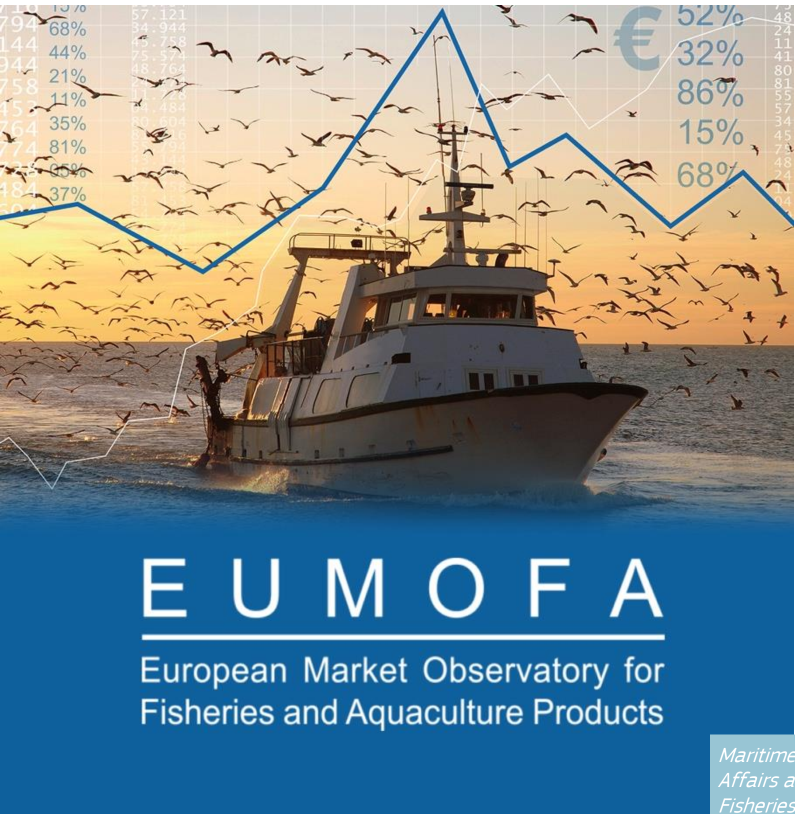
European Commission

CASE STUDY

SMOKED EEL IN THE EU



PRICE STRUCTURE IN THE SUPPLY CHAIN

FOCUS ON THE NETHERLANDS, GERMANY AND DENMARK

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Summary

- The volume of production of eel was 277.103 tonnes at world level in 2018 (FAO).
- China was the largest producer in the world with 84% of the volume, producing Japanese eel in particular.
- EU-28 Member States produced 7.663 tonnes in 2018 (-19% compared with 2009) and accounted for 3% of world production. The EU only produces European eel, and is the main producer of this species in the world, with 94% of European eel production in 2018.
- EU production mainly relies on aquaculture (68% of the volume) and to a lesser extent on fisheries (32%).
- The main producers of eel at EU level are the Netherlands, Germany, Italy and Denmark, with at least 600 tonnes of production each in 2018.
- In the intra-EU market, the Netherlands, France and Germany are the main exporters. France mainly exports live eel, while the Netherlands and Germany also export processed products (smoked and preserved). The Netherlands and Germany are also the main importers (mostly live, frozen and smoked eels).
- Eel is subject to recovery measures due to the state of the stock. At EU level, this is defined in Council Regulation (EC) No 1100/2007 which sets out that EU countries should elaborate Eel Management Plans in order to allow 40 % of adult eels to escape from inland waters to the sea, where they can spawn. There are also temporary fishing closures set at EU level. According to the scientific advice, the status of the European eel remains critical.
- This study focuses on smoked eel in three Member States: the Netherlands, Germany and Denmark. Eel is banned from several large-scale retail chains due to the state of the stock and is mainly small-scale production, thus the survey focuses on sales in fishmongers and direct sales:
    - Smoked eel fillets retailed in fishmonger shops in the Netherlands;
    - Whole smoked eel retailed in fishmonger shops in Germany;
    - Smoked eel fillets retailed in direct sales in Denmark.
- The main outcomes of the price structure analysis of the three products surveyed are listed below:
    - The purchase price of live eel for smokers ranges from 8,00 and 10,85 EUR/kg;
    - Important costs are related to the filleting yields (41% to 46%) and labour;
    - The retail price (excl. VAT) ranges from 43,00 EUR/kg in direct sales in Denmark up to 55,20 EUR/kg in the Netherlands;
    - The retail price (incl. VAT) ranges from 48,69 EUR/kg in Germany to 60,17 EUR/kg in the Netherlands.

List of acronyms

CN	Combined Nomenclature
EU	European Union
MS	Member States
FAO	Food and Agriculture Organisation of the United Nations
VAT	Value Added Tax
LWE	Live Weight Equivalent

0 Scope and content

0.1 Case study scope

Key elements on the analysis smoked eel's price structure and distribution of value in the supply chains are:

Product	Origin	Characteristics	Market and price drivers	Focus MS
Smoked eel	Aquaculture; Fishery	Eel under recovery plan	Traditional products Small-scale production in most cases Eel banned by some large-scale retailers due to the state of stock	The Netherlands Germany Denmark

0.2 Content of the document

In conformity with 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 the Netherlands, Germany and Denmark.

1 Description of the product and markets

1.1 Biological and commercial characteristics

Case study product

Name: European eel – *Anguilla anguilla* **FAO 3-alpha code:** ELE **Presentation:** smoked

Other main species:

Japanese eel (*Anguilla japonica*), American eel (*Anguilla rostrata*), short-finned eel (*Anguilla australis*)

Related codes in the product nomenclature (COMEXT/EUROSTAT)

Codes have been modified in 2012. The table below details the codes before and after 2012.

Table 1: Trade codes for eel and eel products (CN-8 nomenclature)

	Until 2011	Since 2012:
Live eels	03 01 92 00	03 01 92 10: length < 12 cm 03 01 92 30: length between 12 and 20 cm 03 01 92 90: length over 20 cm
Fresh or chilled eels	03 02 66 00	03 02 74 00
Frozen	03 03 76 00	03 03 26 00
Smoked eels	03 05 49 50	03 05 44 10
Prepared or preserved eels	/	16 04 17 00

Eel stock management

The European eel stock is highly depleted. According to the scientific advice delivered by the International Council for the Exploration of the Sea (ICES), the status of the European eel remains critical and the abundance of eels at all the stages of their lifecycle remains very low[1].

In September 2008 European eel was listed in the International Union for Conservation of Nature (IUCN) Red List as a critically endangered species[2].

Based on Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel, EU countries elaborated Eel Management Plans in order to allow 40% of adult eels to escape from inland waters to the sea, where they can spawn.

Possible measures implemented in the framework of these plans are:

- limiting (professional and recreational) fisheries;
- making it easier for fish to migrate through the rivers;
- restocking suitable inland waters with young eels.

In addition, EU countries which catch glass eels need to reserve 60% of their catches for restocking within the EU. Since 2018 temporary fishing closures have been established at EU level under the Fishing Opportunities Regulations. Furthermore, the results of the evaluation of the Eel Regulation and the measures set in the Eel Management Plans have been published in 2020 [3].

European eel is listed on Appendix II of CITES (Convention on International Trade in Endangered Species). This annex concerns species which may become threatened with extinction. In this context, international trade of European eel into and out of the EU has been prohibited[4] since 2011[5] based on the EU Member

[1] http://ices.dk/sites/pub/Publication%20Reports/Advice/2020/2020/ele.2737.nea.pdf
[2] https://www.iucnredlist.org/ja/species/60344/152845178
[3] https://ec.europa.eu/fisheries/sites/fisheries/files/swd-2020-35_en.pdf
[4] https://ec.europa.eu/fisheries/marine_species/wild_species/eel/management_plans_en
[5] https://ec.europa.eu/environment/cites/pdf/cop17/eels.pdf

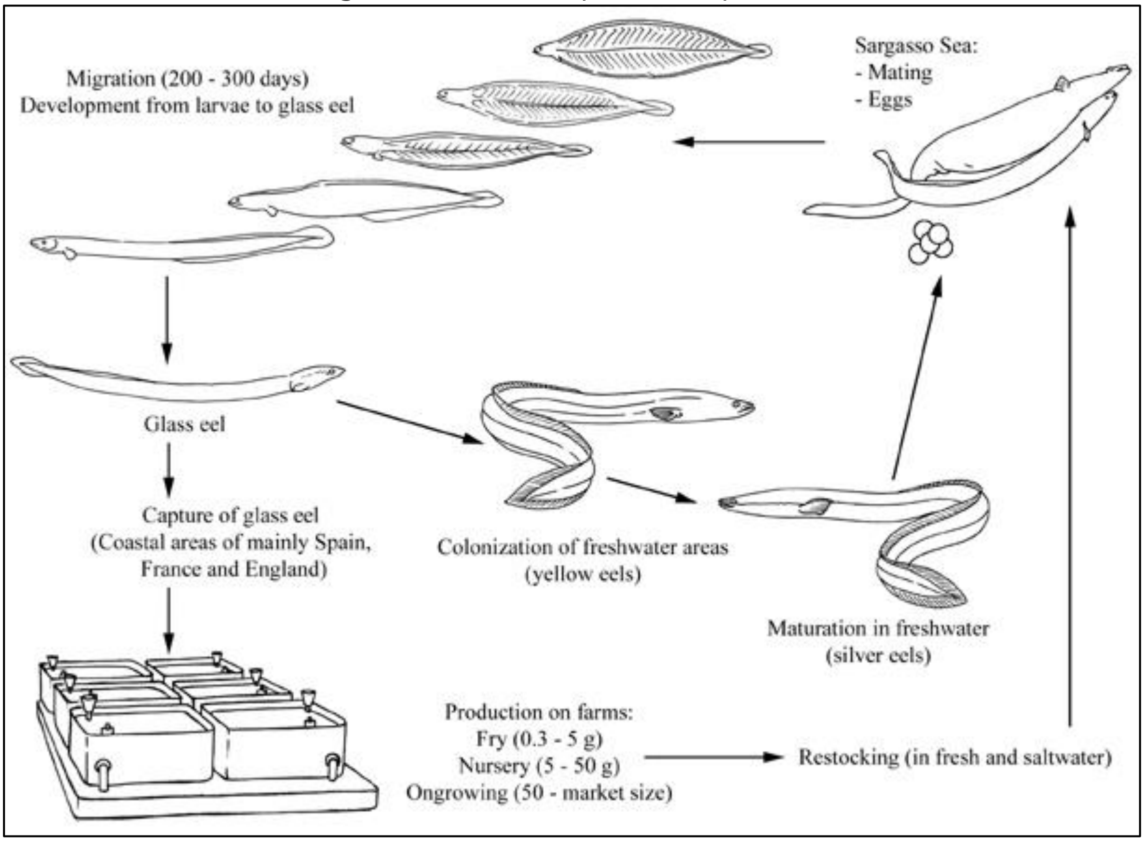
States decision, while intra-EU trade remains possible. European eel was added to Appendix II of the Convention on Migratory Species (CMS), whereby Parties (covering almost the entire distribution of European eel) to the Convention call for cooperative conservation actions to be developed among Range States.

Biological parameters

Parameter	Characteristics
Life cycle	Eel is a catadromous species. Young eels live in freshwater; male stay 6-12 years and females 8-18 years. They migrate to sea when they are sexually mature. They spawn in Sargasso Sea in late winter and spring. Larvae are brought by the Gulf Stream to Europe, and the migration lasts 200-300 days. They become transparent (glass eels) before entering the coastal zone. Glass eels become yellow eels while they colonize freshwater areas, and “silver” eels when they are sexually mature. At this stage, the content of the fat increases in the body as the eel does not feed during the migration to Sargasso Sea. Figure 1 provides an overview of the life cycle of eel, both in wild and in aquaculture.
Aquaculture production	Eel production in aquaculture is based on the catches of glass eels in wild areas. There are different methods for growing stages: extensive pond system, intensive production with recirculation system or valliculture (extensive production in brackish waters conducted in Mediterranean area).
Temperature	In extensive pond system, the optimal temperature ranges from 18 to 25°C. In recirculation system, the temperature is around 24 °C.
Diet	Eel is carnivorous species.
Distribution in the wild	European eel is located in Europe and in northern part of Africa.
Catches	Catches are mainly conducted in freshwaters and estuarian areas. Wild caught eel may be used for aquaculture production and re-stocking.

Source: FAO

Figure 1: Production cycle of European eel



Source: FAO

1.2 World production

1.2.1 Overview

Eel production has been quite stable over time, amounting to 277.104 tonnes in 2018 (source: FAO), which was only 1% lower than in 2009. Japanese eel is the main species (95% of volume), followed by European eel (3,5%) and other species (1,5%), such as American eel or short-finned eel.

Table 2: Evolution of world eel production between 2009 and 2018 (tonnes)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	% total 2018	Evol. 2018 / 2009
Japanese eel	259.691	254.428	236.864	217.652	208.759	223.342	245.598	244.534	253.044	263.198	95%	1%
European eel	11.318	10.707	8.599	12.656	9.291	8.777	9.175	9.830	9.472	9.663	3%	-15%
Other eels	8.857	6.184	3.746	5.977	7.478	6.684	5.190	3.948	4.832	4.243	2%	-52%
Total	**279.866**	**271.319**	**249.209**	**236.285**	**225.528**	**238.803**	**259.963**	**258.312**	**267.348**	**277.104**	**100%**	**-1%**

Source: FAO

Eel production is mainly from aquaculture (97%)[6]. In 2018, the volume of farmed eel was 268.953 tonnes and the volume of wild caught eel was 8.151 tonnes[7].

Table 3: Evolution of farmed eel production and wild caught eel between 2009 and 2018 (tonnes)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	% total 2018	Evol. 2018 / 2009
Aquaculture	271.529	263.635	242.340	222.475	214.296	229.835	252.446	251.490	259.857	268.953	97%	-1%
Fisheries	8.337	7.684	6.869	13.810	11.232	8.968	7.517	6.822	7.491	8.151	3%	-2%
Total	**279.865**	**271.320**	**249.208**	**236.285**	**225.528**	**238.802**	**259.964**	**258.313**	**267.349**	**277.103**	**100%**	**-1%**

1.2.2 Eel production over time by the main producing countries

The main eel producer is China, which accounted for 84% of world production in 2018, followed by Japan and the Republic of Korea. These three countries produce Japanese eel.

Table 4: Evolution of eel production in the main producing countries (tonnes)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	% total 2018	Evol. 2018 / 2009
China	211.212	206.258	196.832	193.501	187.298	198.210	211.129	210.995	217.263	233.222	84%	10%
Japan	22.669	20.788	22.235	17.542	14.339	17.739	20.189	18.978	21.050	15.172	5%	-33%
Rep. Korea	6.766	8.021	7.257	4.365	5.218	5.716	9.089	9.904	11.066	10.600	4%	57%
EU-28	9.496	9.740	8.060	7.220	7.967	7.633	7.874	8.493	8.167	7.663	3%	-19%
Others	29.723	26.512	14.825	13.657	10.706	9.505	11.682	9.942	9.802	10.447	4%	-65%
Total	**279.866**	**271.319**	**249.209**	**236.285**	**225.528**	**238.803**	**259.963**	**258.312**	**267.348**	**277.104**	**100%**	**-1%**

Source: FAO

EU-28 MS rank fourth, only producing European eel. EU-28 production was 7.663 tonnes in 2018, accounting for 94% if the European eel production at world level. In 2018, the main non-EU country producing European eel was Egypt with 1.295 tonnes.

[6] Aquaculture production is based on the catches of wild juveniles.

[7] Wild caught eels cover juveniles, yellow eels and silver eels.

1.3 EU production

1.3.1 EU production by the main producing Member States

EU production of eel was 7.663 tonnes in 2018. The main EU Member States producing eel are the Netherlands and Germany (respectively 2.642 and 1.411 tonnes in 2018), accounting for more than half of EU eel production in 2018 (52%). Italy, Denmark, Greece, France and Spain followed, covering at least 5% of EU production each.

EU production decreased by 19% over the last decade: almost all main MS are concerned by this decrease, the main exception being Germany (production two times higher in 2018 compared to 2009) and Italy (+1% between 2009 and 2018).

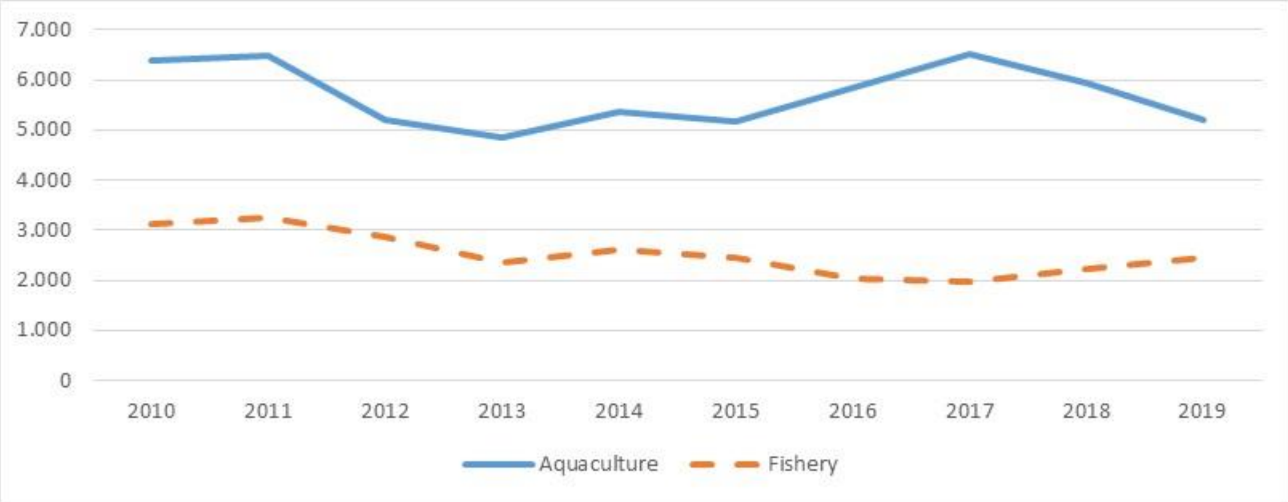
At EU level, in 2018, 68% of the volume were farmed eels and 32% were captured eels. Aquaculture production decreased by 36% between 2007 and 2018 (when it amounted to 5.217 tonnes) and wild caught eel decreased by 31% (2.446 tonnes in 2018).

Table 5: Evolution of eel production in the main producing Member States (tonnes)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	% total 2018	Evol. 2018 / 2009
NL	3.053	3.307	2.422	2.141	3.206	2.663	2.429	2.445	2.534	2.642	34%	-13%
DE	690	696	938	716	778	846	1.345	1.242	1.361	1.411	18%	+104%
IT	654	711	558	781	691	645	621	1.379	1.388	660	9%	+1%
DK	2.126	1.954	1.525	1.389	1.043	1.120	1.494	1.334	808	623	8%	-71%
EL	444	379	302	334	259	306	345	524	382	405	5%	-9%
FR	564	580	578	339	401	330	292	96	315	394	5%	-30%
ES	570	487	496	439	402	426	419	405	381	391	5%	-31%
SE	518	618	530	429	453	384	349	391	348	343	4%	-34%
UK	463	461	460	418	428	400	357	356	333	341	4%	-26%
PL	161	168	120	119	141	124	111	139	171	143	2%	-11%
HU	92	235	26	17	67	155	10	3	6	116	2%	+26%
LV	5	8	6	5	6	4	5	4	8	65	1%	+1.200%
BG	0	0	0	0	0	0	2	5	40	35	0,5%	/
BE	30	30	30	30	30	30	30	30	30	30	0,4%	0%
EE	52	39	18	18	18	144	15	16	17	19	0,2%	-63%
CZ	21	19	17	17	15	15	14	12	15	17	0,2%	-19%
LT	21	19	11	8	14	8	6	10	12	10	0,1%	-52%
FI	17	11	11	7	6	21	21	9	9	9	0,1%	-47%
PT	12	15	9	6	6	7	6	6	5	6	0,1%	-46%
Other	3	3	3	7	3	5	3	87	4	3	0,0%	0%
EU 28	9.496	9.740	8.060	7.220	7.967	7.633	7.874	8.493	8.167	7.663	**100%**	**-19%**

Source: FAO

Figure 2: Evolution of EU-28 eel production by method (tonnes)



Source: FAO

1.3.2 Import - Export

Despite extra-EU trade of European eel being forbidden since 2011 (see section 1.1), some extra-EU imports and exports of eel and eel products are recorded, even if they are very limited: 1.384 tonnes imported and 28 tonnes exported in 2019. This must cover other species than European eel, in particular Japanese eel, but the trade nomenclature do not allow to distinguish the different species. Extra-EU trade is forbidden but intra-EU trade is allowed. At EU level, as indicated by FAO[8], European eel aquaculture production in the different MS is based on the import of glass eels from France, Portugal, Spain and the United Kingdom.

<u>Extra-EU imports</u>

Imports from third countries are mainly preserved and frozen products (respectively 800 and 427 tonnes), and to a lesser extent live eel (156 tonnes in 2019). Their overall value was EUR 20,1 million in 2019, with China the main supplier (79% of the total in value).

The value of imports has increased by 17% between 2012 and 2019 (+8% in real terms)[9], and the volume increase was 38%. The increase in volume is related to the increase of imports of preserved and frozen eel (respectively +107% and +29%), as live eel's imports have decreased (-46%).

Prices decreased sharply for preserved eel between 2012 and 2013 (from 29,07 EUR/kg to 19,94 EUR/kg) and remained stable since 2013 (between 17 and 20 EUR/kg in nominal price; between 17 and 19 EUR/kg in real terms price). The price of frozen eel has decreased smoothly between 2012 and 2018, from 8,65 EUR/kg to 7,48 EUR/kg (from 9,11 EUR/kg and 7,32 EUR/kg in real terms price). Price remained relatively stable between 2012 and 2019 for live eel, from 8,66 EUR/kg and 10,79 EUR/kg in nominal terms (corresponding to from 8,91 EUR/kg and 11,37 EUR/kg in real terms).

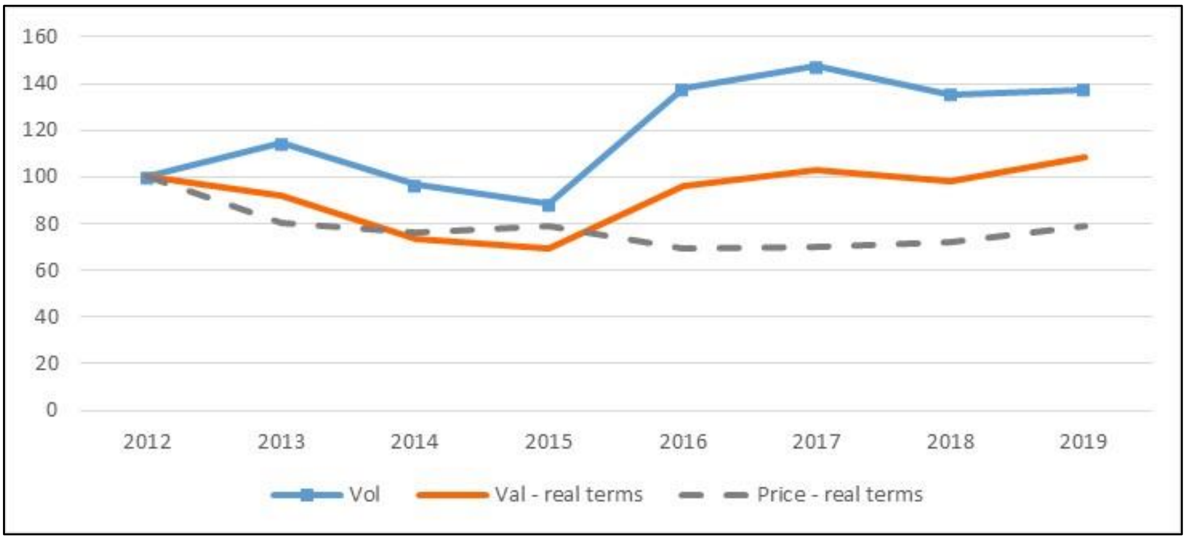
[8] http://www.fao.org/fishery/culturedspecies/Anguilla_anguilla/en
[9] In the report, values are real terms by using the GDP deflator (base=2015)

Table 6: Extra-EU imports of eel and eel products (2019)

	Volume (tonnes)	Nominal value (1.000 EUR)	Price (EUR/kg)	% val. 2019
Live	156	1.454	9,33	7%
Fresh	0	0	/	0%
Frozen	427	3.194	7,48	16%
Smoked	1	5	5,16	0%
Preserved	800	15.423	19,28	77%
Total	**1.384**	**20.076**	**14,51**	**100%**

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Figure 3: Index evolution of extra-EU imports of eel and eel products (base 100 = 2012)



Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Extra-EU exports

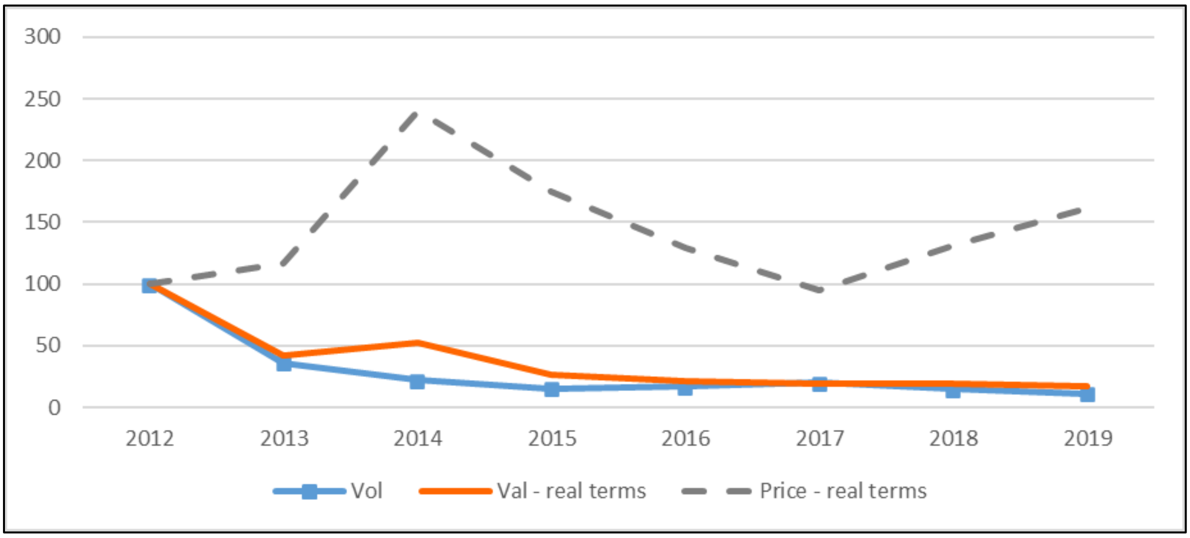
Extra-EU exports of eel and eel products amounted to 28 tonnes for EUR 0,82 million in 2019. This mainly consisted of processed eel (preserved and smoked), mainly destined for Mexico and Switzerland. Extra-EU trade highly decreased between 2012 and 2016 (-78% in nominal value; -82% in real terms) and remained stable after this period.

Table 7: Extra-EU exports of eel and eel products (2019)

	Volume (tonnes)	Nominal value (1.000 EUR)	Price (EUR/kg)	% val. 2019
Live	0	1	/	0%
Fresh	2	12	5,76	1%
Frozen	1	23	17,62	3%
Smoked	10	273	27,33	33%
Preserved	15	511	33,85	62%
Total	**28**	**820**	**28,87**	**100%**

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Figure 4: Index evolution of extra-EU exports of eel and eel products (base 100 = 2012)



Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Intra-EU trade flows

Intra-EU exports

Main MS active on intra-EU trade are the Netherlands, France, Germany and Denmark (over EUR 7 million exported in 2019 on intra-EU market); the UK, Spain, Greece and Sweden follow.

France is the main exporter of live eel on intra-EU market (EUR 15,8 million in 2019, followed by the Netherlands (EUR 11 million). Other significant exporters of live eel (over EUR 3 million export) are the UK, Germany and Denmark.

Smoked eel is significantly exported by one MS: the Netherlands with EUR 2,5 million in 2019.

Table 8: Value of intra-EU exports of eel from the main MS of origin (1.000 EUR, nominal value, 2019)

	NL	FR	DE	DK	UK	ES	EL	SE
Live	11.008	15.810	4.080	3.051	4.536	655	1.234	47
Fresh	1.371	119	129	2.812	73	1.685	4	370
Frozen	535	151	363	1.081	7	128	17	597
Smoked	2.495	28	197	70	14	2	267	57
Preserved	5.694	182	4.589	0	106	55	0	11
Total	**21.102**	**16.290**	**9.358**	**7.015**	**4.736**	**2.525**	**1.522**	**1.081**

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Intra-EU imports

Main importers of eel and eel products from other MS are the Netherlands, Germany, Denmark and France (more than EUR 5 million imported in 2019). Italy, Spain and Poland are next, with over EUR 1 million imports in 2019. Each of these MS are large importers of live eel (at least EUR 1 million intra-EU import of live eel in 2019), which may be used for aquaculture production or restocking.

Only two MS are relevant importers of processed eel (preserved, smoked and frozen): the Netherlands and Germany (EUR 8,2 million and EUR 5 million, respectively).

Table 9: Value of intra-EU imports in the main MS of destination (1.000 EUR, nominal value, 2019)

	NL	DE	DK	FR	IT	ES	PL
Live	6.551	3.371	3.051	5.499	2.550	2.023	1.002
Fresh	535	363	3.894	151	3	128	159
Frozen	2.495	197	70	28	5	2	147
Smoked	5.694	4.589	33	182	7	55	19
Preserved	0	254	0	1	0	2	0
Total	**15.275**	**8.774**	**7.048**	**5.861**	**2.565**	**2.211**	**1.327**

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

1.3.3 Apparent consumption by Member State

In 2018, the total supply of eel in the EU-28 (production + imports) was 9.433 tonnes live weight equivalent (lwe). It is mainly based on EU production (7.663 tonnes) and imports (1.770 tonnes lwe). Since exports are limited (55 tonnes lwe), apparent consumption at EU-28 level (production + imports – exports) was estimated at 9.378 tonnes lwe. The main MS in terms of apparent consumption in 2018 were the Netherlands, Germany and Italy (apparent consumption higher than 1.600 tonnes lwe). Apparent consumption in each other MS was under 1.000 t lwe.

Table 10: Apparent consumption of eel in the main MS (2018, in tonnes of live weight equivalent)

	Production (Catches + Aquaculture)	Import	Total supply (production + import)	Export	Apparent consumption (total supply – export)
NL	2.642	2.273	4.915	1.617	3.298
DE	1.411	965	2.376	824	1.552
IT	659	453	1.113	3	1.110
BE	30	581	611	103	509
PL	143	360	503	15	488
ES	391	207	599	214	384
SE	343	22	365	83	282
UK	341	307	648	379	269
DK	623	262	885	645	240
PT	6	194	200	26	174
GR	405	3	408	253	155
HU	116	0	116	1	115
LV	65	34	99	21	78
FR	394	265	659	598	61
BG	35	3	38	0	38
FI	9	23	32	0	32
CZ	17	13	30	7	23
AT	0	42	42	30	12
LU	0	13	13	2	11
EE	19	48	67	61	6
LT[10]	10	27	37	39	0
EU-28	7.663	1.770	9.433	55	9.378

Source: EUMOFA elaboration of EUROSTAT-COMEXT and FAO data

[10] The calculation of the apparent consumption was equal to -2 tonnes. This result may be due to the estimate of live weight equivalent based on level of precision of the coefficient for live weight equivalent calculation.

2 The Dutch market

2.1 Structure of the supply chain

2.1.1 Production

The volume of eel production in the Netherlands was 2.642 tonnes in 2018, of which 2.150 tonnes from aquaculture (76%) and 492 tonnes from fisheries (24%). Both sectors grew since 2012 19% for aquaculture and +44% for fishery.

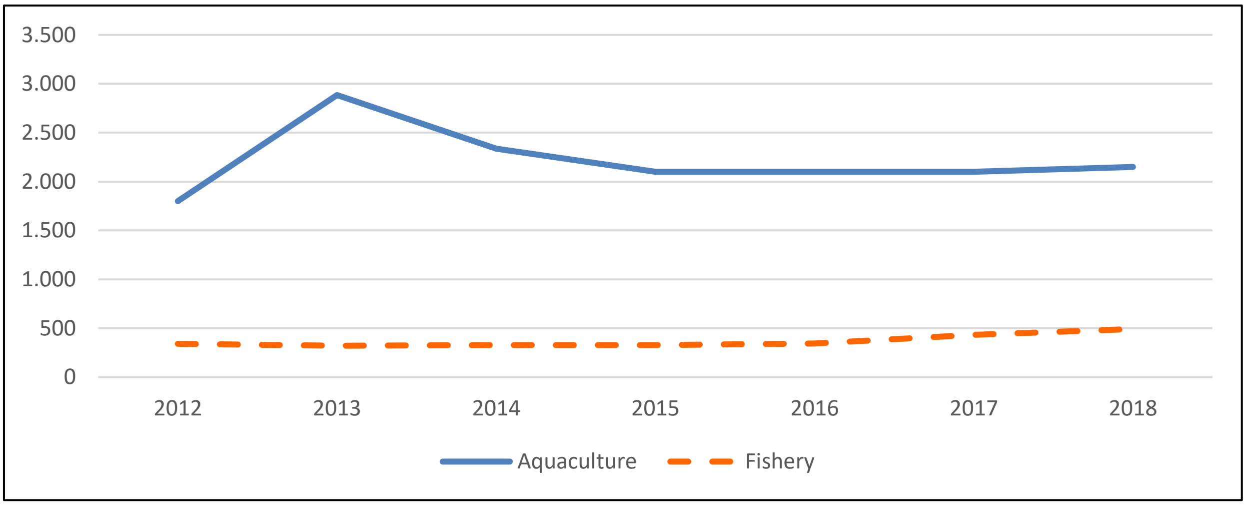
Table 11: Eel production in the Netherlands between 2012 and 2018 (tonnes)

	2012	2013	2014	2015	2016	2017	2018	Evol. 2018 / 2012
Aquaculture	1.800	2.885	2.335	2.100	2.100	2.100	2.150	+19%
Fisheries	341	321	328	329	345	434	492	+44%
Total	2.141	3.206	2.663	2.429	2 445	2 534	2.642	+23%

Source: FAO

The production of farmed eel peaked in 2013 at 2.885 tonnes, it decreased to 2.100 tonnes in 2015 and is now relatively stable. The catches of wild eel were 341 tonnes in 2012 and grew up to almost 500 tonnes in 2018.

Figure 5: Evolution of farmed eel and wild caught eel in the Netherlands between 2012 and 2018 (tonnes)



Source: FAO

The value of farmed eel in the Netherland was EUR 17.2 million in 2018 (EUR 16.5 million in real terms), having peaked in 2013 at EUR 24.5 million.

Table 12: Volume and nominal value of farmed eel in the Netherlands (2012-2017)

	2012	2013	2014	2015	2016	2017	2018	Evol. 2018 / 2012
Volume (tonnes)	1.800	2.885	2.335	2.100	2.100	2.100	2.150	+17%
Value (1.000 EUR)	13.950	24.523	16.345	16.275	16.275	16.275	17.199	+16%

Source: FAO

2.1.2 Imports - Exports

<u>Imports</u>

Total imports of eel and eel products to the Netherlands reached 1.884 tonnes and EUR 21,2 million in 2019. The main products imported were live and preserved eels, respectively EUR 10,7 million and EUR 8,9 million in 2019 (92% of total value imported). Main suppliers were China and Germany (53% of total), live eel from Germany and preserved eel from China.

Table 13: Imports of eel and eel products to the Netherlands (2019)

	Volume (tonnes)	Nominal value (1.000 EUR)	Price (EUR/kg)	% val. 2019
Live	1.076	10.701	9,95	50%
Fresh	181	974	5,38	5%
Frozen	59	622	10,49	3%
Smoked	0	2	23,57	0%
Preserved	567	8.921	15,72	42%
Total	**1.884**	**21.220**	**11,26**	**100%**

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Imports of smoked eel are very limited in the Netherlands as there is a long tradition for smoking at national level (0,1 tonne imported for EUR 2 357 in 2019 (EUR 1 867 in real terms)).

Table 14: Evolution of imports of smoked eel to the Netherlands between 2012 and 2019

	2012	2013	2014	2015	2016	2017	2018	2019	Evol. 2019 / 2012
Volume (tonnes)	4,8	4,2	0,5	0,9	0,9	0,9	0,0	0,1	-98%
Nominal value (1.000 EUR)	134	58	11	19	19	13	0	2	-98%
Price (EUR/kg)	27,87	13,69	22,17	21,42	21,54	14,95	/	23,57	-15%

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Exports

Exports of eel and eel products from the Netherlands reached 1.493 tonnes and EUR 21,2 million in 2019. This was mainly composed of live eel (52% of value of all eels exported, EUR 11 million), followed by preserved eel (27% of value exported, EUR 5,8 million) and smoked eel (12% of value exported, EUR 2,5 million). Main destinations were Germany and Belgium (61% of value exported).

Table 15: Exports of eel and eel products from the Netherlands (2019)

	Volume (tonnes)	Nominal value (1.000 EUR)	Price (EUR/kg)	% val. 2019
Live	1.003	11.009	10,98	52%
Fresh	151	1.379	9,11	7%
Frozen	29	535	18,44	3%
Smoked	68	2.498	36,57	12%
Preserved	242	5.758	23,84	27%
Total	**1.493**	**21.178**	**14,18**	**100%**

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Exports of smoked eel were 68 tonnes and EUR 2,5 million in 2019, it has increased by 12% in volume and 33% in value since 2012 (+21% in real terms). The price has increased in the recent years and was 36,57 EUR/kg in 2019. Exports peaked in 2017 (93 tonnes and EUR 3,5 million).

Table 16: Evolution of exports of smoked eel from the Netherlands between 2012 and 2019

	2012	2013	2014	2015	2016	2017	2018	2019	Evol. 2019 / 2012
Volume (tonnes)	61	59	46	31	87	93	75	68	+12%
Value (1.000 EUR)	1.881	1.748	1.312	853	2.862	3.434	2.687	2.498	+33%
Price (EUR/kg)	30,78	29,68	28,39	27,50	33,05	36,85	35,82	36,57	+19%

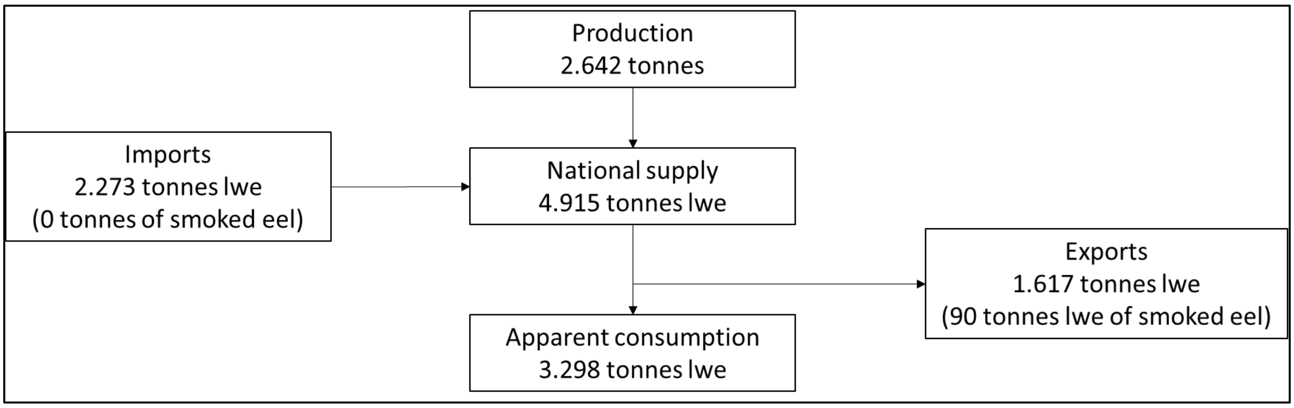
Source: EUMOFA elaboration of EUROSTAT-COMEXT data

2.1.3 Apparent consumption

In 2018, the total supply of eel in the Netherlands was 4.915 tonnes of live weight equivalent, 54% from national production (aquaculture + fisheries) and 46% from imports. One third (33%) of this supply was exported, thus two thirds can be estimated as national “apparent” consumption (3.298 tonnes of live weight equivalent).

There is no detailed data on the production of smoked eel, but based on interviews with processors, it is estimated to a maximum of 2.000 tonnes per year.

Figure 6: Supply balance for eel in the Netherlands (2018, tonnes of live weight equivalent)



Source: EUMOFA elaboration of EUROSTAT-COMEXT and FAO data

2.2 Characteristics of the Dutch market and consumption

2.2.1 Characteristics of the market

Based on interviews, there are about 20 eel smokers in the Netherlands: a large number of them are very small-scale and about 5-6 companies process significant volumes (at least few hundreds of live eel each). The process may differ in each company, in particular regarding the smoking process (for instance regarding the type of wood used).

Main sales channels for smoked eel in the Netherlands are:

- direct sales from producers to consumers;
- sales to fishmongers, a large range of them being “mobile” fishmongers (with trucks);
- sales to HORECA.

For fishmongers and HORECA, some wholesalers may be involved between the processor and the fishmonger or restaurant.

There are no sales of eel in Dutch supermarkets, as this species has been banned by large-scale retailers since 2009 or 2010 (depending on the retailer), due to concerns on the state of fish stock. Based on interviews, this ban had a strong impact on the market (about -30% of sales in a few months after the ban was initiated).

ESF certification (Eel Stewardship Fund) is used in the Dutch market.

2.2.2 Consumption

Smoked eel is a traditional product in the Netherlands, consumed both in fillet or whole. The demand for fillets is higher than that for whole eel, as they are easier to prepare. Smoked eel is considered as a festive and premium product: it may be consumed in different ways, such as with a piece of bread as an appetizer, in salad or sandwiches.

2.2.3 DUPAN foundation

DUPAN[11] is a foundation whose objective is the recovery of the eel stocks in the Dutch and European inland waterways. It gathers the Dutch association of eel traders (NeVePaling), the Dutch Association of fish farmers (NEVEVI) and the organization of professional fishermen (netVISwerk).

The actions implemented by DUPAN cover:

- Facilitation of eel migration;
- Restocking of glass eel;
- Scientific research;
- Sustainable solutions for the catch, farming and processing of eel.

DUPAN is linked to the Sustainable Eel Fund (ESF)[12], which contributes to the DUPAN activities.

In the Netherlands, a fee is paid by eel processors for each kg of smoked eel produced: 1,00 EUR/kg for smoked fillets and 0,50 EUR/kg for whole smoked eel. Through this fee, processors contribute to the actions implemented by DUPAN foundation.

2.3 Price transmission in the supply chain

2.3.1 First-sale prices

Qualitative information from interviews

In the Netherlands, first sales cover adult eels; glass eels are not fished in this MS.

There are different types of eels, with different prices. Based on interviews, the purchase price of live eel in the Netherlands for processor ranged between 6,50 and 11,00 EUR/kg in 2019. Some eel may be purchased at 4,00-5,00 EUR/kg but the quality is very low.

One processor indicated that silver eel is “the best”, costing 9,00-11,00 EUR/kg and having a fat content of 28%.

Silver eels are mainly used for smoked fillets and yellow eels for whole smoked products. Farms can supply with silver eels and fisheries provide both silver and yellow eels.

The processors interviewed indicated that there is no difference between farmed eel or wild caught eel in terms of quality, but the main difference is represented by the regularity of the supply (the regularity of volume from wild caught eel is not sufficient for largest processors).

The price tended to decrease in 2019 compared to 2018, due to a lower demand from processors compared to the volume available.

Data

According to data collected by EUMOFA from the Dutch Ministry of Economic Affairs, Agriculture and Innovation, 1 to 4 tonnes are sold each year at first sale stage in the Netherlands. This is a very limited share of the volume of eel fished in the Netherlands (between 300 tonnes and 500 tonnes fished each year by Dutch fleet, according to FAO).

The price at first sale stage is the price paid by the processor when he purchases directly to the fishermen (processor may also purchase from fish farmers or wholesalers). The first sales price was 7,47 EUR/kg in average in 2019 (6,95 EUR/kg in real terms prices), this was 1,51 EUR/kg lower than in 2018 (1,70 EUR/kg lower with value in real terms) and was the lowest price since 2012. The average yearly price ranged from 8,98 and 11,34 between 2012 and 2018 (6,95 EUR/kg to 11,58 EUR/kg in real terms).

[11] https://www.dupan.nl/nl/english
[12] https://www.esf.international/

Table 17: First sales of eel in the Netherlands (2012-2019)

	Volume (tonne)	Nominal value (1.000 EUR)	Price (EUR/kg)
2012	0,76	8,6	11,34
2013	0,83	8,2	9,93
2014	2,06	20,0	9,70
2015	1,14	10,8	9,46
2016	2,16	20,3	9,41
2017	2,56	25,9	10,09
2018	2,19	19,7	8,98
2019	4,08	30,4	7,47

Source: EUMOFA, as collected from the Dutch Ministry of Economic Affairs, Agriculture and Innovation

<u>Ex-farm prices</u>

Based on FAO data, the average price for farmed eel ranged from 7,00 and 8,50 EUR/kg between 2012 and 2018 (7,05 to 8,59 EUR/kg in real terms price).

Table 18: Ex-farm price (nominal price) for farmed eel in the Netherlands (2012-2018)

	2012	2013	2014	2015	2016	2017	2018
Price (EUR/kg)	7,75	8,50	7,00	7,75	7,75	7,75	8,00

Source: FAO

2.3.2 Processing stage

Based on interviews, the ex-factory price ranges from 35,00 to 38,00 EUR/kg for smoked fillets (the main product sold).

2.3.3 Import and export prices

There is almost no import of smoked eel to the Netherlands: 5 tonnes in 2012 to 0,1 tonnes in 2019. The price was 23,57 EUR/kg in 2019. Exports are more significant (68 tonnes in 2019 sold at 36,57 EUR/kg; 34,13 EUR/kg in real terms). Between 2016 and 2019, price ranged from 33,00 to 37,00 EUR/kg (32,90 to 36,23 EUR/kg in real terms).

Table 19: Import and export price (nominal price) and volume for smoked eel in the Netherlands

		2012	2013	2014	2015	2016	2017	2018	2019	Evol. 2019/2012
Price (EUR/kg)	Import	27,87	13,69	22,17	21,42	21,54	14,95	/	23,57	-15%
	Export	30,78	29,68	28,39	27,50	33,05	36,85	35,82	36,57	19%
Volume (tonnes)	Import	5	4	1	1	1	1	0	0,1	-98%
	Export	61	59	46	31	87	93	75	68	12%

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

2.3.4 Retail prices

Smoked eel fillets are generally sold in 100 g packages. Based on interviews, the price generally ranges from 50,00 to 70,00 EUR/kg (5,00 to 7,00 EUR/100 g), but some products may be retailed up to 80,00 EUR/kg (depending on retailer strategy).

2.3.5 Price transmission

The analysis covers smoked eel fillets sold by fishmongers, the data are based on interviews. The price for live adult eel is 9,00 EUR/kg (the eel may be purchased from fishermen or farmers) and the retail price is 60,17 EUR/kg. The ex-factory price is 36 EUR/kg, this accounts for 60% of the final price. As shown below, main costs are related to the loss at filleting stage with a filleting yield from 41% to 46%, followed by raw material (live eel) and labour costs.

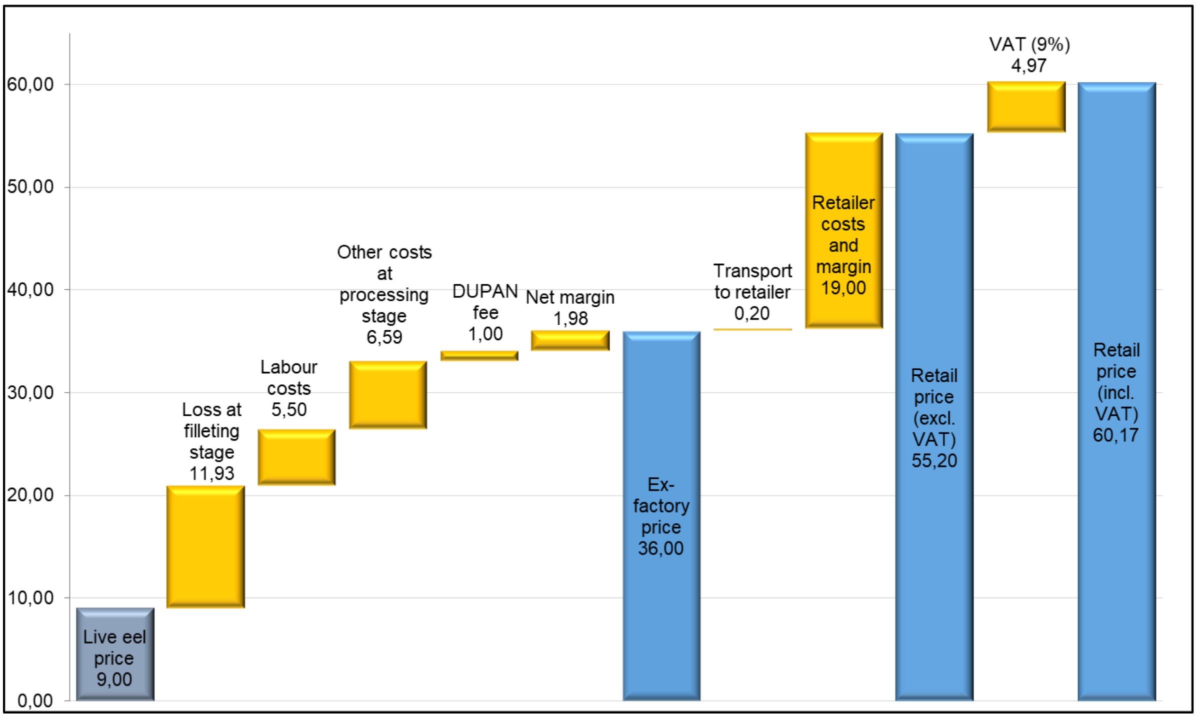
For each kg of fillet of smoked eel produced, the processor pays a fee of 1 EUR to DUPAN (0,5 EUR/kg for whole eel smoked). See section 2.2.3.

Table 20 – Costs and margins for smoked eel fillets retailed by fishmongers in the Netherlands (2019)

	Average price (EUR/kg)	% of final price	Comment
Live eel price (from fishermen or farmers)	9,00	15%	6,00 to 11,00 EUR/kg
Loss at filleting stage	11,93	20%	41% to 46% yield
Labour costs	5,50	9%	4,00 to 6,20 EUR/kg
Other costs at processing stage	6,59	11%	
DUPAN fee	1,00	2%	1,00 EUR/kg for eel recovery measures
Net margin	1,98	3%	
Ex-factory price	**36,00**	**60%**	**35,00 to 38,00 EUR/kg**
Transport to retailer	0,20	0%	
Retailer costs and margin	19,00	32%	
Retail price (excl. VAT)	**55,20**	92%	
VAT (9%)	4,97	8%	9% VAT
Retail price (incl. VAT)	**60,17**	**100%**	**50,00 to 70,00 EUR/kg**

Source: EUMOFA

Figure 7 – Costs and margins for smoked eel fillet retailed by fishmongers in the Netherlands (EUR/kg, 2019)



Source: EUMOFA

3 The German market

3.1 Structure of the supply chain

3.1.1 Production

Eel production in Germany amounted to 1.411 tonnes in 2018, 13% supplied by fisheries and 87% by aquaculture. The production has increased significantly in recent years: +97% between 2012 and 2018, due to a strong growth of aquaculture (+167%).

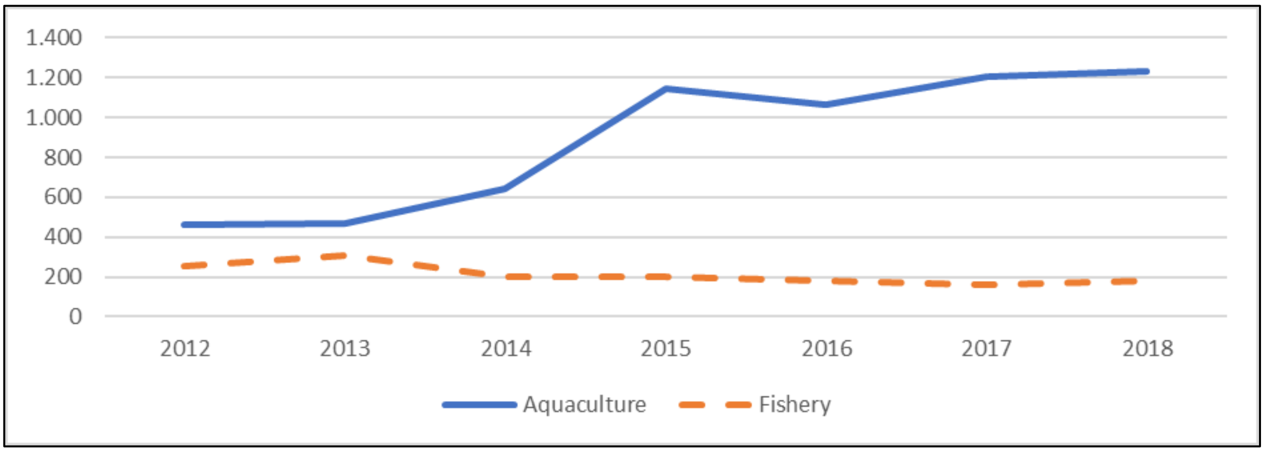
In spite of a severe decline in recent years, eel is still very important for inland fisheries, especially in the State of Brandenburg, which is one of the most important States for the German inland fishery sector in general. On average, eel contributes 27% to the revenues of the fishing companies[13].

Table 21: Eel production in Germany between 2012 and 2018 (tonnes)

	2012	2013	2014	2015	2016	2017	2018	Evol. 2018 / 2012
Aquaculture	460	471	643	1.147	1.062	1.202	1.229	+167%
Fishery	256	307	203	198	180	159	182	-29%
Coastal fisheries	*42*	*45*	*47*	*39*	*39*	*16*	*54*	*+29%*
Inland fisheries	*214*	*262*	*156*	*159*	*141*	*143*	*128*	*-47%*
Total	**716**	**778**	**846**	**1.345**	**1.242**	**1.361**	**1.411**	**+97%**

Source: FAO

Figure 8: Evolution of farmed eel and wild caught eel in Germany between 2012 and 2018 (tonnes)



Source: FAO

[13] Source: "Structure and economic situation of inland fishery in Brandenburg", Fladung und Ebeling (Institut für Binnenfischerei e.V. Potsdam-Sacrow), 2016

In Germany, eel aquaculture started at the very end of the last century and reached a significant milestone in 2015, with production exceeding for the first time 1.000 tonnes. The sales value was EUR 15.8 million in 2018 (EUR 15.2 million in real terms).

Table 22: Volume and nominal value of farmed eel in Germany (2012-2018)

	2012	2013	2014	2015	2016	2017	2018	Evol. 2018 vs. 2012
Volume (tonnes)	460	471	643	1.147	1.062	1.202	1.229	+167%
Value (1.000 EUR)	5.971	4.946	6.147	10.965	9.452	15.481	15.817	+165%

Source: FAO

3.1.2 Imports - Exports

In 2019, Germany imported EUR 15 million of eel products and exported EUR 10 million. The German trade balance is thus negative, mainly due to frozen (- EUR 2,3 million) and live eels (- EUR 1,4 million). For smoked eels, the trade balance is also negative (- EUR 0,2 million).

<u>Imports</u>

In value, preserved eels (primarily imported from China and Taiwan) and live eels (mostly small eels[14] imported from France and large eels[15] imported from the Netherlands) represented 74% of the total value of eel products imported in 2019.

Table 23: Imports of eel and eel products to Germany (2019)

	Volume (tonnes)	Nominal value (1.000 EUR)	Price (EUR/kg)	% val. 2019
Live	190	5.489	28,87	37%
Fresh	44	620	14,16	4%
Frozen	249	2.683	10,79	18%
Smoked	18	590	32,25	4%
Preserved	302	5.600	18,52	37%
Total	**803**	**14.982**	**18,65**	**100%**

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Smoked eels represented 4% of the total value of eel products imported by Germany in 2019. Imports of smoked eels halved between 2012 and 2019. The suppliers were the Netherlands (12 tonnes in 2019) and Poland (6 tonnes). The value imported was EUR 0.59 million in 2019, with a 48% decrease since 2012 (EUR 0.56 million and 54% decrease in real terms value).

[14] < 12 cm (glass eels used for restocking purposes and aquaculture operations)
[15] > 20 cm

Table 24: Evolution of imports of smoked eels to Germany between 2012 and 2019

	2012	2013	2014	2015	2016	2017	2018	2019	Evol. 2019 / 2012
Volume (tonnes)	39	34	44	35	25	37	22	18	-52%
Nominal value (1.000 EUR)	1.144	1.067	1.288	1.040	739	1.039	631	590	-48%
Price (EUR/kg)	29,73	31,74	29,07	30,07	29,34	28,02	28,18	32,25	8%

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Exports

The main products exported are preserved eels and live eels, which represented 91% of the total value of eel products exported by Germany in 2019. The main destinations of preserved eels were Poland (67 tonnes), the Netherlands (20 tonnes), Italy (15 tonnes) and Spain (10 tonnes). Live eels are shipped to neighbouring Netherlands and Denmark.

Table 25: Exports of eel and eel products from Germany (2019)

	Volume (tonnes)	Nominal value (1.000 EUR)	Price (EUR/kg)	% Val. 2019
Live	433	4.080	9,43	42%
Fresh	10	129	13,16	1%
Frozen	39	364	9,34	4%
Smoked	13	390	29,13	4%
Preserved	182	4.746	26,02	49%
Total	**677**	**9.709**	**14,34**	**100%**

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

German exports of smoked eels are on an upward trend but remain at a very low level (12-13 tonnes per year). The export price is quite stable, it was 29,13 EUR/kg in 2019 (28,30 EUR/kg in real terms).

Table 26: Evolution of exports of smoked eel from Germany between 2012 and 2019

	2012	2013	2014	2015	2016	2017	2018	2019	Evol. 2019 / 2012
Volume (tonnes)	8	6	7	7	12	13	12	13	76%
Nominal value (1.000 EUR)	229	191	202	223	333	369	374	390	71%
Price (EUR/kg)	30,11	30,24	30,60	32,34	27,32	29,08	30,44	29,13	-3%

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

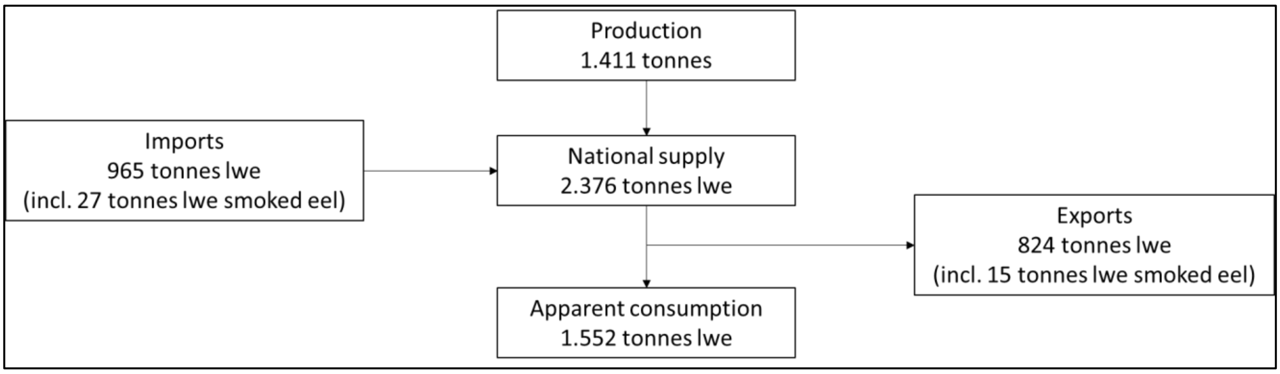
3.1.3 Apparent consumption

Germany has long been the largest market in the EU for eel and the second largest in the world after Japan. The average yearly consumption was around 6.000 tonnes at the end of the 1980s[16]. Due to supply issues and protective measures, the market has then fallen steadily to approximately 1.500 tonnes in 2019. Germany is now the second largest market for eel in the EU, after the Netherlands.

In 2018, the national supply of eel was 2.376 tonnes (2,5% down compared to the previous year), 59% of which from national production (aquaculture + fishery) and 41% from imports. One third (35%) of this supply was exported, thus 65% can be estimated as national “apparent” consumption. Apparent consumption of eel in Germany was 1.552 tonnes of live weight equivalent in 2018, 6,6% down compared to 2017.

There is no detailed data on the production of smoked eels (according to stakeholders’ interviews, annual production should amount to around 1.000 tonnes of live weight equivalent).

Figure 9: Supply balance for eel in Germany (2018, tonnes of live weight equivalent)



Source: EUMOFA elaboration of EUROSTAT-COMEXT and FAO data

3.2 Characteristics of the German market and consumption

3.2.1 Characteristics of the market

In Germany, demand for smoked eel prevails, mainly focusing on whole smoked products (300-500 g, 600-800 g, over 800 g), but also fillets and, less often, steaks. Smoking companies are mostly located in the north of Germany (Bremerhaven, Lower Saxony), close to the fishing areas and the farming units. About 20 companies are smoking eel, and most of them are very small. Eel is not among the main species processed by these companies, as it usually comes after salmon, mackerel and halibut.

Fishermen typically sell directly to the consumer, and some are also smoking themselves a part of their catch before selling it. German wholesalers and retailers generally require ESF[17] certified eels. Most operators of the German supply chain (farmers, wholesalers, smokers, fish merchants) are members of IFEA[18] (“Initiative zur Förderung des Europäischen Aals”)[19].

Large-scale retailers (e.g. EDEKA, REWE, KAUFLAND) stopped selling eels, arguing that “*every eel on the plate endangers the survival of the whole species*” (EDEKA).

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[16] Source: The eel market in Federal Republic of Germany – “*Le marché de l’anguille en RFA*” (Poste d’Expansion Economique, Hambourg, 1992)

[17] Eel Stewardship Fund

[18] IFEA is member of the Eel Stewardship Association (ESA), which is the owner of the ESF label.

[19] Leading wholesalers (DEUTSCHE SEE, TRANSGOURMET) and major smoking companies (GOTTFRIED FRIEDRICHS, WECHSLER…) are members of this initiative, but no large-scale retailers.

3.2.2 Consumption

Smoked eel is a delicacy in Germany, a luxury product which is mainly consumed in December. This 'special occasion' type of consumption has been strengthened by the concerns on the state of the eel stock.

3.3 Price transmission in the supply chain

3.3.1 First-sale prices

In Germany, first sales cover adult eels; glass eels are not fished in this MS.

German national statistics (BLE[20]) which cover first sales of eels caught by costal fishermen in the Baltic Sea, show a slight upward trend of prices in the last years. It was 10,85 EUR/kg in 2019 (11 months) and 10,23 EUR/kg in real terms.

Figure 10: First-sale price for eels[21] landed by the German coastal fisheries

	Landing price (EUR/kg)
2012	8,50
2013	8,55
2014	9,38
2015	8,97
2016	10,33
2017	9,28
2018	10,67
2019 (11 months)	10,85

Source: BLE

Some data collected by the German Institute for Inland Fisheries in Potsdam report the prices paid to the professional freshwater fisherman according to the marketing channel used.

[20] Federal Office for Agriculture and Food

[21] Eels destined for human consumption (fresh or smoked).

Figure 11: Prices paid to the producer (professional fisherman) for wild-caught eels according to the marketing channel (EUR/kg, 2018)

Marketing channel	Fresh	Smoked
Direct selling to the consumer		
Baden-Württemberg		30,00-40,00
Bavaria	20,50	33,00
Berlin	21,75	40,50
Lower Saxony	15,00-25,00	34,00-48,00
North Rhine-Westphalia	20,00	
Rhineland-Palatinate	28,00	52,00
Saxony-Anhalt	13,00-26,00	29,90-34,90
Schleswig-Holstein	22,00	38,00
Retailers and restaurants		
Bavaria	17,50	24,00
Berlin	14,00	27,00
North Rhine-Westphalia	20,00	
Rhineland-Palatinate		29,50
Saxony-Anhalt	13,00	
Wholesalers		
Berlin	15,50	
Rhineland-Palatinate		26,00

Source: Annual report on German Inland Fisheries (Institut für Binnenfischerei e.V. Potsdam-Sacrow)

Ex-farm prices of eels were at the same level in 2012 compared to 2018. However, we observe a strong decline from 2012 to 2016 and an increase in 2017 and 2018 (+45% in 2018 compared to 2016). The ex-farm price was 12,87 EUR/kg in 2018 (12,40 EUR/kg in in real terms price).

Table 27: Ex-farm price (nominal price) for farmed eel in Germany (2012-2018)

	2012	2013	2014	2015	2016	2017	2018
Price (EUR/kg)	12,98	10,50	9,56	9,56	8,90	12,88	12,87

Source: FAO

3.3.2 Import and export prices

Trade flows are very limited for smoked eels. Price trends are slightly upward for imported eels and slightly downward for exported eels. Import price was 32,25 EUR/kg in 2019 (30,92 EUR/kg in real terms), export price was 29,13 EUR/kg (28,32 EUR/kg in real terms).

Table 28: Import and export price (nominal price) and volume for smoked eel in Germany (2012-2019)

		2012	2013	2014	2015	2016	2017	2018	2019	Evol. (2019/2012)
Price (EUR/kg)	**Import**	29,73	31,74	29,07	30,07	29,34	28,02	28,18	32,25	8%
	Export	30,11	30,24	30,60	32,34	27,32	29,08	30,44	29,13	-3%
Volume (tonnes)	**Import**	39	34	44	35	25	37	22	18	-52%
	Export	8	6	7	7	12	13	12	13	76%

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

3.3.3 Wholesale prices

According to a major seafood wholesaler, the wholesale price of whole smoked eels was close to 28,00 EUR/kg in March 2020, with very low differences (max. 1,00 EUR/kg) between the different sizes (300-600 g, 600-800 g, 800-1000 g).

In the same period, METRO reports substantially different prices, as can be seen in the table below.

Table 29: Eel range prices of smoked eel in METRO (March-April 2020)

Description	Packaging/Brand	Unit weight	Price excl VAT (EUR/kg)	Price incl VAT (EUR/kg)
300-600 g (approx. 450 g/piece) Promotion 12.3.20 --> 11.4.20	in bulk, no brand	2,5 kg	43,99 34,99	47,07 37,44
600-800 g (approx. 800 g/piece) Promotion 12.3.20 --> 11.4.20	in bulk, no brand	3 kg	43,99 34,99	47,07 37,44
Eel steaks (approx. 600 g/piece)	WECHSLER		49,99	53,49
Whole silver eel (approx. 600 g/piece)	WECHSLER	3 kg	48,99	52,42
Eel fillets 5x500 g	WECHSLER	5 x 500 g	75,16	80,42

Source: METRO

3.3.4 Retail prices

Retail prices of whole smoked eels were around 49,00 EUR/kg in March 2020.

Table 30: Retail prices of eel products (March-April 2020)

Product	Eel origin	Comments	Unit weight	Price incl VAT (EUR/unit)	Price incl VAT (EUR/kg)
Smoked Baltic eel	Baltic Sea, fishery		1 kg	63,85	63,85
Smoked Müritz eel	Inland fishery, DE		600 g	52,35	87,25
Smoked Müritz eel	Inland fishery, DE		800 g	51,88	64,85
Smoked eel	Inland fishery, DE		350 g	19,94	56,99
Smoked Müritz eel steaks	Inland fishery, DE		300 g	19,85	66,17
Smoked Müritz eel fillets	Inland fishery, DE	presliced, without skin, frozen	100 g	7,85	78,50
Fresh Müritz eel	Inland fishery, DE		600 g	22,85	38,08
Fresh Müritz eel	Inland fishery, DE		800 g	30,85	38,56
Fresh Müritz eel	Inland fishery, DE		1 kg	39,85	39,85
Fresh eel	Aquaculture, NL		350 g	13,98	39,96
Jellied (glass jar)	Inland fishery, DE	ingredients: eel, water, brandy vinegar, pork gelatin, sugar, spices	220 g (100 g eel)	5,99	27,23

Source: fischkaufhaus.de

3.3.5 Price transmission

As large-scale retailers do not offer eel products, smoked eels are marketed through a rather traditional supply chain (from smokers to wholesalers, then sold to retailers or restaurants), when they are not sold directly to the final consumer.

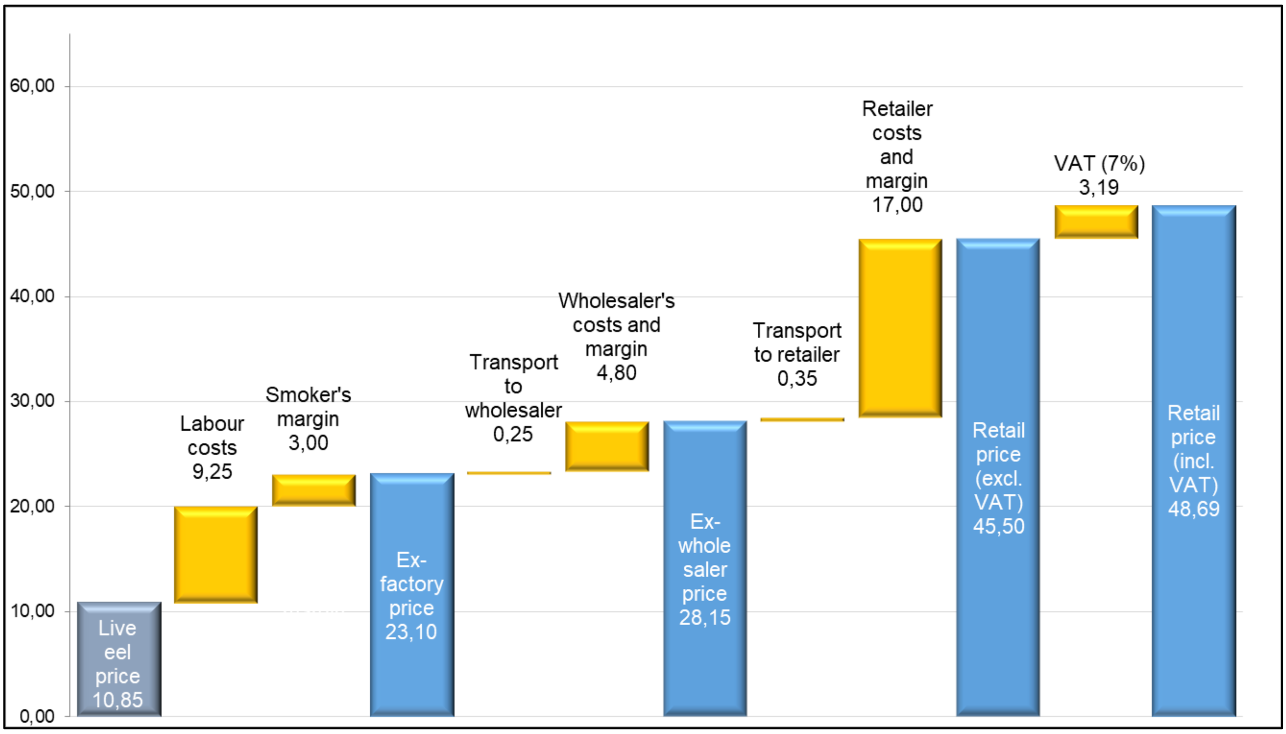
The table and the chart below show the price transmission for whole smoked eels sold in fishmongers' shops in Germany. The price for live eel is 10,85 EUR/kg (adult eel, purchased from farmer or fisherman) and the retail price is 48,69 EUR/kg. In the case analyzed, 22% of the final price go to the producer (fisherman/farmer), 25% to the processor (smoker), 11% to the wholesaler, 36% to the retailer, and the remaining 7% to the tax authority (VAT).

Table 31: Costs and margins for whole smoked eel retailed in fishmongers shops in Germany (EUR/kg, 2019)

	Average price (EUR/kg)	% final price
Live eel price	**10,85**	**22%**
Labour costs	9,25	19%
Smoker's margin	3,00	6%
Ex-factory price	**23,10**	**47%**
Transport to wholesaler	0,25	1%
Wholesaler's costs and margin	4,80	10%
Ex-wholesaler price	**28,15**	**58%**
Transport to retailer	0,35	1%
Retailer costs and margin	17,00	35%
Retail price (excl. VAT)	**45,50**	**93%**
VAT (7%)	3,19	7%
Retail price (incl. VAT)	**48,69**	**100%**

Source: EUMOFA

Figure 12: Costs and margins for whole smoked eel retailed in fishmongers' shops in Germany (EUR/kg, 2019)



Source: EUMOFA

4 The Danish market

4.1 Structure of the supply chain

4.1.1 Production

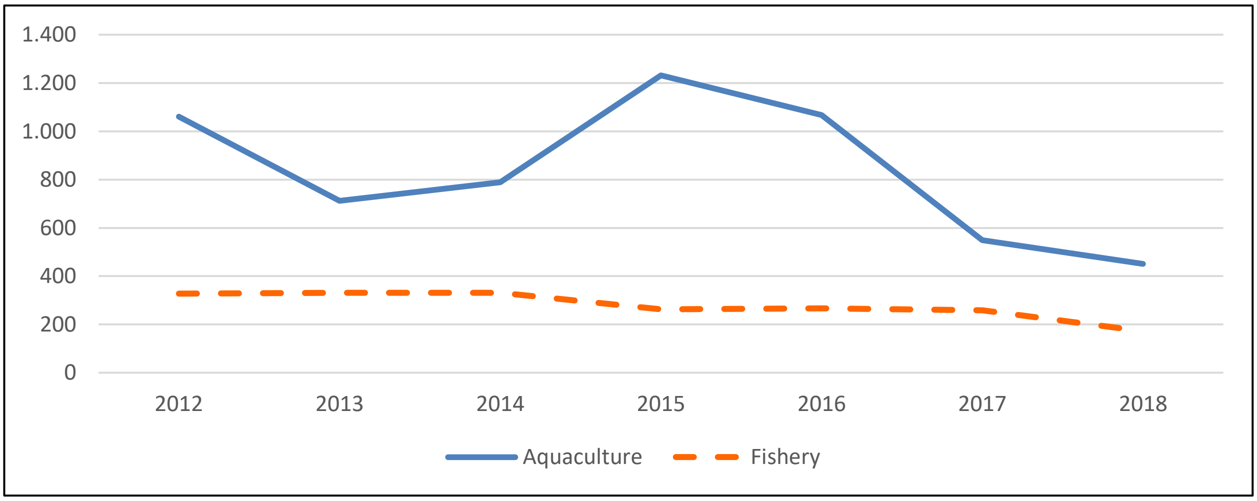
Production of eel in Denmark was 623 tonnes in 2018, 72% tonnes from aquaculture and 28% from fisheries The production decreased by 55% between 2012 and 2018 (-57% for aquaculture and -48% for fisheries).

Table 32: Eel production in Denmark between 2012 and 2018 (tonnes)

	2012	2013	2014	2015	2016	2017	2018	Evol. 2018 / 2012
Aquaculture	1.061	712	789	1.232	1.067	549	451	-57%
Fisheries	328	331	331	262	267	259	172	-48%
Total	**1.389**	**1.043**	**1.120**	**1.494**	**1.334**	**808**	**623**	**-55%**

Source: FAO

Figure 13: Evolution of farmed eel and wild caught eel in Denmark between 2012 and 2018 (tonnes)



Source: FAO

4.1.2 Imports - Exports

Imports

Imports of eel and eel products were 238 tonnes and EUR 2,6 million in 2019, mainly composed of fresh eel (48% of the imported value) and live eel (40% of the imported value). There was only 1 tonne of smoked eel imported, for EUR 35.000.

Table 33: Imports of eel and eel products to Denmark (2019)

	Volume (tonnes)	Nominal value (1.000 EUR)	Price (EUR/kg)	% val. 2019
Live	108	1.047	9,70	40%
Fresh	112	1.260	11,23	48%
Frozen	10	137	14,45	5%
Smoked	1	35	35,47	1%
Preserved	7	121	16,77	5%
Total	**238**	**2.600**	**10,93**	**100%**

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Between 2012 and 2019, imports of smoked eel have been limited, from 8 tonnes in 2012 to 1 tonne in 2019. The price was 35,47 EUR/kg in 2019 (33,93 EUR/kg in real terms).

Table 34: Evolution of imports of smoked eel to Denmark between 2012 and 2019

	2012	2013	2014	2015	2016	2017	2018	2019	Evol. 2019 / 2012
Volume (tonnes)	8	5	3	3	3	4	5	1	-88%
Nominal value (1.000 EUR)	290	164	104	88	102	122	170	35	-88%
Price (EUR/kg)	34,90	30,38	31,45	33,66	35,02	33,96	32,02	35,47	2%

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Exports

Exports of eel and eel products from Denmark were 664 tonnes and EUR 7,1 million in 2019, mainly including live eel (43% of the exported value), fresh eel (40%) and frozen eel (15%).

Table 35: Exports of eel and eel products from Denmark (2019)

	Volume (tonne)	Nominal value (1.000 EUR)	Price (EUR/kg)	% val. 2019
Live	390	3.051	7,82	43%
Fresh	183	2.812	15,33	40%
Frozen	87	1.081	12,39	15%
Smoked	3	98	36,20	1%
Preserved	2	49	32,91	1%
Total	**665**	**7.092**	**10,66**	**100%**

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

Exports of smoked eel from Denmark are limited: between 2012 and 2019, exports peaked at 22 tonnes in 2016 and ranged from 3 and 10 tonnes in other years. The export price was 36,20 EUR/kg in 2019.

Table 36: Evolution of exports of smoked eel from Denmark between 2012 and 2019

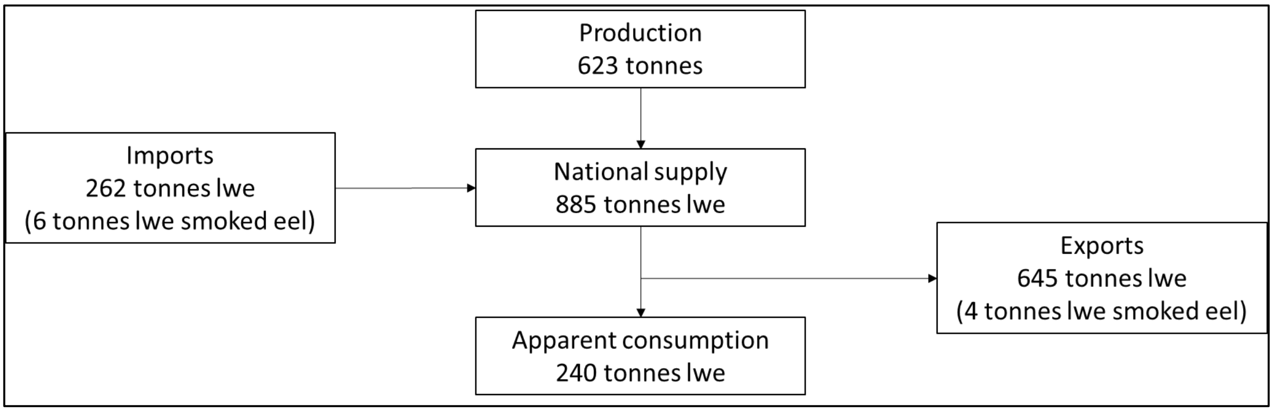
	2012	2013	2014	2015	2016	2017	2018	2019	Evol. 2019 / 2012
Volume (tonnes)	9	10	9	3	22	6	4	3	-71%
Nominal value (1.000 EUR)	253	303	169	86	692	164	135	98	-61%
Price (EUR/kg)	27,20	30,31	19,84	26,80	32,18	26,05	36,39	36,20	33%

Source: EUMOFA elaboration of EUROSTAT-COMEXT data

4.1.3 Apparent consumption

In 2018, the total supply of eel amounted to 885 tonnes in live weight equivalent, 70% from national production (aquaculture + fisheries) and 30% from imports. Almost three quarters (73%) of this supply were exported, thus one quarter (27%) can be estimated as "apparent consumption" at national level, namely 240 tonnes lwe.

Figure 14: Supply balance for eel in Denmark (2018, tonnes, live weight equivalent)



Source: EUMOFA elaboration of EUROSTAT-COMEXT and FAO data

4.2 Characteristics of the Danish market and consumption

No statistics are available on the eel smoking industry in Denmark, either in terms of the number of companies or the volume of production. In the context of this study, less than ten companies have been identified, all of them small-scale. Based on production data (both fisheries and aquaculture), the availability of eel decreased in Denmark over the last years. Nonetheless, consumption for smoked eel is traditional.

4.3 Price transmission in the supply chain

4.3.1 First-sale prices

<u>Purchase price for processors</u>

Based on interviews, the price of farmed live eel in Denmark for processors (processor may purchase eel both from fisheries and aquaculture) was around 9,00 and 11,00 EUR/kg in 2019.

<u>First-sales data</u>

In Denmark, first sales cover adult eels; glass eels are not fished in this MS. According to data collected by EUMOFA from the the Danish Fisheries Agency, annual first sales of eel in Denmark range from 171 to 313 tonnes, accounting for 88% - 100% of the eel catches in the country. Based on these data, the average price was 10,65 EUR/kg in 2019 (0,24 EUR/kg lower than in 2018) while volume remained relatively stable. The real terms price was 10,34 EUR/kg in 2019. The lowest prices were in 2014 and 2015 (8,21 EUR/kg and 9,38 EUR/kg), compared to 10,00-12,00 EUR/kg in other periods.

Table 37: First sales of eel in Denmark

DK	Volumes (tonnes)	Nominal value (1.000 EUR)	Price (EUR/kg)
2012	287	3.524	12,27
2013	313	3.458	11,04
2014	303	2.487	8,21
2015	242	2.271	9,38
2016	244	2.549	10,44
2017	240	2.896	12,06
2018	175	1.904	10,89
2019	171	1.823	10,65

Source: EUMOFA, as collected from the Danish Fisheries Agency

<u>Ex-farm price</u>

Based on FAO data, the ex-farm price was 11,14 EUR/kg in 2019 (10,89 EUR/kg real terms price), compared to 8,44 to 12,27 EUR/kg for previous years.

Table 38: Ex-farm price price (nominal price) for farmed eel in Denmark (2012-2017)

	2012	2013	2014	2015	2016	2017	2018
Price (EUR/kg)	10,17	9,52	8,44	9,78	10,79	12,27	11,14

Source: FAO

4.3.2 Import and export prices

Trade flows of smoked eel are very limited to and from Denmark (1 tonne imported and 3 tonnes exported in 2019). The average prices in 2019 of both import and export are relatively similar: around 35,00 and 36,00 EUR/kg, respectively (around 34,00 and .35,00 EUR/kg real terms price)

Table 39: Import and export price (nominal price) and volume for smoked eel in Denmark (2012-2019)

		2012	2013	2014	2015	2016	2017	2018	2019	Evol. 2019/2012)
Price (EUR/kg)	**Import**	34,90	30,38	31,45	33,66	35,02	33,96	32,02	35,47	+2%
	Export	27,20	30,31	19,84	26,80	32,18	26,05	36,39	36,20	+33%
Volume (tonnes)	**Import**	8	5	3	3	3	4	5	1	-88%
	Export	9	10	9	3	22	6	4	3	-71%

Source: EUMOFA elaboration of EUROSTAT-COMEXT and FAO data

4.3.3 Retail prices

Based on a survey of online price from processors, the consumer price for smoked eel ranges from 38,00 to 67,00 EUR/kg. The packaging is 300-400 gr in most cases.

4.3.4 Price transmission

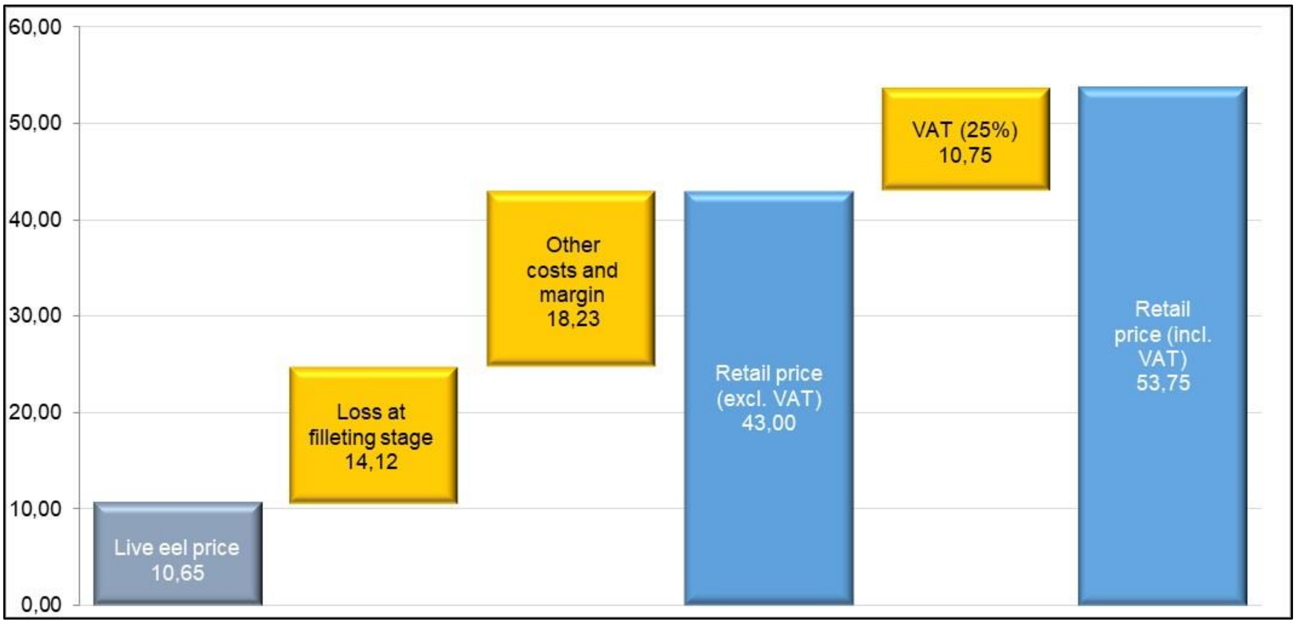
The price for live adult eel (raw material) is 10,65 EUR/kg (processors may purchase eel from fishermen or fish farmers) and the retail price of the final product is 50,75 EUR/kg in direct sales (based on feedbacks from one processor interviewed). The loss at filleting stage reaches 14,12 EUR/kg (43% yield) and other costs are estimated at 18,23 EUR/kg. The retail price in the shop is 43,00 EUR/kg without VAT and 53,75 EUR/kg with VAT (25% VAT).

Table 40: Costs and margins for smoked eel fillet sold in direct sales in Denmark (2019)

	Average price (EUR/kg)	% of final price
Live eel price (from fishermen or fish farmers)	**10,65**	**20%**
Loss at filleting stage	14,12	26%
Other costs and margin	18,23	34%
Retail price (excl. VAT)	**43,00**	**80%**
VAT (25%)	10,75	20%
Retail price (incl. VAT)	**53,75**	**100%**

Source: EUMOFA

Figure 15 – Costs and margins for smoked eel fillet sold in direct sales in Denmark (EUR/kg, 2019)



Source: EUMOFA

5 Conclusions

The eel smoking industry is small-scale in the three countries analyzed. The analysis covers sales in fishmonger shops or direct sales from processor:

- Smoked eel fillet retailed in fishmonger shop in the Netherlands;
- Whole smoked eel retailed in fishmonger shop in Germany;
- Smoked eel fillet retailed in direct sales in Denmark.

The details are covered in the following table.

The purchase price for raw material ranges from 8,00 and 10,85 EUR/kg, and the retail price (excl. VAT) from 43,00 EUR/kg at in direct sales in Denmark up to 55,20 EUR/kg in the Netherlands. The raw material cost accounts for 15% to 22% of the final price at retail stage.

Table 41: Synthesis of the price structure analysis in the Netherlands, Germany and Denmark (EUR/kg, nominal value, 2019)

Member State:	Netherlands	Germany	Denmark
Presentation:	Fillet	Whole	Fillet
Sales channel:	Fishmonger	Fishmonger	Direct sales
Eel price (raw material) from fishermen or fish farmers	9,00	10,85	10,65
Loss at filleting stage	11,93	0 (whole eel)	14,12
Ex-factory price	36,00	23,10	/
Retail price excl VAT	55,20	45,50	43,00
Retail price incl. VAT	60,17	48,69	53,75

Source: EUMOFA

6 Stakeholders interviewed

- Netherlands
    - Processors
    - DUPAN
- Germany
    - Aquaculture company
    - Processor
    - Wholesaler
- Denmark
    - Aquaculture company
    - Processor

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