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1. Fisheries and aquaculture by-products[1]

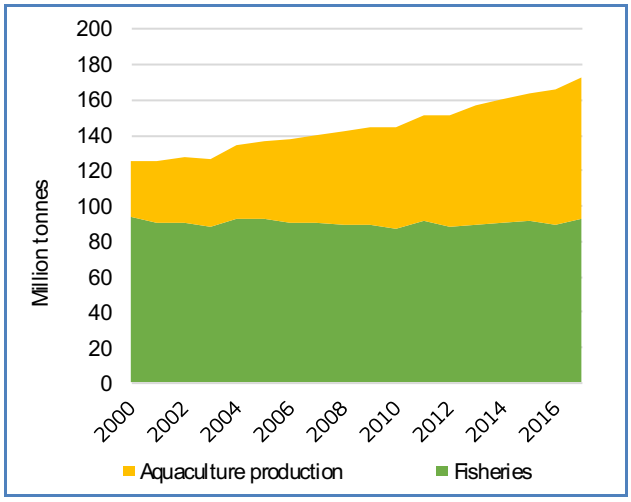
1.1 Global by-product utilisation

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 1. **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[2] 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.

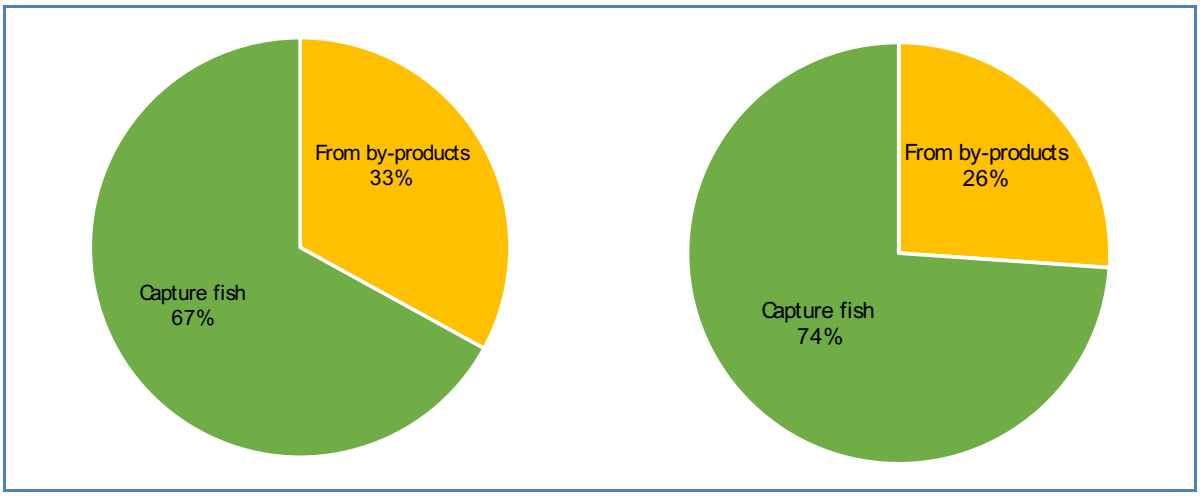
Aquaculture is growing globally, and FAO estimates predict it to be the fastest growing food production sector. Aquaculture produced 80 million tonnes in 2017, up by 5% from 2016[3]. Aquaculture production will increase the supply of raw materials used in the production of fishmeal and fish oil. In turn, 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.

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

Figure 2. **RAW MATERIAL FOR THE PRODUCTION OF FISHMEAL (LEFT) AND FISH OIL (RIGHT) IN 2016**



Sources: IFFO[4].

1.2 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[5]. 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[6]. 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.

[4] The Marine Ingredients Organisation.
[5] https://op.europa.eu/en/publication-detail/-/publication/a503b2a6-3b0c-11e9-8d04-01aa75ed71a1
[6] 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 1. **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.

1.3 European by-products utilisation[7]

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[8] 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.

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.

[7] Focusing on Europe, as there are no data available specifically for the EU.

[8] https://www.seafish.org/media/publications/SeafishFishmealandFishOilFactsandFigures_201612.pdf

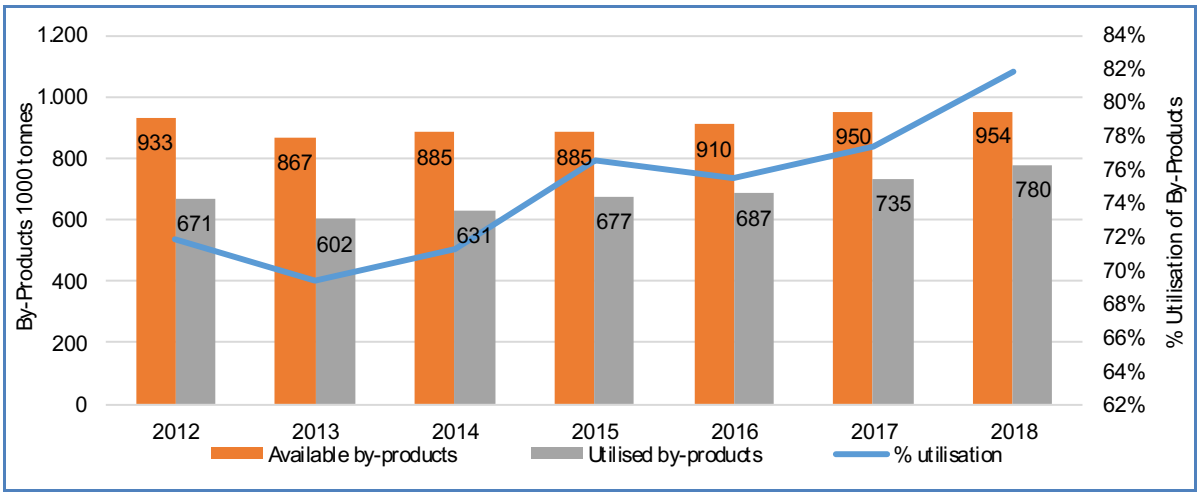
By-products from the Norwegian seafood industry[9]

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



Source: IFFO.

Table 2. **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.

[9] The Norwegian 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.

1.4 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[10].

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.

1.5 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.

Table 3. **EXTRA-EU EXPORTS OF BY-PRODUCTS FOR HUMAN CONSUMPTION (volume in tonnes, value in EUR 1.000)**

	2016		2017		2018	
Product	**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[11]	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.

[10] http://www.europarl.europa.eu/RegData/etudes/etudes/join/2003/341942/IPOL-PECH_ET(2003)341942_EN.pdf
[11] Fish maws, heads, tails (prepared, preserved, dried, salted).

Table 4. **EXTRA-EU EXPORTS OF BY-PRODUCTS FOR HUMAN CONSUMPTION BY COUNTRY OF DESTINATION (volume in tonnes, value in EUR 1.000)**

	2016		2017		2018	
Country	**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.

1.6 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.

Table 5. **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 6. **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.

2. EU TACs and quotas 2020

Catch limitations are amongst the most frequently used management measures for fisheries activities. Many commercial stocks exploited by the EU fishing fleet are managed through Total Allowable Catch (TAC).

These TACs proposals are based on scientific advice provided each year by the International Council for the Exploration of the Seas (ICES). Scientific advice delivered by ICES is dependent on data: only the stocks for which there is sufficient and reliable data can be fully assessed. From this data, estimates of stock size, and a forecast of how they will react to various exploitation scenarios, are produced. Where sufficient data are available, scientific bodies are able to provide advice of the adjustments to fishing opportunities needed for fish stocks to produce their Maximum Sustainable Yield (MSY)[12]. The advice is then referred to as "MSY advice". In other instances, scientific bodies rely on a precautionary approach to make recommendations regarding what an appropriate level of fishing would be. TACs are shared between EU countries in the form of national quotas. To divide the quotas for each stock amongst EU countries, each Member State is allocated a set percentage, based on historical catch. This fixed percentage is known as the “relative stability key”. EU countries can exchange quotas with other EU countries.

In 2020, the main TAC changes compared to 2019 are: reductions for cod, hake, saithe, anglerfish, herring, sprat, and plaice and increases for haddock, mackerel, and sole.

2.1 The North-East Atlantic and North Sea

In December 2019, the Council reached a political agreement on regulations concerning the 2020 catch limits for over 150 fish stocks in the Atlantic, the North Sea and international fisheries in which EU vessels participate[13].

This agreement contains fishing opportunities that the EU establishes autonomously. However, it also features fishing opportunities resulting from multilateral or bilateral fisheries consultations. The outcome is implemented by providing for internal allocation among Member States on the principle of relative stability.

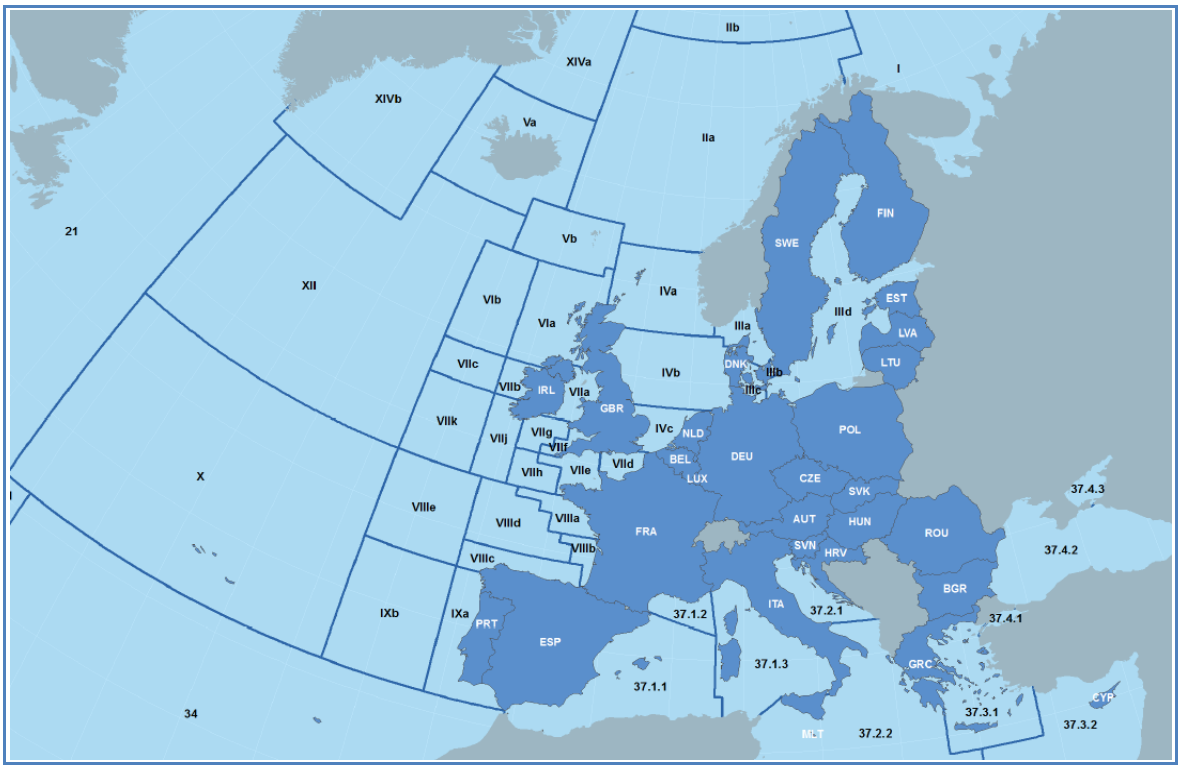
Thus, aside from autonomous EU stocks, the TAC proposal covers:

- Shared stocks, i.e. stocks that are jointly managed with Norway in the North Sea and Skagerrak, with the Faroe Islands, or in the framework of the Coastal State consultations (Norway and the Faroe Islands).
- Fishing opportunities resulting from agreements reached within the framework of the Regional Fisheries Management Organisations (RFMOs), such as the North East Atlantic Fisheries Commission (NEAFC).

[12] Fishing at MSY levels means catching the maximum proportion of a fish stock, that can safely be removed from the stock while, at the same time, maintaining its capacity to produce maximum sustainable returns, in the long term.

[13] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020R0123&from=EN

Figure 4. **MAP OF ICES FISHING AREAS IN NORTHEAST ATLANTIC**



Sources: ICES.

In the text and tables presented below are the EU TACs for the main stocks (TAC above 1.000 tonnes) for which the variation of TAC between 2019 and 2020 is above 10%. The 2019 TAC refers to the TAC at the end of the year (rather than the beginning), so includes any adjustments that occurred in 2019.

Groundfish

Among selected groundfish stocks, the main changes relative to 2019 EU TACs are:

- Significant decreases for **anglerfish** in the North Sea, Rockall and West of Scotland, Skagerrak and Celtic Seas, Bay of Biscay, Cantabrian Sea and Iberian waters (-30% in both cases). However, the TAC is quite stable for the main stock which represents 35.299 tonnes (+7% in Celtic Seas and Irish Sea).
- Drastic reduction of **cod** TAC in the North Sea and EU waters of the Norwegian Sea (-50%), in the North Western Atlantic area 3M (-51%) and in Skagerrak (-50%). However, the TAC is stable for the two main stocks: +3% in Barents Sea (27.295 tonnes) and +0% in Norwegian Sea (21.518 tonnes).
- Significant decrease in **hake** TAC in the Irish Sea, the West of Scotland, Celtic Seas, Bay of Biscay, Cantabrian Sea and Iberian waters (-20%), the North Sea and the Norwegian Sea (-21%), and the northern Bay of Biscay (-19%).
- Significant increase of **haddock** TAC in the North Sea and the Norwegian Sea (+23%), the southern Celtic Seas and the English Channel, the Bay of Biscay, Portuguese waters and Azores grounds (+30%), Skagerrak and Kattegat (+23%).
- Important reduction of **saithe** TAC for northern stock (-35%) and for western stock (-38%).

Table 7. **2020 EU MAIN TAC (above 1.000 tonnes and with variations against 2020 above 10%) IN THE NORTHEAST ATLANTIC FOR GROUNDFISH SPECIES (volume in tonnes)**

Species	ICES Area	Stock	2019	2020	Variation 2019/2020
Anglerfish	EU waters within IIa and IV	ANF2AC4-C	20.237	14.085	-30%
	EU and international waters within Vb; international waters of XII and XIV	ANF56-14	11.453	7.971	-30%
Cod	IV, EU waters within IIa, the part of IIIa not covered by the Skagerrak and Kattegat	COD2A3AX4	24.433	12.216	**-50%**
	NAFO 3M	CODN3M	9.980	4.865	**-51%**
	Skagerrak	COD03AN	4.069	2.035	**-50%**
	VIa, EU & international waters within Vb east of 12˚00'W	COD5BE6A	1.735	1.279	-26%
European hake	VI, VII; EU and international Waters within Vb; international waters of XII, XIV	HKE571214	79.762	63.325	-20%
	VIIIa-b, VIIId-e	HKE8ABDE	52.118	42.235	-19%
	EU waters within IIa and IV	HKE2AC4-C	4.994	3.940	-21%
	IIIa; EU waters within subdivisions 22-32	HKE03A	4.286	3.403	-20%
Haddock	IV, EU waters within IIa	HAD2AC4	22.591	27.753	+23%
	VIIb-k, VIII, IX, X; EU waters within CECAF 34.1.1	HAD7X7A34	8.329	10.859	+30%
	EU and international water within Vb, VIa	HAD5BC6A	3.226	3.973	+23%
	VIIa	HAD07A	3.739	3.156	-16%
	IIIa, EU waters within 22-32	HAD03A	1.706	2.101	+23%
Saithe	IIIa and IV; EU waters within IIa,b,c,d	POK2C3A4	58.524	38.110	-35%
	VI; EU and international waters within Vb, XII and XIV	POK56-14	11.753	7.340	-38%
Whiting	IV; EU waters within IIa	WHG2AC4	10.554	15.382	**+46%**
	VIIb-h, and VIIj-k	WHG7X7A-C	19.184	10.863	**-43%**

Source: EUMOFA based on European Commission and Regulation (EU) 2020/123.
Variations above 40% between 2019 and 2020 are highlighted in bold.

Small pelagics

For selected small pelagic stocks, the main changes relative to 2019 EU TACs are:

- Significant decrease for **herring** in the Barents Sea, the Norwegian Sea (-20%), and in Skagerrak and Kattegat (-16%). However, TAC is stable for the two main stocks: Northern and Central North Sea, and Southern North Sea and Eastern English Channel.
- Significant increase of **mackerel** TAC in the North East Atlantic, with an overall increase of 30%.
- Drastic reduction of **sprat** TAC in Skagerrak and Kattegat (-50%) and in the Eastern and Western English Channel (-43%).
- Significant decrease of **jack and horse mackerel** TACs: -41% in the Bay of Biscay and in the North East Atlantic.

Table 8. **2020 EU MAIN TAC (above 1.000 tonnes and with variations against 2020 above 10%) IN THE NORTHEAST ATLANTIC FOR SMALL PELAGIC SPECIES (volume in tonnes)**

Species	ICES Area	Stock	2019	2020	Variation 2019/2020
Atlantic herring	EU and International waters within I and II	HER1/2-	42.815	34.216	-20%
	IIIa	HER03A	25.415	21.257	-16%
	bycatch in IV, VIId and in EU waters within IIa	HER2A47DX	13.190	8.954	-32%
	VIIa	HER07A/MM	6.896	8.064	+17%
	EU and international waters within Vb and VIb and VIaN	HER5B6ANB	4.170	3.480	-17%
	VIaS, VIIb-c	HER6AS7BC	1.630	1.360	-17%
Atlantic mackerel	VI, VII, VIII a-b, VIIId-e; EU and international waters within Vb; International waters within IIa, XII, XIV	MAC2CX14-	260 813	368.031	**+41%**
	VIIIc, IX, X; EU waters within CECAF 34.1.1	MAC8C3411	29.844	42.112	**+41%**
	IIIa and IV; EU waters within IIa, IIIb-c and Subdivisions 22-32	MAC2A34	23.296	32.022	+37%
	Norwegian waters within IIa and IVa	MAC2A4A-N	10.242	14.453	**+41%**
European sprat	IIIa	SPR03A	24.627	12.314	**-50%**
	VIId-e	SPR7DE	2.637	1.506	**-43%**
Greater silver smelt	EU and international Waters within V, VI, VII	ARU567	4.661	3.729	-20%
Jack and horse mackerels	IX	JAX09	94.017	116.871	+24%
	EU waters within IIa, IVa, VI, VIIa-c, VIIe-k, VIIIa,b,d,e; Vb; EU and international waters within Vb; international waters within XII & XIV	JAX2A-14	117.518	69.017	**-41%**
	VIIIc	JAX/08C.	18.858	11.179	**-41%**
	EU waters within IVb, IVc, VIId	JAX4BC7D	12.629	11.213	-11%

Source: EUMOFA based on European Commission and Regulation (EU) 2020/123.
Variations above 40% between 2019 and 2020 are highlighted in bold.

Flatfish

Among selected flatfish stocks, the main changes relative to 2019 EU TACs are:

- Significant increase for **common sole** in the North Sea and the Norwegian Sea (+40%).
- Significant reduction of **plaice** TAC in the Eastern and Western English Channel (-12%) and in Kattegat (-33%). However, there are no significant variations for the two main stocks which represent 106.383 tonnes in total for the EU share: North Sea and Eastern Arctic (-3%) and Skagerrak (+1%).
- Important decrease of **turbot** and **brill** TAC in the North Sea and the Norwegian Sea (-20%).

Table 9. **2020 EU MAIN TAC (above 1.000 tonnes and with variations against 2020 above 10%) IN THE NORTHEAST ATLANTIC FOR FLATFISH SPECIES (volume in tonnes)**

Species	ICES Area	Stock	2019	2020	Variation 2019/2020
Common sole	EU waters within IIa and IV	SOL24-C	12.545	17.535	**+40%**
	VIIf, g	SOL7FG	1.009	1.652	**+63%**
	VIIe	SOL07E	1.242	1.478	+19%
European plaice	VII d, e	PLE7DE	10.354	9.154	-12%
	VII f, g	PLE7FG	1.662	2.003	+21%
	Kattegat	PLE03AS	1.705	1.141	-33%
Megrims	VIIIc, IX & X; EU waters within CECAF 34.1.1	LEZ8C3411	1.872	2.322	+24%
Turbot and brill	EU waters within IIa and IV	T/B2AC4-C	8.122	6.498	-20%

Source: EUMOFA based on European Commission and Regulation (EU) 2020/123.
Variations above 40% between 2019 and 2020 are highlighted in bold.

Crustaceans

For selected crustacean stocks, the main changes relative to 2019 EU TACs are:

- Significant decrease of **Norway lobster** in the Irish Sea and the Celtic Sea (-15%) partly compensated for by slight increases in the North Sea (+4%) and West Scotland (+5%).
- Significant increase of **northern prawn** TAC in Skagerrak and Kattegat (+37%).
- Substantial increase of **northern prawn** TAC in waters off Eastern Greenland (+48%), the Norwegian Sea and the North Sea (-23%).

Table 10. **2020 EU MAIN TAC IN THE NORTHEAST ATLANTIC FOR CRUSTACEANS SPECIES (volume in tonnes)**

Species	ICES Area	Stock	2019	2020	Variation 2019/2020
Norway lobster	EU waters within IIa and IV	NEP2AC4-C	22.103	23.002	+4%
	VII	NEP07	19.784	16.815	-15%
	VI, EU and international waters within Vb	NEP5BC6	15.092	15.899	+5%
Northern prawn	IIIa	PRA03A	1.723	2.365	+37%
	Greenland waters within V and XIV	PRA514GRN	1.350	2.000	**+48%**
	EU waters within IIa and IV	PRA2AC4-C	1.566	1.200	-23%

Source: EUMOFA based on European Commission and Regulation (EU) 2020/123.
Variations above 40% between 2019 and 2020 are highlighted in bold.

Tuna and tuna-like species

TAC and quotas for these species are determined by The International Commission for the Conservation of Atlantic Tunas (ICCAT). Within stocks of selected tuna and tuna-like species, the main changes relative to 2019 EU TACs are a slight decrease for **albacore tuna** and **bigeye tuna** in the Atlantic (-9%), and a slight increase for **bluefin tuna** in the East Atlantic – including the Mediterranean (+10%) – and for **swordfish** in the Atlantic (+4%).

Table 11. **2020 EU MAIN TAC IN THE NORTHEAST ATLANTIC FOR TUNA AND TUNA-LIKE SPECIES (volume in tonnes)**

Species	ICES Area	Stock	2019	2020	Variation 2019/2020
Albacore tuna	Atlantic Ocean, North of 5° N	ALBAN05N	29.537	26.869	-9%
Bluefin tuna	Atlantic Ocean, east of 45° W, and Mediterranean	BFTAE45WM	17.536	19.360	10%
Bigeye tuna	Atlantic Ocean	BETATLANT	17.158	15.543	-9%
Swordfish	Atlantic Ocean, North of 5° N	SWOAN05N	7.386	7.685	4%

Source: EUMOFA based on European Commission and Regulation (EU) 2020/123.

2.2 Baltic Sea

In October 2019, the Council reached an agreement on the 2020 TACs in the Baltic Sea and followed the Commission's proposal to decrease the Total Allowable Catches (TAC) for eight of the ten most commercially important fish stocks in the basin[14].

The main reduction of fishing opportunities concerns cod, for which combined TAC has experienced an 83% decrease. The TAC for herring, sprat and plaice in the Northern Baltic have also been significantly reduced (-27%, -22% and -32%, respectively).

Table 12. **2020 EU TAC IN THE BALTIC SEA (volume in tonnes)**

Species	ICES Area	TAC 2020	Variation against 2019
Herring	Subdivisions 30-31	65.018	-27%
	Subdivisions 22-24	3.150	**-65%**
	Union waters within Subdivisions 25-27, 28.2, 29 and 32	153.384	-10%
	Subdivision 28.1	34.445	+11%
Cod	Union waters within Subdivisions 25-32	2.000	**-92%**
	Subdivisions 22-24	3.806	**-60%**
Plaice	Union waters within Subdivisions 22-32	6.894	-32%
Atlantic salmon	Union waters within Subdivisions 22-31	86.575	-5%
	Union waters within Subdivision 32	9.703	0%
Sprat	Union Waters within Subdivisions 22-32	210.147	-22%

Source: European Commission, Regulation (EU) 2019/1838.
Variations above 40% between 2019 and 2020 are highlighted in bold.

[14] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R1838&from=EN

2.3 Mediterranean and Black Seas

On December 16th 2019, the Council adopted a regulation setting the 2020 catch limits for certain fish stocks in the Mediterranean and Black Seas[15].

This is the first time that a standalone fishing opportunities regulation for both the Mediterranean and Black Seas has been adopted, following the 2019 implementation of the Multiannual Plan for Demersal Stocks in the Western Mediterranean Sea (WMMAP).

The adopted rules include:

- Maximum allowable fishing efforts, expressed in number of days, for certain fish stocks in the Western Mediterranean. These fishing efforts were set at a level 10% lower than the WMMAP baseline, and apply to Spain, France and Italy.
- Fishing opportunities and other measures determined in the framework of the General Fisheries Commission for the Mediterranean (GFCM). These measures include a closure period for European eel in the entire Mediterranean Sea, and catch and effort limits for small pelagic stocks in the Adriatic Sea[16].
- An autonomous quota for sprat in the Black Sea applicable to Bulgaria and Romania was set at a level needed to maintain the current rate of fishing mortality. The fishing opportunity for turbot in the Black Sea was decided in the GFCM.

Table 13. **FISHING OPPORTUNITIES FOR EU VESSELS IN THE BLACK SEA IN 2020 (volume in tonnes)**

Country	Sprat *(Sprattus sprattus)*	Turbot *(Psetta maxima)*
Bulgaria	8.032,5	75
Romania	3.442,5	75
Total EU	**11.475**	**150**[17]
TAC	Not relevant / not agreed	857

Source: European Commission, Regulation (EU) 2019/2236.

However, according to Eurostat, current catches for these species and countries are below the following limits:

- Catches of sprat in the Mediterranean and Black Seas by Bulgarian and Romanian fishing fleets reached 3.232 and 113 tonnes in 2018, respectively. They have followed a rather declining trend over the 2009-2018 period.
- Catches of turbot in the Mediterranean and Black Seas by Bulgarian and Romanian fishing fleets reached 56 and 58 tonnes in 2018, respectively. They have increased over the 2009-2018 period.

[15] https://www.consilium.europa.eu/en/press/press-releases/2019/12/16/council-greenlights-2020-fishing-opportunities-in-the-mediterranean-and-black-seas/

[16] EU catch for sardine and anchovy in the Adriatic is limited to 101.711 tonnes in 2020. This limit concerns only Italy, Croatia and Slovenia.

[17] No fishing activity, including transhipment, retaining on board, landing and first sales shall be permitted from 15 April to 15 June 2020.

3. Scallop in the European market

Several species of scallop are caught or farmed globally, representing a total production of 2,8 million tonnes. In 2017, EU catches of scallop species reached almost 67.000 tonnes, with two main producers (France and the UK) and two main species: great Atlantic scallop (or king scallop, 86%) and queen scallop (14%)[18]. The European supply is supplemented by significant imports, mostly frozen, from North America (the USA, Canada) and South America (Argentina, Peru). In 2019, first-sales prices of great Atlantic scallop decreased in French markets and at points of sale in the UK.

Source: Eurofish

3.1 Biology, resource and exploitation

Biology

Scallop is the common name applied to any one of the numerous species of saltwater clams or marine filter-feeding bivalve molluscs in the taxonomic family *Pectinidae*. Scallops live mainly on sand or gravel beds. Many species are highly prized as a food source, and some are farmed. The main species found in European waters are great Atlantic scallop or king scallop (*Pecten maximus*) and queen scallop (*Chlamys opercularis*). In addition, several other species are imported into the EU market such as American scallop (*Placopecten magellanicus*), Peruvian scallop (*Argopecten purpuratus*), and Patagonian scallop (*Zygochlamys patagonica*).

Great Atlantic scallop is found along the length of the European Atlantic coast from northern Norway to the Iberian Peninsula. The species has also been reported in waters off West Africa, the Azores, the Canary Islands, and Madeira. As a hermaphroditic animal, there is no distinct difference in size range between male and female individuals once they have reached maturity. The average maximum size for mature individuals is 15 cm, but specimens of up to 21 cm have been recorded. Atlantic scallops begin to mature at 2 years, reaching full maturity between 3 and 5 years of age[19]. Although considered sedentary, scallops are able to swim limited distances propelled by jets of water.

Queen scallop is found in the Mediterranean Sea and eastern Atlantic coast from Norway to the Cape Verde Islands, the Azores, and the North Sea at depths of 20 to 45 meters in shallow subtidal areas. It grows quickly, reaching sexual maturity at around 1 to 2 years of age and at a size of 40 mm (shell length). The species lives on the seafloor (across all habitats) for a maximum lifespan of 6 years[20]. Queen scallops are raised on experimental farms in Spain, France, and the United Kingdom[21].

Resource, exploitation, and management in Europe

There are three methods traditionally used for harvesting scallops: diving, bottom trawling and dredging. The European nations accountable for the majority of catch of this species are France and the UK.

Current EU legislation specifies a minimum conservation size for scallops of 110 mm shell length in the Irish Sea and in the Eastern English Channel, and 100 mm shell length in other fishing areas [22]. There are no catch limits in place in the form of TACs or quotas. Gear selectivity measures and Minimum Landing Sizes (MLS) are common methods used to ensure that scallops are not harvested at too small a size for breeding.

Queen scallops are typically sourced from coastal fisheries. Major fisheries for the species are operated by the UK fleet which has consistently accounted for the highest catches, followed by France, the Faroe Islands, and the Isle of Man. They are primarily harvested with dredges that are towed along the seabed. Scallop meat is usually shucked (taken out of the shell) immediately after harvest.

Management measures instigating intermittent closures of fishing grounds for periods of several years to increase yield or protect part of the spawning stock have been found to be very successful. In France, rotational closures together with enhancement techniques using cultured juveniles are also used successfully to improve yields[23].

[18] For the related species profile, please consult EUMOFA at https://www.eumofa.eu/the-eu-market#speciesProfiles.
[19] http://www.marlin.ac.uk/biotic/browse.php?sp=4236
[20] https://www.marlin.ac.uk/species/detail/1997
[21] https://www.inlandseafood.com/seapedia/queen-scallops
[22] COUNCIL REGULATION (EC) No 850/98 http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31998R0850&from=EN
[23] http://www.seafish.org/media/publications/SeafishResponsibleSourcingGuide_Scallops_201301.pdf

Management measures are used to varying degrees in areas where queen scallop is harvested. The Isle of Man trawl fishery has been certified by the Marine Stewardship Council[24]. The EU minimum catch size for the species is 40 mm shell height (SH); however, it is generally uneconomic to process queen scallops of less than 55 mm SH. In France (the Bay of Biscay), there are specific limits on the amount of fishing time and size of vessels permitted[25].

Since the 1970s, cultivation of scallops has increased rapidly and now accounts for nearly 80% of total (caught and farmed) world production[26]. Several scallop species are also farmed, particularly Chinese species (*Chlamys farreri* and *Argopecten irradians*) and Yesso scallop (*Pecten yessoensis*) farmed in Asia, and Peruvian scallop (*Argopecten purpuratus*) farmed in Peru and Chile. They are either farmed via suspension culture or in bottom culture systems using spat that has been harvested from collectors at sea and/or provided by hatcheries[27]. More recently, both Chile and China have advanced with trials to cultivate imported great Atlantic scallop which, if proved successful, could have significant implications for European producers and markets. Small quantities of great Atlantic scallop have been cultivated in Europe (the UK, Channel Islands, France, Ireland, and Norway) for many years.

3.2 Production

Catches

Global catches production of scallop amounted to 631.718 tonnes in 2017. The main species produced were American sea scallop (40%), yesso scallop (39%), great Atlantic scallop (10%), Patagonian scallop (6%), and queen scallop (2%).

The leading producers were Japan and the USA, which provided 37% and 31% of the total world production, respectively, in 2017, followed by the EU at 11%. Other major producers were Canada (9%) and Argentina (6%).

Over the last decade (2008–2017), world production of wild-caught scallops has experienced a 17% decrease, corresponding to a fall in volume of more than 130.000 tonnes. This was primarily attributable to reduced Japanese production (–24%) and, to a lesser extent, declines in US and Canadian production (–4% and –17%, respectively). Increasing catches have been reported in the EU–28 (+11%) and, more significantly, in Russia (+142%).

Table 14. **WORLD CATCHES OF SCALLOP (volume in tonnes)**

Country	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Japan	310.205	319.638	327.087	302.990	315.387	347.541	358.982	233.885	213.710	236.000
USA	203.689	219.816	218.020	224.357	216.692	156.607	129.682	135.679	153.820	195.453
EU-28	59.998	66.498	79.564	86.141	83.307	85.484	64.655	65.980	69.259	66.693
Canada	67.621	62.921	60.300	59.880	53.306	64.684	69.745	61.061	53.764	55.944
Argentina	58.713	80.810	50.870	47.844	36.820	42.202	33.583	31.627	35.536	39.297
Russian Federation	4.982	3.797	5.389	4.863	3.405	4.888	8.700	10.762	12.734	12.081
Australia	10.299	7.004	7.608	6.950	3.563	6.745	4.421	4.322	5.013	6.091
Peru	19.618	26.478	62.827	93.050	14.896	22.178	56.002	17.176	13.343	5.727
Thailand	171	132	268	282	421	325	757	4.051	2.727	4.090
Isle of Man	2.311	3.051	4.133	6.062	5.238	4.769	2.602	6.367	5.627	3.999
Others	24.856	25.398	26.378	27.030	17.791	11.592	11.608	6.615	6.401	6.343
Total	**762.463**	**815.543**	**842.444**	**859.449**	**750.826**	**747.015**	**740.737**	**577.525**	**571.934**	**631.718**

Source: FAO.

[24] https://fisheries.msc.org/en/fisheries/isle-of-man-queen-scallop-trawl/@@assessments
[25] Seafish 2008; Townsend et al. 2008.
[26] https://www.seafish.org/media/1403315/_2_scallops_rsg_cocker-04-15kg.pdf
[27] http://www.fao.org/fishery/culturedspecies/Patinopecten_yessoensis/en

According to the FAO, EU catch of scallop amounted to 66.693 tonnes in 2017 (86% great Atlantic scallop and 14% queen scallop), providing approximately 11% of the world supply of wild-caught scallops. France and the UK together accounted for almost all of the EU's total catch volume of scallops; 46% and 49% respectively. Other important EU producers are Ireland (4%) and Belgium (1%).

Over 2008-2017, EU production experienced strong fluctuations, peaking between 2011 and 2013 when production averaged 85.000 tonnes annually. Fluctuations were mostly due to the strong variability of queen scallop catches. Both France and the UK saw increased catches over the course of the decade (+13% and +10%, respectively). According to preliminary Eurostat figures for 2018, great Atlantic scallop landings in France more than doubled relative to 2017 (reaching 60.039 tonnes) especially due to a significantly increasing scallop estimated biomass at sea[28]. However, first sales in French auctions increased by only 3% from 2017 to 2018. In 2019, first sales in French auctions stayed stable compared to 2018.

Table 15. **EU CATCHES OF SCALLOP (volume in tonnes)**

Country	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
France	28.749	26.775	31.425	32.891	26.403	30.977	23.533	24.552	26.568	32.441
United Kingdom	27.802	34.449	43.862	49.448	52.415	50.061	36.187	37.970	38.910	30.447
Ireland	1.121	2.644	1.975	2.292	2.701	3.040	2.952	2.053	2.225	2.555
Belgium	674	886	1.037	898	751	618	1.224	765	769	836
Spain	567	496	557	226	301	332	308	213	176	170
Italy	297	472	364	301	679	346	296	239	437	140
Croatia	-	20	26	78	53	106	152	182	168	99
Netherlands	781	754	315	-	-	-	-	-	1	3
Greece	6	2	3	7	4	4	3	6	5	2
Denmark	1	-	-	-	-	-	-	-	-	-
Total	**59.998**	**66.498**	**79.564**	**86.141**	**83.307**	**85.484**	**64.655**	**65.980**	**69.259**	**66.693**

Source: FAO.

Aquaculture

Global production of farmed scallops amounted to 2,19 million tonnes in 2017. The leading producer, China, provided 93% of the total world aquaculture production for the same year, followed by Japan at 6% and Peru at 1%. Other important producers were Russia, Chile and Korea (each accounting for 0,2% of total production).

Volumes of farmed scallops worldwide grew by 55% from 2008 to 2017. This growth was driven by Chinese production (up by 76%). However, significant decreases were reported in Japan (–40%) and Peru (–19%).

During the same period, EU production fell by 82% due to the sharp decrease in Irish production (0 tonnes reported in 2017). Only the UK (92% of EU production) and Spain (8%) reported farmed scallop production in 2017. Overall, EU production amounted to only 19 tonnes in 2017 (39% great Atlantic scallop and 58% queen scallop).

[28] https://wwz.ifremer.fr/content/download/120557/file/CP_CSJ_2018.pdf

Table 16. **EU AQUACULTURE OF SCALLOP SPECIES (volume in tonnes)**

Country	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
China	1.148.194	1.277.223	1.395.937	1.273.699	1.375.121	1.555.806	1.593.216	1.727.549	1.867.078	2.024.032
Japan	225.607	256.695	219.649	118.425	184.287	167.844	184.588	248.209	214.571	135.100
Peru	14.802	16.047	58.101	52.213	24.782	67.694	55.096	23.029	20.975	11.927
Russian Federation	85	843	854	725	504	1.311	2.400	2.000	3.745	5.463
Chile	21.277	16.864	8.840	11.018	5.798	5.001	4.146	2.960	3.547	4.706
Korea	421	348	253	403	519	484	956	1.557	2.995	3.493
EU-28	101	66	66	62	52	50	39	59	45	19
Others	412	610	914	515	441	393	425	304	310	503
Total	**1.410.899**	**1.568.695**	**1.684.615**	**1.457.060**	**1.591.503**	**1.798.583**	**1.840.866**	**2.005.667**	**2.113.266**	**2.185.243**

Source: FAO.

Processing and marketing

Fresh scallops are mostly available from November to April, when the fishing season is open in France and at its most active in the UK. The majority of scallops are sold as whole products (shell on), but a significant share is shelled and packed to be sold fresh or frozen through retail channels, to HoReCa, or exported.

Scallops have a firm, meaty texture, which requires minimal cooking (by steaming, pan-frying or grilling). It may also be consumed raw as sushi or carpaccio in restaurants.

A significant scallop processing industry exists in Europe (mainly freezing and shucking), particularly in the UK. In addition, a small industry based around the preparation of frozen meals (stuffed scallops) and chilled terrines exists, mostly in France[29].

An increasing number of scallop products are certified with quality-assurance schemes. A certain share of imports from Peru have been certified by the Aquaculture Stewardship Council (ASC), and some wild-caught scallops imported from Canada and Argentina are Marine Stewardship Council (MSC) certified[30]. In the EU, producers try to add value through certifications of origin (national, regional or local), the use of brand labels and/or Geographical Indications (e.g. PGI[31] *Coquille Saint-Jacques des Côtes-d'Armor*), or with quality-assurance schemes such as *Label Rouge*. However, even if imported frozen scallop can be marketed as *noix de Saint-Jacques,* especially in the food service sector or in prepared meals, the Great Atlantic scallop caught by the EU fleet is mostly marketed as whole and fresh. It has different organoleptic characteristics, thus it belongs to a different product category.

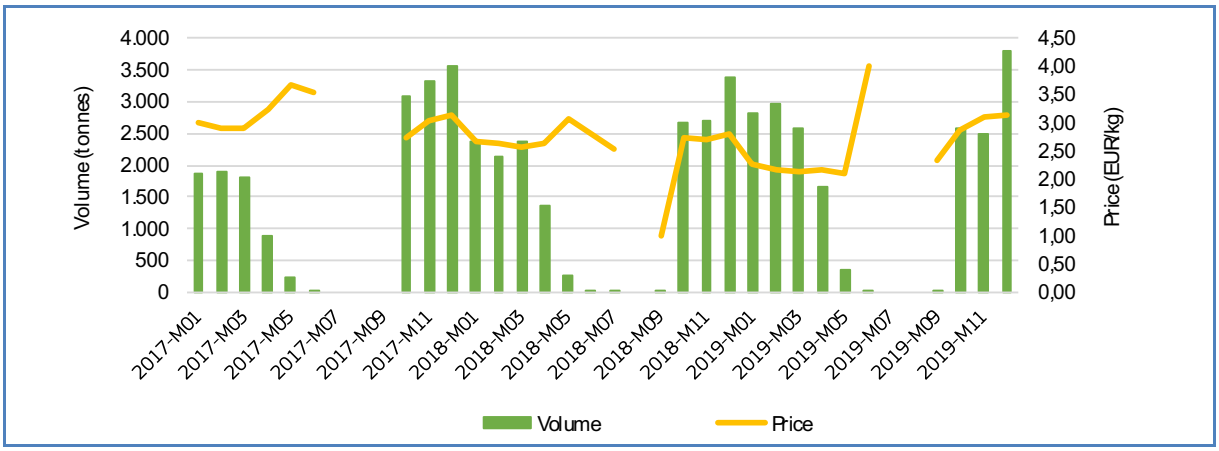
[29] https://www.eumofa.eu/documents/20178/137160/King+scallop_31-1.pdf
[30] Produits de la mer Magazine number 198 (Dec-Jan 2020).
[31] Protected Geographical Indication.

3.3 First sales in Europe

First-sale monthly data show the strong seasonality of **great Atlantic scallop** fisheries, with higher catch volumes during winter months in the primary scallop producing countries (France and the UK). In France, scallop fisheries are closed from May to October, while UK fisheries remain operational throughout the year. During the fishing season, monthly first-sale volumes in French auctions fluctuate between 1.500 and 3.500 tonnes, whereas in the UK average monthly first-sale volumes are lower (between 500 and 2.500 tonnes). The main auctions for great Atlantic scallop in France are Dieppe, Port-en-Bessin and Saint-Quay-Portrieux. In the UK, first sales mainly occur at Shoreham-by-Sea, Brixham and Hartlepool. In both the UK and France, a significant share of scallop catch is not sold in auctions, but rather directly to processors, traders or wholesalers and even as direct sales.

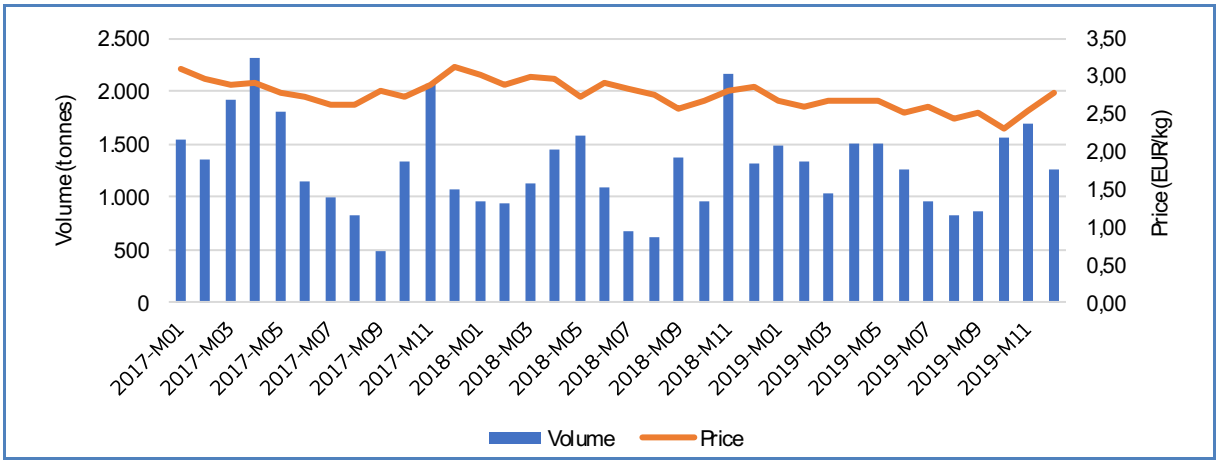
Prices at first-sale stage are more stable in the UK than in France due to the regularity of supplies. Over the course of a typical year, however, average prices are similar in the two countries (ranging between 2,60 and 3,00 EUR/kg). Between 2018 and 2019, a decrease in first-sale prices was seen in both France (–4%) and the UK (–9%).

Figure 5. **FIRST SALES OF GREAT ATLANTIC SCALLOP IN FRANCE (volume in tonnes, price in EUR/kg)**



Source: EUMOFA.

Figure 6. **FIRST SALES OF GREAT ATLANTIC SCALLOP IN THE UK (volume in tonnes, price in EUR/kg)**

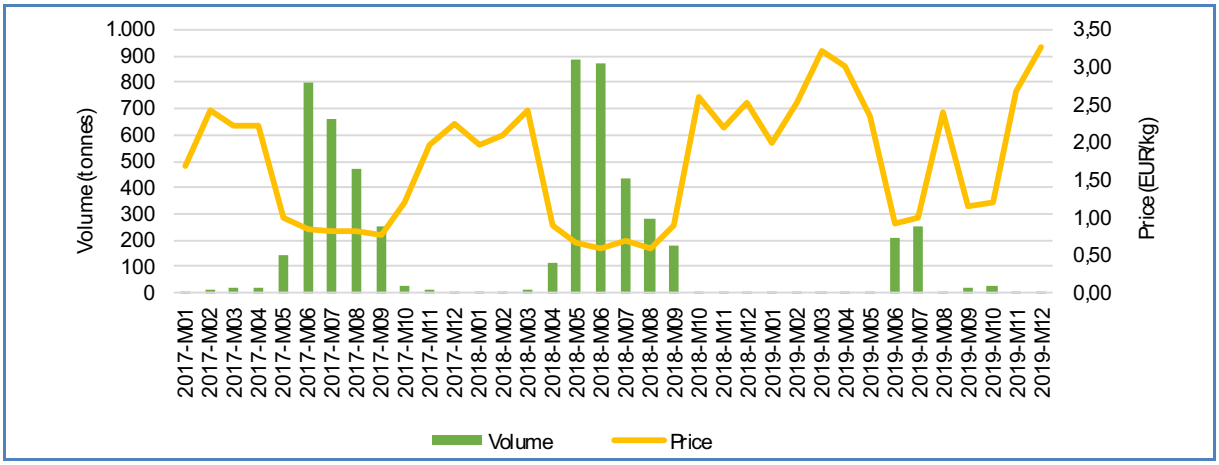


Source: EUMOFA.

For **queen scallop**, first-sale data indicate a pattern of seasonality with higher volumes during the spring and summer months in France, whereas seasonality for the UK is not clearly defined. During the fishing season, monthly first-sale volumes in France and the UK fluctuate between 200 and 800 tonnes. In 2019, both countries experienced a significant decrease of first-sale volumes relative to 2018. The primary place of sale for queen scallop in the UK is Kirkcudbright and, in France, Erquy and Grandville.

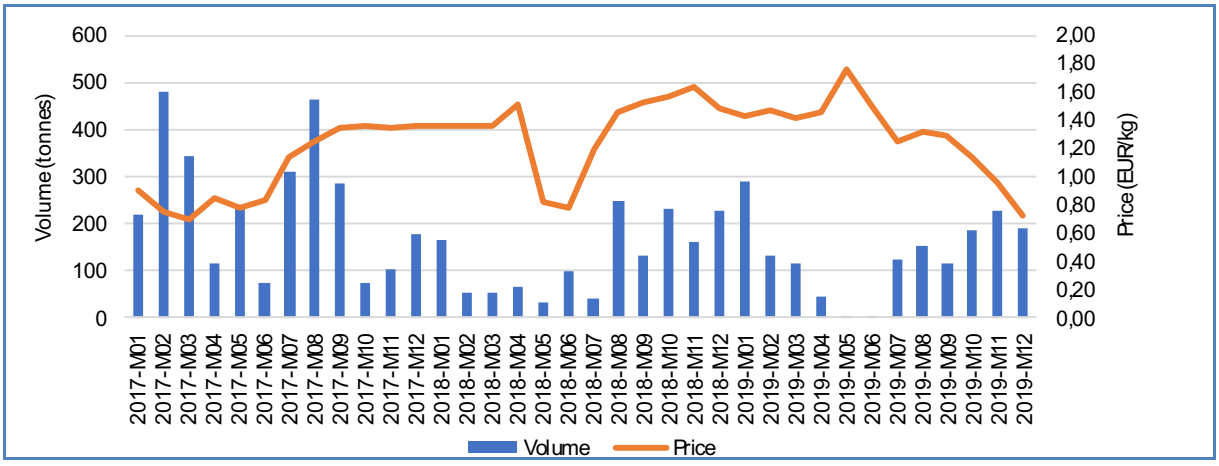
Over the 2017–2019 period, first-sale prices are highly sensitive to fluctuations in volume but were more stable in the UK than in France, owing to the stability provided by regular queen scallop supplies. On a yearly basis, average prices are lower in France (ranging between 0,70 and 1,05 EUR/kg over 2017–2019) than in the UK (ranging between 1,02 and 1,42 EUR/kg). In 2019, compared to 2018, average queen scallop prices decreased in the UK (–15%) but increased in France (+52%).

Figure 7. **FIRST SALES OF QUEEN SCALLOP IN FRANCE (volume in tonnes, price in EUR/kg)**



Source: EUMOFA.

Figure 8. **FIRST SALES OF QUEEN SCALLOP IN THE UK (volume in tonnes, price in EUR/kg)**



Source: EUMOFA.

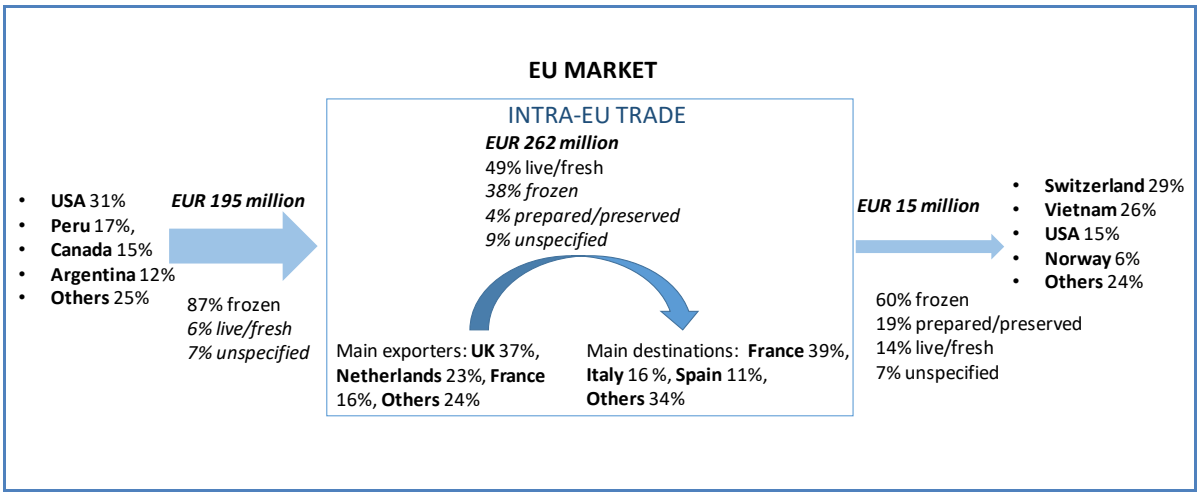
3.4 Import – Export

In 2018, the EU experienced a EUR 180 million trade deficit in scallops. The deficit was mainly attributable to the imports of frozen scallop from Chile, Peru, Canada and Argentina. Extra-EU imports of live/fresh scallop products are limited (13 million EUR for 860 tonnes in 2018), and mostly come from the USA, Faroe Islands, and Norway.

Scallop trade between EU Member States is predominantly centered around fresh products. In 2018, intra-EU exports reached EUR 262.493 million for more than 24.000 tonnes, of which 49% were fresh products and 38% were frozen products. The UK and the Netherlands are the main suppliers. France and, to a lesser extent Spain and Italy, are the main destination markets.

Extra-EU exports are relatively low (EUR 15 million for 3.125 tonnes in 2018), and the main destinations for fresh and frozen scallop are Switzerland, Vietnam, and the USA.

Figure 9. **THE EU SCALLOP TRADE MARKET IN 2019**



Source: EUMOFA based on Eurostat-COMEXT.

4. Tropical shrimp in the EU market

Tropical shrimps are among the most produced, traded and consumed species in the world and in the EU. The world production of tropical shrimps has kept increasing over the last decade, recently driven by China, Ecuador and India, and is expected to continue to increase in coming years. In 2019, extra-EU imports of frozen *Penaeus* shrimp reached 284.270 tonnes with a total value of EUR 1,98 billion, relatively stable compared to 2018.

4.1 Biology and production method

Biology

Most produced and traded tropical shrimp belong to the genus *Penaeus*. The Penaeidae family includes the most significant farmed crustacean species worldwide. The two main species produced are the whiteleg shrimp (*Penaeus vannamei*) and the giant tiger prawn (*Penaeus monodon*).

Source: Eurofish

The whiteleg shrimp is native to the Eastern Pacific coast from Sonora, Mexico through Central and South America as far south as Tumbes in Peru, in areas where water temperatures are normally higher than 20°C throughout the year. This species lives in tropical marine habitats. Adult whiteleg shrimp live and spawn in the open ocean, while postlarvae migrate inshore to spend their juvenile, adolescent and sub-adult stages in coastal estuaries, lagoons or mangrove areas[32].

Giant tiger prawns mature and breed in tropical marine habitats and, like whiteleg shrimp, spend their larval, juvenile, adolescent and sub-adult stages in coastal estuaries, lagoons or mangrove areas. In the wild, they show marked nocturnal activity, burrowing into bottom substratum during the day and emerging at night to search for food as benthic feeders. Giant tiger prawns live along the coasts of Australia, Southeast Asia, South Asia and East Africa.

Production methods

These two *Penaeus* species are both wild-caught and farmed. For many years, farmed production has significantly exceeded wild-caught production. There are three growing culture practices for shrimp farming: extensive, semi-intensive and intensive, which represent low, medium, and high stocking densities, respectively.

For ***Penaeus vannamei,*** captured wild seeds were used in Latin America for extensive pond culture until the late 1990s. Domestication and genetic selection programmes then provided more consistent supplies of high-quality, disease-free and/or disease-resistant varieties, which were cultured in hatcheries.

Recent research conducted in the USA has focused on growing *P. vannamei* in super-intensive raceway systems enclosed in greenhouses, using no water exchange (only the replacement of evaporation losses) or discharge, stocked with Specific Pathogen Free Post Larvae (SPF PL). These setups are biosecure, have a small ecological footprint and can produce shrimp close to consumption areas[33]. Several similar projects are also being developed in Europe.

Penaeus monodon was originally harvested together with other shrimp species from traditional trapping-growing ponds or as a significant by-product of extensive milkfish ponds. Due to their larger size and better survival, captured wild seeds were once commonly used in southern Asia for extensive ponds, which require a minimal amount of seed for stocking. However, the use of wild seeds has been reduced, due to overfishing and the outbreak of white spot disease in shrimp nursery grounds. Consequently, most grow-out farms now rely solely on hatchery-produced seeds[34].

[32] http://www.fao.org/fishery/culturedspecies/Penaeus_vannamei/en
[33] http://www.fao.org/fishery/culturedspecies/Penaeus_vannamei/en#tcNA0078
[34] http://www.fao.org/fishery/culturedspecies/Penaeus_monodon/en

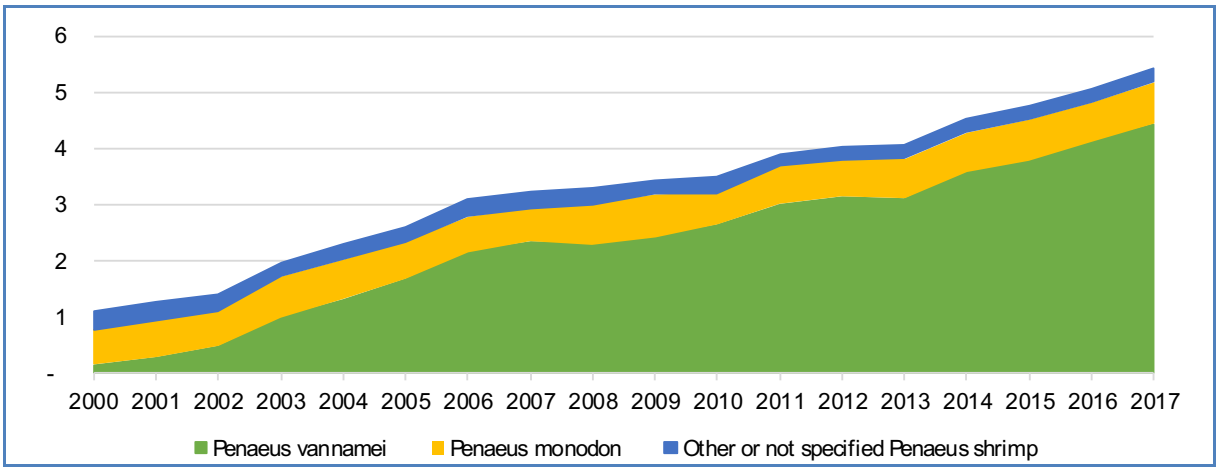
Post-harvesting process: after sorting, the shrimp are washed, weighed and immediately killed in iced water at 0–4 °C. Often sodium metabisulphate is added to the chilled water to prevent melanosis and red-head[35]. The shrimp are then kept on ice in insulated containers and transported by truck either to processing plants or domestic shrimp markets. In processing plants, shrimp are placed in iced bins and cleaned and sorted according to standard export sizes. The shrimp are processed, quickly frozen at -10 °C and stored at -20 °C for export, mostly by ship. Due to an increasing demand and higher profit margin associated with seafood products (as opposed to produce), many processing plants increasingly operate value-added product lines.

4.2 Production

Aquaculture

From the early 2000s, Asian countries have started progressively developing *P. vannamei* production instead of *P. monodon.* Production of *P. monodon* has stayed rather stable globally, rising only by 17% from 2000 to 2017, reaching 739.000 tonnes in 2017. In the same period, *P. vannamei* production has strongly increased, becoming by far the main farmed shrimp species globally, facilitated by lower production costs and better disease control. Production rose from 14% of world production of farmed *Penaeus* species in 2000 to 82% in 2017, when production amounted to 4,5 million tonnes. Due to its low price, this 'new' species can be sold in domestic markets, ensuring more stable incomes for farmers (rather than relying on unstable export prices[36]).

Figure 10. **EVOLUTION OF WORLD PRODUCTION OF FARMED *PENAEUS* SHRIMP IN 2008–2017 (volume in million tonnes)**



Source: FAO.

In 2017, China was the leading producer of farmed *P. vannamei* shrimp by a large margin, providing 38% of the global total, followed by India (13%), Indonesia (11%), Vietnam (10%) and Ecuador (10%). Other important producers were Thailand (7%) and Mexico (3%).

Over the last decade (2008–2017), global production of farmed *P. vannamei* has almost doubled. Vietnam, Indonesia and Ecuador experienced the most spectacular production booms (1.037%, 141% and 190%, respectively) and Chinese production grew by 57%.

According to the FAO, EU production of farmed *P. vannamei* shrimp was made up of only a small production volume in Spain (8 tonnes in 2017). In addition, there is some EU production of Kuruma prawn (*Penaeus japonicus*) in France (about 60 tonnes in 2017), Italy (6 tonnes) and Spain (1 tonne).

[35] Melanosis (or blackspot), in shrimp, is a harmless but objectionable discoloration or darkening, occurring primarily along the swimmerets, head, tail and nearby shell areas. Usually "red heads" turn up during harvest or when shrimp are being transported to the packing plant. It occurs when the hepatopancreas bursts open inside the cephalothorax. These colorations usually lower the price of the products.

[36] http://www.fao.org/fishery/culturedspecies/Penaeus_monodon/en

Table 17. **WORLD PRODUCTION OF FARMED *P. VANNAMEI* SHRIMP (volume in tonnes)**

Countries	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
China	1.062.765	1.102.712	1.183.585	1.258.159	1.359.763	1.338.958	1.473.007	1.519.409	1.628.638	1.672.287
India	-	1.730	-	125.000	136.300	211.200	305.251	416.347	461.302	583.400
Indonesia	208.648	170.969	206.578	246.420	238.663	376.189	442.379	409.899	498.174	503.800
Vietnam	38.600	36.000	99.285	140.466	148.023	236.242	352.722	339.489	380.000	439.023
Ecuador	150.000	179.100	223.313	260.000	281.100	304.000	340.000	403.000	422.000	435.000
Thailand	501.394	571.189	561.075	603.227	588.370	310.705	263.245	281.918	321.542	329.636
Mexico	130.201	125.778	104.612	109.816	100.320	60.292	86.973	130.361	127.814	150.030
Others	212.950	241.868	270.092	278.815	292.366	284.256	332.119	302.521	293.495	343.428
Total	**2.304.558**	**2.429.346**	**2.648.540**	**3.021.903**	**3.144.905**	**3.121.842**	**3.595.696**	**3.802.944**	**4.132.965**	**4.456.604**

Source: FAO.

Giant tiger shrimp (P. *monodon*) is mostly farmed in Asian countries. In 2017, the leading producer of farmed *P. monodon* shrimp was Vietnam which provided 36% of the world total, followed by Indonesia (19%). Other important producers were China (10%), Bangladesh (9%), India (10%), Myanmar (7%), and the Philippines (6%).

Over the last decade (2008–2017), the world production of farmed *P. monodon* has stayed stable, with a 3% increase. The leading producer, Vietnam, has experienced a significant decline (-19%), as many shrimp farmers shifted to *P. vannamei* shrimp after the white spot episode[37], as well as in India (-23%). In other major producing countries, the production either stayed stable (+2% in both Indonesia and Philippines) or either increased (by 24% in China and 15% in Myanmar).

Table 18. **WORLD PRODUCTION OF FARMED *P. MONODON* SHRIMP (volume in tonnes)**

Countries	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Vietnam	324.600	316.000	212.567	194.427	164.189	186.467	240.248	250.879	244.087	262.936
Indonesia	134.930	124.561	125.519	126.157	116.311	175.318	129.231	127.626	131.556	138.200
China	60.899	59.515	54.961	57.850	61.860	68.920	71.554	72.492	71.894	75.227
Bangladesh	-	49.710	43.154	56.569	57.785	68.948	71.430	75.274	68.217	68.272
India	76.000	96.880	-	130.000	131.900	78.500	70.389	82.043	57.330	58.450
Myanmar	48.303	46.104	46.105	51.207	52.693	52.000	40.000	49.891	54.179	55.310
Philippines	45.343	47.830	48.162	47.495	48.197	49.467	47.843	49.527	49.139	46.068
Others	30.290	27.844	32.424	24.806	36.391	29.293	31.068	27.471	28.775	34.964
Total	**720.365**	**768.444**	**562.892**	**688.511**	**669.326**	**708.913**	**701.763**	**735.203**	**705.177**	**739.427**

Source: FAO.

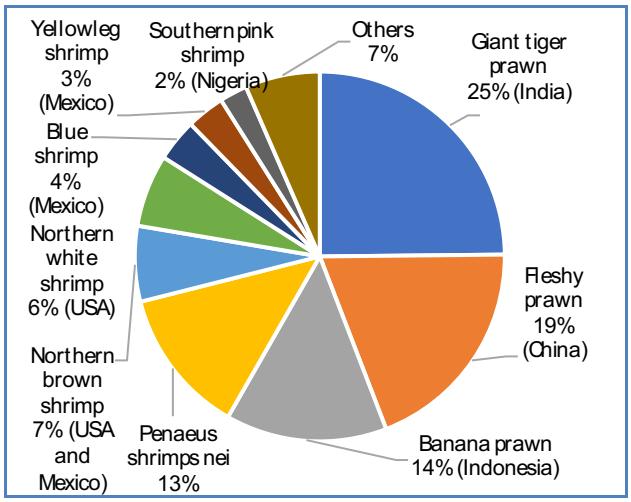
According to a Global Aquaculture Alliance survey, the growth of shrimp production from 2017 to 2018 was estimated at +11%, especially attributable to Ecuador, China and India. In 2019, the growth was only +1%[38].

[37] Among the more lethal viruses infecting Penaeid shrimp, the white spot syndrome virus (WSSV), a rapidly replicating and extremely virulent shrimp pathogen, has emerged globally as one of the most prevalent and widespread. It was first detected in the early 1990s and it particularly impacted the Asian shrimp farming industry over the 2010-2013 period.

[38] https://www.aquaculturealliance.org/advocate/goal-2019-global-shrimp-production-review/

Catches

Figure 11. **WORLD CATCHES OF *PENAEUS* SHRIMP IN 2017: BREAKDOWN BY MAIN SPECIES AND RELATED MAIN PRODUCER**



Source: FAO.

Global wild catches of *Penaeus* shrimp (all species), amounted to 937.221 tonnes in 2017. The main species caught were:

- Giant tiger prawn (25% of the total), 90% of which were caught by India.
- *Penaeus chinensis*: Fleshy prawn (19%), mostly caught by China (99%).
- *Penaeus merguiensis*: Banana prawn (14%), mostly caught by Indonesia (87%).
- Not specified *Penaeus* species (13%), reported in catches of many countries all over the world.

Between 2008 and 2017, the world production of wild-caught *Penaeus* shrimp experienced a 21% increase, mostly attributable to fleshy prawn (+101%), banana prawn (+47%), northern brown shrimp (+51%), blue shrimp (+187%) and yellowleg shrimp (+287%).

According to Eurostat 2018 preliminary data, EU catches of *Penaeus* shrimp species mostly included shrimp caught in the Mediterranean. EU catches of *Penaeus* species in 2018 amounted to about 2.800 tonnes in 2017: 88% of caramote prawn (*Melicertus kerathurus,* mostly caught by Greece and Spain) and 12% of not specified *Penaeus* shrimp. In addition, about 17.000 tonnes of deep-water rose shrimp were caught by the EU fleet in 2017 (*Parapenaeus longirostris,* mostly caught by Croatia and Spain). Concerning EU Outermost regions, there is a locally important commercial fishery of *Penaeus* shrimp in French Guiana (*P. subtilis* and *P. brasilensis*), accounting for 665 tonnes in 2017, following a significant decreasing trend since the mid-2000s.

Since 2009, EU catches of *Penaeus* shrimp decreased by 38%, with strong fluctuations over the decade (mostly due to the strong variability of Greek catches of caramote prawn). However, over the period, EU catches of deep-water rose shrimp have stayed relatively stable despite strong fluctuations of national productions.

Processing and marketing

Tropical shrimps are mostly imported whole and frozen to be cooked and sold as chilled products (whether head-on or head-off and sometimes peeled). A share of these imports is also sold through the frozen products market. There are different types of segment on the cooked shrimp market, based on categories of size, presentation and preservation, and certification.

Preferred processing depends on the country in question. The various presentation types are as follows: whole (HOSO), but also shell on (SO), peeled tail on (PTO), peeled undeveined (PUD) or peeled and deveined (P&D) and tail-on (TO). In southern Europe (countries such as Spain, France, Portugal and Italy), raw HOSO shrimp are preferred for the cooking industry. In northern Europe (countries such as the Netherlands, Germany, Belgium, the UK, Sweden, Finland, Denmark), retail PUD shrimps are popular. In the EU, *P. vannamei* shrimps are measured by pieces per kilogram (pc/kg). For EU market, around 40-50 pc/kg and 50-60 pc/kg are preferred. Usually 10% of glazing declared on packaging[39]. However, *Penaeus* shrimps caught by the EU fleet are mostly marketed fresh and reach much higher prices.

The shrimp farming sector, particularly in Asia, has received negative comments from Europe's media over the last decade. Shrimp farming has been criticized for its negative impact on local communities and the environment such as pollution of groundwater and agricultural land. In this context, consumers' awareness of such potential negative impacts has been increasing. European buyers are therefore seeking out shrimp suppliers that are able to prove the sustainability and responsibility of the products they buy. In recent years, organic and ecolabelled shrimp production has started in all major production regions (Madagascar, Vietnam, Honduras, Ecuador, China, India, etc.).

[39] https://www.cbi.eu/market-information/fish-seafood/shrimp-products/vannamei-shrimp/

The first example has been *Penaeus monodon* from Madagascar, the first 'Label Rouge' and certified organic shrimp, historically marketed on the French market.

While organic *P. vannamei* are mostly sourced from Ecuador, organic *P. monodon* is farmed in several countries (e.g. Bangladesh, Madagascar, India, Indonesia and Vietnam). However, the availability of ASC-certified[40] shrimp in Europe has recently rapidly grown. Worldwide, in recent years numerous shrimp farms have gained ASC certification. Examples are farms in Belize, Honduras and Bangladesh[41].

4.3 Import – Export

The main characteristic of the EU market for tropical shrimp is its total dependence on imports, mainly from Central and South America and Asia. Shrimps are mostly imported raw and frozen to be cooked next to consumption areas. Countries such as Spain, Italy and France import raw material to a large extent, mostly head-on shell-on, as a source for domestic shrimp cooking plants. Northern and western European countries, on the other hand, import more cooked or peeled shrimps. Northern and western European countries predominantly import their shrimps from Asian countries, while southern European countries tend to source mainly from South America[42].

EU imports of frozen *Penaeus* shrimp[43] are under an Autonomous Tariff Quota (ATQ) in order to support the EU shrimp processing sector (mostly cooking). In 2019, the quota was 40.000 tonnes[44]. Moreover, thanks to the free trade agreement signed between EU and Ecuador in place since 2017, EU shrimp buyers can import Ecuadorian *P. vannamei* with a zero duty, down from 3,6% (outside the ATQ)[45].

In 2019, extra-EU imports of frozen *Penaeus* shrimp reached 284.270 tonnes for EUR 1,98 billion, stable compared to 2018. The main importing countries in value terms were France (23%), Spain (19%), the UK (14%) and the Netherlands (13%). The main origin countries in value terms were Ecuador (31%), Vietnam (17%), India (15%) and Bangladesh (10%).

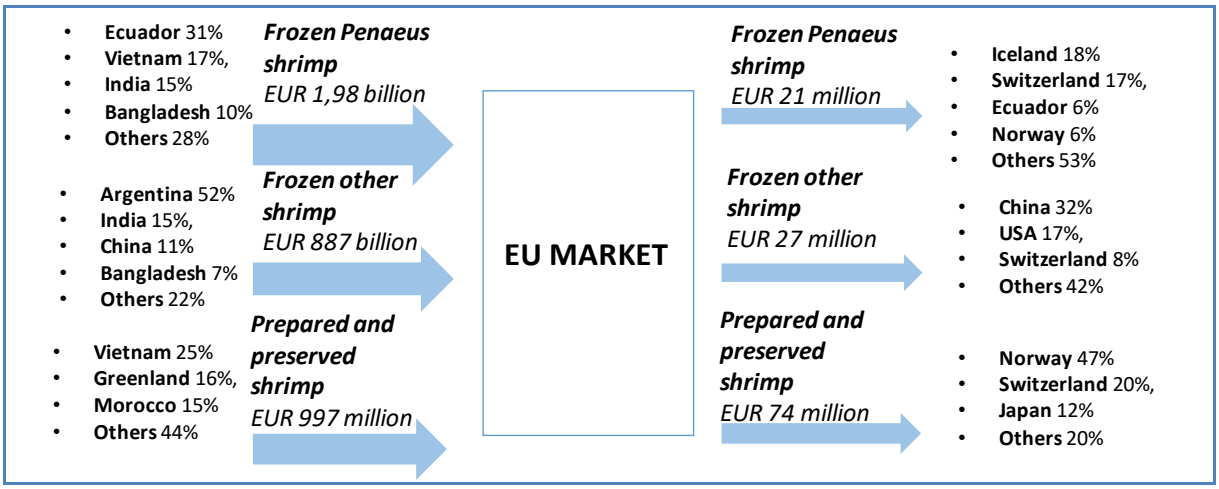
It should be noted that other frozen shrimp (excluding *Penaeus* species, *Pandalus* species, *Crangon* species and deep-water rose shrimp)[46] reached 135.976 tonnes for EUR 887 million in 2019. The main importing countries in terms of value were Spain (50%) and Italy (19%). A large share Spanish imports comprises wild-caught Argentinian red shrimp. The main origins in value terms were Argentina (52%), India (15%) and China (11%).

CN codes for other preservation states do not allow to distinguish *Penaeus* shrimp but – considering their importance in world shrimp production and trade – it is likely that they account for a significant share. In 2019, for prepared/preserved shrimp[47], extra-EU imports reached 112.101 tonnes for EUR 997 million. The main importing countries in value terms were Denmark (26%), the UK (25%) and the Netherlands (22%). Extra-EU imports of chilled/fresh shrimp[48] are very limited (142 tonnes for EUR 5 million in 2019). The main origin countries in value terms were Vietnam (25%), Greenland (16%, likely to concern cold-water shrimp species) and Morocco (15%, likely to concern peeled shrimp re-exported to the EU market).

Extra-EU exports remained limited, with 3.493 tonnes of frozen *Penaeus* shrimp for EUR 21 million exported in 2019, the main partners being Iceland (18%) and Switzerland (17%), in value terms. For prepared and preserved shrimp, extra-EU exports reached 6.644 tonnes for EUR 74 million, main destinations being Norway (47%), Switzerland (20%) and Japan (12%), in value terms. Concerning chilled/fresh shrimp products, Switzerland accounted for 53% of extra-EU exports amounting to 160 tonnes for EUR 2,5 million.

[40] ASC: Aquaculture Stewardship Council.
[41] https://www.eumofa.eu/documents/20178/105319/Cooked+shrimp+in+France.pdf
[42] https://www.cbi.eu/market-information/fish-seafood/shrimp-products/vannamei-shrimp/
[43] CN code03061792: Frozen shrimps of the genus "Penaeus", even smoked, whether in shell or not, incl. shrimps in shell, cooked by steaming or by boiling in water.
[44] Council Regulation (EU) 2018/1977 of 11 December 2018.
[45] https://www.undercurrentnews.com/2017/01/26/ecuador-eu-free-trade-to-benefit-exporters-of-all-origins-of-shrimp/
[46] CN code: 03061799: Frozen shrimps and prawns, even smoked, whether in shell or not, incl. shrimps and prawns in shell, cooked by steaming or by boiling in water (excl. "Pandalidae", "Crangon", deepwater rose shrimps "Parapenaeus longirostris" and "Penaeus").
[47] CN codes 16052110: Shrimps and prawns, prepared or preserved, in immediate packings of a net content of <= 2 kg (excl. merely smoked, and in airtight containers); 16052190: Shrimps and prawns, prepared or preserved, in immediate packings of a net content of > 2 kg (excl. merely smoked, and in airtight containers); 16052900: Shrimps and prawns, prepared or preserved, in airtight containers (excl. smoked).
[48] CN code 03063690: Shrimps and prawns, whether in shell or not, live, fresh or chilled (excl. "Pandalidae" and "Crangon").

Figure 12. **EXTRA-EU TRADE FLOWS FOR SHRIMP PRODUCTS IN 2019**

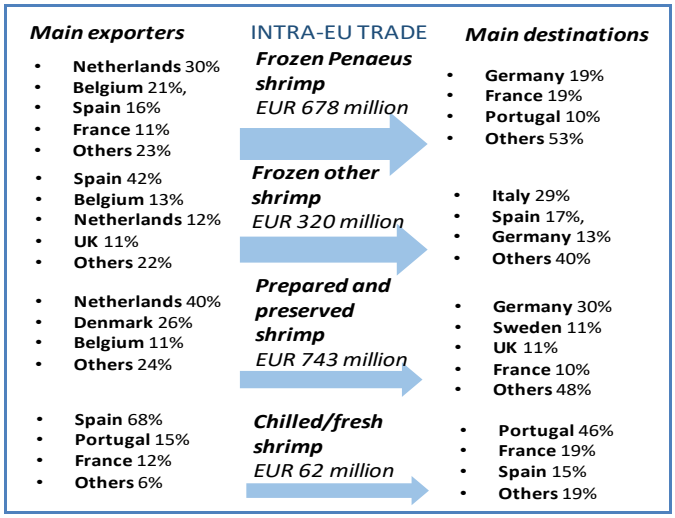


Source: EUMOFA elaboration of Eurostat-COMEXT data (excluding brown shrimp, cold-water shrimp and deep-water rose shrimp).

In 2019, **intra-EU exports** of frozen *Penaeus* shrimp reached 85.174 tonnes for EUR 678 million. Main exporting countries in value terms were the Netherlands (30%) and Belgium (+31%), these two countries being a hub for extra-EU imports, then Spain (16%) and France (11%). The main destinations were Germany (19%), France (19%) and Portugal (10%).

Fresh/chilled shrimp intra-EU exports reached 7.505 tonnes for EUR 62 million, a significant share being cooked and chilled shrimp moving from Spain to Portugal.

Figure 13. **INTRA-EU EXPORT FLOWS FOR SHRIMP PRODUCTS IN 2019**



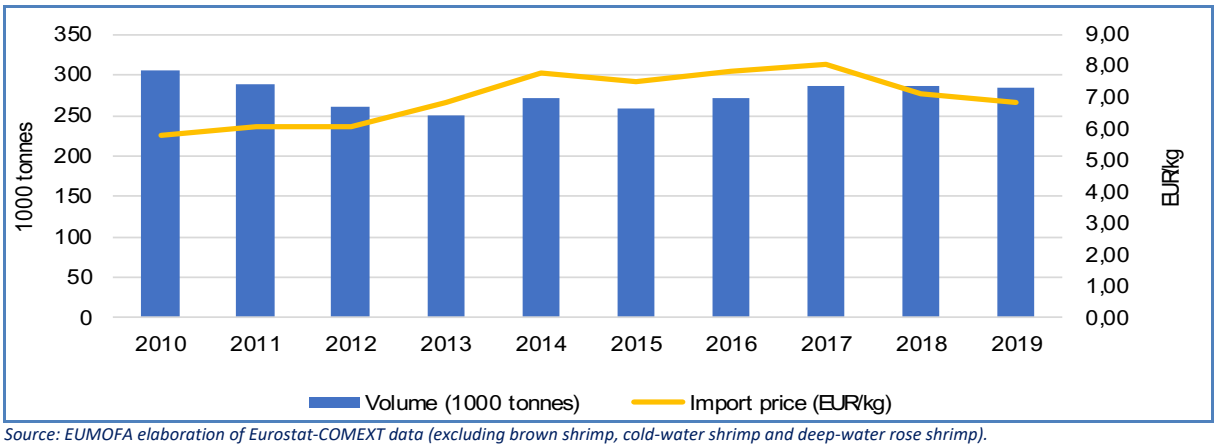
Source: EUMOFA elaboration of Eurostat-COMEXT data (excluding brown shrimp, cold-water shrimp and deep-water rose shrimp)

4.4 Latest trends on the shrimp market

Extra-EU imports of frozen *Penaeus* shrimp experienced fluctuations over the last decade. After a significant decline from 2010 to 2013 (when the world supply was the lowest) and a rebound in 2014, EU imports increased from 2015 to 2018. Average import prices kept increasing slightly from 2015 to 2017, exceeding 8,00 EUR/kg, then declined in 2018. Import prices remained stable in 2019 due to the increasing production in Ecuador, India and China[49].

[49] Price data are delated using the GDP deflator tool. Base year is 2015.

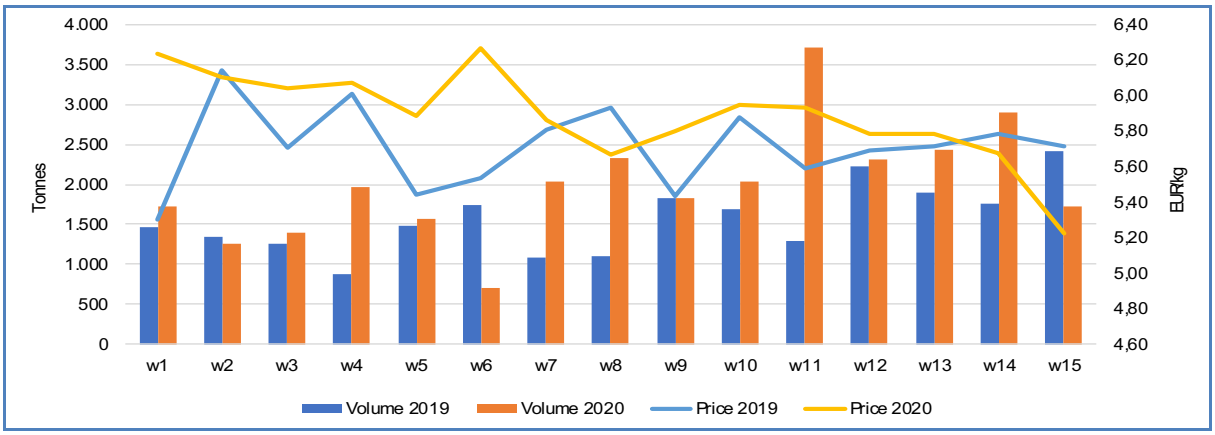
Figure 14. **EXTRA-EU IMPORTS OF FROZEN *PENAEUS* SHRIMP IN 2010–2019**



Source: EUMOFA elaboration of Eurostat-COMEXT data (excluding brown shrimp, cold-water shrimp and deep-water rose shrimp).

In 2019, the growth of world farmed shrimp production was expected at +5% from 2017 to 2021, according to a survey of the Global Aquaculture Alliance[50]. Over the 15 first weeks of 2020, EU imports of frozen *P. vannamei* from Ecuador have been at a higher level than for the same period in 2019 and 2018. Restriction measures related to the COVID-19 outbreak in the EU – particularly the closure of the food service sector and the drop of demand for fresh seafood in retail – has highly impacted the activity of shrimp processors. As a result, in week 15, a significant decrease in import volumes of frozen *P. vannamei* (-40% for extra-EU imports from Ecuador, -29% compared to the same week in 2019) and a slight decrease of prices (-8%, and -9% compared to the same week in 2019) occurred compared to the week 14.

Figure 15. **EXTRA-EU WEEKLY IMPORTS OF FROZEN P. VANNAMEI SHRIMP FROM ECUADOR IN WEEK 1 TO WEEK 15, IN 2019 AND 2020**



Source: EUMOFA elaboration of DG-TAXUD weekly data.

According to Rabobank, the shrimp sector will be one of the hardest hit seafood sectors due to the strong fall in demand. Moreover, since many shrimp farmers were reluctant to restock their ponds, especially in Ecuador, the price decline during the pandemic is likely to result in a steep rise if supply collapses in the second half of the year – provided the market returns to normal[51].

[50] https://www.aquaculturealliance.org/advocate/goal-2019-global-shrimp-production-review/

[51] https://www.undercurrentnews.com/2020/03/30/rabobank-farmed-shrimp-will-be-one-of-hardest-hit-sectors-by-coronavirus/

5. Geographical indications (GIs) and traditional specialities guaranteed (TSG) in the seafood sector

5.1 General background

Geographical indications (GIs) refer to Protected Designations of Origin (PDOs) and Protected Geographical Indications (PGIs). In addition, a third scheme is related to traditional aspects, namely the Traditional Specialities Guaranteed (TSG)[52]. The distinctions between each, according to the relevant EU Regulation on PDO/PGI/TSG in the agricultural and foodstuffs sector[53], are outlined below:

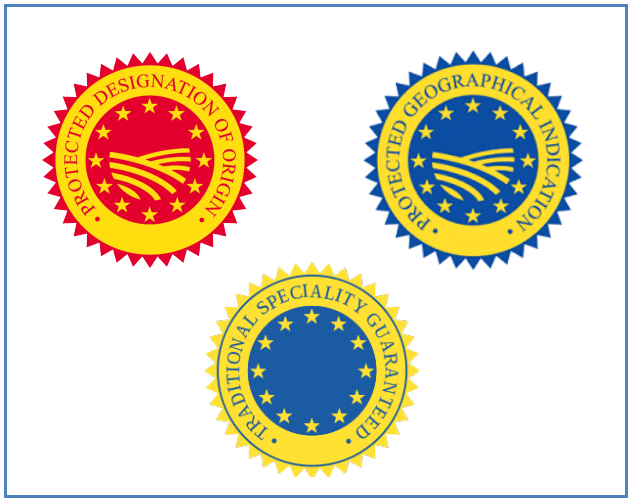
- For **Protected Designations of Origin (PDOs)**, all stages of production must take place in the protected area and there must be a strong link between the origin of the products and its quality.
- For **Protected Geographical Indications (PGIs)**, at least one production step must take place in the protected area; the quality, reputation or other characteristic of the product must be essentially attributable to the geographical origin.
- For **Traditional Specialities Guaranteed (TSG)**, there is no protected geographical area. Instead, this scheme aims to register traditional recipes.

Geographical indications have been developed and supported by public authorities since the 19th century. At first, this mainly concerned processed products, exported out of their production area, such as wine, cheese, and ham for which there was a need to guarantee the origin and the quality. At EU level, the GI scheme was developed with the Common Market Organisation (CMO) in the wine sector in the 1970s. In a context of overproduction, GIs aimed at producing less wine, but of better quality. This historical perspective explains the large importance of wine, cheese, and ham under GI. The recognition of other types of products under GI at EU level came in the 1980s with spirit drinks and in the 1990s with agricultural products and foodstuffs[54], including fisheries and aquaculture products (FAP). The objectives were, in addition to the protection of intellectual property rights, to differentiate the product on the market, increase producer income, support rural development, and preserve local know-how and patrimony. These different objectives led to the registration of different types of GI and TSG in terms of product coverage, scale of production, and markets.

5.2 Logos for PDO/PGI/TSG

The products marketed under PDO, PGI and TSG schemes in the agricultural and foodstuffs sector bear the relevant EU logo, displayed below.

Figure 16. **EU LOGOS FOR PDO,PGI AND TSG**

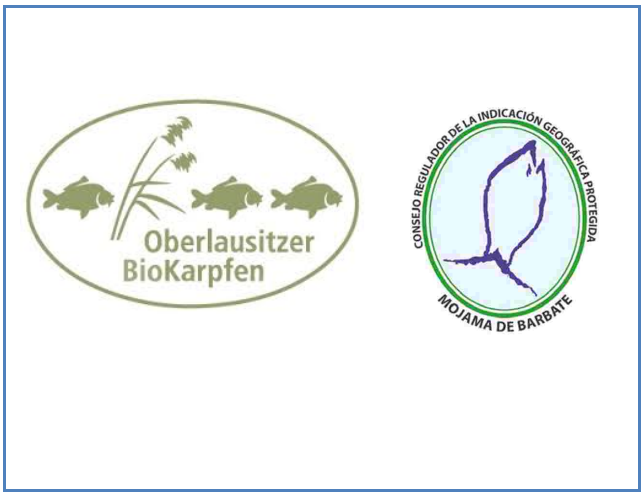


Awareness of PDO, PGI and TSG logos among EU citizens is relatively low, according to data from Eurobarometer 473[55]: 18% for the PDO logo, 18% for the PGI logo and 15% for the TSG logo. There were large disparities in logo awareness between the various Member States (MS), with the highest awareness relating to the PDO logo in France (45%) and Italy (32%), and the lowest in Denmark, Malta, Romania, and the United Kingdom (5%). This level of awareness is below that of the EU organic logo (27% at EU level, according to Eurobarometer 473) and below that of logos from national schemes such as German or French organic schemes, Quality Food from Hungary scheme, Label Rouge (France) and Quality South Tyrol (Italy) which boast awareness of at least 60% nationally[56]. The identification of these products on the market is based on these logos (for which consumer awareness is limited), and the protected names, which have much wider recognition. As an example, the awareness of the PDO "Parmigiano Reggiano" is higher than the awareness of the PDO logo.

[52] More details on DG AGRI website: https://ec.europa.eu/info/food-farming-fisheries/food-safety-and-quality/certification/quality-labels/quality-schemes-explained_en
[53] Regulation (EU) No 1151/2012 of the European Parliament and of the Council of 21 November 2012 on quality schemes for agricultural products and foodstuffs: https://eur-lex.europa.eu/eli/reg/2012/1151/oj
[54] National schemes for GIs exist prior to EU schemes in some countries.
[55] "Europeans, Agriculture and the CAP", 2017 data, published in 2018.
[56] Hartmann M. et al., Quantitative research findings on European consumers' perception and valuation of EU food quality schemes as well as their confidence in such measures, Strength2Food, 2018.

In addition to the EU Logos, some producer groups request the use of an additional logo for the products sold under GI/TSG. This is the case for the PGI "Oberlausitzer Biokarpfen" and the PGI "Mojama de Barbate".

Figure 17. **LOGOS FOR PGI "OBERLAUSITZER BIOKARPFEN" AND PGI "MOJAMA DE BARBATE"**



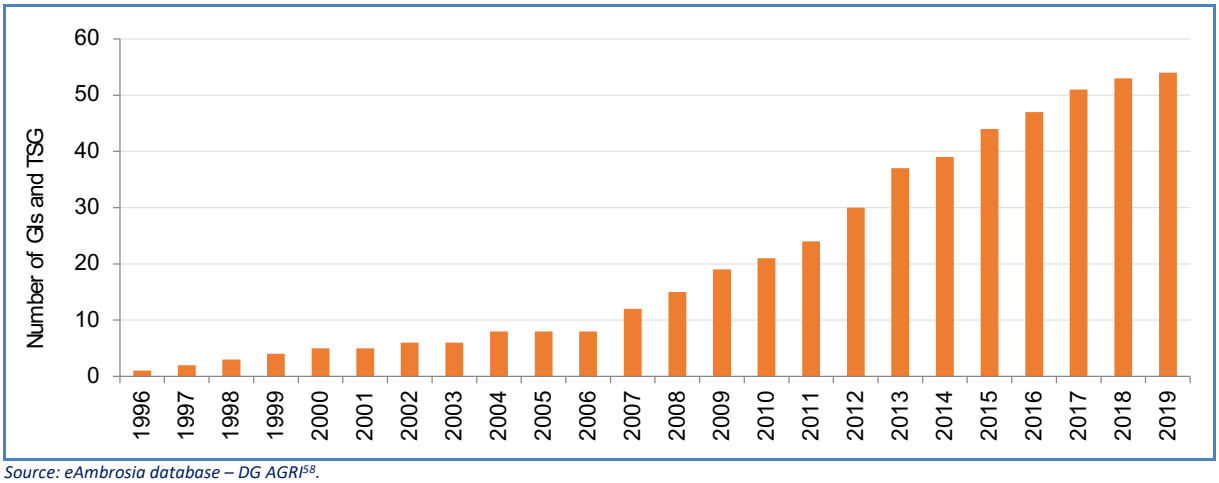
Source: Producer groups of the concerned GIs.

5.3 53 GIs/TSGs in the seafood sector

More than 30 names registered over the last 10 years

As of May 2020, there are more than 3.300 names registered under GI and TSG, including 53 names protected in the seafood sector (36 from the EU-27, 14 from the UK and 3 from other third countries). The first GI and TSG registrations for agricultural products and foodstuffs were registered at EU level in 1996[57], including one seafood product, the PDO "Avgotaracho Messolongiou" in Greece (processed fish eggs). From 1996 to 2006, few (0-2) new names were registered each year for fishery and aquaculture products. Registrations increased in 2007, with up to 7 names registered in 2013. The name registered most recently is the PGI "Bulot de la Baie de Granville" in France (February 2019).

Figure 18. **NUMBER OF NAMES REGISTRED UNDER GI/TSG EACH YEAR**



Source: eAmbrosia database – DG AGRI[58].

Names are registered in a total of 14 Member States (MS) and 4 third countries. The main MS concerned include Germany, France, Italy, and Spain, with 5 to 7 names registered in each. This is followed by Czechia, Finland, and Romania (with 2 names registered), and the Netherlands, Latvia, Portugal, China, Poland, Sweden, Ireland and Greece (with one name registered in each). A total of 17 names are registered in third countries: 14 in the UK and 1 in China, Norway, and Vietnam.

[57] Council Regulation (EC) No 2081/92 of 14 July 1992 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs.
[58] Link to eAmbrosia: https://ec.europa.eu/info/food-farming-fisheries/food-safety-and-quality/certification/quality-labels/geographical-indications-register/

A large range of products is covered by GI/TSG: wild caught, farmed, fresh, and processed

Among the 53 names protected under GI and TSG, 31 are wild caught species (58%), 21 are farmed products (40%), and one is both farmed and wild caught (2%). Among the 53 names, 36 are PGIs, 14 are PDOs, and three are registered under TSG.

There is a wide range of products with protected names, covering both fresh (43% of the protected names) and processed products (36%). Some GI and TSG registrations cover both presentations: fresh and processed (21%). The key processing methods are smoking, drying, and salting.

Protected wild caught finfish species include:

- **Tuna** (3 names): PGIs "Melva de Andalucia", "Mojama de Barbate", and "Mojama de Isla Cristina" in Spain;
- **Anchovy** (3 names): PGI "Anchois de Collioure" (France), PGI "Acciughe sotto sale del Mar Ligure" (Italy), and PDO "Phú Quốc" (China);
- **Vendace** (3 names): PDO "Kalix Löjrom" (Sweden), PGI "Puruveden muikku" (Finland), and PDO "Kitkan viisas" (Finland);
- **Cod** (3 names): TSG "Bacalhau de Cura Tradicional Portuguesa" (Portugal); PGI "Traditional Grimsby Smoked Fish" (UK), and PGI "Tørrfisk fra Lofoten" (Norway);
- **Herring** (2 names): TSG "Hollandse maatjesharing / Hollandse Nieuwe / Holländischer Matjes" (the Netherlands) and PGI "Glückstädter Matjes" (Germany);
- **Salmon** (2 names): PGIs "Scottish Wild Salmon" and "West Wales Coracle Caught Salmon" (UK);
- **Other species** are carp, haddock, herring, eel, lamprey, mackerel, pilchard and pontic shad.

Protected farmed finfish species include:

- **Carp** (8 names): names are registered in Germany, Czechia, and Poland (6 PGIs and 2 PDOs), the oldest one being "Oberpfälzer Karpfen" registered in 2002. The most recently registered is the PGI "Oberlausitzer Biokarpfen", which is 100% organic (registered in 2015);
- **Trout** (2 names): PGI "Schwarzwaldforelle" (Germany) and PGI "Trote del Trentino" (Italy);
- **Salmon** (2 names): PGI "Clare Island Salmon" (Ireland), PGI "London Cure Smoked Salmon" (UK)[59], and PGI "Scottish Farmed Salmon" (UK);
- **Other species** are mullet, tench, and char with one name registered for each species (Greece and Italy).

Protected molluscs and crustaceans are from both wild catches and aquaculture, and include:

- **Mussel** (5 names): PDO "Mejillón de Galicia; Mexillón de Galicia" (Spain), PDO "Moules de Bouchot de la Baie du Mont-Saint-Michel" (France), PDO "Cozza di Scardovari" (Italy), TSG "Moules de Bouchot" (France) and PDO "Conwy Mussels" (UK);
- **Oyster** (3 names): PGI "Huîtres Marennes Oléron" (France), PGI "Whitstable oysters" (UK) and PDO "Fal Oyster" (UK);
- **Scallop** (2 names): PGI "Coquille Saint-Jacques des Côtes d'Armor" (France) and "Isle of Man Queenies" (UK);
- **Other species** are whelk: PGI "Bulot de la Baie de Granville" (France), and crayfish: PGI "Ancheng Long Xia" (China).

Details on the 53 names registered are provided in the next table.

[59] The specification of PGI "London Cure Smoked Salmon" allows the use of farmed and wild caught salmon.

Table 19. **LIST OF REGISTERED NAMES UNDER PDO, PGI, TSG AND MAIN FEATURES**

EU-27 / non-EU	Protected name	PDO / PGI / TSG	Country	Year of registration	Species	Wild caught / farmed / both	Fresh / processed / both
EU-27	Bulot de la Baie de Granville	PGI	FR	2019	Whelk	Wild caught	Both
	Scrumbie de Dunăre afumată	PGI	RO	2018	Pontic shad	Wild caught	Processed
	Novac afumat din Ţara Bârsei	PGI	RO	2017	Carp	Wild caught	Processed
	Mojama de Barbate	PGI	ES	2016	Tuna	Wild caught	Processed
	Mojama de Isla Cristina	PGI	ES	2016	Tuna	Wild caught	Processed
	Hollandse maatjesharing / Hollandse Nieuwe / Holländischer Matjes	TSG	NL	2015	Herring	Wild caught	Processed
	Carnikavas nēģi	PGI	LV	2015	Lamprey	Wild caught	Both
	Glückstädter Matjes	PGI	DE	2015	Herring	Wild caught	Processed
	Oberlausitzer Biokarpfen	PGI	DE	2015	Carp	Farmed	Both
	Moules de Bouchot	TSG	FR	2014	mussel	Farmed	Fresh
	Bacalhau de Cura Tradicional Portuguesa	TSG	PT	2013	cod	Wild caught	Processed
	Puruveden muikku	PGI	FI	2013	Vendace	Wild caught	Fresh
	Trote del Trentino	PGI	IT	2013	Trout	Farmed	Fresh
	Salmerino del Trentino	PGI	IT	2013	Char	Farmed	Fresh
	Kitkan viisas	PDO	FI	2013	Vendace	Wild caught	Fresh
	Cozza di Scardovari	PDO	IT	2013	Mussel	Farmed	Fresh
	Aischgründer Karpfen	PGI	DE	2012	Carp	Farmed	Fresh
	Fränkischer Karpfen / Frankenkarpfen / Karpfen aus Franken	PGI	DE	2012	Carp	Farmed	Fresh
	Moules de Bouchot de la Baie du Mont-Saint-Michel	PDO	FR	2011	Mussel	Farmed	Fresh
	Karp zatorski	PDO	PL	2011	Carp	Farmed	Fresh
	Kalix Löjrom	PDO	SE	2010	Vendace	Wild caught	Processed
	Melva de Andalucia	PGI	ES	2009	Tuna	Wild caught	Processed
	Caballa de Andalucia	PGI	ES	2009	Mackerel	Wild caught	Processed
	Huîtres Marennes Oléron	PGI	FR	2009	Oyster	Farmed	Fresh
	Acciughe sotto sale del Mar Ligure	PGI	IT	2008	Anchovy	Wild caught	Processed
	Tinca Gobba Dorata del Pianalto di Poirino	PDO	IT	2008	Tench	Farmed	Fresh
	Třeboňský kapr	PGI	CZ	2007	Carp	Farmed	Both
	Holsteiner Karpfen	PGI	DE	2007	Carp	Farmed	Fresh
	Mejillón de Galicia / Mexillón de Galicia	PDO	ES	2007	Mussel	Farmed	Fresh
	Pohořelický kapr	PDO	CZ	2007	Carp	Farmed	Both
	Anchois de Collioure	PGI	FR	2004	Anchovy	Wild caught	Processed
	Oberpfälzer Karpfen	PGI	DE	2002	Carp	Farmed	Both
	Schwarzwaldforelle	PGI	DE	2000	Trout	Farmed	Both
	Clare Island Salmon	PGI	IE	1999	Salmon	Farmed	Fresh
	Coquille Saint-Jacques des Côtes d'Armor	PGI	FR	1998	Scallop	Wild caught	Fresh
	Avgotaracho Messolongiou	PDO	EL	1996	Mullet	Farmed	Processed
Non-EU	Lough Neagh Pollan	PDO	UK	2018	Pollan	Wild caught	Both
	London Cure Smoked Salmon	PGI	UK	2017	Salmon	Both	Processed
	West Wales Coracle Caught Sewin	PGI	UK	2017	Trout	Wild caught	Both
	West Wales Coracle Caught Salmon	PGI	UK	2017	Salmon	Wild caught	Both
	Conwy Mussels	PDO	UK	2016	Mussel	Wild caught	Fresh
	Tørrfisk fra Lofoten	PGI	NO	2014	Cod	Wild caught	Processed
	Fal Oyster	PDO	UK	2013	Oyster	Wild caught	Fresh
	Ancheng Long Xia	PGI	CN	2012	Cray fish	Wild caught	Processed
	Scottish Wild Salmon	PGI	UK	2012	Salmon	Wild caught	Fresh
	Phú Quốc	PDO	VN	2012	Anchovy	Wild caught	Processed
	Isle of Man Queenies	PDO	UK	2012	Scallop	Wild caught	Fresh
	Lough Neagh Eel	PGI	UK	2011	Eel	Wild caught	Fresh
	Cornish Sardines	PGI	UK	2010	Sardine	Wild caught	Both
	Traditional Grimsby Smoked Fish	PGI	UK	2009	Cod / haddock	Wild caught	Processed
	Scottish Farmed Salmon	PGI	UK	2008	Salmon	Farmed	Fresh
	Arbroath Smokies	PGI	UK	2004	Haddock	Wild caught	Processed
	Whitstable oysters	PGI	UK	1997	Oyster	Farmed	Fresh

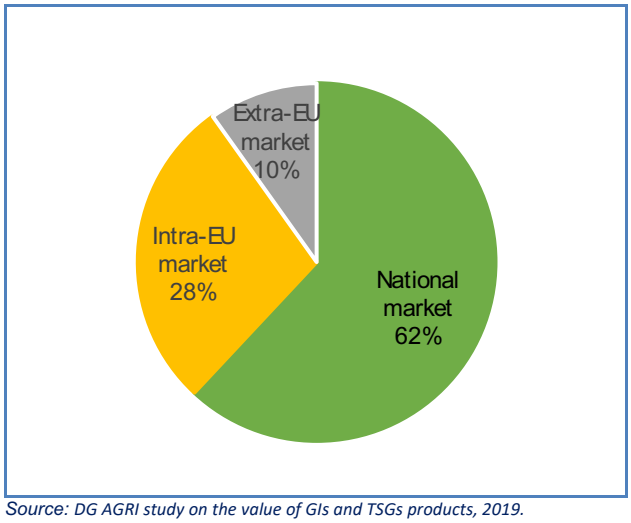
Source: EUMOFA based on eAmbrosia database (DG AGRI).

5.4 EUR 1,42 billion sales value under GI/TSG in the seafood sector

Sales value under GI/TSG

Based on a recent study published by the European Commission[60], in 2017, the sales value of the 3.207 protected names registered at EU-28 level was estimated at EUR 77,2 billion. The main sector under GI/TSG is the wine sector, accounting for 51% of the sales value (EUR 39,4 billion), followed by agricultural products and foodstuffs (35% of the sales value, EUR 27,3 billion) and spirit drinks (13% of the sales value, EUR 10,4 billion). Protected names accounted for 7% of the EU food and drink sector, and up to 10-15% in some Member States (such as France, Italy, and Portugal) due to the importance of wine and large PDOs and PGIs in the cheese and ham sectors. We observe large differences in economic features at the EU level. In particular, the nine largest GIs (over EUR 1 billion) gathered 27% of the total sales value. The turnover of half of the GIs was under EUR 1,1 million and 7% of the protected names were not even used on the market.

Figure 19. **BREAKDOWN OF SALES VALUE BY MARKET FOR PRODUCTS UNDER GI/TSG IN THE SEAFOOD SECTOR IN 2017**



Source: DG AGRI study on the value of GIs and TSGs products, 2019.

In 2017, the sales volume of fish, molluscs, and crustaceans sold under GI/TSG was estimated to reach 246.709 tonnes and EUR 1,42 billion. This accounted for 5% of the sales value for agricultural products and foodstuffs under GI/TSG. It covered the 43 protected names registered in the EU-28 before 2017. More than half of the sales were on the domestic market (62%, EUR 0,88 billion), followed by intra-EU trade (28%, EUR 0,4 billion) and extra-EU trade (10%, EUR 0,14 billion). Sales value was 48% higher in 2017 compared to 2015. This growth was largely due to the registration of new names.

In 2017, there were 28 PGIs of fishery and aquaculture products that accounted for 71% of sales value, 3 TSG registrations accounting for 22%, and 12 PDOs accounting for 7% of sales value. The average size of PGI and TSG registrations ranged from EUR 32 million to EUR 36 million in 2017, while the average size of PDOs was much smaller: EUR 8 million.

The UK and France accounted for 88% of the total sales value in 2017. The UK was the top producer, mainly driven by the leading PGI "Scottish Farmed Salmon". In France, the largest GIs and TSG concern shellfish: TSG "Moule de Bouchot", PGI "Huîtres Marennes Oléron", and PDO "Moules de Bouchot de la Baie du Mont-Saint-Michel" [61].

[60] Study on economic value of EU quality schemes, geographical indications (GIs) and traditional specialities guaranteed (TSG), AND International for DG AGRI, 2019 - https://ec.europa.eu/commission/presscorner/detail/en/IP_20_683
[61] https://www.inao.gouv.fr/Nos-actualites/Publication-de-la-brochure-chiffres-cles-2017

Table 20. **SALES VALUE UNDER PDOS, PGIS AND TSG REGISTERED IN THE EU-28 FOR SEAFOOD PRODUCTS FROM 2015 TO 2017 (VALUE IN MILLION EUR)**

	2015	2016	2017	% 2017	Evolution 2017/2015
PDO	99	98	97	7%	-2%
PGI	802	885	1.013	71%	+26
TSG	60	305	312	22%	+420%
Total	**962**	**1.288**	**1.421**	**100%**	**+48%**

Source: DG AGRI study on the value of GIs and TSGs products, 2019.

At the EU Level, in 2017, the total sales value of the FAP sector ranged between EUR 27,68 billion (processing and preserving activities only)[62] and EUR 39,96 billion (including processing and preserving activities, landings and aquaculture[63]. Thus, based on these assumptions, products with protected names accounted for 3,5% to 5,1% of the sales value of the EU seafood sector. By comparison, this is far below the main sectors under GI/TSG where 56% of the EU wine[64] and 21% of cheese[65] are marketed under GI/TSG (in volume). However, the importance of GI/TSG for seafood products is comparable to other food sectors[66], for example:

- **Fruit and vegetables:** products with a GI/TSG accounted for 2-4% of national production in France, Spain, and Italy (in value).
- **Meat products:** products with a GI/TSG accounted for 4% and 6% of the national production in France and Germany (in value).
- Protected GIs accounted for 3% of the EU **olive oil** production (in value)[67].

The importance of GI and TSG status is also comparable to the share of the organic scheme in the aquaculture sector, which was estimated at 3,8% of the total EU aquaculture production in 2015[68].

Value premium for GI products

The value premium for GI products has been calculated for each sector in the context of the European Commission study. This is based on the price premium for each GI, weighted by the volume sold. Price or value premium may not be directly linked to better profitability as products under GI/TSG may also have additional production costs. However, this is an indicator for the market positioning of the products under GI.

The value premium for seafood products under a GI was estimated at 1,35 in 2017. This means that the sales value of GI products was estimated to be 1,35 higher than comparable products without GI for the same volume. As a comparison, the value premium for agricultural products and foodstuffs was 1,50, which was particularly high for cheese (1,60) and meat products (1,53). The value premium was higher for the seafood sector than for other large sectors covered by GI schemes, such as beer (1,26), fresh meat (1,20), and fruit and vegetables (1,12). The value premium indicates a recognised differentiation on the market for seafood products bearing a GI.

Success factors for GI/TSG value chains

Among the wide number of registered GIs and TSG, some have met with great market success, whereas others are not even used by stakeholders. As detailed by Barjolle and Sylvander (2003)[69], the convergence of several factors is necessary, including the specificity of the products, relevance of the marketing strategy, coordination among stakeholders, governance, and support from public authorities. The type of product, and country of origin also play a role, but these are not decisive factors in determining the success of a GI/TSG. The registration under GI/TSG does not create this market differentiation from scratch. The registration allows for the intellectual protection of GIs, and provides a framework for the implementation of this differentiation strategy by stakeholders. The value premium for seafood products under GI illustrates this market differentiation.

The coordination and governance of GI/TSG value chains concern: 1) the definition of a collective strategy, 2) the definition of GI/TSG specifications in line with local context and market demand, and 3) the control of these specifications.

[62] EUROSTAT – Structural business statistics, turnover for processing and preserving of seafood products.
[63] EUMOFA: Sales value for landings are EUR 7,22 billion for landings and EUR 5,06 billion for the value of aquaculture. This is an over-estimate of the sales value of the FAP sector, with double counts between landings / aquaculture stage and processing / preserving stage.
[64] Based on Study on economic value of EU quality schemes, geographical indications (GIs) and traditional specialities guaranteed (TSG), AND International for DG AGRI, 2019.
[65] 10,17 million tonnes of cheese produced at EU 28 level in 2017 based on EUROSTAT and 1,24 million tonnes under GI/TSG based on DG AGRI study.
[66] Based on Study on economic value of EU quality schemes, geographical indications (GIs) and traditional specialities guaranteed (TSG), AND International for DG AGRI, 2019.
[67] EUR 301 million under GI/TSG based on AND-I survey for DG AGRI and EUR 9,57 billion sales value at EU level based on EUROSTAT-Prodcom.
[68] Source: EU organic aquaculture, EUMOFA, 2017: https://www.eumofa.eu/documents/20178/84590/Study+report_organic+aquaculture.pdf
[69] Facteurs de succès des produits d'origine certifiée dans les filières agro-alimentaires, Barjolle and Sylvander, 2003.

Governance that involves all stages of the supply chain, and the definition of production rules for the upstream stages (this is not the case for all GI and TSG registrations) may allow a better distribution of benefits across the supply chain. In addition, GIs and TSG address quality management (production rules and controls), which may provide a positive signal for retailers and final consumers.

5.5 Focus on France, Spain, Germany, and Norway

France: Mainly mussel and oyster

There are six names registered as a GI or TSG in the seafood sector in France. The TSG "**Moule de Bouchot**" (mussel) and PGI "**Huître de Marennes Oléron**" (oyster) were the main protected names in the seafood sector in France in 2018[70]. The TSG "**Moule de Bouchot**" aims to differentiate mussels farmed using the "*bouchot*" method ("*bouchot*" consists of a wooden pole where mussels are grown) from imported mussels on the French market.

There is another name registered in France in the mussel sector: PDO "**Moules de bouchot de la Baie du Mont-Saint-Michel**", produced in the bay of Mont-Saint-Michel in western France. 10.000 tonnes of PDO are produced each year, generating about EUR 25 million turnover in the territory[71]. About 90% of the local production is marketed under PDO. The remaining 10% mainly consists of smaller mussels discarded in the grading process and mussels collected outside of the official PDO harvest season. Mussel production in Mont-Saint-Michel Bay was initially under a commercial brand. However, stakeholders faced misuse of the name «Mont-Saint-Michel» and decided to register as a GI. Mussels under PDO are priced higher than the TSG, and volumes are also lower[72].

PGI "**Huître de Marennes Oléron**" was registered as a PGI in 2009. The oysters are produced in the Nouvelle-Aquitaine area. It had already been certified under the French certification scheme «Label Rouge» since 1989. At present, the oysters may be marketed under both PGI and «Label Rouge». There are different types of oysters covered by Marennes Oléron PGI, based on their finishing stage. The finishing is conducted in specific ponds located within the protected area. These ponds are locally called "*Claire*", for instance the oyster "*fine de Claire*". The finishing in "*Claire*" provides a specific taste and specific green colour for "*Fine de Claire verte*".

Other French GIs in the seafood sector are PGIs "Coquille Saint-Jacques des Côtes d'Armor", "Anchois de Collioure" and "Bulot de la Baie de Granville".

Spain: Mussel, tuna loins, and preserved fish

There are five names protected in Spain. Detailed data are provided by the Spanish Ministry of Agriculture, Fisheries and Food (MAPA)[73]. The total sales value was EUR 57,3 million in 2018, with 98,5% of sales on the national market. The five GIs are detailed below:

- **PDO "Mejillón de Galicia**" was registered in 2007. It covers fresh and preserved mussels produced in Galicia. The cultivation area is the internal maritime area of the Galician rías in the provinces of A Coruña and Pontevedra. The area for the purification and dispatch is the coastal provinces of A Coruña and Pontevedra. The sales value under PDO was EUR 27,3 million in 2018 (48% of the sales value for seafood products under GI in Spain) with an average price of 2,96 EUR/kg. The total production was 54.042 tonnes in 2018, among which 9.245 tonnes were marketed under PDO. The PDO only covers fresh product and a large share of the local production is aimed at processing[74], this explains the difference between the volume produced under PDO and the actual volume marketed under PDO. This is common for products under GI/TSG, that all the volumes produced in compliance with the specifications are not marketed under the scheme. This depends on the strategy of the stakeholders involved in the scheme and the demand of the market.
- **PDO "Melva de Andalucia**" covers preserved bullet tuna and frigate tuna in oil (*Auxis rochei* and *Auxis thazard*) and **PGI "Caballa de Andalucía**" covers preserved mackerel (*Scomber japonicus*). Production takes place in municipalities within the provinces of Almeria, Cádiz, Granada, Huelva, and Málaga. Non-industrial methods are used, in which the fish is skinned by hand (without using chemicals) to ensure a high-quality product. The sales under these two GIs reached 2.584 tonnes and EUR 26,4 million in 2018 (46% of the sales value of seafood products under GI in Spain), with an average price of 13,89 EUR/kg for "Melva de Andalucia" and 8,07 EUR/kg for "Caballa de Andalucia".

[70] INAO: https://www.inao.gouv.fr/Publications/Donnees-et-cartes/Informations-economiques
[71] L. Gauvrit and B. Schaer in Sustainability of European food quality schemes, section "PDO Saint-Michel's Bay Bouchot Mussels in France", 2019.
[72] L. Gauvrit and B. Schaer in Sustainability of European food quality schemes, section "PDO Saint-Michel's Bay Bouchot Mussels in France", 2019.
[73] https://www.mapa.gob.es/es/alimentacion/temas/calidad-agroalimentaria/informedop_igp_2018_ver6_tcm30-513985.pdf
[74] https://www.elcorreogallego.es/hemeroteca/record-mexillon-galicia-sella-casi-siete-veces-bivalvo-2010-KRCG1216590

- **PGI "Mojama de Barbate"** and **PGI "Mojama de Isla Cristina"** are made from tuna loins (yellowfin tuna and bluefin tuna), which are cured through being seasoned and dried. "Mojama de Barbate" is produced in two municipalities from the Cádiz Region, and "Mojama de Isla Cristina" is produced in three communities from the Huelva Region. The products are vacuum-packed in transparent plastic bags or stored in glass jars containing olive or sunflower oil. The volume marketed for these two PGIs was 133 tonnes in 2018, for EUR 3,6 million sales value, with a price around 27 EUR/kg.

The table below summarises the economic data for each GI registered in Spain's seafood sector.

Table 21. **ECONOMIC DATA ON THE SPANISH GIs IN THE FAP SECTOR IN SPAIN (2018)**

Protected name	Volume (tonnes)			Sales value (EUR million)	Proportion of total sales value (%)	Price EUR/kg	Proportion of sales volume on domestic market (%)
	Volume complying with GI specifications	Volume certified under GI	Volume marketed under GI				
PDO Mejillón de Galicia	54.042	54.042	9.245	27,3	48%	2,96	99,8%
PDO Melva de Andalucía	897	437	957	13,3	23%	13,89	99,2%
PGI Caballa de Andalucía	3.315	1.651	1.627	13,1	23%	8,07	91,5%
PGI Mojama de Barbate	76	76	76	2,1	4%	27,00	82,9%
PGI Mojama de Isla Cristina	76	57	57	1,5	3%	26,83	100,0%
Total	58.406	56.263	11.962	57,3	100%	4,79	98,5%

Source: MAPA – 2018 report on PDOs, PGIs and TSGs for agricultural products and foodstuffs.

Germany: Five names on farmed carp

There are seven names registered in Germany, all of which are PGIs: five names cover farmed carp, one covers farmed trout and one covers processed herring. The five names for farmed carp were registered between 2002 and 2015.

Each of these five PGIs covers mirror carp. Three of them are produced in Bavaria, one in Schleswig-Holstein, and another in Saxony. Each one has different PGI specifications in terms of weight of live fish (from 1 kg/fish up to 2,5 kg/fish), rearing duration (generally 3 or 4 years), fish fat content (lowest fat content being for **PGI "Oberlausitzer Biokarpfen"**: 0,4% to 5%), and the link with the protected area (at least one of the last two years of life spent in the protected area for **PGI "Aischgründer Karpfen"** and **PGI "Fränkischer Karpfen"**). **PGI "Oberlausitzer Biokarpfen"** is also 100% produced under an organic scheme. The following table provides an overview of these five PGIs.

Table 22. **FARMED CARP UNDER PGI IN GERMANY**

Protected name	Registration year	Geographical area	Weight (kg)
PGI Oberpfälzer Karpfen	2002	Oberpfalz area in Bavaria	Minimum 1,0 kg (generally between 1,5-2,0 kg)
PGI Holsteiner Karpfen	2007	Schleswig-Holstein	Minimum 1,5 kg (generally around 2,5 kg)
PGI Aischgründer Karpfen	2012	Aischgrund area in Bavaria	1,0-1,7 kg
PGI Fränkischer Karpfen	2012	Franconia area in Bavaria	1,0-1,7 kg
PGI Oberlausitzer Biokarpfen	2015	Bautzen and Görlitz areas in Saxony	1,3-2,5 kg

Source: EUMOFA based on single documents in eAmbrosia database (DG AGRI).

Norway: Dried cod under PGI - "TØRRFISK FRA LOFOTEN"[75]

"Tørrfisk fra Lofoten" was registered at national level in 2007 and became a PGI at EU-level in 2014. The Lofoten region is a group of islands in the Northern part of Norway, which have long traditions in processing and preserving ground fish. "Tørrfisk fra Lofoten" is dried Atlantic cod (*Gadus morhua*) captured around Lofoten and Vesterålen from January to April.

"Tørrfisk" is the Norwegian term for "stockfish" (dried fish). The specification from the PGI indicates that the fish caught in this region has a different structure to fish caught in the deep sea, particularly with regard to its muscular flesh from long migrations. This structure gives it a unique quality that is essential to withstand the drying process. The fishery is close to the coast, which allows the fish to be landed the same day as the catch. The fish is processed in the Lofoten area, which includes six municipalities in Northern Norway. The fish is dried naturally, outdoors for 2 to 4 months.

Several motives led stakeholders to register a GI, including the objective of differentiating the local dried fish from dried fish produced elsewhere, the need for marketing coordination, and the good image of GIs on the Italian market ("Tørrfisk fra Lofoten" is an important Italian export).

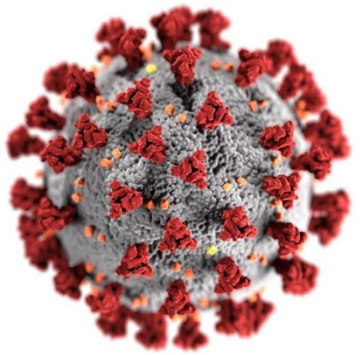
The products are mainly exported, despite the increase in national consumption, which has increased in recent years and currently amounts to 15% of total production. Amongst other things, stockfish is used for preparing the traditional Christmas dish "Lutefisk". Exports amounted to 3.049 tonnes in 2017 (65% of stockfish exported from Norway). The main market is Italy, comprising 70% of sales, followed by other EU MS (20%) and the USA (8%).

[75] This section is based on the information available on eAmbrosia and on V. Amilien, G.Vittersø, and T. Tangeland. in "Sustainability of European food quality schemes", section "PGI Lofoten Stockfish in Norway", 2019.

6. Impacts of COVID-19

6.1 Introduction

COVID-19 is the name of the infectious disease caused by the most recently discovered coronavirus (SARS-CoV-2), unknown before its outbreak in Wuhan, China in December 2019[76]. During the first months of 2020 the disease spread around the world and was classified as a pandemic by the World Health Organization (WHO) on 11th March. As of mid-May, more than 1.3 million people are reported to have been infected in Europe (4.3 million worldwide) and approximately 156.000 have died (more than 300.000 worldwide)[77].



Source: World Health Organization (WHO).

6.2 Measures imposed by EU Member States to reduce the spread of COVID-19

Italy was the first European country to be severely impacted by the virus, experiencing an exponential growth in infection rate from mid-February. To avoid capacity constraints and to reduce the pressure on the health sector, countries world-wide have implemented a diverse range of social restrictions and lockdown measures to reduce the spread of the virus and "flatten the curve" of confirmed infections.

In Europe, restrictive measures began with Italian authorities suspending all flights between Italy and China on 31st January. On 22nd February, approximately 50.000 people from 11 different municipalities in northern Italy were quarantined, and work activities and sport events were suspended. On 3rd March the Italian government ordered a full nationwide closure of schools and universities, followed by a complete suspension of all sport activities on 9th March.

Throughout weeks 11 and 12 of 2020, the majority of European countries also began to implement different forms of lockdown measures and restrictions, including *inter alia* travel restrictions, social distancing measures, closure of restaurants and cafes, bars, hotels, schools and non-essential businesses, as well as the postponement or cancellation of public events and organised sporting events. Conversely, Sweden elected not to implement a full lockdown, but instead introduced general social distancing measures, causing many of its citizens to work from home and cut down on travel. On 29th and 31st March Sweden expanded its restrictions, banning gatherings of more than 50 people and visits to nursing homes.

To ensure the availability of goods and essential services, the Commission issued border management guidelines 16th March, setting out "principles for an integrated approach to an effective border management to protect health while preserving the integrity of the Single Market"[78]. Amongst other, the guidelines included principals regarding priority lanes for emergency and freight transport (e.g. via "green lanes") as well as guidance on health-checks rules of entry for both EU and non-EU nationals at both external and internal borders.

6.3 Impacts of COVID-19 on the seafood supply chain

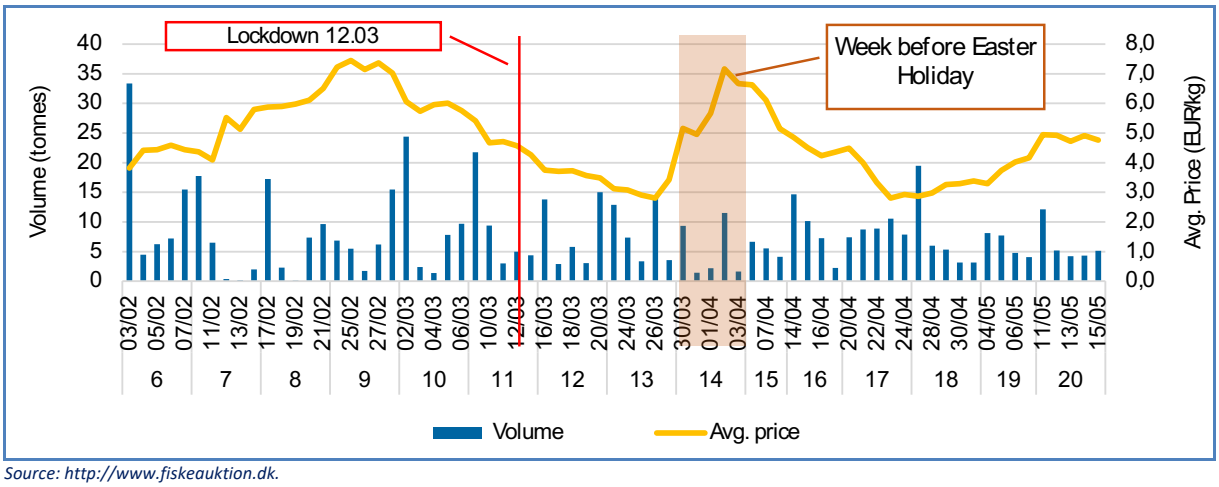
The closure of hotels, restaurants and catering (HORECA) meant that the effects of COVID-19 were felt immediately by both first sales and the aquaculture sector due to the loss of these outlets for fresh species, which can account for up to 50% of market outlet for fresh fish in some countries such as Italy. In many Member States (MS), fishmongers, markets, and fresh counters in retail stores were also closed, leading to a further substantial drop in demand for fresh seafood. Restrictions on travel were imposed, flights were cancelled, airfreight capacity heavily reduced, and airfreight rates increased. As a result, access to fresh products to foreign markets reduced substantially or disappeared.

[76] https://www.who.int/emergencies/diseases/novel-coronavirus-2019
[77] European Centre for Disease Prevention and Control (18.05.2020).
[78] https://ec.europa.eu/home-affairs/sites/homeaffairs/files/what-we-do/policies/european-agenda-migration/20200316_covid-19-guidelines-for-border-management.pdf

First Sales

The sharp drop in demand led to reduced first-sales prices across Europe, although with significant fluctuations and varying trends seen between countries and species. For example, small pelagic fisheries in Northern Europe, which primarily produce frozen goods or species used for fishmeal and fish oil production, the effects of COVID-19 have been negligible. Groundfish and flatfish fisheries have been impacted differently, depending on species and market segment. In general, species primarily sold to HORECA experienced sharp price decreases immediately after the implementation of lockdown measures, with supply, demand, and prices remaining volatile ever since (see the example of daily first-sale volumes and prices of monkfish at five Danish auctions.

Figure 20. **FIRST-SALES VOLUME AND AVERAGE PRICE OF MONKFISH AT FIVE DANISH AUCTIONS[79]**



Source: http://www.fiskeauktion.dk.

Fishing activity

Many fishing fleets in the European Union rely heavily on exports, both intra- and extra-EU. These fleets are highly affected by the reduced demand in Europe and lack of airfreight capacity to distant markets, e.g. the brown crab fishery in Ireland which has almost entirely suspended its operation since the onset of the COVID-19 outbreak. However, in order to adapt to the reduced demand, several POs have organized a rotation of vessels according to expected buyers at auctions. The purpose was to maintain profitable prices and a minimum activity for the auctions. This was the case for example for the French Mediterranean trawling fleet.

Social distancing measures have created difficulties for many fishers. Some, unable to comply with the distancing measures, have been forced to stay in port. Others have been forced to stop fishing as they have been unable to replace their crew due to travel restrictions, and crew replacement remains an issue for the long-distance fishing fleet.

The various lockdown restrictions, together with low demand and falling prices, have led to an overall decrease in fishing activity. The Global Fishing Watch database (based on AIS[80] data) reports reductions of 50% or more in weekly fishing activity in Italy, France, and Spain, relative to the 2018-2019 average[81]. It is important to note that the AIS data only represent the world's industrial fleet (vessels over 15 metres in the EU) and do not capture the impacts on small-scale fisheries, which account for a large proportion of the European fishing fleet. In reality, small-scale fisheries have been highly impacted as most of their sales are to HORECA and local fish markets.

[79] Hanstholm, Hirtshals, Strandby, Grenaa and Skagen.
[80] Automatic Identification System (AIS). More information available here: http://www.imo.org/en/OurWork/safety/navigation/pages/ais.aspx
[81] https://globalfishingwatch.org/data-blog/global-fisheries-during-covid-19/

Table 23. **REDUCTION IN FISHING VESSEL DENSITY BY MARINE STRATEGY FRAMEWORK DIRECTIVE (MSFD) SEA BASIN IN APRIL 2020 OVER APRIL 2019**

Sea basin	Variation %
Adriatic Sea	-40%
Aegean-Levantine Sea	-37%
Arctic Ocean	-6%
Baltic Sea	-10%
Bay of Biscay and Iberian Coast	-14%
Black Sea	75%
Celtic Sea	-24%
Greater North Sea	-14%
Iceland Sea	-16%
Ionian Sea and Central Mediterranean Sea	-37%
Macaronesia	-0,5%
Norwegian Sea	7%
Western Mediterranean Sea	-39%

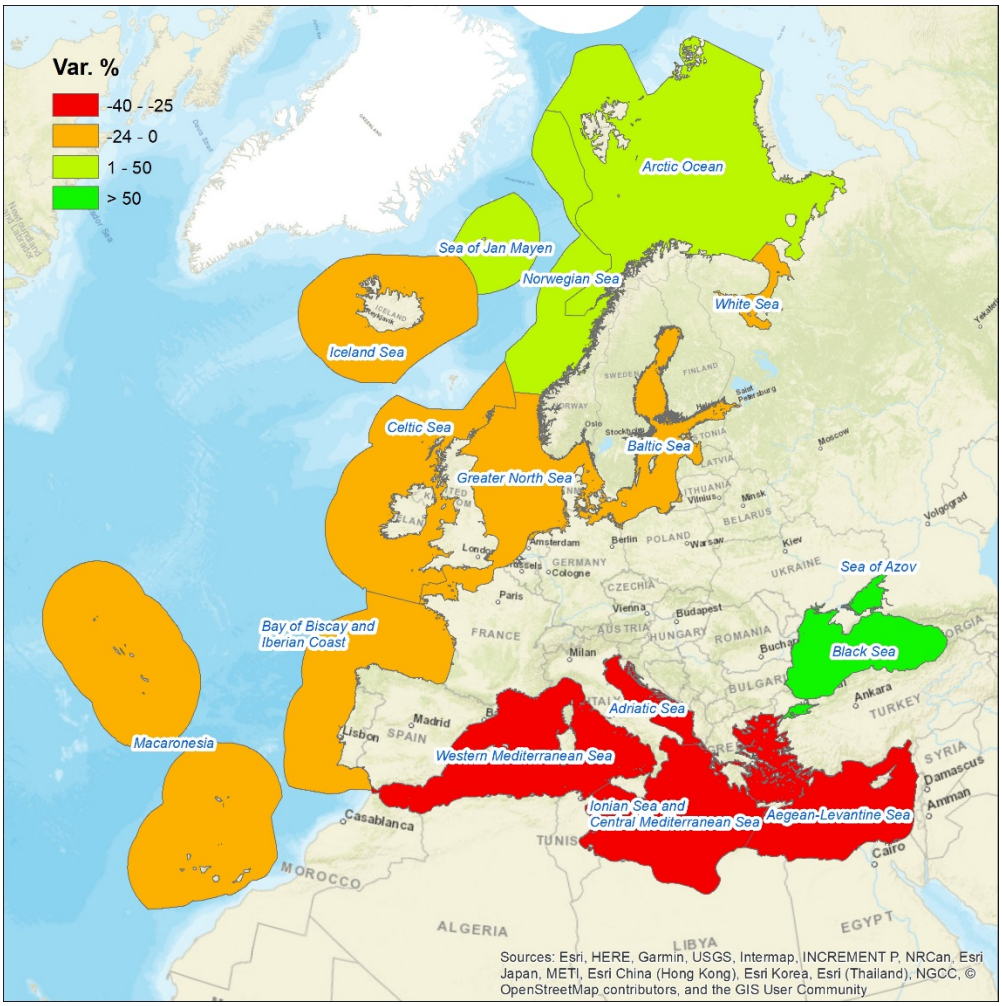
Source: EMODnet Human Activities, based on data from the European Maritime Safety Agency (EMSA). Note that Sea of Azov, Sea of Jan Mayen and White Sea were not included in the calculation, because low density activity can produce unreliable results.
**The increase in the Black Sea is most certainly due to improved data coverage in 2020. Thus, it does not indicate an actual increase in fishing boat density or in fishing activity.*

Specific to the EU, EMODnet Human Activities[82] holds data on vessel route density broken down by ship type. The data reports the number of routes made by certain types of ship per square kilometre each month. By comparing the density of fishing vessel traffic in April 2020 with those of April 2019, average traffic across all EU sea basins was seen to have fallen by 18%. However, there is great variance across sea basins, with the Mediterranean experiencing the most dramatic decrease in traffic density.

Strictly speaking, a reduction in fishing vessel density does not imply an equal reduction in fishing activity. AIS data transmit vessels' positions, regardless of how many vessels are actually fishing. However, assuming that fishers who have stopped fishing do not leave ports, vessel density can be used as a proxy. As with the Global Fishing Watch's data, the small-scale fleet is not included.

[82] www.emodnet-humanactivities.eu

Figure 21. **MAP OF FISHING VESSEL ACTIVITY, COMPARISON OF VESSEL ACTIVITY BETWEEN APRIL 2020 AND APRIL 2019**



Source: EUMOFA elaboration based on data from EMODnet Human Activities and EMSA.
**The increase in the Black Sea is most certainly due to improved data coverage in 2020. Thus, it does not indicate an actual increase in fishing boat density or in fishing activity.*

EU fisheries have also been affected by lockdown and social distancing measures in non-European countries. For example, lockdown measures in Morocco have meant that capacity in the shrimp peeling industry has been heavily reduced, leading the Netherlands and other northern European countries to stop or impose restrictions on shrimp fishing. Even with increased utilisation of mechanical peeling in the Netherlands, large parts of the Dutch shrimp fleet have been moored over the past weeks with support from the EMFF[83].

Aquaculture

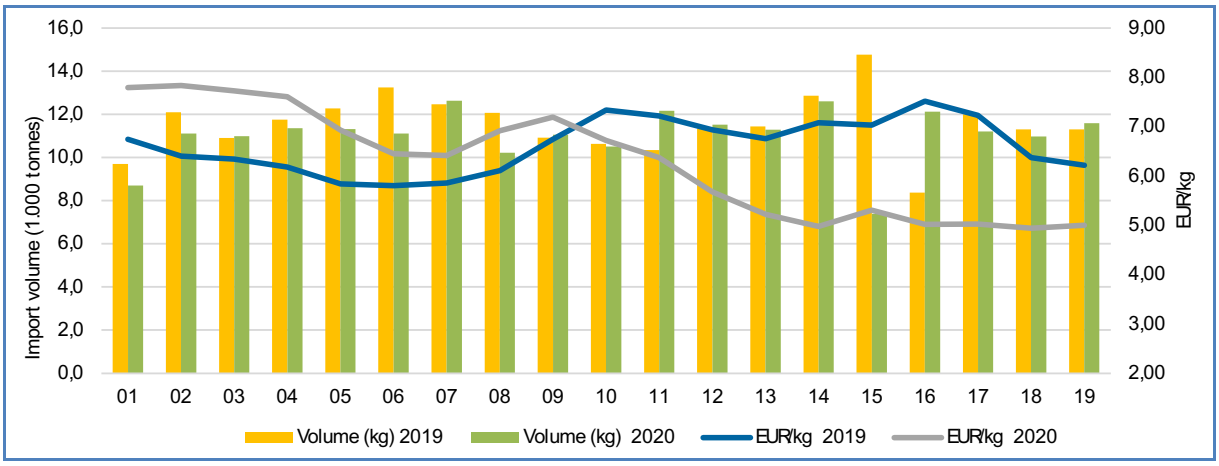
As the primary market for farmed species in Europe is the HORECA sector, most farmed species have been severely impacted by COVID-19 lockdown measures in Member States. In mid-April eel farmers in the Netherlands (the biggest producer of farmed eel in the EU) reported a sales drop of roughly 40% since the beginning of lockdown measures in the EU. A similar decrease was reported for the sea bass and sea bream industry in Greece, with reductions in sales of up to 90% for producers heavily reliant on the foodservice sector. In Spain and France shellfish aquaculture sectors (mussels and oysters) have reported reductions in sales of up to 80%.

For farmers producing and selling to large-scale retailers there were some exceptions. Generally speaking, salmonid producers have fared better than much of the sector as a high proportion of their production is intended for the retail sector

[83] https://ec.europa.eu/fisheries/press/eu-adopts-emergency-aid-fisheries-and-aquaculture_en

(as smoked or frozen fillets or as fresh whole or portion-packed fillets). Despite this, prices have been lower over recent months relative to the same period of previous years, especially for the larger sized salmon. For fresh whole salmon from Norway to the EU, the total import volume from week 10 to 19 is about the same as last year but the prices decreased by more than 2,00 EUR/kg during weeks 10 through 14 and have remained low. In the UK, the export value of Scottish farmed salmon in Q1 was 34% lower in 2020 compared to the same period in 2019. However, in mid-May, spot prices for Norwegian salmon have increased again to their pre-lockdown level.

Figure 22. **WEEKLY EXTRA-EU IMPORTS OF FRESH WHOLE SALMON FROM NORWAY – WEEK 1 TO 19**



Source: EUMOFA.

The lack of demand represents a challenge for fish farmers with a continuously growing biomass. For a limited time period of approximately two months they can reduce feeding to a minimum, but if the markets do not reopen after this period then the fish must be harvested, frozen, and stored. The steep fall in revenue places increased pressure on farmers' liquidity, and several companies are struggling for survival. To face this challenge, the European Commission reactivated the EMFF support to the storage aid mechanism and extended it to the aquaculture farmers in order to help absorbing the growing biomass. (EMFF support to the storage aid mechanism was terminated end 2018 and was reserved to fisheries POs).

Processing

The European processing industry has also been impacted in diverse ways. Following the introduction of nation-wide lockdowns, increased controls and travel restrictions created long queues at several borders in the EU, causing delays in the transport of goods for processing industries and retail markets. As the supply chain for fisheries and aquaculture products (FAP) in most countries was determined to be vital for overall food supply, solutions were quickly established at MS borders, allowing food transportation to proceed smoothly.

Most processors of smoked and filleted salmon (e.g. in Poland) have been working at full capacity to meet increased retail demand and have experienced few interruptions to the supply of raw materials. Other processors targeting retail markets are also reporting high levels of demand, but have described the situation as fragile. One Italian producer reported an increase of more than 40% in sales of canned tuna because of COVID-19. In contrast, processors primarily targeting HORECA have lost most of their market outlets. In France, the shrimp cooking sector, which is dependent on the foodservice sector, has estimated a loss in turnover of around 70% due to COVID-19.

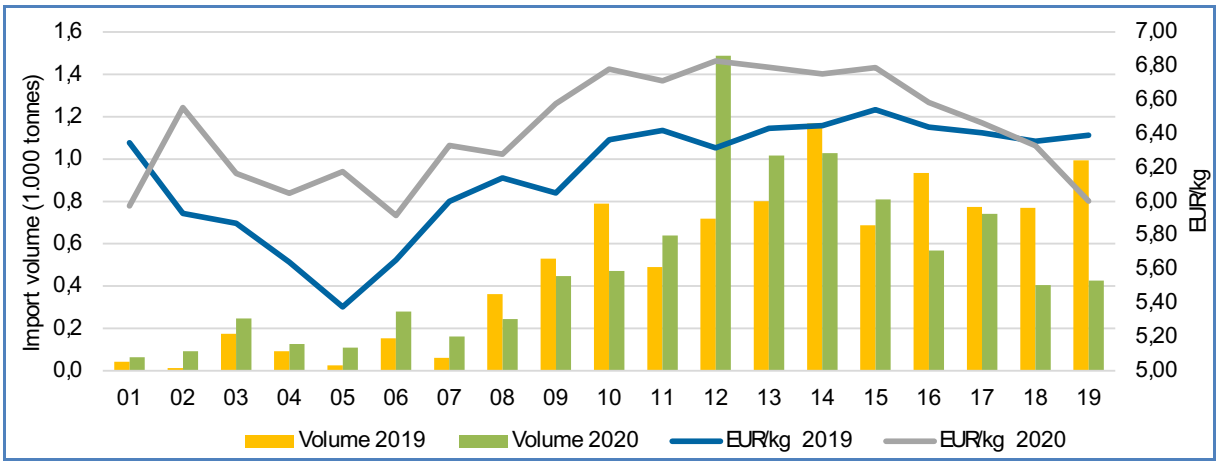
Most processing facilities have been forced to make changes to their operations to comply with social distancing measures, for example: by reducing or dividing the workforce across several shifts. Some processors have reported a reduction in capacity of 20- 40% due to these changes, while others experiencing high demand have extended their working hours, operating across shift patterns from early morning to late night.

Wholesale and consumption

Upon the announcement of lockdown measures, a first response for many consumers was to stock-pile food. There was a substantial increase in retail sales of durable and pre-packed seafood products (frozen, smoked, canned, salted, and dried). As the first "wave of panic" settled, fresh pre-packed or portioned products were also in high demand.

Over the following weeks, European processors with existing retail contracts experienced high demand and worked at full capacity as retailers re-stocked and EU imports of these products increased (e.g. Portuguese imports of salted cod from Norway). Processors usually supplying the HORECA sector, however, struggled to find market outlets.

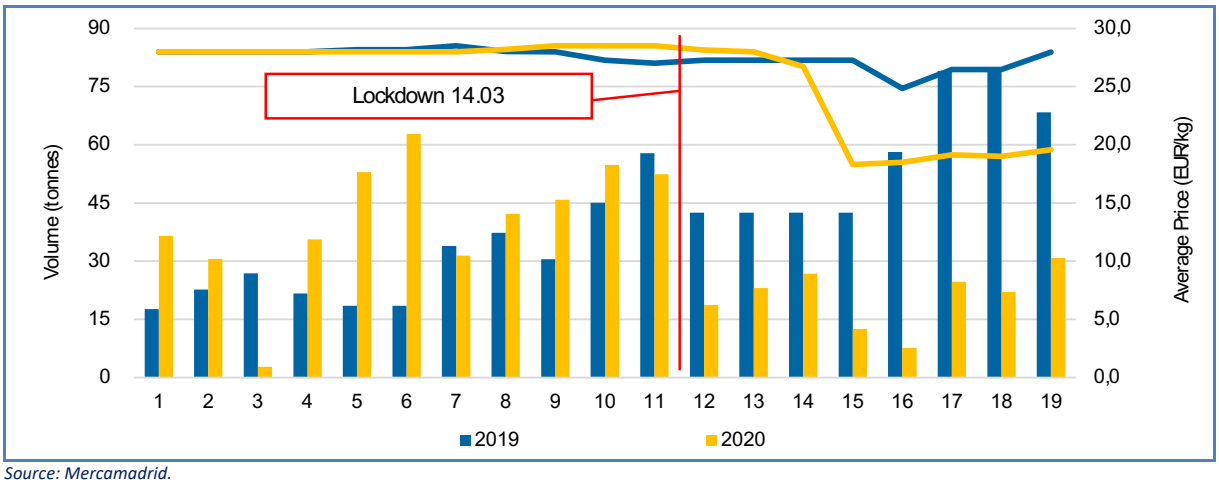
Figure 23. **WEEKLY EXTRA-EU IMPORTS OF SALTED COD FROM NORWAY – WEEK 1 TO 19**



Source: EUMOFA.

According to weekly trade data from the Norway Seafood Council, 87% of salted cod exported from Norway to the EU in the last 10- week period was directed to the Portuguese market[84]. Wholesale markets have experienced impacts similar to those of the rest of the supply chain. Decline in demand for fresh products has had negative effects on price, whereas the demand for frozen and other durable products has remained stable or increased. As an example, reports weekly sales volume and price of fresh bluefin tuna at Mercamadrid. During the 8 weeks following the introduction of lockdown in Spain (weeks 12-19), sales volume decreased by 56% compared to the 8 weeks prior. Over the same period, the average price decreased by more than 21%.

Figure 24. **WEEKLY VOLUME AND AVERAGE PRICE OF FRESH BLUEFIN TUNA AT MERCAMADRID**



Source: Mercamadrid.

In the absence of access to restaurants there are clear indications of increased at-home consumption of seafood. Based on consumer panel data from Kantar, during weeks 9-12 of 2020 at-home consumption of salmon in Spain increased by 12% in volume and 21% in value. During the same period in France, at-home consumption volumes of salmon and frozen cod fillets increased by 21% and 49% respectively, while that of seafood in general increased by 11%. In the UK, at-home consumption of seafood has increased by 20% in terms of both volume and value. Adapting to the restraints of lockdowns, Europe has seen a large increase in e-commerce over the past months. Retailers with existing online shops and home delivery logistics quickly experienced capacity restraints as the demand for online shopping and home delivery increased sharply.

[84] https://seafood.no/markedsinnsikt/apne-rapporter/Ukesstatistikk/

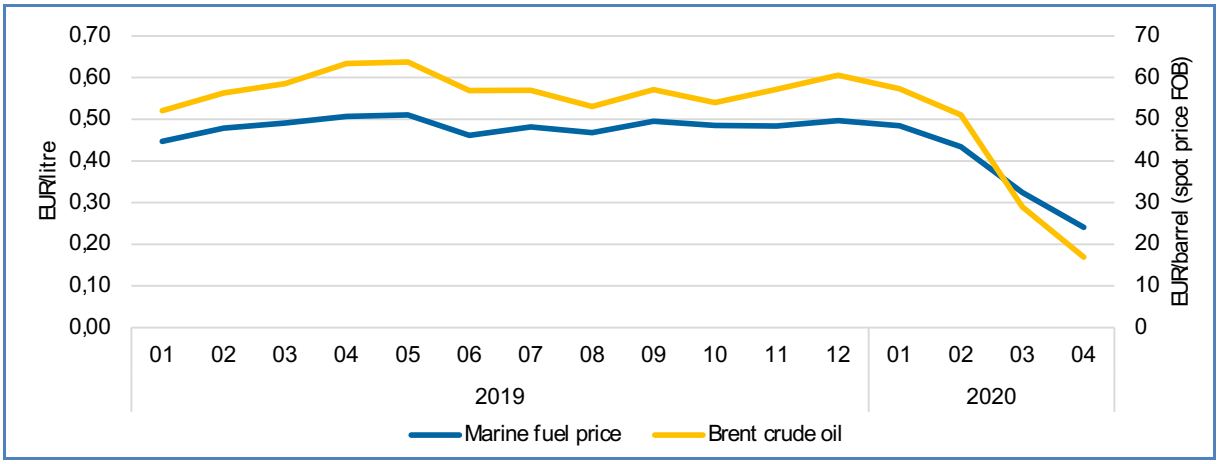
With the loss of HORECA, both fishers and wholesalers have also found new ways of selling their products, including direct sales to customers through online stores and home delivery, often in combination with marketing campaigns to eat local products. COVID-19 has arguably forced many traditional sales outlets to think differently and embrace new technologies, while consumers forced to stay at home have had to try new ways of shopping.

Transportation and logistics

Many passenger flights were cancelled due to restrictions on international travel. Since a large portion of airfreight relies on belly freight, the capacity was heavily reduced and airfreight rates increased. According to the latest TAC index, from February to April this year the monthly airfreight rates increased 96% and 108% on the routes "Hong Kong-Europe" and "Frankfurt-North America" respectively[85]. This increase is only caused by reduced capacity as the jet fuel prices decreased by around 60% over the same period[86].

Marine fuel prices have also experienced a sharp decrease over the past months. The average marine fuel price in the EU in March and April decreased 43% compared to the same months in 2019. Both the decrease of jet fuel and marine fuel prices was caused by decreasing oil prices. The spot price for Brent crude oil decreased by 62% year-over-year in March and April.

Figure 25. **AVERAGE EU MARINE FUEL PRICES AND BRENT CRUDE OIL PRICES (spot price FOB)**



Source: EUMOFA (marine fuel prices) and U.S. Energy Information Administration (oil prices).

6.4 Markets

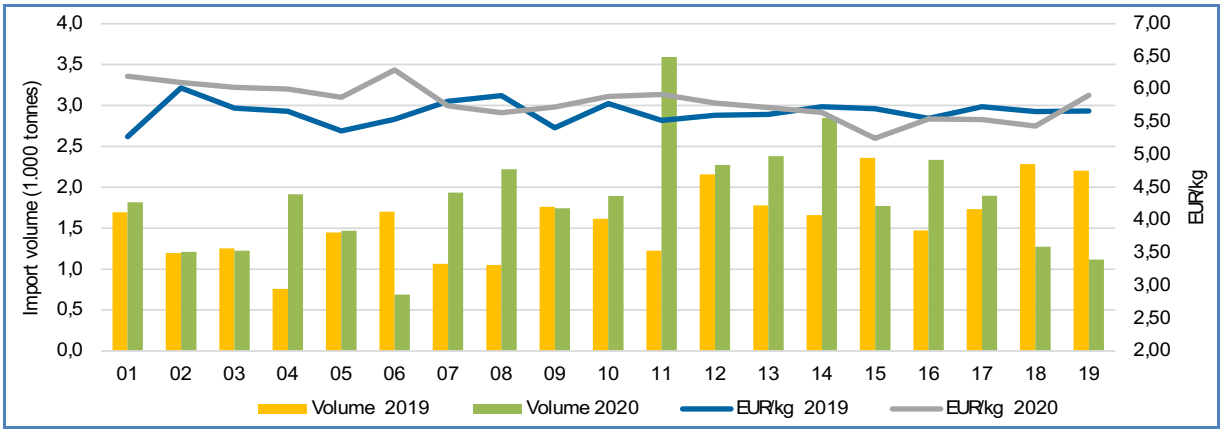
The European processing sector relying on imported raw material from non-European countries has for the most part not experienced supply shortages in recent months, due to the fact that most products were imported frozen before lockdown measures came into effect. Although lockdown measures in Ecuador from mid-March have resulted in some supply shortage of tuna for the Spanish canning industry, as the virus spreads and impacts the producing regions that supply the EU over the coming months, larger market impacts may become evident.

Ecuador, India, and Vietnam are the primary suppliers of warm water shrimp to the EU and, like many EU countries, these countries are or have been under lockdown. This has had an impact on both their processing and trade sectors. Together with closed markets in Europe and North America, this loss in demand has had a negative effect on the prices paid to shrimp farmers over the past few months. In Ecuador, farm gate prices fell below the farmers costs for a number of weeks. This has led to reduced stocking (the scope of which is currently undetermined) which could indicate possible supply shortages later in the year.

From week 10 to 19, EU imports of frozen warmwater shrimp from Ecuador increased by 15% in terms of volume compared to the same period last year, however with a decreasing trend from week 16 to 19. The prices on the other hand where stable at around the same level as in 2019.

[85] https://www.aircargonews.net/data-hub/airfreight-rates-tac-index/.
[86] Platts' jet fuel price index, https://www.iata.org/en/publications/economics/fuel-monitor/.

Figure 26. **WEEKLY EXTRA-EU IMPORTS OF FROZEN WARMWATER SHRIMP FROM ECUADOR – WEEK 1 TO 19**

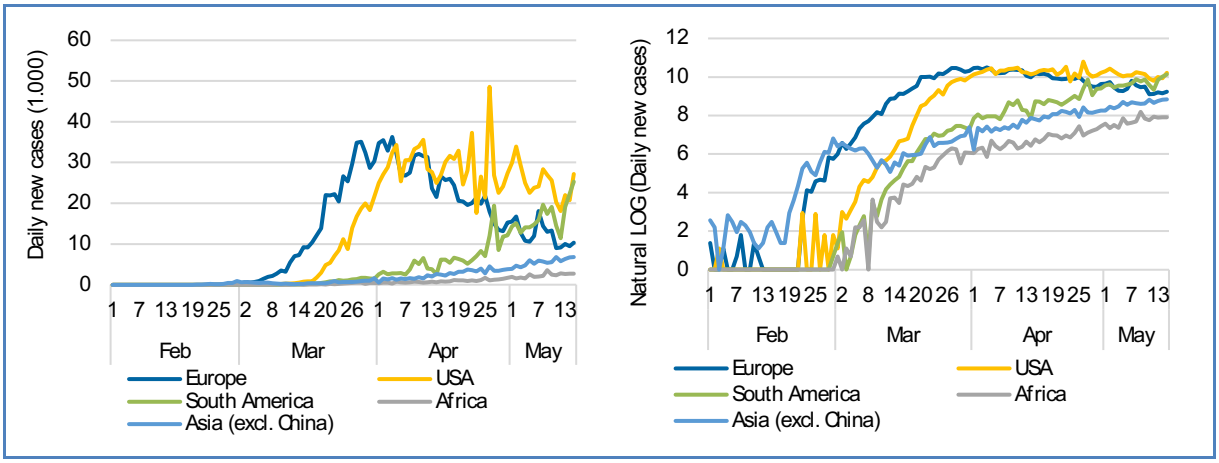


Source: EUMOFA.

Non-EU countries in Africa, Asia, and South America also represent important export markets for some EU Member States. The latest data from the European Centre for Disease Prevention and Control indicates that the number of new cases is increasing in all these regions. If the trend continues, and similar lockdowns are introduced in important export markets, the effects on extra-EU exports could continue for several months.

The daily number of new reported cases in Europe, the USA, South America, Africa, and Asia (excluding China) is reported in the left-hand graph. Exponential increases in new cases occurred in the middle of March in Europe, and in late March/early April in the USA. The other three regions show drastically lower numbers in absolute terms. However, the graph on the right-hand side allows the rate of change to be examined more closely. Whereas the US curve has flattened, and the European curve shows a downward trend from the beginning of April, the curves for South America, Africa, and Asia (excluding China) were still trending upwards as of mid-May.

Figure 27. **CASES OF COVID-19 BY REGION FROM 1ST FEBRUARY TO 13TH MAY, DAILY NUMBER OF CASES IN 1.000 (ON THE LEFT) AND NATURAL LOG–DAILY NUMBER OF CASES (ON THE RIGHT)**



Source: European Centre for Disease Prevention and Control (18.05.2020).

On 13th May the European Commission presented guidelines and recommendations intended to help Member States gradually lift travel restrictions and allow tourism businesses to reopen while respecting necessary health precautions[87]. Some Member States have already communicated plans for a soft opening, including, among others, some restaurants and outdoor cafés. According to industry reports, this has initiated a degree of cautious optimism in the supply chain, which is also indicated by recent price increases at first-sales level in some MS (e.g. Denmark and the Netherlands). Nevertheless, when markets reopen, prices may remain low due to the possibility of oversupply from frozen stocks from the fishery, aquaculture,

[87] https://ec.europa.eu/commission/presscorner/detail/en/ip_20_854

and processing sectors. From aquaculture, the supply of large fish and shellfish is also likely to be higher than usual, meaning that prices for these products will remain relatively low.

7. EU Trade in 2019

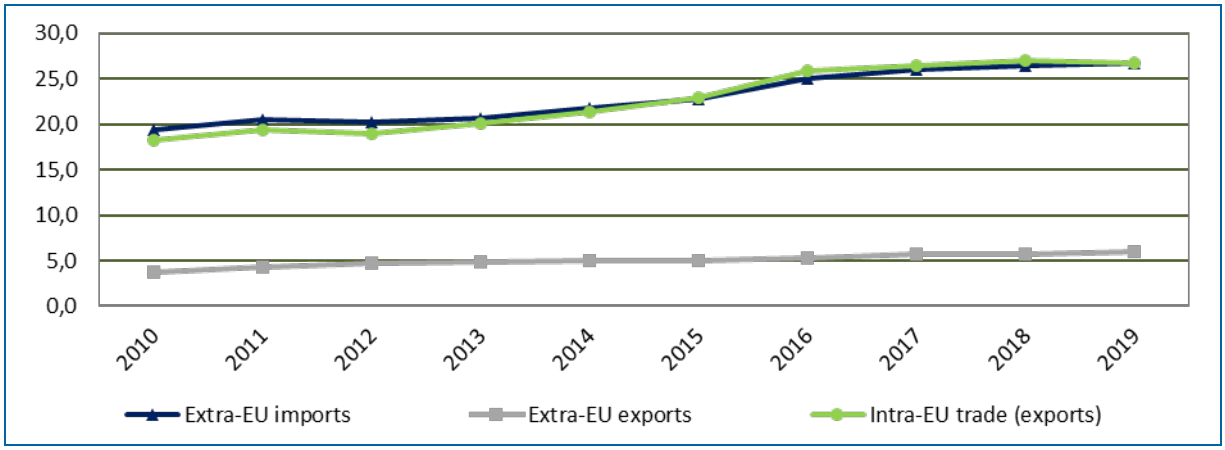
7.1 Trade flow trends

Trade in fisheries plays a significant role in the EU, one of the world's largest markets for fisheries and aquaculture consumption and production. The EU is the leading import market for fisheries and aquaculture products in the world. In 2018, it accounted for 34% (in terms of value), followed by the US (14%) and Japan (9%). By 2030, it is projected that the EU, Japan, and the US will account for 32% of total world imports in terms of volume of fish for human consumption, with the EU accounting for 18% of the world's imports (an increase of 4,3% from 2018)[88].

In the EU, demand for seafood significantly exceeds domestic supply, making imports a key component of trade. While EU Member States' exports are small relative to imports, they consist of a wide variety of products and are destined for other Member States, as well as external markets in third countries. Trade, the main indicator for measuring the development of the market, experienced continuous growth over the past ten years; however, growth has slowed in the past few years.

In 2019, EU imports from third countries (extra-EU imports) remained stable in volume[89] and grew marginally (+2,5%) in value since 2018, reaching 6,3 million tonnes, valued at EUR 27,2 billion. Extra-EU exports grew more rapidly in value in 2019, by 7,6% – reaching EUR 6,2 billion. At the same time, extra-EU export volume remained unchanged at 2,2 million tonnes. Intra-EU trade[90] slightly exceeded EU imports from non-EU countries. Intra-EU exports in 2019 decreased by 2,6% in volume and increased slightly in value (+0,3%), totalling 6,4 million tonnes, valued at EUR 27,4 billion.

Figure 28. **EU TRADE FLOW (VALUE IN BILLION EUR)**

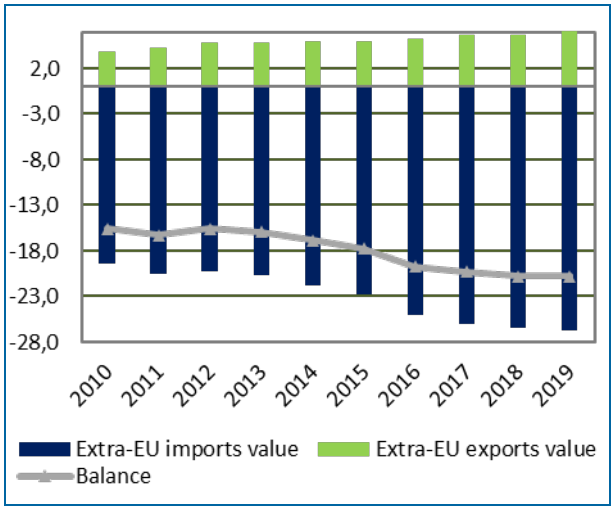


Source: EUMOFA, based on Eurostat (updated 11.05.2020).
Values are deflated by using the GDP deflator (base=2015).

The EU trade balance in fisheries and aquaculture products continued to show a negative trend, confirming the EU's increasing dependence on imports. The self-sufficiency ratio, which measures the capacity of EU Member States to meet demand from their own production, remained in line with the 10-year average, namely 43%.[91]The fisheries and aquaculture trade deficit reached a record EUR −21,0 billion, up by 1,1 % from 2018. Measured in volume terms, the trade deficit remained stable reaching −4,1 million tonnes.

[88] FAO, The State of the World Fisheries and Aquaculture 2020, Table 18, page 172.
[89] Live weight equivalent.
[90] The analysis of intra-EU trade is based only on export data. Intra-EU trade flows as reported by EUROSTAT and cover both arrivals (i.e. imports) and dispatches (i.e. exports). Because of different valuation principle (CIF > FOB), arrivals should be slightly higher valued than dispatches. This is one of the main reasons explaining asymmetries between import and export figures. In general, bilateral comparisons between Member States of intra-EU flows have revealed major and persistent discrepancies. Therefore, comparisons dealing with intra-EU trade statistics and related results must be taken in consideration cautiously and the existence of these discrepancies should be considered.
[91] EUMOFA, the EU fish market 2019.

Figure 29. **EXTRA–EU TRADE BALANCE (VALUE IN BILLION EUR)**



Source: EUMOFA, based on Eurostat (updated 11.05.2020).
Values are deflated by using the GDP deflator (base=2015).

EXTRA–EU IMPORTS: In 2019, imports from third countries grew in volume and value from 2018, by 0,3% and 2,5%, respectively. In 2019, salmonids (EUR 6,4 billion), groundfish (EUR 5,1 billion), and crustaceans (EUR 4,7 billion), were the most imported commodity groups, representing 60% of total extra-EU import value. Groundfish (up by EUR 544 million, +12%), salmonids (up by EUR 168 million, +3%), and non-food use (up by EUR 97 million, +11%) were the main contributors to the overall increase in the extra-EU import value. The largest decrease in value was recorded for cephalopods (EUR −292 million, −11%). The main reason behind the decrease was a sharp drop in the import price of octopus (−22%), which accounts for about 30% of the value of crustacean imports. Smaller decreases in value were observed for tuna and tuna-like species (EUR −61 million, −2%), and crustaceans (EUR −46 million, −1%). Of the total volume of imports, salmonids showed the largest increase, growing by 44 million tonnes (+5%). By contrast, groundfish registered the largest decrease (−30 million tonnes, −2%). The EU imports fisheries and aquaculture products from about 150 countries around the world. However, in 2019, 57% of the total EUR 27,21 billion import value (EUR 15,5 billion) originated from just seven countries – each exporting more than EUR 1 billion to the EU.

The main suppliers in terms of value were:

- Norway (EUR 7,05 billion, up by 2% compared to 2018, mostly salmon);
- China (EUR 2,15 billion, +16%, mostly Alaska pollock and cod);
- Iceland (EUR 1,4 billion, +9%, mostly cod);
- Ecuador (EUR 1,37 billion, +4%, mostly warmwater shrimp and skipjack tuna);
- Morocco (EUR 1,33 billion, +1%, mostly octopus);
- Vietnam (EUR 1,17 billion, −1%, mostly warmwater shrimp);
- United States (EUR 1 billion, +3%, mostly Alaska pollock).

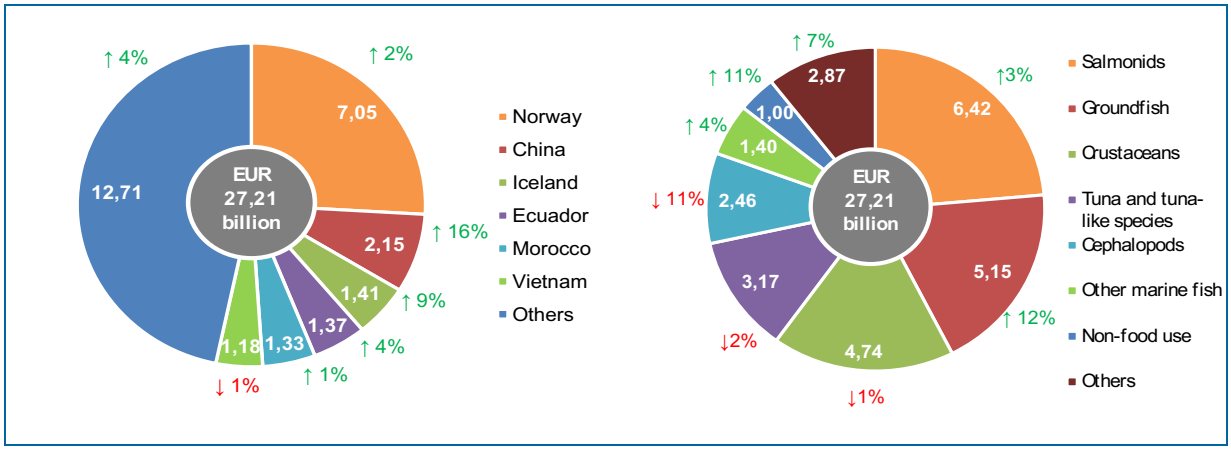
Other countries who contributed significantly to the increase in EU imports were:

- Faroe Islands (EUR 740 million, +30%);
- Greenland (EUR 639 million, +32%);
- Russian Federation (EUR 735 million, +7%); and
- Turkey (EUR 568 million, +7%).

The countries with the greatest reductions in EU import trade were:

- Chile (EUR −41 million, −8%, mostly salmon);
- India (−EUR 36 million, −4%, mainly warmwater shrimp); and
- Argentina (EUR −29 million, −4%, miscellaneous shrimp).

Figure 30. **EXTRA–EU IMPORTS: MAIN partners AND MAIN COMMODITY GROUPS IN 2019 (VALUE IN BILLION EUR)***



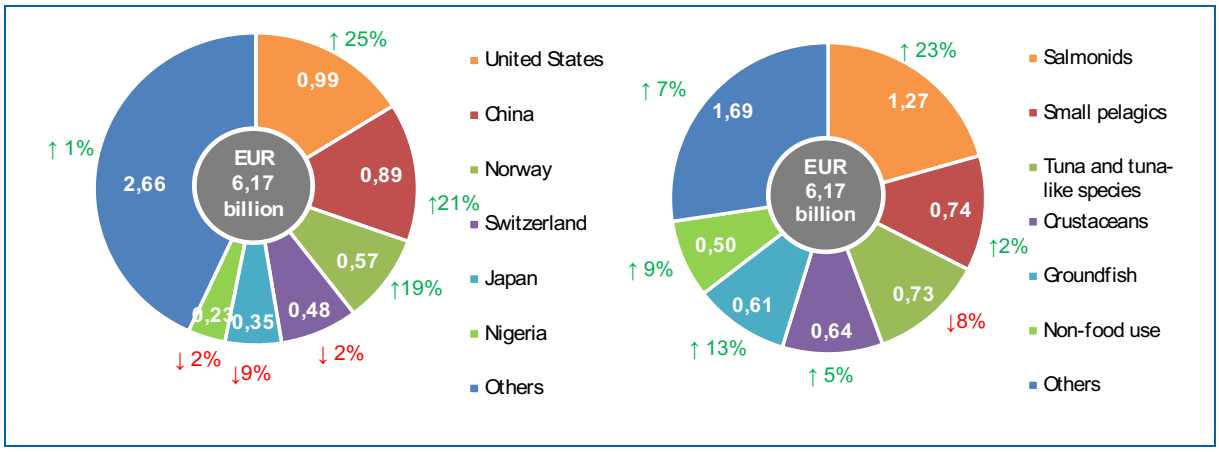
Source: EUMOFA, based on Eurostat (updated 11.05.2020).
**Value data are for 2019, percentages indicate change from 2018.*

EXTRA–EU EXPORTS: The overall increase in extra-EU exports in 2019 was to a large extent due to exports of salmonids (up by EUR 236 million or 23% from 2018), representing about half of the total value growth (+EUR 435 million). Other commodity groups that contributed to the increase were groundfish (+EUR 72 million, +13%), flatfish (+EUR 49 million, +17%), and non-food use (+EUR 40 million, +9%). The largest decline in extra-EU exports was seen in tuna and tuna-like species, registering a drop of EUR 61 million, −8%. The value growth shown was driven by higher export unit value, while volume remained relatively unchanged. Average export price increased mainly for non-food use and groundfish, by 8% and 5%, respectively.

Of the 205 countries to which extra-EU exports were destined in 2019, four markets accounted for nearly half of the total export value (47%, EUR 2,9 billion). Exports to the United States grew by EUR 120 million in 2019, including salmon, octopus, and trout. Exports to the EU's second largest market, China, grew by EUR 153 million in 2019 including Greenland halibut, cod, and coldwater shrimp. Gains were also seen in exports to Norway (+19%). By contrast, exports to Japan fell by 9%, and to a lesser extent (−2%) to both Switzerland and Nigeria.

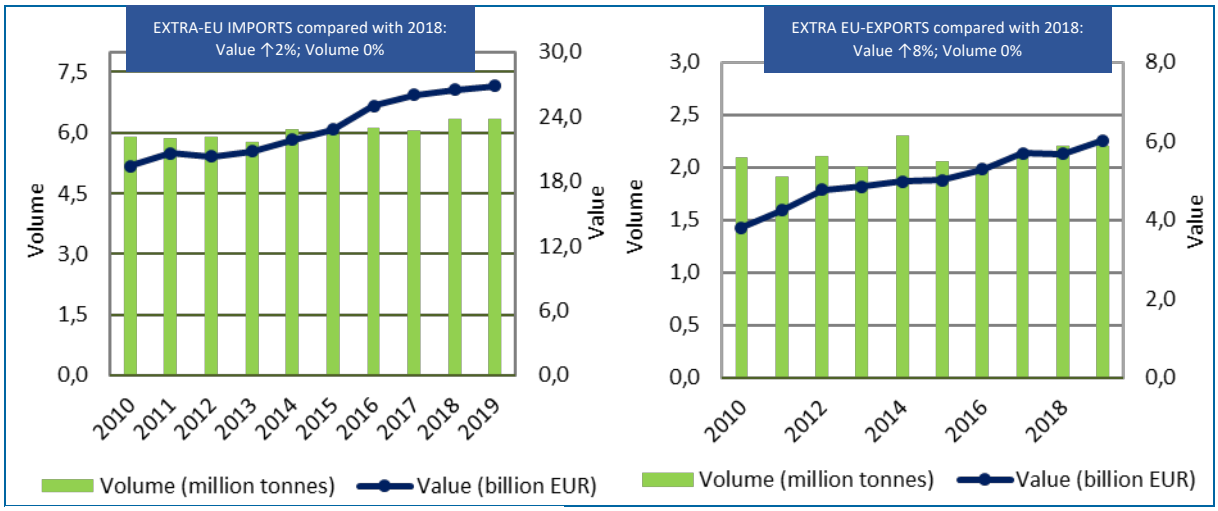
On a volume basis, the five leading export markets were Norway, Nigeria, China, Egypt, and the United States, which together accounted for 48% of export volume in 2019. The United States witnessed the highest export increase, +19%. Exports to Norway and China were both 15% up. The only decline in the leading markets was observed in Nigeria, where exports were lower by 40.600 tonnes in 2019. EU exports to Egypt grew by 10% from 2018 levels.

Figure 31. **EXTRA–EU EXPORTS: MAIN PARTNERS AND MAIN COMMODITY GROUPS IN 2019 (VALUE IN BILLION EUR)***



Source: EUMOFA, based on Eurostat (updated 11.05.2020).
**Value data are for 2019, percentages indicate change from 2018.*

Figure 32. **10–YEAR TREND OF EXTRA–EU TRADE**



Source: EUMOFA, based on Eurostat (updated 11.05.2020).
Values are deflated by using the GDP deflator (base=2015).

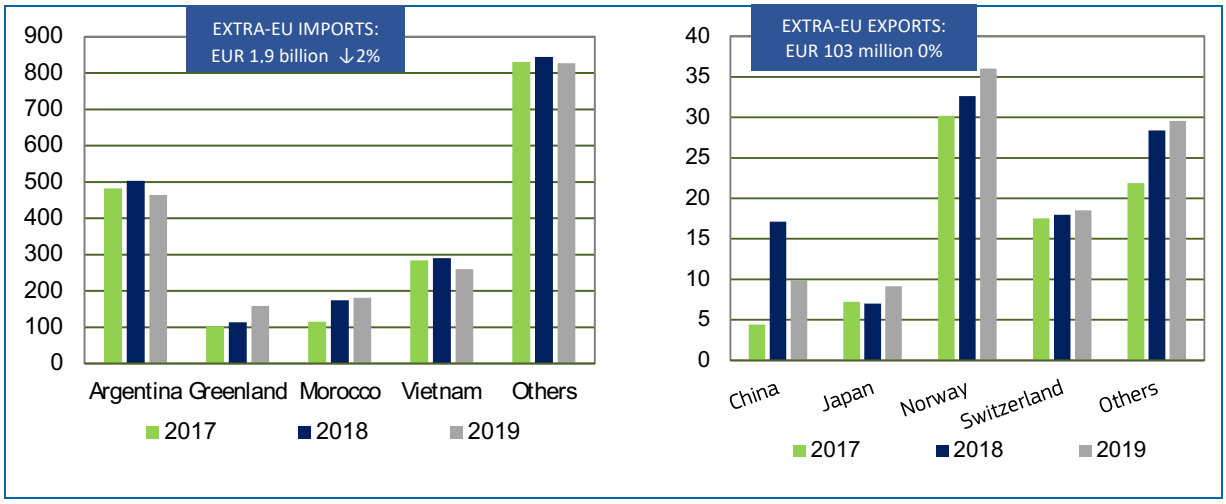
7.2 Trade flows of miscellaneous shrimps

EXTRA–EU IMPORTS: Miscellaneous shrimps[92] played a significant role in the trade flow of the crustacean commodity group, representing 40% and 39% of its value and volume, respectively. In 2019, imports of crustaceans were valued at EUR 4,7 billion and at a volume of 632.900 tonnes (−1% and −2%, respectively, from 2018 levels). In 2019, the EU imported EUR 1,9 billion and 248.400 tonnes of miscellaneous shrimps, a reduction of 2% and 3%, respectively, from 2018. Miscellaneous shrimps were primarily imported from Argentina and Vietnam, which together represented 38% of the total EU import value. Other partner countries included Greenland, India, and Morocco. In 2019, Argentina supplied 76.600 tonnes at EUR 464 million, down by 6% and 8%, respectively, from the previous year. The average unit value was 6,06 EUR/kg, also representing a slight decrease from the previous year (6,21 EUR/kg). Imports from Vietnam totalled 30.500 tonnes at EUR 260 million, down by 7% and 11%, respectively, from 2018. The unit value was 8,52 EUR/kg, down by 4% from 2018. Imports from Greenland have followed an increasing trend since 2017, jumping from EUR 102 million to EUR 158 million in 2019. Volume also increased (19.100 tonnes, +6%), despite a significant rise in unit value: 8,30 EUR/kg (+32% from 2018). Imports from Morocco have also risen since 2018, reaching 17.500 tonnes and EUR 181 million (+21% and +4%, respectively). Simultaneously, the unit value fell by 14%, down to 10,34 EUR/kg. Miscellaneous shrimps are imported both frozen and prepared. Argentina is the biggest supplier of frozen products, while Vietnam supplies mainly prepared products.

EXTRA–EU EXPORTS: In 2019, total extra-EU exports of miscellaneous shrimps were valued at EUR 103 million, remaining unchanged from 2018. Simultaneously however, volume dropped by 6%, while unit value reached 10,72 EUR/kg, an increase of 7% from 2018. The two main EU export markets for miscellaneous shrimps are Norway and Switzerland, which together make up 53% of the extra-EU exports value. Exports to Norway, the largest third-country market for miscellaneous shrimps, has steadily increased in value over the past three years. In 2019, exports to Norway totalled 3.000 tonnes (–2%) at a value of EUR 36 million (+10% from 2018). The export unit value was 12 EUR/kg, 13% higher than the previous year. Exports to Switzerland, the second largest market for miscellaneous shrimps, absorbed 18% of total exports value. This represents an increase since 2016. Trade value reached EUR 19 million, up by 3% from 2018. This was due to a steady increase in volume (1.400 tonnes, +5%), and a slight drop in price (13,18 EUR/kg, –1%). EU exports to China dropped sharply by 41% in volume and 42% in value, falling to 937 tonnes, and EUR 9,9 million. This decline reversed growth between 2017 and 2018, when exports grew almost three times in both volume and value. EU exports to Japan, though relatively small, have grown remarkably, reversing the decrease seen since 2017. From a 2018 level of 733 tonnes and a value of EUR 6,9 million, trade increased to 934 tonnes and EUR 9,1 million (+28% and +31%, respectively). Frozen miscellaneous shrimp are predominantly exported to China, while prepared shrimp are supplied primarily to Norway.

[92] CN-8 Code: 13061799; 03063690; 03069590; 16052110; 16052190; 16052900.

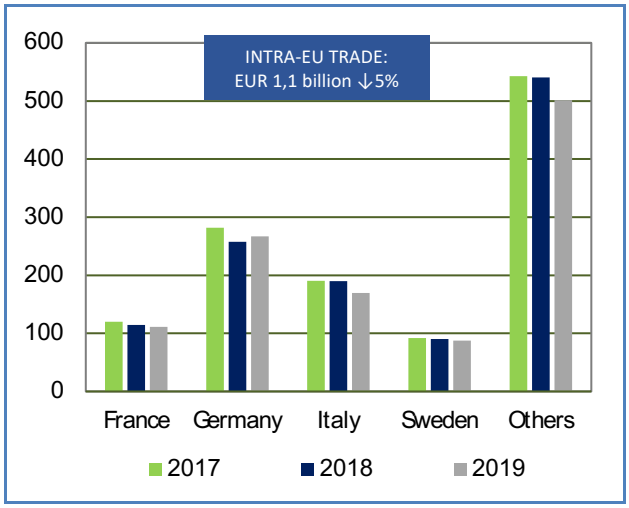
Figure 33. **MISCELLANEOUS SHRIMPS: EXTRA-EU IMPORTS AND EXPORTS (VALUE IN MILLION EUR)**



Source: EUMOFA, based on Eurostat. (updated 11.05.2020).

INTRA–EU TRADE: Trade in miscellaneous shrimps between EU Member States has decreased since 2018. In 2019, total intra-EU miscellaneous shrimp exports reached 120.800 tonnes, valued at EUR 1,1 billion, both volume and value down by 5%. The average unit value was 9,41 EUR/kg in 2019, relatively unchanged from 2018 (9,39 EUR/kg). The Member States with the largest intra-EU exports were France, Germany, and Italy, which together held 48% of the total trade value for 2019. During 2019, Germany, which holds the largest market share, grew its exports from the previous year, reaching 24.800 tonnes (+7%), valued at EUR 267 million (+4%). This is a reverse in the trend observed between 2017 and 2018. Every year since 2016, both Italy and France (the second and third largest markets, respectively) saw a continuous fall in exports. Italy's exports were 19.000 tonnes and EUR 169 million (−16% and −11%, respectively, compared with 2018) and France's were 13.100 tonnes and EUR 111 million (−2% and −3%, respectively). The average unit value in both countries appears to converge: 8,94 EUR/kg (+7%) in Italy and 8,45 EUR/kg (–1%) in France. Sweden's exports of miscellaneous shrimp have fallen gradually since 2016. In 2019, although with only 7.900 tonnes, Sweden overtook the UK in value, totaling EUR 88 million, driven by a higher export unit value. Prices in Sweden and Germany are similar (11,00 EUR/kg and 10,74 EUR/kg, respectively).

Figure 34. **MISCELLANEOUS SHRIMPS: INTRA-EU TRADE BY MAIN EXPORTING COUNTRIES (value in million EUR)**



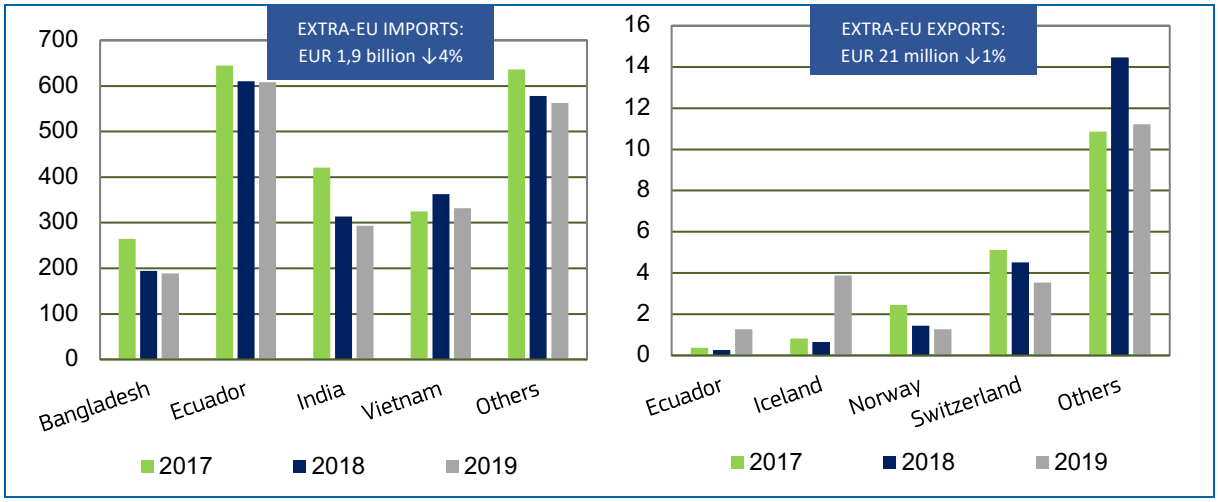
Source: EUMOFA, based on Eurostat. (updated 11.05.2020).

7.3 Trade flows of warmwater shrimp

EXTRA–EU IMPORTS: In 2019, warmwater shrimp[93] dominated the trade flow of the crustacean commodity group, representing 42% of its value and 45% of its volume. All warmwater shrimp enter the EU in frozen form. Extra-EU imports of warmwater shrimp fell slightly between 2018 and 2019, to 284.300 tonnes, valued at EUR 1,9 billion. Overall, this represents a decline of 1% in volume and 4% in value, compared to 2018. The average unit value fell by 3% (6,98 EUR/kg), augmenting the decline in import value. Ecuador and Vietnam are the primary extra-EU suppliers of warmwater shrimp, accounting for 48% of total import value between them. Other suppliers of warmwater shrimp are India and Bangladesh. In 2019, although imports from Ecuador were slightly higher in volume (+1% from 2018), they remained unchanged in value (EUR 608 million). Since 2017, the unit value has continued to fall, reaching 5,90 EUR/kg (−13% from 2017 and −1% from 2018). A fall in supplies from Vietnam (after an increase in 2018 from 2017), meant lower levels were recorded in 2019 (38.800 tonnes and EUR 332 million – both down by 8%). Imports from India, which supplied about 15% of the total value of warmwater shrimp, continued to fall, both in volume (39.600 tonnes, −5%) and value (EUR 293 million, −7%) from 2018. Imports from Bangladesh increased in volume by 2% (21.200 tonnes), while value dropped to EUR 189 million (−3% from 2018). Meanwhile, Bangladesh unit value plummeted from 10,78 EUR/kg in 2017 to 8,90 EUR/kg in 2019.

EXTRA–EU EXPORTS: EU warmwater shrimp exports to third-country markets have increased in volume since 2017, but experienced a decline in value compared to 2018. In 2019, exports totalled 3.500 tonnes (+40% from 2018), valued at EUR 21 million, representing a slight drop in value (−1%). Average unit values have decreased, from 9,37 EUR/kg in 2017, to 6,06 EUR/kg in 2019. The largest markets for extra-EU warmwater shrimp exports include Iceland (18% of total value), Switzerland (17%), Ecuador, and Norway (8% each). Exports to Iceland fluctuated, and after a drop in 2018 from 2017, they spiked dramatically in 2019, reaching 1.300 tonnes (from 86 tonnes in 2018). A major drop in the unit value (2,96 EUR/kg, −61%) did not offset the value of growth (EUR 3,9 million, +493%). By contrast, exports to Switzerland have decreased since 2017, falling to 340 tonnes (−19%) and EUR 3,5 million (−22%). The average unit value of such exports (10,42 EUR/kg) decreased by 3% and 7%, from 2018 and 2017, respectively. Following a decrease in 2018 from 2017, exports to Ecuador reached 235 tonnes in 2019 (from 30 tonnes in 2018) and were valued at EUR 1,3 million (+370%). The unit value fell sharply to 5,43 EUR/kg (−41%). At 130 tonnes, exports to Norway fell by 19% from 2018. An increase in price at 9,93 EUR/kg (+8%) did not offset the value decrease (−12%).

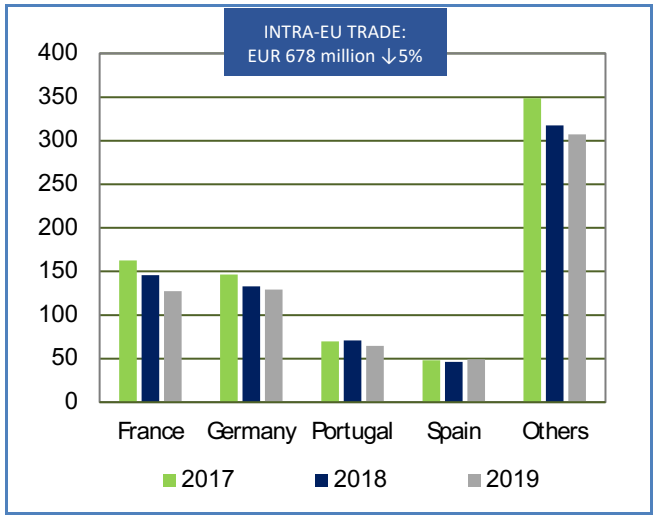
Figure 35. **WARMWATER SHRIMP: EXTRA-EU IMPORTS AND EXPORTS (VALUE IN MILLION EUR)**



Source: EUMOFA, based on Eurostat. (updated 11.05.2020).

[93] CN-8 code: 03061792.

Figure 36. **WARMWATER SHRIMP: INTRA-EU TRADE BY MAIN EXPORTING COUNTRIES (value in million EUR)**



Source: EUMOFA, based on Eurostat. (updated 11.05.2020).

INTRA–EU TRADE: In 2019, warmwater shrimp exports between EU Member States totalled 85.100 tonnes, valued at EUR 678 million. This represented an increase of 5% in volume and a reduction of 5% in value of warmwater shrimp exports, compared to 2018. The leading Member States in intra-EU warmwater shrimp exports are France and Germany, each possessing 19% of total EU export value in 2019. German intra-EU exports increased in volume (16.400 tonnes, +13%) and decreased in value (EUR 129 million, −3%); the latter due to a sharp drop in unit value (7,88 EUR/kg, or −14%). France followed a similar trend: volume reached 16.700 tonnes (+4%), but value dropped to EUR 127 million (−13%). Unit value also fell to 7,62 EUR/kg (−16%). Portugal and Spain hold 10% and 7% of the total intra-EU export value, respectively. Portugal experienced declines in both volume (8.300 tones, −4%) and value (EUR 65 million, −9%) of warmwater shrimp. However, unit value (7,78 EUR/kg) fell by 5% from 2018. Spain's exports were higher in both volume (6.000 tonnes, +17%) and value (EUR 49 million, +6%), concomitantly with a fall by 9% in price (8,13 EUR/kg) from 2018.

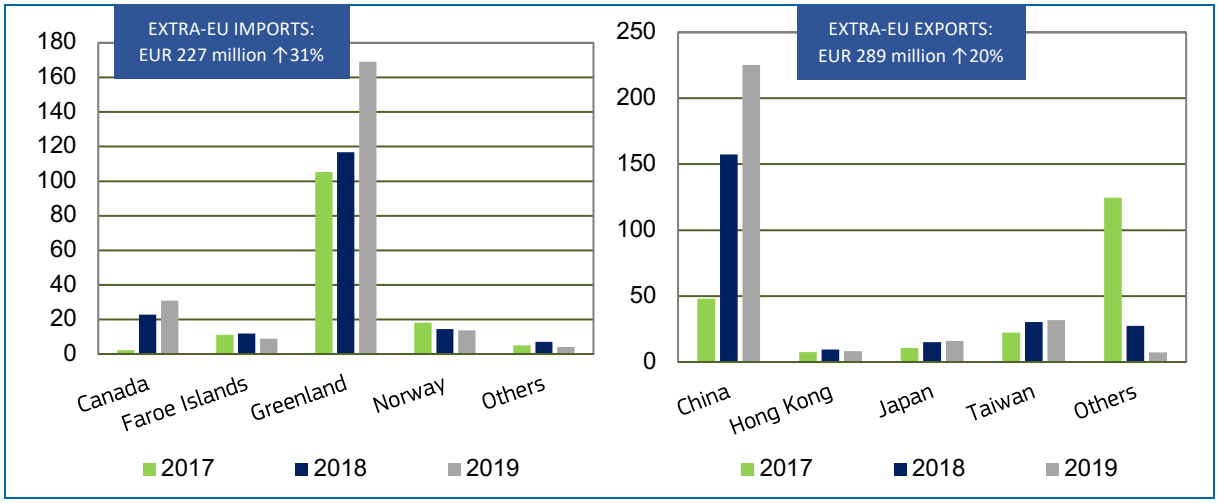
7.4 Trade flows of Greenland halibut

EXTRA–EU IMPORTS: Greenland halibut is the most traded commercial species within the flatfish commodity group, accounting for 49% of the total flatfish extra-EU import value. In 2019, extra-EU imports of Greenland halibut (44.300 tonnes, valued at EUR 227 million), were 10% higher in volume and 31% higher in value than 2018 levels. The average unit value of 5,11 EUR/kg in 2019 was also 20% higher than the preceding year. Greenland halibut is largely imported frozen.

Greenland is by far the largest supplier to the EU market, accounting for 76% of the total volume and 75% of the total value of Greenland halibut imports in 2019. Shipments from Greenland have increased continuously since 2017. In 2019, they reached 33.700 tonnes and EUR 169 million, a rise from 2018 by 14% and 45%, respectively. At 5,01 EUR/kg, the unit import value also grew remarkably (+28%). The next three largest suppliers are Canada, Norway, and the Faroe Islands, with market shares of 14%, 6%, and 4%, respectively. From 2018 through to 2019, Canadian imports rose sharply (+35% in volume and +36% in value), at a price of 5,44 EUR/kg, which was slightly higher (+1%) than the preceding year. Imports from Norway have continued a decline since 2017, reaching 2.400 tonnes (−8%), valued at EUR 14 million (−4%). About a quarter of the Greenland halibut from Norway is imported fresh. Supplies from the Faroe Islands have also decreased, falling to 1.700 tonnes and EUR 8,9 million (−21% and −25%, respectively, from 2018). About 40% of the Greenland halibut originating from the Faroe Islands is supplied fresh.

EXTRA–EU EXPORTS: In 2019, Greenland halibut exports to markets outside the EU reached 53.000 tonnes. This represents a 16% increase from 2018, at a value of EUR 289 million (+20%), and an average unit value of 5,45 EUR/kg. China is by far the largest export market, absorbing around 80% (both in volume and value) of the Greenland halibut exported to third countries. After China, the largest markets include Hong Kong, Japan, and Taiwan, which together accounted for 20% of the total extra-EU exports value of Greenland halibut. Exports to China have risen significantly in recent years. During 2018−2019, volume and value grew by 37% and 43%, respectively, reaching 43.000 tonnes, with a value of EUR 225 million, at an average unit export unit value of 5,25 EUR/kg (+4% from 2018). Exports to Taiwan, the second largest market, decreased slightly in volume (−1%) and grew by 5% in value, due to a higher export unit value (6,41 EUR/kg, +6%). The Japanese market has experienced continuous growth since 2017, reaching 2.600 tonnes and EUR 16 million (+2% and +6%, respectively, from 2018). By contrast, Hong Kong experienced a decline of 19% in volume and 11% in value, with a concurrent increase of 10% in the export unit value (6,65 EUR/kg), the highest of the four markets.

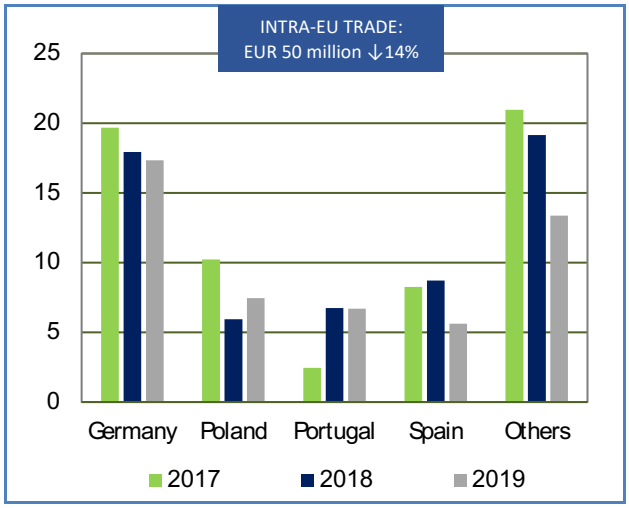
Figure 37. **GREENLAND HALIBUT: EXTRA-EU IMPORTS AND EXPORTS (VALUE IN MILLION EUR)**



Source: EUMOFA, based on Eurostat. (updated 11.05.2020).

INTRA–EU TRADE: Trade of Greenland halibut between EU Member States has declined in recent years. In 2019, intra-EU exports reached 7.900 tonnes, valued at EUR 50 million, down by 18% and 14%, respectively, relative to 2018. The average unit value rose by 5% to 6,45 EUR/kg in 2019. The leading Member State in intra-EU Greenland halibut exports is Germany, with a share of 34% of total value in 2019. Other important exporters are Poland, Portugal, and Spain, with a combined export share of 39%. At a unit value of 7,33 EUR/kg, Germany's exports totalled 2.400 tonnes, valued at EUR 17 million, down by 7% in volume and 3% in value from 2018. Poland, the second largest market, experienced significant growth (1.300 tonnes, +15% and EUR 7 million, +25%), corresponding to an average unit value of 5,88 EUR/kg (+9%). Both Portugal and Spain experienced declines in exports, the latter most notably. Portugal's exports fell to 1.300 tonnes and EUR 7 million (both –1%), with the average unit value of 5,09 EUR/kg (unchanged from the previous year). Spain's exports were down 35% in volume and 36% in value (911 tonnes, EUR 6 million). However, the average unit value of 6,16 EUR/kg fell slightly from 2018 (–1%).

Figure 38. **GREENLAND HALIBUT: INTRA-EU TRADE BY MAIN EXPORTING COUNTRIES (value in million EUR)**



Source: EUMOFA, based on Eurostat. (updated 11.05.2020).

7.5 Trade flows of common sole

EXTRA–EU IMPORTS: Common sole (*Solea* spp.) is imported mainly from countries where EU Member States-flagged fishing vessels land their common catches. In 2019, extra-EU imports of common sole decreased by 10% in volume (2.900 tonnes) and 13% in value (EUR 17 million) from 2018, a reverse of the observed trend from 2017 to 2018. Average unit value in 2019 was 5,69 EUR/kg (–3% from 2018). Common sole is usually imported frozen. The largest suppliers are Mauritania, Morocco, and Senegal, accounting for 73% of total EU import value in 2019.

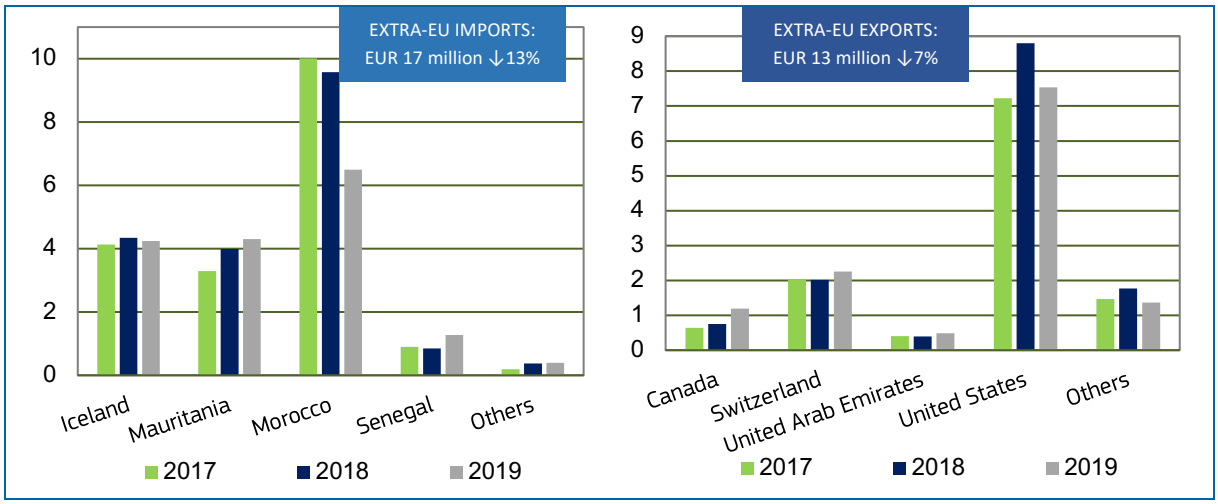
EU imports from Morocco, the largest market, have declined steadily since 2017. In 2019, imports totaled 1.300 tonnes (–26%), valued at EUR 6 million (–32%, from 2018). Concurrently, the unit value of 5,01 EUR/kg, fell by 8%. About 13% of the

sole imported from Morocco (in volume) is fresh. EU imports from Mauritania (the second largest market) grew steadily during 2017–2019, reaching 736 tonnes, an increase of 5%, at a total value of EUR 4 million (+8%).
The unit value of 5,85 EUR/kg went up by 3% from 2018. About 49% of the sole imported from Mauritania is fresh. A sharp increase of the unit value at 12,16 EUR/kg (+23%) of sole imports from Iceland caused declines in both volume (349 tonnes, –21%) and value (EUR 4,2 million, –2%). This trend has continued since 2017–2018. Common sole is imported fresh from Iceland. By contrast, imports from Senegal have grown, reaching 408 tonnes (+46%) and EUR 1,3 million (+50%), at import unit value: 3,14 EUR/kg (+3% from 2018). Most of the sole is imported frozen.

EXTRA–EU EXPORTS: Extra-EU exports of common sole are in frozen, as well as fresh form. Total extra-EU exports of common sole declined from 2018 to 2019, falling from 893 tonnes to 712 tonnes, and from EUR 14 million to EUR 13 million. Simultaneously however, the average export unit value rose from 15,37 EUR/kg (2018) to 18,02 EUR/kg (2019). EU exports to the United States, the largest market, were down from 2018 in both volume (423 tonnes, –29%) and value (EUR 8 million –14%), reversing the trend observed between 2017 to 2018.

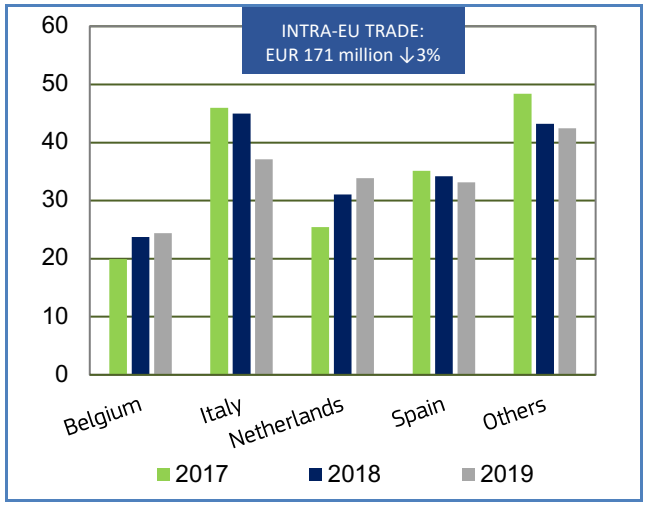
Most of the sole (88%) exported to the US market is frozen. At 17,81 EUR/kg, the unit value increased by 20% from 2018. By contrast, exports to Switzerland, the second largest market, increased by 5% in volume (120 tonnes) and 12% in value (EUR 2 million), while from 2017 to 2018, exports decreased slightly. The export unit value increased by 7% from 2018, to 18,84 EUR/kg. About 89% of Common sole exported to Switzerland is fresh. Supplies to Canada increased steadily from 2017–2019, reaching 67 tonnes (+37%) at EUR 1 million (+58%), compared to 2018. Meanwhile, the unit value rose to 17,72 EUR/kg (+15%). Common sole is exported frozen to Canada. The United Arab Emirates (UAE) showed mixed trends between2017–2019: exports rose between 2018 and 2019 to 23 tonnes (+10%), worth EUR 0,5 million (+26%), after but subsequently fell slightly during 2017–2018. Most of the sole (86%) exported to UAE is fresh. The unit value (21,14 EUR/kg) rose 14% from 2018.

Figure 39. **COMMON SOLE: EXTRA-EU IMPORTS AND EXPORTS (VALUE IN MILLION EUR)**



Source: EUMOFA, based on Eurostat. (updated 11.05.2020).

Figure 40. **COMMON SOLE: INTRA-EU TRADE BY MAIN EXPORTING COUNTRIES (value in million EUR)**



Source: EUMOFA, based on Eurostat. (updated 11.05.2020).

INTRA–EU TRADE: Common sole is traded between Member States either fresh, or frozen. In 2019, intra–EU exports of common sole totalled 13.800 tonnes (−7%), valued at EUR 171 million (−3%), at an average unit value of 12,34 EUR/kg (+4% from 2018). In 2019, the largest sole exporting Member States were Belgium, Italy, the Netherlands, and Spain, together accounting for 75% of total export value. Italy (20% share) experienced declines in trade since 2017. In 2019, its exports reached 3.200 tonnes (–24%), valued at EUR 37 million (–17% from 2018). Simultaneously, the unit value for common sole (11,58 EUR/kg) rose by 8%. The common sole exported by Italy was mainly fresh (62% in volume). The Netherlands and Spain have almost the same share of the total intra–EU trade (20% and 19%, respectively) and while the Netherlands' exports increased between 2018 and 2019, Spain experienced the opposite trend. In 2019, exports of common sole from the Netherlands fell by 5% in volume (2.800 tonnes) and increased by 9% in value (EUR 34 million), concomitantly with a 15% rise in the unit value (12,07 EUR/kg). Most of the sole exported by the Netherlands is fresh. Spanish exports continued to decrease steadily. Both volume and value decreased from 2018 to 2019, continuing the trend observed between 2017 and 2018. Volume reached 2.900 tonnes (−1%), and value EUR 33 million (−3%). Price (11,38 EUR/kg) also decreased (− 2%). The majority of sole exported by Spain was fresh (71%). Belgium experienced continuous growth, at 1.700 tonnes of fresh sole (−1%) valued EUR 24 million (+3%), with a unit value of 14,45 EUR/kg (+4%).

8. Atlantic cod in the EU

8.1 Introduction

Atlantic cod (*Gadus morhua)* is a benthopelagic fish that inhabits the water just above the sea bottom, feeding on zooplankton, fish and benthos. Atlantic cod can live for up to 25 years and adults have an average length of 1 m. Typically, they weigh between 5 and 12 kg, but the largest weight ever recorded is 96 kg[94]. The species usually attains sexual maturity between the ages of two and four, but some take longer to mature – some individuals are not mature until they reach six years of age.

Source: Eurofish

There is also a tendency for cod in the northern North Sea to take longer to mature than cod in the southern North Sea[95]. Spawning occurs in the winter and beginning of the spring, when the fish gather in big schools.

Atlantic cod has a wide geographical distribution, from the Barents Sea and Bear Islands in the east to the North Sea, Baltic Sea, and around Iceland and Greenland up to the North American coast. In the North Atlantic Ocean, cod normally inhabits depths of up to 600 m in the open ocean, as well as grounds close to shore and fjords. They can adapt to a variety of temperatures and salinities, from nearly fresh to full oceanic water[96]. Atlantic cod in the North East Atlantic are divided into 14 separate stocks that remain largely separate from one another. Important stocks in European waters include the North Sea, Skagerrak, Western Baltic, Eastern Baltic, Celtic Sea, Irish Sea, and Western Scotland[97]. The North East Arctic cod is by far the largest stock of Atlantic cod in the world, and the stock is known for undertaking long migrations from the Barents Sea to the coast of Norway to spawn during the winter.

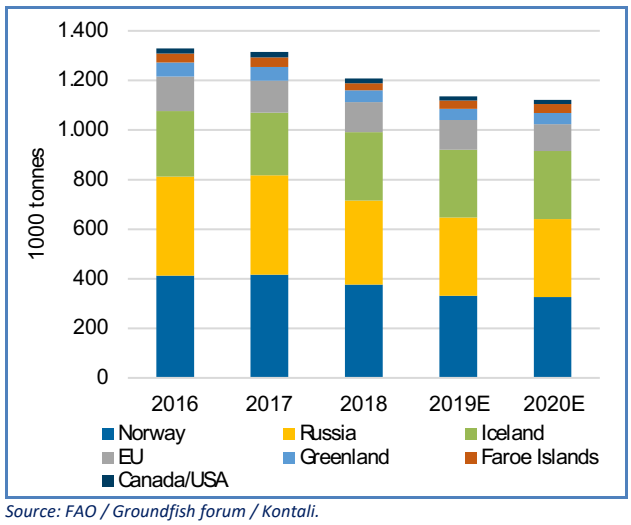
Atlantic cod are among the most important of all commercial fishes and have been exploited ever since fishing began in the seas of Europe. Today, the major fishing grounds are in the North East Atlantic Ocean within the Barents Sea, Icelandic waters and the North Sea. There were significant commercial fisheries in the northwest Atlantic up until the early 1990s, but, because of heavy overfishing, the fish stock in Canadian waters collapsed[2].

While cod can be taken by a wide range of means, including long lines and pots, the commercial catch comes almost entirely from mixed trawl fisheries, in which they are caught alongside other demersal species such as haddock and whiting[4].

[94] https://www.fishbase.de/summary/gadus-morhua.html
[95] http://ices.dk/about-ICES/projects/EU-RFP/EU%20Repository/ICES%20FIshMap/ICES%20FishMap%20species%20factsheet-cod.pdf
[96] Cohen, D.M., T. Inada, T. Iwamoto and N. Scialabba, 1990. FAO species catalogue. Vol. 10. Gadiform fishes of the world (Order Gadiformes). An annotated and illustrated catalogue of cods, hakes, grenadiers and other gadiform fishes known to date. FAO Fish. Synop. 125(10). Rome: FAO. 442 p.
[97] https://ec.europa.eu/fisheries/marine_species/wild_species/cod_en

8.2 Global catch

Figure 41. **GLOBAL CATCHES OF ATLANTIC COD BY CATCHING NATION**



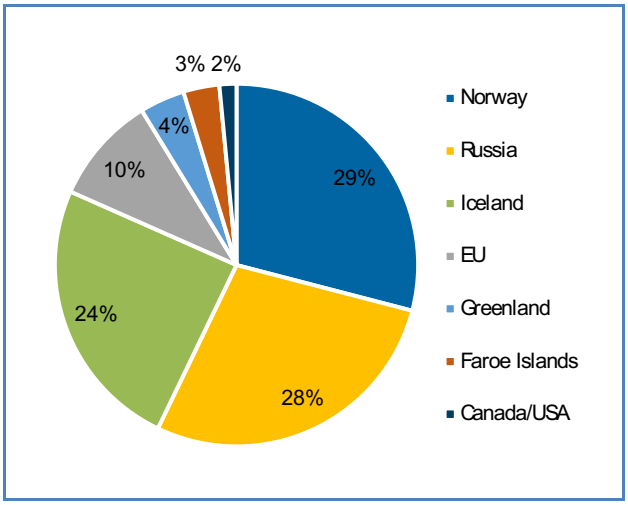
Source: FAO / Groundfish forum / Kontali.

Since 2016, the global catch of Atlantic cod has been decreasing annually, from 1,33 million tonnes in 2016 to a forecasted catch of 1,12 million tonnes in 2020[98]. The declining catch volumes are a consequence of reduced quotas in the most important commercial Atlantic cod fishery, which is found in the Barents Sea.

In the EU, quotas have drastically decreased over the last years. Since 2015, the available quota of Atlantic cod for EU fisheries has more than halved. The quota for 2020 is set to approx. 80.000 tonnes. This represents a 34% decrease from 2019. Most of the declining quota volumes for the EU is due to significant limitations to fisheries in the Baltic Sea (-83%) and in Skagerrak/Kattegat (-47%).

The largest catching nations of Atlantic cod are Norway, Russia and Iceland, accounting for 29%, 28% and 24% of the total, respectively (according to 2020 estimates)[99]. The Norwegian and Russian cod catches take place in the Barents Sea, targeting the large Northeast Arctic cod stock. The Icelandic commercial cod fishery is mainly found in Iceland's exclusive fishing zone, where they manage and harvest from their own cod stock around the country.

Figure 42. **ESTIMATED GLOBAL CATCH OF ATLANTIC COD BY CATCHING NATION IN 2020**



Source: Groundfish forum / Kontali.

[98] FAO (2016) / Groundfish Forum / Kontali (2019 and 2020 estimates).
[99] Groundfish Forum / Kontali.

8.3 EU catches of cod

The EU is estimated to be responsible for approximately 10% of global cod catches in 2020. The EU's commercial fishery of Atlantic cod takes place mostly in European waters in the North Sea, the Baltic Sea and the Barents Sea.

In 2018, cod landed in the EU reached 68.000 tonnes, worth EUR 216 million. This ranked 10th in value terms among all species landed in the EU, and represents 2% of the total value of EU landings. Landings were mostly made by the largest quota holders, Denmark and the UK, as well as Germany, Poland and France. In total, volumes decreased by 16% and value decreased by 1% compared to 2017[100].

Contrary to the other major cod fishery nations in the EU, the UK and Germany experienced an increasing trend in landings over the last couple of years, with UK landings increasing by 6% in terms of volume and 18% in terms of value from 2017 to 2018. In the latter years, major cod fishing nations in the EU, such as Denmark, Spain and Poland, have seen a negative trend in landed volumes, mainly due to reduced TACs and quotas available for EU member states. Total cod landings in the EU have decreased for four consecutive years, with landings in 2018 35% lower than in 2015.

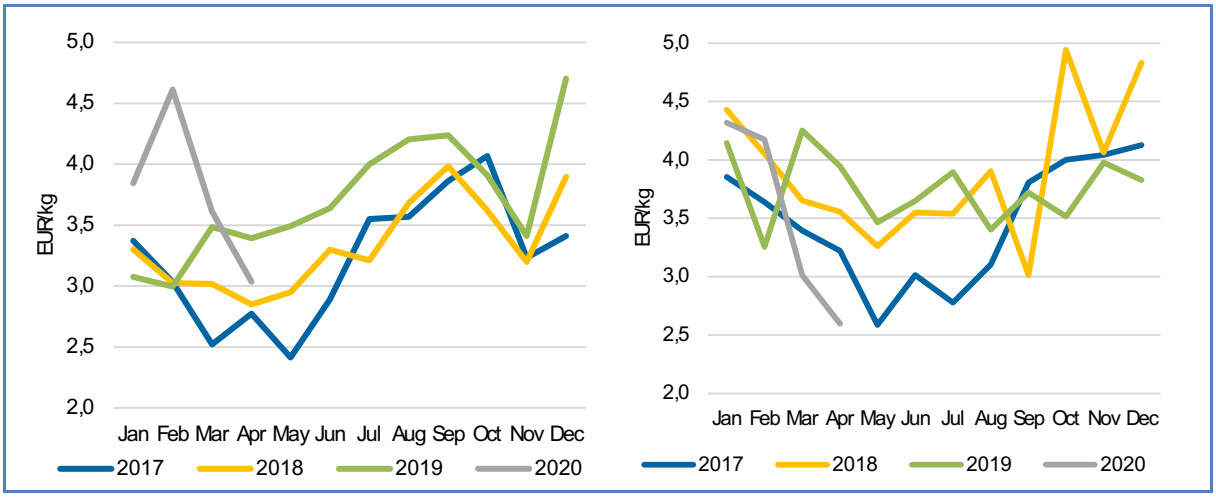
Table 24. **LANDINGS OF ATLANTIC COD IN THE EU BY MEMBER STATE (volume in 1000 tonnes, value in million EUR)**

	2014		2015		2016		2017		2018	
Member State	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**
UK	13	35	14	44	17	49	18	57	21	65
Denmark	21	51	23	56	20	56	16	53	15	49
Germany	10	21	8	22	5	15	1	4	7	36
France	7	19	6	21	8	28	8	35	5	21
Spain	19	56	20	60	15	44	15	40	4	14
Poland	14	18	17	18	13	16	11	14	9	12
Other	16	19	17	22	14	18	12	15	7	19
Total	**98**	**219**	**104**	**244**	**92**	**226**	**81**	**219**	**68**	**216**

Source: Eurostat.

In 2019, the first-sales prices for fresh Atlantic cod was the highest ever recorded in both Denmark and Spain. In Denmark, the first-sales price for cod averaged 3,68 EUR/kg, up 11% from 2018, while in Spain the price averaged 3,75 EUR/kg which was slightly higher than in 2018. Both Denmark and Spain experienced steep first-sales prices decrease in March and April 2020 – highly impacted by the COVID pandemic.

Figure 43. **FIRST-SALES PRICES OF FRESH COD IN DENMARK (LEFT) AND SPAIN (RIGHT)**



Source: EUMOFA.

[100] EUMOFA, "The EU fish market – 2019 Edition" available at http://www.eumofa.eu/market-analysis#yearly

8.4 Extra-EU Imports

Most of the fisheries and aquaculture products imported into the EU originate in Norway. Denmark and Sweden are the main entry points for Norwegian products into the internal market. In 2019, Norwegian supply accounted for approximately 32% (158.000 tonnes) of cod imported into the EU. Iceland and Russia are also significant suppliers of cod to the EU, responsible for 21% (102.000 tonnes) and 19% (95.000 tonnes) of total extra-EU import volume in 2019, respectively.

Table 25. **EU IMPORTS OF COD: MAIN SUPPLIERS (volume in 1000 tonnes, value in million EUR)**

	2016		2017		2018		2019		Jan - Feb 2020	
Supplier	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**
Norway	177	814	184	870	170	867	158	914	29	170
Iceland	102	620	93	585	105	658	102	703	12	86
Russia	100	375	111	445	101	435	95	469	12	57
China	82	328	75	320	69	307	76	407	14	70
Faroe Islands	19	86	20	98	21	110	27	148	3	21
Greenland	27	64	25	61	20	50	18	64	1	6
Other	26	88	22	85	19	82	20	90	4	18
Total	**534**	**2.375**	**530**	**2.463**	**504**	**2.509**	**496**	**2.793**	**75**	**428**

Source: EUMOFA, based on Eurostat.

In the period from 2016 to 2019, imports of cod into the EU declined in volume, while their value trended in the opposite direction. In this period, import volume fell by 7% and import value rose by 187%. In 2019, EU imports of cod were 496.000 tonnes, valued at EUR 2,8 billion. Norway was the main supplier, providing 158.000 tonnes, valued at EUR 914 million. This represented 32% of cod imported by third countries in both volume and value terms. A 13% price increase from 4,98 to 5,63 EUR/kg caused a total value growth from all countries of EUR 285 million, 11% more than 2018.

In the first two months of the year, imports from all suppliers totalled 75.000 tonnes, valued at EUR 170 million. This represents a decrease in both volume (-11%) and value (-6%) compared with the same period in 2019.

Table 26. **EU IMPORTS OF COD BY PRESERVATION STATE (volume in 1000 tonnes, value in million EUR)**

	2016		2017		2018		2019		Jan - Feb 2020	
Preservation state	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**
Frozen	347	1.317	342	1.373	309	1.336	318	1.578	46	228
Live/Fresh	89	461	95	490	100	526	87	530	18	109
Dried	35	272	32	263	31	274	32	313	5	30
Salted	52	254	47	250	48	273	44	269	4	41
Unspecified	12	71	14	87	15	100	15	102	3	19
Prep/preserved	0	1	0	0	0	0	0	1	0	1
Total	**535**	**2.375**	**530**	**2.463**	**503**	**2.509**	**496**	**2.793**	**76**	**428**

Source: EUMOFA, based on Eurostat.

Most of the cod imported to the EU consists of frozen products. In 2019, imports of frozen cod reached EUR 1,58 billion and 318.000 tonnes, an 18% increase in value and a 3% increase in volume from 2018. Imports of fresh products, however, decreased by 14% in terms of volume and increased by 1% in terms of value. Higher prices led to a 14% increase in imported value of dried products, even though volume only increased by 3% in 2019. Salted products decreased by 1% in terms of both value and volume from 2018.

In the period January–February 2020, import value of cod fell by 6%, driven by an 18% fall in import value for frozen products. On the other hand, import value of fresh cod rose by 11% as prices from all major suppliers were significantly higher in the first weeks of 2020 compared with the corresponding weeks in 2019 (+13%).

The Netherlands is the main point of entry for cod in the EU, followed by the UK, Sweden and Denmark. Much of the volumes entering these countries go on to be processed and consumed in other EU countries.

Table 27. **EU IMPORTS OF COD BY MEMBER STATE (volume in 1000 tonnes, value in million EUR)**

	2016		2017		2018		2019		Jan - Feb 2020	
Member State	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**
Netherlands	130	561	146	652	131	648	130	733	7	46
UK[101]	95	471	84	439	80	439	85	520	19	105
Sweden	81	394	81	414	77	418	65	413	12	66
Denmark	82	330	83	354	83	368	72	369	14	78
Germany	33	195	30	173	28	178	31	209	5	37
Portugal	21	66	20	70	28	109	36	155	3	11
Other	92	360	86	361	76	349	77	395	15	84
Total	**534**	**2.375**	**530**	**2.463**	**504**	**2.509**	**496**	**2.793**	**75**	**427**

Source: EUMOFA, based on Eurostat.

8.5 Extra-EU Exports

Exports of cod to non-EU countries are far lower than imports. Volumes exported in 2019 amounted to 60.000 tonnes, a slight increase compared with 2018. This corresponded to a growth in value (increasing by EUR 50 million relative to 2018), as exports reached EUR 300 million in 2019.

Table 28. **EU EXPORTS TO MAIN MARKETS OUTSIDE THE EU (volume in 1000 tonnes, value in million EUR)**

	2016		2017		2018		2019		Jan - Feb 2020	
Country	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**
China	31	81	39	113	31	94	35	138	6	22
Brazil	7	47	8	60	7	55	7	61	2	19
Norway	4	13	4	21	5	28	6	31	1	6
Switzerland	2	18	2	20	2	22	2	17	0	3
United States	1	8	2	11	2	13	2	15	0	2
Ukraine	1	2	2	5	1	3	2	5	0	1
Angola	1	9	1	8	1	8	1	5	0	0
Canada	0	2	1	3	1	5	1	5	0	1
Other	5	20	4	16	5	22	4	22	2	14
Total	**52**	**202**	**63**	**256**	**55**	**251**	**60**	**299**	**12**	**68**

Source: EUMOFA, based on Eurostat.

China is by far the largest market for cod exported from the EU. In 2019, exports to this country reached 35.000 tonnes, worth EUR 138 million. The majority of exported cod is in the form of frozen products, mainly coming from the Netherlands and Denmark. This cod originally enters the EU market from Norway and Russia before being shipped to the Chinese market.

Brazil and Norway are also important export markets for cod from the EU. In 2019, they imported 7.000 tonnes (worth EUR 61 million) and 6.000 tonnes (worth EUR 31 million), respectively. The value of cod exports to both countries has increased steadily during recent years.

Exports to Norway mainly consist of frozen cod landed by EU vessels in Norway, and prepared/preserved cod products supplied from the processing industry in Latvia and Lithuania. Exports to Brazil are dominated by supply from Portugal, mainly of frozen and dried cod products[102].

[101] Since February 2020, the UK is not a Member State of the EU. It is included in relevant tables and graphs for context.

[102] EUMOFA has conducted a thorough analysis on the price structure in the supply chain of dried salted cod from Norway to Portugal, which can be consulted at http://www.eumofa.eu/market-analysis#ptat.

Table 29. **EXTRA-EU EXPORTS OF COD BY MEMBER STATE (volume in 1000 tonnes, value in million EUR)**

	2016		2017		2018		2019		Jan - Feb 2020	
Member State	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**
Netherlands	16	50	24	78	18	66	24	109	5	22
Portugal	10	67	12	81	11	77	11	84	3	22
Denmark	17	45	18	50	14	44	11	39	2	8
Latvia	0	2	1	11	2	15	1	16	0	3
Other	9	39	8	36	11	48	12	51	2	13
Total	**52**	**202**	**63**	**256**	**55**	**251**	**60**	**299**	**12**	**68**

Source: EUMOFA, based on Eurostat.

In the first two months of 2020, exports of cod from the EU reached 12.000 tonnes, valued at EUR 68 million. This represents a 2% decrease in volume and a 4% increase in value, compared with the same period in 2019.

8.6 Intra-EU Exports

The three largest intra-EU exporters are the Netherlands, Denmark, and Sweden. They accounted for 69% of the volume and 67% of the value of cod traded within the EU in 2019. Intra-EU exchange of cod experienced a 3% growth in value and 18% decrease in volume in 2019. The growth in value was primarily driven by increasing exports from the Netherlands and Germany, while the other large suppliers mostly decreased during 2019.

Table 30. **INTRA-EU EXPORTS OF COD BY MEMBER STATE (volume in 1000 tonnes, value in million EUR)**

	2016		2017		2018		2019		Jan - Feb 2020	
Member State	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**
Netherlands	150	574	126	609	198	640	143	705	17	105
Denmark	88	452	84	460	83	478	73	461	15	98
Sweden	72	343	75	361	67	367	57	360	10	56
Germany	46	262	38	224	38	232	38	264	5	39
Poland	19	105	23	132	21	130	17	112	3	19
Spain	20	95	20	96	21	101	20	107	4	19
Portugal	10	50	11	55	11	57	13	70	2	9
Lithuania	13	68	14	72	12	67	9	56	1	9
UK[103]	15	63	14	63	12	58	11	55	1	4
Other	11	65	13	76	14	89	13	98	2	15
Total	**445**	**2.078**	**419**	**2.148**	**478**	**2.219**	**393**	**2.288**	**59**	**373**

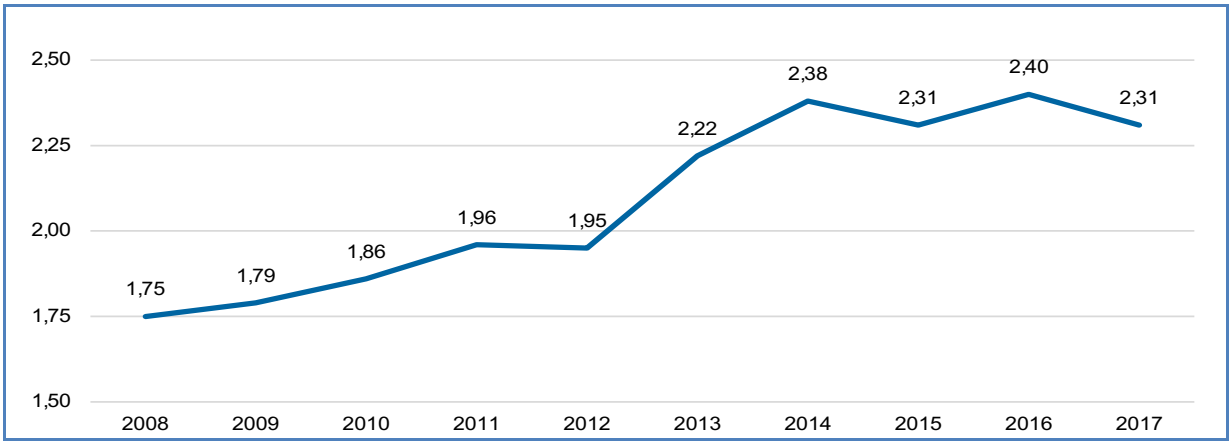
Source: EUMOFA, based on Eurostat.

[103] Since February 2020, the UK is not a Member State of the EU. It is included in relevant tables and graphs for context.

8.7 Consumption

Cod is one of the most consumed fish species in the EU. In 2017, with a per capita apparent consumption[104] of 2,31 kg in live weight equivalent (LWE), it ranked second after tuna. Although the apparent consumption of cod slightly declined from 2016, it was 24% higher compared to 2010, when its consumption amounted to 1,86 kg LWE. This development has mainly been caused by an increase in extra-EU imports, driven by increased catches by Norway, Iceland and Russia over the period[105].

Figure 44. **APPARENT CONSUMPTION OF COD IN THE EU (kg per capita - live weight equivalent, LWE)**

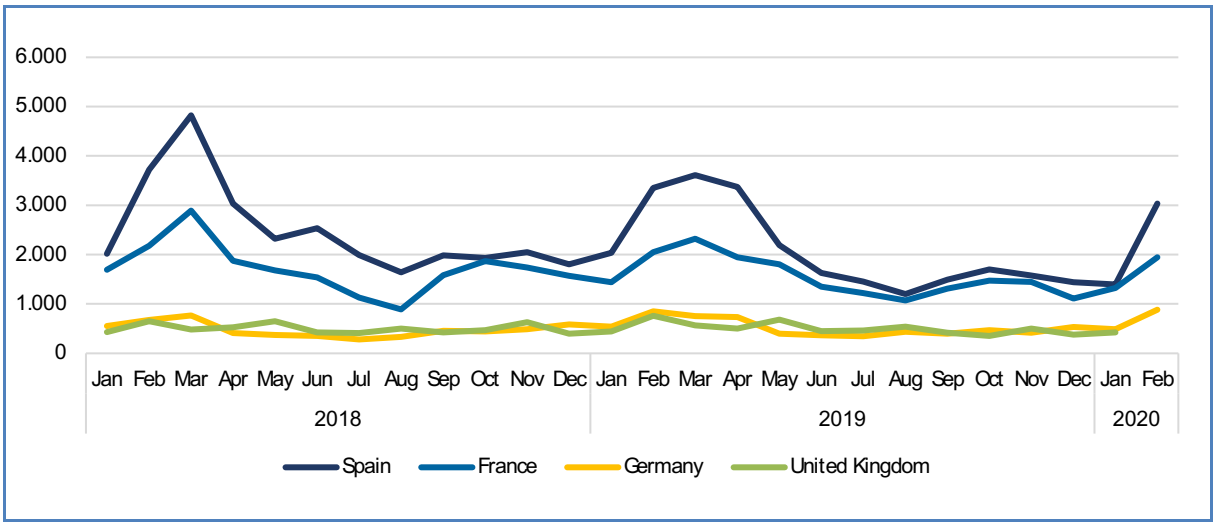


Source: EUMOFA.

In the EU, Atlantic cod is consumed in a variety of different states, either fresh, frozen, salted or dried. It is especially known for being considered as an iconic ingredient in Portuguese cuisine, as salted and dried cod, and there is said to be over 1.000 cod recipes in Portugal alone[106].

The seasonal trend in catches of cod in the northern Atlantic Ocean and in the Barents Sea causes an equally significant seasonal trend in consumption of fresh cod products in the EU during the first half of each year. Volumes of fresh products coming from Norway, Russia and Iceland are significantly higher in the winter months due to stock movements and quota allocations that effects the fisheries.

Figure 45. **MONTHLY HOUSEHOLD CONSUMPTION OF FRESH COD PRODUCTS (volume in tonnes)**



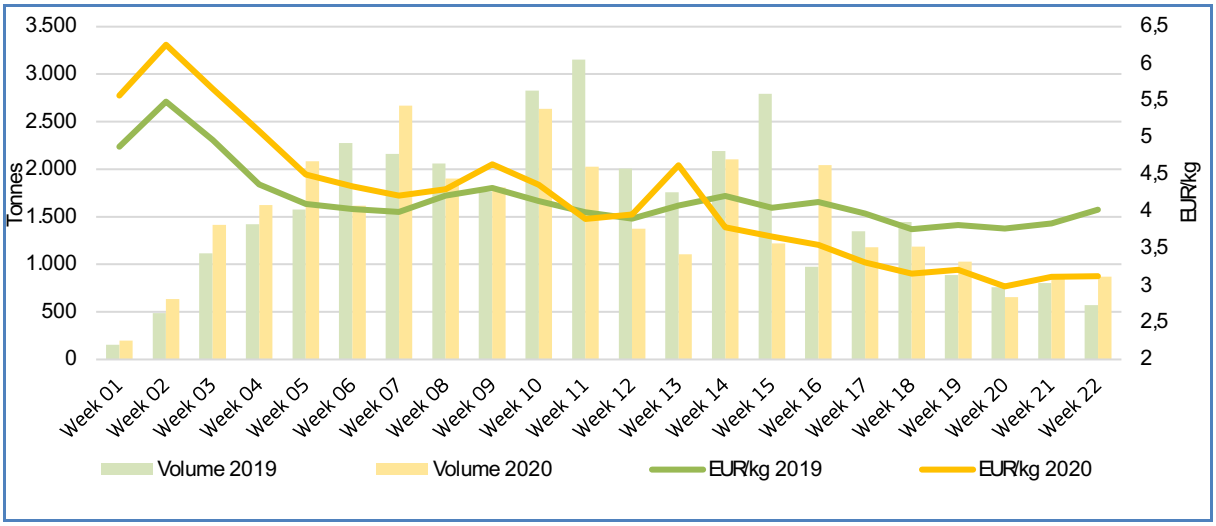
Source: EUMOFA.

[104] Data on apparent consumption come from the supply balance developed by EUMOFA: http://www.eumofa.eu/supply-balance
[105] FAO, Eurostat, ICES and Kontali Monthly Cod Report.
[106] https://www.centerofportugal.com/tour/codfish-route/

8.8 Implications of the COVID-19 pandemic

As for many other species, the cod supply chain in the EU has been strongly impacted by the pandemic. A large share of the cod landed or imported as fresh is normally sold in the HoReCa segment. With the COVID-19 lockdown, this market segment virtually disappeared and overall demand fell steeply. As shown in figure 46, first-sales prices for fresh cod fell steeply between February and April in Denmark and Spain.

Figure 46. **EU IMPORTS OF FRESH COD FROM NORWAY (volume in kg, unit value in EUR/kg)**



Source: EUMOFA.

While fresh cod of Norwegian origin traditionally goes into the retail and HoReCa segments, closure of restaurants, hotels and canteens led to a significant drop in demand on the EU market. From week 12 (lockdown) to week 22, both import volume and price fell by 12% compared with the corresponding period in 2019. In the last 5-week period the difference in value relative to 2019 has widened (-19%). Fresh fillets have managed somewhat better. EU imports of fresh cod fillets of Icelandic origin in the period dropped by 16% and their average price declined by 4%.

EU market dynamics for frozen products have been different from fresh as prices seems to be more stable. As an example, EU imports of frozen cod fillets from China fell by 16% in volume in the lockdown period while average import price was on the same level as in 2019.

While reports from industry stakeholders indicate that local cod fishermen have been impacted dramatically, a range of initiatives have helped mitigate some of the impact. These include EU support package to mitigate the socio-economic impacts for the fishery sector, public support programmes, a variety of local promotion campaigns, and new online sales channels.

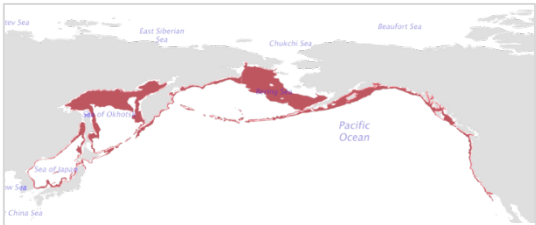
Restaurants have started to open again in the EU. Even though the allowed restaurant capacity will be around 50% of normal capacity in most Member States, there are expectations among fishers that demand will pick up as the situation gradually returns to “normal”.

9. The EU market for Alaska pollock

9.1 Introduction

Alaska pollock (*Gadus chalcogrammus*), also known as pollock or walleye pollock, is a species of marine whitefish. It is a semi-pelagic schooling fish widely distributed in the North Pacific, and is most abundant in the eastern Bering Sea. Adult fish can be up to 75 cm long and weigh up to 1,5 kg, although on average they are about 20-55 cm long and weigh 180-700 g. Size and weight gradation depend on season and fishing area[107]. Alaska pollock have a relatively short lifespan of about 12 years and begin to reproduce by the age of 3 to 4 years. Each new generation replaces ageing and harvested fish in just a few years, as the species is extremely fertile[108].

In the spring, Alaska pollock migrate inshore to shallow water to breed and feed, and move back to warmer, deeper waters in the winter months. The most common fishing gears used to catch Alaska pollock are trawls and seines[109].

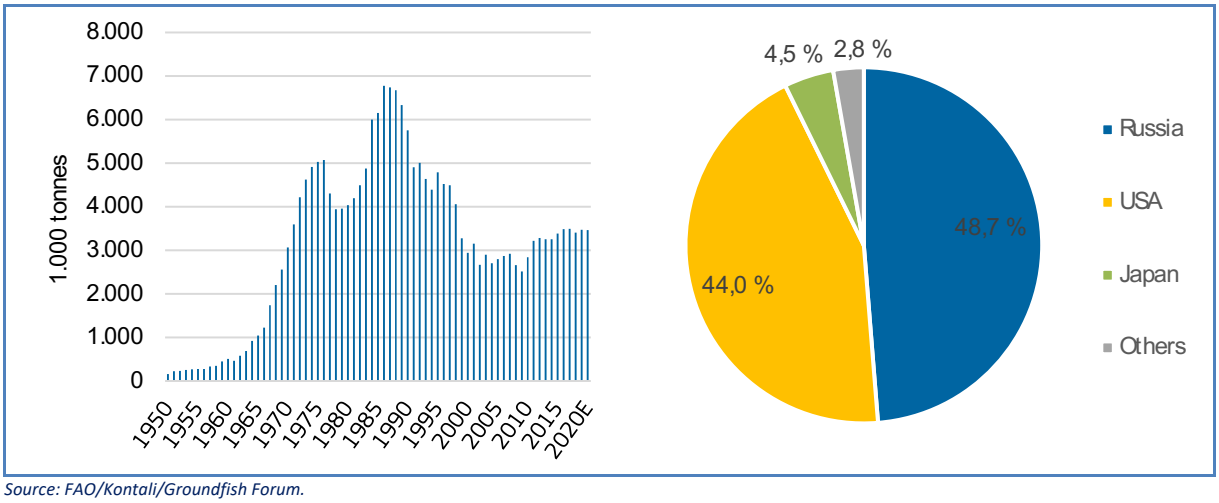


Alaska pollock, source: NOAA Fisheries.
Alaska pollock distribution map, source: FAO.

9.2 Global catches

Alaska pollock fisheries started to pick up pace from moderate volumes in the early 1960s and experienced an immense growth during subsequent decades, primarily caused by fisheries in the North Pacific. The peak years for landed volumes lasted from 1984 to 1989, when catches exceeded 6 million tonnes for five consecutive years. After catches reached 6,7 million tonnes in the mid-1980s, volumes began to decline into the early 2000s and have stabilised in recent years at a level above 3 million tonnes. This is estimated to continue in 2020, as quotas remain stable.

Figure 47. **GLOBAL CATCHES OF ALASKA POLLOCK**



Source: FAO/Kontali/Groundfish Forum.

Catches of Alaska pollock are dominated by the two major fishing nations of this species, Russia and the USA. They account for approx. 92% of all landings of this species in the world. In 2018, Russia caught 1,68 million tonnes (3% less than 2017) and the USA caught 1,53 million tonnes (-1%) of Alaska pollock. Total global catches in 2018 accounted to approx. 3,3 million tonnes.

[107] "Walleye Pollock Research". Alaska Fisheries Science Center. NOAA. 2013.
[108] Species directory. Alaska Pollock. NOAA fisheries. https://www.fisheries.noaa.gov/species/alaska-pollock
[109] European Commission. Commercial designations. *Theragra chalcogramma*. https://mare.istc.cnr.it/fisheriesv2/species?lang=en&sn=35947

9.3 Global trade of Alaska pollock

Russia is the most significant nation in terms of landed volumes of Alaska pollock, with China as its main exporting market. Most of the exported volume entering the Chinese market is allocated to further processing before being shipped to final consumer markets such as the EU and other East Asian countries. In recent years, Russia has launched an investment program that incentivises the development of its domestic fisheries industry. This has led to an increase in on-board processing of fillets, among other developments, which might lead to a change in Russia's export profile towards consumer markets rather than transition markets.

The USA is the second most significant fishing nation for Alaska pollock and the largest market for its consumption. Of the 1,5 million tonnes landed in 2018, the USA exported approx. 400.000 tonnes. China is an important trading partner for US exports of frozen raw material too, but the USA is less dependent on China as an export market compared to Russia. The USA has a large processing industry that produces fillets and surimi. Frozen Alaska pollock fillets from the USA are mainly exported to the EU market, with the Netherlands and Germany as main entry points. In 2019, the USA exported 107.000 tonnes of frozen Alaska pollock fillets to the EU. A large proportion of US Alaska pollock goes to surimi production, and exports of surimi reached 174.000 tonnes in 2019. The most important export markets for US surimi are Japan and South Korea, together accounting for more than 75% of exports, followed by the EU.

Since 2016, Alaska pollock has been protected as a brand in the USA by the U.S. Food and Drug Administration[110]. This means that pollock caught outside Alaska's exclusive economic zone cannot be labelled as "Alaska pollock" in the USA. Previously, pollock harvested outside of this zone was also labelled as Alaska pollock, but from 2016 can only be labelled as "pollock" in the USA. Globally, the species is mainly labelled as Alaska pollock regardless of its origin.

9.4 Extra-EU imports of Alaska pollock

In 2019, the EU imported 305.000 tonnes (+9% compared to 2018) of Alaska pollock with a total value of EUR 840 million (+38%). This was an all-time-high for imports. Alaska pollock imports are dominated by three major players: the USA and Russia are the most significant suppliers, whilst China is the most important processing country for Alaska pollock destined for the EU market. The Chinese processing industry is supplied by raw material from Russia and the USA, therefore nearly all Alaska pollock entering the EU market is of Russian or US origin.

In 2019, China accounted for 54% of volume imported into the EU and has trended at a market share of around 50% in recent years. The USA had a stable market share of 31%, followed by Russia with 14%, in recent years.

Table 31. **EU IMPORTS OF ALASKA POLLOCK BY SUPPLIER (volume in 1000 tonnes, value in million EUR)[111]**

	2016		2017		2018		2019		Jan - Mar 2020	
Supplier	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**
China	156	353	148	309	151	317	165	435	46	135
United States	102	258	106	241	103	238	95	278	30	94
Russian Federation	30	71	34	73	49	108	44	120	10	29
Others	1	3	2	5	2	5	2	5	1	3
Total	**290**	**685**	**291**	**628**	**305**	**668**	**306**	**838**	**87**	**261**

Source: EUMOFA, based on Eurostat-COMEXT.

The first quarter of 2020 saw increased import volumes compared with the first quarter of 2019, up by 2% to 87.000 tonnes, mainly due to increased Russian supply to the EU market. Both Chinese and US supply of Alaska pollock decreased in the first quarter of 2020 by 2% and 3%, respectively. Supply from Russia increased by 55% in the first quarter of 2020 – this noticeable increase is principally caused by an unusually low supply in the first quarter of the previous year. Although imports from China and the USA declined during the first quarter of 2020, import value increased for all suppliers and total import value increased by 21%, supported by high fillet prices.

[110] https://www.fda.gov/food/cfsan-constituent-updates/alaska-pollock-labelling-faces-new-requirements
[111] The totals in tables regarding EU imports of Alaska pollock are subject to some discrepancy due to rounding of numbers.

Imports of Alaska pollock are heavily dominated by frozen fillets, with only small volumes of other cuts and minimal amounts of frozen whole products. All three of the largest suppliers have well-established processing industries that process the raw material into fillets, with some differences between nations. Russia and the USA are more suited to use and process the raw material in fresh conditions before subsequently freezing the product.

China on the other hand is dependent on supplied raw material from Russia and the USA, which arrives frozen and is frozen again after processing. Therefore, most of the fillets supplied by China are presumed to be "double-frozen". As a result, Chinese Alaska pollock products imported into the EU are bought for a somewhat lower price than products imported from Russia or the USA. In 2019, the import price for frozen fillets from China averaged 10% lower than US fillets and 3% lower than Russian fillets.

Table 32. **EU IMPORTS OF ALASKA POLLOCK BY PRESENTATION (volume in 1000 tonnes, value in million EUR)**

	2016		2017		2018		2019		Jan - Mar 2020	
Presentation	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**
Fillet	268	647	268	592	285	639	284	802	82	252
Whole	2	4	2	3	<0,5	<0,5	<0,5	<0,5	<0,5	<0,5
Other cuts	20	34	21	33	20	29	22	36	5	8
Total	**290**	**685**	**291**	**628**	**305**	**668**	**306**	**838**	**87**	**260**

Source: EUMOFA, based on Eurostat-COMEXT.

In 2019, 93% of the volume of imported Alaska pollock were frozen fillets, accounting for 96% of the total imported value. The price level of frozen fillets increased throughout 2019, with an average import price of 2,82 EUR/kg by the end of the year (+26% over 2018). Prices have continued to surge in the first quarter of 2020, averaging at 3,08 EUR/kg, which represents a 9% increase compared with the end of 2019[112].

The largest EU importer of Alaska pollock has been Germany for some time, which has led the EU in both consumption and production of Alaska pollock products. In recent years German imports have been stable at about 135.000 tonnes, but value has increased in pace with import prices. In 2019, Germany imported 137.000 tonnes for a value of EUR 375 million. This represents a 2% decrease in volume but a 24% increase in value. The EU's second largest importer, France, experienced the same development in 2019 with a 7% decrease in volume but a 13% increase in imported value. Following these two countries, the largest EU importers have been Poland, the United Kingdom and the Netherlands.

Table 33. **EU IMPORTS OF ALASKA POLLOCK BY MEMBER STATE (volume in 1000 tonnes, value in million EUR)[113]**

	2016		2017		2018		2019		Jan - Mar 2020	
Member State	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**
Germany	135	326	133	286	140	302	137	375	46	140
France	40	98	38	86	43	96	40	109	11	32
Poland	35	71	36	68	38	78	39	101	12	35
United Kingdom[114]	23	56	23	51	27	61	29	83	4	11
Netherlands	24	62	26	63	23	56	27	79	6	18
Denmark	5	15	6	16	7	20	9	30	2	8
Others	28	57	29	58	27	55	25	61	6	16
Total	**290**	**685**	**291**	**628**	**305**	**668**	**306**	**838**	**87**	**260**

Source: EUMOFA, based on Eurostat-COMEXT.

[112] For the latest price trends on frozen Alaska pollock fillets imported to the EU market from China, see figure 31 in the Extra-EU imports section.
[113] The totals in tables regarding EU imports of Alaska pollock are subject to some discrepancy due to rounding of numbers.
[114] United Kingdom is no longer a Member State of the EU as of February 2020 but it is included in relevant tables and graphs for context. Note that all 2020-figures for the United Kingdom contain only figures for January 2020.

9.5 Intra-EU trade[115] of Alaska pollock

Alaska pollock is the second most processed species in the EU, after Atlantic cod[116]. It is important in the production of fish fingers, surimi, breaded products, and prepared meals. Germany is the largest market for Alaska pollock, and is also the largest intra-EU exporter of the species. Large parts of the trade involve raw material imports to serve the processing industry and exports of processed products. France is the largest intra-EU importer of Alaska pollock, and is also one of the most important producers of surimi in the EU, with an estimated production of 52.000 tonnes in 2018[117]. Other large intra-EU importers and exporters are mostly transition hubs for Alaska pollock products headed towards final consumer markets (the Netherlands and Poland, for instance).

Table 34. **INTRA-EU EXPORTS OF ALASKA POLLOCK BY MEMBER STATE (volume in 1000 tonnes, value in million EUR)**

	2016		2017		2018		2019		Jan - Mar 2020	
Destination	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**	**Volume**	**Value**
Germany	31	87	37	92	37	91	31	92	8	28
Netherlands	19	49	31	74	32	81	24	71	4	14
Poland	5	15	5	15	7	19	6	21	1	5
Belgium	3	9	3	8	2	7	3	12	1	4
France	<0,5	1	3	9	3	10	3	11	1	3
United Kingdom[118]	1	4	1	4	1	4	1	4	<0,5	1
Others	3	8	3	9	3	9	4	11	1	3
Total	**62**	**173**	**83**	**211**	**85**	**221**	**72**	**222**	**16**	**58**

Source: EUMOFA, based on Eurostat.

Intra-EU exports of Alaska pollock are dominated by Germany, the largest producer of Alaska pollock products, and by the Netherlands, which in many cases operates as a transition hub for Alaska pollock entering the EU market before it is exported to the final market. These two countries accounted for 75% of all intra-EU exports in 2019. Germany exported 31.000 tonnes (-16% over 2018) for EUR 92 million (+2%) and the Netherlands exported 24.000 tonnes (-25%) for EUR 71 million (-12%) to other EU member states in 2019.

[115] For the analysis of intra-EU trade, only export flows have been considered. In reality, intra-EU trade flows as reported by Eurostat cover both arrivals (i.e. imports) and dispatches (i.e. exports). Because of different valuation principles (CIF > FOB)[115], arrivals should be slightly higher valued than dispatches. This is one of the main reasons for asymmetries between import and export figures. In general, bilateral comparisons between MS of intra-EU flows have revealed major and persistent discrepancies. Therefore, comparisons dealing with intra-EU trade statistics and related results must be treated cautiously and should consider the existence of these discrepancies.

[116] EUMOFA. The EU fish market – 2019 edition.

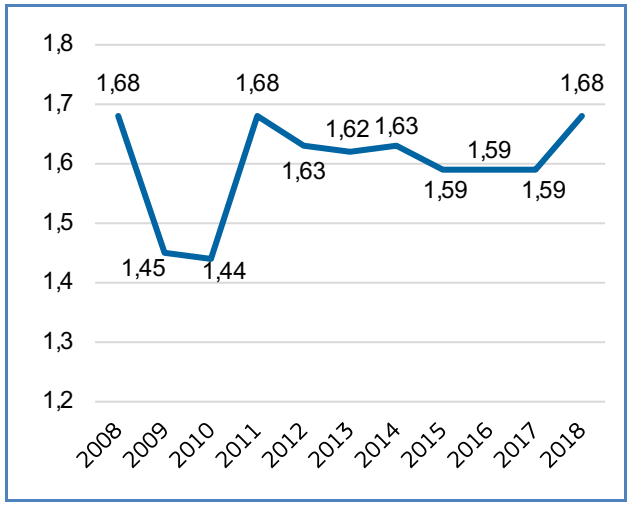
[117] EUMOFA species profile: Alaska pollock - https://www.eumofa.eu/documents/20178/137160/Alaska+pollock_31-1.pdf

[118] United Kingdom is no longer a Member State of the EU as of February 2020 but it is included in relevant tables and graphs for context. Note that all 2020-figures for the United Kingdom contain only figures for January 2020.

9.6 Consumption in the EU

Alaska pollock is the fourth most consumed species in the EU after tuna, salmon and cod. In 2018, the apparent consumption per capita was estimated as 1,68 kg (live weight). Consumption levels have been stable since 2011 at around 1,6 kg (live weight) per capita. Consumption dipped in 2009 and 2010, mainly due to considerably lower available quotas for the US Alaska pollock fisheries. After the availability of the species returned to normal, consumption trends followed and stabilised at the level seen today.

Figure 48. **APPARENT CONSUMTION OF ALASKA POLLOCK IN THE EU (kg in live weight per capita)**



Source: EUMOFA.

Germany is the largest consumer market in the EU, and has for many years been an important market for processing of the species. France, together with Poland and the United Kingdom, are also important markets for the consumption of Alaska pollock in the EU.

Consumption of Alaska pollock in the EU is mainly of fillet products such as breaded and battered fish, produced from high-quality raw material. Lower quality raw material is often used to produce low-cost breaded and battered fish sticks and other products that are offered in EU markets. Alaska pollock is commonly used in the fast food industry worldwide, including within the EU. In addition, frozen Alaska pollock is considered a premium raw material for surimi production, a product consumed in parts of the EU.

10. Patagonian toothfish in the EU

Patagonian toothfish (*Dissostichus eleginoides*), also known as Chilean seabass, is one of the most expensive fish on the global market and is considered a high-end product in Japan, the USA and the EU. In the EU, it is caught by large freezer longline vessels operating in the distant waters of the southern Indian and Atlantic Oceans. In 2018, EU catches reached 6.886 tonnes, mostly attributable to the French distant water fleet based in Réunion Island, where most of the catch is processed and re-exported to main consumption markets: the USA, Asia and to a lesser extent the EU. Patagonian toothfish is normally landed frozen, headed and gutted, and its first-sales price can reach up to 20,00 EUR/kg.

10.1 Biology, exploitation and management

Biology

Patagonian toothfish is a large, demersal fish species that can grow up to 2 metres in length and live for up to 50 years. It becomes sexually mature when it reaches 70 to 95 cm (6 to 9 years of age).

Source: Eurofish

It can be found in temperate waters (28° to 55° south of the equator), between 50 and 2.500-3.000 metres deep. The species has relatively low fecundity, so its resilience is very low[119]. A close relative, the Antarctic toothfish (*Dissostichus mawsoni*), is found further south around the edges of the Antarctic ice shelf.

Patagonian toothfish spawns in deep water (around 1.000 metres) during the austral winter, producing pelagic eggs and larvae. When larvae are about a year old, they switch to a demersal habitat at around 100 metres and inhabit relatively shallow water (<300 metres) until 6–7 years of age, when they begin a gradual migration into deeper water. As juveniles in shallow water, toothfish is primarily piscivorous, consuming the most abundant suitably-sized local prey. With increasing size and habitat depth, the diet diversifies and includes increased scavenging of squid, fish, and crustaceans[120].

Exploitation and management by the EU

The long lifespan and late sexual maturity of Patagonian toothfish make it highly vulnerable to overfishing. Stocks have been experiencing high levels of exploitation due to high international demand for what is considered to be high-end seafood in the USA, the Japan and the EU. The Patagonian toothfish fishery represents the most lucrative fishery in Antarctic and Subantarctic waters and occurs in the Exclusive Economic Zones (EEZ) of southern Chile and Argentina, and Subantarctic islands under the sovereignty of Australia, France, New Zealand, South Africa and the United Kingdom[121]. It is mainly caught using bottom-set longlines in depths of 1.200–1.800 metres, and to a lesser extent with bottom trawls. The average weight of a commercially caught Patagonian toothfish is 7–10 kg, depending on the fishery, with large adults occasionally exceeding 100 kg.

Most toothfish fisheries are managed in accordance with the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) regulations and conservation measures. Management adopts an “ecosystem approach”, which requires that all other living resources of the Antarctic Ocean are treated as an integrated system where effects on predators, prey, and related species are considered, and decisions on sustainable harvesting levels are made on the basis of robust, internationally peer-reviewed scientific advice[122].

Moreover, several management measures have been implemented to limit the catches and to minimise interactions with, and risks to, seabirds, especially for longliners: these measures influence TAC and quotas, vessel licensing, monitoring of transhipments, control measures, and automated satellite-linked monitoring systems.

[119] http://www.fao.org/3/y5261e/y5261e09.htm
[120] https://www.sciencedirect.com/science/article/pii/B9780123810151000046?via%3Dihub
[121] http://www.fao.org/3/y5261e/y5261e09.htm
[122] https://www.ccamlr.org/en/fisheries/toothfish-fisheries

France regulates Patagonian toothfish in the waters surrounding the French islands of the southern Indian Ocean, with scientific oversight from the National Museum of Natural History. These fisheries are located around the Kerguelen Islands (CCAMLR Statistical Division 58.5.1) and the Crozet Islands (CCAMLR Statistical Division 58.6). Fishing authorisations have been granted to six fishing companies based out of Réunion Island. The Kerguelen Islands fishery was certified by the Marine Stewardship Council (MSC) in September 2013 (recertified in 2018) and the Crozet Islands fishery was certified by the MSC in 2017[123]. Several other extra-EU fishing fleets targeting Patagonian toothfish are also certified by the MSC[124].

10.2 Production

Catches

Global production of Patagonian toothfish amounted to 22.811 tonnes in 2018. The leading producer was by far the EU-28, with 6.886 tonnes caught in 2018 (30% of global production). The other main producers were Argentina, Australia, and Chile, which provided 16%, 15%, and 13% of the total world production, respectively. They were followed by South Korea (10%), Uruguay (5%), and the Falkland Islands (5%). By comparison, the world catches of Antarctic toothfish amounted to 4.197 tonnes in 2018, and the EU-28 accounted for 16% of this total.

Over the last decade (2009-2018), world catches of Patagonian toothfish experienced a 4% decrease with different trends observed among major producing countries: decreases for the fleets of the EU (-19%) and Chile (-42%) and increases for Argentina (+52%), Australia (+19%), and South Korea (+59%).

Table 35. **WORLD CATCHES OF PATAGONIAN TOOTHFISH (volume in tonnes)**

Country	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
EU-28	8.500	7.753	7.342	7.048	7.514	7.824	6.521	8.174	7.892	6.886
Argentina	2.434	3.015	2.989	3.266	3.464	3.897	3.719	3.656	3.669	3.705
Australia	2.916	2.956	2.742	3.077	3.060	3.217	4.537	3.158	3.665	3.465
Chile	5.221	5.297	4.786	4.656	4.090	2.707	3.768	5.271	3.649	3.007
South Korea	1.382	977	2.067	1.386	2.069	1.815	2.003	2.049	2.398	2.200
Uruguay	548	609	389	208	248	385	553	1.239	1.023	1.047
Falkland Is.(Malvinas)	1.211	1.031	1.286	1.151	1.351	911	1.134	1.122	833	1.045
Others	1.619	1.121	1.249	999	1.239	972	1.033	910	1.096	1.456
Total	**23.831**	**22.759**	**22.850**	**21.791**	**23.035**	**21.728**	**23.268**	**25.579**	**24.225**	**22.811**

Source: FAO.

In the EU-28, only three countries catch Patagonian toothfish: France, the UK, and Spain. In 2018, France accounted for 80% of EU catches with 5.515 tonnes of Patagonian toothfish caught, a 12% reduction compared to 2017. The UK and Spain accounted for 16% and 4% of total EU catches in 2018, respectively.

Table 36. **EU-28 CATCHES OF PATAGONIAN TOOTHFISH (volume in tonnes)**

Country	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
France	6.123	5.814	5.938	5.608	6.188	6.462	5.237	6.585	6.260	5.515
United Kingdom	1.364	897	1.118	1.001	1.209	1.312	1.164	1.165	1.154	1.133
Spain	1.013	1.042	286	439	117	50	120	424	478	238
Total	**8.500**	**7.753**	**7.342**	**7.048**	**7.514**	**7.824**	**6.521**	**8.174**	**7.892**	**6.886**

Source: FAO.

[123] https://www.msc.org/media-centre/press-releases/french-toothfish-fishers-get-msc-certification
[124] https://fisheries.msc.org/en/fisheries/@@search?q=toothfish&search

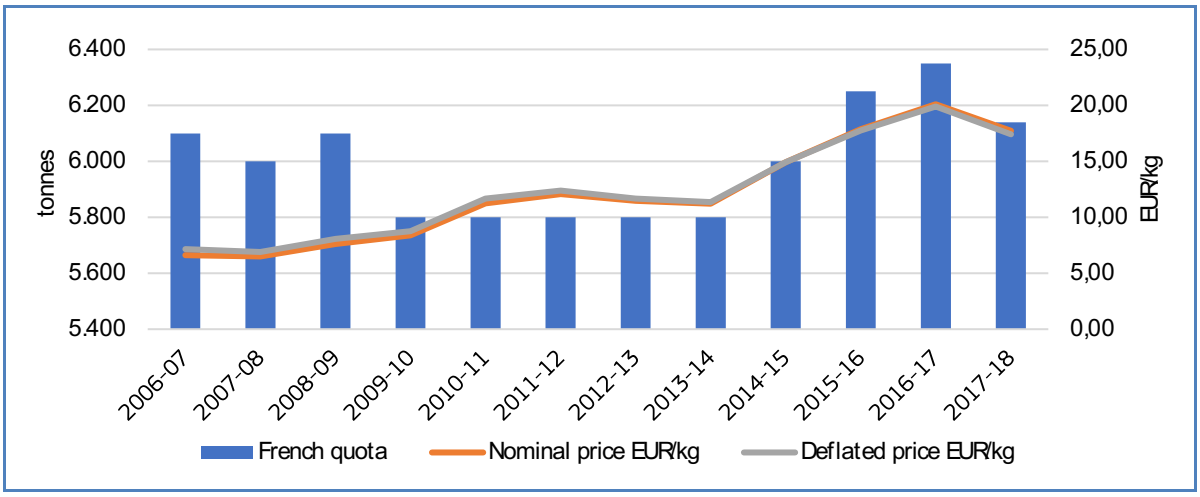
Processing and marketing

Patagonian toothfish is normally headed, gutted and frozen onboard, then further processed after it is landed. It is marketed as frozen fillets or thawed, sold ready to cook[125]. In markets and restaurants, it is typically marketed as "Chilean seabass". Commercial fishing and consumption of the species started in the 1990s. Appreciated for its white and tender flesh, toothfish stimulated a high level of demand, which led to a significant rise in illegal fishing activities. Its fatty flesh can be eaten raw in the form of sushi or sashimi. It is particularly popular in Asia and the United States, where it is sold at high prices[126].

10.3 First-sales prices

Patagonian toothfish prices have followed a strong increasing trend over the 2006–2017 period, tripling in ten years. Since the French quota was increased following the 2014–2015 campaign[127], prices rose from 12,00 EUR/kg in 2014–2015 to a peak of 20,00 EUR/kg in 2016-2017. Prices subsequently fell slightly in 2017–2018, albeit remaining at high levels (18,00 EUR/kg), largely due to lower demand from China and increased administrative burden to access the US market[128].

Figure 49. **FIRST-SALES PRICES OF PATAGONIAN TOOTHFISH CAUGHT BY THE FRENCH SOUTHERN FLEET**



Source: TAAF (French Southern Territories administration). Deflated price is calculated with GDP deflator (base year 2015).

10.4 Trade

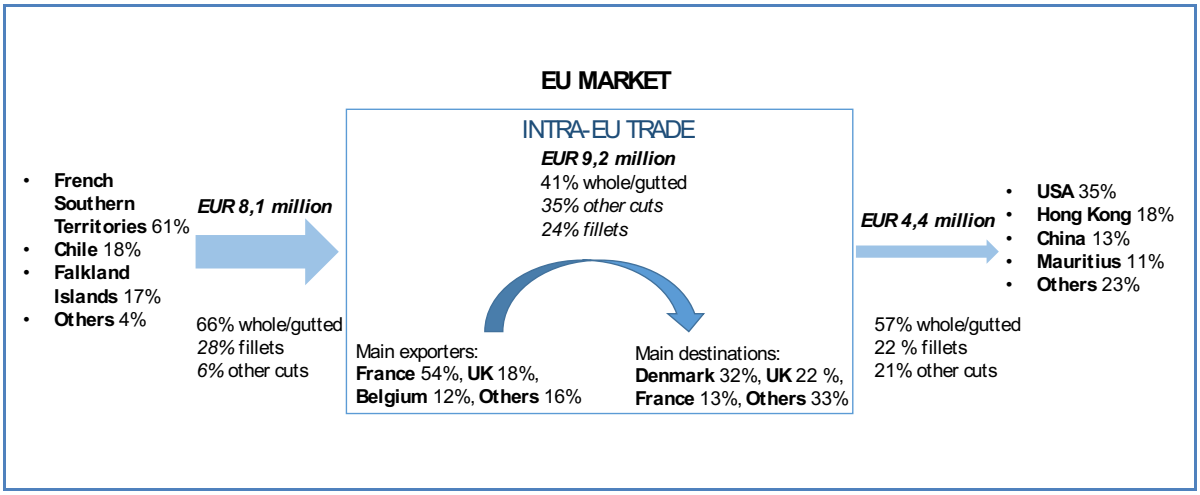
Patagonian toothfish is traded exclusively as frozen products, whole and gutted or in cuts or fillets. In 2019, the EU trade deficit for toothfish was EUR 3,7 million. The deficit is attributable to the imports of frozen toothfish from French Southern Territories, Chile, and the Falkland Islands. In 2019, extra-EU imports of toothfish reached 475 tonnes with a value of EUR 8,1 million, mostly originating from French Southern Territories (61%), Chile (18%), and the Falkland Islands (17%).

In 2019, intra-EU exports reached EUR 9,2 million for 1.442 tonnes, of which 41% (in value terms) were frozen whole/gutted products, followed by other frozen cuts (35%) and frozen fillets (24%). France is by far the main toothfish supplier in intra-EU trade (54% of total intra-EU export value), whereas Denmark (32%) and the UK (22%) are the main destinations for exports on the intra-EU trade market.

Extra-EU exports are relatively low (EUR 4,4 million for 269 tonnes in 2019), and the main destinations are the USA (35% in value terms), Hong Kong (18%) and China (13%).

[125] https://pdm-seafoodmag.com/guide/poissons/details/product/L%C3%A9gine.html
[126] http://www.guidedesespeces.org/fr/legine-australe
[127] The fishing season takes place during the austral summer (the campaign usually starts in September), so quotas and catches are reported straddling two calendar years.
[128] https://taaf.fr/content/uploads/2019/11/Rapport-CGefi-l%C3%A9gine-envoy%C3%A9-le-11.02.19.2.pdf

Figure 50. **THE PATAGONIAN TOOTHFISH TRADE MARKET IN THE EU (2019)**



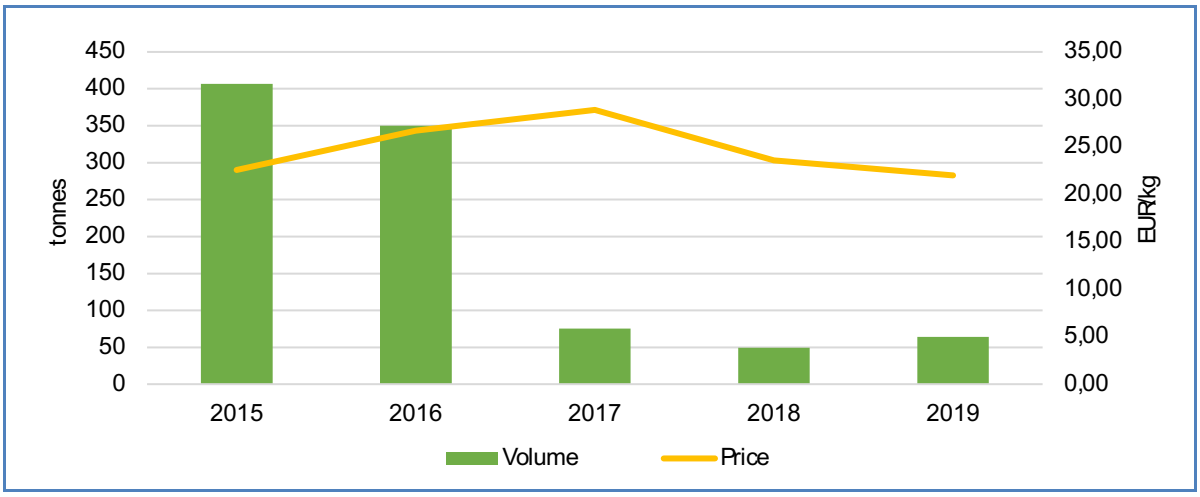
Source: EUMOFA.

However, the relatively low volumes and values of EU trade flows of toothfish products compared to EU catch levels are due to the fact that EU austral fishing fleets land in France (Réunion Island) or UK (Falkland Islands) territories for further processing, packing and exports to the main consumption markets of Asia and the USA.

10.5 Import and export prices

Although volumes traded in the EU are low compared to what is exported directly from French Southern Territories and the Falkland Islands, EU trade data show that EU export prices followed the same decreasing trend in 2018 and 2019 as first-sales prices. As an example, EU export prices to the USA of frozen whole/gutted toothfish have decreased in 2018 and 2019, after a peak at 29,00 EUR/kg in 2017.

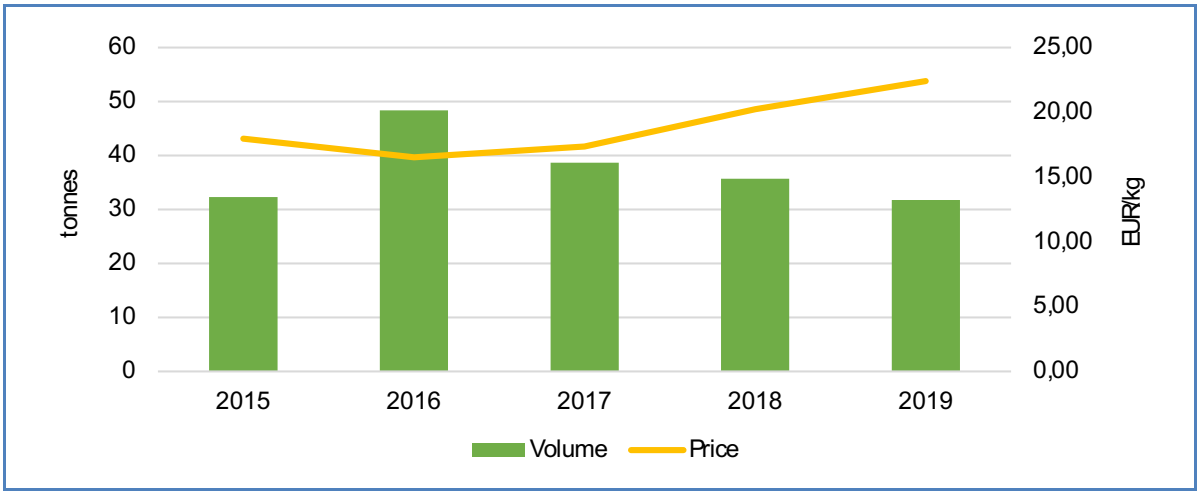
Figure 51. **PATAGONIAN TOOTHFISH (FROZEN WHOLE/GUTTED): EU EXPORTS TO THE USA**



Source: EUMOFA.

However, EU imports data show that for toothfish frozen fillets, prices have kept increasing in 2018 and 2019. As an example, frozen fillets of toothfish from French Southern Territories have followed an increasing trend in recent years and reached 22,00 EUR/kg in 2019.

Figure 52. **PATAGONIAN TOOTHFISH FILLETS: EU IMPORTS FROM FRENCH SOUTHERN TERRITORIES**



Source: EUMOFA.

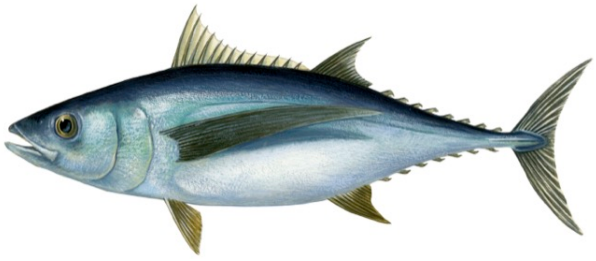
It has to be underlined that EU trade data for toothfish should be considered with caution as prices may strongly vary between different years and origins/destinations.

11. Albacore tuna in the EU

Albacore tuna is a seasonal species caught by the EU fleet (mainly Spanish and French vessels), mostly in the Bay of Biscay. Although it is largely destined for the canning industry, it is also marketed fresh and frozen. In 2018, landings of albacore tuna in the EU reached 25.359 tonnes for a value of EUR 89,4 million, with catches by Spain accounting for more than 60% of the total volume. Whereas EU exports to third countries consist mostly of frozen products, intra-EU trade is dominated by fresh fish[129].

11.1 Biology resource and exploitation

Biology



Source: Scandinavian Fishing Year Book.

The albacore tuna (*Thunnus alalunga*) is a pelagic and highly migratory species, able to cover very great distances during its life, especially between 2 and 5 years of age. It can reach a maximum age of ten years. Albacore tuna can grow to 30 kg in weight and 1,40 m in length. It reaches sexual maturity at around 4 or 5 years of age, when it reaches a length of about 85 cm and weighs around 15 kg. It is found in the Pacific, Indian and Atlantic Oceans, as well as in the Mediterranean. The Atlantic albacore tuna population consists of two main stocks, one north and one south of the fifth parallel. There is a separate stock in the Mediterranean. In the Pacific Ocean, two stocks (north and southeast) are present. In addition, there is one single southern stock in the Indian Ocean[130].

Resource, exploitation, and management in the EU

The main source of albacore tuna in the EU market is that from the northeast Atlantic stock. The fish are caught in the summer as juveniles, when they pass the French and Spanish coasts (Bay of Biscay), as well as in the waters of the Azores. Thus, EU production is extremely seasonal, with most landings recorded between July and October[131]. Historically, albacore was caught with rods using live bait, but this fishery decreased in the late 1980s to be replaced by more productive techniques. Now there are several methods used for harvesting albacore tuna: pelagic trawls, hooks and line, and purse seines. Surface fishing of juveniles and pre-adults is carried out by French and Irish pelagic trawlers, as well as by Spanish liners and pole-and-line vessels. Hooks and line account for 70% of the total catch of albacore in the North Atlantic stock. The adult albacore population, with a more pelagic behaviour, is exploited by Asian longliners off African coasts.

In the EU, albacore tuna stocks are managed through TAC[132] and quotas set by the ICCAT[133]. In 2020, the EU quota reached 26.869 tonnes for the northern stock and 1.837 tonnes for the southern stock. Of the total EU quota, 60% was held by Spain, 19% by France, 10% each by Portugal and Ireland, and 1% by the UK[134].

11.2 Production

Catches

Global production of albacore tuna amounted to 226.082 tonnes in 2018. The leading producers were Taiwan, Japan and China, which provided respectively 24%, 20% and 17% of the total world production in 2018, followed by the EU-28 (12%). Other major producers were Fiji and the USA (4% each).

Over the last decade (2009–2018), world catch of albacore tuna has experienced a 3% decrease, mostly attributable to Japanese catches (-30%) and to a lesser extent Fijian and US catches (-23% and -35%, respectively). However, increasing trends have been reported in Taiwan (+39%), China (+90%) and the EU-28 (+54%).

[129] To be noted that when a MS' vessel lands fish in another EU country, this is recorded as "export".
[130] http://www.guidedesespeces.org/fr/thon-germon
[131] Ibidem.
[132] Total Allowable Catch.
[133] International Commission for the Conservation of Atlantic Tunas.
[134] https://mare.istc.cnr.it/fisheriesv2/species_en?sn=36007#ecl-accordion-header-conserv-meas

Table 37. **WORLD CATCHES OF ALBACORE TUNA (volume in tonnes)**

Country	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Taiwan	39.280	51.628	47.209	48.754	52.148	41.755	43.256	51.343	54.685	54.436
Japan	63.522	53.965	58.817	69.851	61.740	55.790	54.512	44.781	49.374	44.615
China	20.736	22.618	14.963	32.571	33.134	29.002	26.990	27.971	45.038	39.351
EU-28	18.294	17.981	20.221	25.199	20.162	28.636	24.256	28.366	26.100	28.152
Fiji	12.515	9.252	10.538	10.202	9.561	7.622	7.855	7.905	10.552	9.624
USA	12.678	12.118	11.993	15.040	13.958	12.894	12.428	11.154	7.910	8.245
Indonesia	14.570	13.035	11.474	11.023	6.137	7.658	8.688	7.024	7.024	5.604
Others	50.628	60.255	46.037	45.543	46.539	51.216	54.593	35.317	31.501	36.055
Total	**232.223**	**240.852**	**221.252**	**258.183**	**243.379**	**234.573**	**232.578**	**213.861**	**232.184**	**226.082**

Source: FAO.

EU catches of albacore tuna amounted to 28.152 tonnes in 2018, providing approximately 12% of the world supply. Spain (60% of EU production) and to a lesser extent France (21%) and Ireland (11%) were the major EU producers. Other important EU producers were Italy (4%) and Greece (2%), both fishing in the Mediterranean, and Portugal (2%).

Over the 2009–2018 period, EU production increased by 54%, although with strong fluctuations due to yearly variations in stock size, resulting in variable TAC and quotas. All major producing countries experienced strong increases in catches over the decade, except for Italy (-62%).

Table 38. **EU CATCHES OF ALBACORE TUNA (volume in tonnes)**

Country	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Spain	11.497	14.127	9.188	14.936	11.390	12.470	14.889	17.532	14.654	16.946
France	1.478	1.438	3.641	3.963	4.884	6.997	3.758	4.468	4.419	5.919
Ireland	1.998	788	3.597	3.575	2.231	2.485	2.390	2.337	2.492	3.102
Italy	2.762	1.109	2.501	1.117	615	1.353	1.638	1.495	1.348	1.044
Greece	116	125	126	126	165	287	541	1.332	608	522
Portugal	365	267	1.089	1.395	688	4.808	953	1.136	2.570	512
Others	78	127	79	87	189	236	87	66	9	107
Total	**18.294**	**17.981**	**20.221**	**25.199**	**20.162**	**28.636**	**24.256**	**28.366**	**26.100**	**28.152**

Source: FAO.

Landings in the EU

In 2018, landings of albacore tuna in the EU amounted to 25.359 tonnes for a value of EUR 89,4 million (7% greater than in 2017). Spain (64% of the total volume) and France (23%) were the major landing countries for this species. The very low volumes landed in Ireland compared to the volume caught by the Irish fleet is because the Irish fleet has recently changed its landing strategy and now lands their catches directly in French ports, especially in Douarnenez[135]. Albacore tuna landings in Ireland experienced an 87%-drop over the 2009-2018 period because of this.

[135] https://www.letelegramme.fr/finistere/douarnenez/saison-du-thon-les-irlandais-debarquent-en-force-a-douarnenez-06-07-2020-12578083.php

Table 39. **LANDINGS OF ALBACORE TUNA IN THE EU (volume in tonnes)** [136]

Country	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Spain	10.065	13.436	8.623	9.644	10.927	11.545	14.541	16.875	14.440	16.320
France	914	897	3.900	4.666	5.815	7.151	3.687	4.181	4.016	5.958
Italy	2.834	1.877	2.504	1.154	615	1.353	1.630	1.491	1.364	1.044
Greece	217	231	242	318	359	398	511	573	571	628
Cyprus	-	-	-	-	-	-	520	1.230	639	545
Portugal	107	176	1.016	1.217	565	2.614	917	1.100	2.542	495
Ireland	2.020	830	3.510	3.660	2.231	2.485	2.362	1.779	19	263
Others	19	20	15	19	50	91	48	63	5	105
Totals	**16.176**	**17.467**	**19.811**	**20.677**	**20.562**	**25.637**	**24.216**	**27.291**	**23.595**	**25.359**

Source: EUROSTAT.

Processing and marketing

Albacore tuna is a highly appreciated seasonal species in the EU and is marketed fresh, smoked, deep frozen or canned. However, since a significant share of catch is attributable to trawlers (and less from pole-and-line and nets), the quality of most fresh landed albacore is not satisfactory for the fresh market. Thus, very often, the mismatch between supply (too many products landed of low quality) and demand leads to a drop in prices at the first-sales stage and the withdrawal of the product from the fresh market. At the same time, the strong demand for quality fresh tuna (all tuna species included) is supplied by imported products. Therefore, much of the albacore tuna landed in the EU is destined for canneries, especially in Spain and to a lesser extent in France[137]. Unfortunately, it is not possible to distinguish albacore tuna in canned tuna statistics. In Spain, albacore tuna is a premium canned product and although it represents less than 4% of the total production of canned seafood in volume, it accounts for more than 8% in value[138].

Globally, the canned tuna sector is largely export-oriented, so the sustainability guarantees for the consumers may be important, especially when targeting markets in Northern America or Europe. For that reason, many tuna fisheries look to comply with sustainability criteria (stock status and management, bycatch, monitoring, governance, etc.) in order to obtain certifications, most often from private labels. Thus, 15 albacore tuna fisheries are MSC (Marine Stewardship Council) certified. This includes the Spanish fleet operating in the Bay of Biscay[139] and the French Polynesia albacore and yellowfin longline fishery[140]. Moreover, there are also some Friends of the Sea certified tuna fisheries where EU vessels are involved, namely several French and Spanish vessels operating off Western African coasts and in the Indian Ocean.

11.3 International trade

In trade data, albacore tuna is specifically reported as whole fish, fresh or frozen. Unfortunately, other preservation forms of this species cannot be distinguished, especially canned albacore, which is reported as miscellaneous canned tuna products. In 2019, the EU had a trade deficit for whole albacore tuna amounting to EUR 34 million. Most of this deficit is attributable to imports of frozen whole/gutted albacore tuna from South Africa, China, and the US. Extra-EU imports of live/fresh albacore tuna products are very limited (EUR 0,8 million for 149 tonnes in 2019), mostly from South Africa and to a lesser extent Australia.

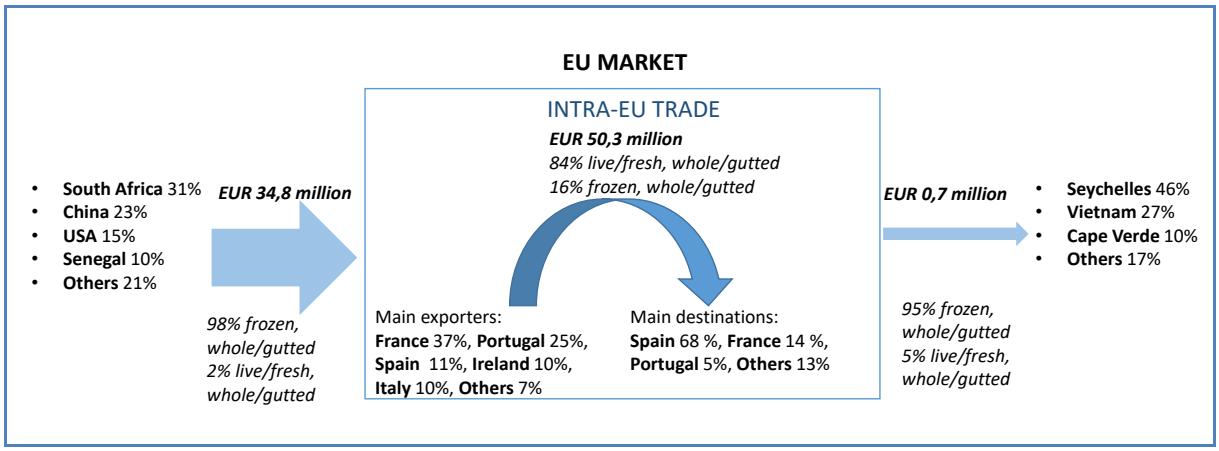
Intra-EU trade is dominated by fresh products. In 2018, intra-EU exports reached EUR 50,3 million for more than 14.000 tonnes, of which 84% were fresh products and 16% were frozen products.

Fresh products dominate because most intra-EU trade flows correspond to landings from EU vessels in another EU country (e.g. French fleet landing in Spain or Irish fleet in France). France and Portugal are the main albacore tuna suppliers whereas Spain is by far the main destination of intra-EU exports.

[136] Totals do not correspond exactly to actual sums because of roundings.
[137] http://www.guidedesespeces.org/fr/thon-germon
[138] ANFACO 2016.
[139] https://www.msc.org/media-centre/press-releases/north-atlantic-albacore-artisanal-fishery-now-msc-certified-
[140] https://www.msc.org/media-centre/press-releases/french-polynesia-albacore-and-yellowfin-longline-fishery-achieves-msc-sustainability-certification

Extra-EU exports are relatively low (EUR 0,7 million for 221 tonnes in 2019) and are dominated by whole/gutted frozen products. Their main destinations are the Seychelles, Vietnam and Cape Verde, likely corresponding with EU distant-water fleet landings in extra-EU countries close to fishing areas and processing facilities (e.g. canneries).

Figure 53. **THE EU ALBACORE TUNA TRADE MARKET IN 2019[141]**



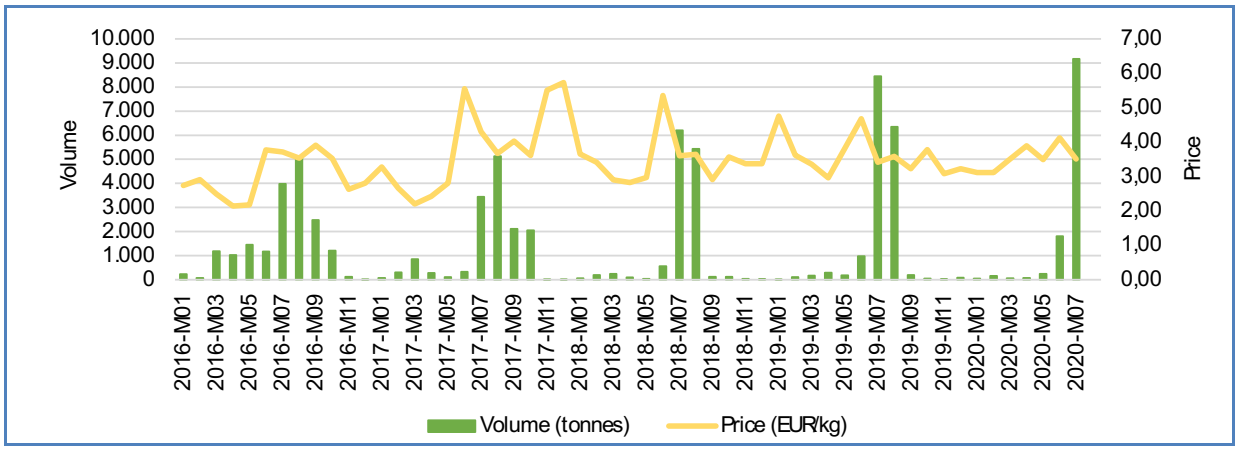
Source: EUMOFA elaboration of EUROSTAT-COMEXT data.

11.4 First sales in the EU

The monthly data for first sales (in auctions) highlights the strong seasonality of the albacore tuna fishery, with higher volumes sold in summer in both the main producing countries (Spain and France). In France, the fishery is open from July to October. In both countries, first-sales volumes peak in August to September. During the fishing season, monthly first-sales volumes in Spanish auctions fluctuate between 1.000 and 9.000 tonnes, whereas they are lower in France (between 300 and 1.800 tonnes). The main auctions for albacore tuna in Spain are held in Getaria, Fuenterrabía, and Avilés. In France, the main auctions are held in La Turballe, Saint-Jean-de-Luz, Lorient and Le Guilvinec.

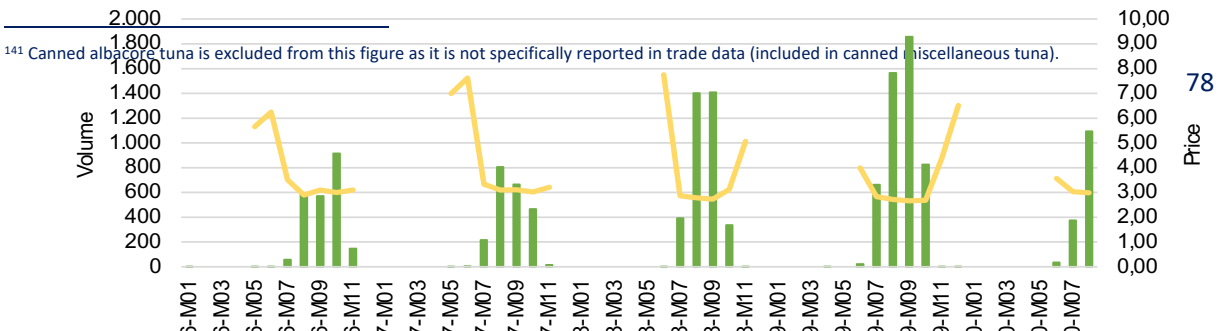
The seasonality of supply leads to strong price fluctuations, especially in France where the fishing season is shorter. Prices usually drop when volumes are at their highest (in August to September) and sharply increase at the end of the fishing season.

Figure 54. **FIRST SALES OF ALBACORE TUNA IN SPAIN (volume in tonnes, price in EUR/kg)**



Source: EUMOFA.

Figure 55. **FIRST SALES OF ALBACORE TUNA IN FRANCE (volume in tonnes, price in EUR/kg)**

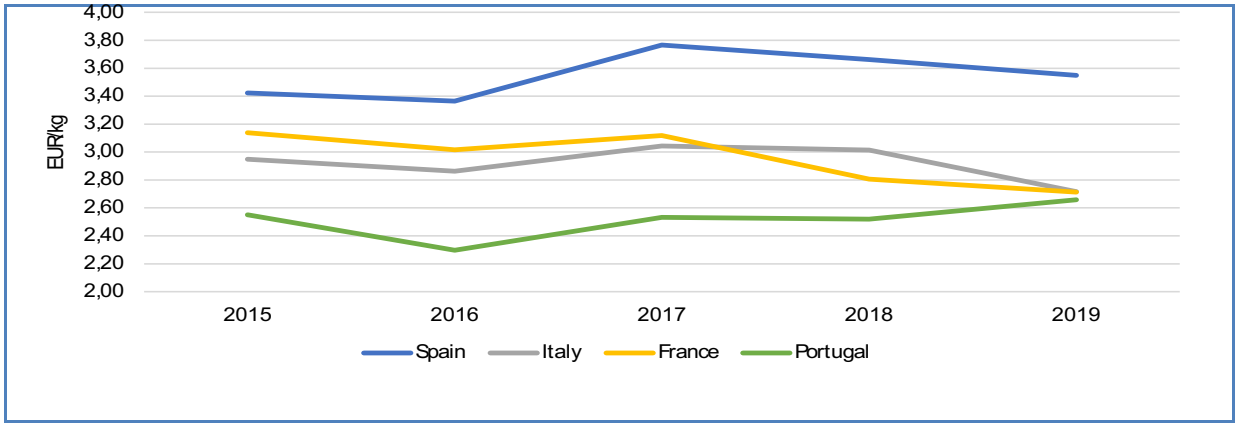


[141] Canned albacore tuna is excluded from this figure as it is not specifically reported in trade data (included in canned miscellaneous tuna).

Source: EUMOFA.

Over the 2015-2019 period, average yearly prices were higher in Spain (above 3,50 EUR/kg) than in France and Italy (2,50-3,00 EUR/kg), possibly due to higher prices achieved by pole-and-line Spanish landings. In Portugal, average prices were overall lower than in the above-mentioned countries but have recently increased, as opposed to a decreasing trend in other major countries, likely due to increased landings.

Figure 56. **AVERAGE YEARLY FIRST-SALES PRICES OF ALBACORE TUNA IN MAIN PRODUCING COUNTRIES (price in EUR/KG)**

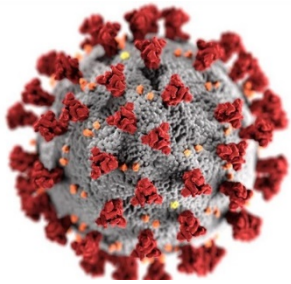


Source: EUMOFA.

12. Effects of COVID-19

12.1 Introduction

COVID-19 is the name given to the infectious disease caused by the most recently discovered coronavirus (SARS-CoV-2), unknown before its outbreak in Wuhan, China, in December 2019[142]. During the first months of 2020, the disease spread around the world and was classified as a pandemic by the World Health Organization (WHO) on 11th March. As of 17th November, 10,9 million people are reported to have been infected in Europe (55,2 million worldwide) and approximately 270 thousand have died (more than 1.3 million worldwide)[143].



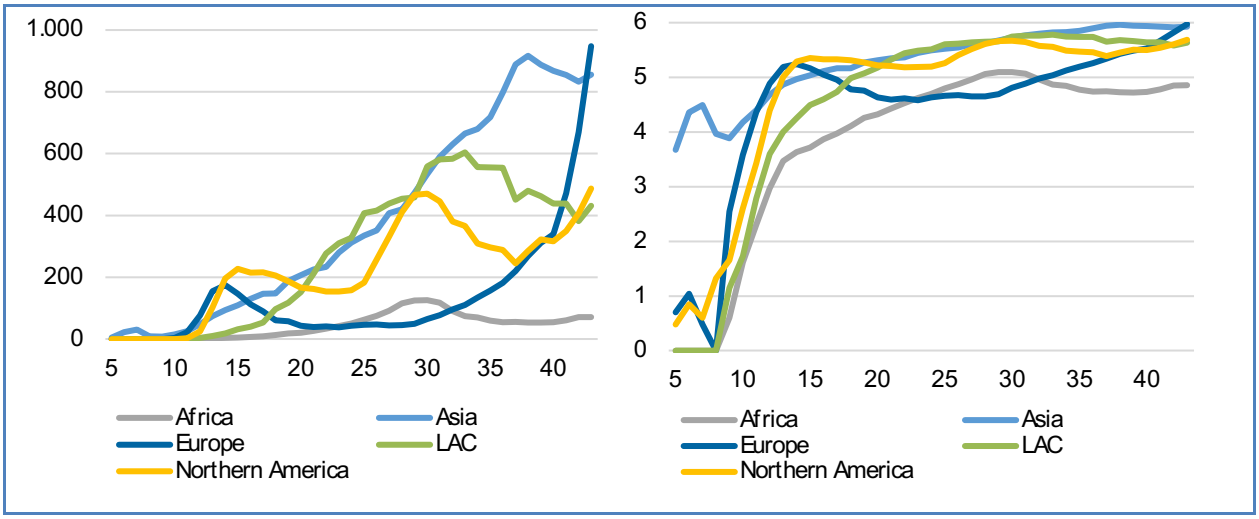
Source: World Health Organization

12.2 Development in COVID-19 cases

The number of weekly new cases of COVID-19 in Europe, Northern America (the USA, Canada and Greenland), Latin America and the Caribbean (LAC), and Asia (including China and Russia) is reported in Figure 57. The number of new cases rose in March and April in Europe and the USA, but fell as May drew near. In June, Northern America saw a rising number of new cases, while in Europe new cases remained low until mid-July, when new cases began increasing again. With the exception of Africa, the number of new cases is now increasing in all regions.

However, considering the rate of change (Figure 57, right), the curves for Africa, Asia, and LAC are flat, while the curves for Europe and Northern America have upward trends.

Figure 57. **WEEKLY NUMBER OF NEW CASES (in thousands, LEFT) AND NATURAL LOGARITHM OF WEEKLY NUMBER OF NEW CASES (RIGHT)**



Source: European Centre for Disease Prevention and Control.

[142] https://www.who.int/emergencies/diseases/novel-coronavirus-2019
[143] https://www.ecdc.europa.eu/en/covid-19-pandemic

12.3 Measures imposed by EU Member States to reduce the spread of COVID-19 since May 2020

From May until the beginning of July, the reduction in new cases of COVID-19 led European countries to gradually relax the preventive measures taken in the previous months[144]. Lockdowns were eased, restaurants, cafes, bars, hotels, schools, and non-essential businesses were allowed to re-open, and travel to countries and regions with a low number of cases was permitted. Since September, however, several European countries began to re-impose restrictions on travel to countries and regions experiencing rising numbers of new cases. Hungary was the first country in the Schengen Area to close its borders to international travellers[145], followed by Spain (with exceptions for some countries)[146]. While expanding their testing capacities, most countries have now re-introduced several measures to prevent the spread of COVID-19 again, such as limiting the group sizes in which people can meet, closing non-essential shops and businesses, and closing the HoReCa sector[147]. Whilst most high schools and universities have switched to remote learning, primary schools and kindergartens have remained open[148]. However, there has been some resistance to the reintroduction of lockdowns, with protests occurring in many countries, including Italy and Spain[149].

It is worth noting that, to ensure the availability of goods and essential services, the European Commission issued border management guidelines as early as 16th March, setting out "principles for an integrated approach to an effective border management to protect health while preserving the integrity of the Single Market"[150]. These guidelines included the principle that MS should preserve the free circulation of all goods, and in particular they should guarantee the supply chain for essential products such as medicines, medical equipment, essential and perishable food products, and livestock. The guidelines also included principles regarding priority lanes for emergency and freight transport (e.g. via "green lanes"), as well as guidance on health-check rules for entry of both EU and non-EU nationals at both external and internal borders.

12.4 Impact of COVID-19 on the seafood supply chain

The COVID-19 case study published in MH-5 featured a summary of the impacts that the first few months of the pandemic had on the seafood supply chain. In short, impacts on first sales of small pelagics from fisheries in Northern Europe were found to be negligible. Groundfish and flatfish fisheries were impacted differently, depending on species and market segments, with species primarily sold to the HoReCa sector experiencing a sharp fall in price. EMODnet[151] data also revealed a sharp decline in fishing vessel activity in April across EU waters. As for the EU fleet fishing in external regions (Africa and the Indian Ocean), fishing operations were in some cases delayed due to infections among crew members. Travel restrictions also meant that crew changeovers were challenging.

In the aquaculture sector, sales dropped significantly for most species, as the primary market for aquaculture products is the HoReCa sector. Some exceptions were found for species processed and sold to large-scale retailers (salmon, trout, and –to a lesser extent – cod, seabass and seabream).

As the fishing and aquaculture sector has been particularly hard hit by the market disruption, in March the European Commission proposed measures for an immediate response to the economic and social consequences of the COVID-19 crisis. These measures consisted of: a) possible support under existing rules, in particular under the European Maritime and Fisheries Fund (EMFF) regulation; b) a new, temporary framework for state aid that allows Member States to support fisheries and aquaculture producers who impacted by the crisis through the provision of aid (up to a value or EUR 120.000 per undertaking) through direct grants, repayable advances or tax advantages[152]; c) EU support to the European economy as a whole, under the COVID-19 response investment initiative, and using the general instruments for an immediate response – including providing liquidity to SMEs, as well as compensation via the EMFF for the economic losses experienced by fishermen and aquaculture producers.

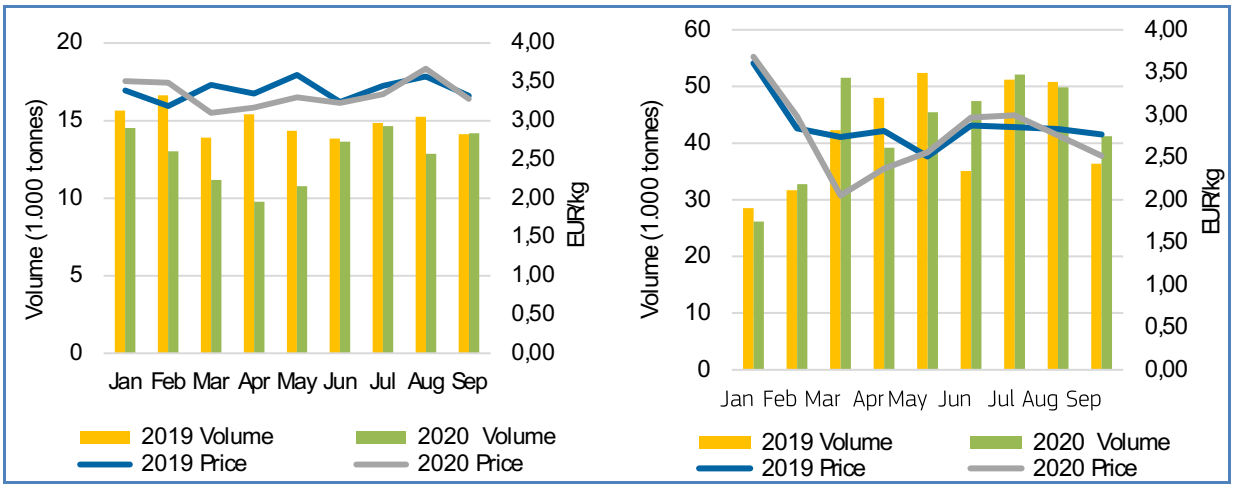
The overall situation for the EU fishery and aquaculture sector improved as lockdown restrictions were lifted, travel between MS (and with other European countries) was allowed again, and new cases of COVID-19, as well as the infection pressure, fell in the June to August period.

144 https://www.dw.com/en/coronavirus-latest-europe-opens-up-for-tourism/a-53646330
145 https://www.schengenvisainfo.com/news/timeline-of-eu-member-states-reopening-their-borders/
146 https://www.schengenvisainfo.com/news/spain-extends-schengen-border-closure-until-october-31/
147 https://www.euronews.com/2020/11/11/europe-s-second-wave-of-coronavirus-here-s-what-s-happening-across-the-continent
148 Ibid.
149 Ibid.
150 https://ec.europa.eu/home-affairs/sites/homeaffairs/files/what-we-do/policies/european-agenda-migration/20200316_covid-19-guidelines-for-border-management.pdf
151 www.EMODNET-humanactivities.eu
152 https://ec.europa.eu/fisheries/press/coronavirus-european-commission-helps-member-states-support-local-fishing-and-aquaculture_en

First sales

Overall, lockdown led to a sharp fall in demand and reduced first-sales prices across Europe, although with significant fluctuations and varying trends between countries and species. In most European countries, first-sales volumes and prices gradually increased as countries re-opened after lockdown. In France, average prices for first sales rose by 18% between March and August, while in Spain prices rose by 34%. For both countries, first-sales volumes reported during the June to September period were in line with those observed in 2019.

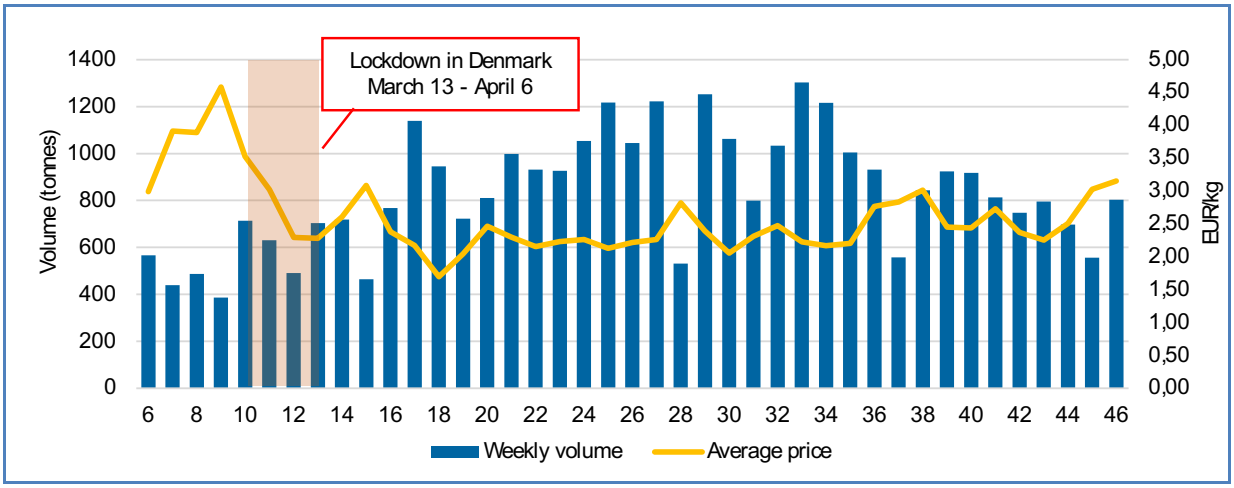
Figure 58. **FIRST-SALES VOLUME AND AVERAGE PRICE IN FRANCE (LEFT) AND SPAIN (RIGHT) – JANUARY–SEPTEMBER 2020**



Source: EUMOFA.

At five auctions (Hanstholm, Nord Hirtshals, Nord Strandby, Skagen and Grenaa) in Denmark, first-sales prices increased from the all-year low in week 18 (1,70 EUR/kg) to 3,15 EUR/kg in week 46.

Figure 59. **FIRST-SALES VOLUME AND AVERAGE PRICE AT FIVE DANISH AUCTIONS – WEEKS 6–46 2020**



Source: Fiskeauction.dk

Despite fishers at the beginning of the second COVID-19 wave benefitting from the innovative establishment of new sales channels that took place under the first lockdown period (such as online direct purchasing solutions and local seafood purchasing initiatives from retailers), the closure of the HoReCa sector impacted demand and, consequently, landing prices. For the species monkfish and sole (typically demanded by restaurants), first-sales prices have dropped significantly during

the second COVID-19 wave[153]. First-sales prices for flat oyster have halved during the same period, leading to reduced fishing activity.

Aquaculture

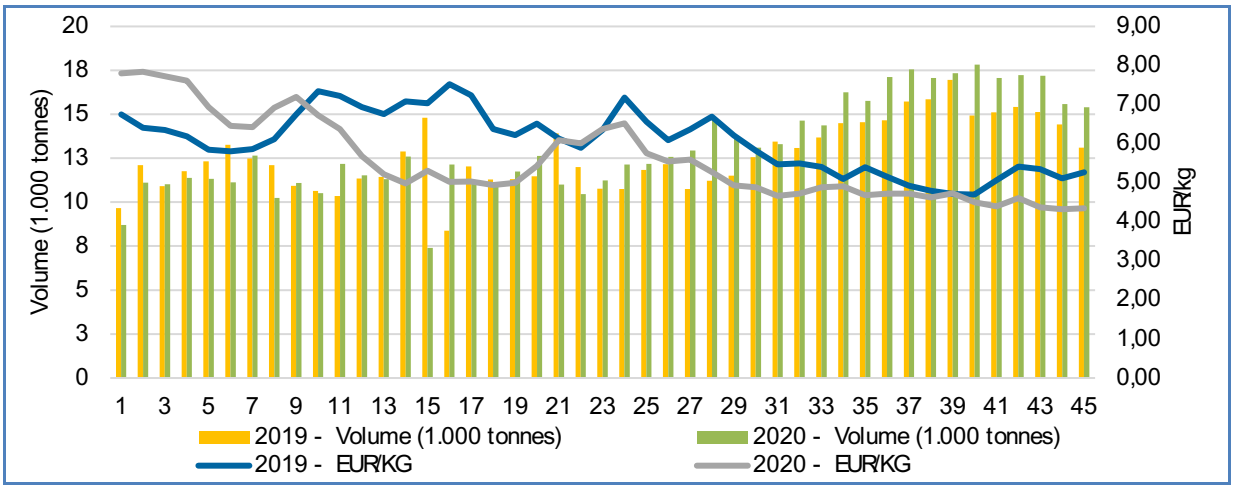
The primary market for farmed species in Europe is the HoReCa sector. Whilst the pandemic had a severe impact on volumes sold in March and April, the situation improved somewhat during the summer. However, the market for some species has still not fully recovered.

Among these species, it is worth mentioning mussels and oysters farmed in Ireland, whose producers were significantly affected in the first half of 2020, due to both difficulties accessing markets and a fall in prices. Although these issues gradually subsided after the first wave of the pandemic passed, lost sales and production caused a significant financial burden. Mussel producers suffered a 34% drop in sales between February and June, whilst oyster producers recorded a 59% loss during the same time period. On 22nd October, the Irish Minister of Agriculture, Food, and the Marine introduced a financial support package for these sectors, within the framework of the European Maritime and Fisheries Fund. The second COVID-19 wave has once again reduced demand for Irish crustaceans, putting farmers in a difficult situation.

The main species farmed in the Mediterranean - seabass and seabream – were also impacted by the COVID-19 pandemic, compounded by Storm Gloria which hit Spain in January, prior to the pandemic. This had a dual effect. On one hand, Spanish farmers suffered losses from damaged fish farms, and as a result, Spanish market prices of farmed seabass and seabream increased amid lockdown, remaining high till September. On the other hand, for farmers in Greece, the restrictions introduced in October (restaurants closed for dining, and Italy - their main market - in a second lockdown) led to a fall in demand – especially for large sized fish. Consequently, the shortage of supply of domestically farmed seabass and seabream in Spain led to a notable increase in exports of seabass and seabream from Greece to Spain.

For Atlantic salmon, the situation so far in 2020 has been varied. On one hand, despite a few COVID-19 infections among those working in processing, the supply chains for European salmon have remained effective. On the other hand, the HoReCa sector has been disrupted by travel restrictions and lockdowns. Loss of market opportunities outside of the EU, due to high freight cost for fresh salmon products, significant reduction in air freight capacity, and lockdown in some major markets, have all represented a significant challenge which has led to a higher share of salmon farmed in Europe ending up in the European market. This put extra pressure on market prices. Another factor contributing to low salmon prices in the EU is the increased competition with the Atlantic salmon farmed in Chile, as frozen Chilean salmon is sold to the EU market at prices significantly lower than fresh European salmon. So far in 2020, EU imports of frozen Chilean salmon have more than doubled, as a result of the Chilean industry's attempt to find relief market for salmon.

Figure 60. **WEEKLY EU IMPORTS OF FRESH ATLANTIC SALMON FROM NORWAY – WEEKS 1–45 2020**



Source: European Commission – DG TAXUD.

Despite volatile market conditions, organic certified aquaculture products have, in general, faced the pandemic well. Reportedly, pressure on prices for conventional farmed seabass/seabream and salmon have, to some extent, affected prices for organic products, but consumers with a preference for sustainable certified products seem to have a high degree of loyalty to organic farmed fish despite the higher price.

[153] EUMOFA database.

General input from industry stakeholders points to reduced margins in marine finfish farming during the second COVID-19 wave. Protective measures for workers in farming and harvesting/packing operations have driven costs up, while simultaneously a fall in demand has driven prices down.

Processing

During the initial phase of the first COVID-19 wave, a large share of the EU processing industry was severely impacted, due to tightened border controls causing delays in transport of goods for processing industries and retail markets. Local crisis measures (such as quarantine of foreign vessels before they are allowed into port) in remote producing countries has, in some instances, led to a shortage of raw material, which in turn has lowered the rate of production in some processing plants[154]. Even though effective solutions were quickly established at MS borders, the rapid shift in demand from foodservice to retail remained a challenge for parts of the processing industry.

Going into the second lockdown in the autumn of 2020, the processing industry seems to be better prepared, with measures for avoiding staff infections including personal protection equipment, social distancing, hygiene rules and intensive COVID-19 testing regimes. For example, despite the higher demand for canned tuna, most of the canneries in Peru ran at low capacity due to the implementation of social distancing measures[155]. Still, the status varies, depending on product and customers. In general, processors targeting or under contract of large-scale retailers seem to be in a stable position. The same applies to a large extent for processors of pelagic species – both for human consumption and for fishmeal and fish oil. However, there are exceptions, depending on geography, preservation states, and species. For example, the Norwegian corporation Leroy Seafood Group reported a challenging third quarter for its "wild catch" division. The loss in earnings before interest and taxes (EBIT) of EUR 4,7 million was caused by lower catches, a drop in market prices for cod and saithe by 22% from Q1, and a drop in haddock prices of 42% from Q1. The company states that conditions continue to be challenging for the processing industry, with no signs of improvement.

A major concern among processors is the timing of the lockdown. For many fish species, the sales season in advance of the Christmas holidays/break is the most important. With lockdown measures scheduled to be lifted in early December at the earliest, there might be reason for concern – especially for sales to the HoReCa sector[156].

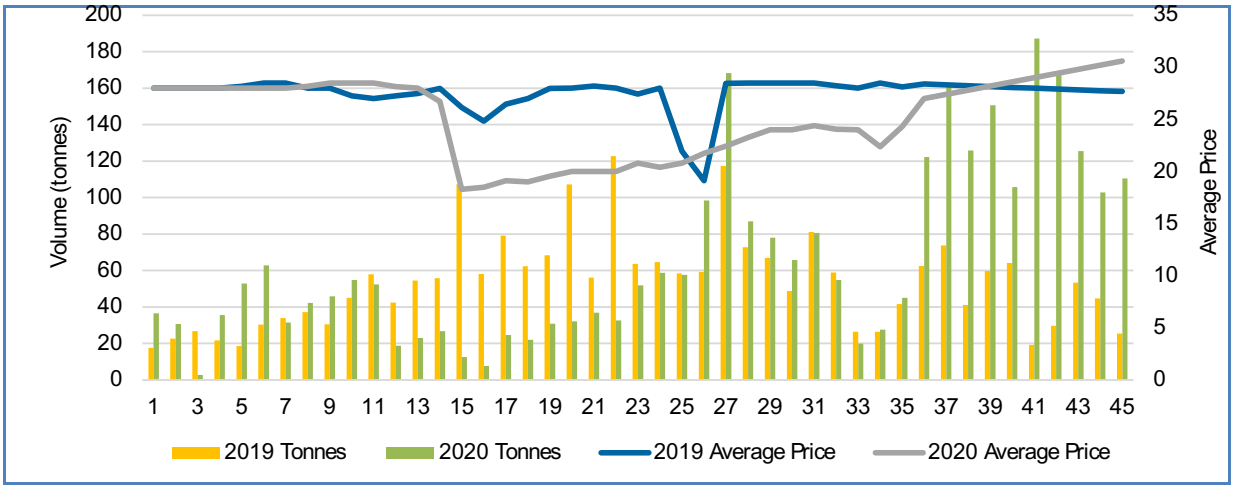
Wholesale and consumption

During the first wave of COVID-19 in the spring of 2020, many restaurants adapted to offer take-out services. Having this facility already in place may lessen the effect of the second COVID-19 wave on the restaurant sector[157]. However, as the economy is weakened and unemployment is rising, household income has fallen, and demand for high-value products such as lobster has reduced[158]. Simultaneously, sales of canned tuna, sardines, and mackerel have increased[159].

High-value products like fresh bluefin tuna saw a sharp decrease in wholesale volume and prices at the MercaMadrid wholesale market in the period following the first lockdown, with wholesale volumes and prices far below the levels recorded in the same period of 2019. In May and June, wholesale volumes increased gradually to the same level as in 2019. Despite a slight increase, prices averaged at well below last year's level. However, as from September and up to week 45, both weekly wholesale volumes and prices were higher than in 2019.

[154] https://devpolicy.org/covid-19-and-its-likely-impact-on-the-tuna-industry-in-the-pacific-islands-20200427-1/
[155] http://www.fao.org/in-action/globefish/market-reports/resource-detail/fr/c/1263856/
[156] https://www.intrafish.com/markets/kontali-salmon-farmers-should-prepare-for-a-blue-christmas/2-1-907330
[157] https://www.intrafish.com/markets/seafood-restaurant-giant-red-lobster-opens-its-first-ghost-kitchen/2-1-910923
[158] http://www.fao.org/in-action/globefish/covid-19/en/
[159] Ibid.

Figure 61. **WEEKLY VOLUME AND AVERAGE PRICE OF FRESH BLUEFIN TUNA AT MERCAMADRID, SPAIN – WEEKS 1–45 2020**

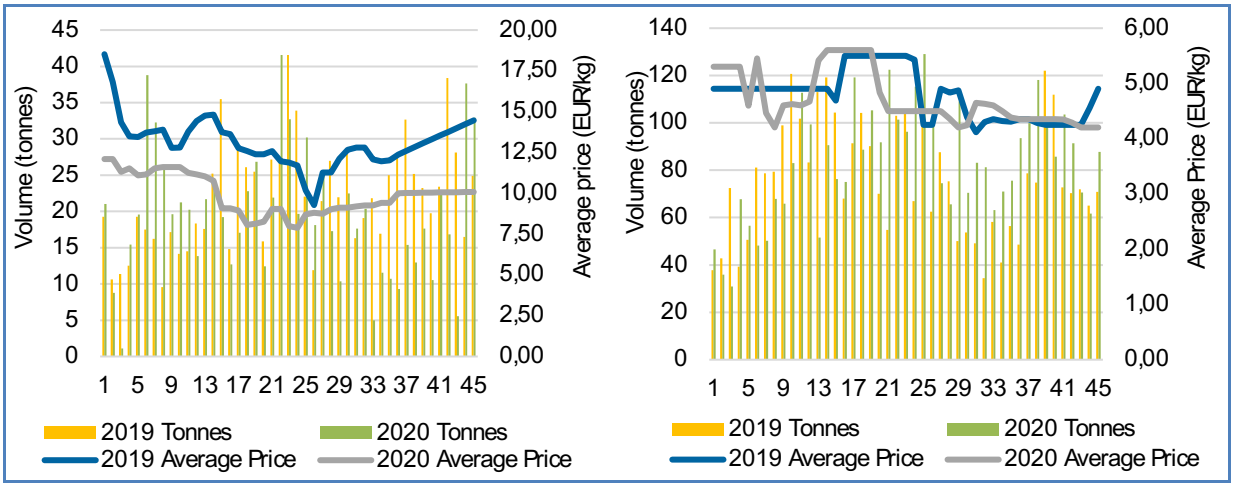


Source: MERCAMADRID.

Farmed turbot also experienced a steep fall in wholesale prices and volume in the weeks following lockdown. Similar to other high-priced seafood products, market prices gradually increased during the summer, but prices were significantly lower than in 2019. From July to September, volumes sold trended lower than those observed in 2019.

Prices for seabream and seabass increased on the MercaMadrid market in the weeks following lockdown (see section on aquaculture), due to low domestic supply volumes. During weeks 1-45, both wholesales volumes and prices were in line with 2019 levels.

Figure 62. **WEEKLY VOLUME AND AVERAGE PRICE OF FRESH TURBOT (LEFT) AND SEABREAM 300-400 G (RIGHT) AT MERCAMADRID, SPAIN – WEEKS 1–45 2020**



Source: MERCAMADRID.

German expenditure on fisheries and aquaculture products rose by 16,5% in the first half of 2020, reaching EUR 2.4 billion, a record high. In the same period, volumes rose to 236.665 tonnes, representing a 14,8% increase compared to the same period in 2019. Alaska pollock, salmon, tuna, herring, and shrimp were the most purchased species [160].

Consumption of seafood products in Spanish households increased by 10% in volume and 15% in value during the first six months of 2020, compared to the same period in the previous year[161]. Also observed was a 15% increase in per capita consumption of seafood compared to last year, and sales of frozen fish increased by 24% in volume and 28% in value[162]. The largest increase in expenditure and consumption per capita occurred during April and May, the period in which lockdown entailed house confinement.

Consumption of smoked salmon in France under the first lockdown rose by 14% in value compared with the same period in 2019. The increase in demand has been further confirmed by a 10% increase in consumption in the May - October period[163]. This supports the general observation of increasing in-home consumption and decreasing out-of-home consumption during the pandemic[164].

In Ireland, large retailers have increased sales during the pandemic. Typical bulk products (for example mackerel fillets) recorded a higher demand, and sales volumes were 1.5 times higher in the period following the lockdown compared to the pre-lockdown level. During the first wave of COVID-19, there was a sharp increase in sales of frozen fish[165], especially whitefish species such as prepared Alaska pollock, haddock, and pangasius[166].

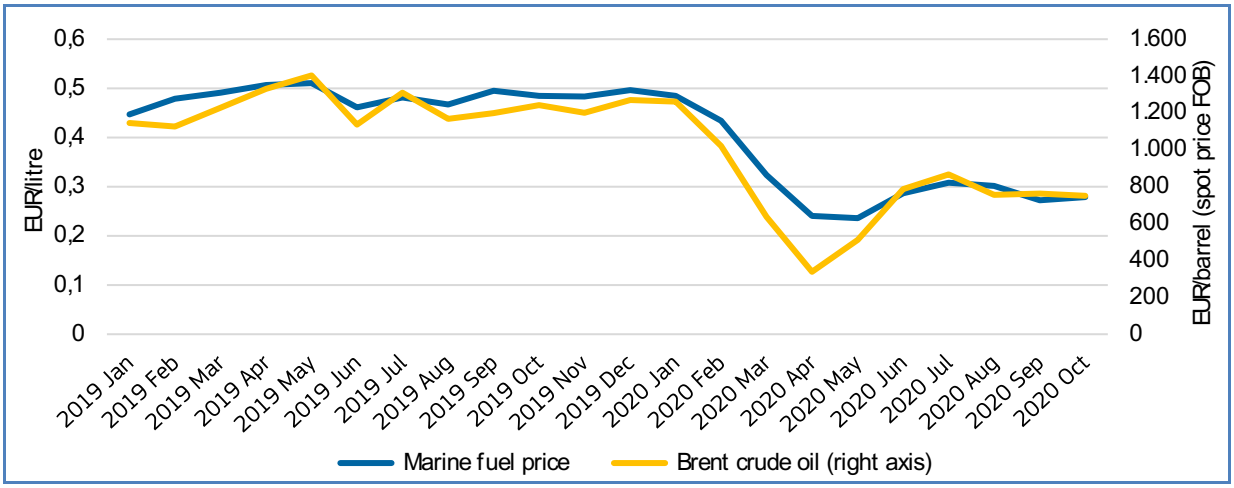
Transportation and logistics

The COVID-19 pandemic has disrupted passenger services and the bellyhold capacity on passenger aircrafts. As restrictions on international travel led to the cancellation of many passenger flights, cargo was reduced, which was feared to put supply chains for seafood products (and other food products) at risk[167]. For example, Japan, the largest non-canned tuna market in the world, received almost no supply of air-flown fresh tuna during the spring festival season, as scheduled flights from the supply-side to Japanese markets were cancelled [168]. Conversely, cargo has now become the main source of revenue for many airlines, in addition to helping passenger flights get back in the air. Although the capacity crunch is still present, load factors and yields are going down and becoming closer to pre-COVID-19 levels, despite still being higher than normal[169].

Marine fuel prices experienced a sharp decline from February to April. Although the prices have not returned to pre-COVID-19 levels, (October prices for 2020 are 43% lower than in the same period of 2019), they have stabilised. The decrease in both jet fuel and marine fuel prices was caused by declining oil prices.

Figure 63. **AVERAGE EU MARINE FUEL PRICES AND BRENT CRUDE OIL PRICES (spot price FOB) PER MONTH**

[160] Fisch-Informationszentrum (FIZ).
[161] https://industriaspesqueras.com/noticia-63340-seccion-Mercados%20y%20Consumo
[162] https://industriaspesqueras.com/noticia-63340-seccion-Mercados%20y%20Consumo
[163] http://pdm-seafoodmag.com/lactualite/detail/items/saumon-fume-des-fetes-de-fin-dannee-dans-la-continuite-du-succes-2020.html
[164] https://www2.deloitte.com/content/dam/Deloitte/de/Documents/consumer-business/Impact%20of%20the%20COVID-19%20crisis%20on%20consumer%20behavior.pdf
[165] https://www.intrafish.com/markets/youngs-seafood-birds-eye-buoyed-as-retail-frozen-fish-sales-outpace-chilled-for-first-time-in-over-a-decade/2-1-817566
[166] Ibid.
[167] https://www.aircargonews.net/business/supply-chains/emirates-skycargo-maintains-perishables-supply-chain/
[168] https://www.undercurrentnews.com/2020/08/06/covid-19-ends-positive-trends-for-fresh-tuna-markets/
[169] https://www.aircargonews.net/data/clive-airfreight-market-improves-for-fourth-consecutive-month/



Source: EUMOFA elaboration of MABUX data (marine fuel prices) and U.S. Energy Information Administration (oil prices).

In general, internal transportation within Europe has not experienced any large disruptions, but there are some exceptions (for example, reports point to challenges in transportation of fresh seafood of Irish origin to Spain). In the UK, exports to the EU have not been a problem in terms of available vehicles. However, there is a fear that trucks may be stopped or detained at borders, and the product will not be delivered on time or at all to the final destination (this could be partially due to the impending end of the UK's transition period following the EU exit, and not solely due to lockdowns). In Europe, some receivers have limited operations, meaning deliveries may have to be stored or returned[170].

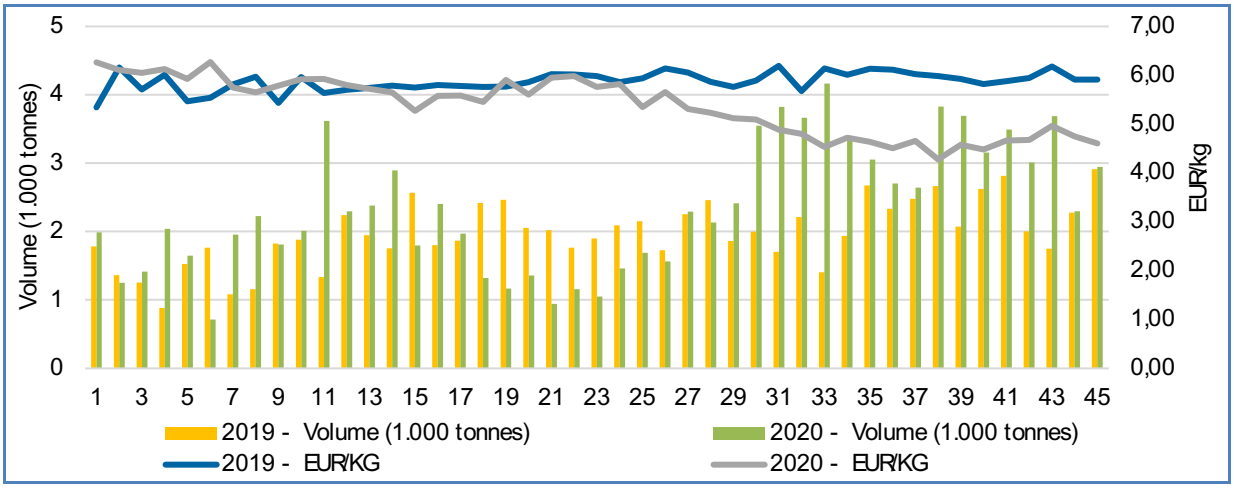
12.5 Markets

For the most part, European processors and traders relying on imported raw material from non-EEA countries have not experienced supply shortages in recent months. However, there have been some delivery delays and some sectors have turned to alternative sourcing.

Ecuador, India and Vietnam are the primary suppliers of warmwater shrimps to the EU. In May, supply from both Ecuador and India fell sharply due to the pandemic. From July to October, EU imports of frozen warmwater shrimps from Ecuador rose steeply. This was a result of China suspending imports of Ecuadorian products after detecting the COVID-19 virus in shrimp shipments[171]. Record high shipments of frozen shrimps to the EU market contributed strongly to a 19% fall in prices during the 3rd quarter of 2020. Another drop in Ecuadorian shrimp prices occurred in the beginning of November 2020[172].

Figure 64. **WEEKLY EU IMPORTS OF FROZEN WARMWATER SHRIMP FROM ECUADOR – WEEKS 1–45 2020**

[170] https://www.dbschenker.com/global/meta/customer-information
[171] https://www.reuters.com/article/us-health-coronavirus-china-shrimp-idUSKBN24B234
[172] https://www.undercurrentnews.com/2020/11/10/ecuadorian-shrimp-prices-in-free-fall-with-further-drop-expected/



Source: European Commission – DG TAXUD.

Chinese import restrictions on frozen seafood have had many implications. China has announced that traces of COVID-19 have been detected in imported frozen seafood products or their packaging, including shrimp from Ecuador and lately from Saudi Arabia, as well as squid from Russia and fish from Norway and Indonesia. A comprehensive test regime on imported seafood has been introduced in China, including requirements that refrigerated and frozen food imports must be disinfected before they are put into the market.[173]. In a worst-case scenario, this may lead to changes in trade flows, as Chinese imports may be impacted and consequently their processing industry, which in turn could lead to reduced exports of processed products from China.

However, there are other risk factors on EU market players' minds. These include a potential escalation of trade disputes with the USA, which could impact tariffs and sourcing of Alaska pollock and Pacific salmon to EU processors. Finally, stakeholders in the seafood industry are worried about the risks related to Brexit, including fishing opportunities, market access and sourcing.

[173] https://edition.cnn.com/2020/11/13/health/china-frozen-food-coronavirus-intl-hnk/index.html

13. Brown shrimp in the EU

Brown shrimp is a seasonal species caught by the EU fleet (mainly Dutch and German vessels), mostly in the southern North Sea. The majority of landings is exported to Morocco for peeling and then re-exported to the EU market. In 2018, landings of brown shrimp in the EU reached 45.206 tonnes, for a total value of EUR 171 million. Dutch ports received more than half of the total volume and German ports received more than one third; both countries reported doubled landings compared with 2017. Belgium is the main consumer market in the EU.

13.1 Biology, resource, and exploitation

Biology

The brown shrimp (*Crangon crangon*) is a species of benthic caridean shrimp. It has a high rate of reproduction and a short lifetime, from one to possibly three years. It is commercially important and it is fished mainly in the southern North Sea, although it can be found in the Irish Sea, Baltic Sea, Mediterranean Sea, and Black Sea, as well as off much of Scandinavia and off parts of Morocco's Atlantic coast. The species is found on fine sand or slightly muddy sand, in coastal and brackish waters at depths between 0 and 50 m. Its common names include brown shrimp, common shrimp, bay shrimp, grey shrimp, and sand shrimp. It feeds on small benthic organisms (small crustaceans, annelids, and molluscs) and discards from fisheries. Adults are typically 30–50 mm in length, though length can reach 90 mm[174].

Resource, exploitation, and management in the EU

The brown shrimp is mainly caught in the North Sea by German, Dutch and Danish fishermen using beam trawlers or from the shore using hand-nets. In these three Member States (the Netherlands, Germany, and Denmark), which together represent 95% of the total North Sea production of brown shrimps, the fishery has a significant economic and social importance, with the species being targeted by over 500 fishing vessels[175].

The North Sea brown shrimp is not restricted by a total allowable catch (TAC). A licence system for brown shrimp fisheries exists in the Netherlands, Germany, Denmark, Belgium and the UK. The only European legislation on brown shrimp fisheries considers technical measures (the use of sieve nets and minimum mesh sizes)[176]. Other management initiatives are local and include licences and closed areas. In addition, the EU has established a minimum commercial size for marketing shrimps after landing[177]. The width of the shell must be at least 6,8 mm for size-1 shrimps and at least 6,5 mm for size-2 shrimps (Council Regulation 2019/1241)[178].

13.2 Production

Catches

Global production of brown shrimp amounted to 51.179 tonnes in 2018, caught exclusively by the EU fleet. The leading producers were the Netherlands, Germany and, to a lesser extent, Denmark, which respectively provided 54%, 35%, and 6% of the total production in 2018. Other important producers were Belgium (3%), the UK (2%) and France (1%).

Over the last decade (2009-2018), catches of brown shrimp have experienced a 19% increase, mostly attributable to Dutch catches (+41%). This is due to a very strong increase in catches from 2017 to 2018. However, decreasing long-term trends have been reported by Belgium (-11%), and France (-40%). Strong fluctuations occurred over the decade, as the abundance of the stock is highly dependent of environmental conditions.

[174] https://www.sealifebase.ca/summary/Crangon-crangon.html
[175] https://www.europarl.europa.eu/RegData/etudes/etudes/join/2011/460041/IPOL-PECH_ET(2011)460041_EN.pdf
[176] EU Council Regulation 850/98.
[177] https://www.eumofa.eu/documents/20178/109202/MH+10+2017.pdf
[178] https://mare.istc.cnr.it/fisheriesv2/species_en?sn=13242#ecl-accordion-header-comb-nomenc

Table 40. **TOTAL EU CATCHES OF BROWN SHRIMP (volume in tonnes)**

Country	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Netherlands	19.416	18.939	18.023	16.909	20.280	23.565	19.226	18.465	13.664	27.385
Germany	17.315	18.379	17.036	16.360	16.165	15.850	13.931	7.690	8.912	17.892
Denmark	3.099	3.140	3.010	3.143	2.826	3.104	2.107	1.626	1.743	3.055
Belgium	1.585	2.078	769	880	1.226	1.178	666	1.090	717	1.413
United Kingdom	1.064	921	397	926	860	595	324	806	570	1.125
France	441	451	266	289	414	311	178	314	264	263
Others	230	162	179	146	112	232	246	69	67	46
Total	43.150	44.070	39.680	38.653	41.883	44.835	36.678	30.060	25.937	51.179

Source: FAO.

Landings in the EU

In 2018, landings of brown shrimp in the EU amounted to 45.206 tonnes for a total value of EUR 171 million. The Netherlands (53% of the total volume) and Germany (34%) were the major landing countries for this species. In these major producing countries, the majority of catches is cooked (boiled) onboard before landing[179]. Over the 2009–2018 period, brown shrimp landings experienced a 23% increase in volume (primarily due to a very strong increase in 2018) despite strong fluctuations. In value, the increase in real terms from 2009 was by 50%[180], but compared with 2017 the variation was negligible.

Table 41. **LANDINGS OF BROWN SHRIMP IN THE EU (volume in tonnes)**

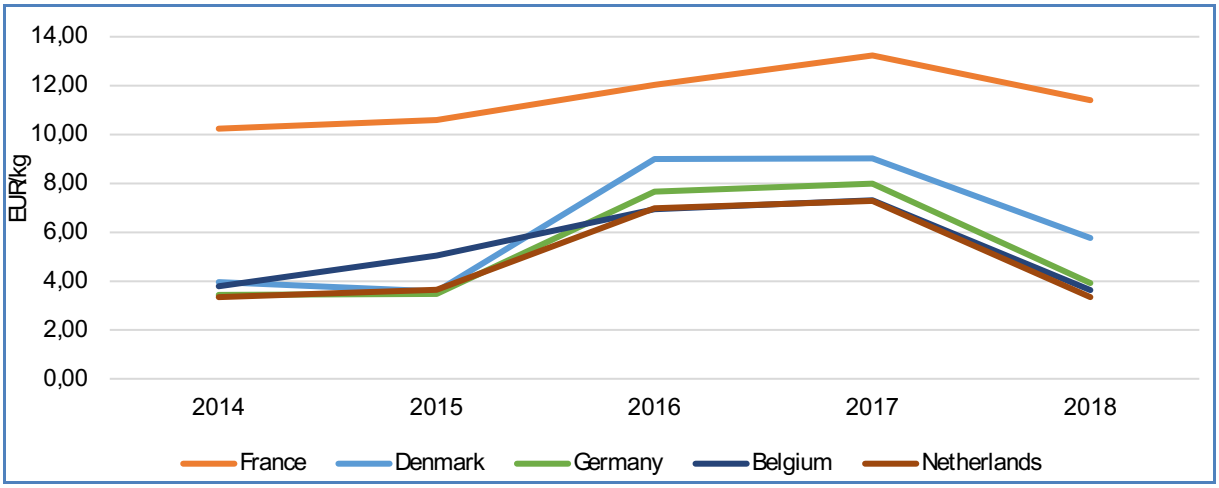
Country	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Netherlands	15.127	14.044	13.296	11.907	15.475	19.060	16.693	16.157	11.855	24.001
Germany	14.107	15.186	14.197	13.930	12.592	12.308	10.928	5.881	6.984	15.370
Denmark	4.808	4.570	4.828	4.219	3.476	3.722	2.474	1.929	2.016	3.605
United Kingdom	1.063	914	377	926	859	600	324	803	569	1.125
Belgium	444	612	336	254	508	513	321	456	349	803
France	387	397	258	313	397	325	175	303	258	254
Others	912	602	158	141	110	229	247	67	64	49
Totals	**36.849**	**36.323**	**33.450**	**31.687**	**33.417**	**36.758**	**31.163**	**25.596**	**22.096**	**45.206**

Source: FAO.

Over the 2014–2018 period, average yearly prices in main producing countries all followed the same trend: increases from 2014 to 2017, due to lower landed volumes, and a sharp decrease in 2018, due to strong increases in landed volumes. Prices were higher in France (above 10,00 EUR/kg) than in other main producing countries.

[179] The difference with volume of catches provided above is then likely to be due to the fact that catches are provided in live weight equivalent whereas landings are provided in product weight (in this case after cooking onboard).
[180] Values are deflated by using the GDP deflator (base=2015).

Figure 65. **BROWN SHRIMP: AVERAGE YEARLY PRICES AT LANDING STAGE IN MAIN PRODUCING COUNTRIES (EUR/KG)**



Source: EUMOFA..

Processing and marketing

The brown shrimp market is composed mainly of fresh/chilled products. The sector is strongly concentrated. In 2011, the EU market was more than 80% controlled by two Dutch companies, Heiploeg and Klaas Puul, which used to buy together about 30.000 tonnes of brown shrimp per year. These processors export brown shrimp to Morocco for peeling. The heavy use of preservatives (benzoic acid, sorbic acid) ensures a longer product life.

Belgium accounts for more than half of the total EU consumer market for brown shrimp, followed by the Netherlands and Germany. More than 90% of the EU market is made up by peeled shrimps. The main market for unpeeled shrimp is France, followed by Belgium. In Denmark, there is no domestic market for brown shrimp and only small volumes are sold to local restaurants, whereas most of the volume is exported to the Netherlands or other markets; nonetheless, some processing operations are done in Denmark as important shrimp processing activities occur for other cold-water shrimp species (*Pandalus borealis*) in the country[181].

For a number of weeks in 2020, measures taken by the Moroccan government in response to the Covid-19 outbreak led to very limited activity of the factories where brown shrimp are usually peeled. This strongly limited the activity of the Dutch fleet targeting brown shrimp[182].

[181] https://www.europarl.europa.eu/RegData/etudes/etudes/join/2011/460041/IPOL-PECH_ET(2011)460041_EN.pdf
[182] https://industriaspesqueras.com/noticia-61473-seccion-Sector Pesquero

13.3 International trade

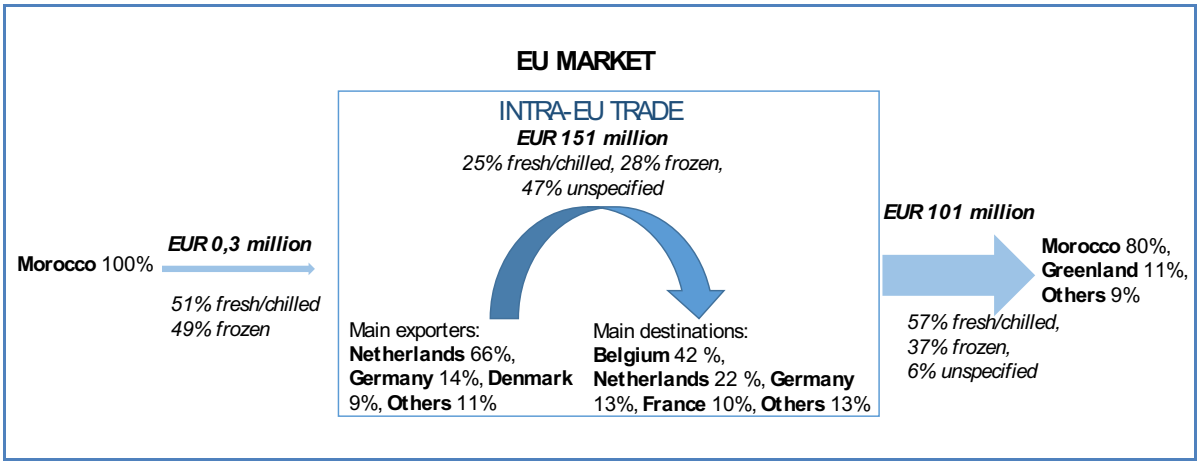
In the combined nomenclature (CN) used for registering import-export data, brown shrimp is specifically reported as whole, fresh/chilled or frozen (cooked or not)[183]. Unfortunately, other preservation states of this species cannot be distinguished, especially prepared/preserved products, which are reported as "miscellaneous" prepared/preserved shrimp products. As a result, peeled shrimp from Morocco cannot be distinguished using available data.

In 2019, the EU had a positive trade balance for whole brown shrimp, amounting to EUR 100 million. Most of this balance is attributable to exports of frozen and fresh brown shrimp to Morocco, where they are peeled and sent back to the EU market for consumption. Extra-EU imports of whole fresh and frozen brown shrimp are very limited (EUR 0,3 million for 93 tonnes in 2019), and are almost exclusively from Morocco. Imports of peeled shrimps from Morocco are reported under prepared/preserved shrimp products code, not specifying the species (more than 16.000 tonnes were imported by the EU from Morocco under this CN code in 2019, but could include other shrimp species than Crangon species).

In 2019, intra-EU exports reached EUR 151 million for almost 22.000 tonnes. Of the total value, 25% was covered by fresh products, 28% by frozen products and 47% by products with unspecified preservation state. The Netherlands were by far the main brown shrimp supplier to other EU countries, whereas Belgium was the main destination.

Extra-EU exports in 2019 amounted to EUR 101 million for 30.146 tonnes. Fresh and frozen products accounted for 57% and 37%, respectively, with the remaining 6% reported under unspecified preservation state. Most of these exports are made by Dutch processing companies sending whole shrimp for peeling in Morocco; in 2019, these companies accounted for 80% of the total extra-EU exports in value terms.

Figure 66. **THE BROWN SHRIMP EU-TRADE MARKET IN 2019, IN VALUE[184]**



Source: EUMOFA elaboration of EUROSTAT-COMEXT data.

[183] CN codes: 0306 16 91 Frozen shrimps of the species Crangon crangon, 0306 26 31 Shrimps of the species Crangon crangon Fresh or chilled, or cooked by steaming or by boiling in water, 0306 26 39 Shrimps of the species Crangon crangon, other preservation states.

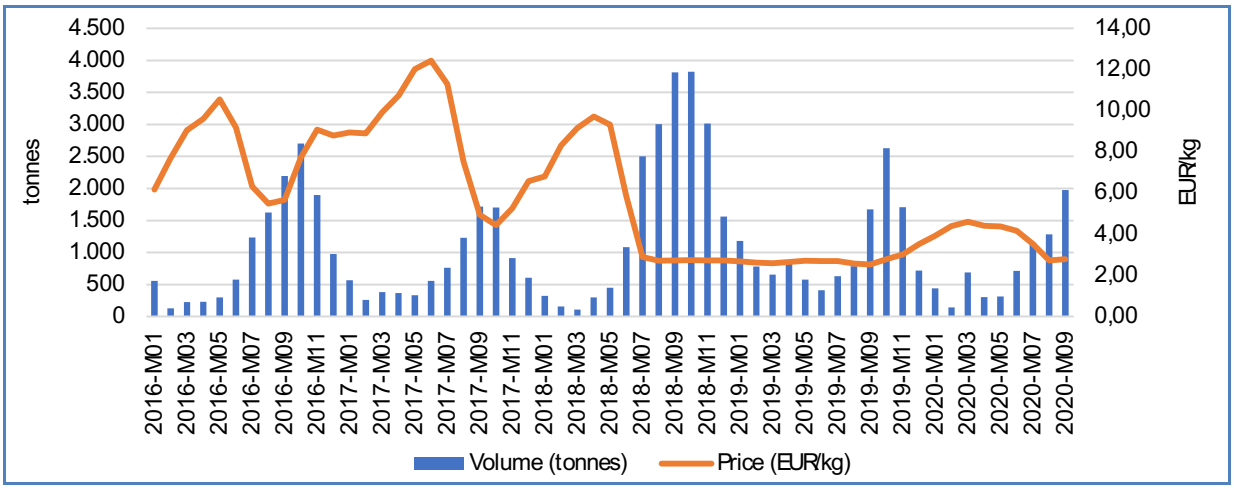
[184] Preserved brown shrimp is excluded from this figure as it is not specifically reported in trade data (it is included in prepared/preserved miscellaneous shrimp).

13.4 First sales in the EU

The monthly data for first sales highlights the strong seasonality of the brown shrimp fishery, with the highest volumes sold in autumn in the main producing countries, namely the Netherlands and Denmark[185]. In both countries, first-sales volumes peak in autumn, although data from Denmark seem to have two peaks, one in spring and one in autumn. However, there can be variations from one year to another. During the fishing season, monthly first-sales volumes in the Netherlands fluctuate between 1.000 and 4.000 tonnes, whereas they are lower in Denmark (between 100 and 500 tonnes). In 2019, the main places of sale for brown shrimp in the Netherlands were Wieringen/Den Oever, Zoutkamp, Harlingen and Lauwersoog. In Denmark, the main places of sale were Hvide Sande, Esbjerg, and Havneby.

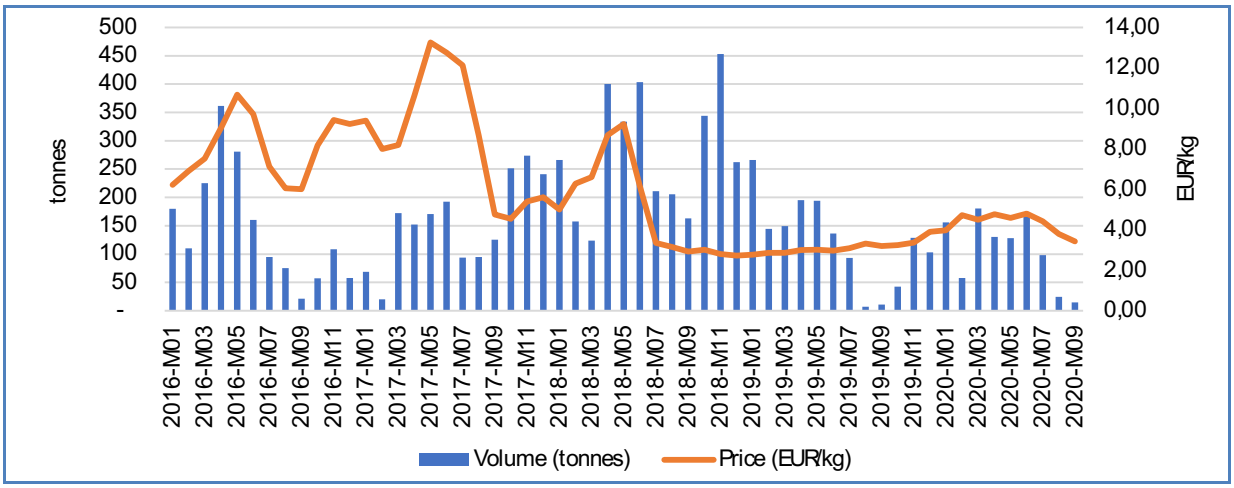
The seasonality of supply leads to very strong price fluctuations (from 2,50 to almost 14,00 EUR/kg). Usually, the price drops when volumes increase as the fishing season progresses from spring to autumn, and sharply increases at the end of the fishing season. This pattern is less clear in Danish first-sales data. However, in both countries, from July 2018 to September 2019, prices stayed very stable at their lowest level, around 2,70 EUR/kg, before going back to usual seasonal fluctuations (to a lesser extent, however). This unusual price stability could be explained by the high volumes landed in 2018 due to high abundances in the North Sea, leading to a potential saturation of the EU market.

Figure 67. **FIRST SALES: BROWN SHRIMP IN THE NETHERLANDS**



Source: EUMOFA.

Figure 68. **FIRST SALES: BROWN SHRIMP IN DENMARK**



Source: EUMOFA..

[185] German first-sales data are not available yet on EUMOFA. Their release is foreseen for 2021.

14. Megrim in the EU

Megrim (*Lepidorhombus whiffiagonis*) is a species of flatfish caught by the EU fleet, mostly by French, Spanish, and Irish trawlers as well as by the fleet of the United Kingdom, in the Celtic Sea and Bay of Biscay. In 2018, megrim landings reached 16.103 tonnes in the EU for a total value of EUR 59 million, with Spain being the main landing country. The majority of EU trade flows of megrim products concern intra-EU trade.

Source: Scadinavian Fishing Year Book

These partly consist of EU vessels landing in other EU countries (especially Spain), which are recorded as exports within Eurostat COMEXT. Spain is by far the biggest market for megrim in the EU, and demand from the Spanish market appears to be the main driver of first-sales prices among major producing countries throughout the year.

14.1 Biology resource and exploitation

Biology

Megrim (*Lepidorhombus whiffiagonis*) is a deep-sea flatfish, commonly found at depths of 200-300 m, over muddy or sandy seabeds. It is rarely found in waters shallower than 50 m, but has been found at depths of over 1.000 m. Megrim is distributed in deep waters all around the British Isles, with its range extending from Scandinavian and Icelandic waters to the coastline of northern Africa and into the Mediterranean. It is believed that megrim migrates to the west of the British Isles to spawn, as well as to separate spawning grounds in the Mediterranean. They feed on small fishes living on or near the seabed, along with crustaceans and molluscs[186]. Megrim can grow to a length of around 60 cm, although commonly grow to 35-45 cm, and live for a maximum of 14-15 years[187]. A second species of megrim, the four-spot megrim (*Lepidorhombus boscii*), is very similar to *L. whiffiagonis* but can be distinguished by spots at the rear of the fins. In commercial catches, the two species of megrim are often classed together as a single species.

Resource, exploitation, and management in the EU

Megrim is both a targeted species and a valuable bycatch species in the mixed demersal trawl fishery, particularly in the Celtic Sea and the Bay of Biscay. It is mainly caught as a targeted species together with hake, anglerfish, Norway lobster and others, and as bycatch in fisheries for demersal species such as cod and haddock.

In terms of management, megrim catches are limited by a combined TAC for both *Lepidorhombus boscii* and *Lepidorhombus whiffiagonis*. In the Celtic Sea, West of Ireland, and Bay of Biscay, stocks are in a very healthy state, with fishing pressures falling within sustainable limits for the first time, and population sizes at record levels[188]. Beyond TACs, the megrim fishery is managed by an EU Minimum Conservation Reference Size of 20 cm (25 cm in Skagerrak/Kattegat)[189].

14.2 Production

Catches

Global production of megrim amounted to 18.329 tonnes in 2018, almost exclusively caught by the EU fleet (98% of global catch volume). The leading producers were by far France (28%), UK (27%), Spain (23%) and Ireland (16%). The only extra-EU producers were Iceland, Norway and Albania. Most producing countries reported catches of *Lepidorhombus whiffiagonis* alone, except for the UK, Spain, Germany and Portugal, which reported catches of both *Lepidorhombus boscii* and *Lepidorhombus whiffiagonis,* and/or a category of megrim where species is unspecified.

Between 2009 and 2018, total catches of megrim experienced a 5% increase, mostly attributable to a growth in French and Irish catches (+54% and +36%, respectively), which can be linked to the evolution of TAC and quotas for megrim. On the other hand, long-term decreasing trends were reported by Spain (-35%), and Portugal (-49%), whilst UK catches remained stable.

[186] https://britishseafishing.co.uk/megrim/
[187] https://www.mcsuk.org/goodfishguide/fish/99
[188] http://ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/meg.27.7b-k8abd.pdf, http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/ldb.27.8c9a.pdf, http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2020/2020/lez.27.6b.pdf
[189] https://mare.istc.cnr.it/fisheriesv2/species_en?sn=20233#ecl-accordion-header-conserv-meas

Table 42. **TOTAL WORLD CATCHES OF MEGRIM[190] (volume in tonnes)**

Country	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
France	3.267	3.749	3.441	3.620	4.691	4.468	5.286	5.496	5.348	5.047
United Kingdom	4.961	4.854	4.602	4.464	5.286	4.993	4.777	4.936	4.645	4.975
Spain	6.522	5.639	5.543	5.013	6.100	4.864	4.655	4.580	4.662	4.246
Ireland	2.167	2.719	2.533	3.448	3.439	2.896	3.009	3.281	3.206	2.947
Iceland	-	252	320	409	375	327	479	460	440	369
Belgium	212	278	338	613	539	189	246	304	361	353
Greece	-	-	-	-	-	-	59	57	98	123
Others	306	207	205	204	239	247	235	251	285	269
Total	**17.435**	**17.698**	**16.982**	**17.771**	**20.669**	**17.984**	**18.746**	**19.365**	**19.045**	**18.329**

Source: FAO.

Landings in the EU

In 2018, landings of megrim in the EU amounted to 16.103 tonnes for a total value of EUR 59 million. Spain was the most important landing country, accounting for 36% of landing volume and 44% of landing value. Other major landing countries were the UK (22% of landing volume), France (17%) and Ireland (13%). Differences between volumes of catches and landings for each of the major EU fishing countries can be explained by significant shares of megrim catches being landed in another member state, such as UK and French vessels landing in Spanish ports.

Over the 2009-2018 period, megrim landings experienced a 14% decrease in volume, mainly due to landings in Spain plummeting between 2012 and 2014 and landings in Ireland falling sharply between 2017 and 2018. Value in real terms fell by 10% from 2009[191].

Table 43. **LANDINGS OF MEGRIM IN THE EU (volume in tonnes) [192]**

Country	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Spain	8.296	8.098	7.313	8.038	6.374	4.888	4.793	4.718	4.690	5.818
United Kingdom	4.319	3.918	3.531	3.666	4.411	3.455	3.304	3.544	3.431	3.849
France	1.550	1.695	2.719	2.833	2.995	2.796	3.378	3.520	3.227	3.026
Ireland	4.108	4.724	4.364	5.141	3.321	3.998	5.107	6.522	5.826	2.712
Belgium	200	254	318	576	502	162	233	282	339	309
Greece							59	57	99	123
Denmark	33	26	30	37	53	45	47	66	87	101
Others	114	106	123	65	97	146	148	110	139	165
Totals	**18.619**	**18.821**	**18.399**	**20.357**	**17.753**	**15.491**	**17.069**	**18.819**	**17.837**	**16.103**

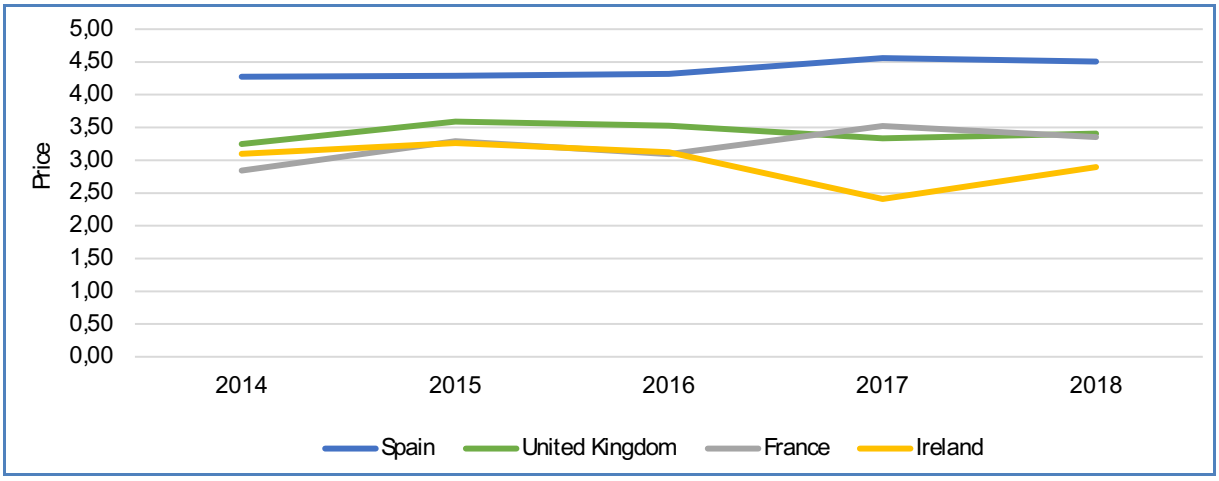
Source: EUROSTAT.

[190] Includes catches reported under megrim, four-spot megrim and megrims nei.
[191] Values are deflated by using the GDP deflator (base=2015).
[192] Totals do not correspond exactly to actual sums because of roundings.

Analysis of the average annual landing prices in the main landing countries between 2014-2018 shows two different situations. Trends in Spain and France seem linked, with a slight increase in average annual prices between 2016 and 2017 and a slight decrease between 2017 and 2018. Conversely, average annual prices in the UK and Ireland fell from 2016 to 2017 and rose in 2018.

The relationship between price and volume appears obvious - when volume increases, price decreases. For the whole period, despite higher volumes sold, prices were higher in Spain (over 4,00 EUR/kg) than in the other main producing countries (2,50-3,50 EUR/kg). The main reason is that Spain is the main consumption market for megrim so prices are higher where demand is high.

Figure 69. **MEGRIM: AVERAGE ANNUAL PRICES AT LANDING STAGE IN MAIN PRODUCING COUNTRIES (EUR/kg)**



Source: EUMOFA elaboration of EUROSTAT data.

Marketing and consumption

Most EU catches of megrim are consumed in Spain, where the species is appreciated for its low-fat, white flesh. Megrim is marketed as fresh whole fish or fresh fillets, and also as frozen fillets. The species is not well-known or widely consumed in the other producing countries, although in recent years there have been several initiatives to promote the fish to consumers. For example, when megrim is sold to UK consumers it is often given an alternative name in an effort to make the species more appealing. ” Megrim sole” and “Cornish sole” are two of the most common alternative names[193].

14.3 International trade

In the Combined Nomenclature (CN) used in the EU-import-export data, megrim is classified as whole, fresh/chilled, frozen fillets or frozen other cuts[194]. Overall, EU trade flows with third countries are very low for megrim products compared to intra-EU trade flows.

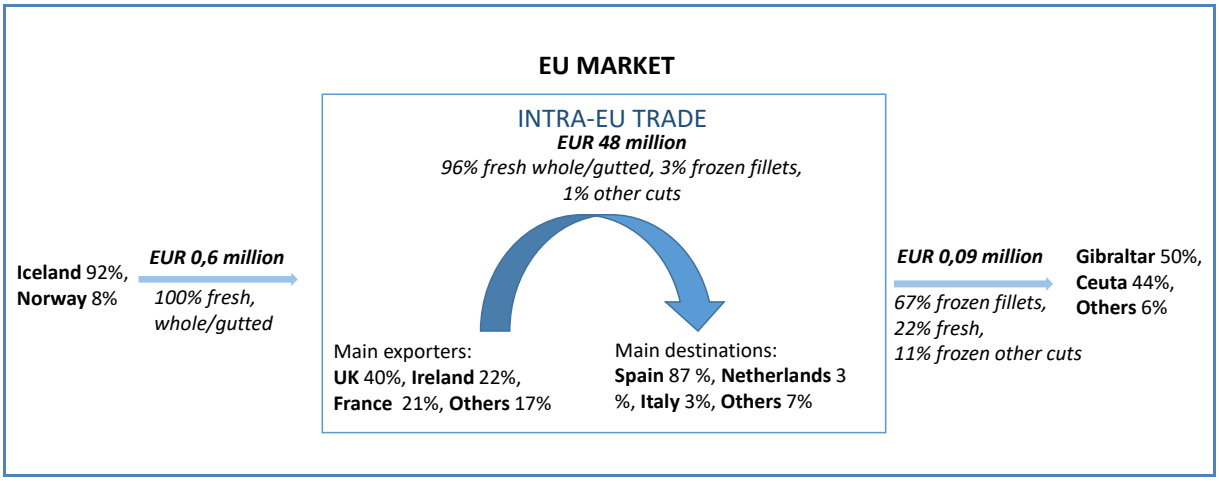
In 2019, the EU experienced a trade deficit for megrim products amounting to EUR 0,5 million. Most of this deficit was attributable to imports of fresh/chilled whole megrim from Iceland. In 2019, extra-EU imports reached 163 tonnes for a value of almost EUR 0,6 million, of which 92% was from Iceland in terms of value. Extra-EU exports of megrim products are very limited (91.030 EUR for 10 tonnes in 2019), and are dominated by frozen fillets almost exclusively destined for Gibraltar and Ceuta, territories with close links to the Spanish market.

In 2019, intra-EU exports reached a value of EUR 48 million for 10.212 tonnes. Of the total value, 96% was attributable to fresh whole products, whilst a significant portion of these flows corresponded to EU vessels landing in another member state. The UK, and to a lesser extent Ireland and France, were by far the biggest megrim suppliers to other EU countries, whilst Spain was the main destination.

[193] https://britishseafishing.co.uk/megrim/

[194] 03022910: Megrim (*Lepidorhombus* spp.), excluding edible fish offal of subheadings 0302 91 to 0302 99, fresh or chilled; 03048350: Megrim (*Lepidorhombus* spp.), fillets, frozen; 03049955: Megrim (*Lepidorhombus* spp.), other meat (whether or not minced), frozen.

Figure 70. **THE MEGRIM EU-TRADE MARKET IN 2019, IN VALUE**



Source: EUMOFA elaboration of EUROSTAT-COMEXT data.

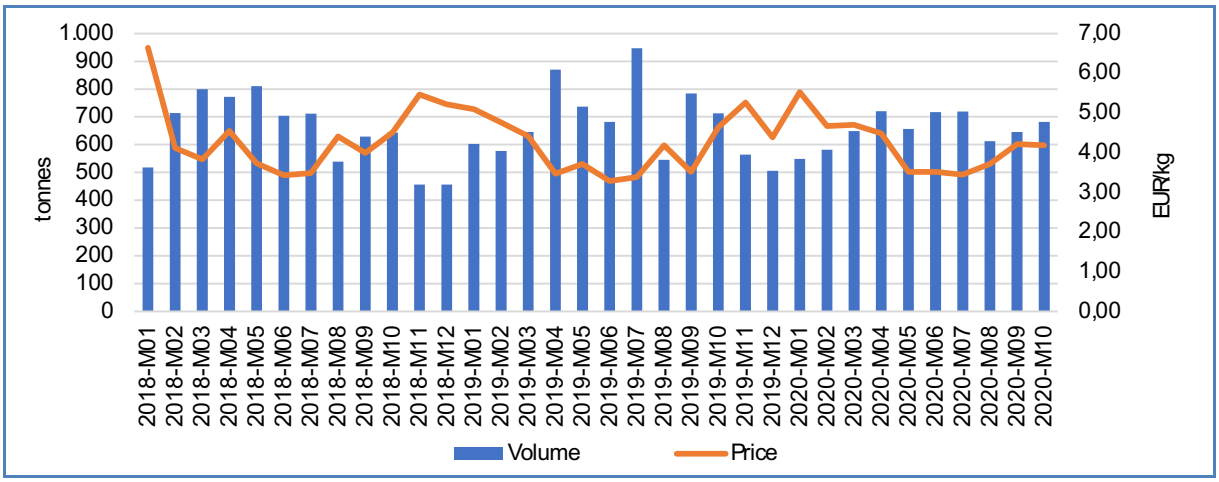
14.4 First sales in the EU

The monthly data regarding first sales in major producing EU countries does not show a clear common seasonality of the megrim fishery. Whilst higher volumes are sold in spring and summer in the UK and Spain, the trend seems to be the opposite in France, where higher volumes are reportedly sold in the first quarter of the year. However, there can be variations from one year to the next.

Throughout the year, monthly first-sales volumes in Spain fluctuated between 400 and 1.000 tonnes, whilst they were lower in France (between 150 and 300 tonnes) and in the UK (between 100 and 400 tonnes). In 2019, the port of Vigo was the most significant place of sale for megrim in Spain, accounting for almost 70% of the nation's total first-sales volume. Other key ports were A Coruña (8%) and Ondárroa (6%). In France, the main place of sale was Le Guilvinec, accounting for 47% of total first-sales volume in 2019. Other key ports were Lorient (13%) and Loctudy (12%). In the UK, the main places of sale for megrim were Lerwick (19% of total volume), Kinlochbervie (17%), Scrabster and Peterhead (15% each).

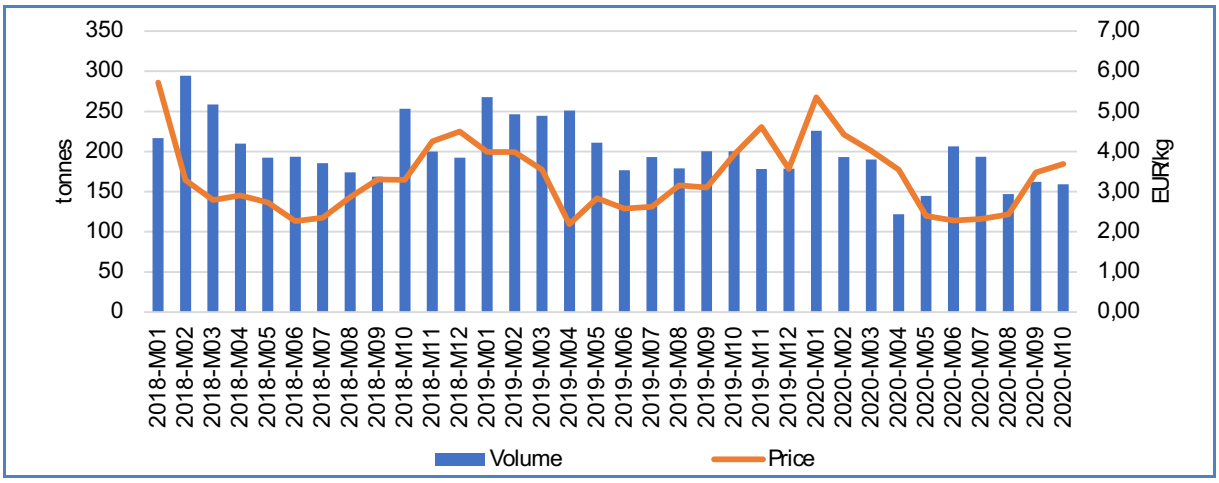
The variation in landed volumes leads to significant price fluctuations, from 2,20 EUR/kg to almost 5,70 EUR/kg over the January 2018 to October 2020 period. In Spain and the UK, prices fall when first-sales volume increases from spring to autumn, and prices increase sharply at the end of the fishing season. This pattern is less clear in French first-sales data – whilst prices follow the same fluctuations as those observed in Spain and the UK, the seasonality of volume is different. Overall, first-sales prices clearly follow the same trend in the three countries, demonstrating a connected megrim market, with the Spanish market being the biggest consumption market and thus driving the evolution of prices.

Figure 71. **FIRST SALES: MEGRIM IN SPAIN (volume in tonnes, price in EUR/kg)**



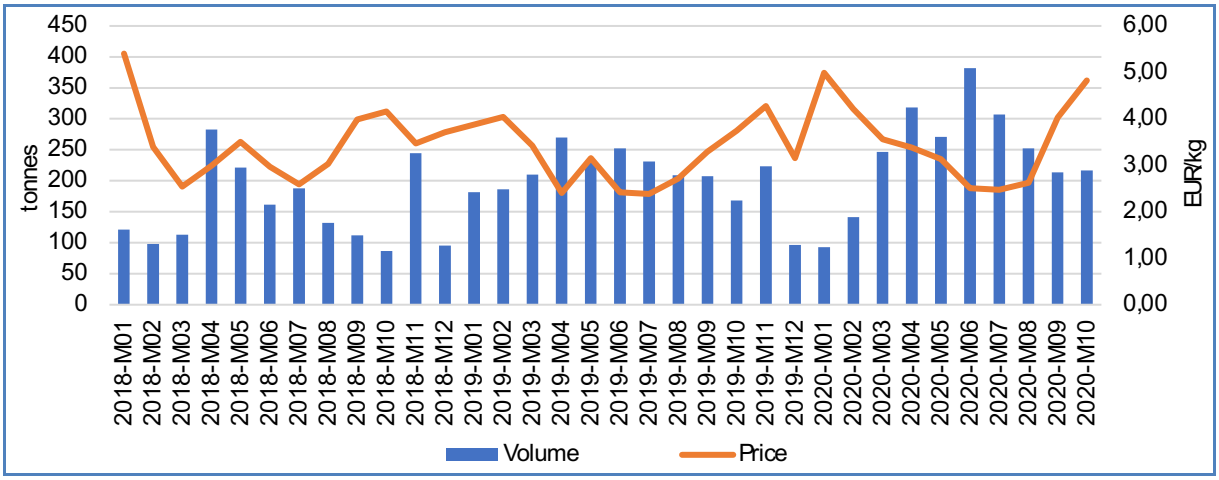
Source: EUMOFA.

Figure 72. **FIRST SALES: MEGRIM IN FRANCE (volume in tonnes, price in EUR/kg)**



Source: EUMOFA.

Figure 73. **FIRST SALES: MEGRIM IN THE UK (volume in tonnes, price in EUR/kg)**



Source: EUMOFA

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