European Commission

Monthly Highlights

No. 1 / 2020

EUMOFA
European Market Observatory for Fisheries and Aquaculture Products

In this issue

In the observed 36-month period (November 2016–October 2019), the average first-sales price of common cuttlefish in Italy (8,42 EUR/kg) was 75% higher than in France (4,81 EUR/kg) and 3% greater than the price in Spain (8,20 EUR/kg). The average price of European squid in Spain (14,24 EUR/kg) was 2% greater than the price in France (14,00 EUR/kg) and 38% higher than in Portugal (10,29 EUR/kg).

The average import price of frozen squid (*Loligo gahi*) from the Falkland Islands was 3,80 EUR/kg in week 47 (the third week of November), a 12% rise compared to the same week in 2018.

In January–October 2019, the average retail price of fresh plaice was lower in the Netherlands (13,09 EUR/kg), than in the UK, where price was 22% higher. Average price was highest in Germany (17,90 EUR/kg).

Around one third of the world's fishmeal production comes from by-products. In 2016, 33% came from by-products from wild capture and aquaculture. The global production of fish oil from by-products is estimated to cover 26% of total fish oil production.

Total EU production of smoked fish in 2018 amounted to 257.400 tonnes, 3% lower than the average over the last decade.

In November 2019, the International Commission for the Conservation of Atlantic Tunas (ICCAT) adopted the EU proposal on Total Allowable Catches (TACs) for the southern Atlantic blue shark (28.923 tonnes), and a quota allocation for the northern Atlantic blue shark.

Contents

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1 First sales in Europe

In **January–October 2019**, 12 EU Member States (MS) and Norway reported first-sales data for 10 commodity groups[1]. First-sales data are based on both sales notes and data collected from auction markets.

1.1. Compared to the same period last year

Increases in value and volume: first sales grew in Italy, Latvia, Portugal, and the United Kingdom. Increased supply of Norway lobster and crab were the main factor leading to higher first sales in the United Kingdom.

Decreases in value and volume: first sales declined in Belgium, Denmark, France, Lithuania, the Netherlands, and Sweden. The decrease in Sweden was mainly due to a decline in herring supply. The significant decline was also recorded in Lithuania, due to a decrease in the supply of cod and herring.

Table 1. **JANUARY–OCTOBER OVERVIEW OF FIRST SALES FROM THE REPORTING COUNTRIES (volume in tonnes and value in million EUR) ***

	January–October 2017		January–October 2018		January–October 2019		Change from January–October 2018	
Country	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**
Belgium	12.995	52,53	11.566	49,35	11.279	47,71	-2%	-3%
Denmark	215.126	290,19	219.834	299,06	209.664	286,81	-5%	-4%
France	161.120	546,94	159.734	529,78	150.827	509,50	-6%	-4%
Italy**	79.803	283,54	72.346	261,74	74.991	294,67	4%	13%
Latvia	46.684	9,41	36.027	6,60	44.097	7,39	22%	12%
Lithuania	1.296	1,21	1.315	1,04	724	0,59	-45%	-44%
Netherlands	172.779	340,24	309.184	468,37	221.437	334,21	-28%	-29%
Norway	2.473.390	2.016,04	2.576.746	2.122,40	2.401.361	2.165,15	-7%	2%
Poland	80.734	27,18	72.591	22,80	79.683	22,20	10%	-3%
Portugal	83.051	163,76	88.570	171,45	97.219	181,66	10%	6%
Spain	394.039	992,95	419.108	1149,44	420.518	1183,01	0%	3%
Sweden	458.243	337,72	440.978	256,81	241.749	121,64	-45%	-53%
United Kingdom	253.545	457,73	211.387	400,95	241.832	503,34	14%	26%

** Volumes are reported in net weight for EU Member States and in live weight equivalent (LWE) for Norway. Prices are reported in EUR/kg (without VAT). For Norway, they are reported in EUR/kg of live weight.*
***Partial data: first-sales data for Italy cover 229 ports (approximately 50% of the total landings in the country).*
Possible discrepancies in % changes are due to rounding.
Source: EUMOFA (updated 04.12.2019).

[1] Bivalves and other molluscs, cephalopods, crustaceans, flatfish, freshwater fish, groundfish, salmonids, small pelagics, tuna and tuna-like species, and other marine fish.

1.2. In October 2019

Increases in value and volume: first sales grew in Denmark, Italy, and Portugal. The increase in Denmark was due to an increase in the supply of clam and crab.

Decreases in value and volume: first sales declined in Belgium, France, Latvia, Lithuania, the Netherlands, Spain, and Sweden. For Lithuania, the drop was due to a significant decrease in supply of cod and European flounder. In the Netherlands, first sales decreased due to lower supply of sardine.

Table 2. **OCTOBER OVERVIEW OF FIRST SALES FROM THE REPORTING COUNTRIES (volume in tonnes and value in million EUR)***

	October 2017		October 2018		October 2019		Change from October 2018	
Country	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**
Belgium	1.419	6,20	1.402	5,57	1.234	4,77	-12%	-14%
Denmark	28.121	33,19	30.360	43,56	36.670	49,28	21%	13%
France	17.974	61,93	18.180	59,11	16.785	54,65	-8%	-8%
Italy**	8.648	27,28	7.727	24,31	8.833	30,44	14%	25%
Latvia	4.979	0,94	8.328	1,39	5.050	0,91	-39%	-35%
Lithuania	136	0,12	115	0,10	9	0,01	-92%	-90%
Netherlands	26.163	42,86	30.449	52,44	23.709	37,65	-22%	-28%
Norway	257.187	231,04	302.404	347,91	306.097	318,97	1%	-8%
Poland	5.444	2,17	4.006	1,59	4.503	1,31	12%	-18%
Portugal	8.981	14,63	10.357	18,39	14.656	19,47	42%	6%
Spain	37.795	92,26	45.542	120,76	44.172	116,45	-3%	-4%
Sweden	7.491	4,48	20.843	15,26	6.086	7,04	-71%	-54%
United Kingdom	25.514	42,50	27.374	65,54	32.471	65,24	19%	0%

Source: EUMOFA (updated 04.12.2019).
Volumes are reported in net weight for EU Member States and in live weight equivalent (LWE) for Norway. Prices are reported in EUR/kg (without VAT). For Norway, they are reported in EUR/kg of live weight.
**Partial data: first-sales data for Italy covers 229 ports (approximately 50% of the total landings in the country).*

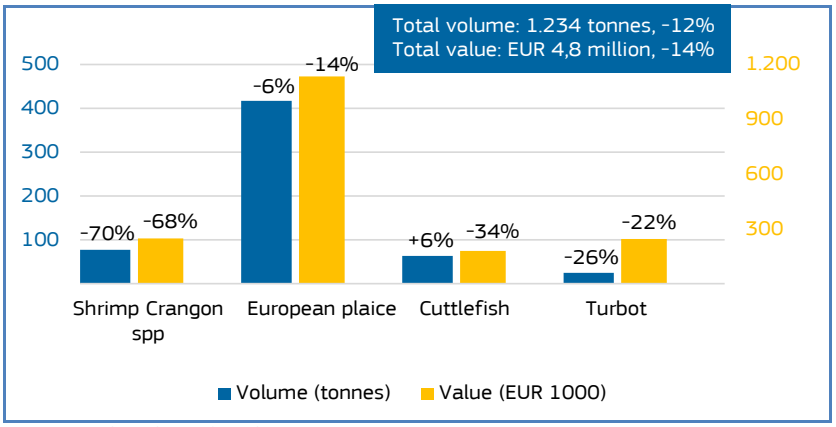
The most recent weekly first-sales data **(up to week 2 of 2020)** are available via the EUMOFA website, and can be accessed **here.**

The most recent monthly first-sales data **for November** are available via the EUMOFA website, and can be accessed **here.**

1.3. First sales in selected countries

Overall, in **Belgium** in **January–October 2019,** first-sales value and volume fell slightly by 3% and 2%, respectively, in comparison with the same period in 2018. The species contributing the most to this decline were cuttlefish and European plaice. In **October 2019**, both total value and volume had decreased relative to October 2018. Shrimp (*Crangon* spp.), European plaice, common sole, and turbot were among the main species responsible for this trend.

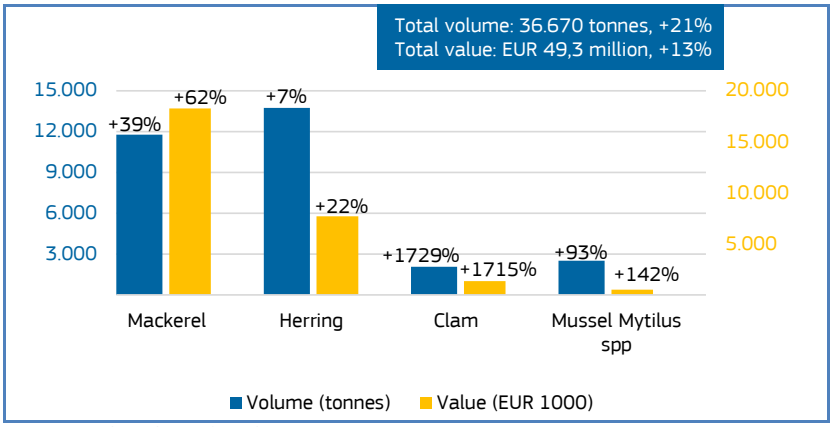
Figure 1. **FIRST SALES OF THE MAIN COMMERCIAL SPECIES IN BELGIUM, OCTOBER 2019**



Percentages show change from the previous year.
Source: EUMOFA (updated 04.12.2019).

In **Denmark** in **January–October 2019,** first-sales value fell by 4% (mainly linked to sales of shrimp *Crangon* spp.), while volume decreased by 5% compared to the same period in 2018 (due to herring). In **October 2019**, first sales grew in both value and volume, compared to October 2018. The main species driving this positive trend include mackerel, herring, clam, mussel (*Mytilus* spp.), and crab. First sales of clam (mainly cockles) is similar to the volume production levels observed in October 2017 and previous years. October 2018 was exceptionally poor year for clam sales. Almost all clam sales come from the Limfjorden, where they are caught as by-catch in the mussel fishery. Mussel sales in October 2018 were extremely low due to poor condition (low meat content). As a result, first sales of clams were low as well.

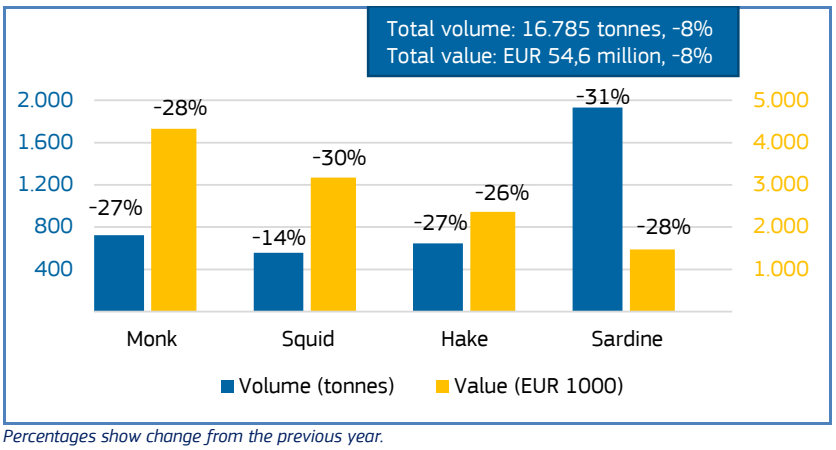
Figure 2. **FIRST SALES OF THE MAIN COMMERCIAL SPECIES IN DENMARK, OCTOBER 2019**



Percentages show change from the previous year.
Source: EUMOFA (updated 04.12.2019).

In **France** in **January–October 2019**, first sales decreased by 4% in value and 6% in volume compared to January–October 2018. The value of monk and cuttlefish, and the volume of clam and hake, were the main factors responsible for these decreases in sales. In **October 2019**, compared to October 2018, monk, squid, hake, anchovy, and sardine were among the key species responsible for 8% decreases in value and volume.

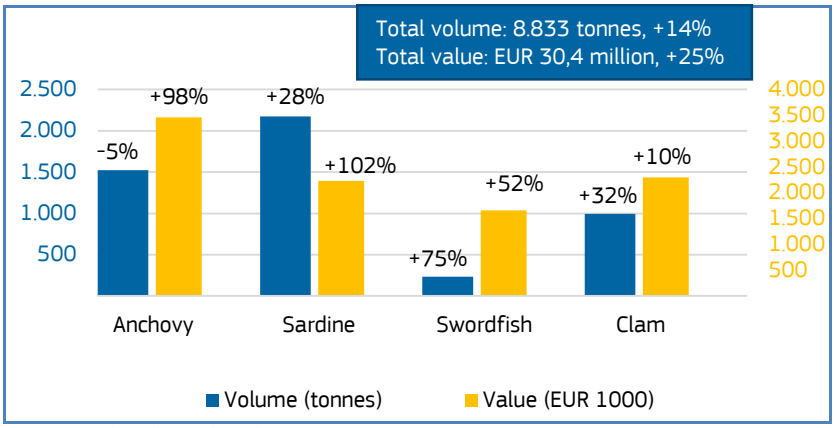
Figure 3. **FIRST SALES OF THE MAIN COMMERCIAL SPECIES IN FRANCE, OCTOBER 2019**



Percentages show change from the previous year.
Source: EUMOFA (updated 04.12.2019).

In **Italy** in **January–October 2019**, compared to the same period in 2018, first-sales value grew by 13%, and volume by 4%. These changes were mainly due to value of anchovy, and the volume of clam and sardine. In **October 2019**, first sales increased in value and volume compared to October 2018. The value of anchovy (+98% due to average price increase of 108%), and both the value and volume of sardine, swordfish were among the main factors responsible for such increases. In 2018, swordfish quota was 3.736 tonnes while in 2019 it was 3.512 tonnes. In both years, Italy did not reach the quotas, although catches in 2019 were higher.

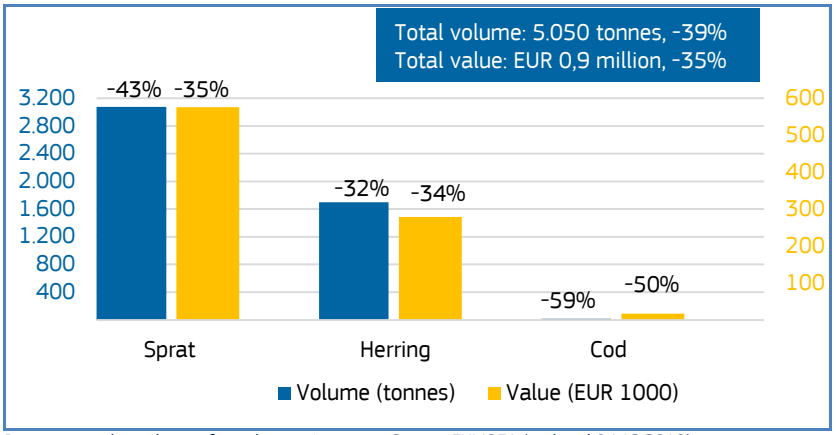
Figure 4. **FIRST SALES OF THE MAIN COMMERCIAL SPECIES IN ITALY, OCTOBER 2019**



Percentages show change from the previous year.
Source: EUMOFA (updated 04.12.2019).

In **Latvia** in **January–October 2019**, small pelagic species (sprat, herring, and smelt) were the key species responsible for increases in first-sales value and volume (+12% and +22%, respectively) compared to the same period in 2018. In **October 2019**, first sales fell sharply in terms of both value and volume compared to October 2018, mainly due to sales of sprat, herring, and cod. The average price of sprat increased by 14% to 0,18 EUR/kg due to reduced supply and market demand.

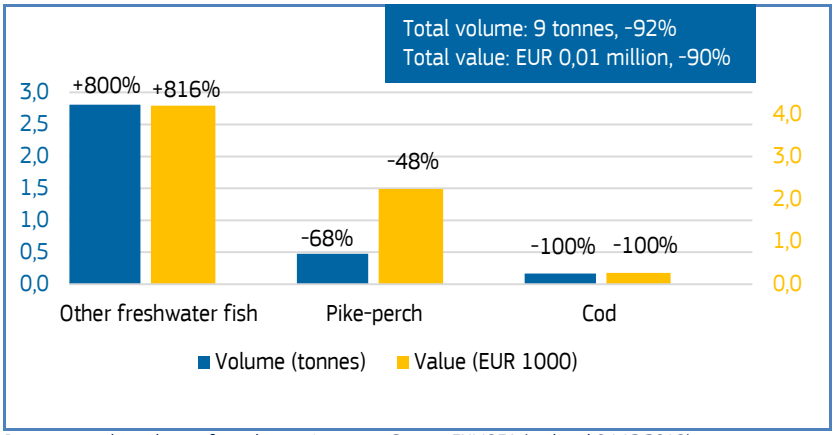
Figure 5. **FIRST SALES OF THE MAIN COMMERCIAL SPECIES IN LATVIA, OCTOBER 2019**



Percentages show change from the previous year. Source: EUMOFA (updated 04.12.2019).

In **Lithuania** in **January–October 2019**, first sales decreased by 44% in value and 45% in volume compared to January–October 2018, mainly due to cod and herring. In **October 2019**, first-sales value and volume decreased substantially compared to October 2018, due to pike perch and especially thanks to cod. This was due to the adoption of the European Commission Regulation 2019/1248[2] on emergency measure to alleviate a serious threat to eastern Baltic cod stocks, which include prohibition of directed cod fishery in ICES subdivisions 24, 25 and 26, until 31 December 2019.

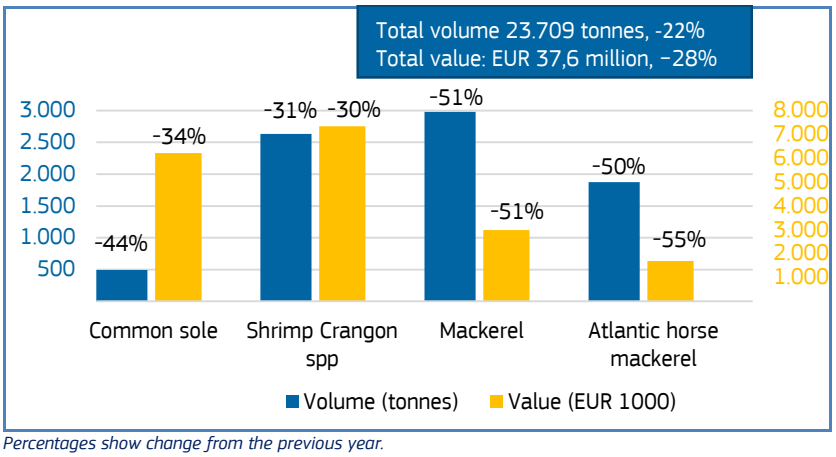
Figure 6. **FIRST SALES OF THE MAIN COMMERCIAL SPECIES IN LITHUANIA, OCTOBER 2019**



Percentages show change from the previous year. Source: EUMOFA (updated 04.12.2019).
**EUMOFA aggregation for species (Metadata 2, Annex 3: http://eumofa.eu/supply-balance-and-other-methodologies).*

In the **Netherlands** in **January–October 2019,** first sales fell by 29% in value and by 28% in volume compared to the same period in 2018. This was mainly due to a significant decrease in the supply of blue whiting, shrimp (*Crangon* spp.), and herring. In **October 2019,** first-sales value fell compared to the previous year, mostly due to common sole, shrimp (*Crangon* spp.), and small pelagic species including mackerel and Atlantic horse mackerel.

Figure 7. **FIRST SALES OF THE MAIN COMMERCIAL SPECIES IN THE NETHERLANDS, OCTOBER 2019**

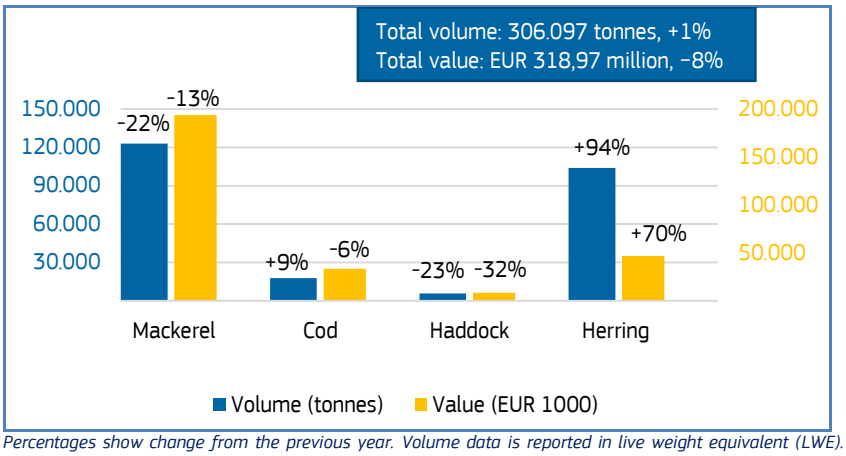


Percentages show change from the previous year.
Source: EUMOFA (updated 04.12.2019).

[2] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R1248

In **Norway** in **January–October 2019**, first sales increased by 2% in value and decreased by 7% in volume compared to the same period in 2018. Value grew slightly due to higher cod and herring sales, whereas volume fell due to miscellaneous small pelagics*. In **October 2019**, compared to October 2018, first-sales value fell, while volume slightly grew. The main species behind the decrease in value were cod, mackerel, Greenland halibut, haddock and coldwater shrimp, while the increase in volume was the result of significantly higher herring supply.

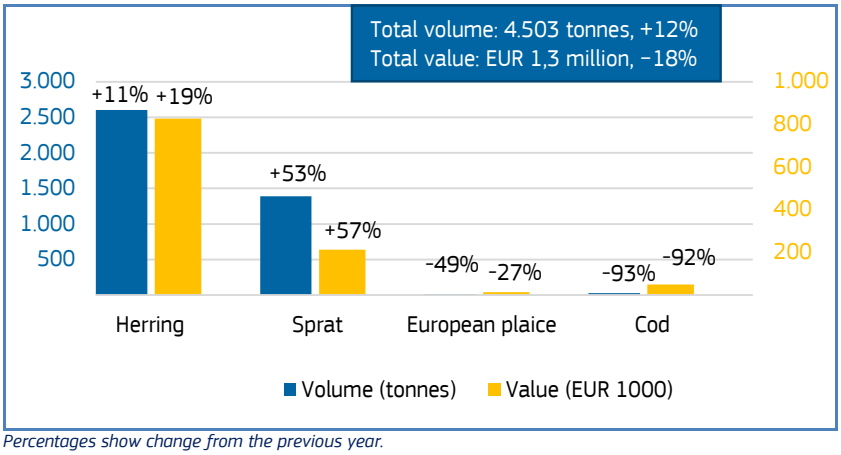
Figure 8. **FIRST SALES OF THE MAIN COMMERCIAL SPECIES IN NORWAY, OCTOBER 2019**



*Percentages show change from the previous year. Volume data is reported in live weight equivalent (LWE). Prices are reported in EUR/kg of live weight. *EUMOFA aggregation for species (Metadata 2, Annex 3: http://eumofa.eu/supply-balance-and-other-methodologies).*

In **Poland** in **January–October 2019**, first sales decreased by 3% in value (mainly due to sales of trout), while they increased by 10% in volume (due to sales of sprat and European flounder), compared to the same period in 2018. In **October 2019** compared to October 2018, first-sales value declined due to a reduced supply of cod following Commission's Regulation 2019/1248 on emergency measures on eastern Baltic cod stocks, while volumes grew thanks to high catches of sprat, herring and European flounder.

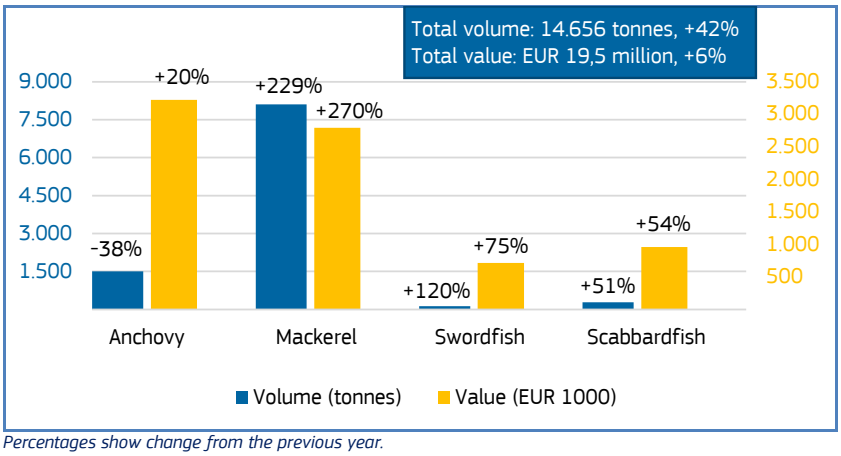
Figure 9. **FIRST SALES OF THE MAIN COMMERCIAL SPECIES IN POLAND, OCTOBER 2019**



Percentages show change from the previous year.
Source: EUMOFA (updated 04.12.2019).

In **Portugal** in **January–October 2019**, first sales increased by 6% in value and 10% in volume compared to the same period in 2018. These increases were mostly linked to sales of Atlantic horse mackerel, anchovy, and mackerel. In **October 2019** compared to October 2018, first- sales value and volume increased, largely due to mackerel but also due to sardine, anchovy, swordfish, and scabbardfish. The mackerel sales increase was due to due to an improvement in stock status, which led to higher quotas as well as due to a lack of sardine for which mackerel is used as a substitute product. Sardine is usually a popular product in both Portuguese and Spanish markets.

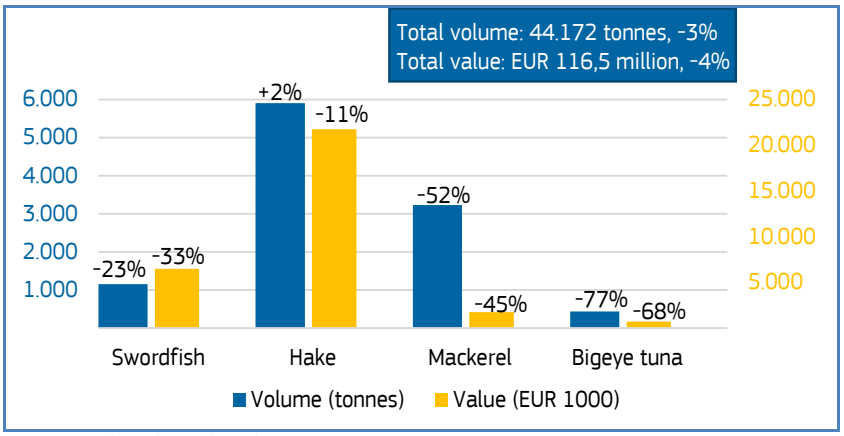
Figure 10. **FIRST SALES OF THE MAIN COMMERCIAL SPECIES IN PORTUGAL, OCTOBER 2019**



Percentages show change from the previous year.
Source: EUMOFA (updated 04.12.2019).

In **Spain** in **January–October 2019**, first sales increased in value by 3% due to anchovy, deep-water rose shrimp and albacore tuna, whereas volumes remained stable compared to the same period in 2018. In **October 2019**, first-sales value and volume decreased in comparison to the same month in 2018, mostly due to swordfish, hake, mackerel, and bigeye tuna.

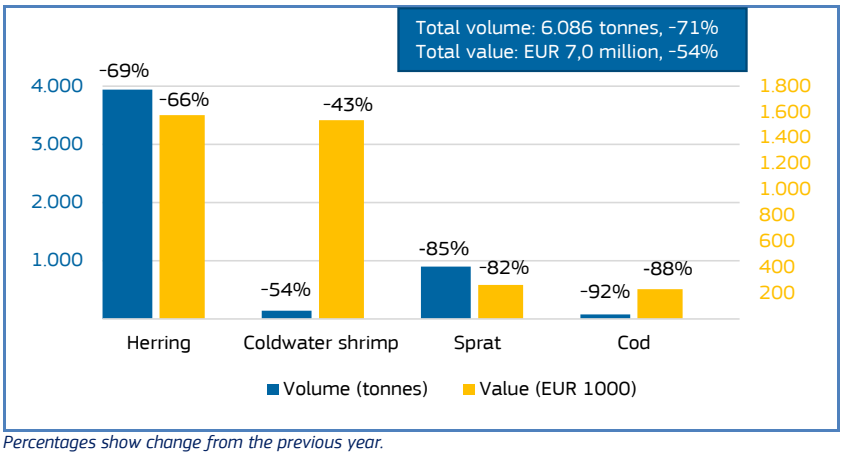
Figure 11. **FIRST SALES OF THE MAIN COMMERCIAL SPECIES IN SPAIN, OCTOBER 2019**



Percentages show change from the previous year.
Source: EUMOFA (updated 04.12.2019).

In **Sweden** in **January–October 2019,** first sales dropped in value (−53%) and volume (−45%) compared to the same period in 2018, mainly due to herring, coldwater shrimps, and sprat. In **October 2019**, both value and volume of first sales more than halved relative to October 2018, with the most dramatic decreases seen for herring, sprat, cod, and coldwater shrimp. The average price of cod grew 61% (reaching 2,98 EUR/kg). From January to October 2019 approximately 23% of all supplied sprat was provided by the Swedish fleet, while the remainder was imported. A considerable reduction in sprat import in October 2019 resulted in an increase in the average price (+55%) compared to August 2019 as well as decreasing in first sales. As for herring, comparing 2019 to 2018, the quotas were reduced by around 25%. Along with lower demand, this affected Swedish and foreign suppliers. As a result, large decreases in value and volume were recorded in October 2019 compared to October 2018.

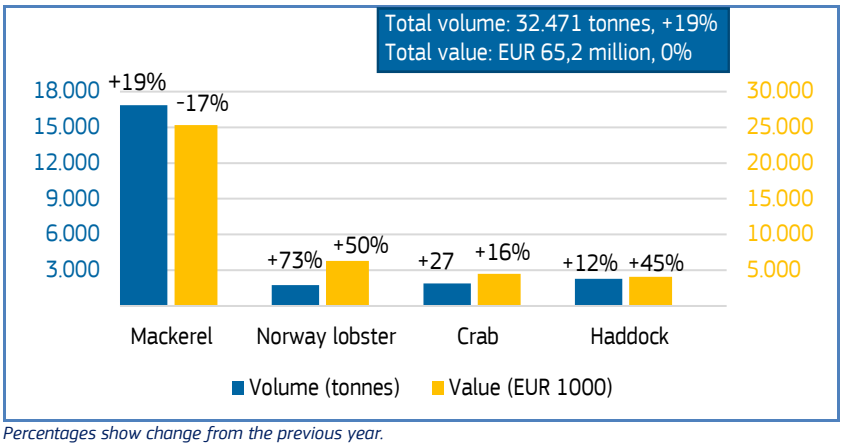
Figure 12. **FIRST SALES OF THE MAIN COMMERCIAL SPECIES IN SWEDEN, OCTOBER 2019**



Percentages show change from the previous year.
Source: EUMOFA (updated 04.12.2019).

In the **UK** in **January–October 2019**, first-sales value and volume increased by 26% and 14%, respectively, compared to the same period in 2018. The increases were mostly due to Norway lobster, crab, haddock and saithe. In **October 2019**, first-sales value remained stable, whereas volume increased by 19%, compared to October 2018. The main species sold include mackerel, Norway lobster, crab and haddock. Of these, mackerel (+19%) and Norway lobster (+73%) recorded the most relevant increases in volume.

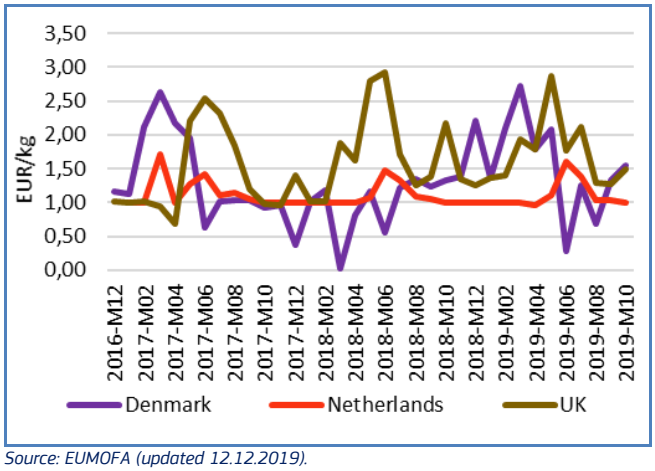
Figure 13. **FIRST SALES OF THE MAIN COMMERCIAL SPECIES IN THE UK, OCTOBER 2019**



Percentages show change from the previous year.
Source: EUMOFA (updated 04.12.2019).

4. Comparison of first-sales prices of selected species in selected countries

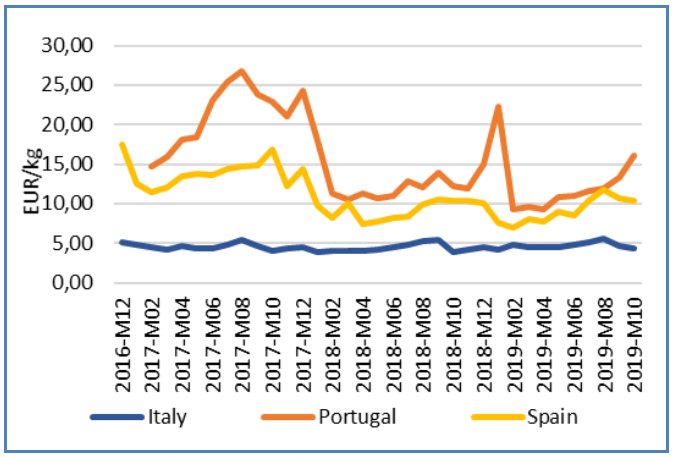
Figure 14. **FIRST-SALES PRICES OF MACKEREL IN DENMARK, THE NETHERLANDS, AND THE UK**



Source: EUMOFA (updated 12.12.2019).

First sales of **mackerel** occur in many European countries, including **Denmark**, **the Netherlands**, and **the UK**. The average prices in October 2019 reached 1,55 EUR/kg in Denmark, (17% up from both September 2019 and October 2018); 1,00 EUR/kg in the Netherlands (3% lower than the previous month, and unchanged compared to October a year earlier); and 1,50 EUR/kg in the UK (up by 19% from the previous month, but significantly down, –31% from a year earlier). Fisheries are seasonal in all countries and supply peaks in October–November. In the Netherlands and the UK, sales peak also in January–February. In 2019, mackerel prices in the Netherlands were stable, while in Denmark and the UK exhibited a decreasing trend.

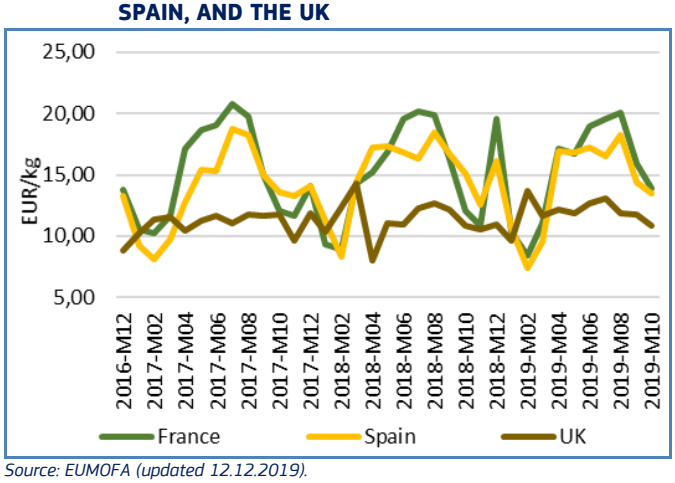
Figure 15. **FIRST-SALES PRICES OF DEEP-WATER ROSE SHRIMP IN ITALY, PORTUGAL, AND SPAIN**



Source: EUMOFA (updated 12.12.2019).

EU first sales of **deep-water rose shrimp** take place mainly in **Italy**, as well as in **Portugal**, and **Spain**. In October 2019, the average prices were: 4,37 EUR/kg in Italy (5% less than in September 2019, but 14% higher compared with October 2018); 16,14 EUR/kg in Portugal (an increase from both previous month and year earlier, +21% and +33%, respectively); and 10,41 EUR/kg in Spain (2% down from September 2019 and unchanged, compared with October 2018). Prices are stable in Italy, while they fluctuate considerably in Spain and especially in Portugal, both also showing a decreasing trend. First sales are seasonal in the three markets, with peaks between March and June.

Figure 16. **FIRST-SALES PRICES OF SEABASS IN FRANCE, SPAIN, AND THE UK**



Source: EUMOFA (updated 12.12.2019).

First sales of **seabass** take place in many European countries, most notably in **France,** and to a lesser extent in **Spain** and **the UK**. In October 2019, the average prices were: 13,85 EUR/kg in France (down from the previous month but up from a year earlier: –13% and +15%, respectively); 13,46 EUR/kg in Spain (down from both September 2019 and October 2018: –7% and –11%, respectively); and 10,85 EUR/kg in the UK (down by 8% from previous month and unchanged from previous year). Prices exhibited an increasing trend in all three markets. While prices converge in France and Spain, they are lower in the UK, notwithstanding a limited supply. Volumes sold in first-sales markets are seasonal. In the UK they peak in August, in Spain in February, and in France in December–February.

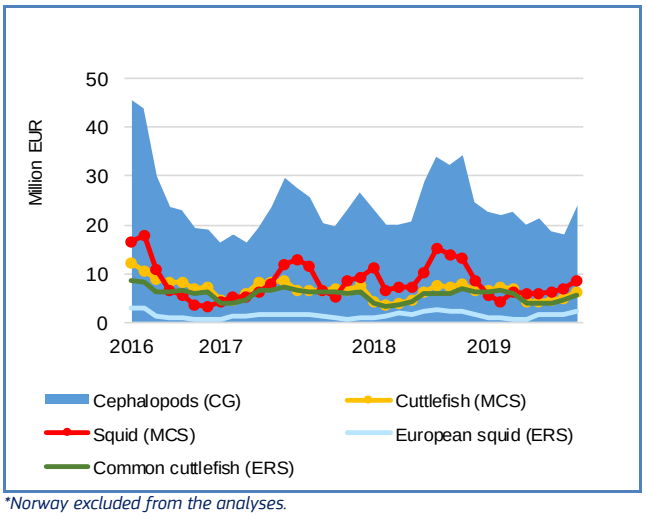
1.5. Commodity group of the month: Cephalopods

The **'cephalopods'** commodity group (CG[3]) ranked 7th in value and 8th in volume among 10 CGs sold at the first-sales stage in October 2019[4]. First sales of these species reached EUR 23,9 million and 4.625 tonnes, decreasing by 17% in value and 6% in volume compared to October 2018. In the past 36 months, the highest value of first sales of cephalopods were registered in November 2016, at EUR 45,5 million.

The "cephalopods" includes four main commercial species (MCS): cuttlefish, octopus, squid, and other cephalopods[5].

At Electronic Recording and Reporting System (ERS) level, common cuttlefish (23%) and European squid (10%) together make up 33% of total reported first-sales value of this commodity group in October 2019.

Figure 17. **FIRST-SALES VALUE COMPARISON AT CG LEVEL, MCS LEVEL AND ERS LEVEL FOR REPORTING COUNTRIES***



**Norway excluded from the analyses.*
Source: EUMOFA (updated 04.12.2019).

1.6. Focus on common cuttlefish

Common cuttlefish (*Sepia officinalis*) is a migratory short-lived species that belongs to the order of Sepiida. It is distributed along the south and west coast of North East Atlantic, and in the Mediterranean, including the Adriatic Sea. It lives on sandy and muddy seafloors and prefers moderately warm, shallow coastal waters. The species feeds on small molluscs, crabs, and shrimps. Spawning takes place throughout the year in shallow waters, mostly in water temperatures of 13–15°C (between April and July in the Mediterranean). It reproduces only once during their lifetime, at around the age of 2, and typical life span is from 1 to 2 years. Common cuttlefish is the most abundant cephalopod resource in the North East Atlantic. The species is usually caught with trawl nets as a target species and as bycatch in demersal fisheries. Artisanal fisheries utilise a larger variety of highly selective gear types, such as spears, pots, and traps, often combined with the use of light[6].

In the EU, the smallest cuttlefish category can be marketed is 0,1 to 0,3 kg[7]. In France, specific authorisation is needed to trawl for cuttlefish within 3 nautical miles of the coast, although an exemption allows fishers to target juveniles for two weeks in late summer. Also, a minimum mesh size of 80 mm or 100 mm is specified according to the metier[8]. In Spain, a fishing ordinance (Regional Decree 424/199[9]) sets the minimum landing size of 8 cm for small-scale fisheries, and during May to July fishing is restricted to area to a depth above 5 m for boats less than 2,5 GRT. There are similar size and weight restrictions enforced in Portugal[10].

Common cuttlefish is frequently marketed as fresh and frozen and is a highly attractive food item in Japan, South Korea, Italy, and Spain[11].

[3] Annex 3: http://eumofa.eu/supply-balance-and-other-methodologies
[4] More data on commodity groups can be found in Table 1.2 of the Annex.
[5] *EUMOFA aggregation for species (Metadata 2, Annex 3: http://eumofa.eu/supply-balance-and-other-methodologies).
[6] http://seafish.org/media/Publications/SeafishSpeciesGuide_Cuttlefish_201401.pdf
[7] Council Regulation (EC) No 2406/96 https://op.europa.eu/en/publication-detail/-/publication/9e7930c8-61f9-4f8e-8b65-ccbcfeea30d5/language-en
[8] ICES. 2018, Interim Report of the Working Group on Cephalopod Fisheries and Life History (WGCEPH), 6–9 June 2017, Funchal, Madeira, Portugal
[9] Regional Decree 424/199 https://www.xunta.gal/dog/Publicados/1994/19940120/AnuncioEB2_es.html
[10] https://www.marlin.ac.uk/species/detail/1098
[11] http://www.fao.org/fishery/species/2711/en

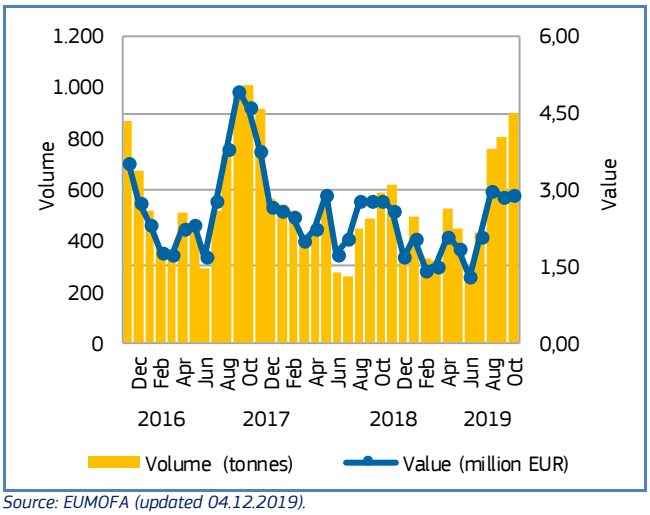
Selected countries

In **France** in January–October 2019, first sales of common cuttlefish decreased by 13% in value but increased 16% in volume compared to the same period in 2018. Compared with January–October 2017, first-sales value and volume were lower by 25% and 8%, respectively.

Of cephalopod species sold at first-sales stage in October 2019, common cuttlefish accounted for 41% of total first-sales value and 54% of first-sales volume.

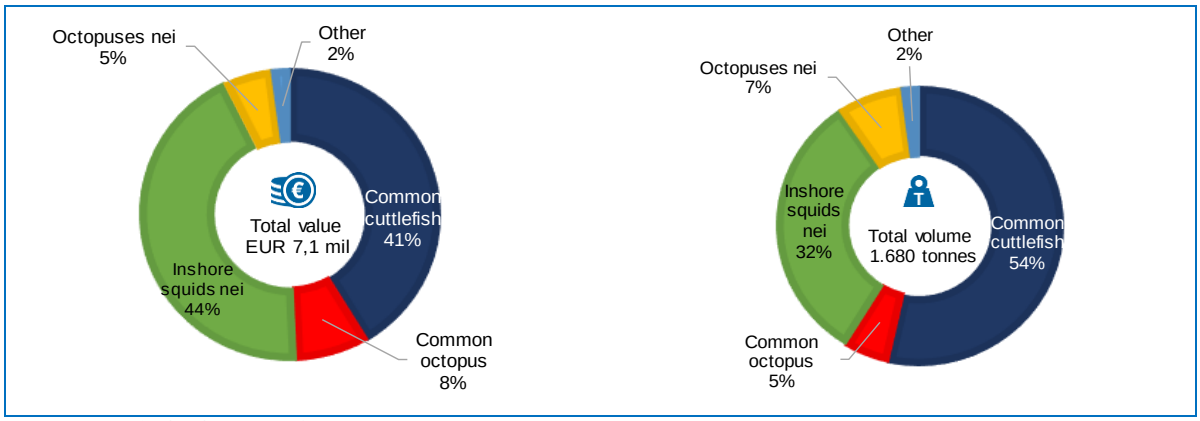
Les Sables-d'Olonne, La Cotinière, and La Turballe on the Bay of Biscay, and Boulogne-sur-Mer in the North Sea, are the ports with the highest sales occurred in January–October 2019.

Figure 18. **COMMON CUTTLEFISH: FIRST SALES IN FRANCE**



Source: EUMOFA (updated 04.12.2019).

Figure 19. **FIRST SALES: COMPARISON OF CEPHALOPODS (ERS) IN FRANCE, VALUE AND VOLUME, OCTOBER 2019**[12]



Source: EUMOFA (updated 04.12.2019).

[12] Nei - not elsewhere included.

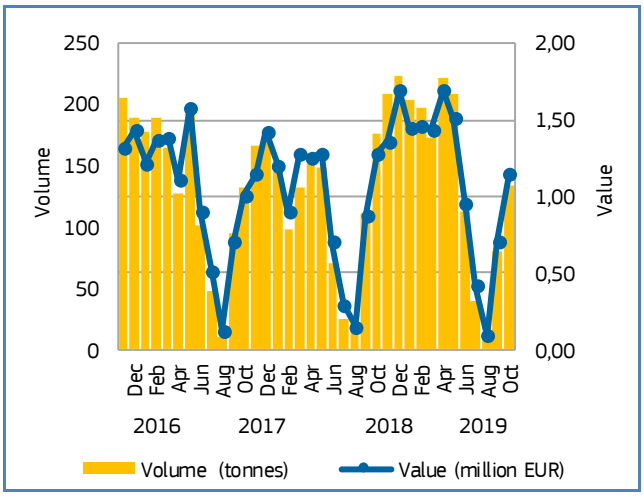
In **Italy** in January–October 2019, first sales of common cuttlefish increased by 18% in value and 28% in volume relative to January–October 2018. Compared with the same period in 2017, value and volume increased by 10% and 11%, respectively. It should be noted that only 24% of cuttlefish landings were sold on the first-sales level in 2017.

In general, the high fishery season is in winter (November–December) and spring (April–May), when cuttlefish moves to coastal shallow water to breed. The low fishery season is during summer, when sea gets warm, and it usually moves into deeper sea.

Of cephalopod species sold in October 2019, common cuttlefish accounted for 29% of total first-sales value and 26% of total first-sales volume.

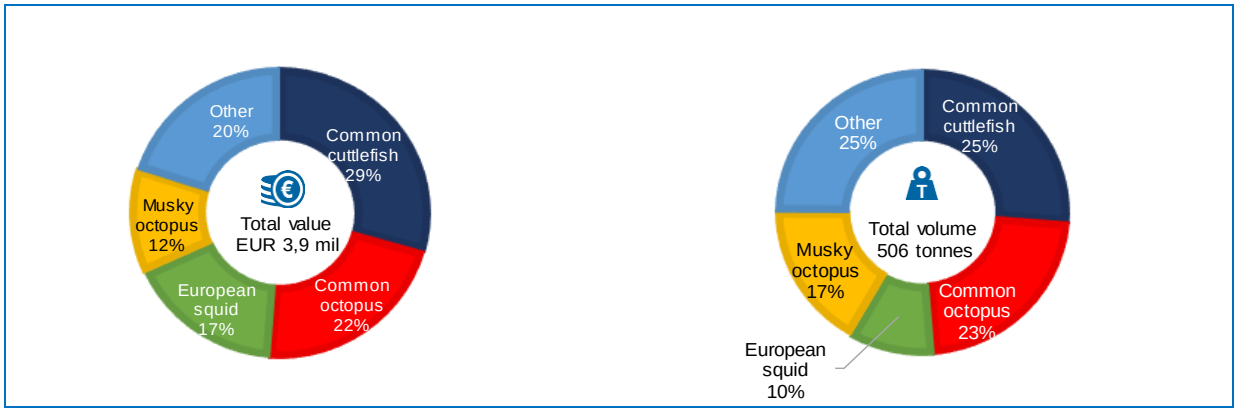
The ports of Chioggia, Cesenatico, Rimini, and Ancona in the Adriatic Sea are responsible for over 40% of the total first-sales value that occurred during January–October 2019.

Figure 20. **COMMON CUTTLEFISH: FIRST SALES IN ITALY**



Source: EUMOFA (updated 04.12.2019).

Figure 21. **FIRST SALES: COMPARISON OF CEPHALOPODS (ERS) IN ITALY, VALUE AND VOLUME, OCTOBER 2019**



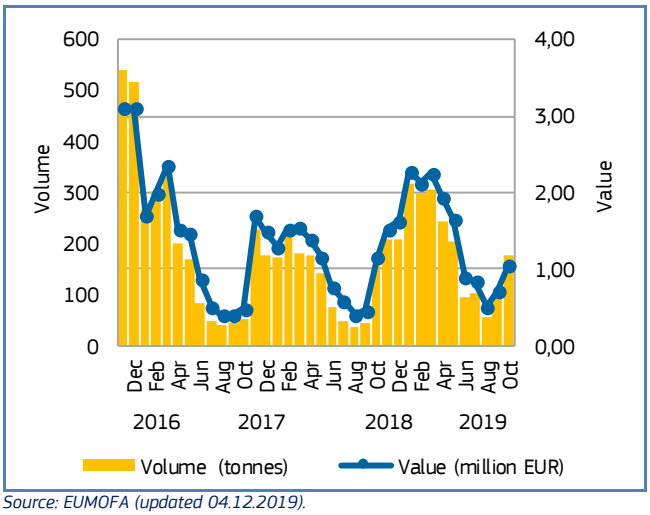
Source: EUMOFA (updated 04.12.2019).

In **Spain** in January–October 2019, first sales of common cuttlefish increased up by 39% in value and 52% in volume compared to the same period in 2018. Compared with January–October 2017, first-sales value and volume were higher by 22% and 23%, respectively.

Of cephalopod species sold at first-sales stage in October 2019, common cuttlefish accounted for 14% of total first sales in both value and volume

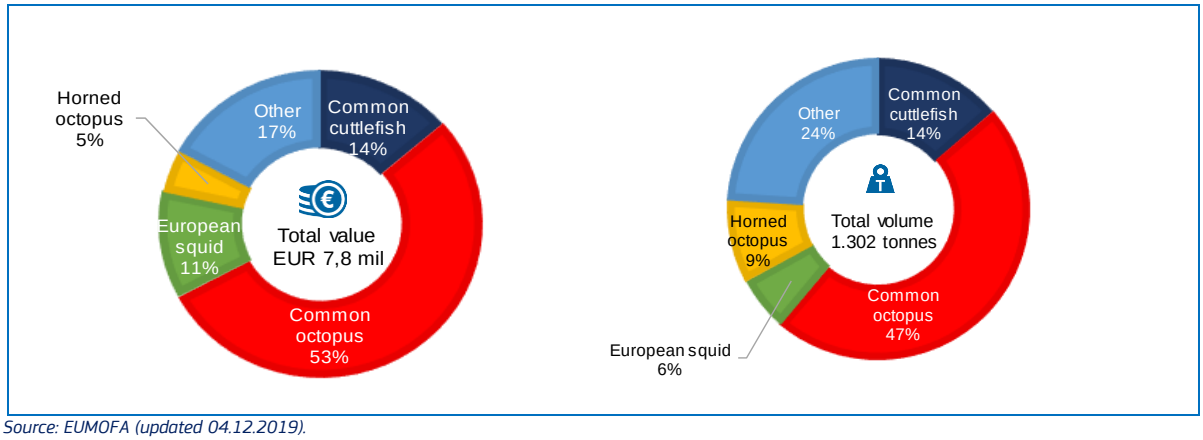
Isla Cristina, Sanlúcar de Barrameda, and Cambados, on the Bay of Biscay are the ports with the highest first-sales value in January–October 2019.

Figure 22. **COMMON CUTTLEFISH: FIRST SALES IN SPAIN**



Source: EUMOFA (updated 04.12.2019).

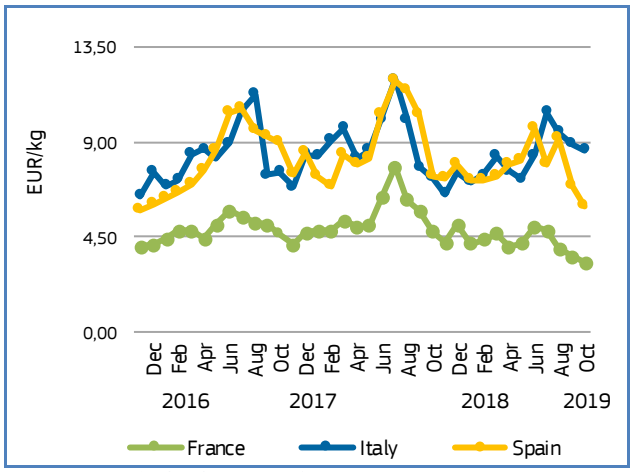
Figure 23. **FIRST SALES: COMPARISON OF CEPHALOPODS (ERS) IN SPAIN, VALUE AND VOLUME, OCTOBER 2019**



Source: EUMOFA (updated 04.12.2019).

Price trend

Figure 24. **COMMON CUTTLEFISH: FIRST-SALES PRICE IN SELECTED COUNTRIES**



Source: EUMOFA (updated 04.12.2019).

In the observed 36-month period (November 2016–October 2019), the average first-sales price of common cuttlefish in Italy (8,42 EUR/kg), was 75% higher than the price in France (4,81 EUR/kg), and 3% greater than the price in Spain (8,20 EUR/kg).

In **France** in October 2019, the average first-sales price of common cuttlefish (3,26 EUR/kg) decreased by 32% compared to October 2018, and by 29% compared to the same month in 2017. During the past 36 months, the lowest price was recorded in October 2019 (at 3,26 EUR/kg for 898 tonnes), while the highest price (7,82 EUR/kg for 260 tonnes) was recorded in July 2018 when typically supply is lowest.

In **Italy**, the average price of common cuttlefish was 8,61 EUR/kg in October 2019, 18% higher than the price in October 2018, and 14% higher than the price in October 2017. Prices reached a peak in July 2018 when 25 tonnes were sold at the average price of 11,97 EUR/kg. The lowest price was recorded in November 2016, at 6,46 EUR/kg for 205 tonnes.

In **Spain** in October 2019, the average first-sales price of common cuttlefish (5,95 EUR/kg) decreased by 19% compared to October 2018, and by 34% compared to the same month in 2017. The lowest price in the observed period was recorded in November 2016 at 5,72 EUR/kg for 541 tonnes, whereas the highest price at 11,87 EUR/kg for 50 tonnes was observed in July 2018.

1.7. Focus on European squid

European squid or common squid (*Loligo vulgaris*) belongs to the family Loliginidae. It lives in coastal waters throughout the Mediterranean Sea and in the eastern Atlantic Ocean from the North Sea to the Gulf of Guinea. The species lives in waters 50-100 m deep but moves to shallower waters to spawn. They become sexually mature within its first year, and their life span is about one year during which they can reach a size of 60 cm and over 2 kg in weight. In the western Mediterranean, European squid spawn throughout the year with peaks occurring in March and April. They feed on bony fish, other cephalopods, worms and crustaceans[13]. European squid grow fast and die early, with growth, migration and spawning highly correlated to water temperature. This means that squid abundance can vary greatly over time[14].

In the Atlantic and Mediterranean, the species is exploited by commercial fisheries, and also caught as bycatch in fisheries targeting various fish species. Bottom trawl nets are one of the main gear types used to catch European squid. It is also caught using beach-seines, gillnets, and trammel nets. In the Mediterranean, near the coasts where the species concentrates during autumn and winter for spawning, small-scale artisanal and sport fishers usually target the species using squid-jigs[15].

There is no specific European squid management at the EU level except a technical measure that sets minimum mesh size at 40mm for direct squid fishing[16].

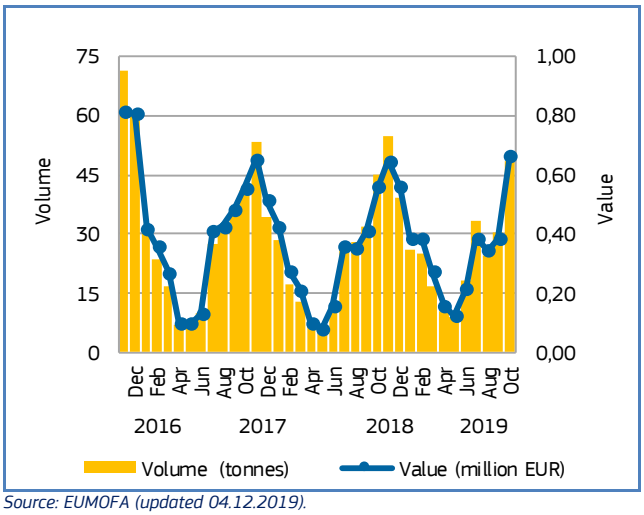
Selected countries

In **Italy** in January–October 2019, first sales of European squid increased by 13% in value and by 14% in volume in comparison to the same period in 2018. Comparing with January–October 2017, first-sales value and volume had slightly increased by 2% and 5%, respectively.

Of cephalopod species sold in October 2019, European squid accounted for 17% of total first-sales value and 10% of volume (cf. figure 21).

Lampedusa, Chioggia, Cagliari, Anzio, Terracina, and Ancona in the Mediterranean Sea are the fishing ports responsible for over 40% of first-sales value from January to October 2019.

Figure 25. **EUROPEAN SQUID: FIRST SALES IN ITALY**



Source: EUMOFA (updated 04.12.2019).

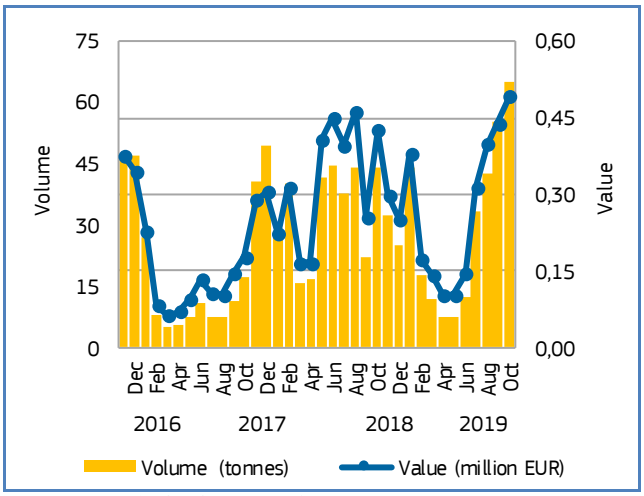
[13] https://www.sealifebase.ca/summary/Loligo-vulgaris.html
[14] http://safinacenter.org/documents/2012/03/squid-european-veined-full-species-report.pdf/
[15] https://www.ices.dk/sites/pub/Publication%20Reports/Cooperative%20Research%20Report%20(CRR)/CRR303.pdf
[16] REGULATION (EU) 2019/1241 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R1241&from=EN

In **Portugal** in January–October 2019, first sales of European squid decreased by 18% in value and by 11% in volume compared to the same period in 2018. Compared with January–October 2017, first-sales value and volume more than doubled, with increases of 123% in value and 176% in volume, respectively.

Of cephalopod species sold in October 2019, European squid covered 19% of total first-sales value and 16% of volume.

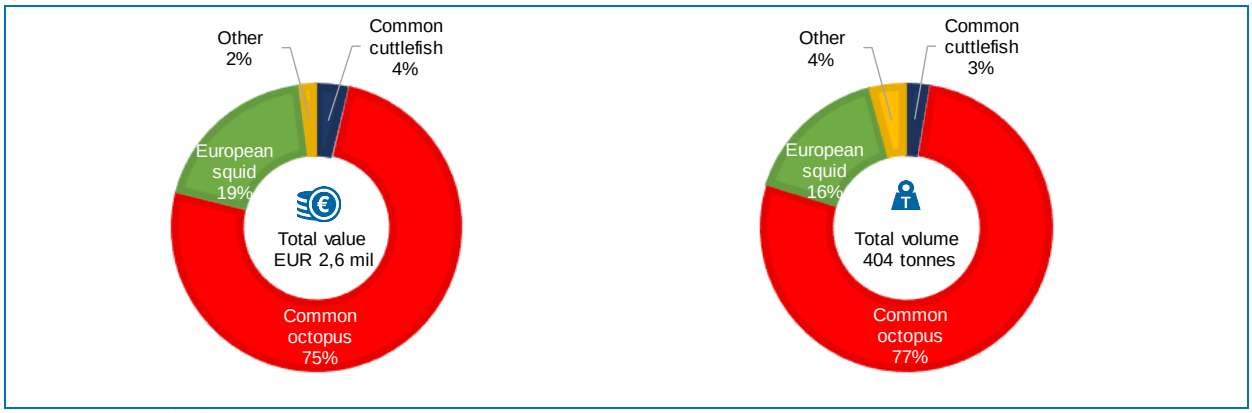
Aveiro, Nazaré, and Figueira da Foz are the fishing ports where 76% of first-sales value were registered from January to October 2019.

Figure 26. **EUROPEAN SQUID: FIRST SALES IN PORTUGAL**



Source: EUMOFA (updated 04.12.2019).

Figure 27. **FIRST SALES: COMPARISON OF CEPHALOPODS (ERS) IN PORTUGAL, VALUE AND VOLUME, OCTOBER 2019**



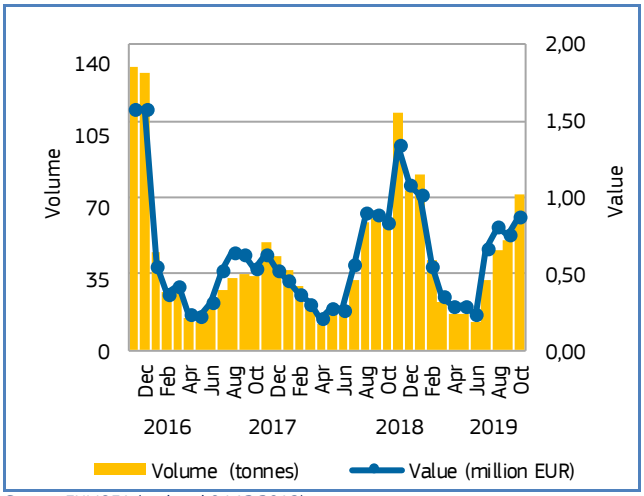
Source: EUMOFA (updated 04.12.2019).

In **Spain** in January–October 2019, first sales of European squid increased by 15% in value and 13% in volume in comparison to January–October 2018. Compared with the same period in 2017, first-sales value increased by 31%, while volume grew by 40%.

Of cephalopod species sold in October 2019, European squid comprised 11% of total first-sales value and 6% of volume (cf. figure 23).

Palma de Mallorca, Vigo, and Pasajes were the fishing ports with the highest first sales activities during the first 10 months of 2019.

Figure 28. **EUROPEAN SQUID: FIRST SALES IN SPAIN**



Source: EUMOFA (updated 04.12.2019).

Price trends

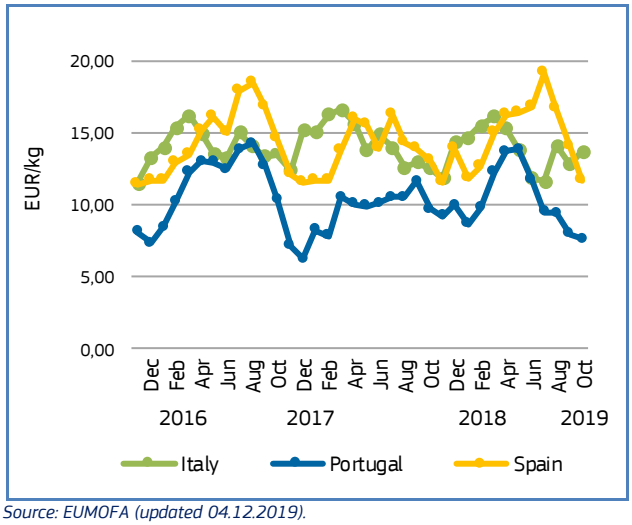
Over the past 36 months (November 2016–October 2019), the highest average price of European squid among the selected countries was recorded in Spain (14,24 EUR/kg), 2% greater than in Italy (14,00 EUR/kg), and 38% greater than the average price in Portugal (10,29 EUR/kg).

In **Italy** in October 2019, the price at 13,65 EUR/kg was 9% greater than October 2018, and 2% greater than October 2017. The highest price was observed in March 2018 at 16,60 EUR/kg for 13 tonnes, whereas the lowest was recorded in November 2016 at 11,43 EUR/kg for 71 tonnes. Peak season for the European squid fishery is in November–December when sea temperature cools down and squid moves to shallow waters.

In **Portugal** in October 2019, the average price of European squid was 7,55 EUR/kg, representing a decrease of 22% compared to October 2018, and an even greater decline of 27% compared to October 2017. The highest price was recorded in August 2017 at 14,21 EUR/kg for 7 tonnes, whereas the lowest was in December 2017 at 6,18 EUR/kg for 49 tonnes. In the observed period, price fluctuated in line with supply.

In **Spain**, the average price of European squid in October 2019 was 11,58 EUR/kg, 11% lower than the price in October 2018, and 21% down from the price in October 2017. Over the past 36 months, first-sales prices were highest in the summer when squid supply is low, with a peak in July 2019 at 19,15 EUR/kg for 35 tonnes. The lowest price at 11,38 EUR/kg for 139 tonnes was observed in November 2016, when the squid fishery is in its full capacity.

Figure 29. **EUROPEAN SQUID: FIRST-SALES PRICE IN SELECTED COUNTRIES**



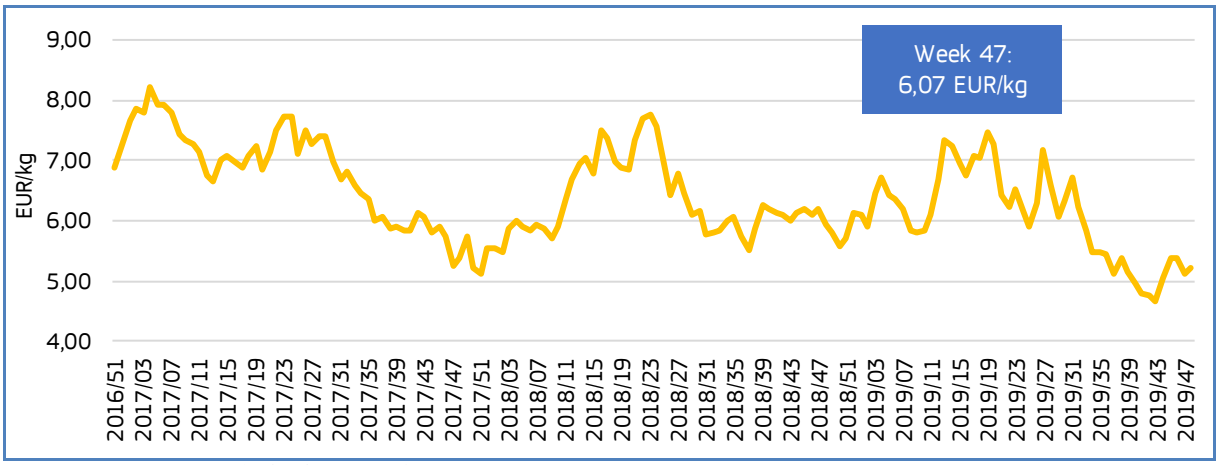
Source: EUMOFA (updated 04.12.2019).

2. Extra-EU imports

Each month, weekly extra-EU import prices (average values per week, in EUR per kg) are examined for nine species. Every month, the three species that are the most relevant in terms of value and volume are examined: fresh whole Atlantic salmon from Norway, frozen Alaska pollock fillets from China, and frozen tropical shrimp (genus Penaeus*) from Ecuador. The other six species change every month: three are from the commodity group of the month (in this issue, cephalopods). This month, the featured commodity species are fresh or chilled cuttlefish from Tunisia, frozen octopus from Morocco and frozen squid from the Falkland Islands. The remaining three species are randomly selected and, this month, include prepared shrimp and prawns from Vietnam, frozen herring from Norway, and frozen cape and deep-water hake from Namibia.*

The price of **fresh, whole Atlantic salmon** (*Salmo salar*, CN code 03021400) imported from **Norway** reached 6,07 EUR/kg in **week 47** (commencing 18th November). It increased 13% from the preceding four-week average (5,36 EUR/kg), and was 9% up from the previous year (5,59 EUR/kg). The price for fresh, whole Atlantic salmon was 6% higher than the previous week 46, corresponding to a 2% decrease in volume. Imports in week 47 totalled 14.188 tonnes, a slight decrease (–1%) from the average over the previous four weeks, and down by 6% from the previous year.

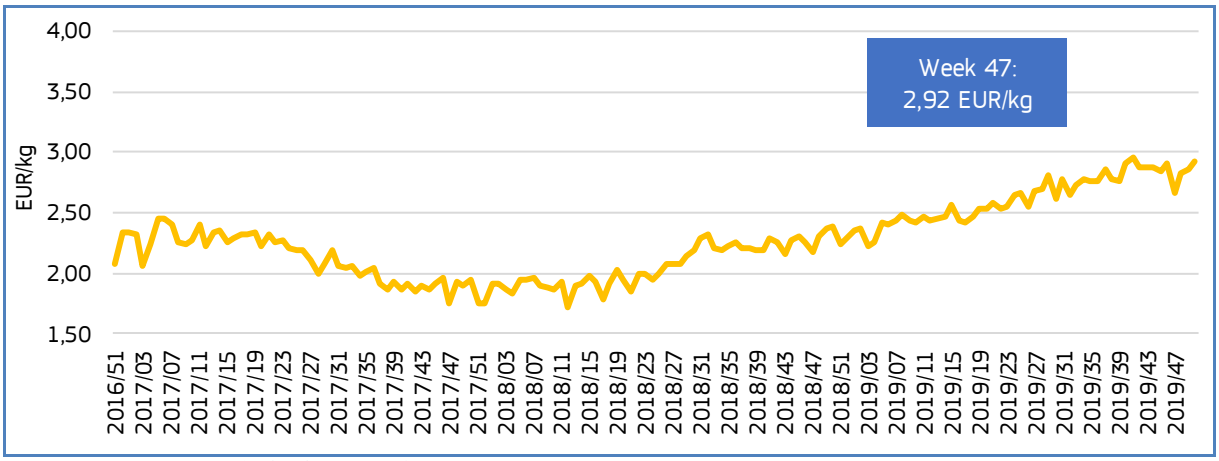
Figure 30. **IMPORT PRICE OF ATLANTIC SALMON, FRESH AND WHOLE FROM NORWAY**



Source: European Commission (updated 09.12.2019).

For **frozen fillets** of **Alaska pollock** (*Theragra chalcogramma*, CN code 03047500) imported from **China**, the price in **week 47** was 2,92 EUR/kg, 4% higher than the preceding four-week average (2,82 EUR/kg), and 23% higher than the same week in 2018 (2,38 EUR/kg). Volume totalled 2.754 tonnes, which was lower than the average of the previous four weeks, and lower than the same week in 2018 (-18% and -16%, respectively). The price has showed an upward trend over the past two years.

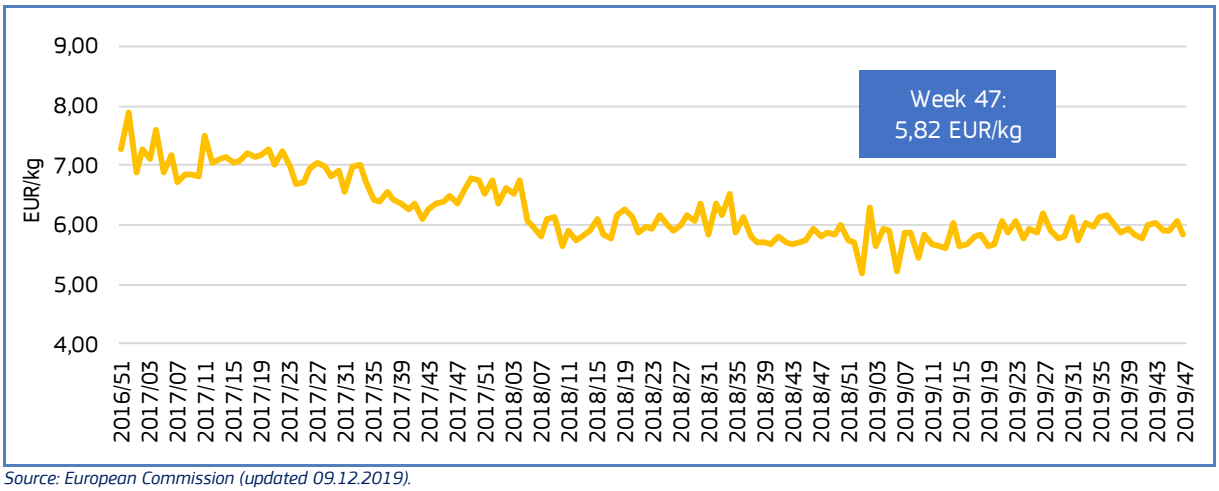
Figure 31. **IMPORT PRICE OF ALASKA POLLOCK, FROZEN FILLETS FROM CHINA**



Source: European Commission (updated 09.12.2019).

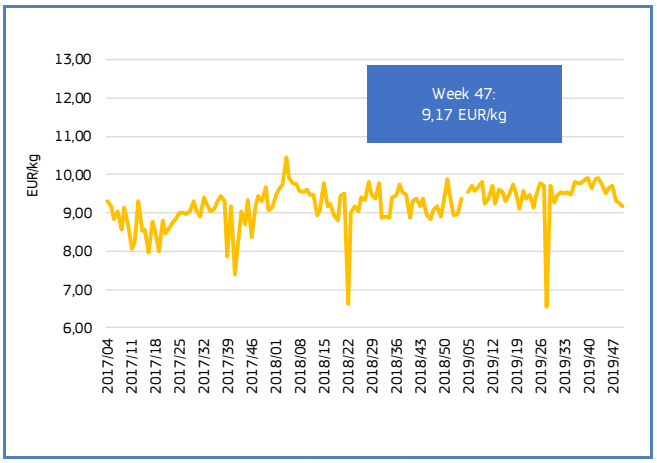
The price of **frozen tropical shrimp** (genus *Penaeus*, CN code 03061792) from **Ecuador** was 5,82 EUR/kg in **week 47**, 2% lower than the average over the preceding four weeks (5,97 EUR/kg), and almost unchanged from the same week in 2018 (5,80 EUR/kg). The volume in week 47 (2.157 tonnes) was 1% lower than the previous four-week average, but significantly lower (–35%) than the same week in 2018. This product has experienced high fluctuations in supply this year and, at the same time, price has increased.

Figure 32. **IMPORT PRICE OF FROZEN TROPICAL SHRIMP FROM ECUADOR**



Source: European Commission (updated 09.12.2019).

Figure 33. **IMPORT PRICE OF LIVE, FRESH OR CHILLED CUTTLEFISH FROM TUNISIA**

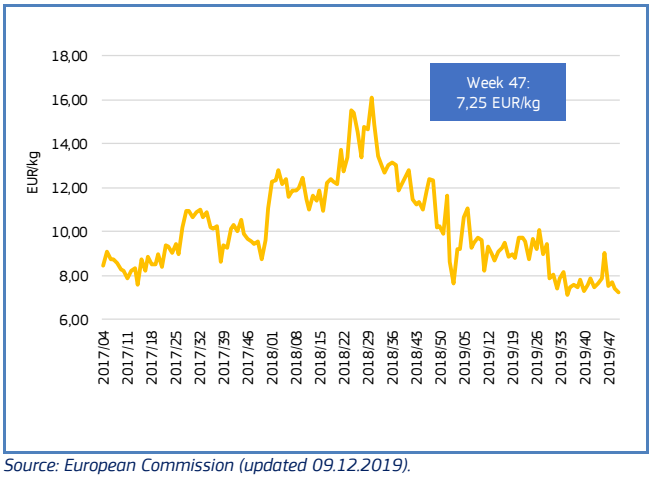


Source: European Commission (updated 09.12.2019).

The price of **live**, **fresh** or **chilled cuttlefish** (*Sepia officinalis, Rossia macrosoma, Sepiola* spp., CN code 03074210) imported from **Tunisia**, was 9,17 EUR/kg in **week 47**. This is 3% lower than the preceding four-week average (9,48 EUR/kg), and slightly lower (–1%) than the same week in 2018 (9,27 EUR/kg). The volume recorded in week 47 (6,9 tonnes) was significantly higher than the preceding four-week average (+28%), and up 11% from the same week in 2018. Prices are not necessarily connected with supply. For example, the lowest prices recorded were in week 19 of 2018 (6,62 EUR/kg) and week 25 of 2019 (6,53 EUR/kg). However, they do not correspond to highest volumes which were recorded in week 51 of 2017 and week 51 of 2018 (13,2 and 10,6 tonnes, respectively). The prices corresponding to the highest volumes were 9,60 EUR/kg and 8,98 EUR/kg. In 2019 price remained stable, while volume decreased slightly.

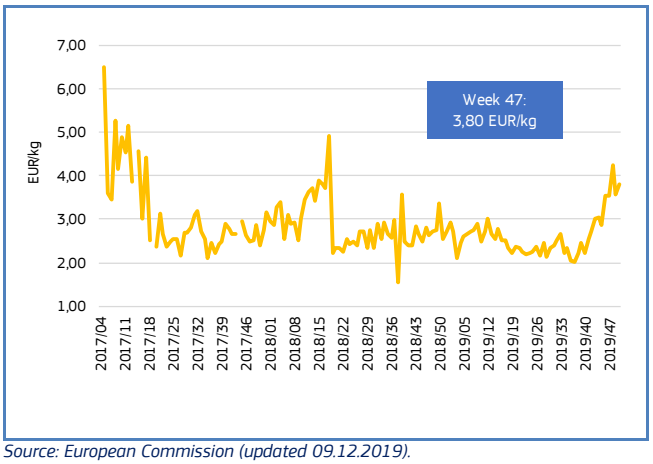
The price of **frozen octopus** (*Octopus spp.,* CN code 03075200) from **Morocco** was 7,25 EUR/kg in **week 47**, down 8% from the four-week average of 2019 (7,91 EUR/kg) and 29% lower than the price of week 47 of previous year. Prices oscillate from 7,00 to 16,00 EUR/kg and both price and volume have decreased in the period observed (2017/1–2019/47). Prices do not correlate directly with supply, which is highly variable. For example, the peak of 16,10 EUR/kg in week 27 of 2018 does not correspond to the lowest supply (18 tonnes in week 51 of that year). However, the period of highest supply corresponds to relatively low prices for the product. For example, the price of 8,30 EUR/kg (which is close to the 2019 average) was registered for the highest supply of 2.099 tonnes (2017/10). Italy and Spain are the biggest importers of frozen octopus from Morocco.

Figure 34. **IMPORT PRICE OF FROZEN OCTOPUS FROM MOROCCO**



Source: European Commission (updated 09.12.2019).

Figure 35. **FROZEN SQUID FROM THE FALKLAND ISLANDS**

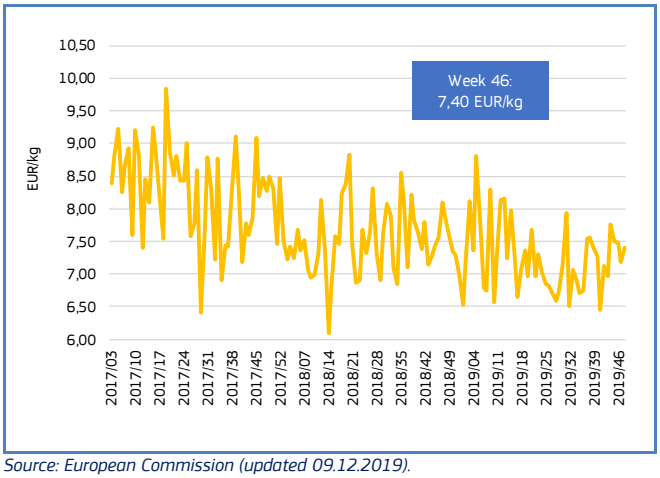


Source: European Commission (updated 09.12.2019).

For **frozen squid** *(Loligo gahi,* CN code 03074335) from the **Falkland Islands**, the price in **week 47** (3,80 EUR/kg) was 2% up from the preceding four-week average (3,72 EUR/kg), and 12% higher than the previous year (3,38 EUR/kg). Squid fisheries in the Falkland Islands are highly seasonal, and supply is at its highest from May to June, and October to November. Prices have increased in the period observed (2017/02–2019/47), and volume has decreased. The volume of 340 tonnes in week 47 was significantly lower than both the four-week average (1.838 tonnes, -81%), and the volume a year earlier (841 tonnes, -60%). Spain is the EU's biggest importer.

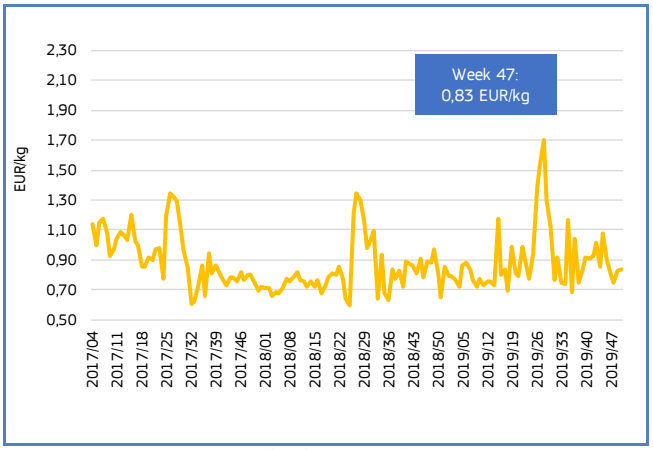
The price of **prepared or preserved shrimp and prawns**, not in airtight containers (CN code 16052110) from **Vietnam** was 7,40 EUR/kg in **week 46**[17], a slight decrease (–1%) from the previous four-week average of 7,49 EUR/kg and 6% down from the price in the same week of 2018. The recorded volume of 290 tonnes was significantly higher from both the preceding four weeks (+41%), and a year earlier (+74%). However, whilst prices have decreased slightly in the observed period (2017/48–2019/46), volume has increased. Volume exhibits high fluctuations from week to week and the price peaks are generally not corelated with high import volumes. Belgium, Ireland, the Netherlands and the UK are top importers.

Figure 36. **IMPORT PRICE OF PREPARED OR PRESERVED SHRIMP AND PRAWNS FROM VIETNAM**



Source: European Commission (updated 09.12.2019).

Figure 37. **IMPORT PRICE OF FROZEN HERRING FROM NORWAY**



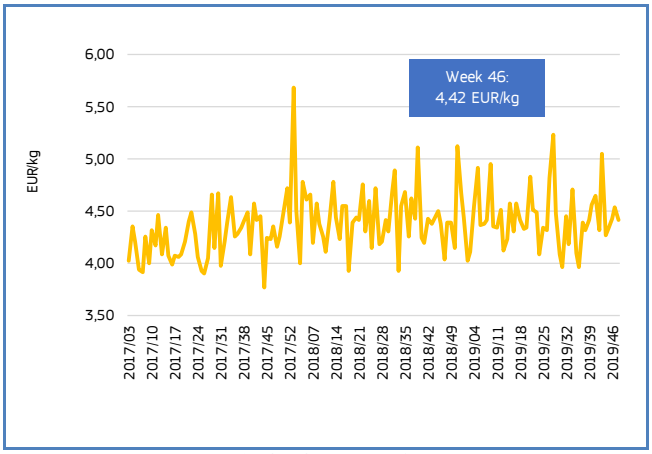
Source: European Commission (updated 09.12.2019).

The price of **frozen herring** (CN code 03035100) from **Norway** reached 0,83 EUR/kg in **week 47**, which was 2% up from both the preceding four-week average and a year earlier (0,82 EUR/kg). The recorded volume of 312 tonnes in week 47 was 29% lower than the preceding four-week average but 13% higher than in 2018. Prices spike around the same period every year: 1,35 EUR/kg (2017/23); 1,35 EUR/kg (2018/24) and 1,70 EUR/year (2019/25). They do not correlate with a decrease in supply. Prices experienced a moderate increase in 2019, while volumes showed an opposite trend. Denmark, the Netherlands and Sweden are the EU's top three importers.

[17] The latest data available for this product is week 46.

The price of **frozen fillets** of **cape hake** *(Merluccius capensis)* and **deep-water hake** (*Merluccius paradoxus)*, (CN code 03047411) from **Namibia** was 4,42 EUR/kg in **week 46**[18], which was 1% up from both the previous four-week average, and week 46 of the previous year (4,39 EUR/kg). The recorded volume (1.656 tonnes) was 19% higher than the average over the preceding four weeks, and up 78% from a year earlier. Prices are in the range of 3,00–6,00 EUR/kg and have increased slightly over the observed period. Volume has increased also. The spikes in price (over 5,00 EUR/kg) correspond to sudden drops of supply. Spain is the EU's biggest importer.

Figure 38. **IMPORT PRICE OF FROZEN FILLETS OF CAPE HAKE AND DEEP-WATER HAKE FROM NAMIBIA**



Source: European Commission (updated 09.12.2019).

[18] See footnote 17.

3. Consumption

3.1. HOUSEHOLD CONSUMPTION IN THE EU

In October 2019, the consumption of fresh fisheries and aquaculture products increased in both volume and value in Hungary, Italy, the Netherlands, Portugal, and Spain, whereas it decreased in Ireland, Poland, and Sweden. In France and Germany, volume decreased while value increased. The UK showed a minor variation in the observed period.
The decrease seen in France was mainly due to lower consumption of cod and gilthead seabream (-21% and -23%, respectively). The reduced consumption of mussels *Mytilus* spp., (-36%) was the main reason for the decrease in the volume of seafood consumed in Germany.
A rise in European seabass consumption (46% in volume and 31% in value) as well as a rise in salmon and octopus, contributed to the overall increase in consumption in Portugal: a 37% increase in volume, and 39% increase in value.

Table 3. **OCTOBER OVERVIEW OF THE REPORTING COUNTRIES (volume in tonnes and value in million EUR)**

Country	Per capita consumption 2017* (live weight equivalent, LWE) kg/capita/year	October 2017		October 2018		September 2019		October 2019		Change from October 2018 to October 2019	
		Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
France	33,7	19.677	204,34	19.265	202,62	16.773	184,73	18.165	205,07	6%	1%
Germany	13,4	5.270	65,03	5.120	66,28	4.115	58,15	5.070	72,66	1%	10%
Hungary	5,6	209	1,26	318	1,73	326	1,70	361	1,89	14%	9%
Ireland	23,0	902	12,62	933	13,54	1.104	16,70	914	13,19	2%	3%
Italy	30,9	24.609	250,95	25.357	255,73	30.052	301,50	26.238	280,64	3%	10%
Netherlands	21,1	2.250	31,59	2.460	33,81	3.680	52,21	2.641	37,20	7%	10%
Poland	15,0	4.086	22,36	4.209	24,58	3.228	20,83	3.762	24.27	11%	1%
Portugal	56,8	4.070	26,54	4.168	26,33	4.638	29,95	5.709	36,53	37%	39%
Spain	45,6	51.594	378,02	50.896	384,22	46.973	368,98	51.663	402,79	2%	5%
Sweden	26,6	887	12,19	1.174	14,52	685	9,21	1.116	14,17	5%	2%
UK	22,9	3.037	49,23	3.423	54,56	3.827	58,53	3.442	54,49	1%	0%

Source: EUMOFA, based on Europanel (updated 09.12.2019).
**Data on per capita consumption of all fish and seafood products for all EU Member States can be found at: https://eumofa.eu/documents/20178/157549/EN_The+EU+fish+market_2019.pdf*

For the past three years, household consumption of fresh fisheries and aquaculture products in the month of October has been below the annual average in both volume and value in Germany, Hungary, Ireland, Italy and the UK. In contrast, in France, Portugal, Spain and Sweden the opposite was observed. The Netherlands was the only Member State where volume was above but value below the annual average in this month. In Poland, volume was below the average, but value remained unchanged.

The most recent weekly consumption data **(up to week 1 of 2020)** is available on the EUMOFA website, and can be accessed **here**.

3.2. Fresh plaice

Habitat: Plaice are a flatfish species living on both muddy and sandy seabeds at depths of a few meters to about 100 m[19].
Catch area: Plaice are caught in the south of the Bay of Biscay, throughout the English Channel, North Sea, and Irish Sea, the Baltic, and along the Norwegian coast to the Barents Sea[20].
Producing countries in the EU: Denmark, Belgium, the UK, France and Germany.
Production method: Caught.
Main consumers in the EU: the UK, Denmark, the Netherlands and Germany[21].
Presentation: Whole or filleted.
Preservation: Fresh or frozen.
Means of preparation: Grilled, shallow fried or baked.

3.2.1. General overview of household consumption in Germany, the Netherlands and the UK

In 2017, per capita apparent consumption of all fisheries and aquaculture products was 13,4 kg in Germany, amongst the lowest in the EU. It decreased by 5% compared to the previous year. German apparent consumption was 45% lower than the EU average apparent consumption per capita (24,3 kg) [22].

In the Netherlands, per capita apparent consumption was 21,1 kg, which was 57% higher than that of Germany, but 13% lower than the EU average. Compared to 2016, apparent consumption increased slightly (by 0,5%).

Per capita apparent consumption in the UK in 2017 was 22,9 kg, just 9% higher than that of the Netherlands. However, it decreased by 2,1% compared to 2016. The UK's consumption was 60% lower than Portugal, which had the highest per capita consumption in the EU at 56,8 kg. See more on per capita apparent consumption in the EU in Table 3.

In these three Member States, household consumption of fresh plaice decreased over the period January 2016–October 2019. This could be partly due to lower supply of the species during the period. However, consumption in Germany was more than double compared to the Netherlands. On average, prices were the lowest in the Netherlands (12,46 EUR/kg), while in the UK, they were 16% higher. In Germany, prices were the highest (15,49 EUR/kg).

We have covered **plaice** in previous *Monthly Highlights*:

First sales: Belgium (2/2016, 6/2014, January 2013), Denmark (11/2018, 8/2015, June 2013), the Netherlands (11/2018), Sweden (6/2016), the UK (11/2018).

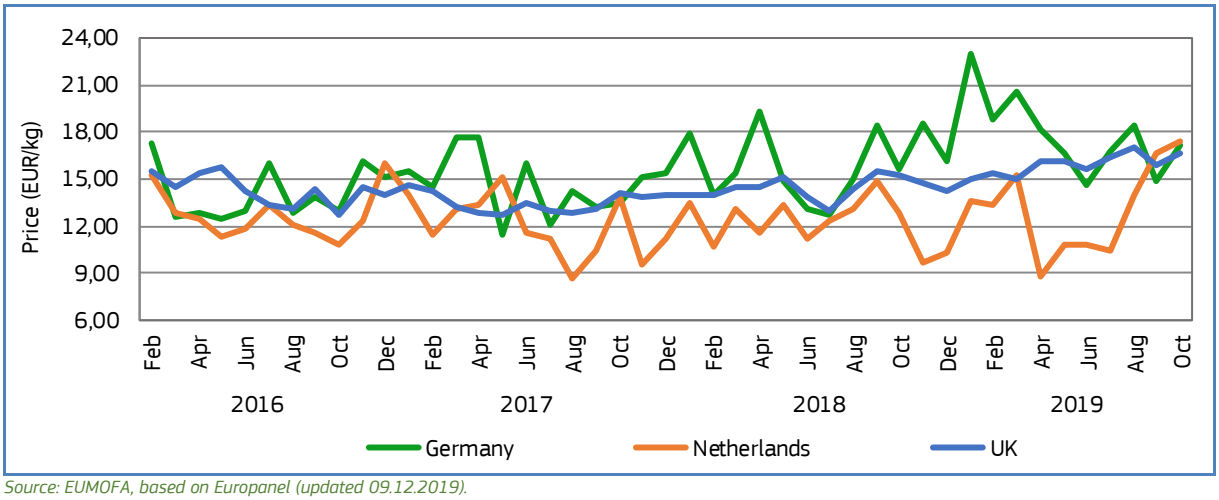
Consumption: Germany (11/2017, 2/2016), the Netherlands (2/2016, 5/2015), Sweden (2/2016, 5/2015), the UK (11/2017, 2/2016, 5/2015).

Extra-EU Import: Iceland (4/2019, 11/2018, 3/2018).

Topic of the month: Plaice in the Netherlands (8/2016, 3/2015).

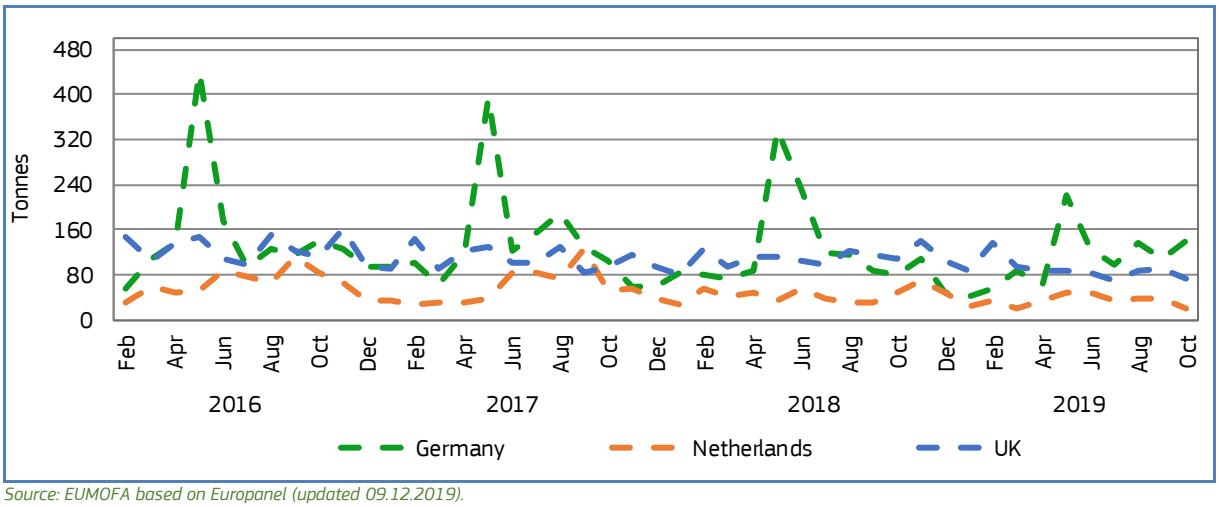
[19] http://www.fao.org/fishery/species/3354/en
[20] http://www.fao.org/fishery/species/3435/en
[21] EUMOFA.
[22] 2017 is the most recent year that data are available.

Figure 39. **RETAIL PRICES OF FRESH PLAICE PURCHASED BY HOUSEHOLDS**



Source: EUMOFA, based on Europanel (updated 09.12.2019).

Figure 40. **HOUSEHOLD PURCHASES OF FRESH PLAICE**

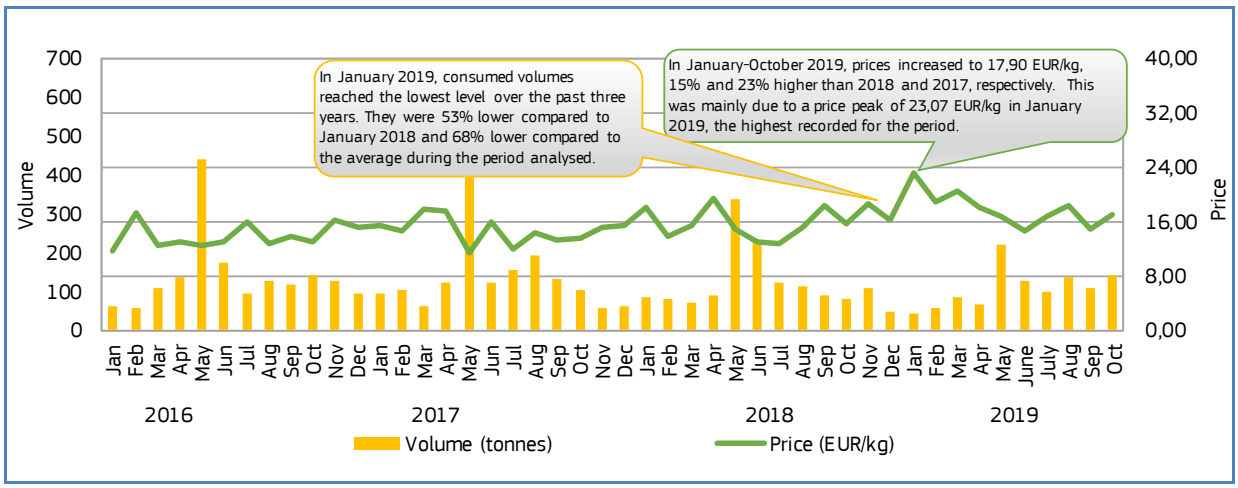


Source: EUMOFA based on Europanel (updated 09.12.2019).

3.2.2. Consumption trends in Germany

Long-term trend (January 2016 to October 2019): Decreasing in volume and increasing in price.
Yearly average price: 13,89 EUR/kg (2016), 14,67 EUR/kg (2017), 15,91 EUR/kg (2018).
Yearly consumption: 1.672 tonnes (2016), 1.593 tonnes (2017), 1.453 tonnes (2018).
Short-term trend (January 2019 to October 2019): Increasing in volume and decreasing slightly in price.
Average price: 17,90 EUR/kg.

Figure 41. **RETAIL PRICE AND VOLUME OF FRESH PLAICE PURCHASED BY HOUSEHOLDS IN GERMANY**

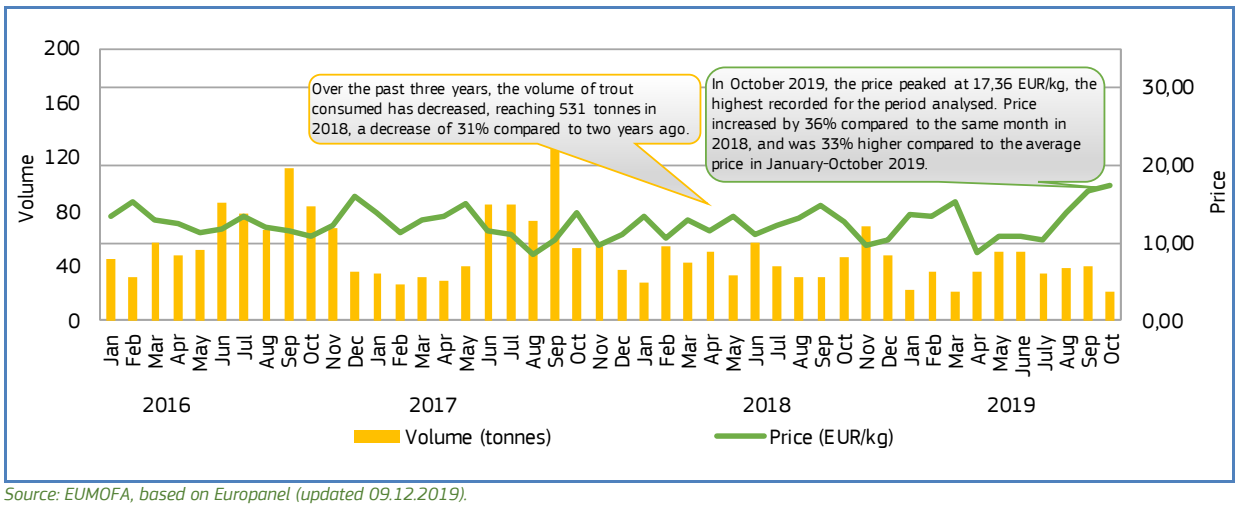


Source: EUMOFA, based on Europanel (updated 09.12.2019).

3.2.3. Consumption trends in the Netherlands

Long-term trend (January 2016 to October 2019): Decreasing in both volume and price.
Yearly average price: 12,75 EUR/kg (2016), 11,93 EUR/kg (2017), 12,19 EUR/kg (2018).
Yearly consumption: 765 tonnes (2016), 677 tonnes (2017), 531 tonnes (2018).
Short-term trend (January 2019 to October 2019): Decreasing in volume and increasing slightly in price.
Average price: 13,09 EUR/kg.

Figure 42. **RETAIL PRICE AND VOLUME OF FRESH PLAICE PURCHASED BY HOUSEHOLDS IN THE NETHERLANDS**

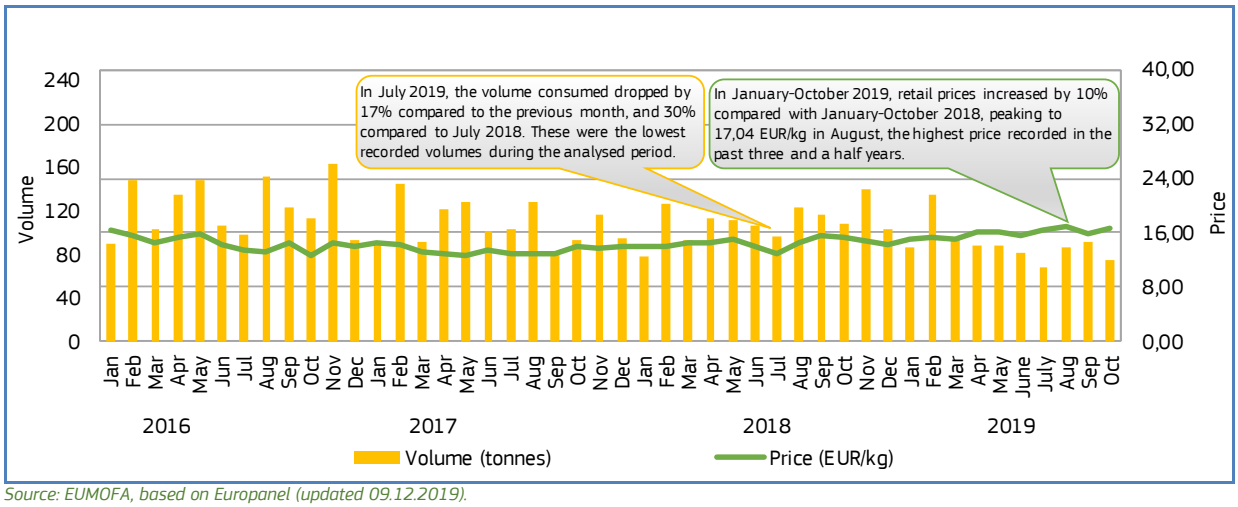


Source: EUMOFA, based on Europanel (updated 09.12.2019).

3.2.4. Consumption trends in the UK

Long-term trend (January 2016 to October 2019): Decreasing in volume and increasing slightly in price.
Yearly average price: 14,48 EUR/kg (2016), 13,48 EUR/kg (2017), 14,43 EUR/kg (2018).
Yearly consumption: 1.478 tonnes (2016), 1.298 tonnes (2017), 1.319 tonnes (2018).
Short-term trend (January 2019 to October 2019): Decreasing in volume and increasing slightly in price.
Average price: 15,92 EUR/kg.

Figure 43. **RETAIL PRICE AND VOLUME OF FRESH PLAICE PURCHASED BY HOUSEHOLDS IN THE UK**



Source: EUMOFA, based on Europanel (updated 09.12.2019).

4. Case study – Fisheries and aquaculture by-products[23]

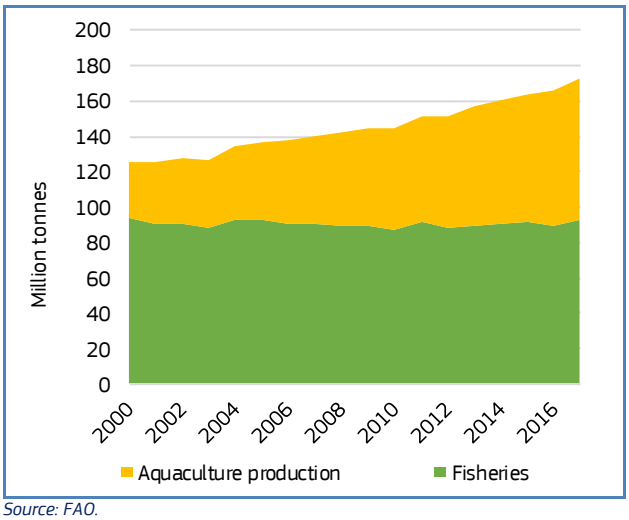
4.1. Global by-product utilisation

Processing fish and shellfish for human consumption creates by-products including heads, viscera, frames, skins, tails, fins, mince, and blood. The fillet yield highly depends on species, but it is often in the range of 30–50%, so by-products may constitute up to 70% of the total weight of fish. The waste from the main processing activity is currently mainly used in the production of fishmeal and fish oil, but some also goes to waste.

By-products are generally underutilised, with an estimated 12 million tonnes of seafood processing by-products not used for any purposes. Underutilisation varies globally, and Asia, with the largest volumes of processed fish, has the largest potential for better utilisation.

By-products are often turned into fishmeal and fish oil, but they can also be used for a wider range of purposes. Heads, skins, and fillet cuts can be directly used as food, or processed into sausages, snacks, sauces, and other products for human consumption. By-products can be of relatively low value – such as those used to feed farmed animals – or extremely high value products that are used for dietetic products (chitosan), pharmaceutical products, cosmetics or functional foods.

Figure 44. **WORLD FISHERIES AND AQUACULTURE PRODUCTION**



Source: FAO.

Global fisheries have produced relatively stable volumes since the late 1980s. From 2000 to 2017, the average yearly catch volume was 90,5 million tonnes, reaching 92 million tonnes[24] in 2017. Of this, between 15–20 million tonnes are used directly by the fishmeal and fish oil industry or as food for animals. The remaining 70–75 million tonnes are destined for human consumption, creating by-products when processed.

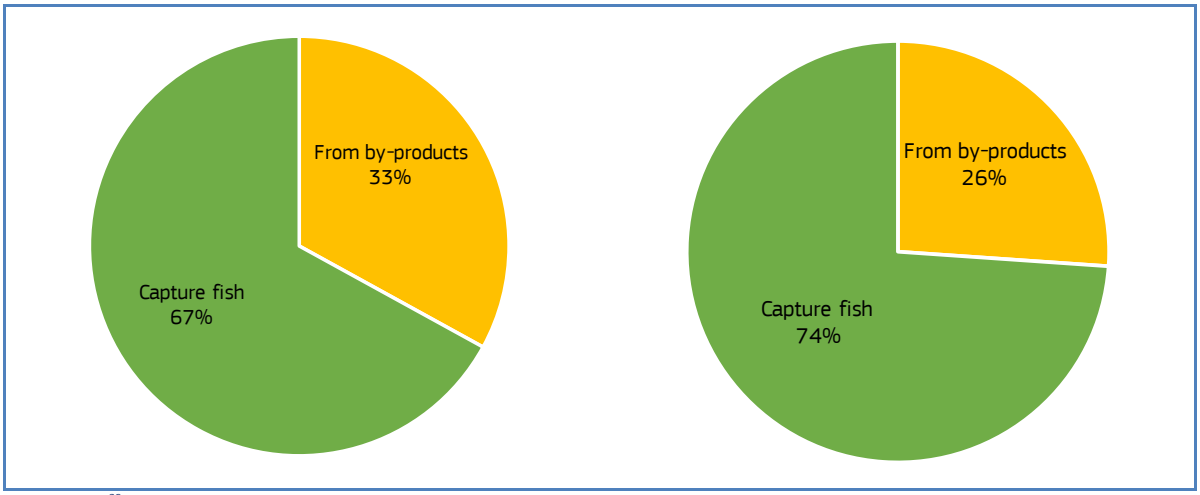
Aquaculture is growing globally, and FAO estimates predict it to be the fastest growing food production sector. Aquaculture produced 80 million tonnes in 2017, up by 5% from 2016[25]. Aquaculture production will increase the supply of raw materials used in the production of fishmeal and fish oil. In turn, it is expected to increase the global output of fishmeal by 25% and fish oil by 5–10% over the next 10 years. As there is no expected growth in the raw materials supplied from fisheries for fishmeal and fish oil production, any increase in fishmeal and oil will have to come from through better use of by-products.

In 2016, 33% of fishmeal was made from by-products from fisheries and aquaculture.

An estimated 26% of total global fish oil production comes from seafood processing by-products. The lower proportion of fish oil, compared to fishmeal, made from by-products is mainly due to the large volumes of shrimp production in Asia which does not give any oil.

[23] The Marine Ingredients Organisation (IFFO) - https://www.iffo.net/byproduct - is the main source used for this case study.
[24] FAO.
[25] See footnote 24.

Figure 45. **RAW MATERIAL FOR THE PRODUCTION OF FISHMEAL (LEFT) AND FISH OIL (RIGHT) IN 2016**



Sources: IFFO[26].

4.2. EU fish processing industry

In 2015, about 3.700 EU companies processed fish as their main economic activity. Most (57%) were micro firms with up to 10 employees. Additionally, at least 1.000 firms processed fish as their secondary economic activity. There has been an increase in the number of micro firms, while the number of firms with more than 10 employees decreased in the period 2008–2015.

Fish processing happens across the EU, including in landlocked countries. In 2015, almost 30% of EU fish processing firms were in either Italy or Spain. States with between 200–400 processing companies are France (300), UK (370), Sweden (222), Belgium (259) and Germany (265). In all other EU countries, the number of companies is below 200[27]. In 2015, the amount of full-time employed in the EU fish processing industry was 115.400. Top four countries in terms of employed was the UK (18.780), Spain (18.050), Poland (16.940) and France (15.720).

From 2014 to 2018, the production of the EU fish processing industry was 4,6 million tonnes and EUR 22 billion[28]. The degree of processing varies, from freezing whole fish, to creating processed seafood products ready to cook. The largest product by volume is frozen whole saltwater fish, and in 2018, 567.579 tonnes worth EUR 1,5 billion were processed. The highest value of processed products are fresh or chilled fish fillets and other fish meat without bones, amounting to EUR 3,3 billion for 410.515 tonnes in 2018.

Spain was the largest seafood processer in the EU, processing 916.511 tonnes in 2018, which accounted for 20% of the total volume processed within the EU. Poland, Denmark, the UK, Germany and France are the next largest processing countries, each processing more than 430.000 tonnes a year.

[26] The Marine Ingredients Organisation.
[27] https://op.europa.eu/en/publication-detail/-/publication/a503b2a6-3b0c-11e9-8d04-01aa75ed71a1
[28] EUMOFA based on Eurostat-PRODCOM - http://www.eumofa.eu/reporter?jasperserver-pro/flow.html?_flowId=viewReportFlow&reportUnit=%2FStructured_query%2FBookmark%2Fprocessing_by_member_state&report_name=Yearly%20Comparison%20between%20member%20states&userLocale=en_GB&ms_obj3=EU;EU&time_year=5&_eventId_drillReport=&reportLocale=en_GB&j_username=newlayout&j_password=newlayout

Table 4. **PROCESSING IN THE EU (volume in tonnes)**

Product	2014	2015	2016	2017	2018
Frozen whole saltwater fish	645.657	641.437	639.986	706.277	567.579
Fish fillets in batter or breadcrumbs, including fish fingers (excluding prepared meals and dishes)	380.163	357.674	380.033	396.524	432.371
Fresh or chilled fish fillets and other fish meat without bones	321.580	302.292	317.244	357.729	410.515
Prepared or preserved tuna, skipjack, and Atlantic bonito, whole or in pieces (excluding minced products and prepared meals and dishes)	380.698	415.523	390.087	392.697	407.805
Inedible fish products (including fish waste)	388.591	450.528	346.249	293.078	303.835
Flours, meals and pellets of fish or of crustaceans, molluscs or other aquatic invertebrates, unfit for human consumption	268.477	303.300	247.243	336.327	295.397
Prepared meals, and dishes based on fish, crustaceans and molluscs	233.700	228.569	196.261	283.965	289.554
Prepared or preserved fish (excluding whole or in pieces, and prepared meals and dishes)	293.529	266.773	258.168	247.139	250.296
Frozen fish fillets	208.889	260.972	246.414	248.621	240.294
Prepared or preserved crustaceans, molluscs and other aquatic invertebrates (excluding chilled, frozen, dried, salted or in brine, crustaceans, in shell, cooked by steaming or boiling, and excluding prepared meals and dishes)	216.928	222.199	225.585	223.741	209.679
Prepared or preserved herring, whole or in pieces (excluding minced products, and prepared meals and dishes)	194.989	199.942	195.707	200.930	194.616
Smoked Pacific, Atlantic and Danube salmon (including fillets, excluding heads, tails and maws)	160.638	165.366	172.939	158.591	159.707
Molluscs (scallops, mussels, cuttlefish, squid and octopus), frozen, dried, salted or in brine	169.150	153.279	169.545	172.049	147.717
Fats and oils and their fractions of fish or marine mammals (excluding those that are chemically modified)	94.859	74.707	96.853	102.004	112.956
Frozen crustaceans, frozen flours, meals and pellets of crustaceans, fit for human consumption	87.232	82.857	83.869	87.349	84.514
Smoked fish (excluding herring, Pacific, Atlantic and Danube salmon), including fillets, excluding head, tails and maws	78.578	84.424	93.559	84.992	79.856
Other	525.846	489.636	445.858	438.053	414.097
Total	**4.649.504**	**4.699.478**	**4.505.602**	**4.730.067**	**4.600.790**

Source: EUMOFA based on Eurostat-PRODCOM.

4.3. European by-products utilisation[29]

Of the estimated 20 million tonnes of raw material used for the production of fishmeal and fish oil globally in 2016, around 14 million tonnes came directly from whole fish. An additional 3,75 million tonnes of raw materials were from by-products from wild caught fish, and Europe supplied nearly 1,2 million tonnes of this. A further 1,95 million tonnes of by-products from aquaculture were also used, with Europe supplying around 330.000 tonnes.

Europe ranked as the region with the highest utilisation of by-products for the fishmeal industry, as the European fishmeal industry sources 54% of their raw materials from by-products. Asia (excl. China), and China alone ranked second and third place, sourcing 44% and 35% of their raw materials from by-products, respectively.

It was estimated that around 5,7 million tonnes of by-products were processed into fishmeal and fish oil in 2016, while unused volumes of by-products amounted to 12 million tonnes. Asia is the region with the biggest potential for by-product utilisation because they have an additional 6 million tonnes of unused by-product. According to IFFO, it is estimated that an additional 0,6 million tonnes of by-products from fisheries and aquaculture could be used[30] to produce fishmeal and fish oil in Europe. This is generally trimmings from the herring and mackerel fillet industry and from the white fish processing sector (cod) and also from the processing of aquaculture species.

[29] Focusing on Europe, as there are no data available specifically for the EU.
[30] https://www.seafish.org/media/publications/SeafishFishmealandFishOilFactsandFigures_201612.pdf

By-products can also be used for other purposes than fishmeal and fish oil production. In 2018, EU exports of by-products for human consumption was 36.133 tonnes valued at nearly EUR 126 million, and EU imports of by-products was 20.500 tonnes valued at EUR 139 million.

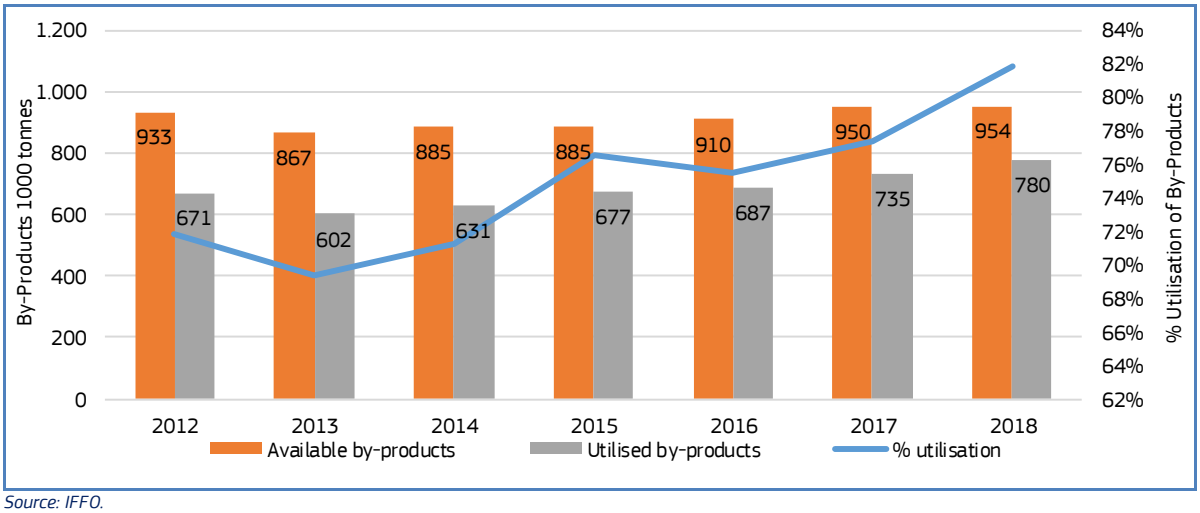
By-products from the Norwegian seafood industry[31]

In Norway, annual volumes of by-products from all parts of the seafood sector (i.e. from both fisheries and aquaculture) has been measured for many years. Most of the volume is from by-products that are utilised, and so the overall utilisation rate increases.

In 2018, around 954.000 tonnes of by-products came from fisheries and aquaculture. Of this by-product, around 82% was utilised, mainly in the feed industry and for consumption purposes.

Due to the growing aquaculture industry in Norway, by-product volumes increased by 13% from 2013 to 2018. In the same period, the utilisation of by-products increased by 30%. The whitefish sector (cod, haddock, saithe) has still a potential for better utilisation, but increased land-based hauling has increased the utilisation rate of these by-products to 60% in 2018, up from 50% in 2017.

Figure 46. **BY-PRODUCTS AND UTILISATION DEVELOPMENT IN NORWAY (volume in 1.000 tonnes)**



Source: IFFO.

[31] The Norwgian study is unique in the European context since no separate by-product reports are published at MS level. The study includes mortality data from the Norwegian salmon industry as well as data on volumes of by-products from the processing industry.

Table 5. **FISHMEAL AND FISH OIL PRODUCTION AND RAW MATERIAL USED IN 2016 (volume in 1.000 tonnes)**

	Whole fish	By-product from wild capture	By-product from aquaculture	Total raw material used	Fishmeal production	% from By-product	Fishoil production	% from By-product
Europe	1.502	1.165	331	2.998	701	54%	191	47%
Asia (exc. China)	2.577	827	851	4.255	1.034	44%	146	30%
China	1.251	168	367	1.786	433	35%	64	25%
Middle East	188	32	19	239	55	23%	10	24%
CIS	260	103	n/a	363	84	32%	20	20%
Africa	650	222	6	878	206	29%	37	24%
South America	6.810	768	331	7.909	1.821	16%	353	14%
North America	730	427	31	1.188	288	41%	91	22%
Oceania	11	42	13	66	16	85%	4	89%
Total	**13.979**	**3.754**	**1.949**	**19.682**	**4.638**	**33%**	**916**	**26%**

Source: Seafish.org.

4.4. Use of by-products in fishmeal and fish oil production in the EU

By-products are an important source of raw material to fishmeal and fish oil producers in the EU. There are several fishmeal processors relying partly or entirely on by-products as raw material for their production. Denmark is the less reliant on them, as 90% of raw material is derived from direct catches (860.000 tonnes in 2018). The fishmeal plants in France, Germany and Spain are fully dependant on trimming[32].

The available data on by-product volumes and value on MS level is limited. Most studies focus on Europe as a whole and it is therefore not possible to present detailed studies on MS level.

4.5. EU exports of by-products for human consumption

Seafood by-products for human consumption exported from the EU have increased 317% in volume and 71% in value from 2016 to 2018. From 2017 to 2018, exports rose 100% and their value increased 21%. The main product exported is 'frozen fins, heads, tails, maws etc.', which grew by 240% in volume and 110% in value from 2017 to 2018.

The increased exports were mainly to Asian markets in Vietnam, China, the Philippines, and Thailand. Other important exports products include frozen livers and roes and frozen shark fins. Volumes of caviar exported by the EU are low compared to other products, but this product achieves a very high price, so ranks fourth in value among the EU exports of by-products to non-EU countries. The product is categorized under by-products in the EUMOFA system but considering the high value, it should rather be defined as a main product than a secondary product.

In 2018, EU exports of by-products to Asian markets constituted 70% of total volumes and 61% of the values, and the top three destinations are China, Japan and Vietnam. The strong growth of by-products exported in 2018 compared to 2017 is mainly linked to increased exports to Vietnam (+262% in volume and +137% in value). In 2018, EU exports of by-products constituted 2% of total export volumes and 2% of total export values.

[32] http://www.europarl.europa.eu/RegData/etudes/etudes/join/2003/341942/IPOL-PECH_ET(2003)341942_EN.pdf

Table 6. **EXTRA-EU EXPORTS OF BY-PRODUCTS FOR HUMAN CONSUMPTION (volume in tonnes, value in EUR 1.000)**

Product	2016		2017		2018	
	Volume	Value	Volume	Value	Volume	Value
Fish fins, heads, tails, maws, and other edible fish offal, frozen	0	0	7.113	12.319	24.182	25.889
Shark fins, frozen	0	0	1.783	19.359	2.173	24.935
Other livers, roes and milt, frozen	3.222	20.768	3.644	21.059	4.732	22.479
Caviar	203	18.879	81	19.985	88	22.102
Caviar substitutes	1.152	11.781	1.201	12.081	1.346	12.946
Fish heads, tails and maws	1.252	1.298	1.291	1.261	639	1.221
Other[33]	2.840	20.837	2.922	17.650	2.974	16.313
Total	**8.669**	**73.563**	**18.035**	**103.715**	**36.133**	**125.886**

Source: EUMOFA.

Table 7. **EXTRA-EU EXPORTS OF BY-PRODUCTS FOR HUMAN CONSUMPTION BY COUNTRY OF DESTINATION (volume in tonnes, value in EUR 1.000)**

Country	2016		2017		2018	
	Volume	Value	Volume	Value	Volume	Value
China	558	2.020	2.310	14.153	3.783	20.653
Japan	1.544	17.347	1.274	17.173	1.151	15.408
Vietnam	352	599	3.458	4.803	12.517	11.375
Singapore	76	1.354	674	8.391	847	11.045
Hong Kong	211	6.971	360	10.231	448	10.826
USA	356	6.772	424	6.235	908	8.225
Belarus	880	4.875	2.895	7.107	4.314	7.273
Other	4.691	33.627	6.640	35.622	12.167	41.080
Total	**8.669**	**73.563**	**18.035**	**103.715**	**36.133**	**125.886**

Source: EUMOFA.

4.6. EU imports of by-products for human consumption

From 2017 to 2018, EU imports of seafood by-products for human consumption increased in volume by 5% to 20.514 tonnes, and in value by 14% to EUR 139 million. The EU mostly imports caviar substitutes, as well as 'fish livers, roes and milt (frozen, dried, smoked, salted or in brine)'. In 2018, these products made up 70% of the volume of seafood by-products imported by the EU, accounting for 81% of their value.

The main countries of origin for seafood by-products imported to the EU are the US, Iceland, Norway, China and Greenland, which together constituted 79% of the total volumes and 77% of the total values imported in 2018.

[33] Fish maws, heads, tails (prepared, preserved, dried, salted).

Table 8. **EXTRA-EU IMPORTS OF BY-PRODUCTS FOR HUMAN CONSUMPTION (volume in tonnes, value in EUR 1.000)**

	2016		2017		2018	
Product	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**
Caviar substitutes prepared from fish eggs	4.482	52.536	3.756	52.460	3.475	56.684
Frozen fish livers, roes and milt	6.982	32.815	6.720	36.387	7.599	42.035
Fish livers, roes and milt, dried, smoked, salted or in brine	4.076	10.726	3.281	10.376	3.198	13.472
Caviar	34	8.451	32	8.911	41	9.242
Fish fins and other edible fish offal, smoked, dried, salted or in brine	1.334	5.349	1.056	5.260	1.733	7.187
Frozen fish fins, heads, tails, maws and other edible fish offal	0	0	2.968	4.266	2.097	3.720
Fresh or chilled fish livers, roes and milt	707	1.439	593	1.515	978	2.639
Fish heads, tails and maws, smoked, dried, salted or in brine	1.080	1.692	818	1.285	759	1.472
Other	1	3	249	1.625	636	2.862
Total	**18.695**	**113.011**	**19.471**	**122.084**	**20.514**	**139.311**

Source: EUROSTAT-COMEXT.

Table 9. **EXTRA-EU IMPORTS OF BY-PRODUCTS FOR HUMAN CONSUMPTION BY COUNTRY (volume in tonnes, value in EUR 1.000)**

	2016		2017		2018	
Product	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**
USA	2.539	35.648	2.556	36.489	1.958	40.160
Iceland	7.032	32.535	5.703	31.530	5.781	33.666
Norway	5.684	11.040	6.029	13.873	6.807	18.125
China	160	6.869	560	8.472	474	9.087
Greenland	621	3.186	876	4.356	1.157	6.642
Mauritania	274	4.386	381	5.561	361	5.864
Canada	336	4.441	210	3.542	268	4.913
Other	2.049	14.906	3.157	18.261	3.708	20.855
Total	**18.695**	**113.011**	**19.471**	**122.084**	**20.514**	**139.311**

Source: EUROSTAT-COMEXT.

5. Case study – The fish smoking industry in the EU

Originally, smoking fish was done for preservation purposes, combining the effects of salting, drying and heating. However, in more recent times, fish has been readily preserved by refrigeration and freezing, and smoking is now generally done for the unique taste and flavour imparted by the smoking process. Smoking fish is an old tradition, especially in Northern EU countries, but the resultant products have become more and more popular across the EU. Most of the volumes produced and traded consist of salmon, but several other smoked species are well appreciated by consumers.

The major steps in the preparation of smoked fish are salting (bath or injection of liquid brine or dry salt mixture), cold/hot smoking, cooling, packaging (air/vacuum or modified), and storage. Typical smoking fish is either done cold (28–32°C) or hot (70–80°C)[34].

5.1. Production

Total EU production of smoked fish[35] in 2018 amounted to 257.400 tonnes, 3% lower than the average over the last decade. Overall, EU production was steady over the 2009–2018 period, with a sensible rise of 0,9%. Salmon was the main species used by far, accounting for 65% of total volume. Other smoked fish products accounted for the remaining 35% of total volume, including trout, herring, mackerel, haddock, sprat, eel, etc. The main producing countries were Poland, the United Kingdom and Germany, which, together, accounted for almost 60% of total EU production[36].

- **Poland**: Polish production has increased by 1,6% over the last decade. This increase is related to the relocation of the German smoking industry into Poland. The share of Polish smoked fish toward total EU production has remained steady over the period, at around 30%. Smoked salmon (including fillets) is the main product processed in the country, accounting for 70% of the smoked fish produced in Poland[37]. By comparison, salmon accounted for only 56% of the Polish smoked fish production in 2009.

- **United Kingdom**: UK production has increased by an average of 6,3% from 2009 to 2018. The share of UK smoked fish production to the EU total has also risen from 11% to 17%. The main product processed is smoked salmon (53% of the British smoked fish production).

- **Germany**: German smoked fish production has risen by 6,3% from 2009 to 2018. The contribution of Germany to the total EU production was 9,8% in 2009 and has slightly increased (+3 points) over the period. Smoked salmon is the country's main smoked product (62% of total volume).

The relative contribution of main producing countries in the EU to global production has increased, except in France. According to PRODCOM data, the contribution of the French smoking industry to total EU production of smoked fish products has decreased from 18% in 2010 to only 7% in 2018.

[34] Handbook of Seafood Quality, Safety and Health Applications
[35] PRODCOM codes used for smoked fish:
10202420: Smoked Pacific, Atlantic and Danube salmon (including fillets)
10202425: Smoked Pacific, Atlantic and Danube salmon (including fillets, excluding heads, tails and maws)
10202450: Smoked herrings (including fillets)
10202455: Smoked herrings (including fillets, excluding heads, tails and maws)
10202480: Smoked fish (including fillets) (excluding Pacific, Atlantic and Danube salmon, herrings)
10202485: Smoked fish (excluding herrings, Pacific, Atlantic and Danube salmon), including fillets, excluding head, tails and maws
[36] According to the PRODCOM database, production data from the Netherlands is not available, although processing activity exists (sprat, eel, mackerel, etc.). This contribution is not presented here (but is estimated as part of the "others" category).
[37] Étude sur la politique d'approvisionnement de produits aquatiques des transformateurs et conserveurs en France Métropolitaine, FranceAgriMer, 2019.

Table 10. **SMOKED FISH PRODUCTION IN THE EU (volume in tonnes)**

Country	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Poland	73.773	70.598	75.522	83.797	87.535	80.205	89.131	94.510	78.461	82.048	32%
United Kingdom	26.354	28.607	35.790	38.364	38.059	43.340	40.851	47.485	42.722	43.602	17%
Germany	15.035	15.162	16.424	20.316	21.699	23.429	27.315	26.534	24.462	25.329	10%
Lithuania	11.194	13.779	11.785	15.857	17.198	19.296	22.184	23.727	22.685	21.654	8%
Denmark	16.437	15.092	18.251	18.937	20.857	20.434	20.571	20.248	21.088	19.879	8%
France	43.276	n/a	43.253	42.667	51.664	35.517	27.056	28.746	25.008	17.029	7%
Spain	11.473	11.454	11.739	12.804	11.609	12.324	13.076	12.907	14.459	14.344	6%
Sweden	2.353	89	88	n/a	n/a	n/a	57	3.104	3.284	6.128	2%
Finland	4.285	4.385	5.138	4.978	5.429	4.694	3.714	4.056	4.238	4.246	2%
Romania	1.033	1.140	1.180	990	1.562	1.835	2.051	2.494	2.991	2.892	1%
Ireland	2.054	1.834	1.780	1.911	1.682	2.009	1.898	1.682	1.484	2.310	1%
Italy	2.044	2.038	1.668	1.499	1.541	1.815	2.957	1.769	1.887	1.697	1%
Estonia	3.214	1.335	1.679	2.040	1.905	2.491	2.468	1.734	1.806	1.515	1%
Latvia	3.642	1.409	2.040	1.973	2.609	963	947	1.153	1.567	979	0%
Others[38]	24.976	104.264	26.287	16.561	16.886	20.203	21.295	13.000	17.253	13.755	5%
Total	**241.144**	**271.185**	**252.623**	**262.693**	**280.235**	**268.555**	**275.570**	**283.148**	**263.395**	**257.407**	**100%**

Source: PRODCOM.

[38] Including NL confidential data.

Table 11. **SHARE OF SMOKED PRODUCTS IN FISH AND SEAFOOD PROCESSING INDUSTRY BY COUNTRY (IN VOLUME TERMS)**

	% **smoked products in total processed fish production**
EU-28	6,9%
Poland	14,5%
United Kingdom	9,1%
Germany	5,8%
Lithuania	18,7%
Denmark	3,8%
France	3,9%
Spain	1,6%
Sweden	19,6%
Finland	11,1%
Portugal	1,6%
Others	9,7%

Source: PRODCOM.

The contribution of smoked products to a country's total aquatic products processing industry averages 6,9% in the EU, and ranges from 1.6% (Portugal) to 19.6% (Sweden). Among the main producers, the Polish and Lithuanian fish processing industries have the most important share of smoked products to their total production.

In addition to smoked fish production, various products are also referenced as potentially smoked fish and seafood products. According to the PRODCOM data, it can be estimated that a maximum of 237.800 tonnes of these products are processed in the EU. These types of products cover fish roes, fish flour, offal, some invertebrates, and can be dried, smoked, salted or in brine. The three most important types of products represented in this category are molluscs that are frozen, fried, smoked, salted or in brine. For products sold in Spain, the United Kingdom and Portugal are the main producing countries.

5.2. Import – Export

Extra-EU import: EUR 64,6 million in 2018

In 2018, EU countries imported EUR 64,6 million (+16% since 2012) and 8.068 tonnes (+4% since 2012) of smoked fish. Most of the import concerned trout (47% of total value) and salmon (36% of total value). The main country of origin was Turkey, which accounted for 47% of total value of imports of smoked products in 2018 (EUR 30,3 million and 3.988 tonnes), almost exclusively consisting of smoked trout. Other relevant suppliers mainly exported smoked salmon; in particular Norway (with total exports of smoked products at EUR 9,6 million), and Serbia (total exports at EUR 7,9 million). In addition, China exported smoked products for EUR 6 million (almost exclusively unspecified fish other than salmon and trout).

Average import price was 8,0 EUR/kg in 2018 (+11% since 2012) with significant differences in trends among the different products: 7,6 EUR/kg for trout (–1% since 2012) and 16,3 EUR/kg for salmon (+24% since 2012).

Main importers of smoked products from extra-EU countries were Austria (EUR 17,9 million), Germany (EUR 12,0 million), the UK (EUR 8,5 million), Italy (EUR 7,4 million) and Sweden (EUR 6,5 million). These Member States accounted for 81% of total value imported from third countries in 2018.

Extra-EU export: EUR 238,4 million in 2018

In 2018, extra-EU export of smoked products reached EUR 238,4 million (+102% since 2012) and 14.389 tonnes (+55% since 2012). Smoked salmon accounted for the largest share with 89% of total value at EUR 212,5 million in 2018, twice the total value of smoked salmon in 2012.

Three destination countries accounted for 74% of the value and 71% of the volume of extra-EU exports of smoked products: Switzerland (EUR 70,2 million in 2018, +128% since 2012), the US (EUR 64,7 million, +63% since 2012) and Australia (EUR 41,8 million, +94% since 2012). Smoked salmon is the main product exported to each of these countries: 83% in Switzerland, 99% in the US and 88% in Australia.

The average export price of smoked products was 16,6 EUR/kg in 2018 and has increased by 30% since 2012. In 2018, it was 17,1 EUR/kg for salmon (+30% since 2012), 14,9 EUR/kg for trout (+18%) and 9,6 EUR/kg for other products (+13%). This increase of price concerned each of the main export markets, +51% between 2012 and 2018 for salmon exported to

Switzerland (19,9 EUR/kg in 2018), +23% for salmon exported to the US (16,8 EUR/kg in 2018) and +20% for salmon exported to Australia (16,3 EUR/kg in 2018).

In 2018, the main exporters to third countries were Denmark (EUR 60,8 million, +85% since 2012), the Netherlands (EUR 59,9 million, +94% since 2012) and Germany (EUR 52,5 million, +185% since 2012). These three Member States accounted for 73% of EU exports of smoked fish to third countries in 2018. It should be noted that for smoked fish products, main extra-EU exporters are not main producers, especially for the Netherlands which is a trade hub and many extra-EU exports are shipped from Dutch ports.

Table 12. **EXTRA-EU TRADE OF SMOKED FISH BETWEEN 2012 AND 2018**

			2012	2013	2014	2015	2016	2017	2018	Evolution from 2012 to 2018
Extra-EU imports	Value (EUR 1.000)	Salmon	11.830	11.017	11.582	12.403	19.967	22.792	23.224	96%
		Trout	32.233	34.800	35.394	32.890	35.543	27.549	30.616	-5%
		Other	11.842	13.700	17.474	15.360	15.507	13.181	10.738	-9%
		Total	**55.905**	**59.517**	**64.450**	**60.653**	**71.017**	**63.521**	**64.579**	**16%**
	Volume (tonnes)	Salmon	899	732	791	807	1.196	1.234	1.422	58%
		Trout	4.190	4.408	4.405	4.015	4.342	3.501	4.014	-4%
		Other	2.647	3.135	3.297	2.449	3.064	3.259	2.632	-1%
		Total	**7.736**	**8.275**	**8.493**	**7.270**	**8.602**	**7.995**	**8.068**	**4%**
Extra-EU imports	Value (EUR 1.000)	Salmon	105.975	128.477	149.944	178.671	196.048	221.076	212.507	101%
		Trout	6.318	10.743	13.158	12.245	19.711	21.505	20.498	224%
		Other	5.659	5.990	5.779	4.804	5.357	5.391	5.370	-5%
		Total	**117.951**	**145.210**	**168.881**	**195.719**	**221.116**	**247.972**	**238.375**	**102%**
	Volume (tonnes)	Salmon	8.088	8.894	10.164	11.105	11.923	12.520	12.455	54%
		Trout	503	906	1.062	947	1.439	1.504	1.377	174%
		Other	666	655	506	423	479	533	557	-16%
		Total	**9.256**	**10.454**	**11.732**	**12.475**	**13.840**	**14.558**	**14.389**	**55%**

Source: EUROSTAT-COMEXT.

Exchanges within the EU

In most Member States, imports from other EU countries accounted for at least 94% of total imports (extra-EU imports and intra-EU imports) in terms of value (2018). The only exceptions were Austria, Sweden, Croatia, the UK, Portugal and the Netherlands, with intra-EU imports accounting for slightly lower shares.

Poland is by far the largest exporter of smoked fish in the EU, with EUR 763,4 million and 56.206 tonnes of exports recorded in 2018. Most of these exports were destined to Germany (66% of the smoked fish exported from Poland, EUR 507,5 million). Exports from Poland increased by 73% in value since 2012 (EUR 440 million in 2012) and by 24% in volume. Exports mainly consist of salmon (89% of value and 82% of volume exported). The average export price from Poland was 14,6 EUR/kg for salmon in 2018 (+47% since 2012) and 13,4 EUR/kg for trout (+25% since 2012). Other significant exporters are Lithuania (EUR 257,4 million), Germany (EUR 235,3 million), Denmark (EUR 182,1 million) and the Netherlands (EUR 104 million).

Main importers were Germany (EUR 753,9 million, of which 98% was from the EU and only 2% from third countries). Germany's main supplier was Poland. The average import price in Germany for smoked fish was 12,9 EUR/kg in 2018 (+33% since 2012), 14,4 EUR/kg for salmon (+41%) and 10,9 EUR/kg for trout (+21%). After Germany, other relevant markets were Italy (EUR 272,4 million, 97% from the EU), France (206,7 million) and Belgium (EUR 130,8 million).

Table 13. **TOTAL IMPORTS AND EXPORTS OF SMOKED FISH (TO EU AND NON-EU COUNTRIES) BY MEMBER STATES IN 2018 (value in EUR 1.000, volume in tonnes)**

Member State	Imports		Exports	
	Value	Volume	Value	Volume
DE	753.877	58.312	235.289	15.548
IT	272.418	19.065	2.552	156
FR	206.725	21.085	67.819	3.465
BE	130.753	12.730	45.656	2.501
AT	77.719	5.780	33.982	3.350
UK	63.002	8.864	58.488	5.513
NL	49.726	3.828	104.390	7.738
DK	42.460	4.096	182.073	13.576
ES	39.732	4.032	23.479	2.125
SE	32.217	2.308	12.964	806
PT	16.432	1.125	2.349	184
PL	14.945	1.200	763.414	56.206
GR	11.891	1.291	59.074	3.482
IE	10.568	964	7.141	372
FI	10.082	764	1.753	138
CZ	9.383	1.186	3.667	556
LU	9.081	453	687	28
RO	5.983	1.064	1.983	344
HU	3.579	285	62	5
HR	3.504	208	850	52
SK	3.162	1.168	8	1
LT	2.836	667	257.381	18.213
EE	2.754	355	6.785	534
BG	2.690	554	2.090	184
SI	2.367	146	22	2
LV	2.262	401	24.717	2.441
CY	1.955	178	2	0
MT	1.944	153	0	0

Source: EUROSTAT-COMEXT.

5.3. Quality schemes

Some Protected Geographical Indications (PGIs) specifically cover smoked fish produced in the UK and Romania:

- Arbroath Smokies (smoked haddock from the UK)
- London Cure Smoked Salmon (the UK)
- Novacul afumat din Țara Bârsei (smoked carp from Romania)
- Scrumbie de Dunăre afumată (smoked pontic shad from Romania)
- Traditional Grimsby Smoked Fish (smoked cod and haddock from the UK).

Traditional Grimsby Smoked fish.
Source: alfredenderby.co.uk

Other geographical indications (GIs) cover smoked products among other preservation forms (the GI specification covers both fresh and processed products), for instance Schwarzwaldforelle (trout from Germany, PGI), Třeboňský kapr (carp from Czechia, PGI), Pohořelický kapr (carp from Czechia, protected designation of origin (PDO)).

The French public scheme "Label Rouge" also covers smoked Scottish salmon.

In addition, all Irish salmon and a share of Scottish salmon are certified under the organic aquaculture scheme, as well as a share of rainbow trout production especially in France and Denmark, reaching a 30-35% higher price premium compared to conventional smoked fish[39]. Therefore, significant volumes of smoked salmon and trout (farmed in the EU or in Norway) are marketed under the organic labelling.

PGI, Label Rouge and organic logos.

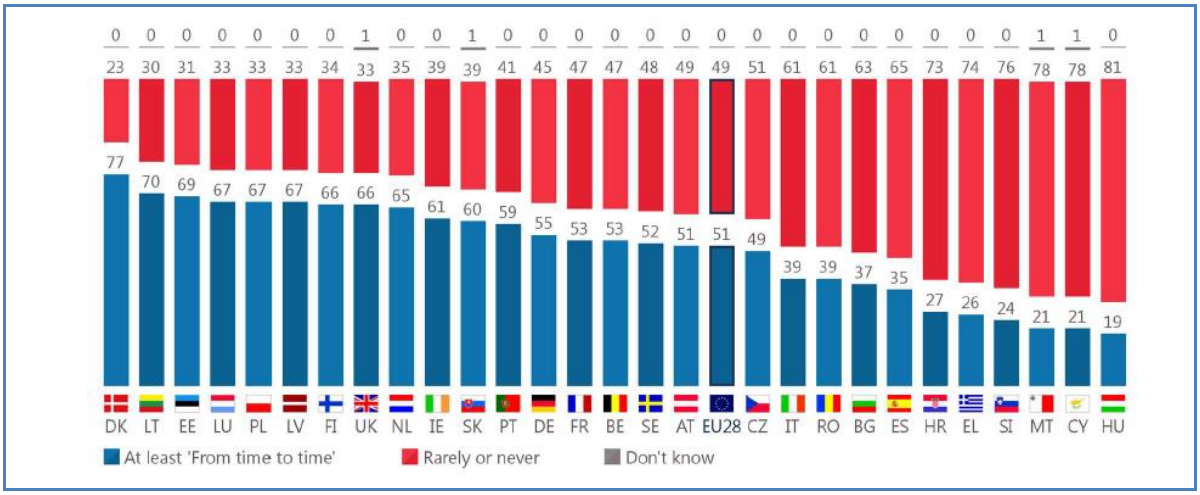
5.4. Consumption

Smoked fish consumption habits may vary a lot depending on regions in the EU, especially in Northern and Baltic EU countries where there is a long history of consuming smoked fish products (particularly herring and salmonids). "Southern" and landlocked countries consume less smoked fish.

In the last Eurobarometer survey[40], respondents who declared buying fishery and aquaculture products were asked how frequently they were buying products that are smoked, salted, dried or in brine. The answers illustrate this geographical pattern, with high frequencies of product purchases in countries around the Baltic Sea basin and significantly lower frequencies in Mediterranean and landlocked countries (except Luxembourg).

[39] https://www.eumofa.eu/documents/20178/84590/Study+report_organic+aquaculture.pdf
[40] http://ec.europa.eu/commfrontoffice/publicopinion/index.cfm/survey/getsurveydetail/instruments/special/surveyky/2206

Figure 47. **FREQUENCY OF FISHERIES AND AQUACULTURE PRODUCTS BUYERS PURCHASING PRODUCTS THAT ARE SMOKED, SALTED, DRIED OR IN BRINE (IN %)**



Sources: Eurobarometer.

According to the EUMOFA study on EU consumer habits regarding fishery and aquaculture products[41], smoking is the main fish preservation technique used in Lithuania, where 58% of consumers prefer smoked fish (herring). In Latvia and Austria, smoked fish is among the main fish preservation methods, together with fresh and frozen. In other EU countries, smoked fish represents a minority in total fish and seafood consumption. However, its popularity has been growing in Poland (mostly smoked salmon and trout), in Italy, in Belgium (12,4% increase over the 2012-2014 period), in Spain (14% increase in 2008-2014) and in Germany. In Germany, smoked fish consumption has been rising from 6% of total fish consumption in 2005-2007 to 12% in 2014 due to wide availability of cheap smoked salmon from Poland.

Focus on French consumption market

In France, the household consumption of smoked fish products reached 28.406 tonnes in 2018, with salmon accounting for 59% of total volume, and trout and herring for 19% and 16%, respectively. Between 2012 and 2018, household consumption of smoked fish has decreased by 14% in volume, but increased by 13% in value, as product prices have risen by 32% on average.

In particular, household consumption of smoked salmon has decreased in volume (-29%) and remained stable in value (EUR 592 million) between 2012 and 2018. It reached the highest rate of increase in price during the period (+42%). This increase in price has been accompanied by a loss of consumers (-8%), who have shifted their consumption towards smoked trout. Indeed, household consumption of smoked trout has increased by 116% in volume and by 220% in value in the same time period (2012–2018). Household consumption of herring also decreased (-18% in volume; -36% in value).

In 2018, smoked salmon was still the main smoked fish consumed in France (59% of total volume), followed by smoked trout (19%) and herring (16%). Other main smoked species consumed included haddock (2%) and mackerel (1%).

Total consumption of smoked salmon and trout (all channels included) was estimated to be around 41.100 tonnes in 2015[42].

[41] https://www.eumofa.eu/documents/20178/84590/EU+consumer+habits_final+report+.pdf
[42] ADEPALE.

Table 14. **FRENCH HOUSEHOLD CONSUMPTION OF SMOKED FISH BETWEEN 2012 AND 2018**

Volume (tonnes)	2012	2013	2014	2015	2016	2017	2018	% total	Evolution from 2012 to 2018
Total smoked fish	33.088	31.879	29.922	29.988	30.280	27.953	28.406	100%	-14%
Salmon	23.653	21.932	19.858	19.749	19.179	16.885	16.790	59%	-29%
Trout	2.536	3.080	3.488	3.945	4.525	4.879	5.476	19%	116%
Herring	5.451	5.304	5.142	4.933	4.981	4.485	4.478	16%	18%
Haddock	658	661	605	589	607	637	604	2%	-8%
Mackerel	274	325	328	315	387	380	403	1%	47%
Other smoked fish	517	576	501	457	601	687	655	2%	27%

Source: Households consumption, Kantar Worldpanel for FranceAgriMer.

6. Global highlights

EU / IUU: The European Commission has notified the Republic of Panama about the risk of being identified as a non-cooperating country in the fight against Illegal, Unreported and Unregulated (IUU) fishing. The decision is based on the identification of various shortcomings that undermine the country's ability to comply with its duties under international law as a flag, port, coastal and market state. Panama should ensure effective monitoring of the activities of its fishing fleet and adequate implementation of its enforcement system to prevent IUU fishing vessels from receiving port services[43].

EU / The Faroe Islands / Fisheries: The European Union and the Faroe Islands have reached an agreement on fishing opportunities in each other's waters for 2020. The new agreement allows the exchange of quotas from the European Union, such as cod, haddock, saithe and redfish, with quotas from the Faroe Islands of pout and blue whiting. The parties also agreed on reciprocal access to each other's waters for mackerel, herring and blue whiting[44].

EU / Fisheries: The European Council adopted a regulation setting the 2020 catch limits for certain fish stocks in the Mediterranean and Black Seas. The adopted rules include maximum allowable fishing efforts for certain fish stocks in the Western Mediterranean for Spain, France and Italy; closure period for European eel in the entire Mediterranean Sea, and catch and effort limits for small pelagic stocks in the Adriatic Sea; an autonomous quota for sprat in the Black Sea applying to Bulgaria and Romania. The regulation will apply as from 1 January 2020[45].

ICCAT / EU: The International Commission for the Conservation of Atlantic Tunas (ICCAT) adopted 17 Recommendations and Resolutions. The EU succeeded in ensuring that ICCAT adopted interim measures to end overfishing of bigeye tuna in the Atlantic and to overhaul the management of fishing activities on fish aggregating devices (FADs) in order to reduce juvenile mortality for both bigeye and yellowfin tuna. Also, based on two proposals by the EU, ICCAT adopted Total Allowable Catches (TAC) for the southern Atlantic blue shark (28.923 tonnes) and a quota allocation for the northern Atlantic blue shark.

Germany / Fisheries: In October 2019, Germany declared the cessation of fishing for skates and rays (Rajiformes) in union waters of VIa, VIb, VII a-c, VIIe-k and VIId as the country's quota for skates and rays had been fully used[46].

Slovenia / Fisheries / Employment: In 2018, there were 89 people employed in Slovenia's marine fisheries sector, 7%, less than in 2017. About 199 people were engaged in aquaculture activities. Compared to 2017, the number of persons engaged in freshwater aquaculture increased by about 3%, while in mariculture the number of people in employment was down by 11%[47].

Arab Gulf States / Supply: In 2017, in the seven Arab states of Iraq, Kuwait, Bahrain, Qatar, Saudi Arabia, United Arab Emirates and Oman, total fisheries and aquaculture production reached 636.781 tonnes, of which 86% came from marine and 14% from freshwater fisheries. Most of the total marine capture landings came from Oman, followed by Saudi Arabia and the United Arab Emirates. Saudi Arabia and Iraq are the most important producers of freshwater fisheries and aquaculture products[48].

China / Caviar / Supply: China is one of the most important caviar producers and exporters in the world. The most common caviar produced in China is sourced from a local sturgeon species, which is a hybrid of *Huso dauricus* and *Acipenser schrenckii*. Due to rising family incomes as well as urbanisation of rural areas, domestic demand for caviar is increasing rapidly. Caviar promotion events are hosted regularly in different cities, including consumer information campaigns, events and gatherings[49].

[43] https://ec.europa.eu/commission/presscorner/detail/en/IP_19_6755
[44] https://ec.europa.eu/fisheries/press/eu-and-faroe-islands-agree-fishing-arrangements-2020_en
[45] https://www.consilium.europa.eu/en/press/press-releases/2019/12/16/council-greenlights-2020-fishing-opportunities-in-the-mediterranean-and-black-seas/
[46] http://www.legislation.gov.uk/eur/2009/218
[47] https://www.stat.si/StatWeb/en/News/Index/8306
[48] http://www.fao.org/in-action/globefish/market-reports/resource-detail/en/c/1241685/
[49] http://www.fao.org/in-action/globefish/market-reports/resource-detail/en/c/1235736/

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FOR MORE INFORMATION AND COMMENTS:

Directorate-General for Maritime Affairs and Fisheries
B-1049 Brussels
Tel: +32 229-50101
E-mail: **contact-us@eumofa.eu**

This report has been compiled using EUMOFA data and the following sources:

First sales: Council of the European Union, ICES, FAO, seafish.org, marlin.ac.uk, safinacenter.org, sealifebase.ca.

Consumption: EUROPANEL, FAO.

Case studies: FAO, The Marine Ingredients Organization (IFFO), European Commission, European Parliament, Seafish.org, SINTEF Ocean, Kontali Analyse. Eurostat, C. Alasalvar, K. Miyashita, F. Shahidi, U. Wanasundara, PRODCOM, FranceAgriMer, Eurobarometer, ADEPALE, Kantar Worldpanel.

Global highlights: DG-Mare European Commission, FAO, Statistical Office of Republic of Slovenia, Ministry of Foreign Affairs of the Netherlands.

Macroeconomic context: EUROSTAT, Chamber of Commerce of Forlì-Cesena, Italy: DPMA, France: ARVI, Spain: MABUX, European Central Bank.

The underlying first-sales data is in a separate Annex available on the EUMOFA website. Analyses are made at aggregated (main commercial species) level and according to the EU Electronic recording and reporting system (ERS).

In the context of this Monthly Highlight, analyses are led in current prices, expressed in nominal values.

The **European Market Observatory for Fisheries and Aquaculture Products (EUMOFA)** was developed by the European Commission, representing one of the tools of the new Market Policy in the framework of the reform of the Common Fisheries Policy. [Regulation (EU) No 1379/2013 art. 42].

As a **market intelligence tool**, EUMOFA provides regular weekly prices, monthly market trends, and annual structural data along the supply chain.

The database is based on data provided and validated by Member States and European institutions. It is available in 24 languages.

The EUMOFA website is publicly available at the following address: www.eumofa.eu.

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