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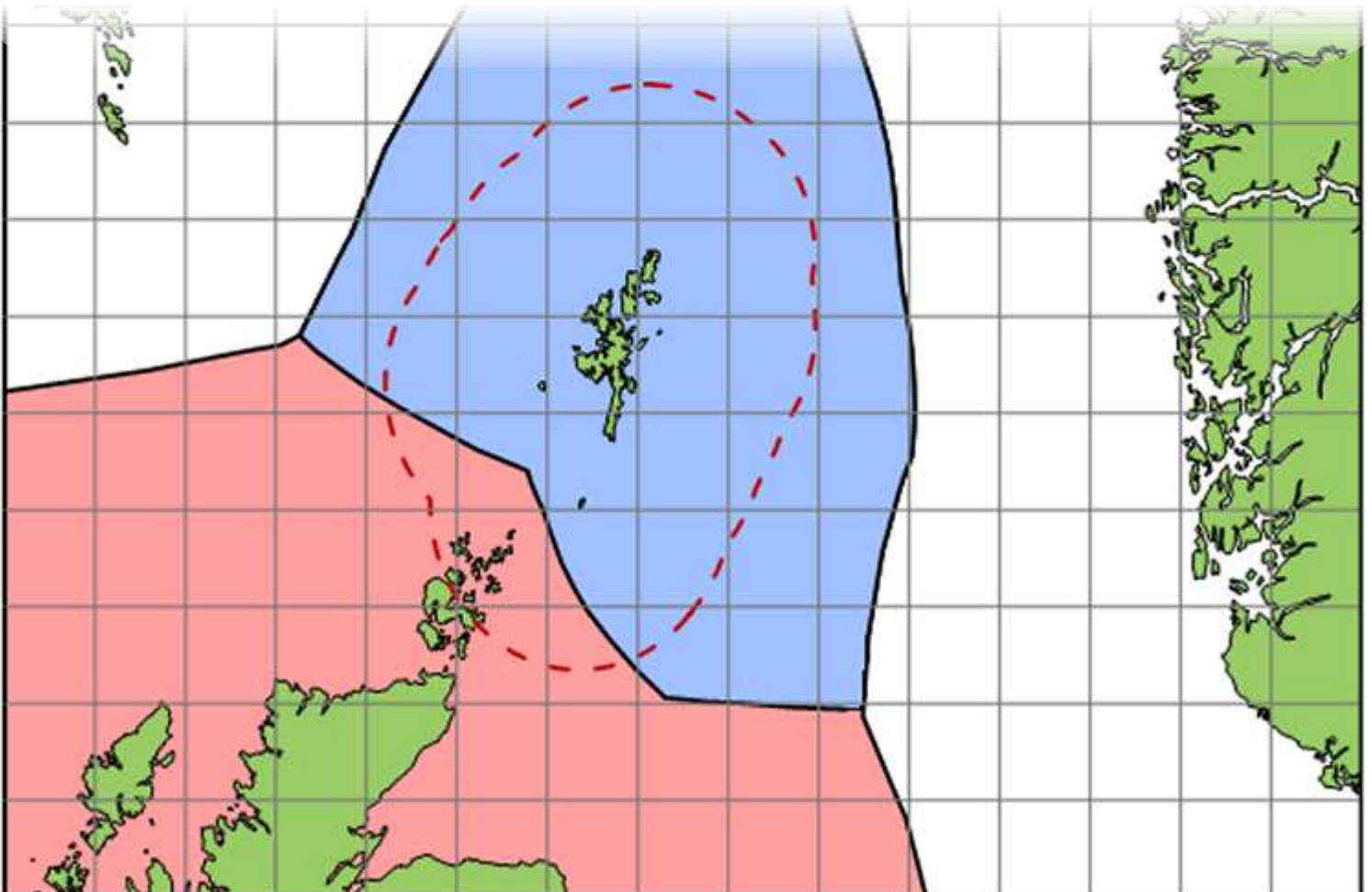
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Fish Landings from the 'Shetland EEZ'

Ian R. Napier

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4th November 2020



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Introduction

An analysis has been carried out using available data to provide estimates of the quantity and value of fish and shellfish caught in the waters around Shetland.

The analysis has focussed on the area of the UK Exclusive Economic Zone (EEZ) adjacent to Shetland (north of a median line between Shetland and the rest of the UK) (Figure 1). This area has been informally dubbed the 'Shetland EEZ'.

Exclusive Economic Zones

An Exclusive Economic Zone (EEZ) is a sea area defined in International Law that extends up to 200 nautical miles (371 km) from a country's coast. Under International Law a country is entitled to control the exploitation of resources, including fish and shellfish (as well as oil, gas, minerals and other resources), within its EEZ.

The hypothetical 'Shetland EEZ' covers an area of about 127,000 km² and is bounded by the EEZs of Faroe, Norway and the rest of Scotland (Figure 1). That is about 17% of the total area of the UK EEZ and about one-quarter (27%) of the Scottish part of the UK EEZ. It is also about 87 times greater than Shetland's land area (1,466 km²).

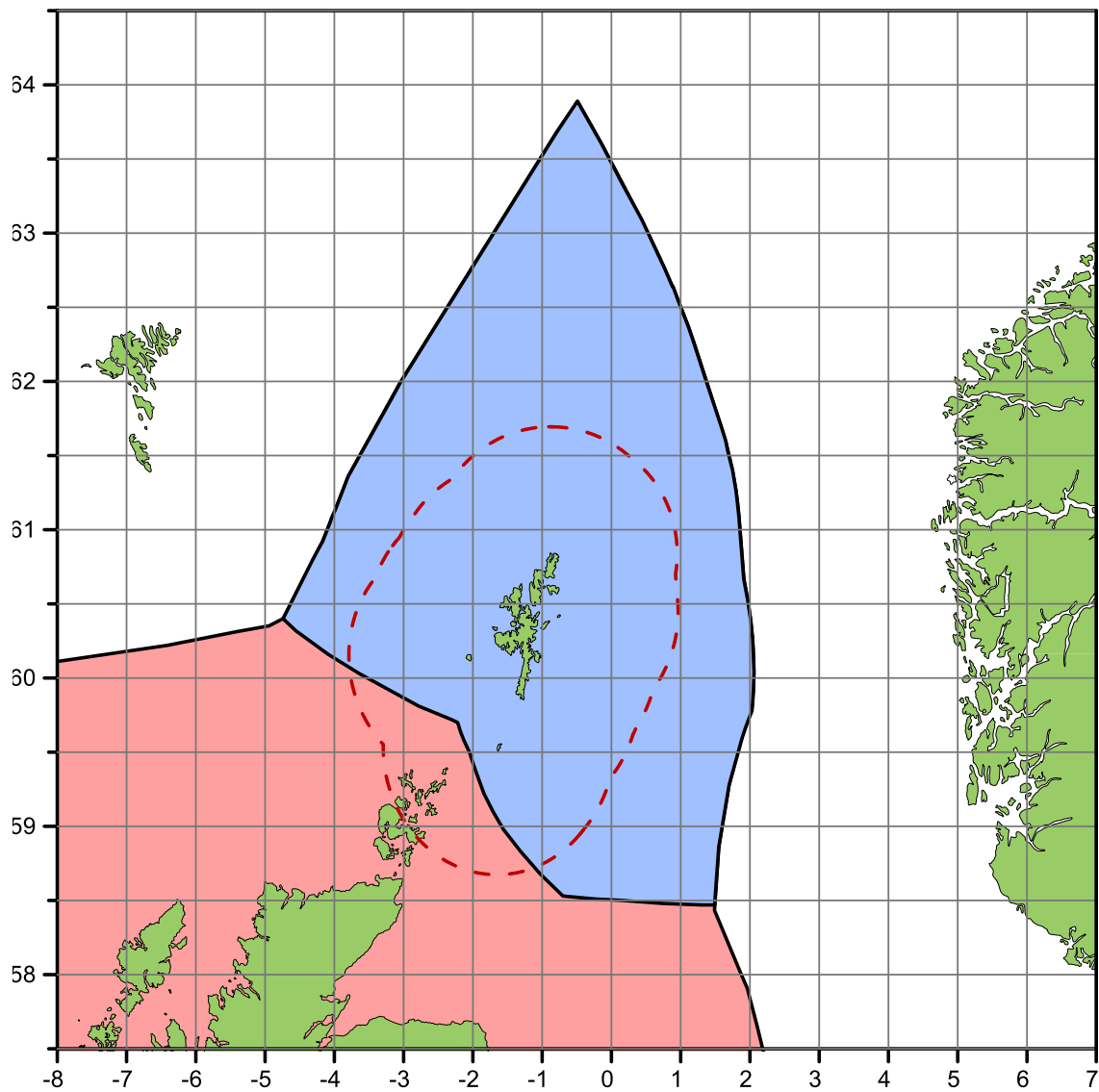


Figure 1 The 'Shetland EEZ': that part of the United Kingdom's Exclusive Economic Zone (EEZ) adjacent to Shetland (north of a median line between Shetland and the rest of the UK). The dashed line indicates the area within 50 nautical miles of Shetland's coastline.

Data and Analyses

This analysis used data¹ published by the Joint Research Centre (JRC) of the European Commission which gave the total weight (live weight) and value (Euros) of the fish and shellfish landed by all European Union fishing boats (including UK boats) from 2015 to 2018, broken down by various parameters including species and ICES statistical rectangle² (but not by nationality).

Data on Shetland boats' landings were obtained from data³ published by the UK Marine Management Organisation which gave the total weight (live weight) and value (£ GBP) of fish and shellfish landed by UK fishing boats, broken down by various parameters, including species, ICES statistical rectangle and base port.

The method of analysis followed the same basic methodology used in previous reports⁴: The weights and values of each species landed from each ICES statistical rectangle were determined from the JRC data. The values of landings were converted from Euros to £ GBP using published average exchange rates for each year⁵.

ICES rectangles that fell within the 'Shetland EEZ' were identified. Where a rectangle lay partly within the EEZ the proportion of the area of the rectangle within the EEZ was estimated.

The total weight and value of each species and species group landed from the 'Shetland EEZ' by UK and EU fishing boats were estimated by summing the weights landed from all the statistical rectangles that fell wholly or partly within the EEZ. Where only part of a rectangle lay within an EEZ the proportion of the landings from that rectangle caught within the EEZ was assumed to be equal to the proportion of the area of the rectangle that lay within the EEZ. (For example, if 40% of the area of a rectangle lay within the 'Shetland EEZ' then 40% of the weight of fish landed from that rectangle was assumed to have been caught within the EEZ and 60% outside.)

¹ Gibin, M. & Zanzi, A. 2020. FDI - Fisheries Dependent Information. European Commission, Joint Research Centre (JRC) [Dataset]. Available at: <http://data.europa.eu/89h/79745491-f847-450a-a26d-fd4a8e4a14f4>

² For the purposes of fisheries data collection and reporting, the International Council for the Exploration of the Sea (ICES) divides the waters around Europe into 'statistical rectangles' (see Figure 1). These rectangles are one degree of longitude (east-west) by half a degree of latitude (north-south).

³ 2014 to 2018 UK fleet landings by ICES rectangle. Marine Management Organisation (Dataset). Available at: <https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2018>

⁴ See: Napier, I.R. (2020) *Fish Landings from the UK EEZ: 2015 – 2018*. NAFC Report. Available at: <https://www.nafc.uhi.ac.uk/eez-reports>.

⁵ Euro British Pound Exchange Rate (EUR GBP). Macrotrends. Available at: <https://www.macrotrends.net/2553/euro-british-pound-exchange-rate-historical-chart>

Estimates of the total weights of fish and shellfish landed from the UK EEZ were taken from previous analyses⁴ as were data on landings of fish and shellfish in Shetland⁶.

The analysis also investigated the potential effects of reallocating various proportions of the fish currently caught in the 'Shetland EEZ' to Shetland fishing boats. In each case, the potential increase in the weight and value of landings by Shetland boats and in Shetland were calculated. For the purposes of estimating the potential additional landings in Shetland it was assumed that Shetland whitefish fishing boats would land all of the extra fish that they could catch in Shetland while Shetland pelagic boats would land one-quarter of their additional catches in Shetland.

NOTE: All weights of fish and shellfish in this report are 'Live Weights'. That is the estimated weights of the fish and shellfish when they were caught (alive).

⁶ Analyses of data provided by Marine Scotland. See: Napier, I.R. (2019) *Shetland Fisheries Statistics 2018*. NAFC Report.
Available at: <https://www.nafc.uhi.ac.uk/research/statistics/fisheries/>.

Results

Note: All results presented here are estimated landings by UK and EU boats and do not include landings by Norwegian or Faroese fishing boats.

It is estimated that an average of just under 450,000 tonnes of fish and shellfish, worth some £370 million, were landed from the 'Shetland EEZ' by UK and EU fishing boats annually from 2016 to 2018 (Table 1).

That represented about one-third (by weight) of all the fish and shellfish landed from the UK EEZ by UK and EU fishing boats, or one-quarter by value (Table 2, Figure 2). These figures suggest that the overall yield of fish and shellfish from the 'Shetland EEZ' (landings per unit area) was approximately double that from the rest of the UK EEZ (Figure 3).

Shetland fishing boats landed an average of just under 120,000 tonnes of fish and shellfish, worth some £116 million, annually from 2016 to 2018 including 63,000 tonnes (£77 million) caught in the 'Shetland EEZ'. Thus, about half of all the fish and shellfish landed by Shetland boats, or two-thirds by value, was caught in the 'Shetland EEZ' (Figure 4). However, less than one-sixth of the fish and shellfish landed from the 'Shetland EEZ' (14% by weight) was caught by Shetland fishing boats, while more than half was caught by EU boats (Table 1, Figure 5). By value, Shetland boats accounted for about one-fifth (21%) of the landings from the 'Shetland EEZ' and EU boats more than one-third (38%).

Overall, the weight of fish and shellfish landed from the 'Shetland EEZ' increased substantially over the four-year period from 2015 to 2018: by almost one-quarter in weight (22%) and by more than two-thirds in value (69%) (Figure 6, Figure 7).

Landings from the 'Shetland EEZ' were dominated by pelagic fish, which accounted for about four-fifths (79%) of their weight and more than half (58%) of their value (Table 1, Figure 8). Demersal fish accounted for most of the remaining landings (18% of the weight, 38% of the value).

On average, just under 70,000 tonnes of fish and shellfish, worth just over £80 million, was landed in Shetland annually from 2016 to 2018 (Table 3). That represents less than one-sixth of the estimated weight of fish and shellfish landed from the 'Shetland EEZ' (15%) or about one-fifth by value (22%) (Table 3, Figure 9).

Specific results are provided below for demersal fish (page 13), pelagic fish (page 18) and shellfish (page 23). Results of the reallocation scenarios are on page 27.

Table 1 The estimated average weights (top) and values (bottom) of fish and shellfish landed from the 'Shetland EEZ' annually from 2016 to 2018 by Shetland, other UK and EU and Shetland fishing boats.

Average 2016-2018	Weight ('000 tonnes)							
	Shetland Boats		Other UK Boats		EU Boats		TOTAL	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%
Demersal	16	20%	41	51%	23	29%	80	18%
Pelagic	46	13%	90	26%	216	61%	352	79%
ALL Finfish	61	14%	131	30%	239	55%	431	97%
Shellfish	2	51%	2	46%	0	3%	4	1%
Industrial	0	0%	0	0%	11	100%	11	2%
TOTAL	63	14%	133	30%	250	56%	446	100%

Average 2016-2018	Value (£ million)							
	Shetland Boats		Other UK Boats		EU Boats		TOTAL	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%
Demersal	£30	21%	£75	52%	£38	27%	£143	38%
Pelagic	£42	19%	£72	33%	£103	47%	£216	58%
ALL Finfish	£72	20%	£147	41%	£141	39%	£359	97%
Shellfish	£5	49%	£5	48%	£0	3%	£11	3%
Industrial	£0	0%	£0	0%	£2	99%	£2	1%
TOTAL	£77	21%	£152	41%	£143	38%	£372	100%

Table 2 The estimated average weights and values of fish and shellfish landed by UK and EU fishing boats annually from 2016 to 2018 from the 'Shetland EEZ' and from the remainder of the UK EEZ. Landings from the 'Shetland EEZ' are also shown as percentages of the total from the UK EEZ.

Average 2016-2018	Weight ('000 tonnes)				Value (£ million)				
	EEZ	Shet'	%	rUK	UK	Shet'	%	rUK	UK
Demersal		80	37%	137	217	£143	31%	£314	£457
Pelagic		352	40%	518	870	£216	44%	£275	£491
ALL Finfish		431	40%	655	1,087	£359	38%	£589	£948
Shellfish		4	3%	145	149	£11	3%	£373	£384
Industrial		11	7%	155	166	£2	7%	£28	£30
TOTAL		446	32%	956	1,402	£372	27%	£990	£1,362
Area ('000 km²)		127	17%	639	766	127	17%	639	766

UK EEZ - ALL Fish & Shellfish

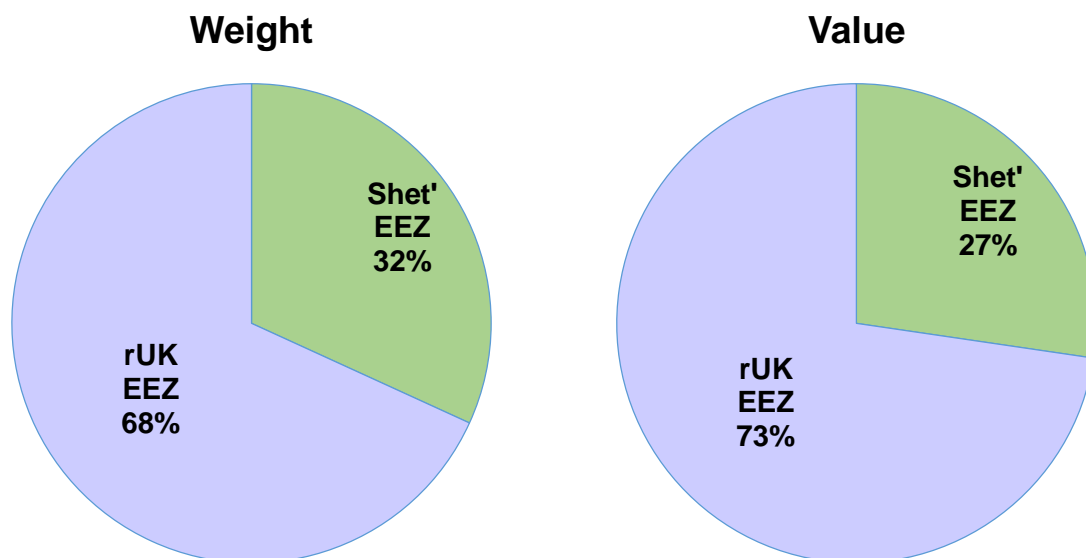


Figure 2 Breakdowns of the weights and values of all fish and shellfish landed from the 'Shetland EEZ' and from the rest of the UK EEZ by UK & EU fishing boats. (Average weights and values 2016 to 2018.)

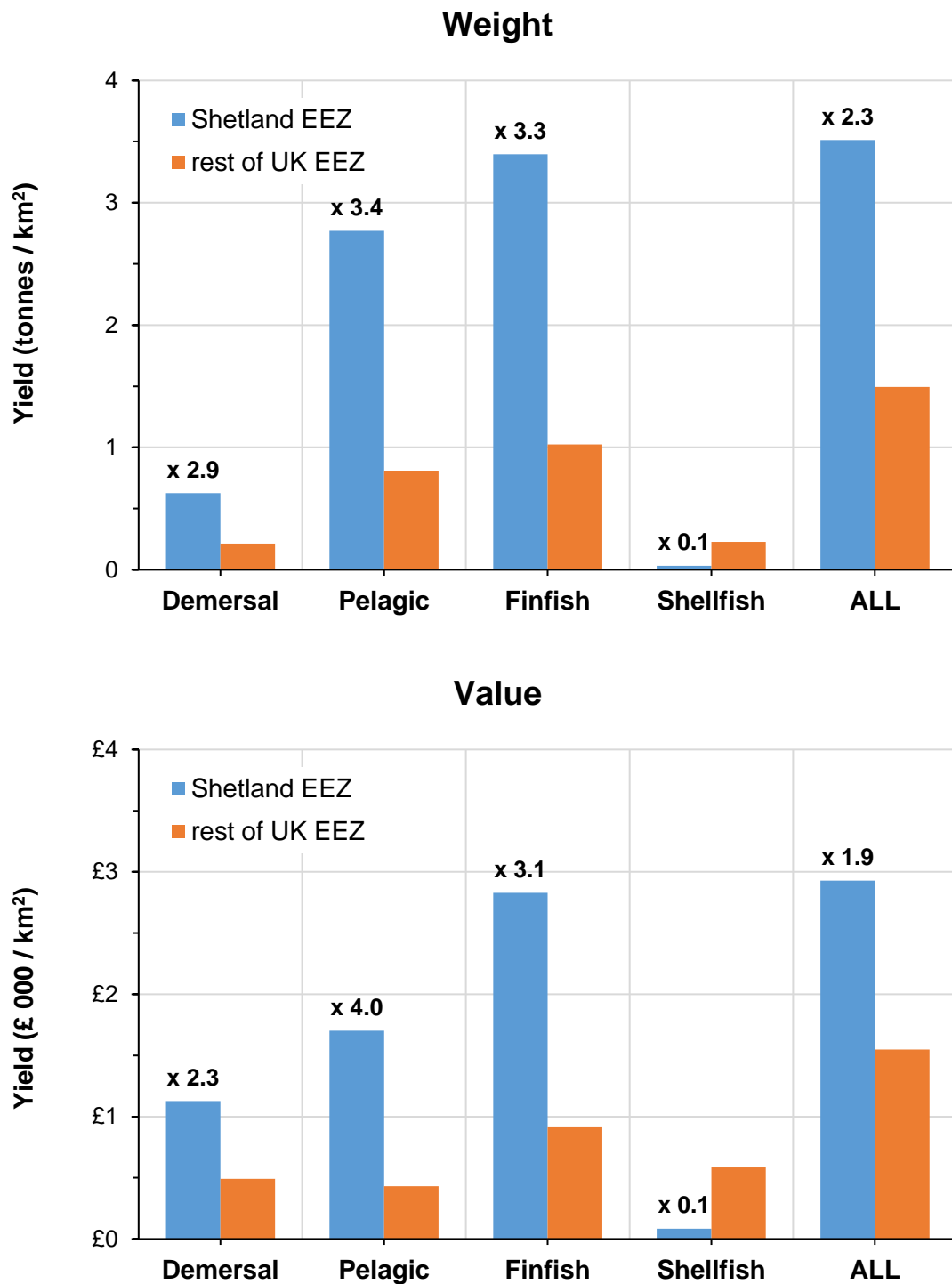


Figure 3 The estimated average annual yields (landings per unit area) by weight (top) and by value (bottom) of fish and shellfish from the 'Shetland EEZ' and from the rest of the UK EEZ from 2016 to 2018. Numbers show the magnitude of the differences between the yields from the 'Shetland EEZ' and the rest of the UK EEZ.

Shetland Boats - All Fish & Shellfish

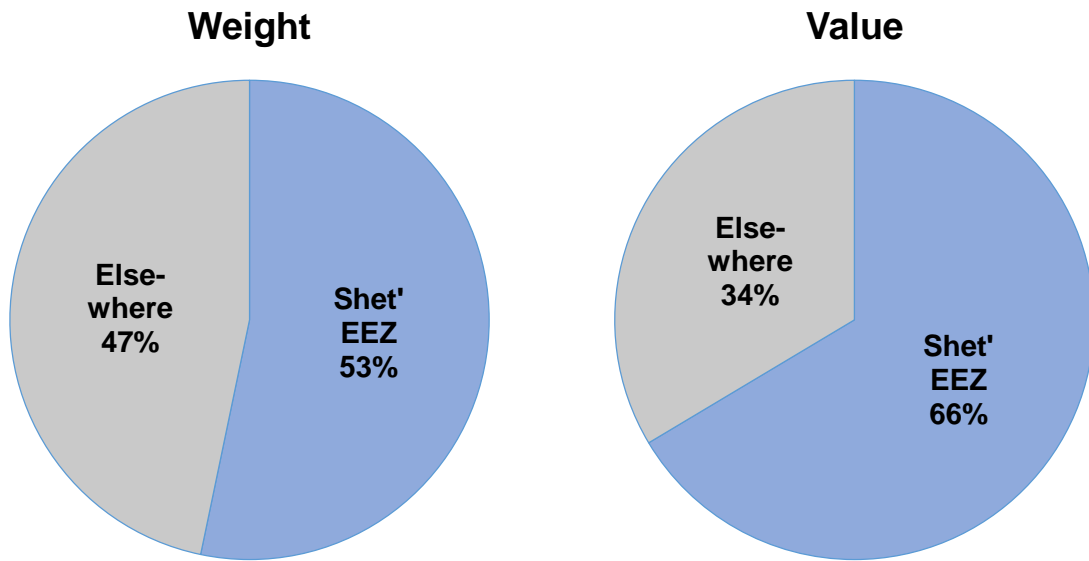


Figure 4 Breakdowns of the weights and values of all fish and shellfish landed by Shetland fishing boats from the 'Shetland EEZ' and from elsewhere. (Average weight and value 2016 to 2018.)

Shetland EEZ - All Fish & Shellfish

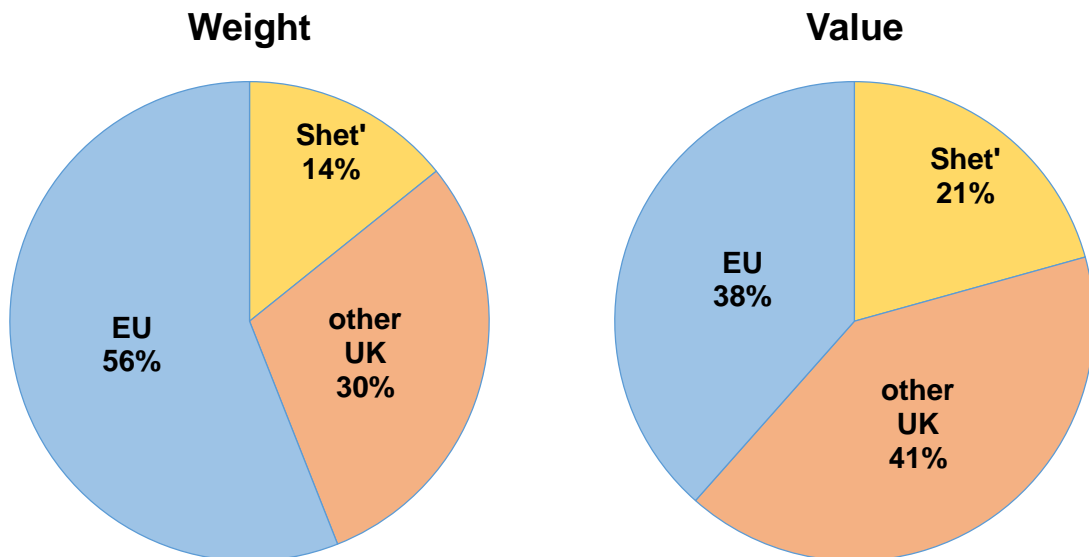


Figure 5 Breakdowns of the weights and values of all fish and shellfish landed from the 'Shetland EEZ' by Shetland, other UK and EU fishing boats. (Average weight and value 2016 to 2018; see Table 1.)

Shetland EEZ - ALL Fish & Shellfish

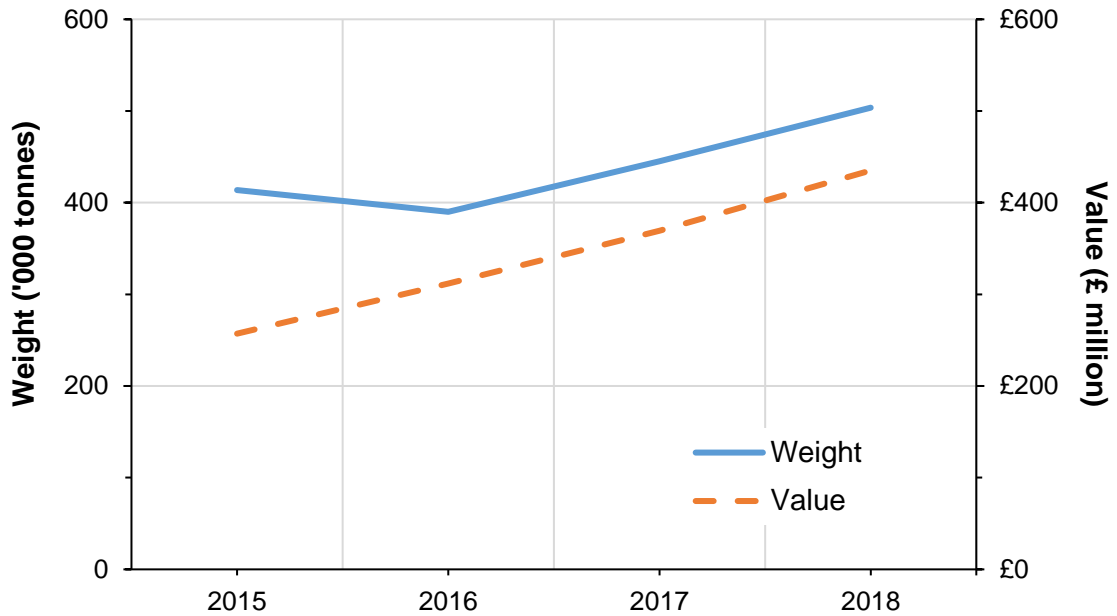


Figure 6 The estimated weights and values of all fish and shellfish landed annually from the 'Shetland EEZ' by UK and EU fishing boats from 2015 to 2018.

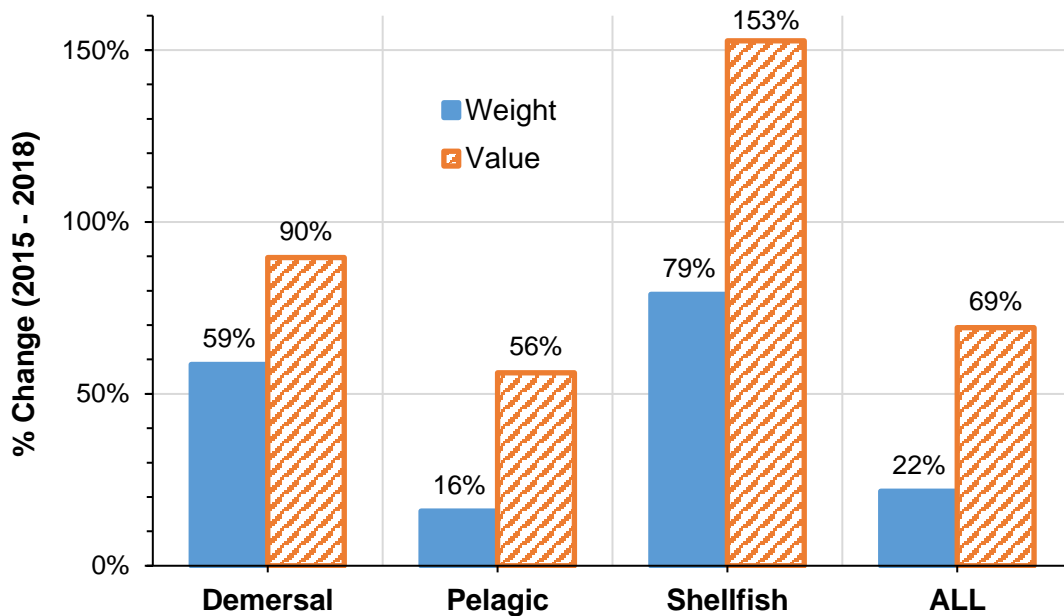


Figure 7 The percentage changes from 2015 to 2018 in the estimated weights and values of fish and shellfish landed from the 'Shetland EEZ' by UK and EU fishing boats. (Note: 'Shellfish' includes Nephrops and squid.)

Shetland EEZ – All Fish & Shellfish

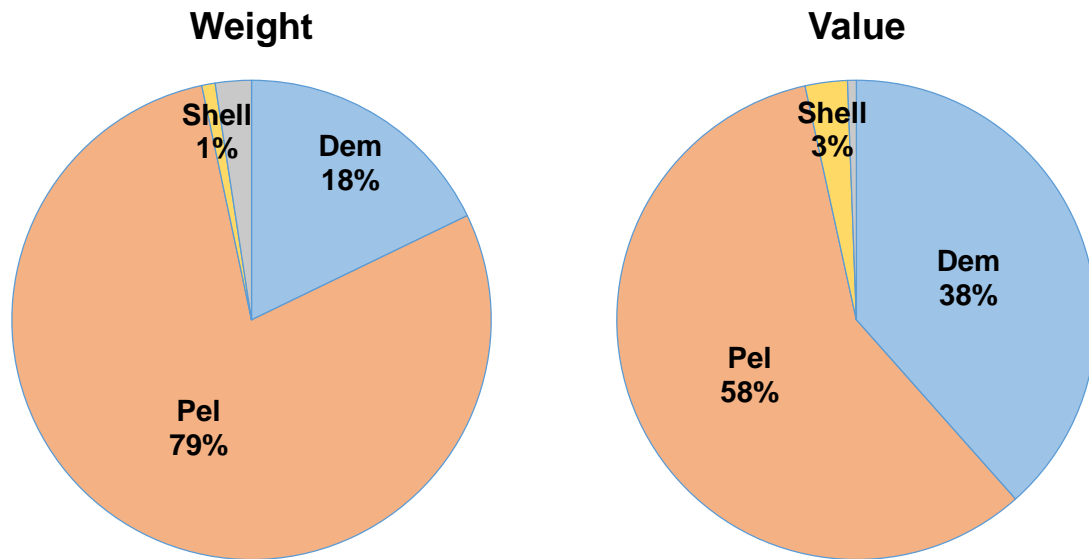


Figure 8 Breakdowns by species group of the weight and value of the fish and shellfish landed from the 'Shetland EEZ'. (Average weight and value 2016 to 2018; see Table 1.)

Table 3 The estimated average weights and values of fish and shellfish landed by UK and EU fishing boats annually from 2016 to 2018 from the 'Shetland EEZ' and the averages weights landed in Shetland. The quantities landed in Shetland are also shown as percentages of the quantities landed from the 'Shetland EEZ'.

Average 2016-2018	Weight ('000 tonnes)			Value (£ million)		
	Landed from Shetland EEZ	Landed in Shetland	UK	Landed from Shetland EEZ	Landed in Shetland	UK
Demersal	80	22	27%	£143	£42	29%
Pelagic	352	44	12%	£216	£35	16%
ALL Finfish	431	66	15%	£359	£77	21%
Shellfish	4	2	60%	£11	£5	47%
Industrial	11	0	0%	£2	£0	0%
TOTAL	446	68	15%	£372	£82	22%

Shetland EEZ - ALL Fish & Shellfish

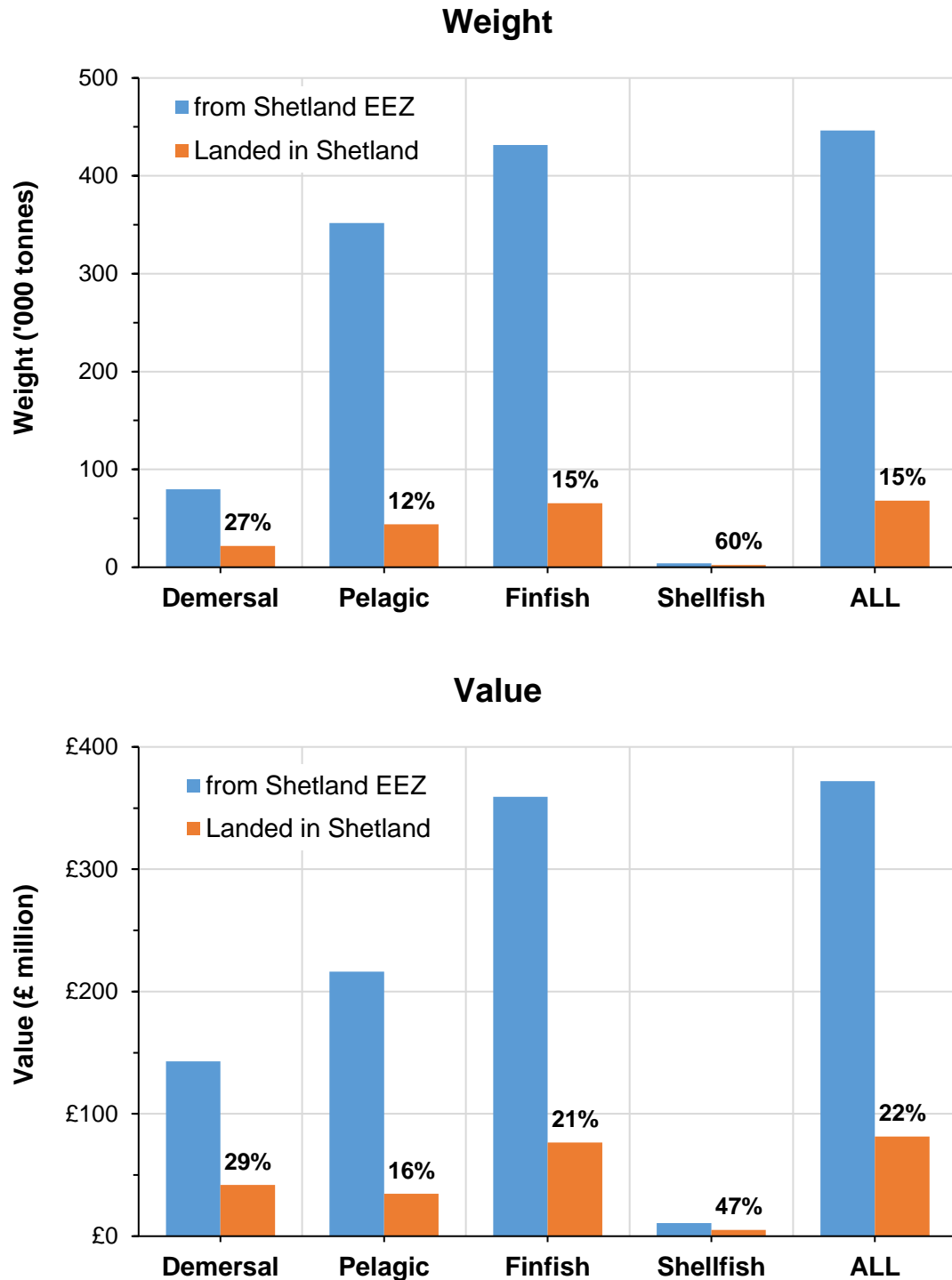


Figure 9 The estimated average annual weights (top) and values (bottom) of fish and shellfish landed from the 'Shetland EEZ' and the average weight and value of fish and shellfish landed annually in Shetland from 2016 to 2018. Percentage values show the landings in Shetland as percentages of the landings from the 'Shetland EEZ'.

Demersal Fish

It is estimated that an average of about 80,000 tonnes of demersal fish (such as cod, haddock, ling, monks and plaice), worth just over £140 million, were landed from the 'Shetland EEZ' by UK and EU fishing boats annually from 2016 to 2018 (Table 1). That represents about 18% by weight of all the fish and shellfish landed from the 'Shetland EEZ', but more than one-third of their value (38%) (Table 1, Figure 8).

About one-third of all the demersal fish landed from the UK EEZ by UK and EU boats were caught in the 'Shetland EEZ' from 2016 to 2018 (37% by weight, 31% by value) (Table 2, Figure 10).

The yield of demersal fish from the 'Shetland EEZ' (landings per unit area) was almost three times that from the rest of the UK EEZ in terms of weight, and more than twice that in terms of value (Figure 3).

Shetland fishing boats landed an average of just under 17,000 tonnes of demersal fish, worth some £32 million, annually from 2016 to 2018, including 16,000 tonnes (£30 million) caught in the 'Shetland EEZ'. Thus, more than 90% of the demersal fish landed by Shetland fishing boats (92% by weight, 93% by value) was caught in the 'Shetland EEZ' (Figure 11). However, only about one-fifth of the demersal fish landed from the 'Shetland EEZ' was caught by Shetland fishing boats while EU boats accounted for just over one-quarter (Table 1, Figure 12).

The weight of demersal fish landed from the 'Shetland EEZ' increased by more than half (59%) over the four years from 2015 to 2018 while their value almost doubled (a 90% increase) (Figure 13, Figure 7).

Landings of demersal fish from the 'Shetland EEZ' were dominated by cod, haddock, hake, monks, saithe and whiting which together accounted for almost 90% of the total (Figure 14). Saithe accounted for the largest proportion of the landings by weight (28%), followed by cod and haddock, while cod accounted for the largest proportion by value (23%) followed by saithe and hake (Figure 21).

The weights and values of the principal demersal fish species landed from the 'Shetland EEZ' all increased substantially over the four-year period from 2015 to 2018 (Figure 15, Figure 16). The weight of cod landed almost doubled, while the weights of haddock, hake and monks landed all increased by more than half. The smallest increase was in the weight of saithe landed which still increased by more than one-third.

The values of cod and hake landed from the 'Shetland EEZ' more than doubled between 2015 and 2018, while that of monks almost doubled. The values of haddock

and whiting both increased by more than two-thirds, while the smallest increase in value was again of saithe at almost one-quarter (Figure 15, Figure 16).

On average, just over 20,000 tonnes of demersal fish, worth just over £40 million, was landed in Shetland annually from 2016 to 2018 (Table 3). That represents just over one-quarter of the estimated quantity of demersal fish landed from the 'Shetland EEZ' (27% by weight, 29% by value) (Table 3, Figure 9).

UK EEZ - Demersal Fish

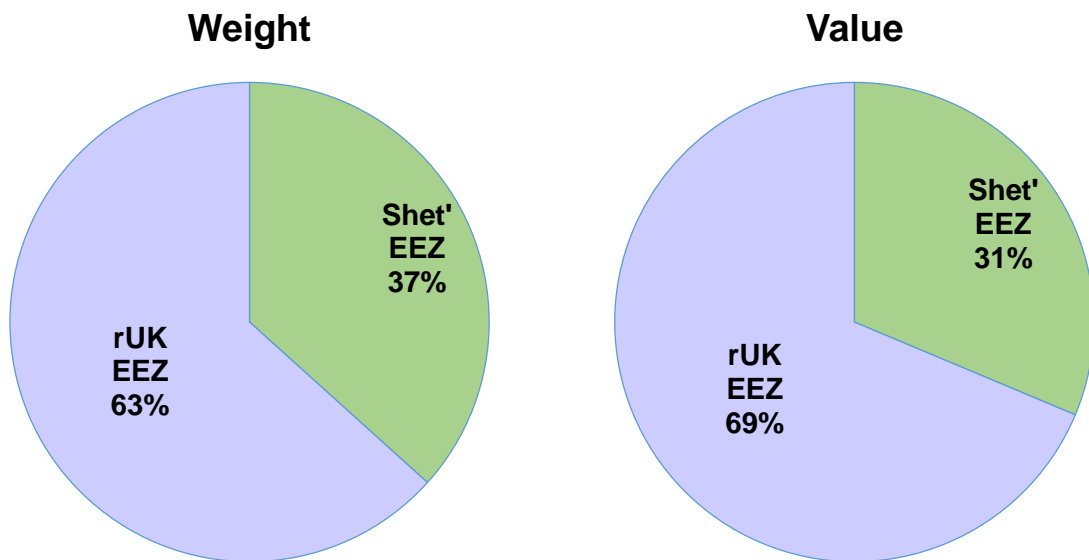


Figure 10 Breakdowns of the weights and values of demersal fish landed from the 'Shetland EEZ' and from the rest of the UK EEZ by UK & EU fishing boats. (Average weights and values 2016 to 2018.)

Shetland EEZ - Demersal Fish

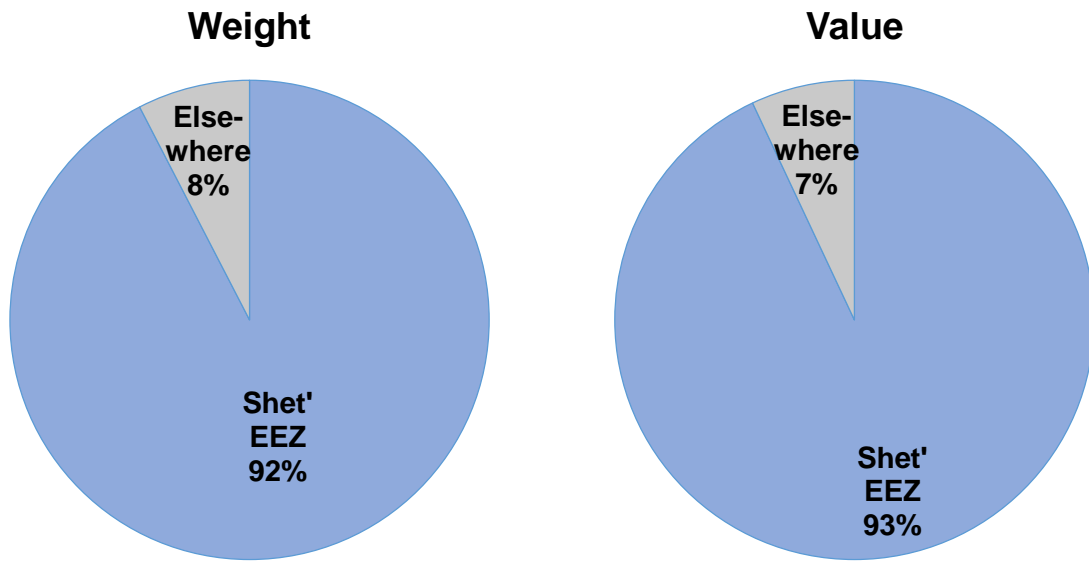


Figure 11 Breakdowns of the weights and values of demersal fish landed by Shetland fishing boats from the 'Shetland EEZ' and from elsewhere. (Average weight and value 2016 to 2018.)

Shetland EEZ - Demersal Fish

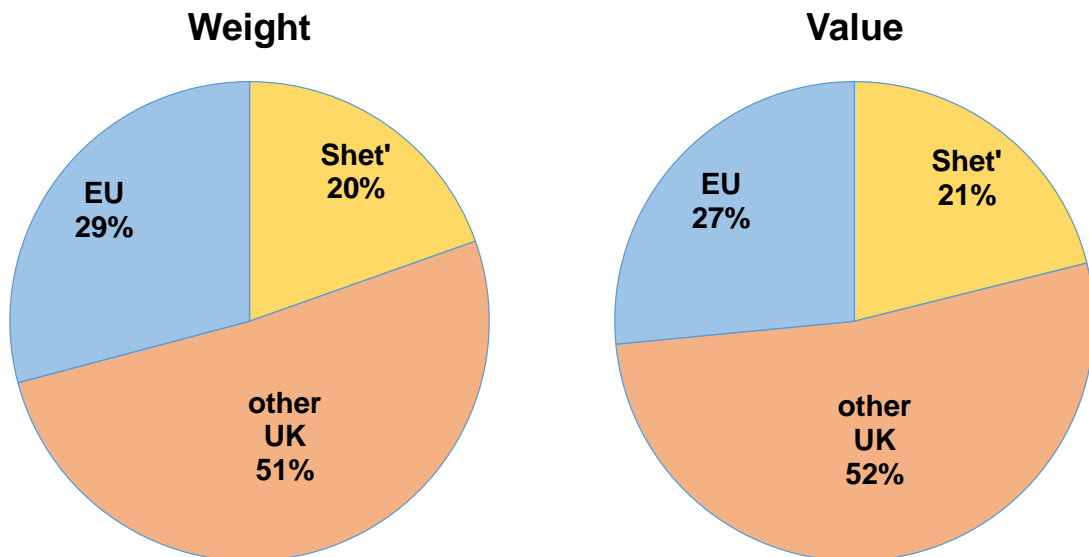


Figure 12 Breakdowns of the weights and values of demersal fish landed from the 'Shetland EEZ' by Shetland, other UK and EU fishing boats. (Average weight and value 2016 to 2018; see Table 1.)

Shetland EEZ - Demersal Fish

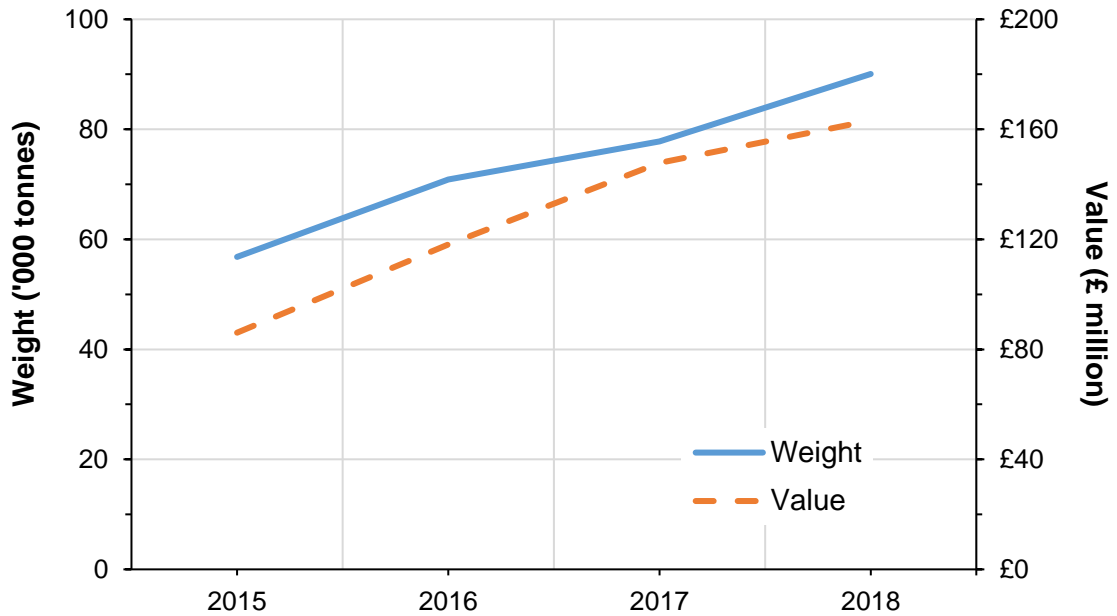
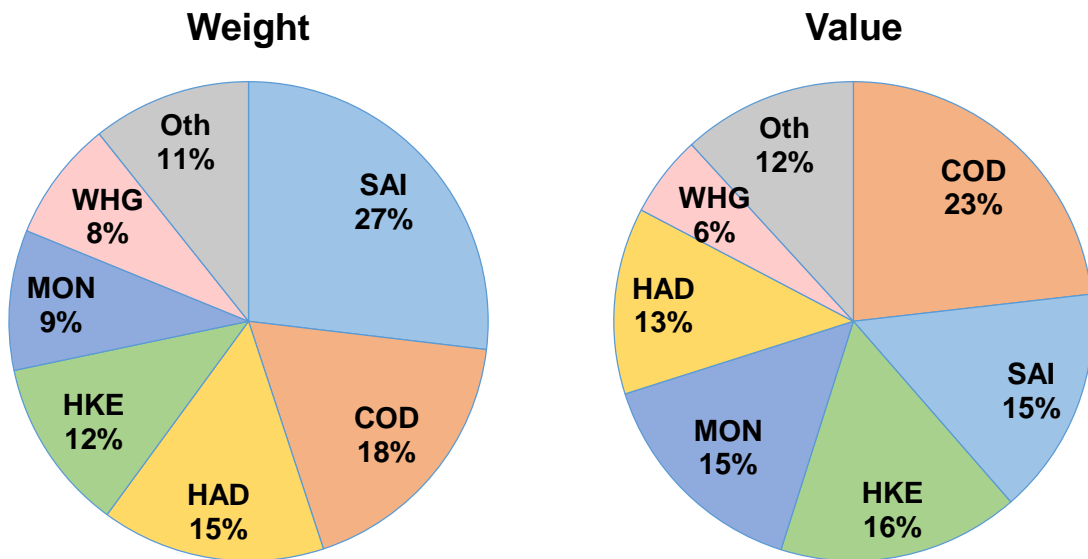


Figure 13 The estimated weights and values of demersal fish landed annually from the 'Shetland EEZ' by UK and EU fishing boats from 2015 to 2018.



SAI = Saithe, HAD = Haddock, HKE = Hake, MON = Monks, SAI = Saithe, WHG = Whiting.

Figure 14 Breakdowns by species of the weights and values of the principal demersal fish landed from the 'Shetland EEZ'. (Average weight and value 2015 to 2018.)

Shetland EEZ - Demersal Fish

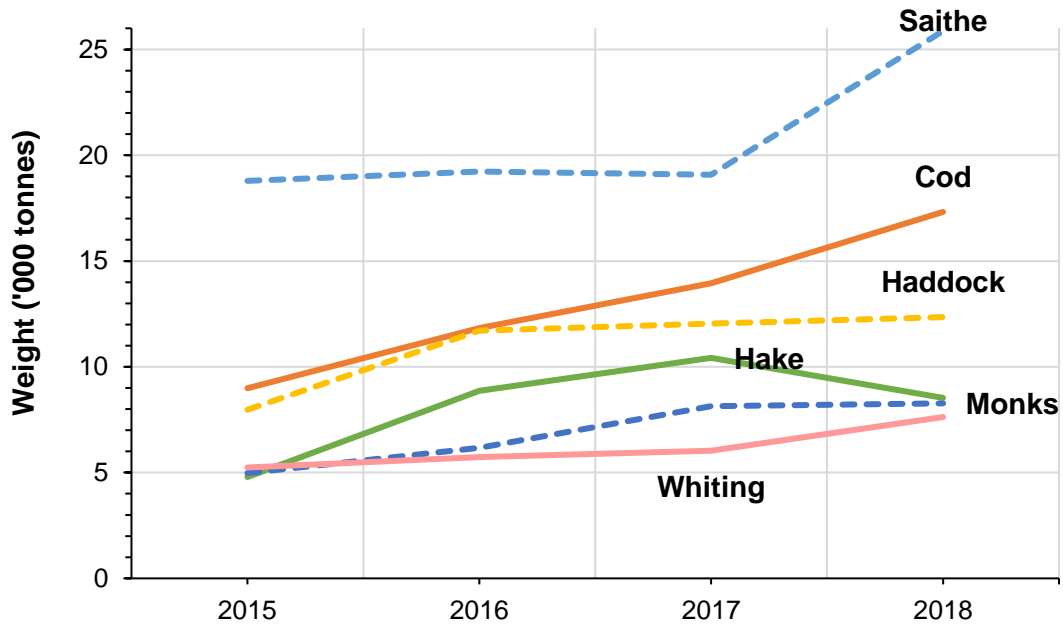


Figure 15 The estimated weights and values of the principal demersal fish landed annually from the 'Shetland EEZ' by UK and EU fishing boats from 2015 to 2018.

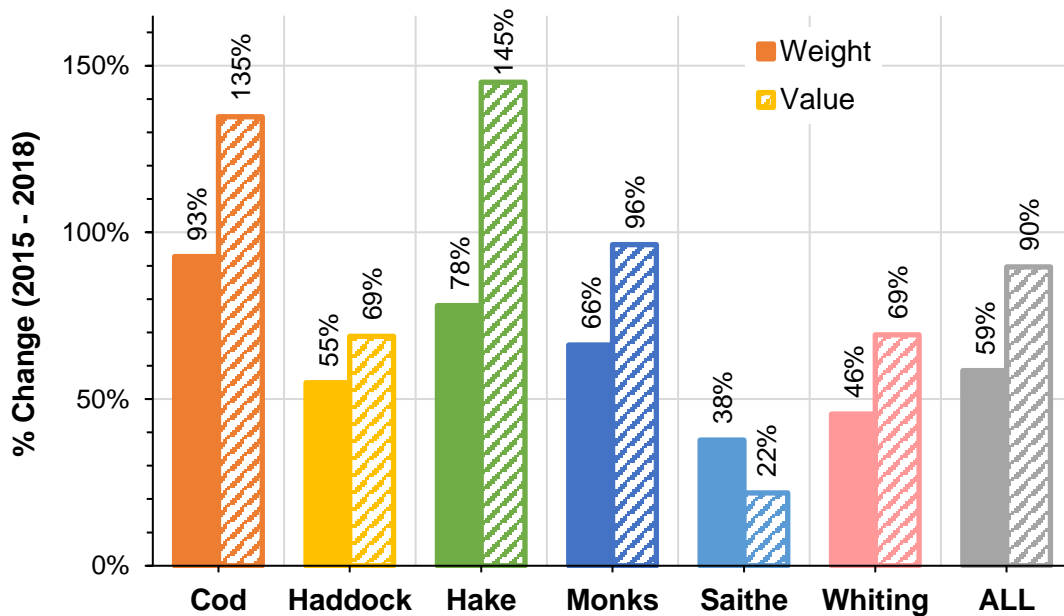


Figure 16 The percentage changes from 2015 to 2018 in the estimated weights and values of the principal demersal fish landed from the 'Shetland EEZ' by UK and EU fishing boats.

Pelagic Fish

It is estimated that an average of about 350,000 tonnes of pelagic fish (mainly mackerel and herring), worth almost £220 million, were landed from the 'Shetland EEZ' by UK and EU fishing boats annually from 2016 to 2018 (Table 1). That represents more than three-quarters by weight (79%) of all the fish and shellfish landed from the 'Shetland EEZ', and well over half of their value (58%) (Table 1, Figure 8).

Two-fifths of all the pelagic fish landed from the UK EEZ by UK and EU boats were caught in the 'Shetland EEZ' from 2016 to 2018 (40% by weight, 44% by value) (Table 2, Figure 17).

The yield of pelagic fish from the 'Shetland EEZ' (landings per unit area) was more than three times that from the rest of the UK EEZ in terms of weight, and four times more in terms of value (Figure 3).

Shetland fishing boats landed an average of 100,000 tonnes of pelagic fish, worth some £77 million, annually from 2016 to 2018, including 46,000 tonnes (£42 million) caught in the 'Shetland EEZ'. Thus, about half of the pelagic fish landed by Shetland fishing boats (46% by weight, 54% by value) was caught in the 'Shetland EEZ' (Figure 18). However, less than one-sixth (13%) of the pelagic fish landed from the 'Shetland EEZ' was caught by Shetland fishing boats while almost two-thirds (61%) was taken by EU boats (Table 1, Figure 19). By value, Shetland boats accounted for about one-fifth of the total and EU boats for almost half.

The weight of pelagic fish landed from the 'Shetland EEZ' increased by a small amount (16%) over the four years from 2015 to 2018 but their value increased by more than half (56%) (Figure 20, Figure 7).

Landings of pelagic fish from the 'Shetland EEZ' were dominated by herring and mackerel which together accounted for 97% of the total (Figure 21). Herring accounted for just over half of the total by weight, but only about one-third by value, while mackerel accounted for less than half of the total weight but almost two-thirds of the total value (Figure 21).

The weight of herring landed from the 'Shetland EEZ' increased by almost half (46%) from 2015 to 2018 while the weight of mackerel fell slightly (Figure 22, Figure 23). The value of landings of both species increased substantially, however; herring by two-thirds and mackerel by half.

On average, about 44,000 tonnes of pelagic fish, worth about £35 million, were landed in Shetland annually from 2016 to 2018 (Table 3). That represents just over one-tenth of the estimated quantity of pelagic fish landed from the 'Shetland EEZ' (12% by weight, 16% by value) (Table 3, Figure 9).

UK EEZ - Pelagic Fish

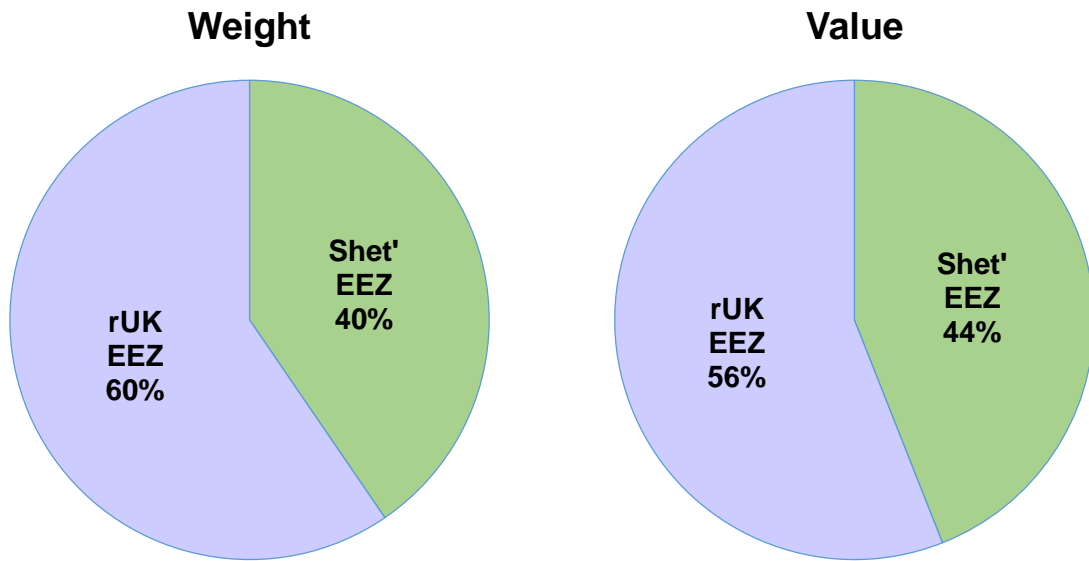


Figure 17 Breakdowns of the weight and value of the pelagic fish landed from the 'Shetland EEZ' and the rest of the UK EEZ by UK & EU fishing boats. (Average weight and value 2016 to 2018.)

Shetland EEZ - Pelagic Fish

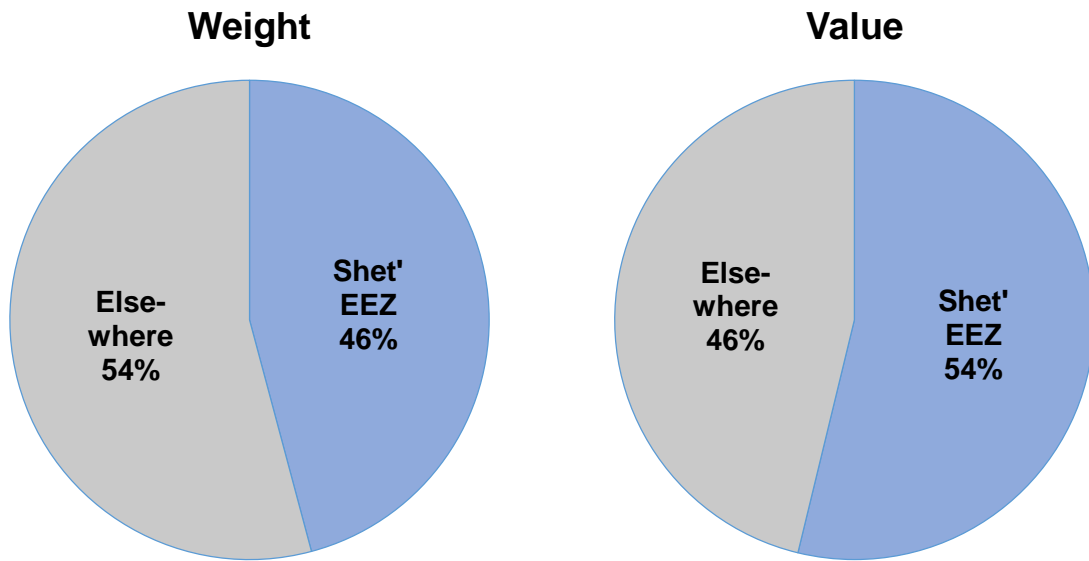


Figure 18 Breakdowns of the weights and values of pelagic fish landed by Shetland fishing boats from the 'Shetland EEZ' and from elsewhere. (Average weight and value 2016 to 2018; see Table 1.)

Shetland EEZ - Pelagic Fish

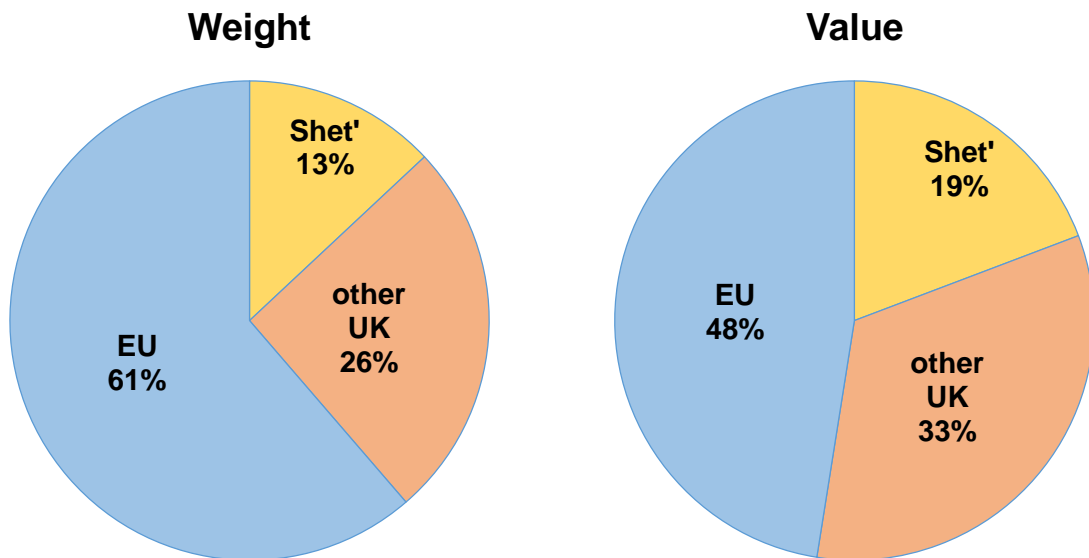


Figure 19 Breakdowns of the weights and values of pelagic fish landed from the 'Shetland EEZ' by Shetland, other UK and EU fishing boats. (Average weight and value 2016 to 2018; see Table 1.)

Shetland EEZ - Pelagic Fish

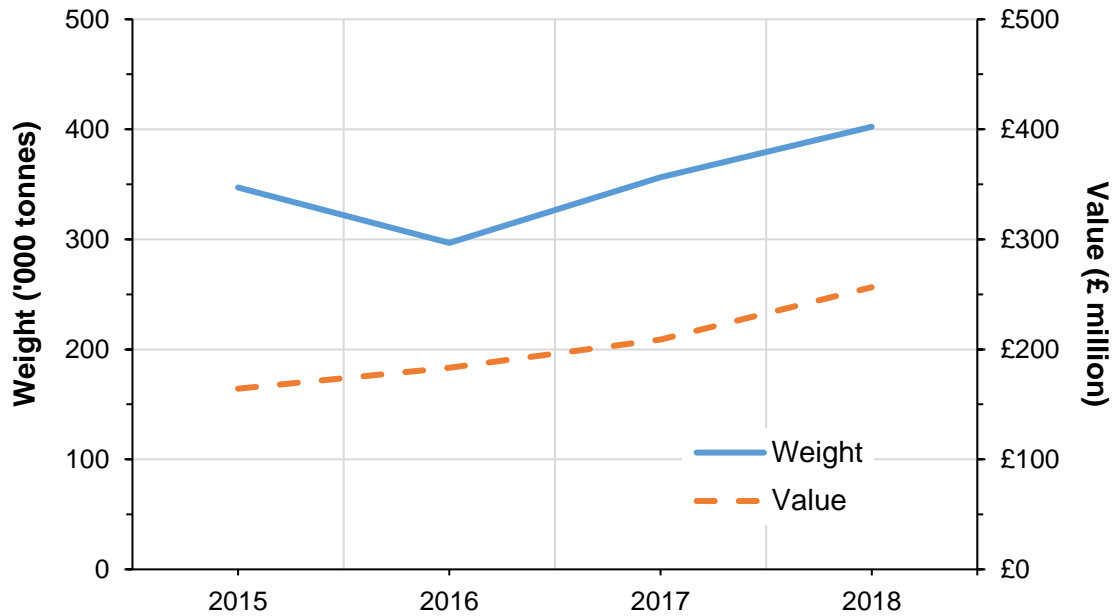
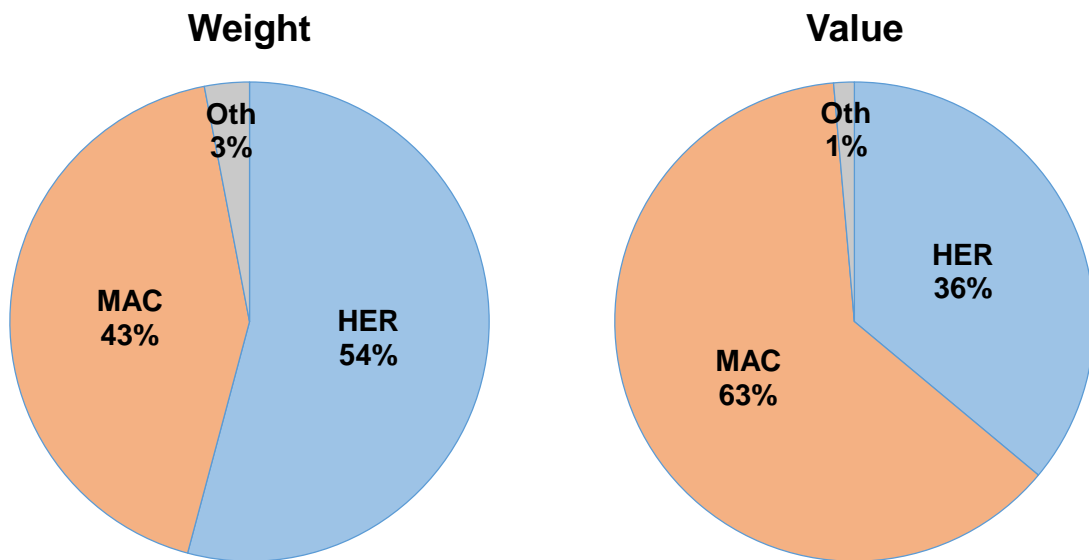


Figure 20 The estimated weights and values of pelagic fish landed annually from the 'Shetland EEZ' by UK and EU fishing boats from 2015 to 2018.



HER = Herring, MAC = Mackerel.

Figure 21 Breakdowns by species of the weights and values of the principal pelagic fish landed from the 'Shetland EEZ'. (Average weight and value 2015 to 2018.)

Shetland EEZ - Pelagic Fish

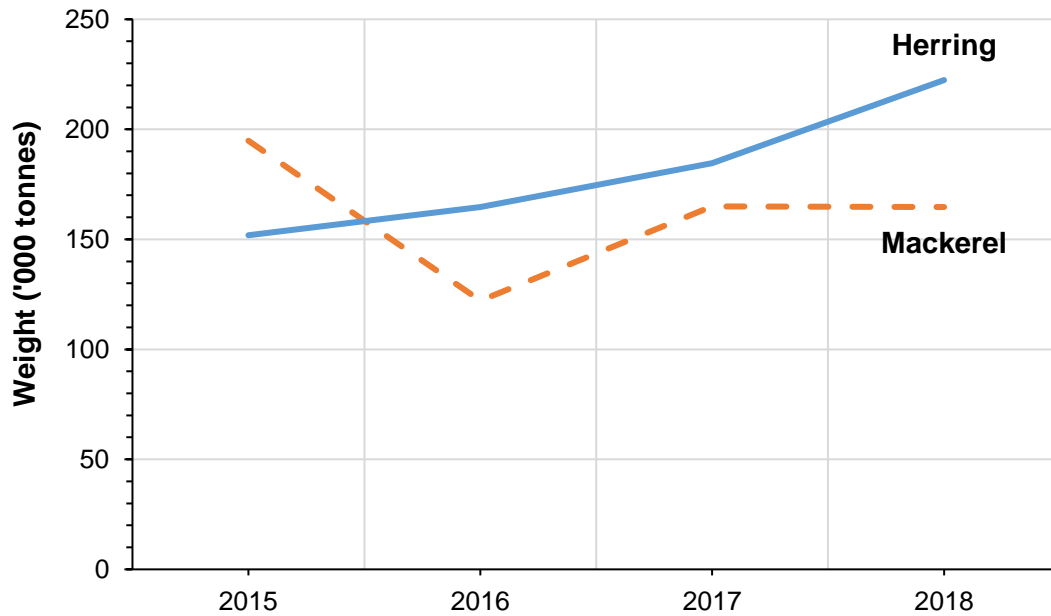


Figure 22 The estimated weights and values of herring and mackerel landed annually from the 'Shetland EEZ' by UK and EU fishing boats from 2015 to 2018.

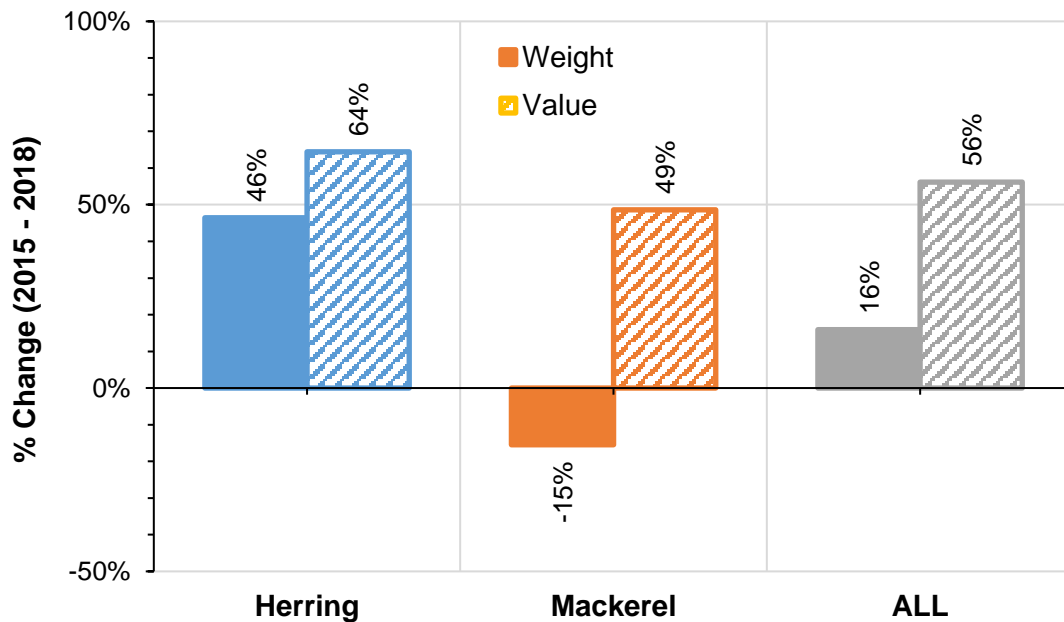


Figure 23 The percentage changes from 2015 to 2018 in the estimated weights and values of the principal pelagic fish landed from the 'Shetland EEZ' by UK and EU fishing boats.

Shellfish

NOTE: 'Shellfish includes species such as squid and Nephrops.'

Shellfish accounted for only a very small proportion of the fish and shellfish landed from the 'Shetland EEZ' between 2015 and 2018; 1% by weight, 3% by value (Table 1, Figure 8) and only a small proportion (3%) of all the shellfish landed from the UK EEZ (Table 2).

Shetland fishing boats landed an average of just over 2,000 tonnes of shellfish, worth some £6 million, annually from 2016 to 2018, most of it in the 'Shetland EEZ' (Figure 24). Shetland boats accounted for about half of the shellfish landed from the 'Shetland EEZ' with most of the balance caught by other UK boats (Table 1, Figure 25). EU boats' catches of shellfish from the 'Shetland EEZ' were negligible.

The weight and value of shellfish landed both increased substantially over the period from 2015 to 2018, the weight by more than three-quarters (79%) and the value more than two and half-fold (153%) (Figure 26, Figure 7).

Landings of shellfish from the 'Shetland' EEZ were dominated by scallops and Nephrops, which together accounted for more than half of the total (Figure 27). The other principal shellfish species landed included edible (brown) crabs, queen scallops, squid and lobsters.

The weight and value of Nephrops landed from the 'Shetland EEZ' increased very substantially (5 or 6-fold) from 2015 to 2018 (Figure 28, Figure 29) although the total quantity remained relatively small. Landings of squid also increased substantially, as did the value of edible crabs.

On average, about 2,000 tonnes of shellfish, worth about £5 million, were landed in Shetland annually from 2016 to 2018 (Table 3). That represents more than half of the estimated quantity of shellfish landed from the 'Shetland EEZ' by weight (60%) or just under half by value (47%) (Table 3, Figure 9).

Shetland EEZ - Shellfish

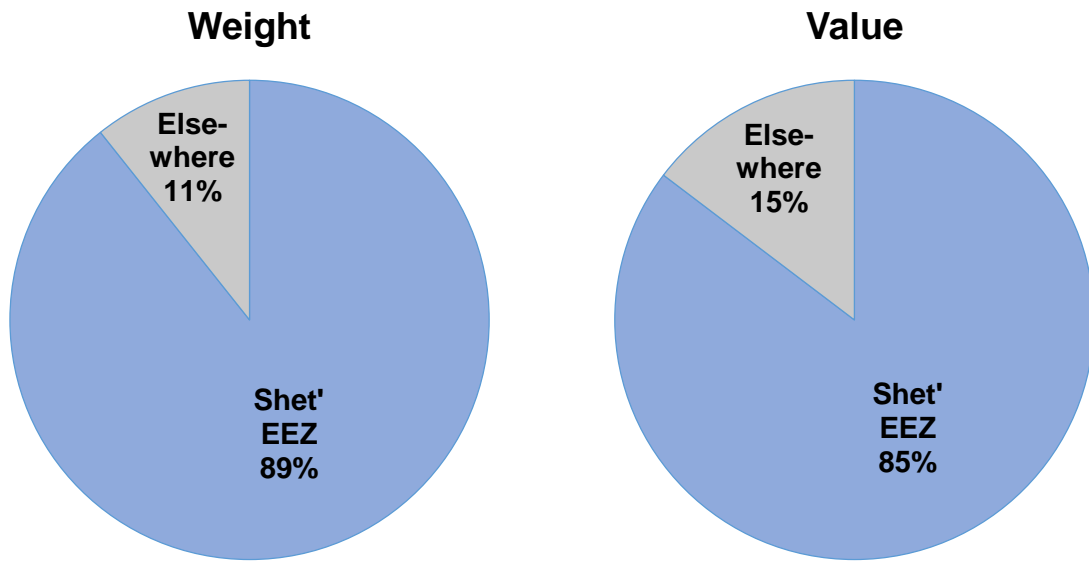


Figure 24 Breakdowns of the weights and values of shellfish landed by Shetland fishing boats from the 'Shetland EEZ' and from elsewhere. (Average weight and value 2016 to 2018; see Table 1.)

Shetland EEZ - Shellfish

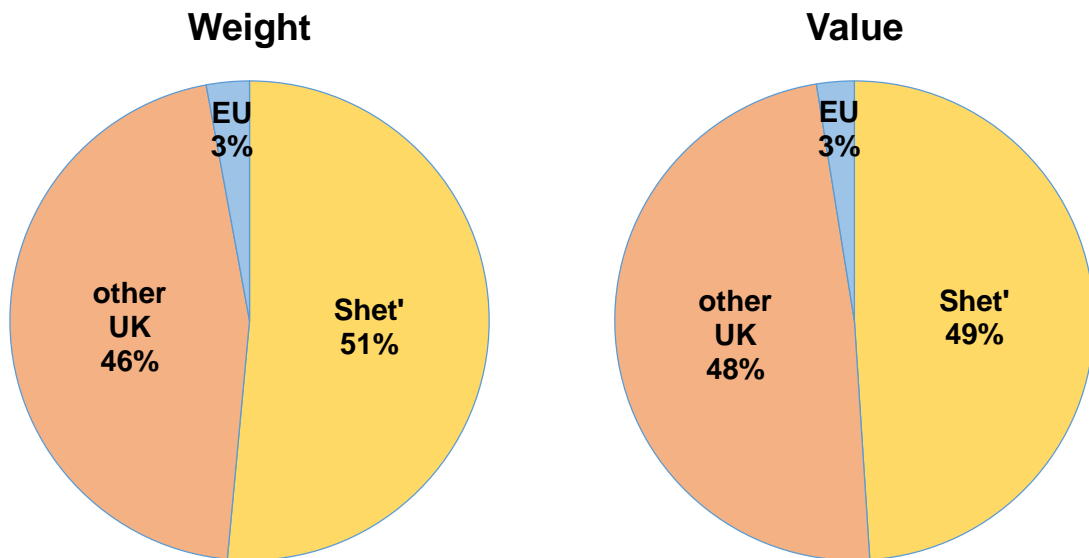


Figure 25 Breakdowns of the weights and values of shellfish landed from the 'Shetland EEZ' by Shetland, other UK and EU fishing boats. (Average weight and value 2016 to 2018; see Table 1.)

Shetland EEZ - Shellfish

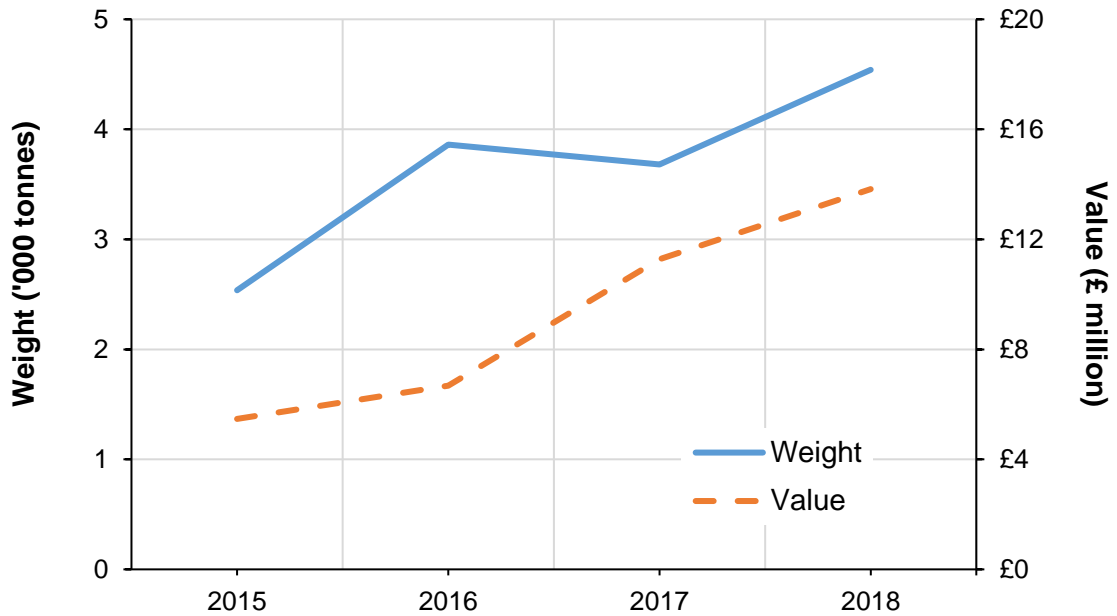
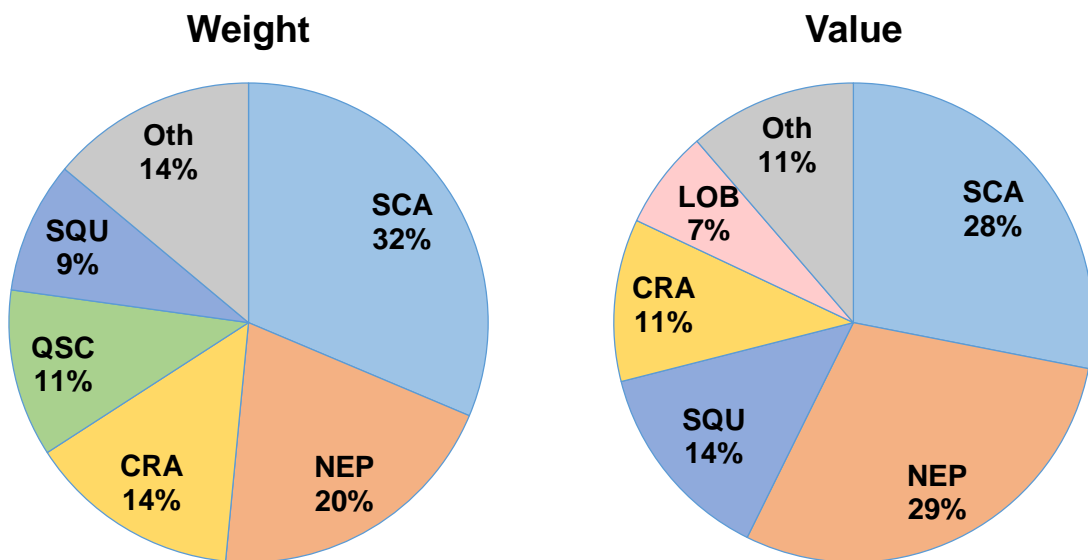


Figure 26 The estimated weights and values of shellfish landed annually from the 'Shetland EEZ' by UK and EU fishing boats from 2015 to 2018.



CRA = Edible Crabs, LOB = Lobsters, NEP = Nephrops, QSC = Queen Scallops, SCA = Scallops, SQU = Squid.

Figure 27 Breakdowns by species of the weight and value of the principal shellfish landed from the 'Shetland EEZ'. (Average weight and value 2015 to 2018.)

Shetland EEZ - Shellfish

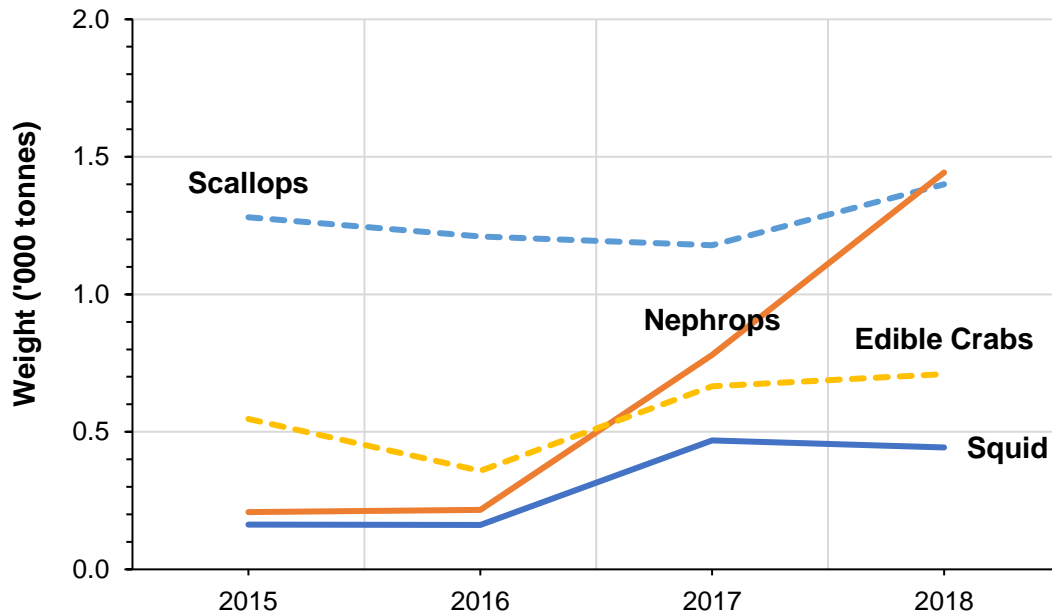


Figure 28 The estimated weights and values of the principal shellfish landed annually from the 'Shetland EEZ' by UK and EU fishing boats from 2015 to 2018.

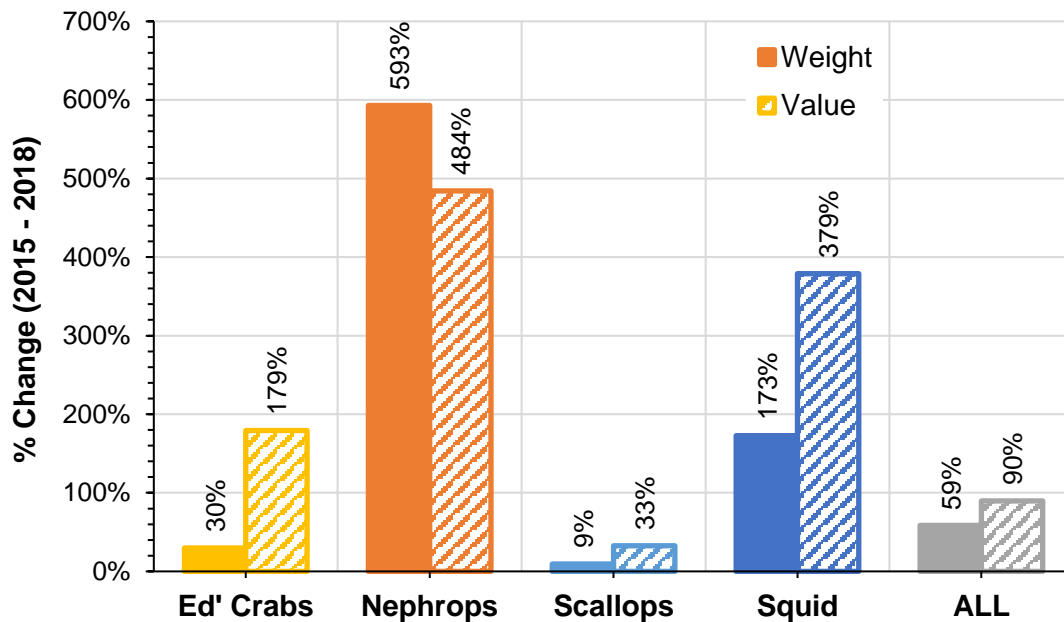


Figure 29 The percentage changes from 2015 to 2018 in the estimated weights and values of the principal shellfish landed from the 'Shetland EEZ' by UK and EU fishing boats.

Reallocation Scenarios

Shetland fishing boats landed about 119,000 tonnes of fish and shellfish, worth about £116 million, annually on average from 2016 to 2018, including 63,000 tonnes (53%) worth £77 million (66%) from the 'Shetland EEZ' (Table 4). Over the same period, it is estimated that EU fishing boats landed an average of 250,000 tonnes of fish and shellfish worth £143 million annually from the 'Shetland EEZ'.

If half (50%) of the fish and shellfish landed by EU boats from the 'Shetland EEZ' were reallocated to Shetland boats their predicted total average annual landings would increase to 244,000 tonnes (£187 million) (Table 4). That would represent a doubling of the weight and a two-thirds increase in the value of Shetland boats' landings (Figure 30). That could also increase the amount of fish and shellfish landed in Shetland by half (value by one-third) if all of the additional demersal fish and one-quarter of the additional pelagic fish caught by Shetland boats were landed in Shetland.

If three-quarters (75%) of EU boats' landings from the 'Shetland EEZ' were reallocated to the Shetland fleet their predicted total average annual landings would increase to 307,000 tonnes (£223 million) (Table 4). That would represent a two and a half-fold increase in the weight of landings and almost a than doubling of the value (Figure 30). That could also more than double the weight of fish and shellfish landed in Shetland.

If all of the landings from the 'Shetland EEZ' by EU boats were reallocated to the Shetland fleet their predicted total average annual landings would be almost 370,000 tonnes (£259 million) (Table 4). That would represent a tripling of the weight and more than a doubling of the value of landings by Shetland boats (Figure 30). That could also more than triple the weight of fish and shellfish landed in Shetland and more than increase their value two and a half-fold

Across all these scenarios the potential gains for the Shetland fleet are in catches of pelagic fish, reflecting the fact that EU boats currently catch a relatively high proportion (61%) of the pelagic fish landed from the 'Shetland EEZ'. The potential gains in catches of demersal fish are more modest in relation to those of pelagic fish but would still be very significant to the local whitefish fleet: For example, reallocating half of the demersal fish currently landed from the 'Shetland EEZ' by EU boats to the local fleet would increase the predicted value of their landings by two-thirds, while a 75% reallocation would double it (Table 4, Figure 30).

In all of the above scenarios it is assumed that the landings from the 'Shetland EEZ' by other UK boats remain unchanged.

Table 4 Predictions of the weight and value of demersal, pelagic and all fish and shellfish that Shetland boats could land, and of the quantities that could be landed in Shetland, under various scenarios. The top section shows the actual estimated average weights and values landed annually by Shetland fishing boats and by EU boats from the 'Shetland EEZ' and in Shetland from 2016 to 2018.

The subsequent sections show the predicted landings by Shetland boats if they had been able to catch 50%, 75% or 100% of the fish and shellfish that were actually caught by EU boats in the Shetland EEZ, and the predicted landings in Shetland. The project % increases in landings by Shetland boats and in Shetland are shown.

		Weight (‘000 tonnes)			Value (£ million)		
		Dem’	Pel’	ALL	Dem’	Pel’	ALL
2016-18	Shetland Boats (everywhere)	17	100	119	£32	£77	£116
	Shetland Boats (Shetland EEZ)	16	46	63	£30	£42	£77
	% in Shetland EEZ	92%	46%	53%	93%	54%	66%
	EU Boats (Shetland EEZ)	23	216	250	£38	£103	£143
	Landed in Shetland (all boats)	22	44	68	£42	£35	£82
50%	Shetland Boats (everywhere)	28	208	244	£51	£129	£187
	% increase in landings	69%	108%	105%	58%	66%	62%
	Landed in Shetland (all boats)	33	71	104	£61	£47	£108
% increase in landings	54%	61%	53%	45%	37%	33%	
75%	Shetland Boats (everywhere)	34	262	307	£61	£154	£223
	% increase in landings	103%	162%	157%	88%	100%	93%
	Landed in Shetland (all boats)	51	111	162	£89	£67	£156
% increase in landings	134%	154%	138%	113%	93%	91%	
100%	Shetland Boats (everywhere)	40	316	369	£70	£180	£259
	% increase in landings	137%	216%	210%	117%	133%	124%
	Landed in Shetland (all boats)	74	165	239	£127	£92	£220
% increase in landings	241%	277%	252%	204%	167%	169%	

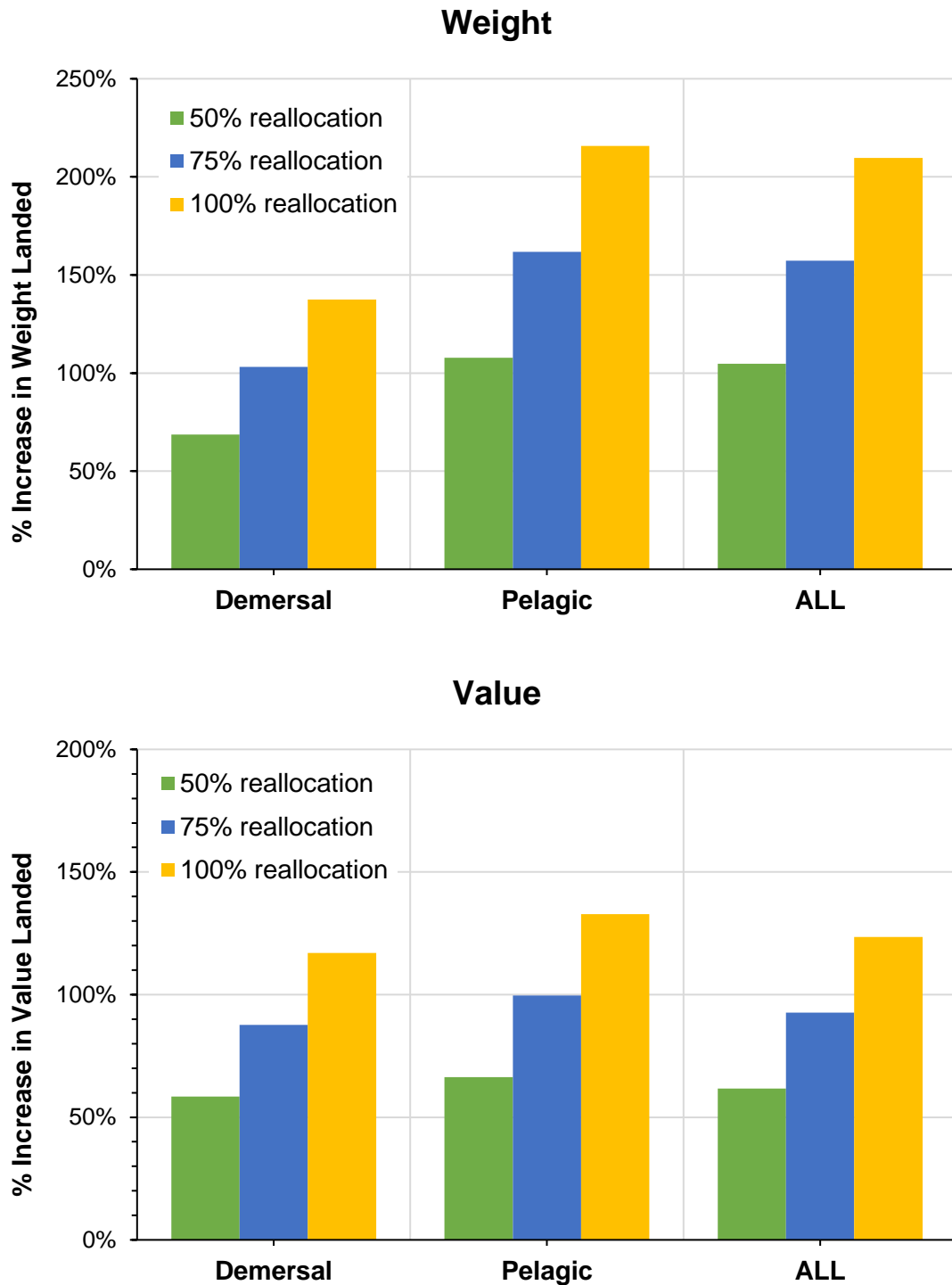


Figure 30 The predicted increases in the weight and value of fish and shellfish landed from the 'Shetland EEZ' by Shetland fishing boats if 50%, 75% or 100% of the fish and shellfish currently landed from that area by EU boats were reallocated to the Shetland fleet. (See Table 4. Note: a 100% increase corresponds to a doubling in weight or value.)

Discussion

It is estimated that an average of almost 450,000 tonnes of fish and shellfish, worth some £370 million, were landed annually from the 'Shetland EEZ' by UK and EU boats between 2016 and 2018. These figures certainly underestimate the true weight and value of landings from this area as they do not include landings by Norwegian and Faroese fishing boats.

The fish and shellfish landed from the 'Shetland EEZ' represents a relatively large proportion of the landings from the UK EEZ: While the 'Shetland EEZ' accounts for 17% of the area of the UK EEZ it accounts for one-third of all the landings. For demersal and pelagic fish, the proportions are even higher (37% and 40% respectively).

These figures suggest that the 'yield' from the 'Shetland EEZ' – the landings per unit area – is substantially higher than from the rest of the UK EEZ: Overall the yield from the 'Shetland EEZ' is double that from the rest of the UK EEZ and for demersal and pelagic fish it is greater still.

Despite the high yield from the 'Shetland EEZ' Shetland fishing boats catch only a small proportion (14%) of the fish and shellfish landed from this area. And only a small proportion (15%) of the fish and shellfish caught in the 'Shetland EEZ' is landed in Shetland. If Norwegian and Faroese landings were included these proportions would be even smaller.

EU fishing boats catch a relatively high proportion of the fish and shellfish landed from the 'Shetland EEZ' – more than half overall. If a proportion of those catches were reallocated to the Shetland fleet it could substantially increase the amount of fish and shellfish that Shetland fishing boats are able to land. For example, allowing Shetland boats to catch half of the fish and shellfish currently landed by EU boats could double the weight and increase by two-thirds the value of the Shetland fleet's landings. It would also almost certainly result in a substantial increase in the amount of fish and shellfish landed in Shetland.