



CASE STUDY

OYSTERS IN THE EU



PRICE STRUCTURE IN THE SUPPLY CHAIN

FOCUS ON FRANCE, IRELAND AND THE NETHERLANDS

EUMOFA

European Market Observatory for Fisheries and Aquaculture Products

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Summary

- Global oyster production is mainly from aquaculture. Total production amounted to circa 6,4 million tonnes in 2020, which was 39% more than in 2011. China is by far the largest producer globally, providing 85% of the total volumes of oyster production.
- With a total production of almost 98.000 tonnes in 2020, the EU-27 was the world's fifth largest producer (2% of total volumes). EU production has been relatively stable between 2011 and 2020 (+1%) but has decreased by 7% between 2019 and 2020. Almost 83% of EU oyster production takes place in France, with a production of circa 81.000 tonnes in 2020. Ireland followed at a distance, with a production amounting to 9.475 tonnes¹ (10% of the EU production). Other main producers include Portugal (4%) and the Netherlands (2%).
- This study focuses on the market of live oysters in three EU Member States: France, Ireland and the Netherlands. France is the largest market for oysters in the EU. It is both the main producer and consumer. The French production is mostly absorbed by the domestic market which is also supplemented by imports, mainly from Ireland, the Netherlands, and the United Kingdom. The Irish market is small, even though the country is the second largest producer in the EU. The Netherlands is also a small market for oysters. Therefore, production in both countries is export-oriented.
- Intra and extra-EU trade concerns mainly live-fresh oysters and is EU focused. However, despite the relatively short shelf life of this species, countries like France and Ireland target Asian markets.
- The EU exports to third countries are higher than imports. In 2021, the EU trade surplus amounted to EUR 54,4 million. France is the main exporter and main destinations are the Asian markets, mainly China and Hong-Kong. Intra-EU trade occurs only between some MS and, in addition to live-fresh oysters, includes some exports of smoked oysters from Spain (7.428 tonnes for a value of EUR 31,5 million in 2021).
- In 2020, oyster apparent consumption in the EU was estimated at 91.488 tonnes live weight equivalent (LWE), with an estimated per capita consumption of 0,20 kg. France is the largest market with an apparent consumption of 75.997 tonnes (LWE) and 1,10 kg/capita. Italy followed with an apparent consumption of 5.852 tonnes (LWE) (0,10 kg/capita) and Ireland with 2.652 tonnes (LWE) (0,53 kg/capita).
- The price structure analysis developed in this report focuses on the following value chains:
 - oysters under Protected Geographical Indication (PGI) sold in large-scale retail in France;
 - high quality special oysters produced in Ireland and exported in bulk to France;
 - high quality special oysters produced in Ireland and exported packed to China;
 - oysters produced in the Netherlands or imported and sold in restaurants in the Netherlands.

¹ Total national production for Ireland was almost 9.500 tonnes in 2020, according to FAO, including a share which is traded between farmers as half-grown oysters for on-growing. Production for human consumption is provided by EUROSTAT and amounted to 6.905 tonnes, the same year.

- The main results of this analysis can be summarized as follows (2011 data):
 - the purchase price for raw material ranges from 1,80 EUR/kg to 5,50 EUR/kg, depending on oysters' size, quality, and country of origin;
 - the consumer price (excl. VAT) for oysters varies from 6,58 EUR/kg in France to 19,32 EUR/kg in the Netherlands (Dutch restaurants);
 - the prices of Irish oysters in the export market show significant difference depending on the destination: Irish packed oysters are sold at 9,50 EUR/kg on the French market and at 11,50 EUR/kg on the Chinese market.

List of acronyms

CN	Combined Nomenclature
CRC	<i>Comité Régional Conchylicole</i> (Regional Shellfish Farming Committee)
EBIT	Earnings Before Interest and Tax
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
FTE	Full Time Equivalent
GVA	Gross Value Added
MS	Member States
STECF	Scientific, Technical and Economic Committee for Fisheries
PGI	Protected Geographical Indication
VAT	Value Added Tax
LWE	Live Weight Equivalent

1. SCOPE AND CONTENT

1.1 Case study scope

Key elements of the analysis of oysters' price structure and distribution of value in the supply chains are detailed in the following table.

Product	Origin	Characteristics	Market and price drivers	Focus MS
Oysters	Aquaculture (in the EU, the market for oysters includes almost only farmed oysters) Fishery	Product mainly marketed fresh	Size and quality Country of origin/ Export destination Quality schemes	France Ireland The Netherlands

1.2 Content of the report

As per the methodology developed within EUMOFA and available on its website (<http://www.eumofa.eu/price-structure>), this document includes:

- A description of the product;
- An analysis of production and market trends at EU level;
- An analysis of the price structure along the supply chain in France, Ireland and the Netherlands.

EUMOFA provides other relevant publications on the topics covered by this study:

- Oyster species profile
https://www.eumofa.eu/documents/20178/137160/Oyster_31-1.pdf
- Country profiles:
 - France - <https://www.eumofa.eu/en/france>
 - Ireland - <https://www.eumofa.eu/en/ireland>
 - The Netherlands - <https://www.eumofa.eu/en/netherlands>

2. DESCRIPTION OF THE PRODUCT AND MARKETS

2.1 Biological and commercial characteristics

Case study product

Name: Pacific cupped oyster (*Crassostrea gigas*), **FAO 3-alpha code:** OYG

Presentation: live, fresh, or chilled

Other main species:

European flat oyster (*Ostrea edulis*), Cupped Oyster nei (*Crassostrea spp.*), American cupped oyster (*Crassostrea virginica*), Slipper cupped oyster (*Crassostrea iredalei*)

Related codes in the product nomenclature (COMEXT/EUROSTAT)

Oysters are identified in the Combined Nomenclature (CN) through the codes listed below:

- Live flat oysters:
 - Flat oysters: 03 07 11 10, conversion factor²: 1
 - Other oysters: 03 07 11 90, conversion factor: 1
- Smoked oysters:
 - Until 2016: 03 07 19 10, conversion factor: 1,36
 - Since 2017: 03 07 1900, conversion factor: 1
- Frozen oysters:
 - Until 2016: 03 07 19 90, conversion factor: 1
 - Since 2017: 03 07 12 00, conversion factor: 1
- Prepared or preserved oysters: 16 05 51 00, conversion factor: 1,36

Production cycle of the two main species

Pacific cupped oyster (*Crassostrea gigas*)

Various methodologies are used depending on the source of seed supply, the environmental conditions and the type of product marketed (i.e. for half-shell trade or for meat extraction). Much of the global supply of spat is obtained from wild seed capture, using a wide variety of settlement materials. However, other commercial farms operate hatcheries, which is the case for EU producers. Eggs and larva are cultivated during 14 to 18 days. When larva is closed to settlement, oysters get attached to a settlement substrate. Hatcheries frequently operate either sea-based or land-based nurseries in which spat are grown from as small as 1 mm length to 12–15 mm.

Grow-out is almost entirely sea-based. A variety of methods are used:

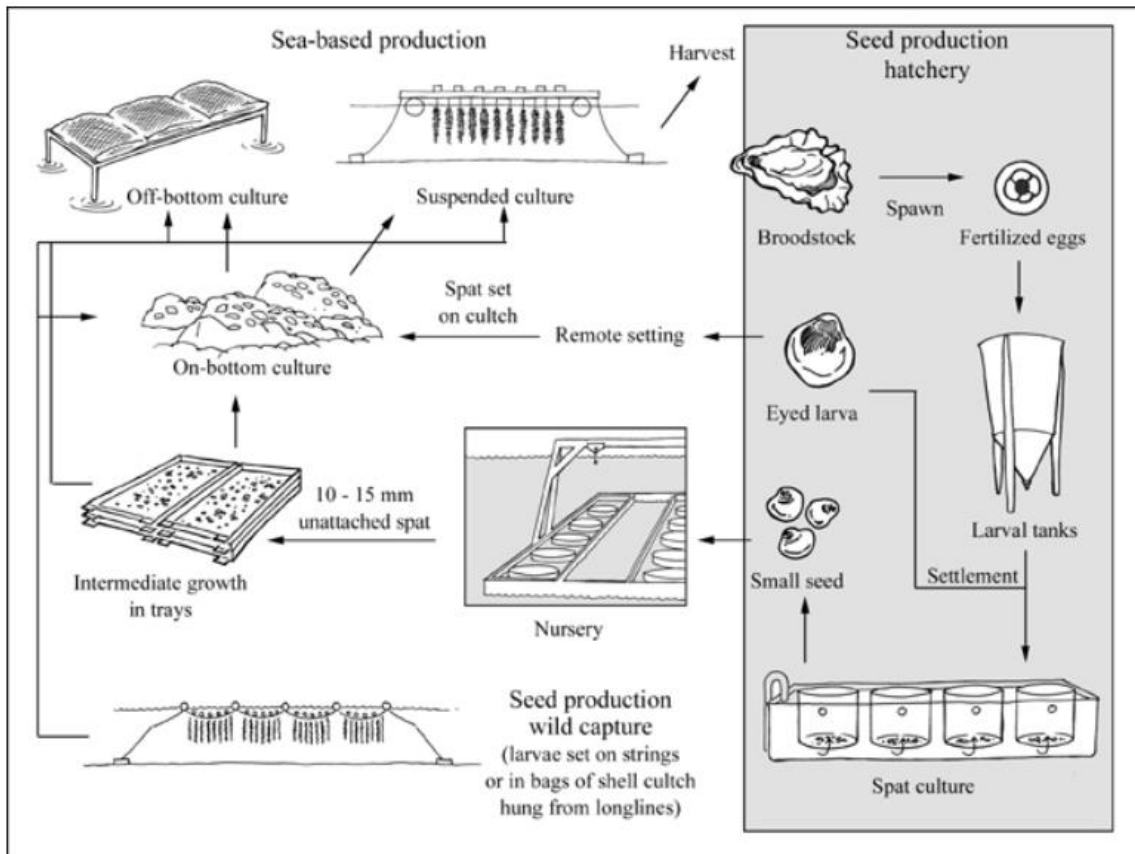
- 1) bottom culture: seed can be sown on intertidal or sub-tidal ground, with the objective to sow at densities that will not require further husbandry until the oysters reach marketable size;
- 2) off-bottom culture: seed are contained in mesh bags or perforated plastic trays of various types. Both are attached by rope or rubber bands to wood frame or rebar steel trestles (i.e. on tables), which are laid on suitable ground in the low intertidal zone;
- 3) suspended culture: the units can be strings or wires of shells to which spat have attached, or they can be series of nets, mesh bags or plastic trays strung together and suspended vertically from the horizontal lines or rafts;

² Import and export volumes in product weight are converted by using conversion factors elaborated by EUMOFA experts to volumes in live weight, for the purpose of building a harmonised supply balance.

4) trays for intermediate growth: wood frame trays with mesh bases or perforated plastic trays are used in some locations for earlier stages in the growth of seed. Growth is rapid between 15-25°C and at salinities between 25 and 32‰.

Oysters are usually harvested at >75 mm shell length corresponding to 70-100+ g live weight. Harvesting from bottom culture is by hand or by dredges when intertidal beds are submerged, or by dredging sub-tidal beds. Marketable oysters grown in off-bottom rack culture or in trays or nets suspended from longlines are harvested using small boats or self-propelled barges, which are often equipped with mechanical washing and grading machines when the product is destined for the half shell trade.

Figure 1: Production cycle of Pacific cupped oyster



Source: FAO

European flat oyster (*Ostrea edulis*)

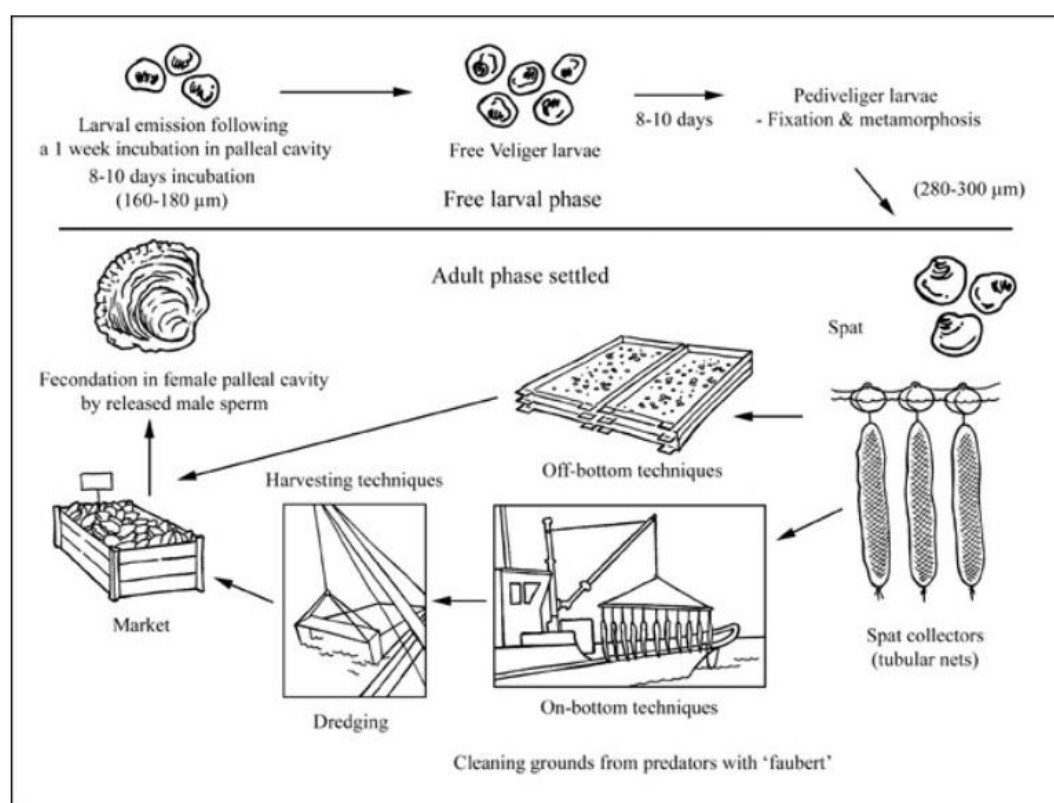
Juveniles are produced in hatcheries or obtained from wild spat collection. However, most European flat oyster culture remains based on the use of spat collectors to obtain wild juveniles. When spat are produced in hatcheries, these are transferred using baskets to open waters for on-growing, once reaching 5-6 mm size.

Two main types of on-growing techniques are used to produce flat oysters:

1) off-bottom technique: it consists of floating trays or rafts, longlines, suspended rope, lanterns or plastic baskets hung from the rafts, intertidal trestles and oyster bags;

2) on-bottom technique: oyster spat are directly re-laid by boat on-bottom in subtidal grounds at a density of 50-100 kg/ha, 5 to 10 times less than for Pacific cupped oysters (*Crassostrea gigas*) in France. Since most flat oyster culture is developed in subtidal areas and in an extensive manner to avoid disease problems, oysters are usually harvested with two steel dredges. Where intertidal culture on trestles is carried out, farmers bring the bags back to the packing houses for sorting, grading and restocking.

Figure 2: Production cycle of European flat oyster



Source: FAO

In European Member States, once harvested, oysters are purified if needed which enables producers to place them on the market according to the European regulations (EC) n°853/2004 and n° 854/2004. Oysters are then cleaned, sorted and packed before being sold. In France most producers purify, clean, grade and pack oysters for human consumption, while in the Netherlands, there are specific facilities for holding and depuration. In Ireland, a share of production is exported mainly to France without being purified, sorted or packed.

³ Regulation (EC) No 853/2004 of 29 April 2004 laying down specific hygiene rules for food business operators on the hygiene of foodstuffs and Regulation (EC) No 854/2004 of 29 April 2004 laying down specific rules for the organisation of official controls on products of animal origin intended for human consumption.

2.2 World production

Global oyster production amounted to circa 6,4 million tonnes in 2020, almost all from aquaculture production (98% of the global production). Between 2011 and 2020, global oyster production has increased by 39%, mainly due to the significant increase in aquaculture production (+43%).

Table 1: Evolution of world oyster production between 2011 and 2020 (1.000 tonnes)

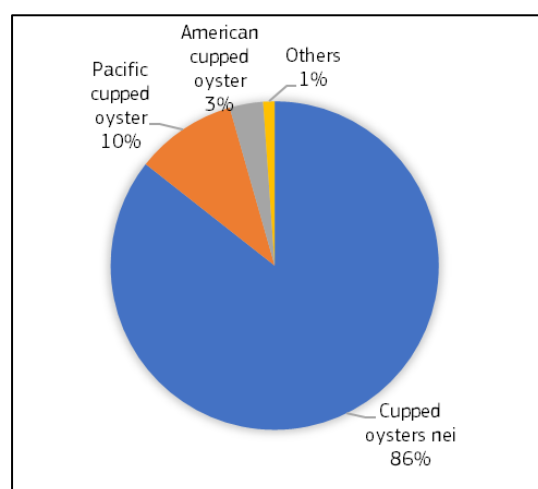
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Evol. 2020/11
Aquaculture	4.374	4.580	4.803	4.999	5.161	5.485	5.800	6.024	6.118	6.261	43%
Fishery	198	135	132	132	150	121	135	152	137	114	-42%
Total	4.571	4.715	4.935	5.131	5.311	5.607	5.935	6.176	6.255	6.376	39%

Note: totals may differ from sum of data in column due to rounding

Source: FAO Fish Stat

In 2020, the main oyster species produced worldwide were the cupped oysters nei (86% of the production), followed by the pacific cupped oyster (10%) and the American cupped oyster (3%).

Figure 3: World production by species



Source: FAO Fish Stat

China is by far the main oyster producer. In 2020, China alone contributed to 85% of the global production, followed to lesser extent by the Republic of Korea (5%), the USA (3%), and Japan (2%). The EU-27 contributed to 2% of the global production and ranked fifth at global level with a production of almost 98.000 tonnes.

Table 2: Evolution of oyster production in the main producing countries (1.000 tonnes)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	% total 2020	Evol. 2020/11
China	3.580	3.784	4.038	4.159	4.381	4.660	4.879	5.140	5.226	5.425	85%	+52%
Rep. of Korea	306	303	253	303	287	283	330	340	357	326	5%	+6%
USA	176	195	198	189	191	192	193	205	226	183	3%	+4%
Japan	166	161	164	184	164	159	174	177	162	159	2%	-4%
EU-27	97	93	92	91	81	93	101	110	105	98	2%	+1%
Others	246	178	190	205	207	219	257	204	179	185	3%	-25%
Total	4.571	4.715	4.935	5.131	5.311	5.607	5.935	6.176	6.255	6.376	100%	+39%

Note: totals may differ from sum of data in column due to rounding

Source: FAO Fish Stat

2.3 EU production

2.3.1 EU production by main producing Member States

EU oyster production amounted to almost 97.900 tonnes in 2020. The EU production has been relatively stable over the decade between 2011 and 2020 (+1%), but has decreased by 7% from 2019 to 2020.

France is by far the main EU producer, accounting for 82,5% of the EU production in 2020. The same year, Ireland was the second largest producer contributing to almost 10% of the EU production. The other main producers were Portugal and the Netherlands, contributing to respectively 3,7% and 2,4% of the EU production. The French production has overall been stable over the studied period (2011-2020), except a sharp decrease in 2015 due to significant mortalities, whereas the Irish and the Dutch production have decreased by respectively 16% and 11% from 2011 to 2020. Over the same period, the Portuguese production has significantly increased from less than 1.000 tonnes to over 3.600 tonnes.

In the EU, oysters come from aquaculture production. Fishery activities produce only anecdotal volumes, estimated at circa 350 tonnes, mainly in Denmark which produced 53% of the EU oyster fishery production in 2020.

Table 3: Evolution of oyster production in the main producing Member States (tonnes)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	% total 2020
FR	79.338	80.609	77.699	75.262	64.986	77.681	84.976	92.122	85.964	80.796	82,5%
IE	11.280	7.560	8.851	9.777	9.700	8.192	10.409	10.369	10.716	9.475	9,7%
PT	943	819	869	1.107	1.060	1.000	1.246	3.474	4.047	3.632	3,7%
NL	2 680	2.540	2.959	3.264	3.151	3.688	2.617	2.714	2.557	2.374	2,4%
ES	1.868	1.361	1.060	1.072	1.154	1.448	1.300	1.156	1.404	1.097	1,1%
IT	42	47	53	147	145	145	145	80	100	226	0,2%
DK	804	296	142	83	137	145	150	307	296	181	0,2%
Other	137	183	413	612	719	528	335	252	219	106	0,1%
EU-27	97.092	93.416	92.045	91.324	81.052	92.827	101.178	110.474	105.303	97.887	100,0%

Source: FAO Fish Stat

2.3.2 Import - Export

Extra-EU imports

Extra-EU imports amounted to 2.270 tonnes (product weight) for a value of EUR 7,7 million in 2021. The main share of extra-EU imports is made of live-fresh oysters (85% of extra-EU imports in value and 95% in volume). Only anecdotal volume of frozen, smoked and preserved oysters is imported to the EU. A large share of EU imports is made from the United Kingdom (84% of the extra-EU imports value). France is the main importer. In 2021, France alone imported 85% of the extra-EU imports in value terms.

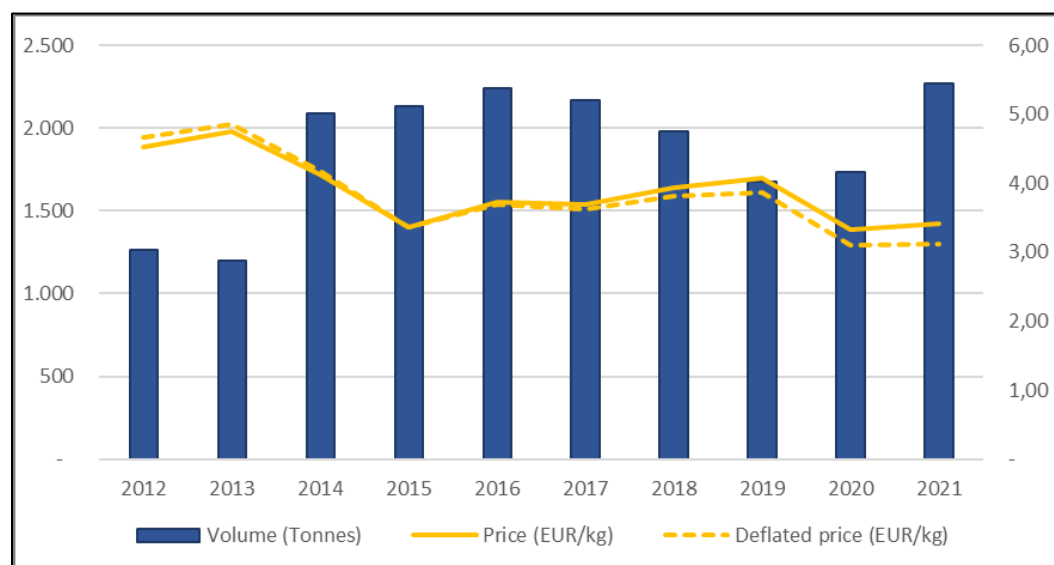
Table 4: Extra-EU imports of oysters (2021)

	Volume (tonnes)	Nominal value (1.000 EUR)	Price (EUR/kg)	% val. 2021
Live, fresh or chilled	2.157	6.594	3,06	85%
Smoked, dried, salted or in brine	36	474	13,09	6%
Frozen	54	526	9,69	7%
Preserved	23	141	6,18	2%
Total	2.270	7.735	3,41	100%

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

EU imports from third countries have increased in both volume and value between 2012 and 2021. Volumes grew by 80% while their total value grew by 36% in nominal terms (20% in real terms⁴). Over the same period, the average price of extra-EU imports of oysters has decreased by 25% in nominal terms from 4,52 EUR/kg in 2012 to 3,41 EUR/kg in 2021 (-33% in real terms).

Figure 4: Development of extra-EU imports of oysters



Source: EUMOFA elaboration of EUROSTAT-COMEXT data, *deflated price is calculated with GDP deflator (base year 2015).*

⁴ In the report, values are real terms by using the GDP deflator (base=2015).

Extra-EU exports

In 2021, extra-EU exports of oysters amounted to 7.455 tonnes for a value of EUR 62,1 million. This consisted almost exclusively of live-fresh oysters (96% of extra-EU exports in value and 94% in volume). France was the main exporter, exporting 75% of the EU exports to third countries in value terms. On a smaller scale, Ireland, the Netherlands, and Denmark were the other largest EU exporters. Together, these three countries accounted for 10% of extra-EU exports in value in 2021. The main destinations were China (33% of EU exports in value in 2021), Hong Kong (22%), and Switzerland (13%). Recent years have been characterised by the increase of EU exports to Asian markets. Specifically, the value of oysters' exports to China has increased by 451% between 2012 and 2021 (387% in real terms).

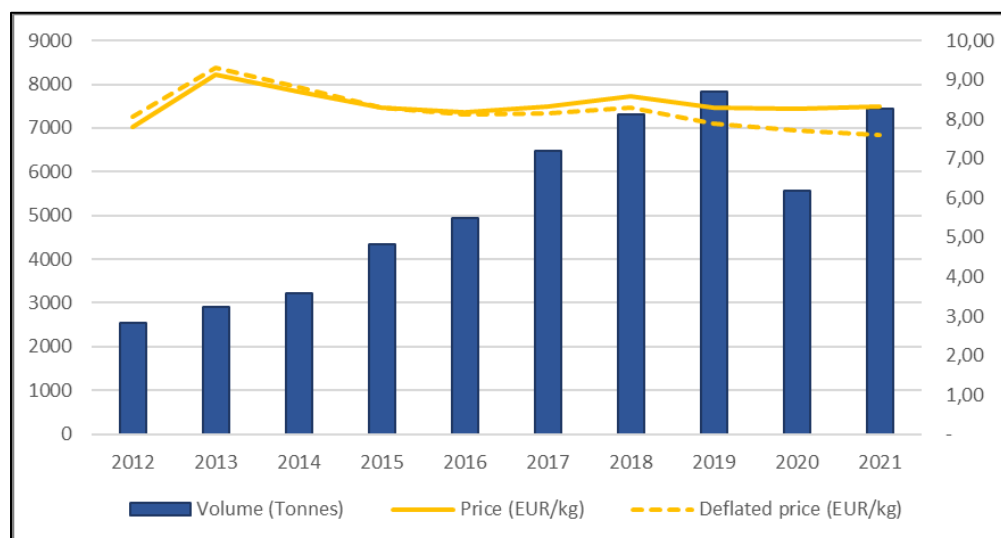
Between 2012 and 2021, total EU exports of oysters have increased by 193% in volume and 212% in value in nominal terms (176% in real terms). Prices have increased from 7,82 EUR/kg in 2012 to 8,34 EUR/kg in 2021, in nominal terms. However, in real terms, it represented a 6%-decrease.

Table 5: Extra-EU exports of oyster and oyster products (2021)

	Volume (tonnes)	Nominal value (1.000 EUR)	Price (EUR/kg)	% val. 2021
Live, fresh or chilled	6.996	59.766	8,54	96,3%
Smoked, dried, salted or in brine	380	1.758	4,63	2,8%
Frozen	58	426	7,41	0,7%
Preserved	12	124	10,01	0,2%
Total	7.445	62.075	8,34	100,0%

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Figure 5: Development extra-EU exports of oysters



Source: EUMOFA elaboration of EUROSTAT-COMEXT data, *deflated price is calculated with GDP deflator (base year 2015)*

Intra-EU trade flows**Intra-EU exports**

France is by far the main EU oyster exporter within the EU, with a value of over EUR 66,5 million for 10.035 tonnes. In 2021, France was followed by Spain, Ireland, and the Netherlands, with a value of oysters' exports exceeding EUR 17 million for each. Spain is the largest exporter of smoked oysters (7.428 tonnes for EUR 31,5 million), while the other EU MS export almost exclusively live oysters.

Table 6: Value of intra-EU exports of oyster from the main MS (1.000 EUR, nominal value, 2021)

MS	Live-Fresh	Frozen	Prepared-preserved	Smoked	Total
France	65.826	479	233	7	66.544
Spain	738	50	9	31.460	32.258
Ireland	25.154	32	-	261	25.447
Netherlands	17.616	90	45	3	17.753
Portugal	6.933	20	-	-	6.953
Denmark	779	117	-	-	895
Italy	682	0	26	8	716

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Intra-EU imports

In 2021, main importers of oyster and oyster products from the other MS were France and Italy (respectively EUR 36 million and EUR 31 million), and to lesser extent the Netherlands, Belgium, and Spain. Most MS import live oysters, whereas Spain was the largest importer of preserved oysters (over EUR 1 million, 10% of Spanish oyster imports from the other EU MS), and Belgium was the largest importer of frozen oysters (EUR 1,7 million, 13% of Belgian oyster imports from the other EU MS).

Table 7: Value of intra-EU imports in the main MS of destination (1.000 EUR, nominal value, 2021)

MS	Live-Fresh	Frozen	Prepared-preserved	Smoked	Total
France	35.573	15	-	233	35.821
Italy	30.304	514	139	328	31.285
Netherlands	13.741	114	-	-	13.855
Belgium	11.305	1.680	118	97	13.200
Spain	10.030	242	1.099	122	11.493
Germany	5.391	61	33	496	5.981
Sweden	2.048	34	14	-	2.097

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

2.3.3 Apparent consumption by Member State

In 2020, the total oyster supply (production + imports) amounted to 97.063 tonnes live weight equivalent (LWE), with 98% of the total supply coming from EU internal production (95.318 tonnes, LWE). Imports were estimated at 1.745 tonnes (LWE), representing only 2% of the EU supply.

With regards to exports, these were estimated at 5.575 tonnes (LWE), i.e. 6% of the EU supply. Therefore, apparent consumption at EU-27 level (production + imports – exports) was estimated at 91.488 tonnes LWE.

France was the largest MS in terms of apparent consumption in 2020 (almost 76.000 tonnes, LWE). Other MS with significant apparent consumption in 2020 included Italy, Ireland, Portugal, Belgium, the Netherlands, and Spain (with an apparent consumption above 1.000 tonnes LWE for each MS). The apparent consumption in the other MS was relatively low (under 500 tonnes, LWE).

Table 8: Apparent consumption of oysters in the main MS (2020, in tonnes of live weight equivalent)

MS	Production (Catches + Aquaculture)	Imports	Total supply (production + import)	Export	Apparent consumption (total supply – export)	Per capita apparent consumption ⁵ (kg/capita)
France	80.796	6.541	87.337	11.340	75.997	1,13
Ireland*	6.905	48	6.953	4.301	2.652	0,53
Portugal	3.632	118	3.750	1.426	2.324	0,23
Netherlands	2.374	1.367	3.741	2.008	1.733	0,10
Spain**	1.097	1.296	2.393	4.639	n.a.	n.a.
Italy	226	5.975	6.201	349	5.852	0,10
Denmark	181	112	293	157	136	0,02
Germany	50	691	741	45	696	0,01
Sweden	15	403	418	13	405	0,04
Greece	9	213	222	7	215	0,02
Belgium	0	2.266	2.266	41	2.225	0,19
Others	32	541	573	440	133	-
EU-27	95.318	1.745	97.063	5.575	91.488	0,20

n.a.: not available

*) Production data provided in the table above are from FAO Fish Stat, except for Ireland for which production from EUROSTAT has been used. For Ireland, FAO Fish Stat provides the whole production, including a production share which is traded between farmers as half-grown oysters for on-growing, while EUROSTAT provides the production for human consumption.

**) The calculation of apparent consumption in Spain provides abnormal data due to possible discrepancies in data and the low level of production and trade of oyster in Spain. The Spanish market is export oriented with a significant smoking activity, based on supply from national production and imports.

Source: EUMOFA elaboration of EUROSTAT-COMEXT and FAO Fish Stat

⁵ Per capita apparent consumption is estimated based on the total population (2020) provided by EUROSTAT.

3. THE FRENCH MARKET

3.1 Structure of the supply chain

3.1.1 Production

France is the largest EU oyster producer. In 2020, it provided 83% of the EU oyster production, almost all from aquaculture. Fishery activities in France only produce negligible volume. Oyster is the main species reared in France, accounting for 42% of the aquaculture production volume and 49% of the total value in 2020.

Two oyster species are farmed in France: the Pacific cupped oyster (79.505 tonnes, more than 98% of the French oyster aquaculture production) and the European flat oyster, produced in lower volume for diversification purposes (1.280 tonnes in 2020, less than 2%). The ex-farm price of the European flat oyster is higher: 5,30 EUR/kg in 2020 compared to 4,40 EUR/kg for Pacific cupped oyster⁶.

In 2020, France farmed 80.785 tonnes of oysters for a value of EUR 357 million. The production has decreased since the beginning of the 2000s due to mortalities (production was above 100.000 tonnes until 2007). Over the last decade, the French oysters production has ranged between 75.000 and 92.000 tonnes (+2% compared to 2011 and -6% compared to 2019).

Table 9: Oyster production in France between 2011 and 2020 (tonnes)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Evol. 2020/11
Aquaculture	78.965	80.354	77.511	75.167	64.882	77.622	84.927	92.092	85.947	80.785	+2%
Fisheries	373	255	188	95	104	59	49	30	17	11	-97%
Total	79.338	80.609	77.699	75.262	64.986	77.681	84.976	92.122	85.964	80.796	+2%

Source: FAO Fish Stat

The table below provides an overview of the French oyster sales volume and value over a period between 2008 and 2020, based on the national statistics. According to these data, the French oyster production amounted to 80.783 tonnes of product for a sales value (at first sale stage) of EUR 357 million (source: Enquête Aquaculture, Agreste), with an average ex-farm price of 4,40 in 2020⁷. The data also show that despite a decrease of production in volume (-23% in 2020 compared to 2008), the sales value increased by 5% over the same period due to an increase of the unit price (however, the evolution in real terms is -8% from 2008 to 2020).

Table 10: Sales volume and value from 2008 to 2020

	2008	2013	2018	2019	2020
Sales volume (ex-farm) – tonnes	104.939	77.511	92.947	85.947	80.783
Sales value (ex-farm) – Million Euros	340,5	389,1	380,0	398,3	357,0

Enquête Aquaculture 2020, Chiffres & Données, N°16, Agreste

⁶Source: Enquête Aquaculture 2020, Chiffres & Données, N°16, Agreste - <https://agreste.agriculture.gouv.fr/agreste-web/disaron/Chd2116/detail/>

⁷Ibidem.

Production by aquaculture method:

The particularity of the French oyster production is that a share of the production cycle may end with a last phase called the finishing ("*affinage*") of oyster. This additional process, which consists in ending the rearing of oysters by a temporary immersion in marshland ponds ("*claires*"), provides a significant added-value to the final product.

National statistics distinguish three main production methods: 1) on-bottom production which is the most important production method and which represented almost 88% of the production volume in 2020 (this segment is mostly constituted of "on table" production); 2) production in marchland ponds or "*pousses en claires*" (11%); and 3) suspended production (1%)⁸.

Origin of the oyster: spat supply

The spat is supplied mainly by wild spat. Farmers catch spat in natural areas or extract them from natural bed (respectively 44% and 13% of the spat supply in France). One-third of the spat supply in France is from spat produced in hatcheries (33%, 25% from triploid⁹ and 8% from diploid spat). The 11% remaining are from other origin or unknown origin¹⁰.

Details by producing region

The different producing regions are detailed in the following map. In terms of sales to the final consumer, the main producing area is "Charente-Maritime" with 35.646 tonnes in 2020, followed by Brittany (10.514 tonnes in northern part and 9.158 tonnes in southern part) and "Normandy – North Sea" with 9.736 tonnes. The volume ranges from 4.400 and 6.400 tonnes in other areas: Pays de la Loire, Arcachon-Aquitaine and Mediterranean.

⁸Source: Enquête Aquaculture 2020, Chiffres & Données, N°16, Agreste - <https://agreste.agriculture.gouv.fr/agreste-web/disaron/Chd2116/detail/>

⁹ Produced in the hatchery environment, triploid oysters contain three sets of chromosomes which make them sterile. This provide them with two marketing advantages: 1) reproduction activities are significantly reduced throughout the reproduction period; with much of the metabolic effort devoted to growth and fattening and its growth cycle is thus shorter; 2) they are not milky in summer which makes up summer oysters markets, avoiding the sales season from being too concentrated on the end of the year.

¹⁰Source: Enquête Aquaculture 2020, Chiffres & Données, N°16, Agreste - <https://agreste.agriculture.gouv.fr/agreste-web/disaron/Chd2116/detail/>

Figure 6: Oyster producing regions in France

Normandy – North sea:
“Normandie – Manche – Mer du Nord” ;
North Brittany: “Bretagne Nord”;
South Brittany: “Bretagne Sud” ;
Mediterranean: “Méditerranée”

Source: CRC Pays de la Loire¹¹

Table 11: Sales volume and value by producing region (2020)

	Volume (tonne)	Value (million EUR)	Price (EUR/kg)	% total volume	% total value
Charente-Maritime	35.646	170.066	4,8	44%	48%
North Brittany	10.514	42.034	4	13%	12%
Normandy – North Sea	9.736	36.441	3,7	12%	10%
South Brittany	9.158	40.087	4,4	11%	11%
Pays de la Loire	6.350	25.646	4	8%	7%
Arcachon-Aquitaine	4.433	21.896	4,9	5%	6%
Mediterranean	4.944	20.825	4,2	6%	6%
Total	80.783	356.985	4,4	100%	100%

Enquête Aquaculture 2020, Chiffres & Données, N°16, Agreste¹²

¹¹<https://www.crc-pays-de-loire.fr/la-conchyliculture/l-organisation-professionnelle/les-structures-et-leurs-roles-Co16.html>

¹²<https://agreste.agriculture.gouv.fr/agreste-web/disaron/Chd2116/detail/>

Structure of the oyster's sector

There were 1.562 enterprises involved in oyster production in France in 2020¹³. According to the latest STECF aquaculture report¹⁴, companies involved in oyster production in France are very heterogeneous in terms of size and production strategy. Some farms focus on one stage of production (short cycle), while others ensure the whole rearing cycle.

Farmers may also have a packing activity ("*expéditeur*"), oyster being generally packed in basket ("*bourriches*") of 12 or 24 oysters. Thus, in production areas, there are farmers who produce bulk oyster and farmers-packers who produce, pack oyster and sell it to consumers (direct sale), wholesalers, restaurants, large-scale retailers, etc. In Marennes-Oléron area (with production under Protected Geographical Indication (PGI)), these farmers-packers may also conduct the oyster finishing "*affinage*".

Brokers may be involved in these different flows, with an additional cost of about 0,30 EUR/kg when they are involved.

Economic performance of the oyster's sector

STECF data distinguish two oyster segments in France: oyster raft and oyster on-bottom. The following table provides economic indicators only for the most important segment in the oyster sector in France, which is oyster on-bottom.

Livestock is the main cost (33% of the total operating costs in 2018) as there are exchanges of spat and half-grown oysters between farms. In 2018, wages and salaries constituted the second most important cost (20% of the total operating costs). Wages and salaries of unpaid labour, which result from hiring occasional staff, were also a high cost component (18%). These have increased in recent years, mainly due to the increase of spat collection, which is labour intensive, to face the challenge of spat mortalities. Investments for the renewal of equipment and for reducing the harsh working conditions have increased between 2015 and 2017 (+10%) and strongly decreased in 2018 (-28%) (see "Net investments" in the following table). The last years have also been characterised by the improvement in the net profit, estimated at EUR 42,7 million in 2018.

¹³Source: Enquête Aquaculture 2020, Chiffres & Données, N°16, Agreste - <https://agreste.agriculture.gouv.fr/agreste-web/disaron/Chd2116/detail/>

¹⁴JRC/STECF – Economic Report of the EU Aquaculture sector, 2020

Table 12: Economic performance of the oyster bottom segment in France 2015-2018 (1.000 EUR)

		2015	2016	2017	2018
Income	Total income	510.477	485.848	499.810	525.880
Expenditure	Wages and salaries	81.141	82.411	79.850	84.542
	Imputed value of unpaid labour	66.514	65.663	67.255	74.188
	Energy costs	13.937	12.472	11.930	14.601
	Raw material costs: Livestock costs	146.200	123.681	142.135	138.368
	Raw material costs: Feed costs	-	-	-	-
	Repair and maintenance	15.138	15.973	15.498	16.893
	Other operational costs	71.441	77.661	88.661	94.777
	Total operating costs	394.372	377.861	405.330	423.370
Capital value	Debt	449.370	311.204	341.769	384.215
	Net Investments	49.360	44.448	54.105	38.999
	Total value of assets	656.725	665.667	686.758	763.351
Performance indicators	Gross Value Added	258.960	252.307	239.978	259.164
	GVA to revenue	51%	52%	48%	49%
	Operating cash-flow	116.105	107.988	94.480	102.510
	Earnings before interest and tax	7.369	59.449	47.457	53.438
	EBIT to revenue	1%	12%	9%	10%
	Net profit	- 5.588	47.789	39.024	42.663
	Net profit to revenue	-1%	10%	8%	8%

Source: EUMOFA elaboration based on STECF 20-12 - Aquaculture economic data tables

Based on national data¹⁵, there are important differences of profitability among the regions and the type of activity (unpacked or packed oyster). In 2020, the gross value added (GVA) per tonne ranged from 2.553 EUR/tonne (Charente-Maritime) to 3.192 EUR/tonne (Pays de la Loire – Vendée). There are a few hundred euros differences between the GVA for unpacked and packed oysters in most regions. The highest difference is in Charente-Maritime (above 1.000 EUR) due to the finishing under PGI.

Table 13: Gross value added / tonne for oyster production by region in France for unpacked and packed oyster (2019 and 2020)

EUR/tonne	Unpacked		Packed	
	2019	2020	2019	2020
Normandy - Calvados	2.544	2.433	na	na
Normandy - Manche	2.167	1.760	2.348	2.711
Pays de la Loire - Vendée	2.970	2.715	3.305	3.192
Brittany - South	1.965	2.058	2.682	2.851
Charente-Maritime	1.782	1.188	2.874	2.553

na: not available

Source: based on Observatoire économique – Entreprises conchyliques du réseau Nautil – 2019 and 2020¹⁶

¹⁵Réseau Nautil – network of accountancy service providers

¹⁶<https://www.nautil-gestion.com/liste-publications>

3.1.2 Imports - Exports

Imports

Total imports of oyster and oyster products to France reached 9.540 tonnes (product weight) and EUR 42,4 million in 2021. Oysters were mainly imported live-fresh (99% of the imports value). Ireland was the main supplier of the French market (Ireland supplied 78% of the French imports value in 2021), followed by the UK (15%) and Portugal (5%).

Table 14: Imports of oysters and oyster products to France (2021)

	Volume (tonnes)	Nominal value (1.000 EUR)	Price (EUR/kg)	% val. 2021
Live, fresh or chilled oysters	9.448	41.957	4,44	98,9%
Smoked, dried, salted or in brine	76	338	4,45	0,8%
Frozen	16	129	8,13	0,3%
Total	9.540	42.424	4,45	100%

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Between 2012 and 2021, the French imports of live-fresh oysters have more than doubled, from over 4.000 tonnes to about 9.500 tonnes. The average import prices have decreased by 9%, from 4,88 EUR/kg to 4,44 EUR/kg in nominal terms (-20% in real terms).

Table 15: Evolution of imports of live, fresh or chilled oysters to France between 2012 and 2021

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Evol. 2021/12
Volume (tonnes)	4.367	5.352	6.245	6.333	7.468	8.185	7.320	7.258	6.503	9.448	+116%
Nominal value (1.000 EUR)	21.326	26.699	28.987	26.080	32.346	34.794	33.481	33.669	27.074	41.957	+97%
Price (EUR/kg)	4,88	4,99	4,64	4,12	4,33	4,25	4,57	4,64	4,16	4,44	-9%

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Exports

Exports of oyster and oyster products from France reached 15.377 tonnes and EUR 112,8 million in 2021. This was almost exclusively composed of live, fresh or chilled oysters (99% of French oyster exports, EUR 111,8 million). In 2021, main destinations were Italy (25% of French oysters' exports value), China (15%), Netherlands (9%) and Hong-Kong (8%). Based on qualitative interview, the export focuses mostly on the largest sizes of oysters.

Table 16: Exports of oysters and oyster products from France (2021)

	Volume (tonnes)	Nominal value (1.000 EUR)	Price (EUR/kg)	% val. 2021
Live, fresh or chilled oysters	15.289	111.820	7,31	99%
Smoked, dried, salted or in brine	7	66	9,59	0%
Frozen	55	637	11,52	1%
Prepared-preserved	26	321	12,12	0%
Total	15.377	112.843	7,34	100%

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Between 2012 and 2021, the French exports of live-fresh oysters have increased by 107% in volume and 121% in value (95% in real terms). A drop in exports in 2020 could be observed and is most likely related to the COVID-19 outbreak (perturbation of logistic and restaurants closure). Prices of exported live-fresh oysters have increased by 7% in nominal terms during the 10-year period analysed, but have decreased by 6% in real terms.

Table 17: Evolution of exports of live, fresh or chilled oysters from France between 2012 and 2020

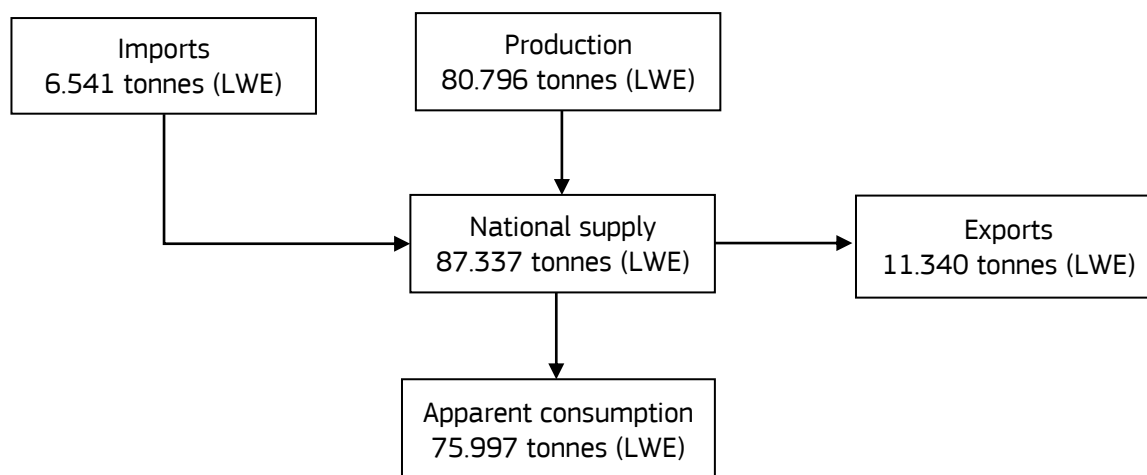
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Evol. 2021/12
Volume (tonnes)	7.378	7.669	7.769	9.468	9.764	12.429	12.620	14.872	10.899	15.289	+107%
Nominal value (1.000 EUR)	50.611	56.315	57.166	61.936	65.731	87.917	93.977	106.245	77.166	111.820	+121%
Price (EUR/kg)	6,86	7,34	7,36	6,54	6,73	7,07	7,45	7,14	7,08	7,31	+7%

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

3.1.3 Apparent consumption

In 2020, the total oyster supply in France amounted to 87.337 tonnes live weight equivalent (LWE), from which 93% were produced in France (aquaculture + fishery) and 7% from imports. During the same year, 13% of this supply was exported and 87% supplied the national market (75.997 tonnes LWE).

Figure 7: Supply balance for oyster in France (2020, tonnes, LWE)



Source: EUMOFA elaboration of EUROSTAT-COMEXT and FAO data

3.2 Characteristics of the French market and consumption

3.2.1 Characteristics of the market

PGI Marennes Oléron and Label Rouge

The following specific quality schemes have been implemented in Charente-Maritime producing area:

- Protected Geographical Indication (PGI) “Huîtres Marennes Oléron”, with a total volume of 16.158 tonnes during the production campaign 2020/2021¹⁷ (20% of the national production);
- Label Rouge “Huîtres fines de claires” (LA/25/89), with 1.528 tonnes in 2020/2021 (2% of the national production);
- Label Rouge “Huîtres pousse en claires” (LA/22/98) with 213 tonnes in 2020/2021 (0,3% of the national production).



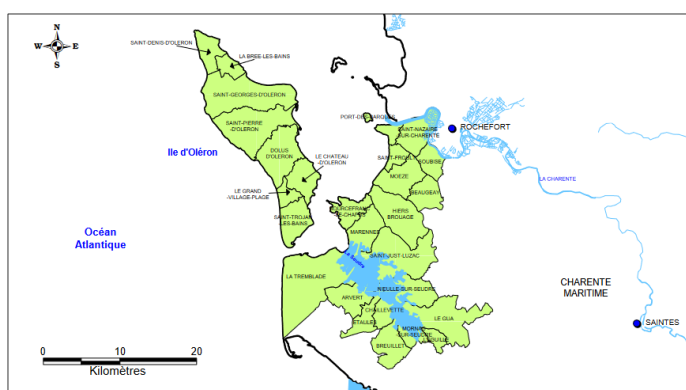
The producer group managing the PGI and the Label Rouge is “Groupement Qualité Huîtres Marennes”.

Main requirements for the PGI “Huîtres Marennes Oléron”¹⁸ are as follows:

- The breeding must take place on the French coastal area: Atlantic, Channel and North Sea;
- A specific geographical area for maturing, packaging and dispatch is composed of 27 communes in Charente-Maritime area;
- The length of finishing (“*affinage*”) in “*claire*” ranges from 14 days to 28 days (depending on the density). For “*pousse en claire*”, the breeding lasts 4 month in the geographical area with very low density;
- The oysters must be packaged within 24 hours of being collected;
- There are three sub-categories in the PGI “Huîtres Marennes Oléron”, based on the percentage of flesh in the oyster:
 - “fine” fattened oyster («*Fine de claire*»),
 - special fattened oyster («*Spéciale de claire*»)
 - special oyster grown in “*claire*” for 4 to 8 months («*Spéciale pousse en claire*»)
- In addition, some specific categories are green coloured: “Fine Fattened Green Oysters” (“*Fine de claire verte*”) due to the presence of a phytoplankton in the “*claire*” during the finishing (*Haslea ostrearia*). This finishing in greening “*claires*” lasts 5 to 15 days depending on the density.

¹⁷ Campaigns starting in September each year

¹⁸ <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52008XC0515%2809%29> and https://info.agriculture.gouv.fr/gedei/site/bo-agri/document_administratif-ec41d7d7-f59c-4e1e-8725-59b94c7987c0/telechargement

Figure 8: Map of the geographical area for the PGI “Huîtres Marennes Oléron”

Source: INAO

The volume under the PGI was 16.158 tonnes during the campaign 2020/2021, it peaked at 18.553 tonnes in 2017/2018. The volume certified under Label Rouge is lower than PGI: 1.528 tonnes for Label Rouge «*Fine de claire verte*» and 213 tonnes for Label Rouge «*Pousse en claire*».

Table 18: Volume certified under PGI Marennes Oléron between campaigns 2014/2015 and 2020/2021

	PGI Marennes Oléron	Label Rouge « Fine de claire verte »	Label Rouge « Pousse en claire »
14/15	16.837	936	222
15/16	18.200	1.217	254
16/17	18.342	1.314	225
17/18	18.553	1.303	205
18/19	17.096	1.397	185
19/20	16.279	1.322	196
20/21	16.158	1.528	213

Source : Groupement Qualité Huîtres Marennes Oléron

The share of export is limited for the PGI and the Label Rouge: about 5% of the volumes certified are exported, accounting for 914 tonnes in 2020/2021 (compared to 9.540 tonnes exported at national level in 2021).

The main market for the PGI is the large-scale retail: this accounts for about 50% of the sales under PGI according to Groupement Qualité Huîtres Marennes Oléron, compared to about one-third of the sales for oyster at national level, based on Agreste data.

In addition to the PGI, some producers may use specific commercial brands on their oysters, in order to differentiate their products while the PGI is widely spread in large-scale retail.

Organic production

Another quality scheme is implemented: organic production. Production accounted for 3.178 tonnes at national level in 2020 (3,9% of the French production), with a significant increase compared to 2019 (1.157 tonnes in 2019, almost three times lower than in 2020)¹⁹.

Flows between oyster farmers

Oyster farmers may sell grown oyster on the market or sell “half grown” or “pre-grown” oyster to other farmers. There are important flows of oysters between producers, a total of 50.196 tonnes of oyster

¹⁹Enquêtes Aquacole Agreste, 2019 and 2020 -<https://agreste.agriculture.gouv.fr/agreste-web/disaron/Chd2116/detail/> and <https://agreste.agriculture.gouv.fr/agreste-web/disaron/Chd2105/detail/>

were sold from a farmer to another in 2020. Most of the volumes (58%) are from Charente-Maritime and Normandy – North Sea, respectively 15.546 tonnes and 13.614 tonnes. Sales from Brittany (North and South) accounted for 12.581 tonnes.

There are important flows in Charente-Maritime, as the PGI requires that the end of the production is located in Marennes-Oléron area, for “*affinage en claire*”. Thus, the PGI production is based 1) on production with first part of the cycle conducted in Marennes-Oléron area and 2) on production with first part of the cycle conducted in other French areas. It is assessed that about 50% of the volume under PGI has been fully grown in the PGI area. Surface areas are missing in Marennes-Oléron to supply all the PGI, thus some oysters are grown in other French regions, such as Brittany, and finished in Marennes-Oléron.

Table 19: Sales volume and value of oyster, for consumers and other farms (grown, half grown and pre-grown) in 2020

			Volume (tonnes)	Value (1.000 EUR)	Price (EUR/kg)
Pacific cupped oyster	Grown	Consumers	79.503	350.237	4,4
		Other farms	45.382	138.255	3,0
	Half grown (2 years)	Other farms	2.676	6.514	2,4
	Pre-grown (18 months)	Other farms	1.965	5.887	3,0
European flat oyster	Grown	Consumers	1.280	6.748	5,3
		Other farms	173	929	5,4
	Half grown (2 years)	Other farms	s	s	s
	Pre-grown (18 months)	Other farms	s	s	s

Enquête Aquaculture 2020, Chiffres & Données, N°16, Agreste²⁰

A share of the national production is finished in “*claires*” (31%) or in parks (17%), respectively 25.204 tonnes and 13.826 tonnes. A total of 23.715 tonnes are finished in “*claires*” in Charente-Maritime.

Recent market disruptions

Several events had an impact on the French market over the last 15 years:

- Increased juvenile mortality since 2008, with a reduction of the production at national level;
- Presence of a virus in some areas, with closure of sales for several weeks (for instance in December 2019, just after Christmas in some areas of Brittany);
- COVID-19 crisis with impact on the sales to restaurants and export.

Marketing standard on the weight of oyster

Stakeholders use common references for the weight of oyster, which is defined in a professional agreement for the Pacific cupped oyster:

- Pacific cupped oyster: grade 5 (smallest piece) to 0 (largest piece). More specifically: n°5: 30 g to 45 g, n°4: 46 g to 65 g, n°3: 66 g to 85 g, n°2: 86 g to 110 g, n°1: 111 g to 150 g, n°0: beyond de 151 g. Oysters are generally marketed by baskets of 12 or 24 pieces. 12-13 oysters number 3 approximately weigh 1 kg.
- European flat oyster: grade 6 (smallest size) to 000 (largest size). The weight of 100 oyster varies according to the size: n°000: 10/12 kg, n°00: 9/10 kg, n°0: 8 kg, n°1: 7 kg, n°2: 6 kg, n°3: 5 kg, n°4: 4 kg, n°5: 3 kg, n°6: 2 kg.

²⁰<https://agreste.agriculture.gouv.fr/agreste-web/disaron/Chd2116/detail/>

3.2.2 Consumption

The home consumption of oyster was 22.925 tonnes in 2020 for a total value of EUR 161 million²¹. The average price was 7,0 EUR/kg.

Table 20: Household purchase in France from 2015 to 2020

	2015	2016	2017	2018	2019	2020
Volume (tonne)	25.479	25.995	27.690	24.256	22.333	22.925
Valeur (million EUR)	189	190	202	177	158	161
Price (EUR/kg)	7,40	7,30	7,30	7,30	7,10	7,00

Source: FranceAgriMer based Kantar Worldpanel²²

The consumption of oyster is highly seasonal: it is below 2.500 tonnes / month from January to November and is about 8.000-10.000 tonnes in December. Oyster is traditionally consumed at Christmas and for the New Year. The consumption is higher for consumers of 50 years old and over (age of the person in charge of purchase).

In terms of geographical areas, the consumption is higher for consumers located in coastal regions (western France, South western France, South eastern France).

Large-scale retail and outdoor markets are the main channels for household consumption, accounting for about 80% the sales (volume) in both 2019 and 2020.

Table 21: Consumer purchase by channel (household consumption)

	% volume		Price (EUR/kg)	
	2019	2020	2019	2020
Large scale retail	58,7	59,5	6,90	6,80
Outdoor market	21,8	20,2	7,00	6,90
Fishmongers	8,6	9,8	8,00	8,20
Direct sales	6,6	8,1	7,30	7,70
Other	4,3	2,4	/	/
Total	100%	100%	7,10	7,00

Source: FranceAgriMer based Kantar Worldpanel²³

At farm level, main channels in 2020 are large-scale retail (32%), direct sales (27%), and sales to wholesalers (14%). The comparison between 2019 and 2020 highlights the impact of the COVID-19 outbreak with a 10% decrease in sales, with a strong decrease of export, restaurants and wholesalers (who supply, among other clients, restaurants). However, we observe growth in large-scale retail (+4%) and fishmongers (+14%) in 2020, which illustrates the switch from HORECA to home consumption during the COVID-19 lockdown.

²¹FranceAgriMer based Kantar Worldpanel

²²Consommation des produits de la pêche et de l'aquaculture, 2020, FranceAgriMer - https://www.franceagrimer.fr/fam/content/download/67093/document/STA_MER_CONSO_2020.pdf?version=3

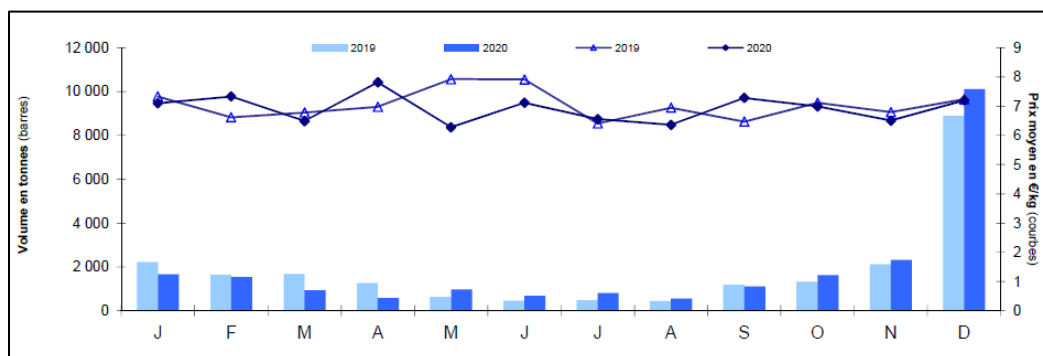
²³Consommation des produits de la pêche et de l'aquaculture, 2020, FranceAgriMer

Table 22: Sales by oyster farmers by destination (2019 and 2020)

	Sales value 2019 (1.000 EUR)	Sales value 2020 (1.000 EUR)	% sales value 2020	% evol. 2020/2019
Large-scale retail	111.466	115.940	32%	+4%
Direct sales	103.261	96.280	27%	-7%
Wholesaler	65.403	48.280	14%	-26%
Fishmongers	16.826	19.149	5%	+14%
Restaurant, catering	22.845	18.826	5%	-18%
Other oyster farmers	25.842	18.339	5%	-29%
Other	15.398	16.929	5%	+10%
Intra EU sales (out of France)	22.880	14.010	4%	-39%
Extra EU export	14.377	9.232	3%	-36%
Total	398.298	356.985	100%	-10%

Sources: Enquêtes Aquacole Agreste, 2019 and 2020

The consumption is highly seasonal in France, with a peak in December for Christmas and New Year. December accounts for about half of the yearly consumption. However, this high seasonality in terms of volume purchased does not induce a high seasonality in terms of price. Based on qualitative feedback, some producers succeed in selling a larger share of their production during summer when they are located in touristic areas. Direct sales in outdoor markets and mobile point of sales are also implemented to decrease the seasonality. Producers interviewed indicated that they had perceived a decrease of the seasonality in the recent years.

Figure 9: Seasonality of oyster consumption and price in France in 2019 and 2020

Source: FranceAgriMer based Kantar Worldpanel

3.3 Price transmission in the supply chain

3.3.1 Ex-farm prices

Prices provided below concern the two species reared in France, even though the Pacific cupped oyster remains by far the main species produced and consumed in France (more than 98% of the oyster aquaculture production). Ex-farm prices of both species have decreased by 9% for Pacific cupped oyster and by 34% for European flat oyster between 2011 and 2020 (which is a 20% and 41% decrease in real terms). In 2020, the Pacific cupped oyster was sold at 4,41 EUR/kg, while the European flat oyster was sold at 5,27 EUR/kg, but in smaller volumes.

Table 23: Nominal Ex-farm prices of oysters in France (2011-2020, EUR/kg)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Evol. 2020/2011
Pacific cupped oyster	4,86	4,90	4,97	4,55	5,15	5,06	4,93	4,06	4,61	4,41	-9%
European flat oyster	7,94	7,74	6,73	6,34	7,60	8,88	7,73	7,99	6,04	5,27	-34%

Source: based on Eurostat

The oyster price is higher for larger oysters, thus large oysters play an important role in the profitability of fish farms. Based on qualitative feedback, the season 2021/2022 is characterized by a need for producers to increase the first sale price on size 3 oyster (medium size) in a context of low volume available for oysters with large size (sizes 1 and 2). This low availability is due to environmental conditions (yearly evolution of the feed in the ocean). Price is generally negotiated with large-scale retail in October each year and may be revised in February/March.

Stakeholders from North Brittany indicated that the COVID-19 crisis had negative impacts on prices in 2020, even if prices tend to rise in 2021 (although without reaching the pre-COVID-19 level).

At regional level, the ex-farm price ranges from 3,70 EUR/kg (Normandy-North sea) to 4,90 EUR/kg (Arcachon-Aquitaine).

Table 24: Ex-farm prices of oysters in France by region in 2020 (EUR/kg)

	For the consumption	To other oyster farmers
Arcachon-Aquitaine	4,90	4,50
Charente-Maritime	4,80	3,50
South Brittany	4,40	2,50
Mediterranean	4,20	2,90
North Brittany	4,00	3,20
Pays de la Loire	4,00	2,20
Normandy – North sea	3,70	3,00
Total	4,40	3,00

Source : Enquête Aquaculture 2020, Chiffres & Données, N°16, Agreste²⁴

The price is high in Charente-Maritime where part of the production is sold with quality schemes (PGI and Label Rouge). In the Marennes-Oléron area, ex-farm prices are higher for Label Rouge than for the PGI (volumes are also lower for Label Rouge compared to PGI). The ex-farm prices were as follows in 2020/2021²⁵:

²⁴<https://agreste.agriculture.gouv.fr/agreste-web/disaron/Chd2116/detail/>

²⁵Groupement Qualité Huîtres Marennes Oléron

- PGI Marennes Oléron: about 4,05 EUR/kg (5,50 EUR/kg for PGI Marennes Oléron “Spéciale de claire”);
- Label Rouge “*Fine de claire verte*”: about 6,00 EUR/kg;
- Label Rouge « *Pousse en claire* »: between 8,50 EUR/kg and 10,50 EUR/kg.

3.3.2 Import and export prices

Import and export prices have remained relatively stable over the last five years (2017-2021). Live-fresh oysters were imported at an average price of 4,44 EUR/kg while these were exported at an average price of 7,31 EUR/kg. France imports mainly from EU countries, while it mainly exports to Asian markets.

Table 25: Import and export prices (nominal prices) and volume for live oysters in France (2017-2021)

		2017	2018	2019	2020	2021	Evol. 2017-2021
Price (EUR/kg)	Export	7,07	7,45	7,14	7,08	7,31	+3%
	Import	4,25	4,57	4,64	4,16	4,44	+4%
Volume (tonnes)	Export	12.429	12.620	14.872	10.899	15.289	+23%
	Import	8.185	7.320	7.258	6.503	9.448	+15%

Source: EUMOFA elaboration based on EUROSTAT-COMEXT data

3.3.3 Wholesale prices

The table below provides oyster prices at the wholesale market of Rungis (Paris, France). Prices vary depending on the species (Pacific cupped oyster *versus* European Flat oyster), the quality and the size. Overall, in 2020 prices were lower compared to other years (this could be explained by the COVID-19 pandemic).

We should take into account that stakeholders from the oyster sector consider that these wholesale prices are relevant to analyse trends, but the absolute values are not representative of the market.

Table 26: Average oyster prices at wholesale stage (nominal prices) in France from 2017 to 2021 (EUR/piece)

Product ²⁶	2017	2018	2019	2020	2021
Pacific cupped oyster size M3/Special oyster	0,87	0,87	0,87	0,86	0,95
Flat oyster size M3	0,82	0,82	0,82	0,82	0,92
Pacific cupped oyster size G2/Special oyster	0,85	0,85	0,85	0,80	0,92
Pacific cupped oyster size G2/ Thin oyster	0,80	0,80	0,80	0,76	0,86
Flat oyster size G2	0,78	0,78	0,78	0,76	0,82
Pacific cupped oyster size G2/Special oyster refined in “claire” (<i>Spéciale de claire</i>)	0,63	0,63	0,63	0,59	0,62
Pacific cupped oyster size M3/Special oyster refined in “claire” (<i>Spéciale de claire</i>)	0,55	0,55	0,55	0,50	0,50
Pacific cupped oyster size M3/ “Fine” oyster refined in “claire” (<i>fine de claire</i>)	0,48	0,48	0,48	0,45	0,44
Pacific cupped oyster size M3/ Thin oyster	0,39	0,39	0,39	0,37	0,43
Pacific cupped oyster size G2/ “Fine” oyster refined in marchland ponds (<i>fine de claire</i>)	0,53	0,53	0,53	0,50	-

Source: RNM, Rungis Wholesale Market

²⁶ M3 and G2 in this table refer to the different oyster sizes used in France to sort oysters.

3.3.4 Retail prices

The following table presents average nominal prices calculated based on total expenditure for a panel of consumers on oysters' purchase. The price peaked in 2014 at 8,00 EUR/kg and then decreased up to 7,00 EUR/kg in 2020.

Table 27: Oyster nominal prices at retail stage in France from 2010 to 2020

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Price (EUR/kg)	6,30	7,20	7,80	7,60	8,00	7,40	7,30	7,30	7,30	7,10	7,00

Source: FranceAgriMer based Kantar Worldpanel²⁷

Discount prices even up to 20% are common for oysters at retail stage. Thus, two prices are negotiated between farmers and large-scale retailers: with and without discount.

Groupement Qualité Huîtres Marennes Oléron monitors the prices in large-scale retail. This monitoring highlights the large range of prices for oyster under PGI and Label Rouge: from 6,94 EUR/kg for PGI "*Fines de claires*" up to 14,67 EUR/kg for Label Rouge "*Pousses en claires*". For a single category, the range of price may reach 5,00 EUR/kg (for instance minimum of 4,99 EUR/kg and maximum of 9,90 EUR/kg for PGI "*Fines de claires*").

Table 28: Large-scale retail price (average, minimum, maximum, EUR/kg) for the different categories of PGI and Label Rouge - size 3 (2020/2021)

	Min price	Average	Max price
PGI –« <i>Fines de claires</i> »	4,99	6,94	9,90
PGI –« <i>Spéciales de claires</i> »	5,54	7,44	9,25
Label Rouge –« <i>Fines de claires vertes</i> »	6,47	8,44	11,98
Label Rouge –« <i>Pousses en claires</i> »	12,50	14,67	18,50

Source : Groupement Qualité Huîtres Marennes Oléron

Direct sales

Direct sales are common for oyster farmers. This may be directly on the farm (particularly when the farm is located in a tourist area), in outdoor markets or mobile points of sale during the week-end (especially in urban areas). There is a strong competition for these outdoor markets and mobile points of sales, as many producers may be present on the markets close to production areas. Thus, some farmers may move up to 250 km to sell on a regular market (for instance on a weekly basis). Based on farmer interview, the limit is to be able to make the round trip within the day from the farm to the point of sale in order to limit the costs (for instance a night in an hotel). These strategies enable limiting the high seasonality of consumption during the Christmas period.

Based on qualitative interviews with producers, the direct sale prices are:

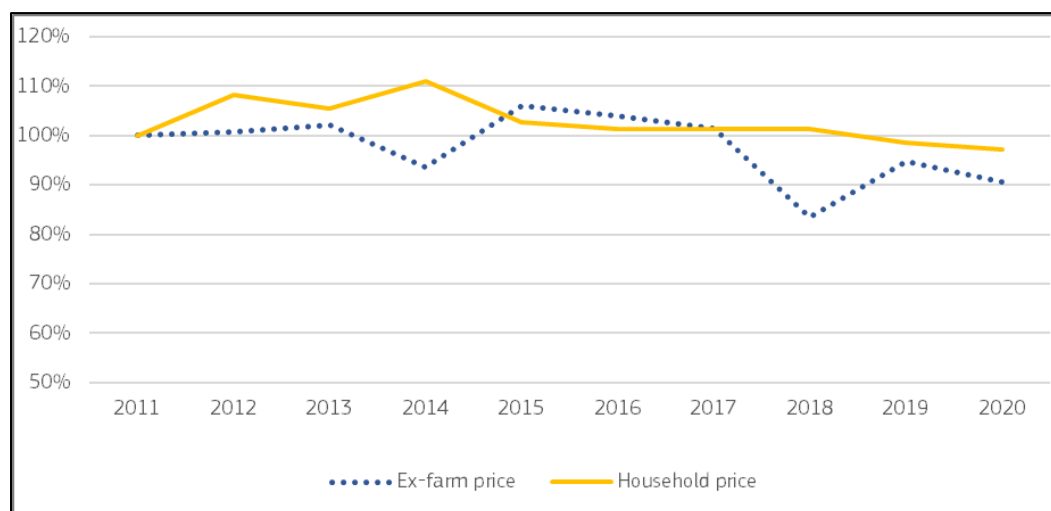
- A producer in Brittany:
 - o Pacific cupped oyster: 6,50 EUR/kg on the farm, from 5,50 to 6,50 EUR/kg in outdoor market close to production area;
 - o Flat oyster: from 9,00 EUR/kg to 12,00 EUR/kg in direct sale.
- A producer in Marennes-Oléron: price in outdoor market about 7,50 EUR/kg in the region of production and up to 9,00-11,00 EUR/kg close to Paris area or in eastern France.

²⁷Consommation des produits de la pêche et de l'aquaculture, 2020, FranceAgriMer - https://www.franceagrimer.fr/fam/content/download/67093/document/STA_MER_CONSO_2020.pdf?version=3

3.3.5 Price transmission

Over the last years, prices decreased both at production and consumer (household consumption) stages, the drop being higher at production stage (-9% in nominal terms and -20% in real terms) than at retail stage though (-3% in nominal terms and -14% in real terms). Over the period between 2011 and 2020, a specific drop has been observed at production stage in 2014 and 2018. In 2014, the ex-farm price decreased by 6% in comparison to 2011, while the price at retail stage increased by 11%. In 2018, the ex-farm price decreased by 16%, while the price at retail stage remained stable.

Figure 10: Annual evolution of price²⁸ at the different stages of the value chain for oyster in France: ex-farm price and household price (base 100% = 2011)

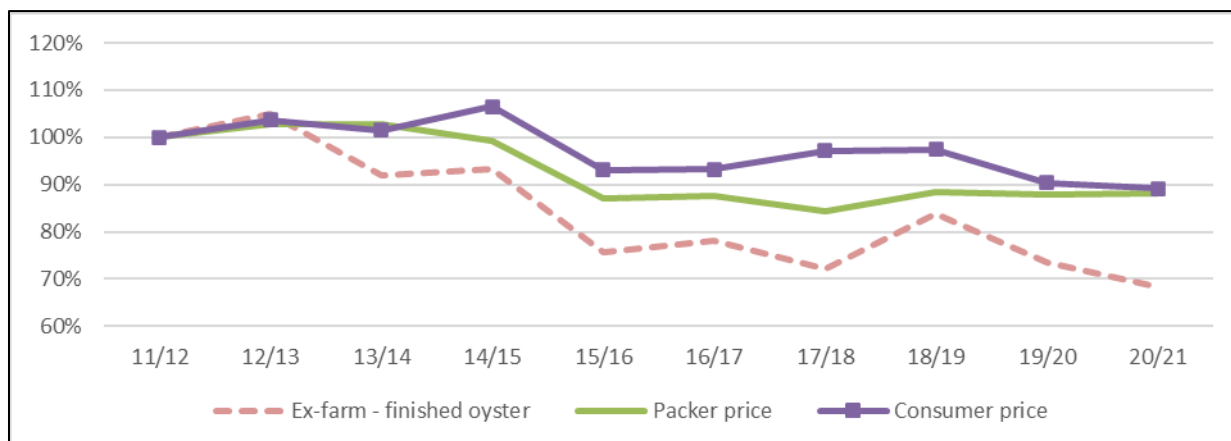


Source: Eurostat data (via EUMOFA) and FranceAgriMer based on Kantar Worldpanel²⁹

Groupement Qualité Huîtres Marennes Oléron monitors data at different levels of the value chain. A decreasing trend at all stages of the value chain for oyster PGI Marennes Oléron “*Fine de claire*” size 3 can be observed since 2011/2012. We shall highlight that prices were high in 2011/2012 in relation to mortality in 2008 (due to the length of production cycle, the impacts of the 2008 mortality were observed on the market in 2011/2012). This decrease is higher at upstream stages than at downstream stages: -32% at ex-farm stage (-38% in real terms), -12% at packer stage (-20% in real terms) and -11% at retail stage (-19% in real terms). However, the data at farm stage shall be considered with caution as they are based on the data from a limited number of farms.

²⁸ Evolution of prices corresponds to the change of prices in each year of the time series in comparison to 2011.

²⁹ Consommation des produits de la pêche et de l'aquaculture, 2020, FranceAgriMer - https://www.franceagrimer.fr/fam/content/download/67093/document/STA_MER_CONSO_2020.pdf?version=3

Figure 11: Annual evolution of prices³⁰ at the different stages of the value chain for PGI Marennes Oléron “Fine de claire” size 3 (base 100 = 2011/2012)

Note: ex-farm stage data are based on a limited number of producers, the evolution must be considered with care.

Source: based on data from Groupement Qualité Huîtres Marennes Oléron

The price transmission covers the oyster under PGI Marennes Oléron. The data are based on estimates of prices and costs from “Groupement Qualité Huîtres Marennes Oléron” for the campaign 2021/2022.

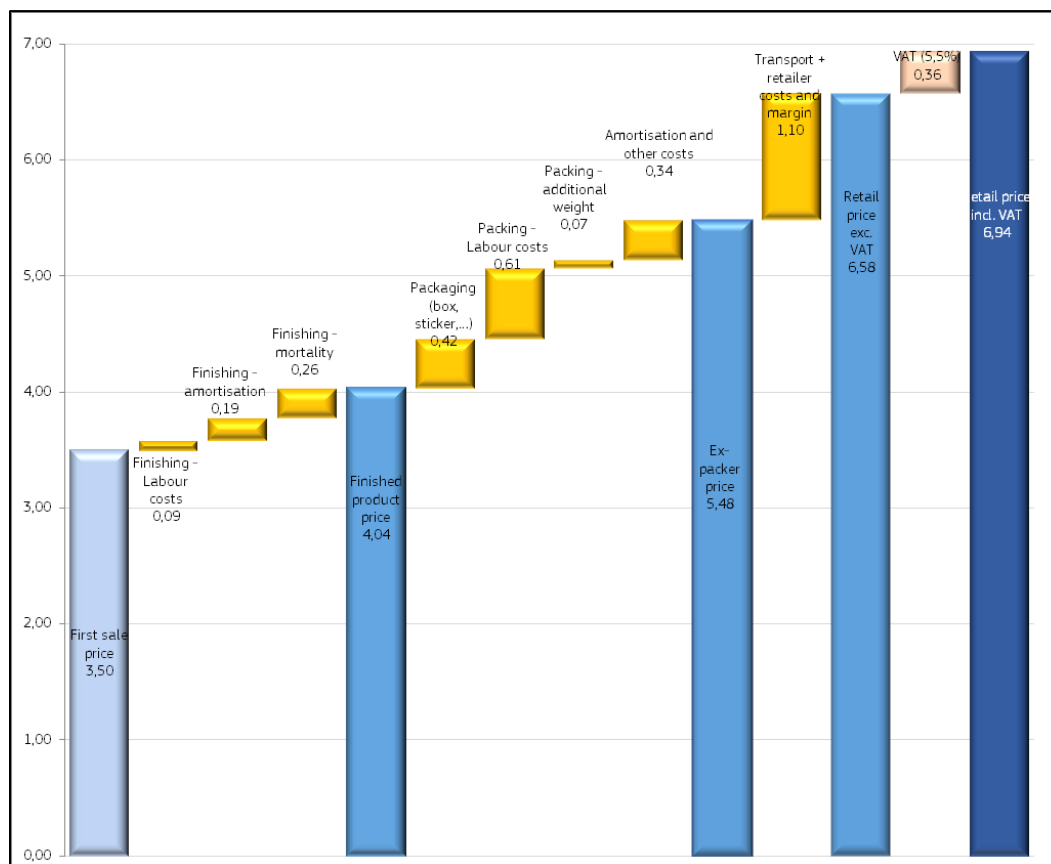
Table 29: Costs and margins for live oysters in France - PGI Marennes Oléron in 2021/2022 (EUR/kg)

	Average	% final price	Source
First sale price	3,50	50%	Groupement Qualité Huîtres Marennes Oléron
Finishing - Labour costs	0,09	1%	
Finishing - amortisation	0,19	3%	
Finishing - mortality	0,26	4%	
Finished product price	4,04	58%	
Packaging (box, sticker,...)	0,42	6%	
Packing - Labour costs	0,61	9%	
Packing - additional weight	0,07	1%	
Amortisation and other costs	0,34	5%	
Ex-packer price	5,48	78%	
Transport + retailer costs and margin	1,10	17%	Calculation
Retail price exc. VAT	6,58	95%	Calculation
VAT (5,5%)	0,36	5%	Calculation
Retail price incl. VAT	6,94	100%	Groupement Qualité Huîtres Marennes Oléron

Source: EUMOFA elaboration based on data from “Groupement Qualité Huîtres Marennes Oléron”

³⁰ Evolution of prices corresponds to the change of prices in each year of the time series in comparison to 2011.

Figure 12: Costs and margins for live oysters in France - PGI Marennes Oléron in 2021/2022 (EUR/kg)



Source: EUMOFA elaboration based on data from “Groupement Qualité Huîtres Marennes Oléron”

4. THE IRISH MARKET

4.1 Structure of the supply chain

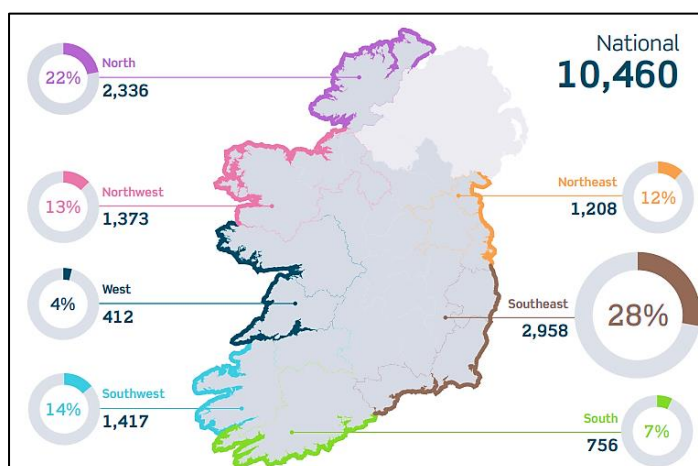
4.1.1 Production

Oyster production in Ireland amounted to 9.475 tonnes in 2020³¹. The current maximum capacity is about 10.500 tonnes and is restricted by available licensed ground³². The two main oyster species farmed in Ireland are the European flat or “native oyster” (*Ostrea edulis*) and the introduced Pacific cupped oyster (*Crassostrea gigas*). According to EUROSTAT, the Pacific oyster production constitutes 97% of the oyster production in Ireland while the European flat oyster represented only 3% in 2020³³. The production of the European flat oyster has received a major setback mainly in relation to: i) the increased availability of the French oyster which had negatively impacted the export prices from Ireland to the French market, and ii) the recent historical lack of the native spat supply³⁴.

National statistics show that triploid oysters³⁵ made up to 81% of the oysters’ production in 2019 while diploid oysters constituted 19% of the oyster production in 2019.

In Ireland, oyster production is widespread along the coast with a concentration of production in the South-East and the North-West regions³⁶.

Figure 13: Regional distribution of oyster farming in Ireland, 2019



Source: BIM aquaculture report 2020

³¹ FAO Fish Stat

³² BIM aquaculture report 2019

³³ EUROSTAT

³⁴ BIM aquaculture report 2019

³⁵ Produced in the hatchery environment, triploid oysters contain three sets of chromosomes which make them sterile. This provides them with two marketing advantages: 1) reproduction activities are significantly reduced throughout the reproduction period. With much of the metabolic effort devoted to growth and fattening, the growth cycle is shorter; 2) they are not milky in summer (due to the absence of reproduction) which makes them marketable summer. This helps to avoid the sales season from being too concentrated on the end of the year.

³⁶ BIM aquaculture report 2019

The table below shows the Irish oyster production from two sources: FAO FishStat and EUROSTAT. FAO FishStat provides the volume of the whole production (9.475 tonnes in 2020): this includes the production for human consumption as well as the production of half-grown oysters sold to other finishing farms for further on-growing. EUROSTAT provides data on production for human consumption, which amounted to 6.905 tonnes the same year.

Table 30: Oysters' production in Ireland between 2010 and 2019 (tonnes)

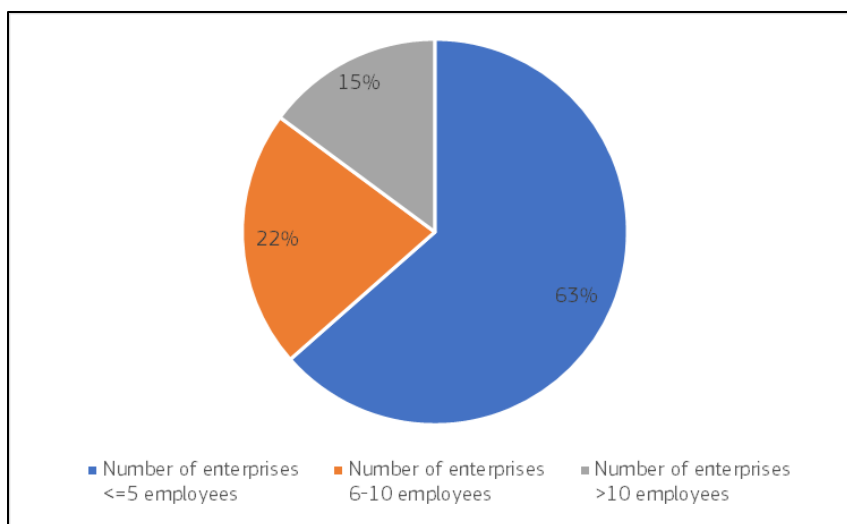
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Aquaculture – all production	7.937	7.560	8.641	9.442	9.547	8.016	10.059	10.369	10.716	9.475
Aquaculture for human consumption	7.625	6.369	7.069	7.569	7.478	8.016	7.873	8.635	7.810	6.905
Fisheries	3.343	-	210	335	153	176	350	-	-	-
Total (Aquaculture + Fishery)	11.280	7.560	8.851	9.777	9.700	8.192	10.409	10.369	10.716	9.475

Source: EUMOFA elaboration of EUROSTAT and FAO FishStat

Structure of the oyster's sector

In 2019, there were 148 production units run by 144 companies involved in oyster production in Ireland³⁷. The majority of these, 103 units in 2019 (63% of the total units), are small and are employing up to 5 people. 32 units (22%) employ between 6 and 10 people and 22 units (15%) employ more than 10 people. Total employment in the oyster sector is over 1.300 persons, which equals to 642 FTEs. According to national statistics, almost half of the employees involved in oyster production are full time employees³⁸. Companies operating in oyster aquaculture in Ireland are largely independent of each other in terms of depurating, marketing and distributing their products. There is only some cooperation in product marketing³⁹.

Figure 14: Irish oyster sector structure, 2019



Source: BIM aquaculture report 2020

³⁷The EU Aquaculture Sector – Economic report 2020 (STECF-20-12)

³⁸BIM aquaculture report 2019

³⁹BIM aquaculture report 2020

Economic performance of the oyster's sector

There has been variability in costs and income over a mainly profitable period. Indeed, the 2009-2018 period was characterised by an overall increase in margins (between costs and income) and profitability. There is an overall increase of the % gross value added (GVA) on the total income from 25% in 2009 to 48% in 2018. The most important costs are those for labour and seed supply, which were estimated to cover more than half of the total production costs. In 2018, the general increase in output has slowed down as a result of the rising costs and the drop-off in unit value increase. The latest STECF report on aquaculture indicates that this sector is experiencing an increase with the arrival of new entrants onto new licensed grounds so it is expected to continue growing, albeit slowly⁴⁰.

Table 31: Economic performance of the oysters sector (2009-2018) – (in EUR)

	2009	2011	2013	2015	2017	2018
Total income	13.975.033	30.042.471	37.714.589	39.100.069	44.336.007	47.661.373
Wages and salaries	4.638.797	6.431.297	12.630.957	10.910.709	12.794.953	17.671.824
Imputed value of unpaid labour	543.292	273.114	785.383	237.085	245.154	92.823
Energy costs	130.725	1.176.502	68.013	287.157	275.769	1.168.064
Livestock costs	5.464.668	4.169.973	7.435.224	5.560.290	5.098.288	4.190.541
Repair and maintenance	523.613	1.819.156	1.414.849	807.696	1.893.291	1.981.336
Depreciation of capita	1.464.805	1.567.196	1.572.474	1.373.924	3.210.546	3.831.117
Other costs	2.095.350	6.509.838	7.058.507	11.765.159	5.513.139	13.348.947
Total costs	14.861.250	21.947.076	30.965.407	30.942.020	29.031.140	42.284.652
Gross Added Value	3.451.025	16.787.764	16.719.376	18.448.005	24.713.899	22.722.189
GVA to revenue	25%	56%	44%	47%	56%	48%
EBIT*	-1.065.755	7.018.934	7.754.852	8.755.300	19.610.063	17.164.904
EBIT to revenue	-	23%	21%	22%	44%	36%
Net profit	-1.176.035	6.618.459	6.412.587	3.780.405	13.949.778	2.265.841
Net profit to revenue	-	22%	17%	10%	31%	5%

* EBIT: Earnings before interest and tax

Source: BIM aquaculture report 2020

4.1.2 Imports - Exports**Imports**

Oyster imports to Ireland are marginal. In 2021, less than 50 tonnes were imported to Ireland for a value of around EUR 470.000. Imports since 2020 have been particularly low in relation to the COVID-19 pandemic. In 2021, the main suppliers were the Republic of Korea (56% of the imports value) and the United Kingdom (31%).

⁴⁰The EU Aquaculture Sector – Economic report 2020 (STECF-20-12)

Table 32: Evolution of imports of oysters to Ireland (2012-2021)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Evol. 2021/12
Volume (tonnes)	483	520	667	452	696	752	856	466	48	32	-93%
Nominal value (1.000 EUR)	3.791	5.857	5.476	3.328	3.344	3.954	4.300	2.301	394	469	-88%
Price (EUR/kg)	7,84	11,25	8,21	7,37	4,81	5,26	5,02	4,94	8,23	14,68	87%

Source: EUMOFA elaboration based on EUROSTAT-COMEXT data

Exports

One of the main features of the oyster's supply chain in Ireland is that it is export oriented. Irish oysters are exported almost exclusively live or fresh (99% of exports value in 2021). The market for Irish oysters is mainly the EU, mostly France with 76% of Irish exports volume in 2021 (4.712 tonnes for a value of EUR 24,4 million).

While France remains the largest export market, the Irish industry continues to diversify into alternative markets, such as South-East Asia (in particular Mainland China and Hong-Kong). In addition, the Irish producers have started to target the Netherlands, in relation to the large investment in depuration and holding facilities made by the Dutch stakeholders (in order to be reexported)⁴¹. However, according to a producer interviewed, the European market is reaching a saturation level, with small progress opportunities for the French, Dutch, and Spanish markets.

Table 33: Exports of oysters and oyster products from Ireland (2021)

	Volume (tonnes)	Nominal value (1.000 EUR)	Price (EUR/kg)	% val. 2021
Live, fresh or chilled oysters	6.198	34.951	5,64	99,0%
Smoked, dried, salted or in brine	38	261	6,93	0,7%
Frozen	5	54	10,04	0,2%
Prepared-preserved	4	25	5,64	0,1%
Total	6.245	35.291	5,65	100,0%

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Over the period from 2012 to 2021, there has been an overall increase of export volume and value, except in 2020 when Irish shellfish exports achieved their lowest level since 2013 as a result of the COVID-19 pandemic and the closure of hospitality sectors in the main markets during the year. For instance, exports to France, China, and the Netherlands declined by respectively 33%, 40%, and 61% in 2020 compared to 2019. Between 2012 and 2021, the oyster export volume and value have increased by 65% and 87% (66% in real terms), respectively. In 2021, exports to France have reached the 2019 export levels.

⁴¹BIM aquaculture report 2020

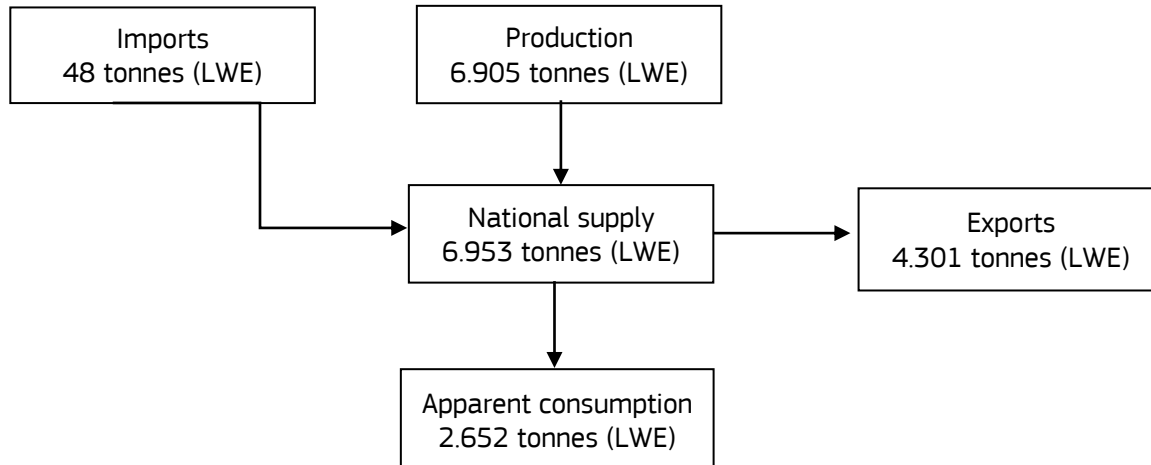
Table 34: Evolution of exports of oysters from Ireland (2012-2021)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Evol. 2021- 2012
Volume (tonnes)	3.763	5.293	5.983	6.314	7.091	7.712	7.706	6.571	4.301	6.198	65%
Nominal value (1.000 EUR)	18.833	26.574	26.087	26.383	33.941	38.431	41.617	36.040	25.071	35.291	+87%
Price (EUR/kg)	5,00	5,02	4,36	4,18	4,79	4,98	5,40	5,48	5,83	5,69	+14%

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

4.1.3 Apparent consumption

In 2020, the Irish oyster supply reached 6.953 tonnes (LWE), and almost all comes from national production (less than 1% of the national supply came from imports in 2020). The Irish oyster market is export oriented (62% of the national supply). The national consumption is relatively small and estimated at 2.652 tonnes in 2020, i.e., 38% of the Irish supply. In 2020, the oyster apparent consumption in Ireland was particularly higher than usual levels (it is estimated at 1.704 tonnes, i.e., 21% of the Irish supply in 2019), because of the COVID-19 pandemic and the resulting lower exports (due to border closures and sanitary measures in main markets).

Figure 15: Supply balance for oyster in Ireland (2020, tonnes, LWE)

Source: EUMOFA elaboration of EUROSTAT-COMEXT and FAO data

4.2 Characteristics of the Irish market and consumption

As mentioned previously, Irish oysters' production is export-oriented: in 2020, it was estimated that 62% of the national supply was exported. Export rates are usually higher than those observed in 2020 as exports were impacted by the COVID-19 pandemic (in 2020, exports were 40% less than the average of the previous 5 years). For many years, France has been the only export market for Irish oysters, which were sold in bulk to the French wholesale market. However, based on trade data and interviews with stakeholders, a few years ago Irish producers started to diversify their markets with increased volumes exported to Mainland China and Hong Kong.

The Irish oyster sector started to invest in packing and branding, focusing on Irish oyster's superior quality in order to achieve a luxury offer sought by the Asian market. Some firms are well established within the Asian market and have been developing brand recognition such as the use of the brand "Irish Rock Oysters" to distinguish the Irish oysters from oysters produced elsewhere in Europe. This strategy seems to allow for a price premium⁴². According to stakeholders, it is clear that a greater recognition of an 'Irish Brand' for oysters could bring major opportunities for the industry. They also think that the Irish oysters are seen as a premium and pure product that comes from clean waters surrounding a green island, which is likely to result in price premium. However, they believe that even though most producers have certifications such as "Origin Green Ireland"⁴³ and "EcoPact"⁴⁴, these do not actually result in any price premium as they are not specific to oyster (but to the whole food/aquaculture sector).

Another important factor in the Irish oyster market is the oysters' size. Before being put in the market, oysters are graded according to the clients' requirements. In Ireland, grading is done by size: the smallest grade corresponds to half-grown oysters sold to other producers. The French market still prefers the intermediate size class, while the largest sizes (with some exceptions) generally go to Asia.

4.3 Price transmission in the supply chain

4.3.1 Ex-farm prices

The average ex-farm price was estimated at 4,11 EUR/kg in 2020 based on Eurostat data (-6% compared to 2019). Between 2016 and 2019, the average ex-farm price has remained relatively stable at around 4,36 EUR/kg (the slow increase in unit prices in recent years was already highlighted in the economic performance section).

Table 35: Ex-farm prices of oysters in Ireland (2016-2020)

	2016	2017	2018	2019	2020
Price (EUR/kg)	4,34	4,34	4,39	4,36	4,11

Source: based on Eurostat

⁴²The economic importance of the Irish oyster industry. Alain Renwick. 2015.

⁴³Origin Green is Ireland's food and drink sustainability program, operating on a national scale. Accreditation at farm level is provided to ISO:17065 and Carbon Trust (PAS 2050), while food and drink manufacturers are independently verified by international auditors.

⁴⁴Environment Management System for Aquaculture (ECOPACT) is an Environmental Code of Practice for Irish aquaculture companies and traders which covers waste management, nature conservation and visual impact.

However, these average prices hide a high variability depending on the following factors⁴⁵:

- **The oysters' ploidy:** in 2019, triploid output, which made up 81% of the total oysters' production, were sold at an average price of 4,49 EUR/kg, while diploid had an average price of 3,76 EUR/kg.
- **The oysters' size:** the intermediate size product (66-85 g) had the highest price, namely 4,89 EUR/kg. Half-grown product had a price of 3,82 EUR/kg.
- **The production area with an impact on the product quality (in particular the percentage of flesh in the oyster):** the highest prices were observed in Castlemaine Harbour and Donegal Bay, estimated at 5,50 EUR/kg in 2019.

4.3.2 Import and export prices

Over the last five years average export prices of live oysters have increased by 22% from 4,76 EUR/kg in 2016 to 5,81 EUR/kg in 2020 (in nominal terms). Even though 2020 was a particular year (with the strong impact of the COVID-19 pandemic on the Irish shellfish sector), the increasing trend was confirmed by producers during interviews and explained by increasingly targeting valuable markets, particularly China.

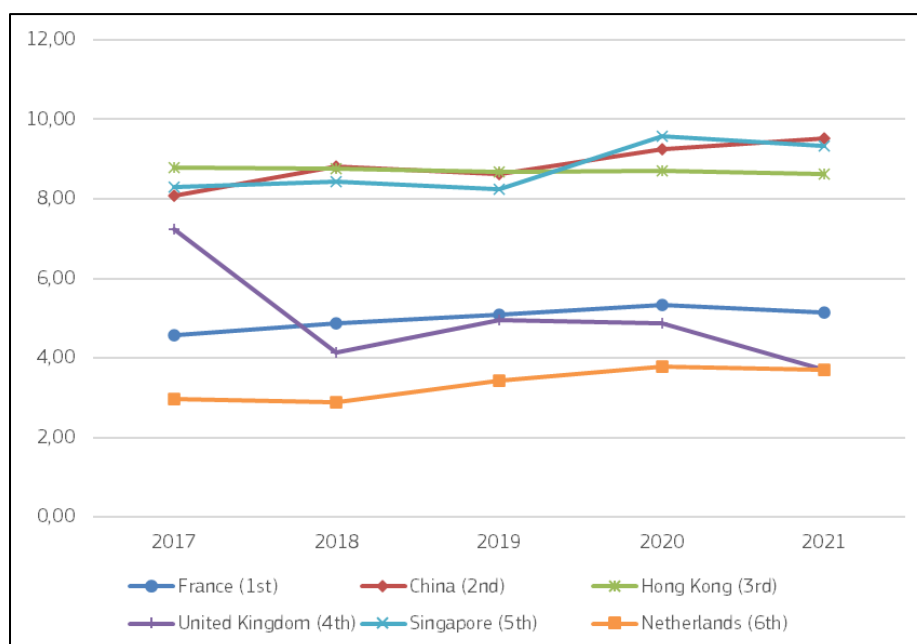
Table 36: Import and export prices (nominal price) and volume for live oysters in Ireland (2017-2021)

		2017	2018	2019	2020	2021	Evol. 2017-2021
Price (EUR/kg)	Export	4,98	5,40	5,49	5,81	5,68	+14%
	Import	5,04	5,09	5,18	18,79	93,30	+1751%
Volume (tonnes)	Export	7.661	7.664	6.492	4.266	6.150	-20%
	Import	712	779	410	14	1	-100%

Source: EUMOFA elaboration based on EUROSTAT-COMEXT data

Although the French market generates the highest export earnings (69% of live-fresh oyster export value in 2021), it appears to generate lower prices than Asian markets. Over the last five years, oysters sold to the Asian market, particularly China (2nd destination of Irish exports in 2021), Hong Kong (3rd destination of Irish exports in 2021) and Singapore (5th destination of Irish exports in 2021) generated higher prices than oysters sold to the French market. This has to be placed in the context of the relatively small volumes that are exported to Asia compared to France and the quality of oysters sought by the Asian markets. Based on interviews, some producers switched their production from the United Kingdom to Asian markets after Brexit.

⁴⁵BIM aquaculture report 2020.

Figure 16: Export prices (nominal price) of live oysters from Ireland to the main destinations (EUR/kg)

Source: EUMOFA elaboration based on EUROSTAT-COMEXT data

4.3.3 Wholesale prices

There is no statistical source of wholesale prices in Ireland.

4.3.4 Price transmission

This section provides an overview of the price transmission of two types of supply chain:

- An **oyster produced in Ireland and exported to France**: oysters are exported in bulk to be purified, sorted, and packed in France. According to interviews, the supply chain of oysters exported in bulk and prepared and packed in France is the most representative of the Irish oyster market (as France is the main market). The value chain provided below is for **high quality special oysters** (with high percentage of flesh in the oyster) exported in 20 kg net bags (bulk) to France via an intermediate who sells to a French buyer. In France, the buyer is responsible for preparing and packing oysters in wooden boxes before selling them on the French market. The price transmission provided below focuses on high quality special oysters which could be sold up to 6,00 EUR/kg (ex-farm price) whereas standard oyster is sold at 3,00 EUR/kg.
- An **oyster produced in Ireland (high quality, special oyster) and exported to China** as this is a growing market for the Irish oysters. In this supply chain, the producer purifies and packs the oysters in Ireland and exports them via air cargo to China (to a Chinese wholesaler which sells to restaurants).

According to producers, prices were stable before the COVID-19 pandemic. Since then, prices have been variable, particularly with regards to export prices to China due to increasing freight costs. Prices for the Asian market provided below refers to before COVID-19 period.

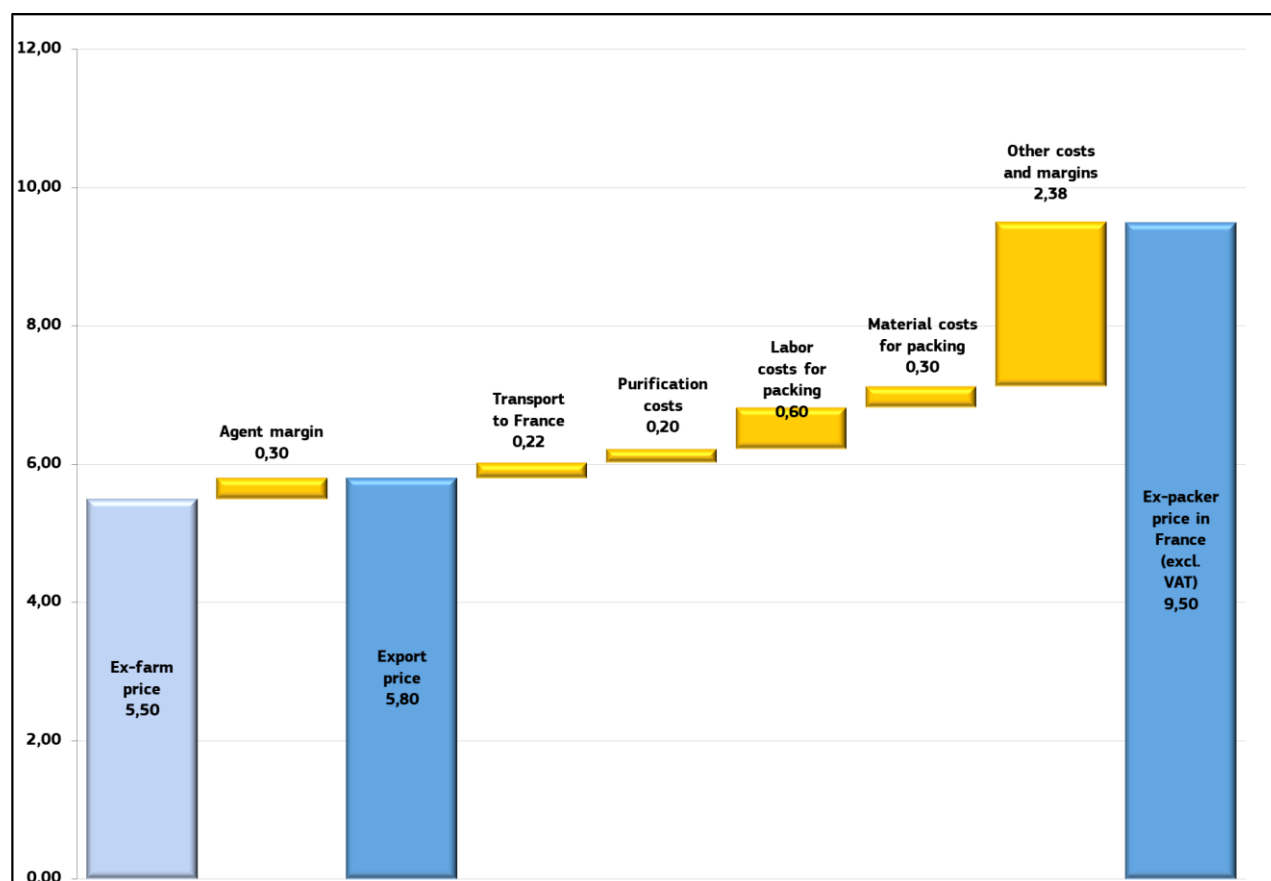
Price structure analysis – Irish oyster exported to France

Table 37: Costs and margins for high quality live oysters exported to France (EUR/kg, 2021)

	Average price (EUR/kg)	% of export price	% of final price in the French market	Source
Ex-farm price (1)	5,50	95%	58%	Interviews with producers
Intermediate margin	0,30	5%	3%	
Export price (2)	5,80	100%	61%	
Transport to France	0,22		2%	
Purification costs	0,20		2%	
Labour costs for packing	0,60		6%	
Material costs for packing	0,30		3%	
Other costs and margins	0,60		25%	
Ex-packer price in France (excl. VAT)	9,50		100%	

Source: EUMOFA survey

Figure 17: Costs and margins for high quality live oysters exported to France (EUR/kg, 2021)



Source: EUMOFA, survey

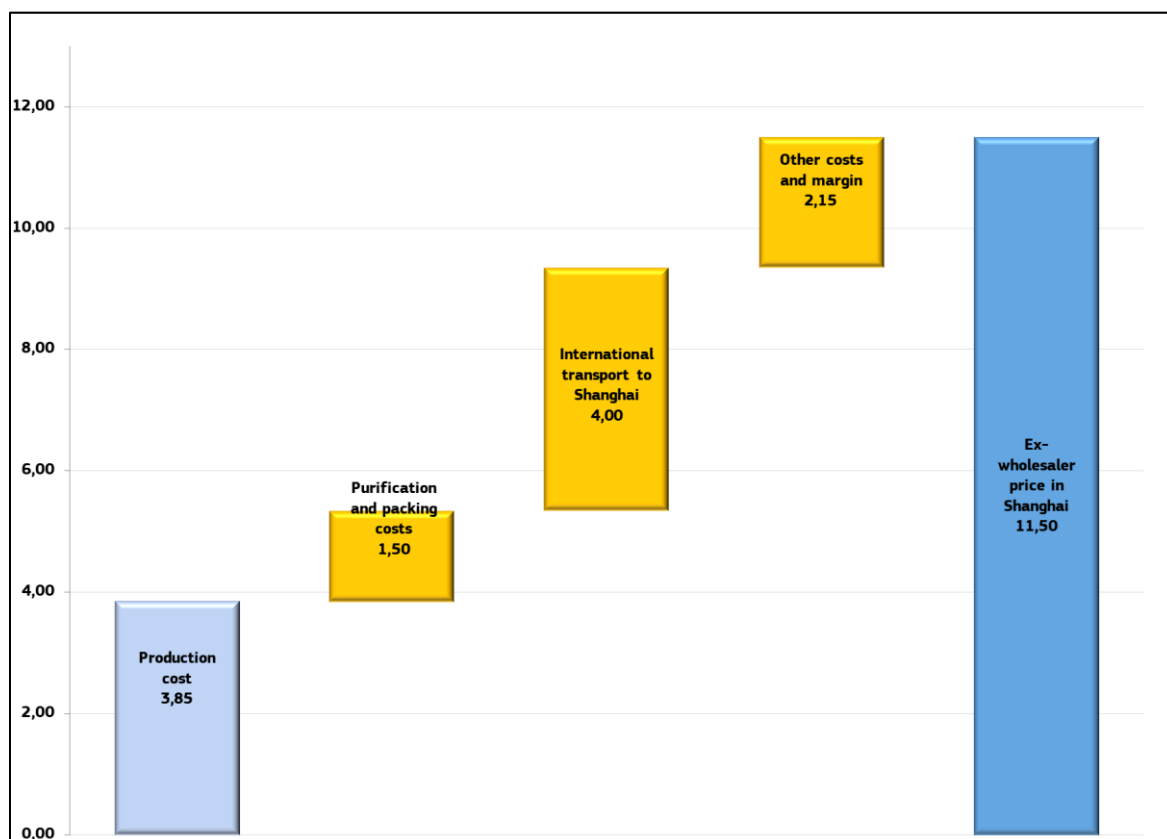
Price structure analysis – Irish oyster exported to Shanghai

Table 38: Costs and margins for high quality live oysters exported packed to Shanghai (EUR/kg, 2019)

	Average price (EUR/kg)	% final price	Source
Production cost	3,85	33%	Interviews with producers
Purification and packing costs	1,50	13%	
International transport to Shanghai	4,00	35%	
Other costs and margin	2,15	19%	
Ex-wholesaler price in Shanghai (excl. VAT)	11,50	100%	

Source: EUMOFA, survey

Figure 18: Costs and margins of high quality live oysters exported to Shanghai (EUR/kg, 2019)



Source: EUMOFA

5. THE DUTCH MARKET

5.1 Structure of the supply chain

5.1.1 Production

The Netherlands has a long tradition of shellfish farming. The Dutch aquaculture sector is particularly known for its production of mussels and oysters. In 2020, 82% of the aquaculture production of the Netherlands was mussels and 6% was oysters.

Oyster production in the Netherlands was estimated at 2.374 tonnes in 2020 with almost 100% of production from aquaculture. Between 2011 and 2020, the Dutch oyster production has decreased by 11% (-12% for aquaculture).

Table 39: Oyster production in the Netherlands between 2010 and 2019 (tonnes)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Evol. 2020/ 2011
Aquaculture	2.680	2.539	2.958	3.264	3.150	3.650	2.600	2.700	2.550	2.350	-12%
Fisheries	-	1	1	-	1	38	17	14	7	24	-
Total	2.680	2.540	2.959	3.264	3.151	3.688	2.617	2.714	2.557	2.374	-11%

Source: FAO Fish Stat

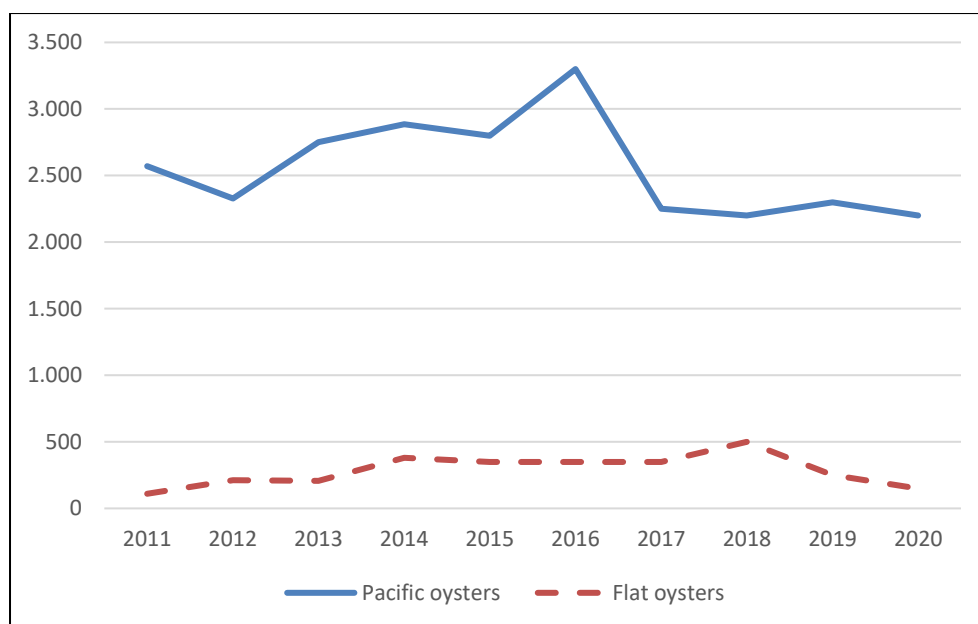
Two oyster species are reared in the Netherlands: Pacific oysters (also called “Japanese oysters”; “gigas oyster” or “pacific cupped oyster”) (*Crassostrea gigas*), and the European flat oyster (*Ostrea edulis*). Based on the Dutch Seafood Industry Report of 2020⁴⁶, the supply of oysters was estimated at 28 million pieces in 2019, of which 80% are Pacific oysters. The remaining 20% corresponds to the production of the European flat oyster.

In the Netherlands the European flat oysters are all cultivated “on-bottom” while Pacific oysters are grown both “on-bottom” and “on table”. For “on-bottom” oysters, most volumes are produced based on natural spat collected from the wild. As for “on table” oysters, these are both from natural spat (diploid oysters) and spat from hatcheries (triploid oysters)⁴⁷ (mainly produced in France).

According to FAO statistics, the annual supply of Pacific oysters has decreased since 2013 while the production of flat oysters has gradually increased until 2018, even though the species is produced in lower volumes in comparison to the Pacific cupped oyster.

⁴⁶https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=The%202020%20Dutch%20Seafood%20Industry%20Report_The%20Hague_Netherlands_11-02-2020

⁴⁷Produced in the hatchery environment, triploid oysters contain three sets of chromosomes which make them sterile. This provides them with two marketing advantages: 1) reproduction activities are significantly reduced throughout the reproduction period. With much of the metabolic effort devoted to growth and fattening, the growth cycle is shorter; 2) they are not milky in summer (due to the absence of reproduction) which makes them marketable summer. This helps to avoid the sales season from being too concentrated on the end of the year.

Figure 19 – Production of Pacific cupped oysters and flat oysters in the Netherlands (tonnes)

Source: FAO FishStat

The overall decrease of the Pacific cupped oyster production can be explained by an increased mortality due to the combined impact of the herpes virus and predation by the Pacific oyster borer (a small predatory snail). To prevent this predation, experiments have been carried out since 2018 to develop so-called “off-bottom farming” or “on table farming” in two locations. Until 2020, almost 100% of the Dutch oyster production has been produced “on-bottom” and oysters grown “on table” have been mainly imported. Since March 2020, an area of approximately 50 ha suitable for rearing oysters “on table” has become available to all producers. However, this area remains limited in comparison to the area currently used for “on-bottom farming” (approximately 1.400 ha of plots are also rented out).

Structure of the oyster’s sector

Based on the latest STECF report⁴⁸, there were 21 oyster aquaculture farms in 2018. The Dutch aquaculture sector is dominated (97%) by small enterprises with less than 5 employees. In total, 243 people were active within the Dutch shellfish companies in 2018, including 50 in oyster companies (the remaining being employed in mussel companies).

⁴⁸JRC/STECF – Economic Report of the EU Aquaculture sector, 2020.

5.1.2 Imports - Exports

Imports

The Dutch oyster imports reached 1.567 tonnes for almost EUR 14,1 million in 2021. These were mainly composed of live, fresh or chilled oysters (98% of the imports value). The main suppliers of the Dutch market were France (72% of the value of the Dutch imports, namely EUR 10,1 million) and Ireland (20%; EUR 2,8 million).

Table 40: Imports of oysters and oyster products to the Netherlands (2021)

	Volume (tonnes)	Nominal value (1.000 EUR)	Price (EUR/kg)	% val. 2021
Live, fresh or chilled oysters	1.517	13.764	9,07	98%
Smoked	-	3	-	0%
Frozen	29	218	7,47	2%
Preserved	21	114	5,54	1%
Total	1.567	14.099	9,00	100%

Source: EUMOFA elaboration based on EUROSTAT-COMEXT data

The Dutch imports of live-fresh oysters have increased significantly between 2012 and 2021, particularly in value (+546% in nominal terms and +472% in real terms). The imports volume also increased by 59% over the same period. Specifically, imports decreased until 2014 (when they dropped to 362 tonnes) and started to increase in the following years, until they reached 1.517 tonnes in 2021.

Over the same period (2012-2021), prices of imported live-fresh oysters strongly increased (+307% in nominal terms and +260% in real terms), rising from 2,23 EUR/kg in 2012 to 9,07 EUR/kg in 2021 in nominal terms. (cf. section 5.3.2 for more explanation about the significant increase in prices).

Table 41: Evolution of imports of live, fresh or chilled oysters to the Netherlands between 2012 and 2021

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Evol. 2021-2012
Volume (tonnes)	955	767	362	733	1.540	1.072	1.285	1.283	1.294	1.517	+59%
Nominal value (1.000 EUR)	2.129	2.023	1.592	3.318	11.378	8.945	9.770	11.320	11.681	13.764	+546%
Price (EUR/kg)	2,23	2,64	4,40	4,53	7,39	8,35	7,61	8,82	9,03	9,07	+307%

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Exports

The Dutch oyster exports reached 2.984 tonnes for a value of over EUR 21 million in 2021, which were composed mainly of live, fresh or chilled oysters (94% of the exported value).

Table 42: Exports of oyster and oyster products from the Netherlands (2021)

	Volume (tonnes)	Nominal value (1.000 EUR)	Price (EUR/kg)	% val. 2021
Live, fresh or chilled oysters	2.684	19.685	7,34	94%
Smoked	267	1.113	4,17	5%
Frozen	22	110	5,02	1%
Preserved	12	116	10,00	1%
Total	2.984	21.024	7,05	100%

Source: EUMOFA elaboration based on EUROSTAT-COMEXT data

Between 2012 and 2021, exports of live-fresh oysters have fluctuated between circa 1.600 tonnes to around 4.600 tonnes (they peaked in 2018) and 2.684 tonnes were exported in 2021. Export value has increased by 87% over this period (+65% in real terms) in relation to the significant increase of export prices in recent years: 7,34 EUR/kg in 2021 compared to 4,28 EUR/kg in 2018. Based on stakeholders interviewed, exports have fluctuated widely since 2012 (both in terms of volume and price) because of the large diversity of the demand in terms of quality and volume. In addition, according to a stakeholder interviewed, ten years ago larger volumes were exported in bulk to other EU countries, while almost all products are now exported packed (this explains the rise in price).

Main destinations in 2021 were Belgium (40% of the Dutch exports in value; EUR 7,9 million), followed by Germany (17%; EUR 3,3 million), and Italy (12%; EUR 2,3 million).

Table 43: Evolution of exports of live, fresh or chilled oyster from the Netherlands between 2012 and 2021

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Evol. 2021-2012
Volume (tonnes)	4.148	2.083	1.585	1.717	2.200	3.313	4.548	4.431	1.976	2.684	-35%
Value (1.000 EUR)	10.542	8.786	8.019	9.048	14.030	18.752	19.446	20.689	13.560	19.685	+87%
Price (EUR/kg)	2,54	4,22	5,06	5,27	6,38	5,66	4,28	4,67	6,86	7,34	+189%

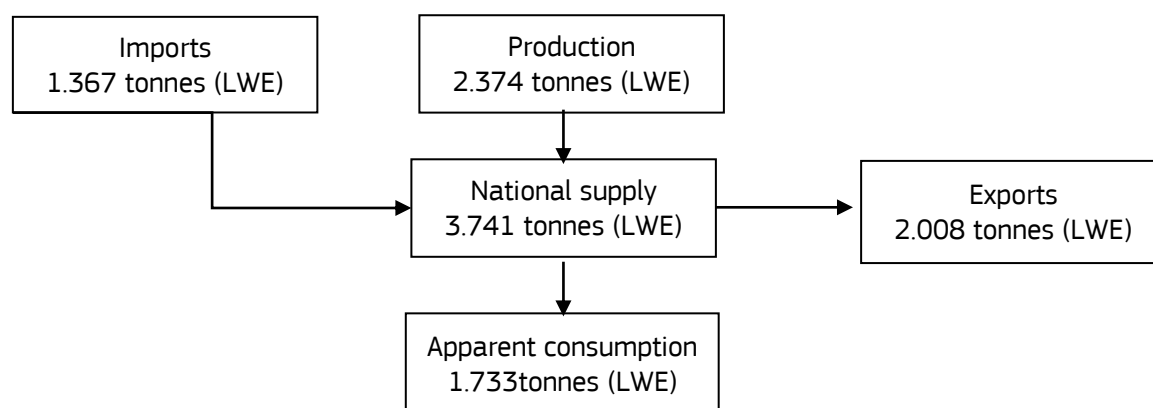
Source: EUMOFA elaboration of EUROSTAT-COMEXT data

5.1.3 Apparent consumption

In 2020, the total supply of oyster amounted to 3.741 tonnes LWE in the Netherlands, 63% from national production (aquaculture + fisheries) and 37% from imports.

In 2020, from this supply, 46% were sold on the national market while around 54% were exported, mainly within the EU. In 2020, the oyster apparent consumption in the Netherlands was particularly higher than other years as a result of lower exports from the Netherlands to other countries due to the COVID-19 pandemic. Usually the Dutch consumption of oyster remains low (-591 tonnes in 2019⁴⁹).

⁴⁹According to Eurostat-Comext data, oyster exports exceeded the national supply in 2019, this could not be explained by producers during interviews. However, this situation highlights the limited consumption of oysters in the country, which dedicated the production mainly to export. As a consequence, the national “apparent” consumption is very limited.

Figure 20: Supply balance for oyster in the Netherlands (2020, tonnes, LWE)

Source: EUMOFA elaboration based on EUROSTAT-COMEXT and FAO data

5.2 Characteristics of the Dutch market and consumption

According to the stakeholders interviewed, the demand is strong while production is decreasing. To manage this situation, the Wageningen research institute has a Research programme (2020-2023) to improve the oyster's production yield.

The Dutch consumption of oysters is low; main sales channels are retailers and restaurants.

5.3 Price transmission in the supply chain

The Dutch oyster supply chain is short: most of the time, the producing company is responsible for packaging and marketing to retailers or wholesalers.

5.3.1 Ex-farm prices

According to EUROSTAT, ex-farm prices have been very variable over the period between 2011 and 2020 (between 1,28 EUR/kg and 7,62 EUR/kg). Based on the same source, ex-farm price (on-bottom oyster) was about 3,71 EUR/kg in 2020. Prices provided by producers during interviews were around 1,80 EUR/kg on average during the last 5 years.

Figure 21 – Nominal ex-farm prices of oysters in the Netherlands (2011-2020)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Price (EUR/kg)	1,45	1,3	1,28	2,38	4,84	4,68	7,62	5,39	2,65	3,71

Source: based on Eurostat

5.3.2 Import and export prices

According to EUROSTAT-COMEXT data, the price of imported oyster has significantly increased between 2012 and 2021 (by +260% in real terms) and was around 9,00 EUR/kg in 2021. However, producers interviewed consider that prices observed in the market are lower than those provided by the official statistics, which they estimate to be around 2,50 EUR/kg on average during the same period. One producer explained the increase of import prices recorded in statistics by the increase of imports during summer in order to compensate the poor quality of Dutch diploid oysters (diploid oysters produced in the Netherlands are "milky" between May and September). These are imported at higher prices. Statistics show indeed a peak of imports from France and Ireland during summer (in addition to a peak between October and December), but without significant impact on prices (higher prices were only observed during the summer 2020, which is most likely due to the COVID-19 pandemic). Another producer explained the increase of import prices by the increase of the share of imports of packed oysters.

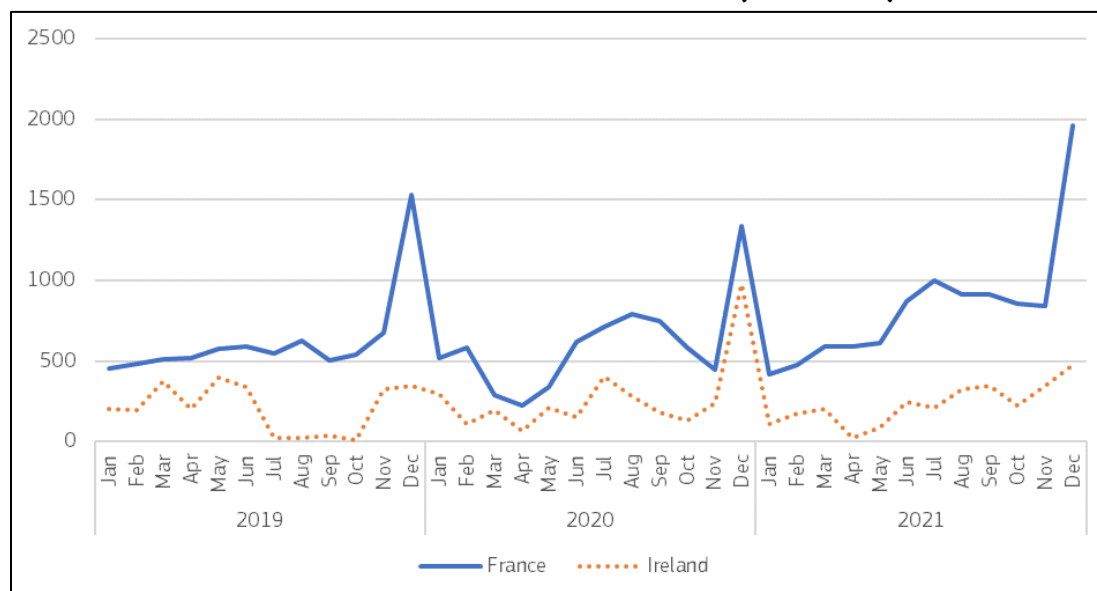
Export prices have also significantly increased between 2012 and 2021, from 2,54 EUR/kg and 7,34 EUR/kg in nominal terms (+156% in real terms). Based on interviews, the price of oysters exported to Belgium (which is the main destination of Dutch exports) is around 3,10 EUR/kg (4,65 EUR/basket of 12 oysters).

Table 44: Import and export prices (nominal price) and volume for live oysters in the Netherlands (2012-2021)

		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Evol. 2012-21
Price (EUR/kg)	Export	2,54	4,22	5,06	5,27	6,38	5,66	4,28	4,67	6,86	7,34	189%
	Import	2,23	2,64	4,40	4,53	7,39	8,35	7,61	8,82	9,03	9,07	307%
Volume (tonnes)	Export	4.148	2.083	1.585	1.717	2.200	3.313	4.548	4.431	1.976	2.684	-35%
	Import	955	767	362	733	1.540	1.072	1.285	1.283	1.294	1.517	59%

Source: EUMOFA elaboration based on EUROSTAT-COMEXT data

Figure 22 – Monthly imports of live, fresh oysters from France and Ireland to the Netherlands between 2019 and 2020 (1.000 EUR)



Source: EUMOFA elaboration based on EUROSTAT-COMEXT data

5.3.3 Wholesale price

Based on interviews, the average prices of a 12-oyster basket delivered to a wholesaler are:

- from 4,65 EUR/basket to 5,80 EUR/basket (i.e., 3,10 EUR/kg to 3,87 EUR/kg) for oysters “on-bottom”, depending on the destination and the quality;
- 13,00 EUR/basket, which is 8,70 EUR/kg for oysters “on table” (i.e., imported oysters).

5.3.4 Consumer price

According to interviews, half of the supply for domestic markets is sold in supermarkets/shops and the other half in restaurants.

Based on interviews and online prices, restaurants can sell oysters for 2,00 EUR/piece (even until 3,00 EUR/piece sometimes). Similar prices can be found in supermarkets, even if large differences may be observed between discounters and premium shops. Restaurants (or retailers) often “lose” 2 to 3

oysters per basket of 12 (because 100% of the volumes bought are not sold early enough, and oysters need to be consumed fresh). This loss is passed on the final consumer price.

Considering that a basket of 12 oysters is weighting 1,5 kg, the retail price is estimated to be around 16,00EUR/kg for oysters cultivated “on-bottom” and sold in restaurants. For discounters, the retail price can be 2 times lower, at around 8,00 EUR/kg.

5.3.5 Price transmission

The supply chain considered in the price transmission presented below is for oysters sold in restaurants. Two analyses are provided:

- “on-bottom” oysters produced and packed in the Netherlands by the same company;
- “on table” oysters imported from France and re-packed in the Netherlands by a producer - packer.

Both “on-bottom” and “on table” oysters are sold to restaurants via a wholesaler.

Based on interviews, the ex-farm price of “on-bottom” oysters is 1,80 EUR/kg, while the import price of “on table” oyster is 2,50 EUR/kg. The consumer price (in restaurants) of the final product (incl. VAT) is 16,20 EUR/kg for oysters “on-bottom” and 21,00 EUR/kg for oysters “on table”. For oysters sold in supermarkets, the retail margin would be lower than the one of the restaurants.

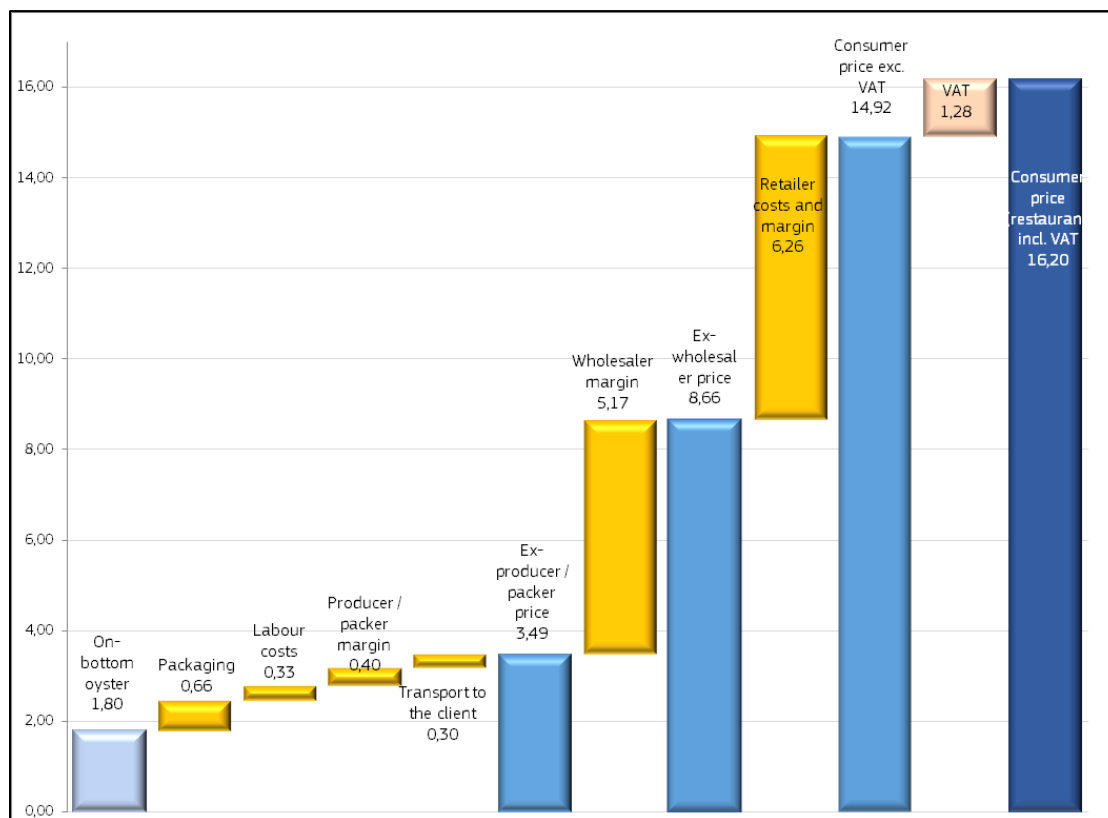
The main cost at production stage is the packaging (basket for 12/24/48 pieces) which represents 4% of the final price (incl. VAT). The other costs are labour to sort oysters (2% of the final price) and transport to wholesaler for the catering sector or retailer (2% of the final price).

Table 45 - Costs and margins for oysters “on-bottom” and “on table” in the Netherlands (EUR/kg, 2021)

EUR/kg	Average for oysters "on-bottom" (Produced in NL)	% final price	Average for oysters "on table" (Imported from FR)	% final price	Sources
- Bulk oyster for “on-bottom” (from NL) - Import price for “on table” (from FR)	1,80	11%	2,50	12%	Interviews
Packaging	0,66	4%	0,66	3%	
Labour costs	0,33	2%	0,33	2%	
Producer / packer margin	0,40	2%	0,40	2%	
Transport to the client	0,30	2%	0,30	1%	
Ex-producer / packer price	3,49	22%	4,19	20%	
Wholesaler margin	5,17	32%	6,46	31%	
Ex-wholesaler price	8,66	53%	10,65	51%	
Retailer costs and margin	6,26	39%	8,67	41%	
Consumer price exc. VAT	14,92	92%	19,32	92%	
VAT	1,28	8%	1,68	8%	
Consumer price (restaurant) incl. VAT	16,20	100%	21,00	100%	

Source: EUMOFA (elaboration based on interviews with stakeholders)

Figure 23 – Costs and margins for oysters “on-bottom” in the Netherlands, sold in restaurant (EUR/kg, 2021)



Source: EUMOFA (elaboration based on interviews with stakeholders)

6. CONCLUSION

The oyster supply chains in the three major EU producer Members States are different.

France is the biggest market for oysters in the EU. It is both a major producer and consumer. The production is significant and there is a market segmentation for higher quality thanks to the use of quality schemes (i.e., Label Rouge and the PGI). There are also common practices among producers to sort the products based on size and quality.

The Irish market is small, even though the country is the second largest producer in the EU. Therefore, the production is export-oriented with the EU being the main market but Asian markets generating the highest prices. A significant share of the Irish production is exported without being purified, sorted or packed (i.e., bulk).

The Netherlands is also a small market for oysters with small national consumption. However, there is a significant activity of processing and packing, as both national and imported products in bulk are processed and packed before being exported.

The price transmission analysis covered the following products:

- **France:** oyster under PGI sold in supermarkets.
- **Ireland:** 1) high quality special oyster produced in Ireland and exported in bulk to France; 2) high quality special oyster produced in Ireland and exported packed to China.
- **The Netherlands:** oysters sold in restaurants.

The ex-farm prices (or import price in the Netherlands) ranges from 1,80 EUR/kg to 5,50 EUR/kg, depending on size and quality. Ex-farm prices provided in this report for Ireland are higher than in the other countries as they are for special high-quality oyster which could be sold up to 6,00 EUR/kg at ex-farm stage according to producers. The retail price (excl. VAT) of oysters varies from 6,58 EUR/kg in France to 19,32 EUR/kg in the Netherlands. The prices of Irish oysters in the export market show significant differences based on the destination: Irish packed oysters are sold at 9,50 EUR/kg on the French market (ex-packer stage) and at 11,50 EUR/kg on the Chinese market (ex-wholesaler stage). Given the difference between the three studied supply chains (internal market for France and the Netherlands and export market for Ireland), synthesis tables below are provided separately for France and the Netherlands (Table 46) and for Ireland (Table 47).

Table 46: Synthesis of the price structure analysis in France and the Netherlands (EUR/kg, nominal value)

MS	France	Netherlands	
Product	Produced in FR	Produced in NL	Imported from FR
Sales channel	Supermarket	Restaurants	Restaurants
Year	2021		
Raw material: ex-farm or import price	3,50	1,80	2,50
Wholesale costs and margins	1,44	6,86	8,15
Wholesale price	5,48	8,66	10,65
Retail costs and margin	1,10	6,26	8,67
Retail price excl. VAT	6,58	14,92	19,32
Retail price incl. VAT	6,94	16,20	21,00

Source: EUMOFA

Table 47: Synthesis of the price structure analysis in Ireland (EUR/kg, nominal value)

MS	Ireland	
Product	Produced in IE	Produced in IE
Sales channel	Exported to France	Exported to Shanghai
Year	2021	2019
Raw material: ex-farm	5,50	3,85
Intermediate margin	0,30	-
International transport	0,22	4,00
Costs (purification, cleaning, packing) and margins	1,72	3,15
Sale price at destination market (ex-packer / wholesaler)	9,50	11,50

Source: EUMOFA

7. STAKEHOLDERS INTERVIEWED

- France:
 - Comité National de la Conchyliculture (CNC)
 - Agreste
 - Groupement Qualité Huîtres Marennes Oléron
 - Comité Régional de la Conchyliculture (CRC) Bretagne Nord
 - Oyster producers
- Ireland
 - Oyster producers
- Netherlands
 - Dutch Oyster Association
 - Oyster producers

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