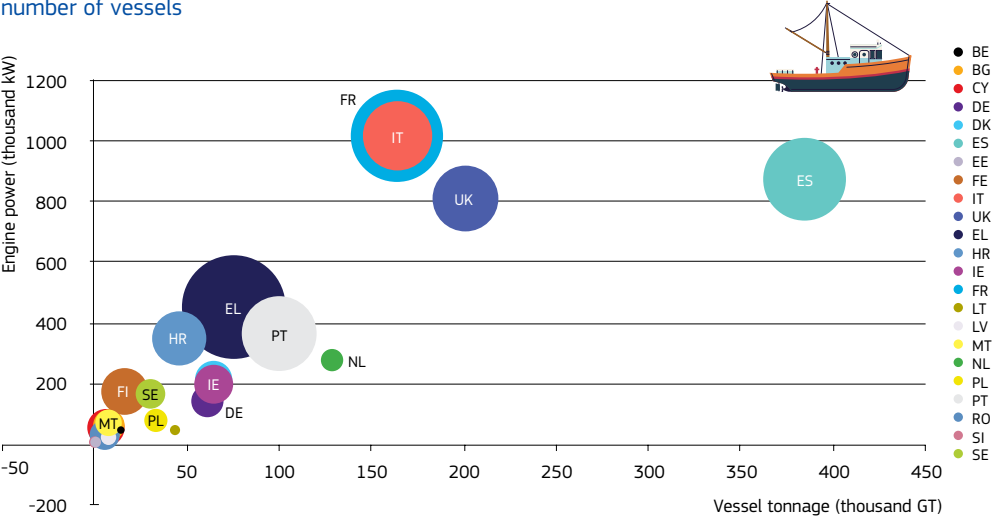
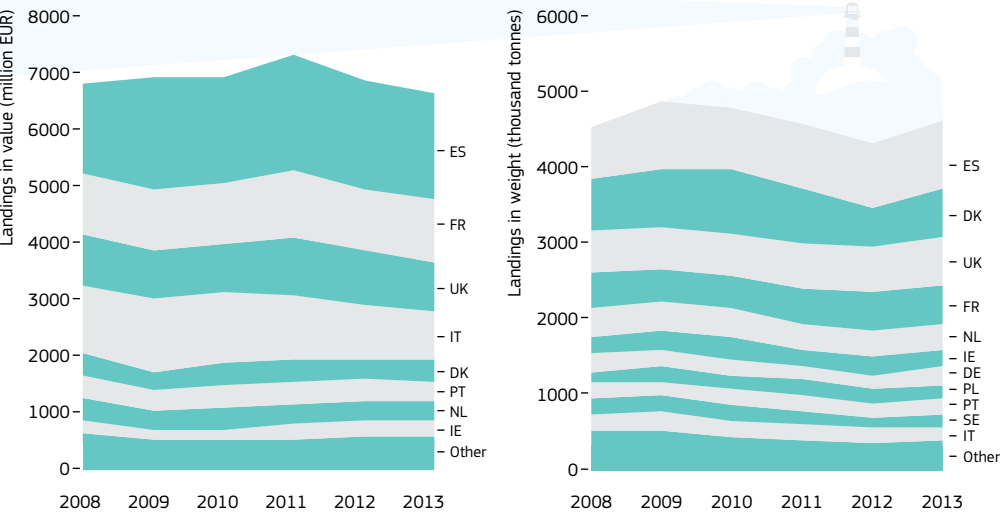


Figure 12 - Trends in landings in weight (left) and value (right) by MS fleet, 2008-2013



In terms of overall vessel tonnage, the Spanish fleet accounted for the largest capacity in Europe, by far (24 % of the total). The British, French and Italian fleets, the next biggest fleets in tonnage, each only had around half of Spain's figure. The Italian fleet was the largest as regards engine power, with 16 % of the total kilowatts, closely followed by the French, Spanish and British fleets (Figures 10 and 11).

Landings in weight by the EU fleet have fallen steadily since 2009, but increased in 2013 compared to 2012. By contrast, landings in value increased steadily from 2008 to 2011, but subsequently decreased over the following 2 years (Figure 12).

In 2013, the Spanish fleet was by far the top producer, in terms of both landed weight and value. As regards weight landed, the Danish fleet, with less than 3 % of the EU fleet in number, came in a close second with 14 % of the EU total, outperforming both the Italian and British fleets (Figures 13 and 14).

In fact, the Danish fleet appears highly productive, landing a large catch with a reduced amount of effort. However, in terms of value, its productivity is low and reflects a high proportion of lower valued species in landings.

In terms of value, the French fleet obtains the second highest price for its catch, while coming fourth as regards quantity, implying that the fleet catches a significant proportion of high-value species. The Spanish fleet, with less effort (i.e. days at sea) deployed than the Italian fleet, landed more and obtained a higher overall value for its catch (Figures 13 and 14).

In terms of gross profit, the British fleet shows the strongest performance. With revenue similar to the Italian fleet and lower than the French and Spanish fleets, the British fleet was able to convert more revenue into profit by reducing its operating costs, i.e. by being relatively more efficient. Compared to the United Kingdom, the Spanish fleet generated a lower gross profit margin, mainly due to high operating costs (Figure 15).

Figure 13 - Proportion of landings in weight (left) and value (right), highlighting the top MS producers, 2013

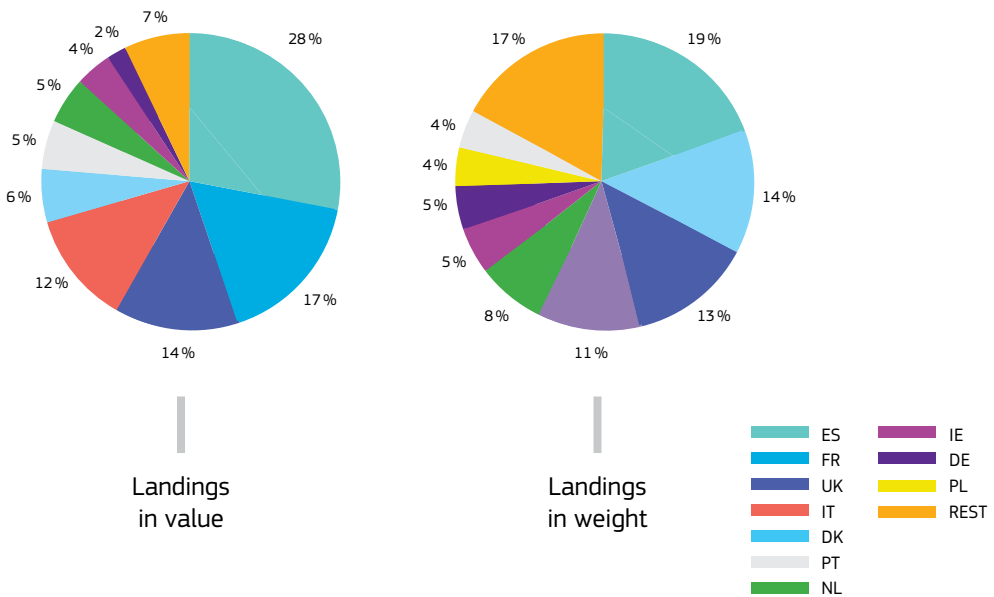
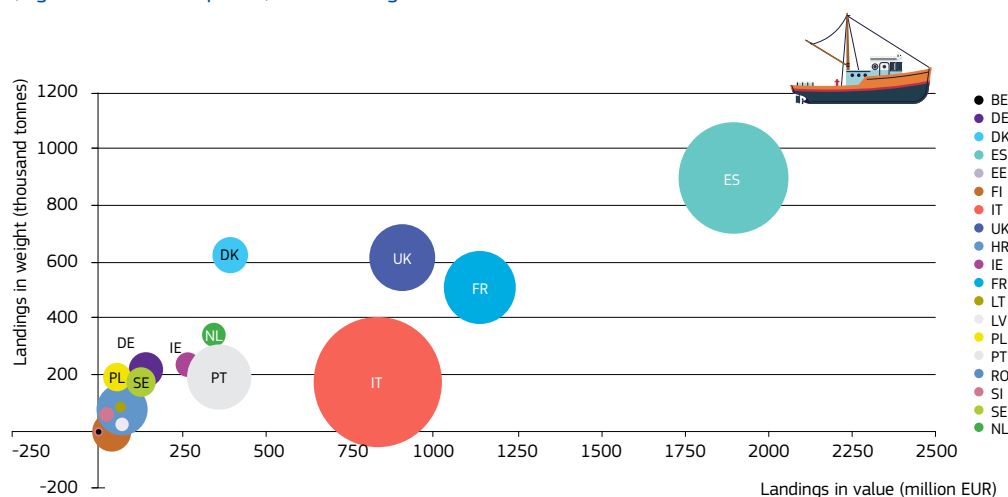


Figure 14 – Relationship between landings in weight and value, and fishing effort deployed (in days at sea) by MS fleet, 2013. Circle size represents the number of days spent at sea. The position of each MS fleet in the graph thus gives an indication of its ability to transform effort into landings as well as the relative value composition (high or low-valued species) of its landings



3.2 Summary of results by maritime region ⁽²³⁾

3.2.1 North-East Atlantic

Recent developments

In 2013, 10 MS fleets operated in the North-East Atlantic region, contributing 30 % to the landed weight and 34 % to the landed value registered by the EU fleet. The Spanish fleet was the most important as regards active vessel numbers, while the British, French, Irish and Spanish fleets were the most important in terms of production, collectively responsible for 80 % of the landed weight and 85 % of the value.

Overall, capacity of the North-East Atlantic region fleet remained stable, while the effort deployed fell over the period from 2010 to 2013. Landed weight fluctuated while landed value increased steadily from 2009 to 2012, suffering a decline in 2013.

The main species in terms of weight were small pelagic species, including Atlantic mackerel, jack and horse mackerel and blue whiting; as regards value, the chief species were European hake, Atlantic mackerel and Norway lobster.

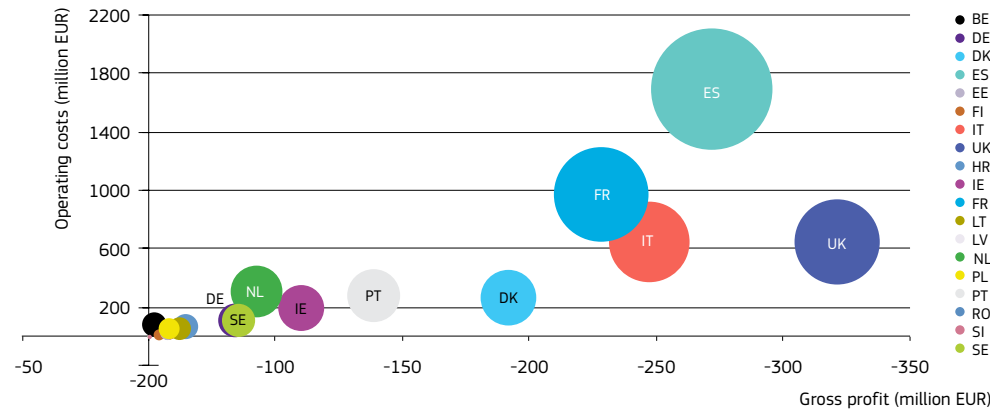
Since 2006, exploitation rates have generally progressed towards achieving MSY objectives. Of the North-East Atlantic pelagic stocks, most herring stocks are exploited at rates consistent with achieving MSY. For 2015, TACs for these stocks have also been set, in line with exploitation at FMSY. This is also the case for southern horse mackerel. Herring is fished above FMSY in the north-west of Ireland, and there are indications of horse mackerel being fished above FMSY in the North Sea and Eastern Channel.

Economic performance

All MS fleets operating in the North-East Atlantic region, apart from Belgium, generated gross profits in 2013 (Figure 16). Overall, the small-scale fleet and the four distant-water fleets active in the region were profitable in 2013 (Lithuania, Portugal, Spain and the United Kingdom).

²³ A significant portion of the North Atlantic fleet (1 619 vessels) could not be disaggregated to a region due to insufficient data. Due to missing information, a further 2 000 tonnes and EUR 9 million in landings could not be allocated to any region. Spanish data were incomplete. For certain MS, such as Germany, Lithuania, Latvia and Estonia, fleet segment data may not be complete, due to confidentiality issues.

Figure 15 - Relationship between operating costs incurred and the revenue and gross profit generated as a result of MS fleet activity, 2013. Size of circles represents revenue. The position of each MS fleet in the graph thus gives an indication of how efficient it is in transforming inputs (costs) into outputs (revenue and profits)



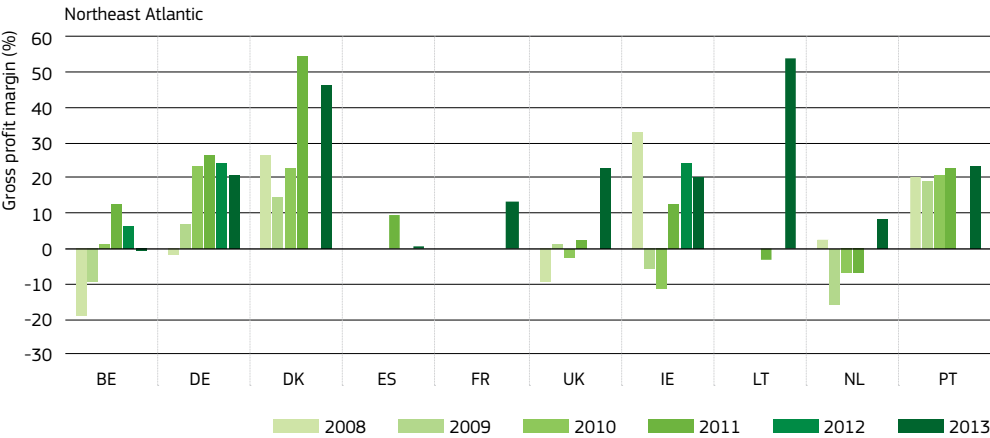
At fleet segment level, the Spanish demersal trawlers between 24 m and 40 m length (known as the 'Gran Sol' fleet) generated the most revenue in 2013, followed by the British pelagic trawlers (over 40 m length).

3.2.2 North Sea

Recent developments

In 2013, 10 MS fleets operated in the region, collectively accounting for 30 % of the recorded EU landed catch in weight.

Figure 16 - Trends in gross profit margin (%) estimated for MS fleets operating in the North-East Atlantic region, 2008-2013



Overall, the North Sea fleet saw declines in capacity and effort deployed over the period from 2009 to 2013. Interestingly, employment increased over the past 2 years, following a different trend to that observed in other EU fishing regions. Landed value increased steadily from 2009 onwards, while landed weight fluctuated over the same period.

The principal species in the region in terms of weight were Atlantic herring, sandeel and Atlantic mackerel; in value, Atlantic herring was again followed by common sole, common (brown) shrimp and European plaice.

From 2010 to 2015, TACs for the main species were more or less stable, with some slight increases. Haddock, plaice, saithe, herring and sprat were exploited at rates consistent with FMSY, while such rates have not yet been achieved for cod and sole.

There were six MS small-scale fleets operating in the region ⁽²⁴⁾. Of the small-scale fleets, the British fleet generated the highest revenue. Additionally, of all MS LSF, the British fleet generated the highest revenue, followed by the Danish and Dutch fleets.

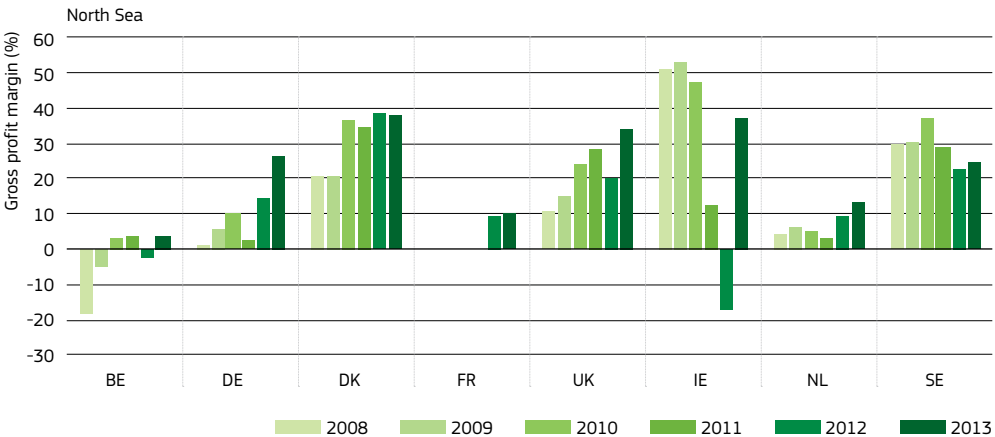
At fleet segment level, the British pelagic trawlers over 40 m in length generated the highest landed value in 2013, followed by the Danish pelagic trawlers over 40 m segment and the Dutch beam trawlers over 40 m.

3.2.3 Baltic Sea

Recent developments

Eight MS fleets operated in the region: the Finnish fleet leads in vessel numbers and effort deployed. Combined, the Baltic Sea fleet contributed 13 % of the overall EU landings in weight and 4 % of the landed value in 2013.

Figure 17 - Trends in gross profit margin (%) estimated for MS fleets operating in the North Sea region, 2008-2013



Economic performance

Overall, the North Sea fleet was profitable. GVA and gross profit generated by the fleet showed a slight upward tendency. The Danish and the British fleets are the main contributors to the upward trend in profit, with both fleets showing major increases from 2009. More recently, the German and Dutch fleets have also improved (Figure 17).

Overall, the Baltic Sea fleet saw declines in capacity, effort deployed and landings in weight over the period from 2009 to 2013 (landed weight increased slightly in 2013), while landed value increased steadily between 2009 and 2013. GVA and gross profit have increased since 2011.

²⁴ The Irish small-scale fleet was excluded due to low levels of activity reported and insufficient data.

In 2013, the principal species landed by weight included herring, sprat, cod and flounder. Atlantic herring landings generated the highest value in 2013, followed by European sprat and cod.

Economic performance

While the Baltic fleet was profitable overall, fleets of two MS, Denmark and Germany, suffered gross losses in 2013. The Danish fleet is the only one to have suffered long-term losses (2008-2013), while losses have been reported in some years for the German fleet. Gross profit margins for the remaining Baltic MS fleets have been mostly positive over the period, and particularly high for the Swedish and Polish fleets (Figure 18).

At fleet segment level, the Swedish demersal trawl and seine 24 m-to-40 m segment generated the highest revenue in 2013, followed by the Finnish pelagic trawl 24 m-to-40 m segment.

Mediterranean and Black seas ⁽²⁵⁾

Recent developments

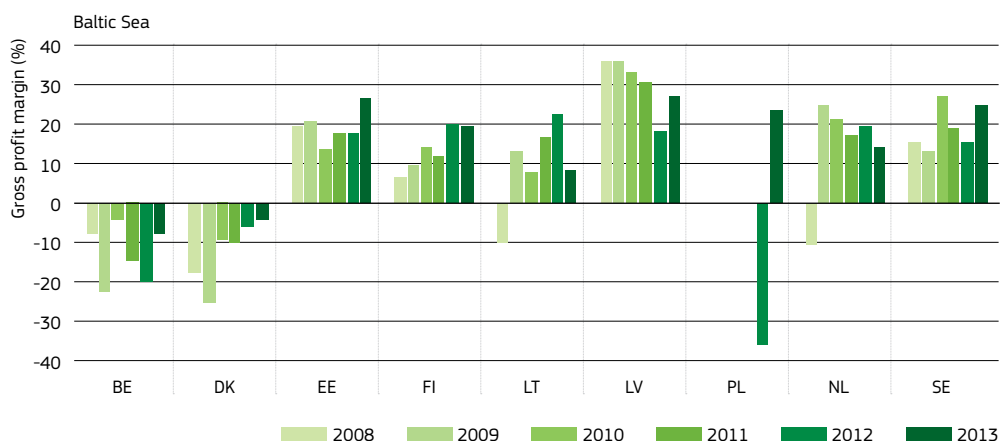
In 2013, fleets operated of 11 MS in the region: Bulgaria, Croatia, Cyprus, France, Greece, Italy, Malta, Portugal, Slovenia, Spain and Romania.

Fisheries management is primarily based on effort control, minimum conservation reference sizes, closed areas or closed seasons and restrictions on gear construction; it is regulated by the EU and the General Fisheries Commission for the Mediterranean (GFCM). In addition, coastal fisheries are mainly regulated by each MS through their national legislation and national management plans. To date, MS have adopted 34 national management plans. Approximately half are based on a (proxy) MSY objective, while the remainder are based on the precautionary approach.

In 2013, at the initiative of the EU, the GFCM adopted a recommendation for a multiannual management plan for small pelagic stocks in the Northern Adriatic Sea, as well as for transitional conservation measures for small pelagic stocks in the Southern Adriatic Sea. In the Mediterranean, TACs are defined only for bluefin tuna, while in the Black Sea, EU vessels exploiting turbot and sprat are subject to TACs.

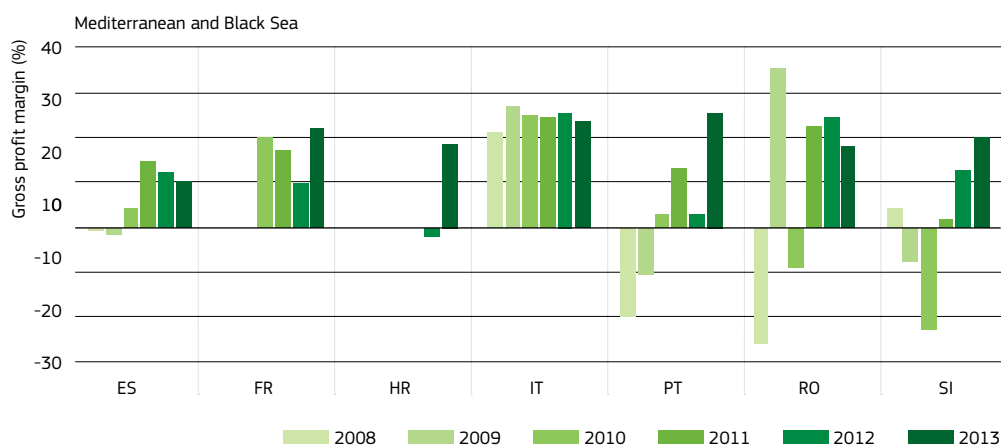
The chief species in terms of weight landed were European pilchard, European anchovy, European hake and clams. The main species in value were European anchovy and European hake. For the EU Black Sea fleet, principal species include sea snails, European sprat and rapa whelk. As regards

Figure 18 – Trends in gross profit margin (%) estimated for MS fleets operating in the Baltic Sea region, 2008-2013



²⁵ The analysis is restricted to the available data provided by MS fleets operating in the region. Data on the Greek fleet were not available. Furthermore, data provided for the Bulgarian, Cypriot and Maltese fleets were considered unreliable and were also excluded.

Figure 19 - Trends in gross profit margin (%) estimated for MS fleets operating in the Mediterranean and Black Sea region, 2008-2013



production, Croatia, France, Italy and Spain, were the leading countries, collectively accounting for 93 % of the landings recorded, 59 % of which were generated by the Italian fleet.

Economic performance

All MS fleets analysed generated gross profit margins in 2013, although a deteriorating trend is observed in the economic performance of the French, Italian and Spanish fleets (Figure 19).

At fleet segment level, the Italian demersal trawl 12 m-to-18 m segment generated the most revenue (EUR 184 million), followed by the Italian demersal trawl and seines 18 m-to-24 m segment (EUR 156 million), and then the Italian polyvalent passive gear 06 m-to-12 m segment (EUR 153 million).

4. Drivers affecting the economic performance of the EU fleet

Drivers that may have contributed to improved economic performance include, but are not limited to, the following (in no particular order):

- recovery of some stocks, such as the Baltic herring and North Sea plaice, leading to increased TACs and quotas;

- capacity reduction (decommissioning with or without public support);
- fuel price reductions in 2013, noted by many MS;
- training, upgrading professional skills of fishers and innovation projects (more selective fishing gears) funded by the EFF and national support;
- improvement in first sales prices of key species and exploitation of new market opportunities;
- implementation of certification schemes and the growing demand for certified products have positively impacted a number of fleet segments, although there is not enough evidence to establish a general relation between premium price and certification;
- more fuel-efficient fishing techniques and effective fishing behaviour.

Drivers that may have contributed to deteriorating economic performance include, but are not limited to, the following (in no particular order):

- lower average first sale prices for several commercially important species;
- the effects of the economic crisis: it still has an impact on markets for some species (particularly high-value species) and limits access to credit;

- reduced TACs and quotas for several key stocks, such as European sprat and Atlantic herring;
- market saturation (e.g. Baltic cod) and poor marketing when placing products in new markets;
- low abundance and/or low quality of some species, severe weather conditions, and for some fleets (e.g. fleets operating in the Baltic and Celtic seas), environmental factors and damage caused by predators;
- shortage of local crews, causing vessel owners to offer higher wages in some MS fleets, leading to higher operating costs (e.g. Belgium);
- an increase in areas with prohibited or limited fishing access/activity.

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Acronyms and units

CFP	Common Fisheries Policy
DCF	Data Collection Framework
EFF	European Fisheries Fund
EMFF	European Maritime and Fisheries Fund
EUMOFA	European Market Observatory for Fisheries and Aquaculture Products
FMSY	Fishing mortality consistent with achieving Maximum Sustainable Yield
FTE	Full-time equivalent
GFCM	General Fisheries Commission for the Mediterranean
GT	Gross tonnage
GVA	Gross Value Added
JRC	Joint Research Centre
kW	Kilowatt
LPUE	Landings Per Unit of Effort
LSF	Large-Scale Fleet
MS	Member State
MSY	Maximum Sustainable Yield
ROFTA	Return on Fixed Tangible Assets
ROI	Return on Investment
SSCF	Small-Scale Coastal Fleet
STECF	Scientific, Technical and Economic Committee for Fisheries
TAC	Total Allowable Catches
TFC	Transferable Fishing Concessions



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