

CASE STUDY

SPRAT IN THE EU



PRICE STRUCTURE IN THE SUPPLY CHAIN

FOCUS ON POLAND,
DENMARK AND SWEDEN

EUMOFA

European Market Observatory for
Fisheries and Aquaculture Products

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Summary

- This case study focuses on European sprat (*Sprattus sprattus*) for human consumption in Poland, Denmark and Sweden, which are the 3 main sprat producers in the EU in terms of catches and landings and have distinctive profiles in terms of uses for the fish.
- In 2021, global catches of European sprat reached 424.941 tonnes, 77% of which was caught by the EU fleet. Within the EU, the main producer countries are Denmark (29% of EU catches), Poland (20%) and Sweden (16%). Catches decreased by 3% over the year and reached 414.302 tonnes in 2022.
- Sprat is one of the main raw materials used for fishmeal and fish oil processing. Only a minor share of EU catches is destined for human consumption. Most the processing activities take place in Denmark. Of the intra-EU trade flows of fresh sprat destined to Denmark reported, a significant share comes from landings of EU vessels in other MS. Intra-EU trade of frozen sprat mostly supplies the canning sector in Baltic countries and Poland.
- On the market, sprat is found mainly canned and smoked and to a lesser extent fresh (whole). In 2022, production of canned sprat amounted to 19.436 tonnes LWE in Poland and 661 tonnes LWE in Sweden. There is no production of canned sprat in Denmark. Sprat for human consumption also includes sprat in jar, but to a lesser extent. In Poland, consumption of whole smoked sprat is also significant, while in Denmark a small niche market of sprat flour for human consumption exists.
- Extra-EU imports of sprat are limited whereas extra-EU exports, mostly of frozen sprat, reached almost 50.000 tonnes in 2022, and were mainly destined to other Eastern European countries or Western Africa.
- In Denmark and Sweden, sprat is mainly used for production of fishmeal and fish oil. Sprat is more commonly used for human consumption in Poland.
- In **Poland** in 2022, catches of sprat reached 60.145 tonnes, among which 48.645 tonnes landed in Poland and 11.500 tonnes landed abroad, mainly for fishmeal & oil production. The food processing industry, which mainly produces canned sprat, uses 24.190 tonnes LWE of sprat, supplied mainly by landings and to a lesser extent by imports of frozen sprat (2.288 tonnes LWE). Approximately half of the food processing industry production is exported. Apparent human consumption of sprat reaches 10.879 tonnes LWE, supplied both by domestic production, and to a lesser extent by imports of canned sprat (944 tonnes LWE). Polish use and export of sprat for fishmeal & oil production reach 33.311 tonnes LWE.
- In **Denmark**, catches of sprat accounted for 93.780 tonnes LWE in 2021 (106.275 tonnes in 2022). Across these catches, 92.298 tonnes LWE were for industrial uses (88.933 tonnes LWE in Denmark, 3.366 abroad) and 1.930 tonnes LWE for human consumption. Total imports in Denmark, including foreign landings, account for 81.193 tonnes LWE. Total exports from Denmark, including Danish landings abroad, account for 4.985 tonnes LWE. Apparent consumption for sprat in Denmark account for 170.491 tonnes LWE. Of this apparent consumption, 169.736 tonnes LWE are used in fishmeal and fish oil industry, 500 tonnes are used for pet food and other animal feed, and 256 tonnes LWE are used for human consumption. There is no canned sprat production in Denmark. According to stakeholders, sprat sold on the Danish market is mainly canned in Latvia, to a lesser extent in Poland and possibly in other countries around the Baltic Sea.
- In **Sweden**, the national fleet caught 59.319 tonnes of sprat in 2022. This was a 16% increase over 2021 catches, and a 12% increase compared to 2013. The Swedish production of prepared and preserved sprat amounted to 661 tonnes in 2022. In 2022, exports of whole sprat from Sweden reached 48.340 tonnes (93% fresh and 7% frozen), amounting to EUR 16 million, mostly

Swedish landings in Denmark destined to the fishmeal industry. Canned sprat production in Sweden is almost exclusively for the local market and supplemented by limited imports. Based on data analysis and stakeholders' consultation, the apparent consumption of sprat for human consumption amounted to 4.048 tonnes LWE in 2022.

- The price transmission analysis considers a 125g can of sprats in spices and vinegar (containing 80g of sprat) sold in Swedish supermarkets at 26,32 EUR/kg and a 170 g canned “smoked sprat in oil”, retailer own brand, sold in Polish supermarkets for which the retailer price is 6,40 EUR/kg.
 - The first sale price of sprat is mainly driven by its use for fish meal and fish oil production. This price has minimal influence on the final product price as the share of the raw material cost in the final retail price is between 3% in Sweden to 6% in Denmark.
 - Labour is one of the main cost factors in sale price inflation in canned sprat production, whereas the price of raw material has only a limited impact regardless of the range of product.

List of acronyms

CN-8	Combined Nomenclature 8-digit number (COMEXT/Eurostat)
DFPO	Danmarks Fiskeriforening Producentorganisation (Danish Fishermen Producer Organisation)
DPPO	Danmarks Pelagiske Producentorganisation (Danish Pelagic Producer Organisation)
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
HoReCa	Hotels, Restaurants, Cafés/catering
LWE	Live Weight Equivalent
MS	EU Member States
MSC	Marine Stewardship Council
SFPO	Sveriges Fiskares Producentorganisation (Swedish Fishermen's Producer Organisation)
TACs	Total Allowable Catches
UK	United Kingdom
VAT	Value Added Tax

1 SCOPE AND CONTENT

1.1 Case study scope

The rationale for choosing sprat to analyse price transmission and distribution of value in some EU supply chains is described in the following table.

Product	Origin	Characteristics	Market and price drivers	Focus MS
Canned sprat	Catches (EU)	Canned product, example of a broadly caught species in Europe EU is the largest producer of canned sprat	Drivers affecting the market of this product are: •Supply/fishing quota •Size of the fish •Seasonality (affecting the quality of the fish for canning process) •Consumption patterns and trends for canned fish	Poland, Denmark and Sweden
Other sprat-based products for human consumption	Catches (EU)	Other sprat-based products' popularity depend on the country. Sprat can be sold for human consumption whole fresh, smoked (Poland), in jar, or as protein flour.	Qualitative data on consumption Quantitative data for whole sprat for human consumption in Poland	Poland, Denmark and Sweden

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

- [Study on canned sprat in Poland and Latvia](#) (2020)
- Sprat - [species profile](#)
- Country profiles:
 - [Poland](#)
 - [Denmark](#)
 - [Sweden](#)

1.2 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 Poland, Denmark and Sweden.

2 DESCRIPTION OF THE PRODUCT AND MARKETS

2.1 Biological and commercial characteristics

European sprat (*Sprattus sprattus*) is a small pelagic species found in the Northeast Atlantic, from North and Baltic Seas south to Morocco and in the Mediterranean and Black Seas. Sprat is a gregarious species usually found inshore in schools, sometimes entering estuaries (especially the juveniles) and tolerating low salinities. Significant migrations are observed between winter feeding and summer spawning grounds. Sprat mostly feeds on planktonic crustaceans. Its total length can reach 16 cm but usually 12 cm is the standard length.

In the Baltic Sea, European sprat spawning occurs almost throughout the year, near the coast or up to 100 km out to sea, mainly in spring and summer, the juveniles drifting inshore. Sprats move to the surface at night¹.

Sprat stocks are managed through TAC (Total Allowable Catches) and quotas. Sprat sold for human consumption mainly consist of canned sprat and to a lesser extent, smoked sprat. However, canned sprat can be marketed under several commercial designations including “sardines” under specific conditions based on the provisions on sardine-type products in the EU marketing standards².

Case study product

Name: European sprat (*Sprattus sprattus*)

FAO 3-alpha code: SPR

Presentation: Smoked, canned

Commercial size: between 6 cm and 15 cm.

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 sprat products (CN-8 nomenclature)

CN8	Species	Preservation	Presentation	Conversion factor to live weight equivalent (LWE)
03 02 43 90	Brisling or sprats (<i>Sprattus sprattus</i>)	Fresh	Excluding livers and roes	1,00
03 03 53 90	Brisling or sprats (<i>Sprattus sprattus</i>)	Frozen	Excluding livers and roes	1,00
16 04 13 90	Sardinella, brisling or sprats ³	Prepared or preserved	Whole or in piece	1,87

Source: Eurostat/COMEXT

¹ <http://www.fao.org/fishery/species/2102/en>

² Council Regulation (EEC) No 2136/89 of 21 June 1989 laying down common marketing standards for preserved sardines.

³ For canned products, sprats are not differentiated and are included under the same code as sardinellas

2.2 World production

Several species of sprat exist around the world: the European sprat (*Sprattus sprattus*), the Black and Caspian Seas sprat (*Clupeonella cultriventris*), the Falkland sprat (*Sprattus fuegensis*) and the Lake Tanganyika sprat (*Stolothrissa tanganyicae*).

2.2.1 Evolution of catches of European sprat

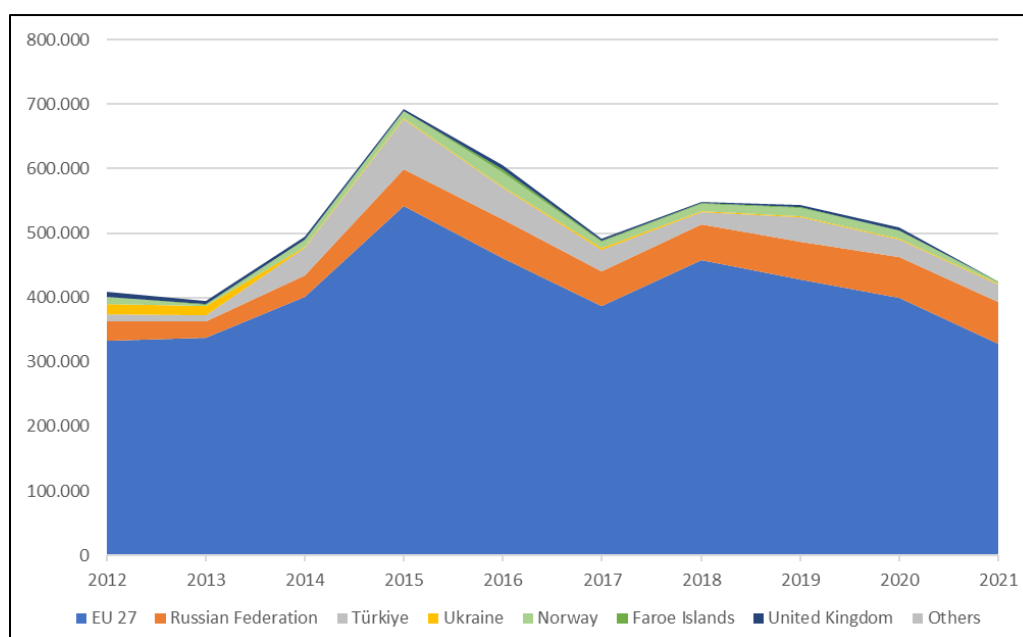
European sprat (*Sprattus sprattus*) is mostly caught in the North and Baltic Seas by pelagic trawlers. In 2021, global catches of European sprat reached 424.941 tonnes, and the EU fleet accounted for 77% of this. Other important producers included the Russian Federation and Turkey, respectively accounting for 15% and 7% of global catches. As for many small pelagic species, volumes of European sprat catches have experienced significant variations from one year to another due to changes in TACs and quotas. Russian catches rose constantly and significantly between 2012 and 2021 (+118%). Global catches slightly decreased between 2021 and 2022 (-3%) and reached 414.302 tonnes in 2022. The EU fleet remained the major producer, accounting for 84% of the world production.

Table 2: World production of European sprat (in tonnes) 2012-2021

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
EU 27	332.871	337.425	401.352	542.751	461.749	387.027	458.009	427.824	399.353	328.035
Russian Federation	29.624	26.027	33.768	57.071	59.036	53.465	55.067	59.110	63.988	64.476
Türkiye	12.092	9.764	41.648	76.996	50.225	33.950	20.057	38.078	26.804	28.041
Ukraine	15.751	12.866	2.114	2.237	1.745	2.159	1.603	1.370	1.984	1.732
Norway	10.364	2.936	10.725	9.700	21.703	10.230	11.091	12.185	11.155	1.109
Faroe Islands	467	510	185	644	5.251	1.399	1.287	1.142	1.165	992
United Kingdom	7.284	4.800	4.914	3.752	5.067	3.898	1.872	4.338	4.237	528
Others	79	105	86	20	78	22	17	20	23	29
Total	408.532	394.433	494.791	693.172	604.854	492.150	549.003	544.065	508.708	424.941

Source: FAO

Figure 1: World production of European sprat (in tonnes) 2012-2021



Source: FAO

2.2.2 Evolution of catches of other sprat species

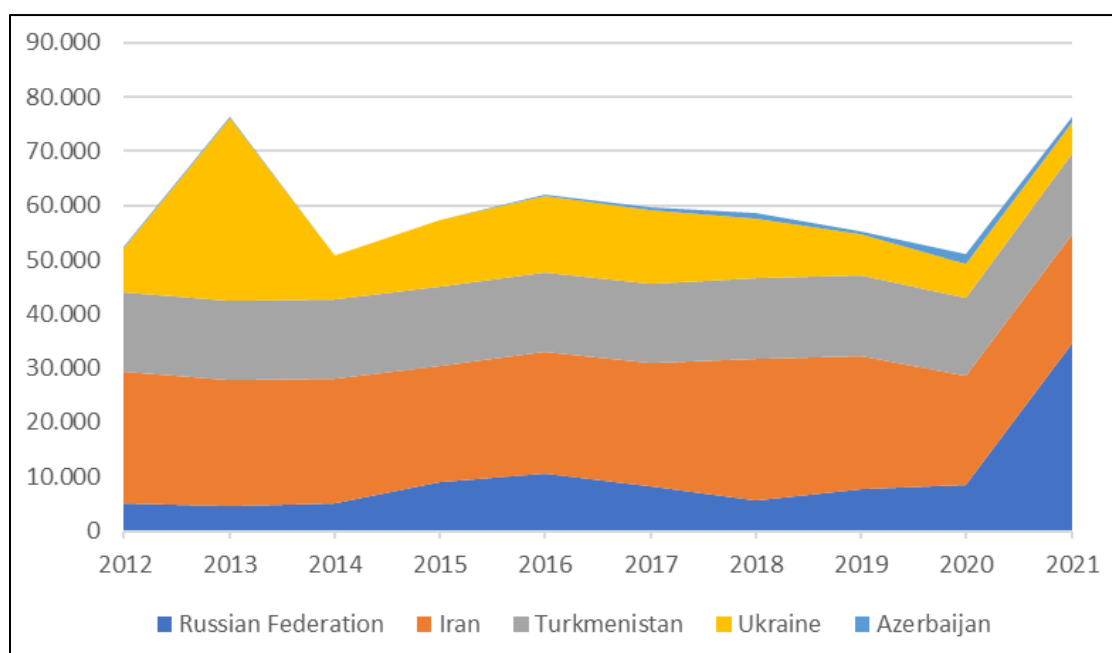
In the Black and Caspian Seas, another species of sprat is caught, designated under the scientific name of *Clupeonella cultriventris*. Total catches of Black and Caspian Seas sprat reached 76.378 tonnes in 2021 (71.664 tonnes in 2022, -6%) and have been generally stable over the last decade, despite significant fluctuations from one year to another, especially in Ukraine in 2013 (see figure 2). The main countries involved in this fishery are the Russian Federation (45% of total volume caught in 2021, with a 303% increase between 2020 and 2021), Iran (26%), Turkmenistan (19%), Ukraine (8%) and Azerbaijan (1%).

Table 3: World catches of Black and Caspian Seas sprat (in tonnes) 2012-2021

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Russian Federation	5.216	4.465	5.098	8.920	10.542	8.308	5.663	7.770	8.595	34.667
Iran	24.086	23.221	22.873	21.553	22.429	22.602	26.154	24.586	20.053	20.138
Turkmenistan	14.680	14.680	14.680	14.680	14.680	14.680	14.680	14.680	14.300	14.700
Ukraine	8.042	33.692	8.056	12.149	14.137	13.563	11.085	7.566	6.386	5.950
Azerbaijan	372	206	164	138	316	559	1.073	694	1.616	923
Total	52.396	76.264	50.871	57.440	62.104	59.712	58.655	55.296	50.950	76.378

Source: FAO

Figure 2: World catches of Black and Caspian Seas sprat (in tonnes) 2012-2021



Source: FAO

Another sprat species, the Falkland sprat (*Sprattus fuegensis*) is caught in the Southern Atlantic, and almost all catches are attributable to the Chilean fleet (with only 0,04 tonnes from the Falkland Island's fleet in 2021). The total volume of catches of Falkland sprat reached 16.149 tonnes in 2021 and decreased by 14% over the year, reaching 13 869 tonnes in 2022. Catches of Tanganyika Lake sprat (*Stolothrissa tanganyicae*), an endemic species of the eponym African inland lake, reached 8.465 tonnes in 2021 (8.635 tonnes in 2022), all fished by Burundi's fleet.

Table 4: World catches of Falkland and Lake Tanganyika sprat (in tonnes) 2012-2021

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Chile	23.797	27.214	27.230	31.393	23.655	19.293	9.046	12.587	16.889	16.149
Burundi	9.731	7.410	8.833	8.027	8.320	8.639	8.330	8.430	8.466	8.465
Others	49	12	25	145	1	12	1	2	0	0

Source: FAO

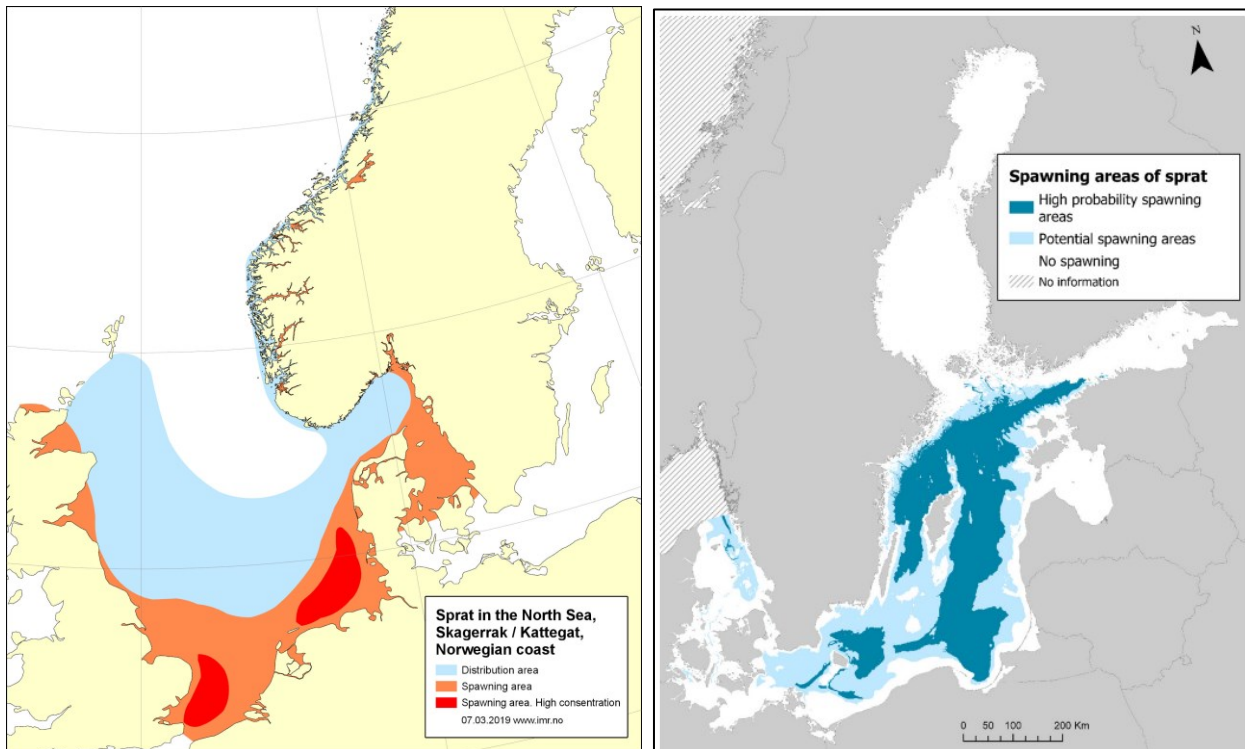
2.3 EU production

2.3.1 Fishing zones and management

Fishing zones

European sprat is mainly fished in two areas: the North Sea and the Baltic Sea. In the North Sea, spawning areas for sprat are concentrated off the coasts of Eastern England, Belgium, the Netherlands, Germany and West Denmark. Sprat distribution zone covers the Southern part of the North Sea, along these areas. According to stakeholders, sprat concentrations in Skagerrak/Kattegat, the area between the North Sea and the Baltic Sea, are not as significant as they used to be. Spawning areas for sprat in the Baltic Sea are concentrated around the islands of Gotland (Sweden) and Bornholm (Denmark), off the coast of the Baltic countries, Kaliningrad oblast (Russia) and Poland. European sprat is also fished to a lesser extent in the Celtic Sea and in the Channel.

Figure 3: Spawning and distribution of sprat in the North Sea, Skagerrak/Kattegat and the Baltic Sea

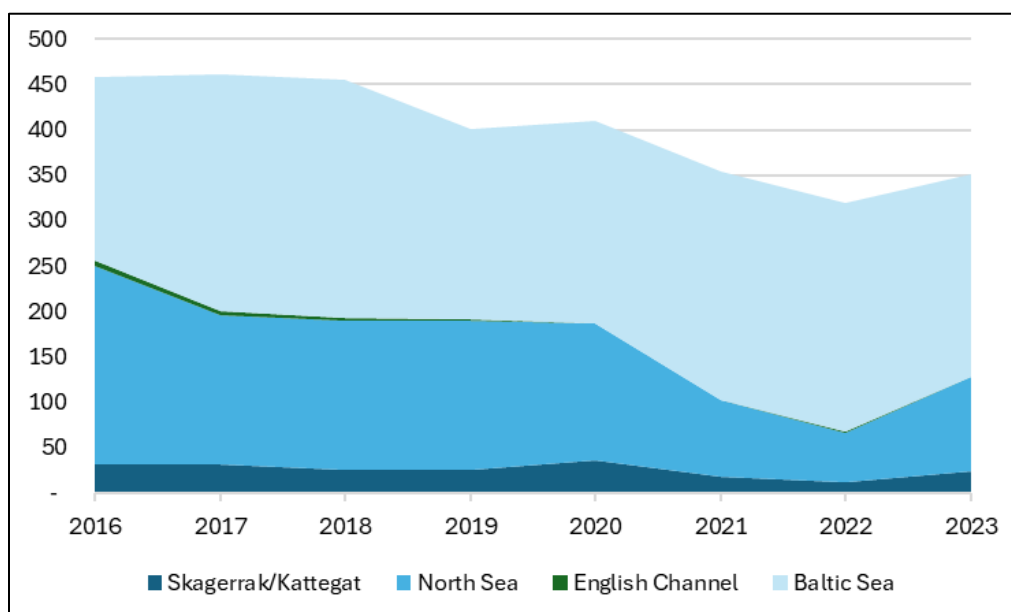


Sources: Institute of Marine Research (Norway), 2019 (left) - Helcom (Finland), 2021 (right).

Management measures

Sprat stocks in the North Sea, Kattegat/Skagerrak area, Baltic Sea and the Channel are managed by TACs. Among these TACs, **EU quotas** for sprat fishing have decreased by 23% over the past 8 years. Over this period, EU quotas declined by 53% in the North Sea and increased by 11% in the Baltic Sea. The sharper decline of the North Sea EU quotas took place in 2021 (-44%) and 2022 (-36%). Between 2022 and 2023, quotas have increased for both the North Baltic Seas. TACs and quotas are directly driving catches; they are the main reason explaining the decrease in sprat catches by the EU fleet over the past 10 years.

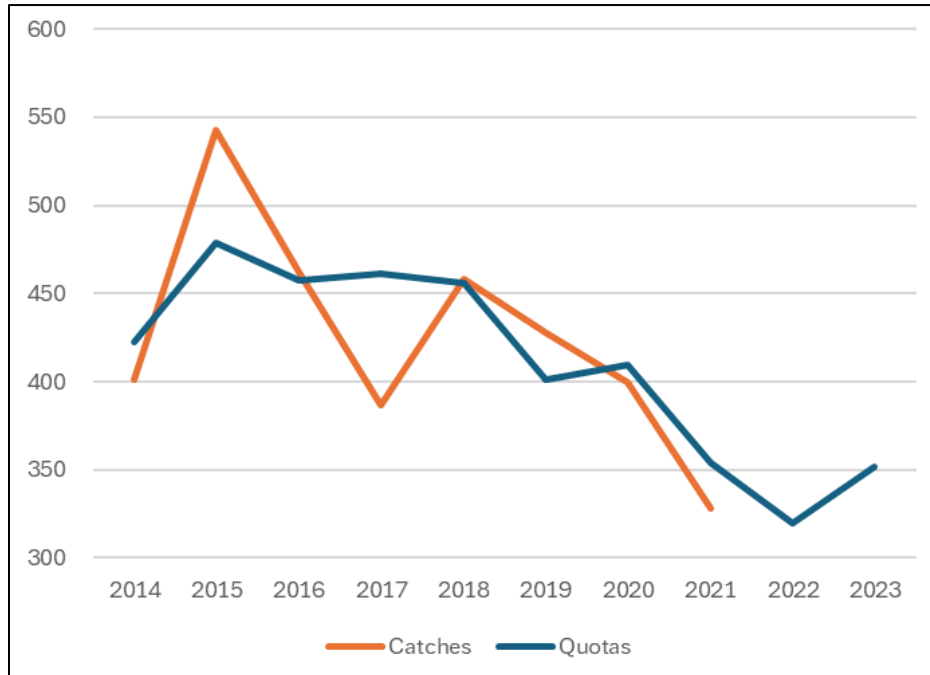
Figure 4: Evolution of EU TACs by fishing area (in 1.000 tonnes)



Source: Own elaboration based on DG MARE TACs and quotas Regulations⁴.

⁴ The TACs and quotas are the ones fixed at the beginning of each year and can sometimes vary during the year based on new scientific advice. For example, in 2015, sprat TAC in the North Sea has been considerably increased by 123.000 tonnes, of which 110.000 tonnes for Denmark. Source: <http://cphpost.dk/news/denmark-close-to-landing-extra-sprat-quota.html>

Figure 5: Evolution of sprat catches in EU and evolution of EU TACs/quotas (in 1.000 tonnes)



Source: Own elaboration based on FAO and DG MARE TACs and quotas Regulations⁵.

In addition to quotas, **other restrictions** apply on sprat fishing in the Baltic Sea (subdivisions 25-32). Since January 1st, 2024, an amendment to Regulation (EU) 2023/194 regarding fishing opportunities in other waters came into effect. It prohibits pelagic trawl fishing:

- in subdivisions 25 and 26 from April 1st to April 30th;
- in subdivisions 27 and 28.2 from April 16th to May 15th;
- in subdivisions 29 and 32 from May 1st to May 31st.

To protect the spawning grounds of Atlantic herring and Atlantic cod spawning, the regulation also prohibits, with certain exceptions, fishing using any type of fishing gear:

- in subdivisions 25 and 26 from May 1st to August 31st;
- in subdivision 24 from May 15th to August 15th;
- in subdivisions 22 and 23 from January 15th to March 31st.

These restrictions are mainly impacting fishing for human consumption in Poland and the Baltic countries, as these periods coincide with these fisheries' sprat season (January-April).

Sprat is one of the species benefitting from the Marine Stewardship Council (MSC) **certification**. However, no EU fishery is currently MSC certified for sprat. The Norwegian fishery for North Sea sprat (gears: surrounding nets, midwater trawls and bottom trawls), is the only European fishery to be currently certified. Danish (DFPO, DPPO) and Swedish (SPFPO) fisheries' applications for MSC certification are currently being assessed.⁶

⁵ ibidem

⁶ <https://fisheries.msc.org/en/fisheries/@@search?q=sprat&search=>

2.3.2 Evolution of sprat catches by EU fleets

European sprat is one of the most important commercial small pelagic fish in the EU, mostly caught in the North Baltic Seas fisheries. There are smaller areas of production in the Black Sea where it is caught by Romanian and Bulgarian fleets and in the Mediterranean. Sprat is caught with pelagic trawlers using small-meshed nets. The sprat stock in the Baltic Sea is longer-lived than the North Sea stock. Sprat is subject to total allowable catches (TACs), which are shared among 12 Member States (in the North and Baltic seas)⁷.

In 2021, EU catches of European sprat reached 328.035 tonnes. Denmark accounted for 29% of EU catches of European sprat (with 93.776 tonnes in 2021, representing a significant decrease by 47% compared to 2020). Other important producing countries are Poland (20%) and Sweden (16%). Secondary producer countries include Latvia (9%), Estonia (8%), Germany (5%), Finland (5%), Ireland (4%) and Lithuania (3%). The EU level of production in 2021 was similar to what it was a decade ago (-1,4%). However, significant variations occurred within the decade, due to strong variations in TACs and quotas, especially for Denmark (catches decreased by 37% between 2016 and 2017, by 47% between 2020 and 2021, mainly due to the strong decrease of quotas in North Sea and Norwegian Sea). In 2022, EU catches slightly increased (+6%) and reached 346.391 tonnes. Denmark, Poland and Sweden remained the main producers.

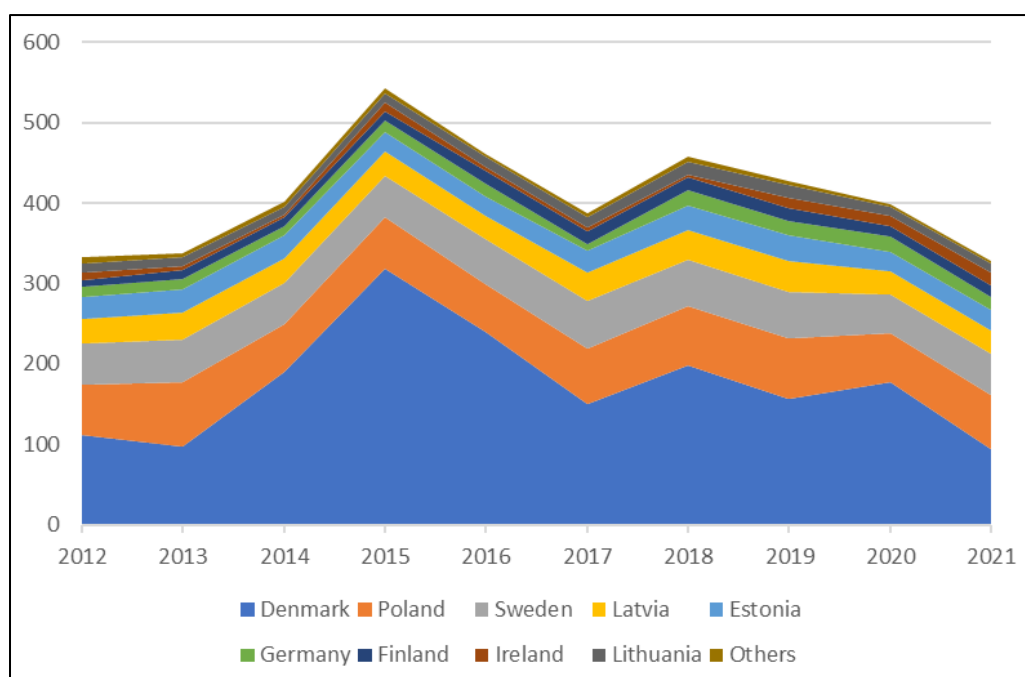
Table 5: EU catches of European sprat (in tonnes), 2012-2021

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Denmark	111.706	96.386	190.529	318.942	239.503	149.632	198.096	156.971	177.324	93.779
Poland	63.115	80.988	58.588	64.173	60.057	69.972	74.152	74.492	61.355	67.063
Sweden	50.697	52.909	51.377	50.980	56.246	58.386	57.635	58.532	47.735	52.260
Latvia	30.719	33.310	30.761	30.501	28.103	35.744	37.100	38.710	28.894	29.085
Estonia	27.697	29.805	28.498	23.954	23.687	26.546	29.626	30.649	24.310	25.713
Germany	11.740	11.899	11.756	13.996	16.505	8.705	19.052	18.278	18.788	15.628
Finland	8.973	11.087	11.813	11.875	16.806	16.088	16.467	16.092	12.513	14.785
Ireland	9.726	5.454	2.991	10.371	4.763	4.260	3.591	13.012	13.527	14.527
Lithuania	11.245	10.353	9.679	11.004	11.548	12.480	16.499	16.229	11.141	11.369
Others	7.253	5.234	5.360	6.955	4.531	5.214	5.791	4.859	3.766	3.826
Total	332.871	337.425	401.352	542.751	461.749	387.027	458.009	427.824	399.353	328.035

Source: FAO

⁷ BE, DK, DE, EE, FI, FR, LV, LT, PL, NL, SE and UK.

Figure 6: Evolution of sprat catches in EU per country (in 1.000 tonnes)



Source: FAO

2.3.3 Evolution of sprat landings in the EU

In 2021, EU landings of European sprat amounted to 319.583 tonnes, half of which was attributable to landings in Denmark. The comparison between catches and landings shows that several EU fleets (and non-EU fleets, including Norwegian fleet) land in Denmark. The main reason is that sprat is mostly used as raw material for the fish feed industry based in Denmark. In Denmark and Finland, almost all landings are for industrial use (i.e. reduction for fish oil and fishmeal) whereas in other countries most landings are for human consumption. Other major landing countries for sprat include Poland (16% with 52.202 t), Estonia (11% with 35.638 t) and Latvia (10% with 31.199 t).

Over the 2012-2021 period, sprat landings in the EU have decreased by 8% with high variability between the main landing countries. Landing increases in Poland (+17%) and Estonia (+12%) and decreases in Denmark (-7%) and Latvia (-9%). The strongest variations are those of secondary landing countries, with increase in Germany (+592%), Finland (+64%), Ireland (+46%) and Bulgaria (+23%), and a significant decline in Sweden (-81%). These trends are driven by changes in landing strategies and fluctuations of TACs and quotas (especially in Baltic, North Sea and Norwegian Sea).

Table 6: Evolution of landings of sprat in EU (in tonnes) 2012-2021

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Denmark	172.490	168.274	244.867	384.841	319.698	240.546	267.990	235.529	240.548	160.934
Poland	44.629	48.447	48.121	44.282	47.376	49.878	56.311	52.475	44.673	52.202
Estonia	31.872	34.385	32.208	28.232	23.754	26.073	27.988	34.764	31.831	35.638
Latvia	34.106	36.585	32.074	31.610	27.281	34.710	38.866	39.557	32.496	31.199
Ireland	9.726	5.454	2.991	10.371	4.763	2.541	3.591	13.007	14.835	14.164
Sweden	43.218	32.870	24.210	18.182	20.588	21.751	19.065	12.941	16.219	8.137
Finland	4.103	5.101	5.814	4.793	8.488	16.088	10.016	7.169	5.647	6.723
Germany	946	1.365	635	753	463	7.586	1.526	1.662	2.707	6.543
Bulgaria	2.830	3.794	2.287	3.297	2.296	3.189	3.188	4.585	1.623	3.479
Others	4.422	1.580	3.178	3.820	2.184	2.845	2.592	270	2.516	564
Total	348.343	337.854	396.385	530.181	456.892	405.206	431.135	401.959	393.094	319.583

Source: EUMOFA based on Eurostat

2.4 EU market for sprat by Member State

In order to estimate the size of EU markets for sprat it is necessary to estimate the apparent consumption in the main EU MS in live weight equivalent. However, two main issues arise in the case of sprat:

- A large share of EU sprat catches is for non-food industrial uses (processed in fishmeal and fish oil, other feed, pet food). Most of these processing activities take place in Denmark where very few companies are involved, leading to confidentiality issues with regards to the trade flows. Concerning frozen sprat, trade flows are assumed to be mostly for fish processing purposes, specifically for the canning industry.
- The custom code does not distinguish between prepared or preserved sprat in the EU trade data (16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved). Sardinella is often used as a substitute for EU canners to replace sprat or sardine when they are short in supply for raw material. So, the share of sardinella/sprat may vary depending on the year and country.

The table below displays reported catches and trade flows for each preservation state. It gives a sense of the market size at a country level. Imports and exports of fresh fish include foreign landings and landings abroad.

Overall, it appears that most trade flows are fresh sprat imported to Denmark for fishmeal and fish oil production (especially from Sweden), fresh sprat imported to Estonia and frozen sprat exported from Poland, Estonia and Latvia. Import flows are lower and are mostly frozen sprat imported to Estonia and Latvia as a supply for the canning industry.⁸

⁸ Trade flows reported as imports and exports of fresh sprat include a significant share of landings (respectively foreign landings in the reporting country and landings abroad)

Table 7: Catches (tonnes live weight) and trade flows (tonnes net weight) for sprat in main EU producer countries (2021)

Countries	Catches	Imports			Exports		
		Live/fresh	Frozen	Total	Live/fresh	Frozen	Total
Denmark	93.779	19.958	329	20.286	3.670	469	4.139
Poland	67.063	5.825	1.741	7.566	1.574	12.895	14.469
Sweden	52.260	899	33	932	42.369	1.656	44.025
Latvia	29.085	8.294	5.638	13.931	752	15.680	16.432
Estonia	25.713	16.850	2.011	18.861	440	21.394	21.835
Germany	15.628	5	567	572	8.596	146	8.742
Finland	14.785	92	0	92	5.802	1.413	7.215
Ireland	14.527	0	38	38	44	706	750
Lithuania	11.369	1.225	974	2.199	8.985	121	9.106
Bulgaria	3.479	67	980	1.047	58	956	1.014
Netherlands	134	0	1.708	1.708	0	1.901	1.901
Malta	74	0	0	0	0	0	0
Romania	48	398	1.603	2.001	3	40	43
Others	92	24	1.456	1.480	14	521	535
Total	328.035	53.635	17.077	70.713	72.307	57.898	130.207

Source: FAO, EUMOFA based on Eurostat

There is no specific CN-8 code for prepared and preserved sprat. The corresponding code is 16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved.

2.4.1 Intra-EU trade

Intra-EU exports

For **fresh** sprat, intra-EU exchanges are very high, with 73.287 tonnes exported in 2022 (69.366 tonnes in 2023). The main exporter was, by a margin, Sweden (63% of the total intra-EU volume, likely to consist of fresh landings for industrial purposes). Germany (11%), Lithuania (10%) and Finland (9%) were also, to a lesser extent, major exporters.

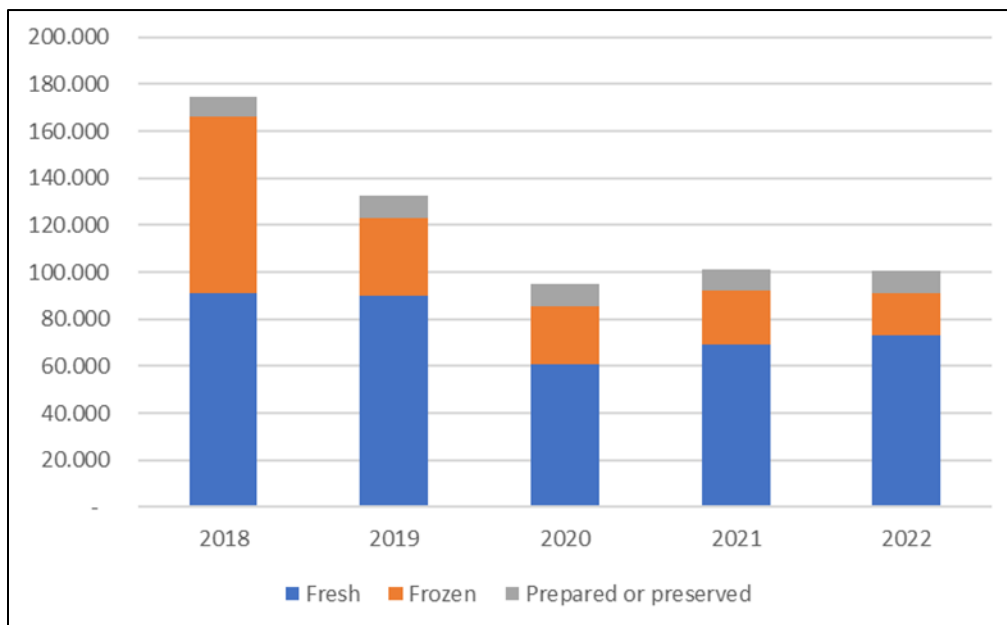
For **frozen** sprat, the main exporter country in intra-EU trade is Latvia, accounting for 37% of the total volume of 17.820 tonnes exported intra-EU (17.596 tonnes in 2023). Another major exporter is Estonia, with 33% overall. There are followed by Poland (8%) and Sweden (7%).

For **prepared and preserved** sprat and sardinella⁹, intra-EU exports reached 9.448 tonnes in 2022 (9.591 tonnes in 2023). Latvia is the main exporter, accounting for 48% of the total volume exported of prepared and preserved sprat and sardinella, followed by Poland (22%) and Croatia (11%).

Intra-EU exports of sprat products show a significant decrease over the past five years (-42%). This trend is mainly due to the collapse of frozen sprat exports (-76%), while exports of fresh sprat also declined significantly (-19%) and exports of prepared and preserved sprat increased by 13%.

⁹ There is no specific CN-8 code for prepared and preserved sprat since it is mixed with other species: code 16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved.

Figure 7: Intra-EU exports of sprat products (tonnes, in net weight)¹⁰



Source: COMEXT

Intra-EU imports

In 2022, the main intra-EU importer of fresh sprat was Denmark, with over half (57%) of the total intra-EU imports of 56.007 tonnes in 2022 (47.030 tonnes in 2023). Estonia (27%) and Latvia (10%) are also major importers.

Latvia is the main intra-EU importer of frozen sprat (22% with 2.569 tonnes). It is followed by Romania (16%), Estonia (14%), Estonia, Lithuania and Bulgaria (10% each).

The main intra-EU importers of prepared and preserved sprat and sardinella were Germany, Sweden and Romania, accounting for 15% (1.318 tonnes), 13% and 12% respectively of the total intra-EU import volume of prepared and preserved sprat and sardinella.

Overall, the main intra-EU importers of sprat apart from Denmark are the Baltic and Eastern European countries.

2.4.2 Extra-EU trade

Extra-EU exports

In 2022, extra-EU exports of **fresh** sprat are limited to 8.964 tonnes, mainly from Denmark (88%). Other exporters to extra-EU destinations are Germany (10%) and Poland (2%). 98% of fresh sprat exports are going to Norway. Extra-EU exports of fresh sprat decreased by 33% in one year and reached 5.966 tonnes in 2023.

Extra-EU exports of **frozen** sprat are more significant with 36.719 tonnes exported in 2022 (27.979 tonnes in 2023, 24% decrease in one year). The largest exporter is by far Estonia (46% of the total volume of frozen sprat), even if its overall share decreased, and to a lesser extent Latvia (24%) and

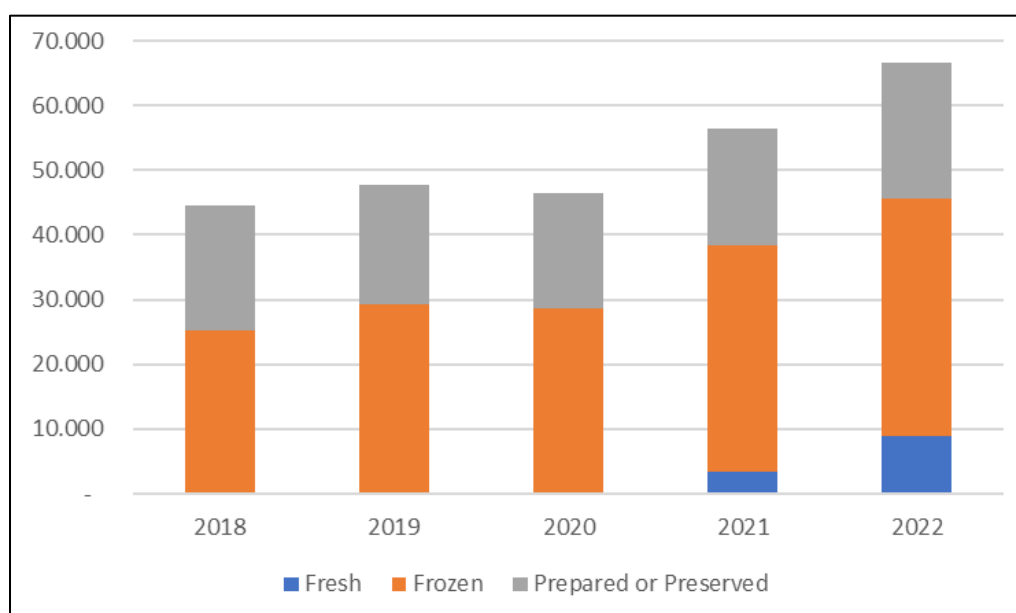
¹⁰ 03024390: Brisling or sprats (*Sprattus sprattus*), excluding livers and roes, fresh or chilled; 03035390: Brisling or sprats (*Sprattus sprattus*), excluding livers and roes, frozen; 16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved.

Poland (16%). In 2022, the main extra-EU destinations were Ukraine (43% of total export volume), Belarus (16%), and Ghana (10%).

For **prepared and preserved** sprat and sardinella¹¹, extra-EU exports reached 20.952 tonnes in 2022 (15.515 tonnes in 2023, 26% decrease over the year). The main extra-EU exporter, with half (50%) of the volume, is Latvia. It is followed by Poland and Estonia, accounting for respectively 27% and 20% of the total volume exported of this product. The main extra-EU destinations were Ukraine (48% of the total volume of extra-EU exported of prepared and preserved sprat and sardinella, with 10.061 tonnes more than the total intra-EU exports) and to a lesser extent the United States (23%) and Moldova (6%).

Extra-EU exports of sprat products have followed an increasing trend from 2018 to 2022, from almost zero exports to 8.324 tonnes, an increase of 6.016 % for fresh sprat, while frozen sprat exports increased by 46% and prepared or preserved sprat exports by 8%. Over the last year, sprat exports have decreased by 33% for fresh sprat, 24% for frozen sprat, and by 26% for prepared sprat.

Figure 8: Extra-EU exports of sprat products (tonnes, in net weight)¹²



Source: Eurostat-Comext

Extra-EU imports

Extra-EU imports of **fresh** sprat are very limited, with only 447 tonnes in 2022, to Denmark (301 t) and Sweden (147 t). These imports mainly consist of Norwegian landings for fishmeal production. Extra-EU imports of fresh sprat strongly increased in one year and reached 849 tonnes in 2023.

Extra-EU imports of **frozen sprat** are a little higher, with 1.720 tonnes imported (850 tonnes in 2023, 51% decrease in one year), mainly (81%) by Poland. These imports are used for food.

Extra-EU imports of **prepared and preserved** sprat and sardinella reached 1.285 tonnes in 2022, the main origins being Norway (41%) and Morocco (37%). Prepared and preserved products from Morocco are likely to consist of canned sardinellas. Imports of prepared sprats drastically decreased in one year, reaching 613 tonnes in 2023 (-52%).

¹¹ There is no specific CN8 code for prepared and preserved sprat. The corresponding code is 16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved.

¹² 03024390: Brisling or sprats (*Sprattus sprattus*), excluding livers and roes, fresh or chilled; 03035390: Brisling or sprats (*Sprattus sprattus*), excluding livers and roes, frozen; 16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved.

2.4.3 Canned sprat

Sprat is widely used for canning, smoking, and preserved production. Sprat is a popular fish in many EU countries. Sprat is usually smoked or fried and is a traditional and important fish in Baltic countries, especially Latvia and Poland, where they are mostly eaten as canned fish.

2.4.3.1 EU production of canned sprat

In the PRODCOM database, the code¹³ corresponding to canned sprat also includes sardinellas and sardines but, depending on the producing country, it is possible to assume which species are included. Overall, the EU production of canned sprat, sardines and sardinellas totalled 87.241 tonnes in 2020 (most recent data available for Latvia), significantly decreasing by 18% during the period 2011-2020.

In 2020, the main producers of sprat were Poland (22%, assumed to be sprat) and Latvia (18%, sprat). Spain and Portugal also report production of “canned sprat, sardines and sardinellas”, but in these countries it is assumed that the production consist only of sardines (and to a lesser extent sardinellas) and not sprat. Over the 2011-2020 period, Latvian production fell sharply (-61%) while Polish production rose by 55%.

Table 8: EU production of canned sprat and sardinella (tonnes net weight)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Poland	12.321	12.765	13.321	11.960	13.130	14.347	16.160	18.075	16.554	19.036	18.462	19.436
Spain	19.081	16.870	15.299	16.237	15.991	14.065	16.269	13.615	14.666	17.306	16.234	nd
Latvia	39.907	47.148	52.552	48.342	28.260	16.378	16.504	17.008	15.447	15.490	nd	nd
Portugal	19.607	17.704	14.054	11.665	12.057	12.185	10.064	8.970	9.114	10.493	11.565	11.311
France	nd	12.165	8.206	8.305	8.368	9.472	9.277	9.628	8.782	9.823	9.577	9.052
Croatia	7.510	6.549	5.222	6.365	4.928	5.196	4.673	5.174	6.635	6.821	6.206	6.637
Estonia	4.016	5.912	5.611	5.820	4.776	3.114	3.185	2.566	2.351	2.912	2.929	2.550
Others	3.918	4.346	4.346	4.419	4.402	4.076	5.209	4.164	4.132	5.360	5.276	3.269
Total	106.360	123.458	118.610	113.113	91.911	78.835	81.340	79.200	77.680	87.241	<i>na</i>	<i>na</i>

Source: Eurostat-PRODCOM

2.4.3.2 Sprat canning process

Most sprat for canning is caught from January to March/mid-April using active gears (trawls). On many trawlers, a Refrigerated Sea Water (RSW) system is used: sprat is transported with water into tanks on board and during landing operation, the fish is then transported to tanks with ice water. This should guarantee good fish quality.

During the winter period, sprat is rich in fat (up to 13% in January), while in April fat content is as low as 5-6%. From January to March sprat do not feed, and the abdominal cavity is almost empty. From April, sprats start to feed and the abdominal cavity is filled, and the taste of the fish may be bitter.

Sprat for human consumption is then transported (by trucks) into primary processing plants. In primary processing plants sprat is:

- **Sorted**;
- **Headed** (which is sufficient for winter sprat that does not feed; therefore, gutting is not needed);
- **Nobbed** (headed with gutting without cutting abdominal cavity).

According to some processors, heading without gutting is commonly used when sprat is destined for canning, even for non-winter sprat.

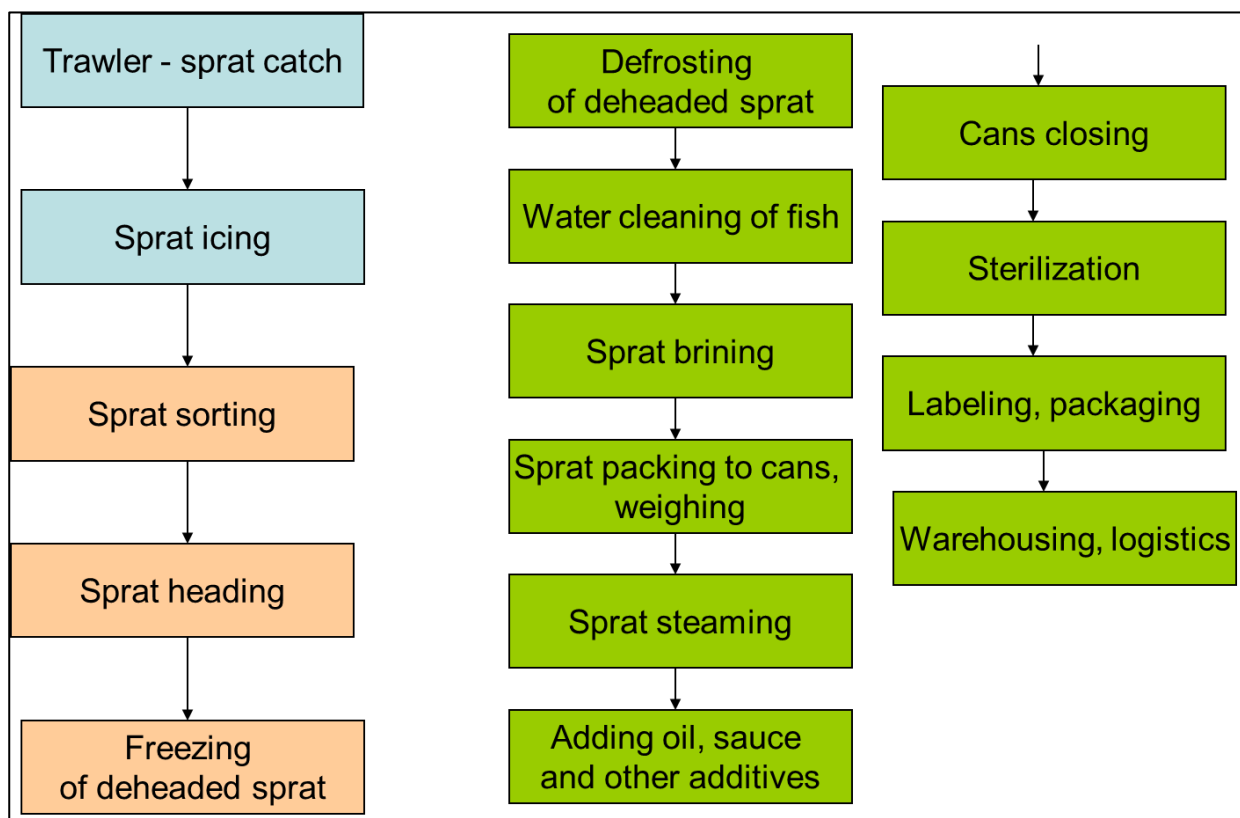
¹³ 10202530 - Prepared or preserved sardines, sardinella, brisling and sprats, whole or in pieces (excluding minced products and prepared meals and dishes).

With increasing labour costs, many processors are starting to invest in automatic heading or nobbing equipment (up to 300-400 fish per minute).

Headed sprat (and defrosted, if frozen raw material is used) is then packed into cans (in most cases manually, with weighing), and then steamed. After steaming, oil or tomato sauce is added (automatically), cans are closed (automatically) and then sterilized in steam autoclaves. If cans without lithography are used, then automatic labelling is used. Finally, cans are manually packed into collective packaging. Before shipping to the stores, preserves usually ripen for a minimum of one month.

Alternatively, some sprats are used for smoking and then canning. Smoked sprats are usually manually laid, especially in small round and Dingley cans.

Figure 9: Steps of the sprat canning process



Source: EUMOFA elaboration based on interviews and literature review (in blue on boat, in orange preliminary processing phase just after landing, in green processing phases in canneries).

2.4.3.3 Sprat processing yield

Heading losses for sprat amount to 20%-26%. The conversion rate for headed sprat to full sprat is 1,28. Additionally, a minimum 10% of weight is lost in optimal conditions, during freezing and defrosting. Conversion rate for defrosted headed sprat to full sprat is 1,42.

During steaming, before canning, weight losses amount to 14-20%. Anyhow, most producers declare on label "fish meat weight before steaming".

During hot smoking of sprat subsequently used for canning, weight losses amount to minimum 20%. In traditional smoking at less than 60°C, which is linked to Regulation 853/2004 - weight losses amounted up to 30-35%. The conversion rate for smoked headed sprat to full sprat is 1,78.

3 THE POLISH MARKET

3.1 Structure of the supply chain

3.1.1 Production

Characteristics of the fleet

The sprat fisheries are mainly engaged by the largest fishing vessels (pelagic trawlers), with a length exceeding 25,5 meters. These vessels are characterized by large cargo capacities and significant engine power (necessary for conducting efficient pelagic trawl fishing in open water). Despite their limited number (38 vessels) in 2022, pelagic trawlers over 25,5 m accounted for approximately 60% of Poland's total sprat catches. The possibility of unloading large quantities of fish and the distance from the fishing grounds are the primary determinants influencing the location of sprat unloading.

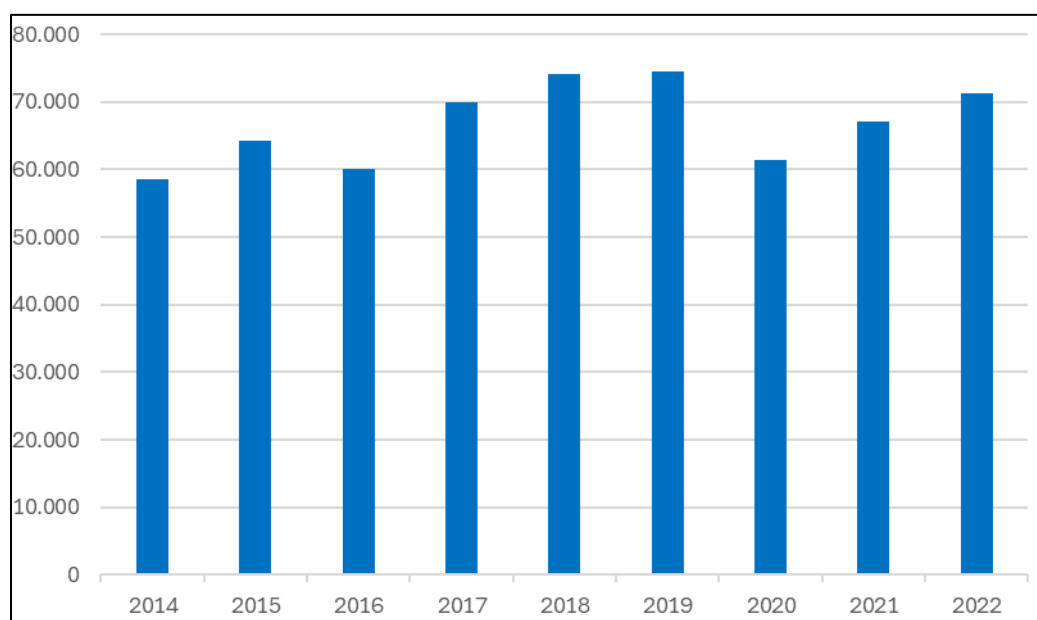
Management measures

The available quota for sprat fishing for the Polish fishing fleet (after exchanges with other countries) in 2022 was 73.200 tonnes, which was 8,7% higher than the fishing quota in 2021, enabling a 7,0% increase in catches (the quota was utilised at 97%).

Catches

In 2022, the Polish fleet caught 71.197 tonnes of sprat. This would be a 6% increase against 2021 catches and a 12% decrease compared to 2013. Sprat catches have experienced significant fluctuations over the past decade with a peak in 2018–2019 with over 74.000 tonnes and record lows in 2014, 2016 and 2023 with less than 60.500 tonnes.

Figure 10: Polish sprat catches (in tonnes live weight equivalent)



Source: FAO

In terms of first sales, the main Polish ports for sprat are Hel and Kolobrzeg and to a lesser extent Wladyslawowo and Ustka. In 2022, these four ports accounted for almost all sprat landings in Poland with 41.846 tonnes sold (99,6% of the total sales).

Table 9: Sprat first-sale volumes in main Polish ports (in tonnes net weight)

Ports	2016	2017	2018	2019	2020	2021	2022
Hel	22.772	22.826	24.606	22.010	20.531	19.224	23.510
Kolobrzeg	11.296	13.026	12.786	11.981	13.113	12.402	9.029
Wladyslawowo	2.279	5.575	8.823	7.768	5.232	5.282	5.526
Ustka	4.804	4.320	5.429	5.438	3.323	4.649	3.782
Others	1.409	748	273	365	892	632	183
Total	42.559	46.495	51.917	47.561	43.091	42.190	42.029

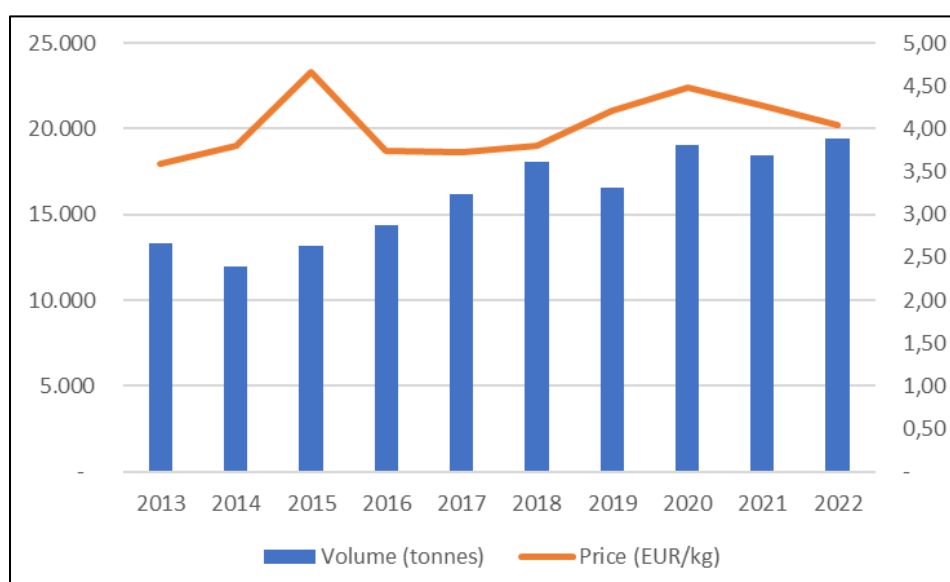
Source: EUMOFA, based on Polish Ministry of Maritime Economy and Inland Navigation

The difference between Polish catches and first-sale volumes is due to the significant amounts of Polish catches landing out of Poland, mostly in Bornholm Island (Denmark) and sometimes also in the port of Norgesund (Sweden) – for fishmeal production purposes. According to national data, Polish fleet landings of sprat in Danish and Swedish ports reach 11.500 tonnes in 2022. At the same time, Polish ports first-sale data for the years 2016–2020 shows significant foreign landings. Since 2021, lower foreign landings are recorded in Poland, while Polish fleet landings in Bornholm increase, due to attractive price paid for sprat for fishmeal purposes.

Sprat used for direct human consumption purposes is used in Poland mostly for canned fish production and to a lesser extent for smoked fish production. For export (for human consumption) mostly whole frozen sprat is produced.

According to stakeholders, Polish production reported by PRODCOM as “prepared or preserved sprat or sardinella” only consist of canned sprat. This production has reached 19.436 tonnes net weight in 2022, growing by 5% compared to 2021 and by 46% over the past decade. In the meantime, the average ex-factory price has experienced fluctuation over the past decade, hitting its highest point in 2015 at 4,66 EUR/kg and its lowest in 2016 at 3,74 EUR/kg. The price is relatively more stable since 2017 and reached 4,04 EUR/kg in 2022¹⁴. It is not possible to provide volume and prices for Polish production of smoked sprat as it is reported by PRODCOM in a broader category, together with other pelagic fishes.

Figure 11: Polish production of canned sprat and average ex-factory price (tonnes net weight and EUR/kg)



Source: PRODCOM

¹⁴ Source: PRODCOM

3.1.2 Polish trade for sprat

Fresh and frozen whole fish

In 2022, imports of whole sprat reached 4.210 tonnes net weight (46% fresh, 54% frozen). In recent years, imports of whole sprat have experienced significant fluctuations for all preservation states. Imports peaked in 2018 and 2021 above 7.000 tonnes and reached their lowest level in 2017 below 3.000 tonnes. All preservations included, imports decreased by 44% over 1 year between 2021 and 2022. Overall imports declined by 12% over the past decade. In 2022, the main import partners for fresh sprat were Estonia (46%), Latvia (23%) and Sweden (18%). The main imports partners are Sweden (27%), Norway (26%) and the Netherlands (5%) for frozen sprat.

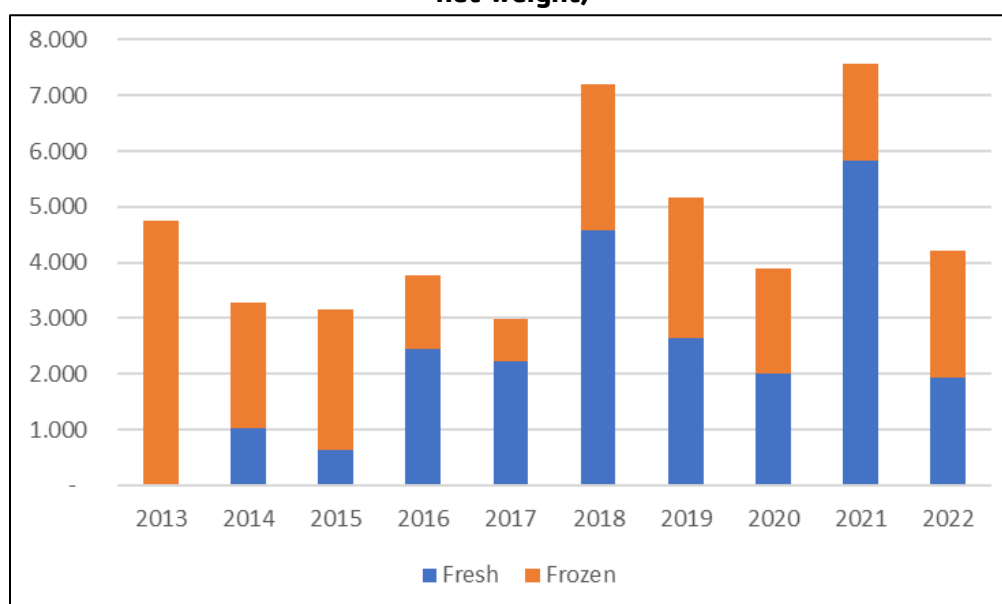
The import of fresh and frozen sprat is conducted exclusively for the purpose of supplying the fish processing industry (almost solely to produce canned fish products of the "sardine" type - for re-export).

Table 10: Imports of whole sprat in Poland in 2022

	Nominal value (1.000 EUR)	Volume (tonnes product weight)	Price (EUR/kg)	% val 2022
Fresh	1.481	1.922	0,79	40%
Frozen	2.217	2.288	0,97	60%
Total	3.698	4.210	0,88	100%

Source: EUMOFA based on Eurostat/COMEXT

Figure 12: Evolution of imports in Poland of sprat, whole, by preservation state (in tonnes net weight)



Source: COMEXT

In 2022, exports of whole sprats reached 9.768 tonnes (25% fresh, 75% frozen). In recent years, exports of whole sprats have experienced significant fluctuations for all preservation states, with a declining trend over the past 5 years. Sprat exports peaked in 2013 and 2015 to reach above 35.000 and 45.000 tonnes respectively net weight. They fell in 2016 and have remained below 20.000 tonnes since. The main export partner for fresh sprat is Denmark (91%). Serbia (8%) and Estonia (1%) are secondary partners. The main exports partners for frozen sprat are Serbia (14%), South Africa (12%), Ghana (11%) and Benin (10%).

Based on interviews with fishermen and processors, export of sprats to Denmark is solely conducted for industrial purposes (fishmeal and fish oil production). They are likely to consist mainly of Polish landings

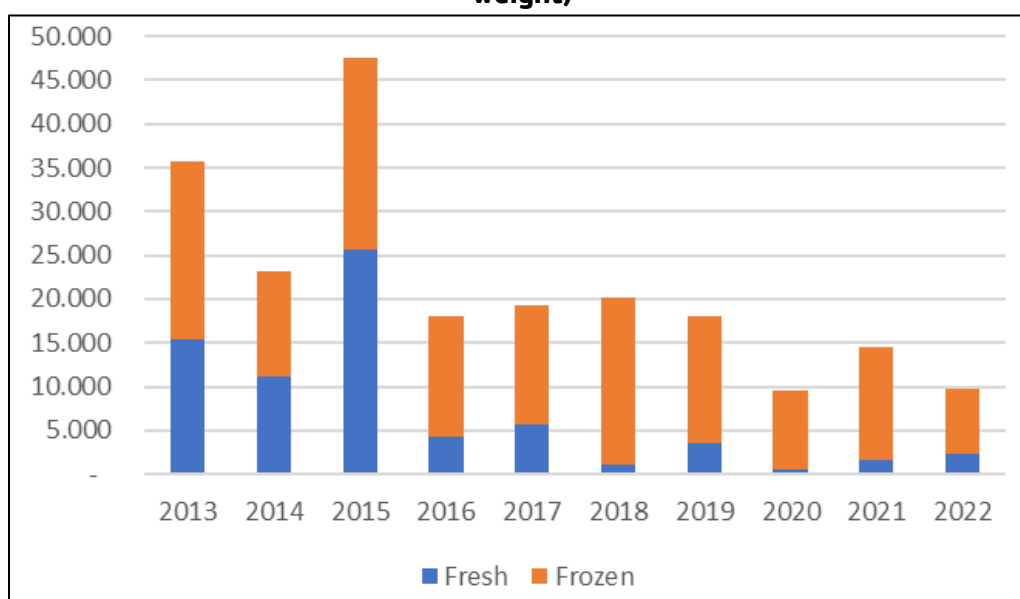
of sprat in Denmark reported as exports and to a lesser extent of exports by road. Exports to all other destinations are intended for human consumption.

Table 11: Exports of whole sprat in Poland in 2022

	Nominal value (1.000 EUR)	Volume (tonnes product weight)	Price (EUR/kg)	% val 2022
Fresh	2.217	2.288	0,97	30%
Frozen	5.123	7.364	0,70	70%
Total	0,97	0,70	0,76	100%

Source: EUMOFA based on Eurostat/COMEXT

Figure 13: Evolution of Poland exports of sprat, whole by preservation (in tonnes net weight)



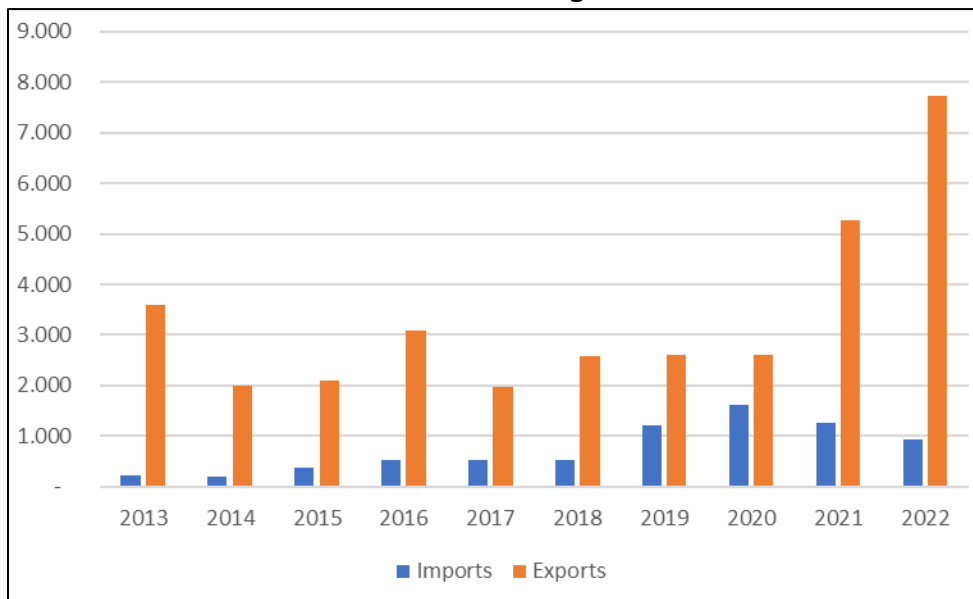
Source: COMEXT

Canned fish

Polish exports of canned sprat reach 7.731 tonnes net weight in 2022. These exports increased by 47% between 2021 and 2022 and by 115% between 2013 and 2022. Main destinations were the USA (56%) and Romania (11%). Australia, Czechia, the UK, and Ukraine each account for 4% of the exports. The strong increase in canned sprat exports since 2021 is driven by contracts fulfilled primarily by one manufacturing plant in Poland, which is part of an international corporation. This plant produces canned goods under an international brand labelled as 'sardines,' based on sprats, primarily destined for the USA and Australia.

Imports of canned sprat and sardinella are significantly lower, with 944 tonnes net weight imported in 2022, mostly from Latvia (92%). Germany (4%) and Sweden (3%) are two secondary import partners. Imported cans made from fish from the Baltic Sea, such as those from Latvia, mainly consist of hand-packed smoked sprat in oil, a delicacy product and much more expensive than those produced in Poland. Imports from Germany mainly consist of canned sardines and sardinellas produced in non-European countries, including Morocco.

Figure 14: Evolution of imports and exports of canned sprat and sardinella in Poland (in tonnes net weight)



Source: COMEXT

3.1.3 Consumption

Main uses for sprat

In 2023, fish consumption in Poland based on official statistics amount to 13,68 kg per capita. Sprat is the 8th most consumed fish product with an annual consumption per capita estimated at 0,68 kg (5% of the total).

There are two main directions for the utilisation of sprats in Poland:

- for industrial uses (production of fish meal, to a much lesser extent - production of semi-liquid feeds (silage), pet food production, feeding fur animals)

And,

- for human consumption.

The vast majority of raw material for industrial uses is transferred to Denmark (both in the form of landings by the Polish fleet in Danish ports - Nexø in Bornholm Island, and by road transport), although since 2023, production capacities of fishmeal and fish oil in Poland have also increased.

Based on estimations derived from interviews with pelagic fish producers' organisations, processors, and experts, we estimate that in 2022, 20.000 tonnes of sprat were allocated to human consumption. According to respondents, this volume has remained fairly stable over the past 5 years. The remaining portion of sprats from Polish catches, foreign landings in Polish ports, and imports are directed towards industrial uses - this volume varies and depends mainly on the size of Polish catches. It is worth noting that imports of sprat by Poland are primarily destined to human consumption.

Sprat for human consumption retail market

In the Polish retail market, only two significant types of sprat products are available:

- canned sprats (ca. 90-95% sprat market share)

And,

- smoked sprats (ca. 5-10% market share).

European Market Observatory for Fisheries and Aquaculture Products – Sprat in the EU

A niche retro product known as marinated sprats ('moskaliki') also exists (less than 1% market share). Fresh and frozen sprats are not commonly found in the Polish retail market. However, those preservations are sometimes available in traditional retail on the seaside. In the HoReCa sector, the availability of sprat is extremely niche, with only a few restaurants along the coast serving fried or smoked sprats as an appetizer. Attempts have been made to promote such products, but without success.

The canned sprat market is conservative in terms of product variety, which is relatively low, and product life cycle, which is relatively long.

According to fish processors, 80% of the market is covered by dominant, "traditional" products, which the consumers have known for the last 20 or 30 years:

- sprat in oil (sometimes in aromatised oil),
- sprat in tomato sauce,
- smoked sprat in oil (usually called " Smoked Winter Sprat" - which is the name used for the last 50 years).

Other products include:

- sardines in oil (with sprat as a raw material) – growing share,
- sardines in tomato sauce (with sprat as a raw material) – growing share,
- sardines in pepper sauce (with sprat as a raw material),
- sprat in Caro oil (the traditional recipe from the 1970s and 1980s consists of steamed sprats (45-50%) in oil (40%) with vegetables, mainly diced carrots and green peas.)
- some "innovative" products with small market share, as: e.g. *Sprats in oil with basil*, *Sprats in spicy oil* etc.

An interesting fact about the market is the naming of some of the canned sprats: it is probably one of the very rare cases of food in the communist era (before 1989) that had a name in English (Popular smoked Winter Sprat – now usually changed to Smoked Winter Sprat).

The market, up to the late 1990s, was dominated by steel cans. From 1990/2000, it evolved into a market dominated by aluminium cans. The market is dominated by one can supplier (domestic production).

Raw materials used for production of canned sprat in Poland originated almost 100% from Baltic sprat landings in Polish ports. Due to their high fat content, only sprat caught from January to March (mid-April) is suitable for canning and is a guarantee of high organoleptic quality, which also reflects the traditional name of the product – "*winter sprats*". As the production of canned sprat is almost continuous through the year, canners also use frozen raw material for the production of canned fish. However, those sprats fished out of the winter season are used and result in lower quality.

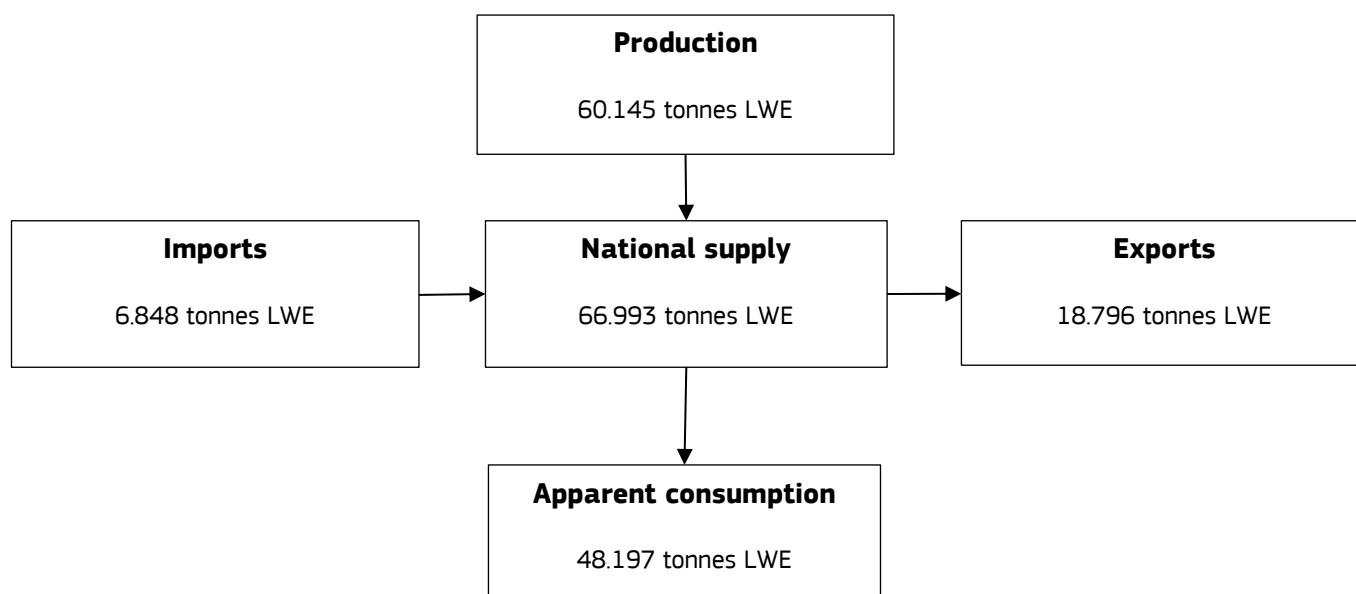
In Poland, the most popular cans used for sprat canning are:

- Hansa 170 g - the most popular size.
- Dingley 1/4 Club from 110 to 125 g - used mostly for sprats traded as "sardines" and winter sprat in oil,
- round can 300 g - used mostly for cheaper sprats in tomato sauce or oil (Decreasing market share).

A few decades ago, **smoked sprat** was one of the most popular seafood products in Poland. However, its form (whole smoked fish with head) discourages younger consumers, and its price has increased over the decades (mainly due to the labour-intensive smoking process). Currently, it is available in most places offering fish, but the volumes sold remain low.

Supply balance and apparent consumption

Figure 15: Supply balance for sprat in Poland (2023, tonnes LWE)*



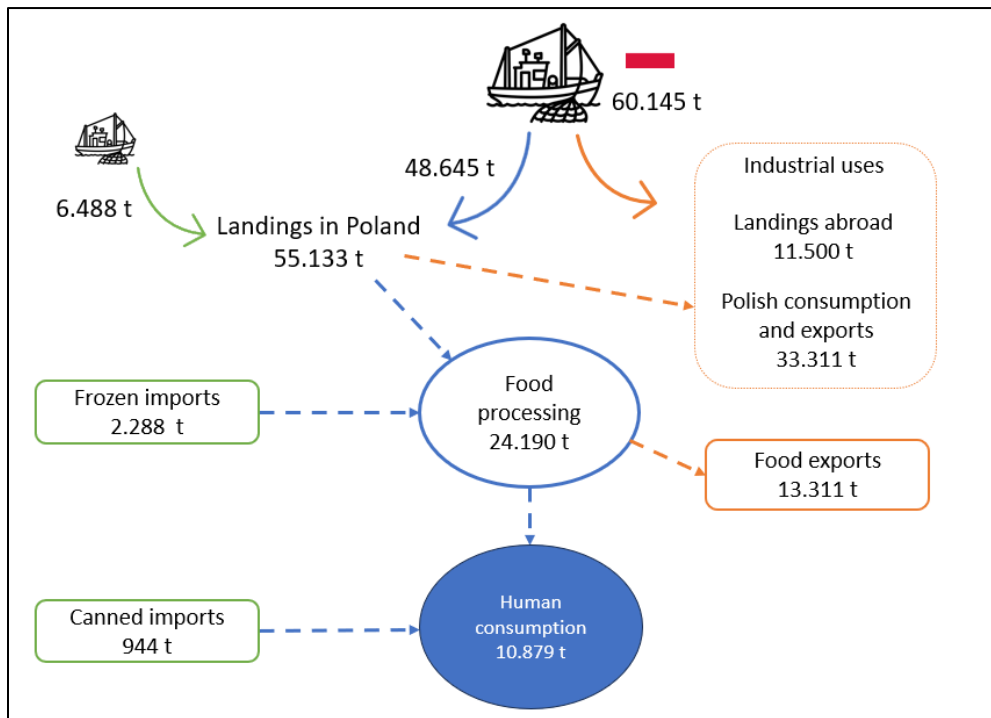
*Note: supply balance data for Poland does not differentiate between the use of sprats for industrial uses (fishmeal, pet food, and others) and for human consumption.

Source: EUMOFA based on Eurostat/COMEXT

In 2023, Polish catches of sprat reach 60.145 tonnes, among which 48.645 tonnes are landed in Poland and 11.500 tonnes are landed abroad, mainly for fishmeal & oil production. Foreign landings in Poland reach 6.488 tonnes. The food processing industry, which mainly produce canned sprat, uses 24.190 tonnes LWE of sprat, supplied mainly by landings and to a lesser extent by imports of frozen sprat (2.288 tonnes LWE). Approximately half of the food processing industry production is exported. Apparent human consumption of sprat reaches 10.879 tonnes LWE, supplied both by domestic production, and to a lesser extent by imports of canned sprat (944 tonnes LWE). Polish uses and exports of sprat for fishmeal & oil production reach 33.311 tonnes LWE.

The apparent consumption calculated for the supply balance figure above is equivalent to the addition of apparent human consumption and Polish consumption for industrial uses in the figure below.

Figure 16: Structure of the supply chain for sprat in Poland (2023, tonnes LWE)



Source: EUMOFA based on Eurostat/COMEXT

3.2 Sprat prices along the supply chain

3.2.1 First sale prices

Sprat price depends on season, quality and destination. Fisheries targeting sprat have a very seasonal activity, with the main fishing season from January to March. In 2022, reported first-sales in Polish ports reached more than 42.000 tonnes of sprat. While the yearly first sale volumes remained relatively stable over the past 3 years, they are sold increasingly early. In 2020, 74% of the volumes were sold over the first 4 months. This share increased to 89% in 2021 and 97% in 2022.

According to the fisheries organizations in Kołobrzeg, Poland, the period of high quality and suitable concentrations of sprat shoals coincides with bad weather (storms), and the Polish sprat fleet (with vessels up to 35 m) is not resilient enough against those events. In 2022 and 2023, there has been an increasing occurrence of storms in January, which led to shortening the intensive fishing season despite an extension until April. In 2024, fishing could only start in February. At the same time, due to new EU regulations, sprat fishing will not be possible from April onwards¹⁵. According to the fisheries

¹⁵ The regulation [Council Regulation (EU) 2023/2638 of 20 November 2023 fixing the fishing opportunities for certain fish stocks and groups of fish stocks applicable in the Baltic Sea for 2024 and amending Regulation (EU) 2023/194 as regards certain fishing opportunities in other waters] prohibits the fishing of pelagic stocks with pelagic trawl:

in subareas 25 and 26 from 1st April to 30th April;

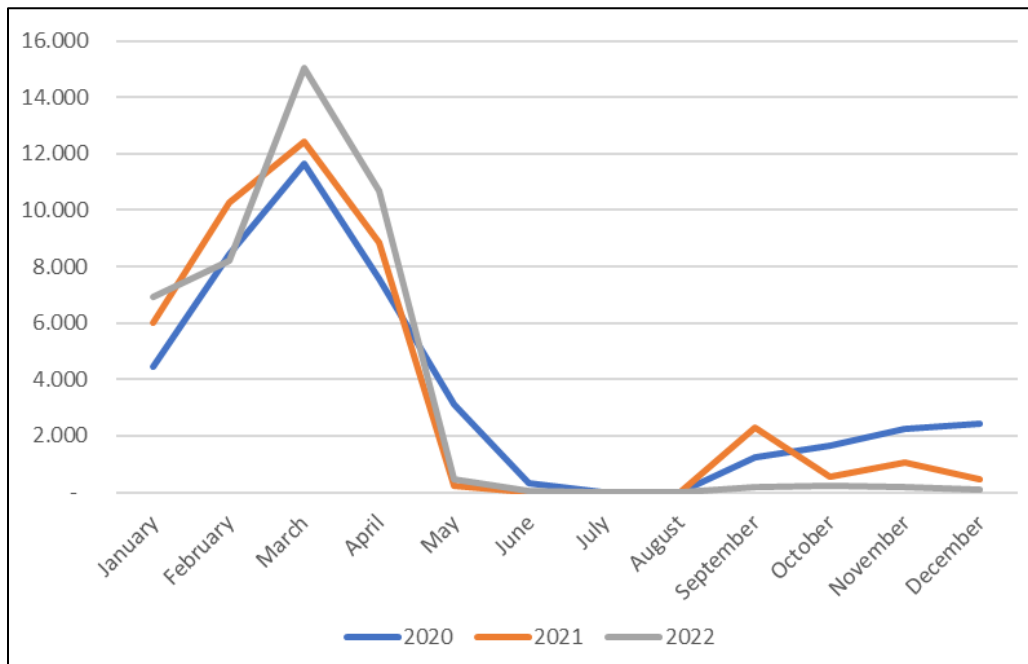
in subareas 27 and 28.2 from 16th April to 15th May;

in subareas 29 and 32 from 1st May to 31st May;

for the protection of the spawning grounds of Atlantic herring and, for the protection of the spawning grounds of Atlantic cod, it prohibits, with certain exceptions, fishing using any type of fishing gear:

organisations, the increasingly short sprat fishing season is causing huge logistical problems and fisheries probably will no longer be able to catch their allocated quota.

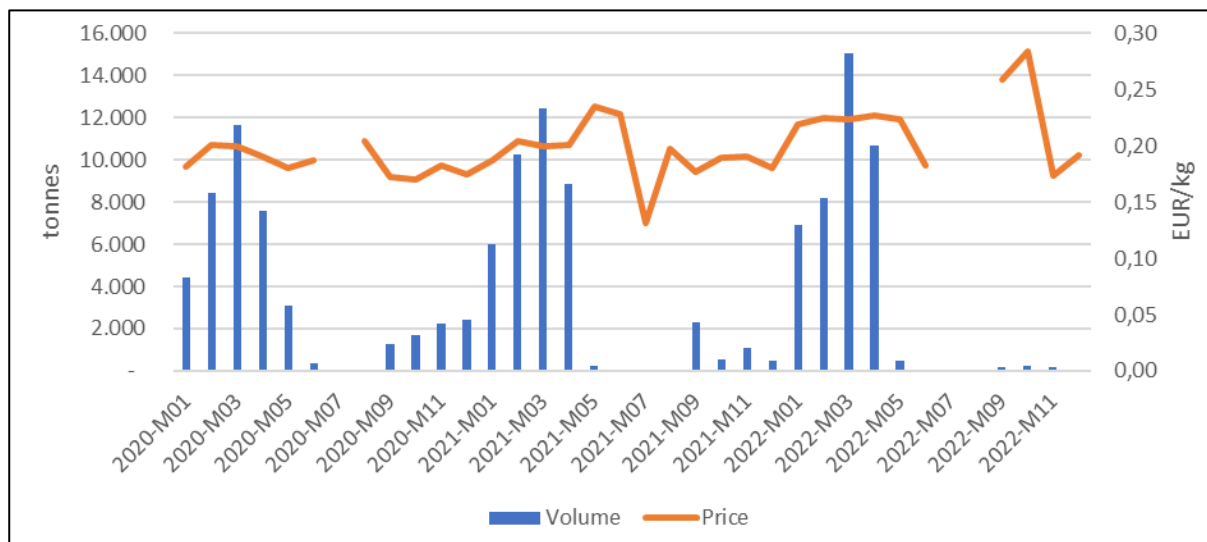
Figure 17: Sprat monthly first-sale volumes in Polish fishing ports (in tonnes)



Source: EUMOFA

Prices of sprats landed in Polish ports in 2022 amounted to an average of 0,22 EUR/kg. This price was 14% higher than in 2020 and 2021 (0,19 EUR/kg for both years).

Figure 18: Sprat monthly first-sale volumes and first-sale prices in Polish ports between 2020 and 2022 (in 1.000 tonnes net weight and EUR/kg)



Source: EUMOFA

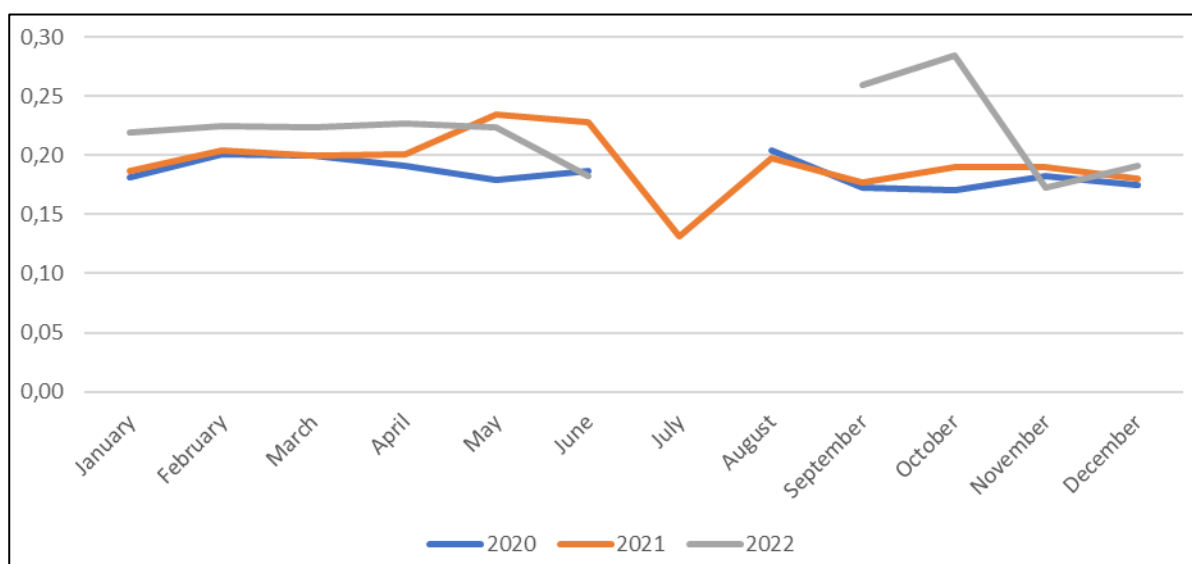
in subareas 25 and 26 from 1st May to 31st August;
 in subarea 24 from 15th May to 15th August;
 in subareas 22 and 23 from 15th January to 31st March.

As already mentioned, the highest quality sprats are caught in winter (January-March). The highest prices are obtained in Kołobrzeg, which can be identified as a port of fish quality (fish size) and a destination of fish for human consumption purposes. Prices in Hel and Władysławowo are significantly lower. In the months of January-February 2022 in Kołobrzeg, prices paid were at 0,25 EUR per kg, while they were on average 0,22 EUR/kg in Hel and 0,21 EUR/kg in Władysławowo.

According to fishermen organizations in Kołobrzeg, which is the main port for landing of sprat for human consumption, in Feb.-Mar. 2023 average price for high quality sprat for canning reached **1,90 PLN (0,40 EUR/kg)** which was much above price level in 2022. The initial offered prices in 2024 are between 2,20 and 2,40 PLN per 1 kg, which is 20% higher (in local currency) than in early 2023.

According to fishermen, the increase in sprat prices for consumption in the years 2023-2024 is correlated with the rise in prices of feed sprat. The price of feed sprat (both in purchase in Poland and in Bornholm) serves as a reference price for the market. In addition, selling to the feed industry requires lower financial investment (no sorting required, no need for cooling). Moreover, delivery time of sprat from productive fishing grounds to the port of Bornholm (feed use) is shorter than to Kołobrzeg (food use), leading fishermen to favour landings in Bornholm. The feed market is significantly stronger and has a direct influence on market conditions and on the food market for sprats.

Figure 19: Average monthly first-sale price of sprat in Polish ports (in EUR/kg)



Source: EUMOFA

3.2.2 Ex-factory prices

In 2022, the Polish production of canned sprat and sardinella reached an average ex-factory price of 4,04 EUR/kg. This price increased by 13% over the last decade.¹⁶

Table 12: Average ex-factory prices for canned sprat in Poland (in EUR/kg)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Price (EUR/kg)	3,59	3,80	4,66	3,74	3,73	3,81	4,21	4,48	4,27	4,04

Source: PRODCOM¹⁷

¹⁶ Source: PRODCOM

¹⁷ These ex-factory prices are estimates based on PRODCOM data and may include canned sardinella products.

3.2.3 Retail prices

The market review conducted for this report showed that the canned price on the shelf depends on the type of ingredient added (oil or tomato sauce, which also results in different fish contents), the producer's brand, and to a lesser extent correlates with the size of the can.

Table 13: Canned sprat prices (June 2018) in one leading Polish hypermarket chain

Product weight in kg		0,110	0,125	0,160	0,170	0,170
Brand type		Retailer own brand	Retailer own brand	Producer brand	Retailer own brand	Producer brand
Fish content		0,50	0,65	0,50	0,60	0,50
Price in EUR* per 1 kg product weight	Sprat in tomato sauce			7,00	4,84	4,61-4,65
	Sprat in oil				4,97	
	Smoked sprat in oil "Winter Sprats"				6,40	8,75
	Sprat in Caro oil**			9,29		4,84
	Sardines in sauce or oil	6,71-7,04	6,91			

*Note: 1 EUR = 4,3652 PLN (average weighted monthly exchange rate of the Polish National Bank for January 2024)

**Note: sprat in vegetable oil with 10-15% addition of vegetables (mostly diced carrots)

Source: own survey on site.

There is no publicly available data for canned sprat prices at retail stage. A similar product monitored by Main Statistical Office is "canned sardines in oil, 160 g". After conducting a thorough analysis of metadata and market reconnaissance, we conclude that the product monitored by the Main Statistical Office is domestically produced canned goods based on Baltic sprat. Unfortunately, there is a lack of information on how the Central Statistical Office calculates the average price and what structure of stores is considered. In this situation, a price timeline for this product serves as a good indicator of price changes over time and price trends. However, it does not work as a reference price for a specific product, in a specific type of store. It is worth noting that the data provided by the Central Statistical Office (GUS) are currently about 37% higher than the prices of the same type of private label canned goods in leading discount supermarkets.

Table 14: Canned sprat ("canned sardines in oil, 160 g" type) average yearly retail prices

	2017	2018	2019	2020	2021	2022	2023
Price (PLN/kg)	29,44	30,31	31,13	31,44	33,25	37,31	42,00
Price (EUR/kg)	6,74	6,94	7,13	7,20	7,62	8,55	9,62

Source: Main Statistical Office.

3.3 Price transmission for canned sprat in the Polish market

The following calculation applies to 170 g canned “smoked sprat in oil”, retailer own brand, for which the retailer price in supermarket is 6,40 EUR/kg. The exchange rate used is 1 EUR = 4,3652 PLN (average weighted monthly exchange rate of the Polish National Bank for January 2024).

- **Labour costs**

Despite the significant increase in labour costs over the last decade in Poland, their share in the total costs of fish processing still does not exceed 8,4% overall in Polish fish processing (2021/2022 data).

One employee produces on average 2.100 kg of canned fish per month, for an average monthly salary cost (including mandatory national insurance) of 5.620 PLN per month (1.287 EUR). This salary represents on average 2,68 PLN (0,61 EUR) per kg of canned product. Labour costs for 170 g “smoked sprat in oil” are estimated to reach 3,84 PLN/kg (**0,88 EUR/kg**).

- **Depreciation costs**

The average share of depreciation amounts to **2,4% of all operational costs** in analysed factories.

- **Material costs - package**

There is no publicly available data on the cans’ price. According to interviews, the cheapest can of 170 g costs 1,00 PLN (0,23 EUR). For a can including full lithography, the can cost can reach 1,20 PLN (0,27 EUR) or more.

The choice between full lithography, partial lithography or simple can without lithography depends on production size. A processor producing small volumes of canned fish usually chooses a printing label, while for processors with large-scale productions full lithography is more convenient (less manual and automatic operations). Considering that the package includes the cost of can and cost of the label, we estimate that average cost of can for sprat 170 g amounts to 1,20 PLN (0,27 EUR).

The cost per kg for 170 g “canned sprat in oil” (1 kg = 5,88 cans) reaches 7,06 PLN (**1,60 EUR**).

- **Material costs – oil**

For canning, mainly rapeseed oil is used. Oil share in product amounts to 40% usually. It means for 1 kg of canned sprat; 0,4 kg of oil is used. The market has experienced significant fluctuations in the past two years. Following the outbreak of the war in Ukraine, in 2022 rapeseed oil prices more than doubled. The market also temporarily experienced supply shortages. From April 2023 onwards, prices started to decline, and in January 2024, the wholesale price of oil was 43% lower than in January 2023¹⁸.

Taking into account long-term supply planning and the fact that cans offered in January 2024 originate from production throughout 2023, the calculation was based on the average price from 2023, which amounted to 6,38 PLN per litre (1,45 EUR). After considering delivery costs, the total cost was set at 6,50 PLN per litre (which corresponds to 2,60 PLN [**0,60 EUR**] per 1 kg of product).

- **Material costs – fish**

As was showed in previous sections, most canned sprat processors use fresh or frozen deheaded sprats as main raw material (for smoked sprat in oil deheaded and gutted sprat is used; for sprat in oil and sprat in tomato – deheaded sprat is used; for “sardines” type deheaded and tail cut sprat is used).

¹⁸ Polish Ministry of Agriculture and Rural development

European Market Observatory for Fisheries and Aquaculture Products – Sprat in the EU

Product type	Primary processing	Secondary processing	Weight lost on processing
Sprat in oil / sprat in tomato	Deheading	Steaming	28%
Smoked sprat in oil	Deheading, gutting	Smoking	40%
“sardines” type	Deheading, gutting, tail cut	Steaming	30-33%

For our calculation we will use a price of **1,00 EUR/kg** (frozen headed sprat, incl. losses on defrosting, cleaning etc., incl. primary processing cost), built on a 0,44 EUR/kg auction price.

• Price structure in processing

To summarize the costs detailed above, the price structure in the processing phase for 1 kg canned sprat in oil is based on the following basic costs:

- Cans (1,60 EUR)
- Oil (0,60 EUR)
- Fish (0,98 EUR)
- Labour costs (0,88 EUR)
- Other costs (energy, logistic, external services, local taxes, financial costs) – (1,02 EUR)
- Depreciation (0,12 EUR)

The total operation costs per 1 kg product would be then 5,22 EUR.

In addition, for canned fish industry (based on financial statements of five companies) the average gross profit amounted to 2,10% in 2022 (last available data), which corresponds to **0,11 EUR/kg**. Then the ex-factory price would be $5.22 + 0.11 = \mathbf{5.33 \text{ EUR/kg}}$

• Net margin in retail

In traditional trade (wholesaler + general food shop), the average margin amounts to 30%.

In retail chains (supermarkets, hypermarkets) the average margin could be even higher, as high as 35% for producer brand and up to 20% for retailer own brand - according to stakeholders' interviews. Contracts are usually made for 6 or 12 months. Product specifications for deliveries to supermarket chains generate extra costs; however, economy of scale results in lower cost of lithography cans, logistics etc. There is no doubt that the ex-factory sale price to supermarkets is lower than that of traditional trade, but agreements with supermarkets are strictly confidential.

• VAT

Since February 1, 2022, Poland has enforced a reduced 0% VAT rate on food, which was previously subject to a 5% tax rate. The Minister of Finance has signed a regulation extending the application of reduced VAT rates for specified goods and services, including maintaining the 'zero' VAT rate on basic food products from January 1, 2024.

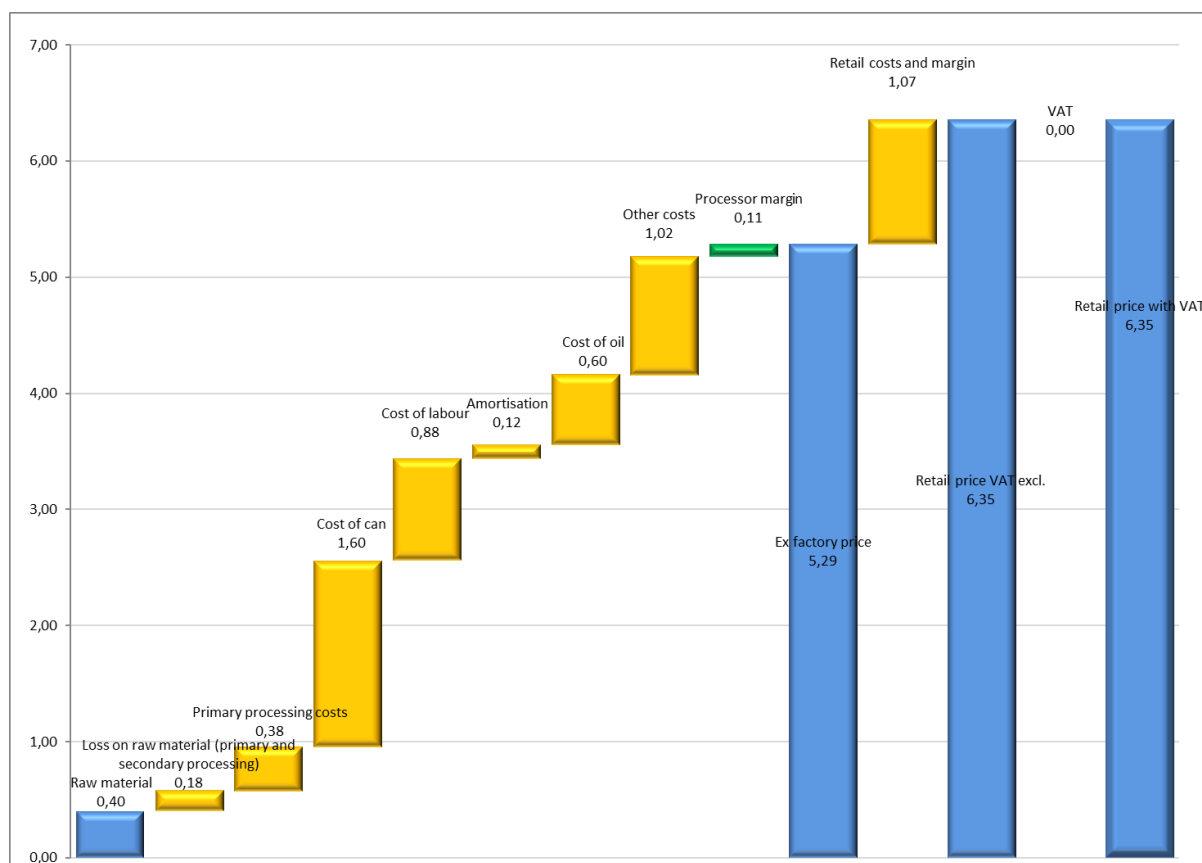
While the ex-vessel price of sprat of good quality for canning amounts to 1,90 PLN [0,44 EUR] per 1 kg (before heading), the retail price of canned sprat amounts to 20 PLN [4,65 EUR] per kg. It is clear that the first sale price of sprat has a limited impact on the final product price.

Table 15: Costs and margins of canned sprat in oil sold in retail in Poland

Auction price	0,44
Loss on raw material	0,18
Primary processing costs and margin	0,38
Cost of can	1,60
Cost of labour	0,88
Cost of amortisation	0,12
Cost of oil	0,60
Other costs	1,02
Processor margin	0,11
Retail costs and margin	1,07
VAT	0,00
Retail price	6,40

Source: own elaboration

Figure 20: Price transmission for canned sprat in oil sold in large-scale retailer in Poland (in EUR/kg)



Source: own elaboration

4 THE DANISH MARKET

4.1 Structure of the supply chain

4.1.1 Production

Characteristics of the fleet

The Danish sprat fishing fleet consists of bottom trawlers fishing sprat mainly for the fishmeal industry (98% of the catches). The fleet is divided between 17 vessels of at least 40 m length and 20 smaller vessels. Stakeholders in the fishing sector witness a concentration of the fleet towards a smaller number of larger vessels. The number of vessels smaller than 40 m has notably declined from a hundred to circa 20. Sprat fishing vessels catch sprat during the sprat fishing season and other pelagic fishes during the rest of the year. Outside the sprat fishing season, the vessels focus either on other fishes mainly used for fishmeal, such as sand eel, Norwegian pout, blue whiting, fishes used for both fishmeal and human consumption such as herring, and fishes used for human consumption such as mackerel.

Given their specialisation in fishing for fishmeal production, operations on sprat fishing boats need little workforce. A vessel smaller than 40 m does not need more than 4 people as crew, while larger vessels can take up to 6 crew members. The load capacity of a sprat fishing boat is also larger than a boat fishing only for human consumption; it can reach up to 1.500 to 2.000 tonnes for the larger vessels. These characteristics make the sprat-fishing fleet little prone to labour shortage. Fishing companies only face competition with the offshore industry for skilled machinists. Rising costs of fuel have been more than compensated by rising prices of sprat for fishmeal. The evolution of the fleet to more modern and bigger vessels also reduces the consumption of fuel per kg of catches.

Catches occur almost exclusively in the North Sea and in the Baltic Sea. Former active fishing zones of Kattegat and Skagerrak only account for a small portion of current catches.

Management measures

Sprat stocks are under quotas for all fishing zones. Denmark has distinct quotas for the fishing zones of Skagerrak/Kattegat, the North Sea, the Baltic Sea and the English Channel. The bigger quota for Denmark is for the North Sea. It is also the most unstable among the fishing zones. The Baltic Sea quota has been relatively stable over the past 10 years. Quotas for Skagerrak and Kattegat have decreased significantly. There is also a small Danish quota for fishing sprat in the Channel.

Table 16: Danish quotas for sprat from 2013 to 2022, by FAO fishing zones (tonnes LWE)

Quotas	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Skagerrak/Kattegat	27.875	22.300	21.700	24.470	22.300	20.363	5.861	1.498	25.987	2.571
North Sea	132.524	126.007	305.595	225.447	163.546	165.347	129.570	132.663	142.975	103.094
Baltic Sea	27.569	30.042	24.702	19.194	30.088	27.310	34.466	28.441	25.826	28.772
English Channel	656	274	1.424	1.566	134	0	120	51	0	96
Total	188.624	178.623	353.421	270.677	216.068	213.020	170.017	162.653	194.788	136.163

Source: EUMOFA, based on Danish Fisheries Agency

Danish quotas for sprat have fluctuated strongly over the past 10 years. The variation in catches was even larger than the variation of quotas. Quota utilisation declined the most in Skagerrak/Kattegat despite a strong decrease of this quota. Danish quotas in UK waters of the North Sea have not been used in 2023.

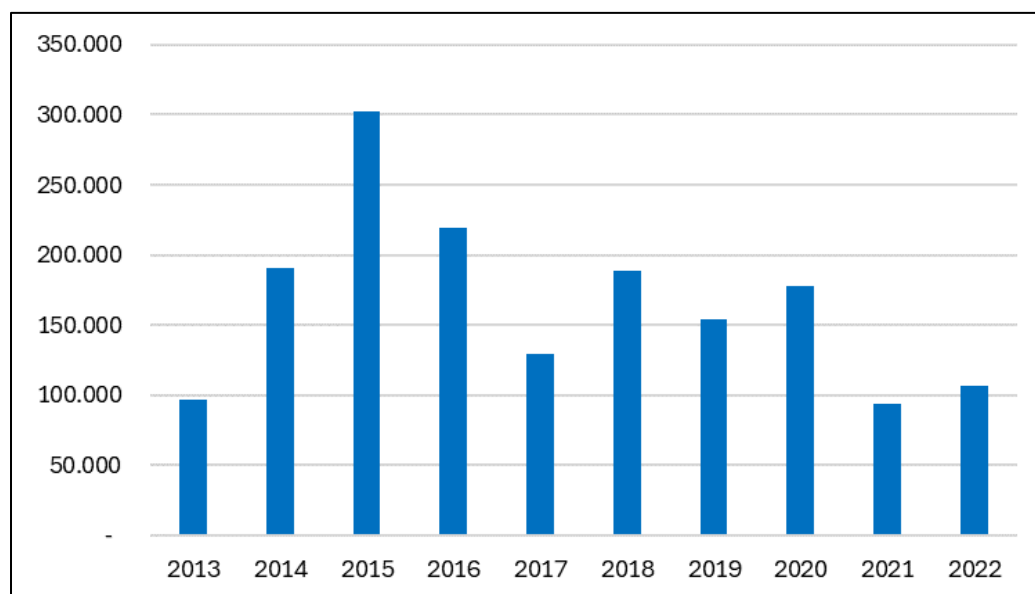
Among other significant management measures, the Danish Fisheries Agency adopted in 2020 a new sampling and inspection plan for landings in Denmark. Sampling requirements must be completed on

boat if the fish is used for human consumption and on land if the fish is used by the fishmeal and fish oil industry.¹⁹²⁰

Catches

The Danish fleet caught 106.275 tonnes of sprat in 2022. This was a 12% increase over 2021 catches, and a 9% increase compared to 2013. Sprat catches by the Danish fleet have been very unstable over the past decade, culminating at 302.821 tonnes in 2015 and hitting record lows in 2013 (96.386 tonnes) and 2021 (93.780 tonnes). According to stakeholders of the fishing sector, the instability in catches is mainly due to variation of quotas, which used to be more stable in the past. Decreases in 2016 and 2017 are mainly due to Brexit, and to the loss of Danish quotas in UK waters.

Figure 21: Danish sprat catches from 2013 to 2022 (in tonnes in live weight equivalent)



Source: Eurostat

First sales volumes

According to Eurostat and EUMOFA, there is a significant gap between catches from the Danish fleet and sprat first-sale volumes in Denmark. In 2023, first sales in Denmark reached 173.004 tonnes. It was 185.031 tonnes in 2022, compared to 106.936 tonnes of catches (Eurostat). According to stakeholders of the fishing sector, the difference between volume of catches and first sales is mainly due to very significant foreign landings of sprat for fishmeal in Denmark by foreign vessels. According to the Danish Fisheries Agency, landings from foreign vessels in Denmark reached 89.818 tonnes in 2022. All of those landings are used by the fishmeal industry.

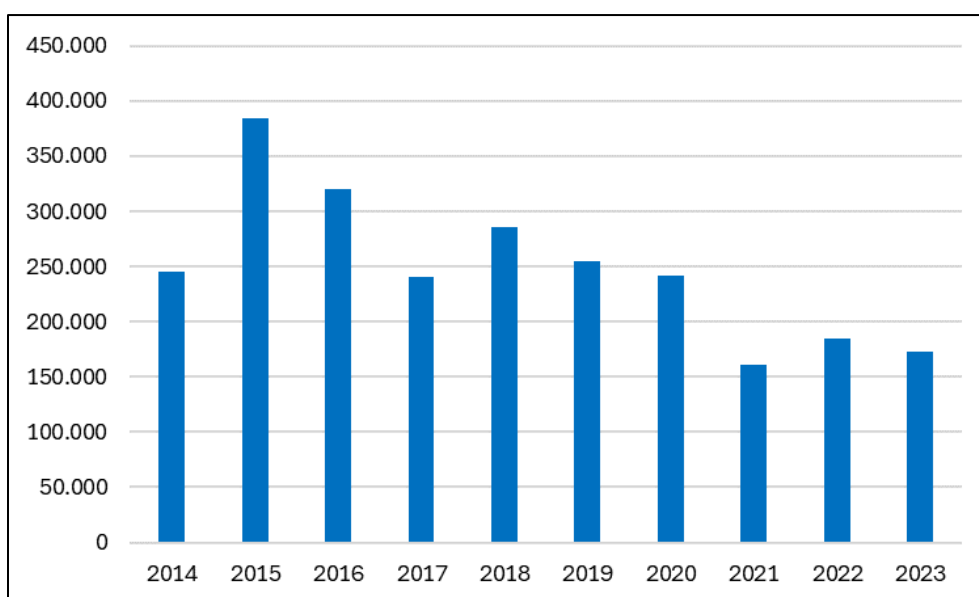
Landings of sprat in Denmark followed a decreasing trend over the last 10 years. According to stakeholders, the strong decrease in 2021 is partly due to a change in regulation regarding mandatory sampling of sprat landed for fishmeal, which led some vessels to temporary land in neighbouring countries. The recovery in 2022 would tend to demonstrate an adaptation of the boats in complying with the new regulation. The decrease in landings in 2017 is directly linked to the decline of catches due to Brexit.

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https://fiskeristyrelsen.dk/fileadmin/user_upload/Fiskeristyrelsen/Erhvervsfiskeri/Kontrol/Krav_til_vejning_proevetagninq_sortering_og_pakning_om_bord_m.m/Vejledning_til_proevuetagning_og_sortering_af_fisk_der_landes_us..._D13506607.pdf

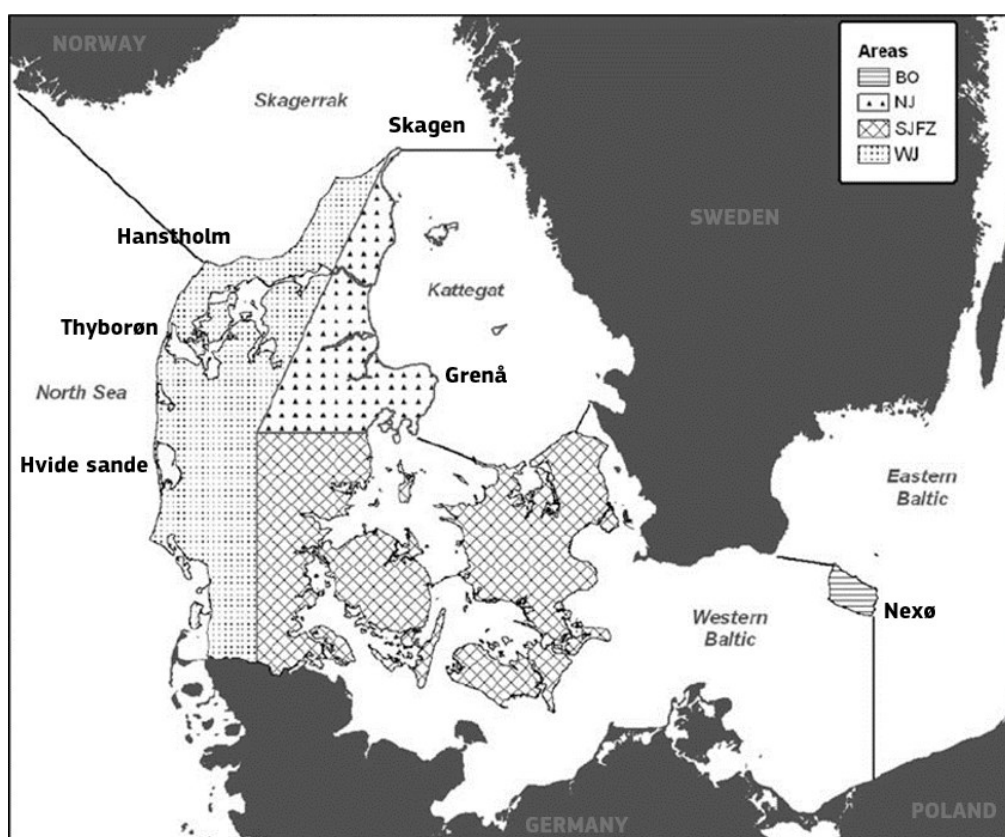
²⁰ <https://fiskeristyrelsen.dk/erhvervsfiskeri/kontrol/krav-til-proevetagning-sortering-og-vejning-om-bord-mm>

Figure 22: Sprat first-sale volumes in Denmark (in tonnes net weight)



Source: Danish Fisheries Agency

Figure 23: Danish maritime zones, regions of vessel registration (Bornholm - northeastern Jutland - Southeastern Jutland, Funen and Zealand - western Jutland) and main ports for sprat landings



Source: EUMOFA based on Eigaard, O. R. 2009.

The main ports for sprat landings are Skagen, on Skagerrak/Kattegat (75.521 tonnes in 2023), Thyborøn and Hvide Sande, on the North Sea (respectively 35.245 and 15.238 tonnes) and Grenå, on Kattegat (24.687 tonnes). Other significant ports of landings are Nexø in the island of Bornholm and Hanstholm. According to stakeholders of the fishing sector, as sprat is almost exclusively (>95%) landed for fishmeal,

fish price plays little role in the choice of landing port, which is chosen for its proximity to the fishing area. Once landed, sprat is transported by road to fishmeal and fish oil factories located in Thyborøn, Hanstholm and Skagen.

Table 17: Landings of sprat in Denmark from 2014 to 2023, by main ports of landing

Ports	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Skagen	48.956	55.238	46.907	54.630	60.547	70.337	48.704	43.476	72.419	75.521
Thyborøn	70.161	161.524	145.229	78.655	125.314	87.396	92.349	51.190	32.310	35.245
Grenå	22.793	22.088	21.472	27.432	16.689	31.692	22.650	20.777	35.631	24.687
Hvide sande	48.236	56.655	30.675	19.853	24.386	15.415	23.087	13.216	16.316	15.238
Nexø	14.637	21.147	13.902	21.857	18.691	19.200	10.344	7.531	16.476	11.456
Hanstholm	16.892	46.903	45.080	27.220	22.398	25.744	35.621	23.715	11.709	10.811
Others	23.368	21.299	16.434	10.901	18.199	5.524	8.856	1.030	171	46
Total	245.043	384.854	319.700	240.548	286.224	255.308	241.610	160.936	185.031	173.004

Source: Danish Fisheries Agency

There is no production of canned sprat in Denmark. According to stakeholders of the canning industry, the last canneries working with sprat were located on the island of Bornholm; they closed in the 1970s. Danish canning companies still have an offer of canned sprat, which is processed in the Baltic countries and imported to Denmark.

4.1.2 Danish trade of sprat

Imports of whole fish

In 2022, imports of whole sprat reach 32.187 tonnes product weight (99% fresh, 1% frozen) and a value of more than EUR 10 million. 97% of these imports' value consists of fresh sprat. The average price of imported frozen fish (1,14 EUR/kg) is 0,82 EUR higher than the average price of imports of fresh fish and landings (0,32 EUR/kg).

Fresh sprat imports mainly consist of foreign landings of sprat in Denmark reported as imports. In 2022, total volumes reported as fresh sprat imports by Eurostat reach 31.858 tonnes, including both landings and imports by road. Imports of fresh sprat by road are estimated to reach a quarter of this volume. Frozen sprat is imported by road to be used for human consumption or pet food, with higher prices due to freezing, conditioning and transport.

Table 18: Imports of whole sprat in Denmark in 2022

	Nominal value (1.000 EUR)	Volume (tonnes product weight)	Price (EUR/kg)	% val 2022
Fresh	10.152	31.838	0,32	97%
Frozen	349	307	1,14	3%
Total	10.459	32.187	0,32	100%

Source: EUMOFA based on Eurostat/COMEXT

In recent years, reported imports of whole sprat have been relatively unstable. They peaked in 2013, 2019 and 2022 above 30.000 tonnes, and reached their lowest levels in 2014, 2015 and 2020, at approximately 17.000 tonnes. In 2022, the main import partners were Sweden (56%) and Germany (35%), which are the main countries in terms of sprat landings in Denmark.

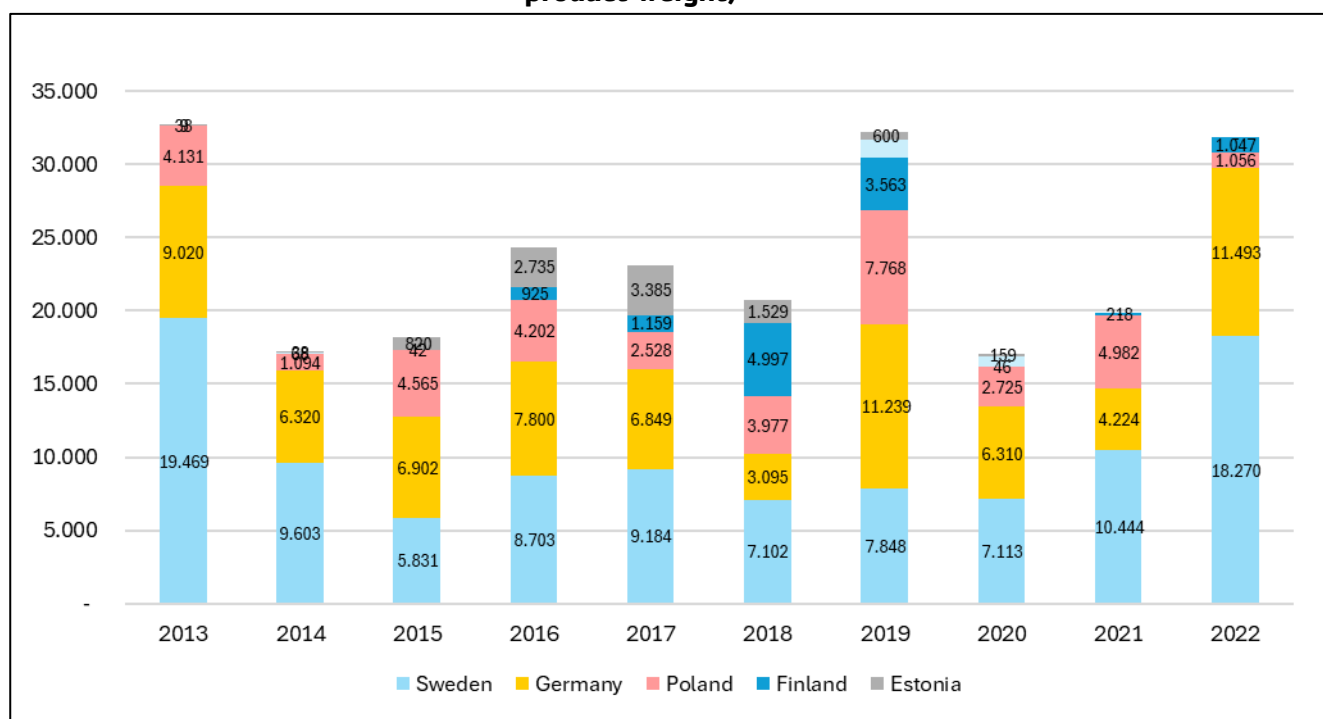
Reported imports of fresh sprat reached their highest levels above 30.000 tonnes in 2013, 2019 and 2022, and reached above 10 EUR billion of value in 2022. According to stakeholders, imports of fresh sprat by road mainly come from Sweden, and to a lesser extend from Poland. Imports of frozen sprat mainly come from Ireland and Norway.

Table 19: Evolution of Danish imports of fresh whole sprat 2013-2022

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Value (1.000 EUR)	9.959	4.321	4.109	6.389	5.155	4.515	7.346	4.289	5.573	10.152
Volume (t product weight)	33.498	18.197	18.172	24.366	23.106	20.701	32.249	17.078	19.958	31.838

Source: EUMOFA based on Eurostat/COMEXT

Figure 24: Evolution of Danish imports of fresh whole sprat by main partners (tonnes net product weight)



Source: EUMOFA based Eurostat/COMEXT

Exports of whole fish

In 2022, reported exports of whole sprats reach 8.814 tonnes, of which 88% were fresh, 12% frozen. The value of these exports reaches EUR 5 million (76% fresh, 24% frozen). According to stakeholders, exports of fresh sprat only consist of Danish landings abroad. The average price of exported frozen fish (1,33 EUR/kg) is 0,81 EUR higher than the average price of landings of fresh fish (0,52 EUR/kg).

Table 20: Exports of sprat in Denmark in 2022

	Nominal value (1.000 EUR)	Volume (tonnes product weight)	Price (EUR/kg)	% val 2022
Fresh	4.041	7.842	0,52	76%
Frozen	1.302	980	1,33	24%
Total	5.343	8.821	0,61	100%

Source: EUMOFA based on Eurostat/COMEXT

Reported exports of whole sprat have increased by 113% between 2021 and 2022, and by 136% from 2017 to 2022, with a period of imports below 500 tonnes from 2016 to 2020. The main export partner is Norway (89% with 7.821 tonnes), consisting mainly of Danish landings of fresh sprat in Norwegian ports. The second export market is Benin (4%), with exports of 329 tonnes of frozen sprat.

The evolution of whole sprat exports is mainly driven by roadings of fresh whole sprat abroad. A strong increase in Danish landings abroad have been observed since 2021.

Table 21: Evolution of Danish exports of fresh whole sprat 2013-2022

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Value (1.000 EUR)	1.278	757	444	0	21	20	107	50	3.039	4.041
Volume (t product weight)	3.504	2.509	1.576	1	44	27	242	81	3.670	7.842

Source: EUMOFA based on Eurostat/COMEXT

Danish exports of frozen sprat ranged from 22 tonnes in 2018 to 980 tonnes in 2022. They reached their lowest levels in 2018 and 2019 and rose strongly every year from 2018 to 2022. According to stakeholders, the significant increase in exports of frozen sprat since 2018 probably comes from frozen sprat volumes previously used to supply the fur industry mink livestock (as feed) in Denmark, whose activity have been forbidden in 2020.

Table 22: Evolution of Danish exports of frozen whole sprat 2013-2022

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Value (1.000 EUR)	182	81	124	120	237	31	76	260	477	1.302
Volume (t product weight)	233	61	98	114	231	22	60	420	469	980

Source: EUMOFA based on Eurostat/COMEXT

Trade of canned fish

Trade of canned sprat is not significant enough and too unstable for its evolution to be analysed in detail. In 2022, reported imports (product weight) reach 27 tonnes and reported exports 53 tonnes. Exports of canned sprat remained below 5 tonnes every year of the last decade, except for 2019 and 2020. Imports of canned sprat reached over 20 tonnes in 2013 and 2014 (with imports mainly from the UK) and over 4.000 tonnes in 2019 and 2020 (from Sweden). It is not clear whether this data includes the small Danish canning industry externalised production in Baltic countries. Exports in 2019 and 2020 could either consist of exports of these Baltic-based production or in reexport of cans supplied in Sweden.

4.1.3 Consumption

Sprat for human consumption

According to stakeholders of the fishing sector, there is very limited traditional sprat fishing for human consumption in Denmark, located in few coastal areas, for own consumption and the unformal market. This segment of the market is supplied by either small vessels using passive gear or bycatches. It declined significantly and only remains in a few coastal areas on Skagerrak/Kattegat and the North Sea.

Beside this limited example, the Danish market of sprat for human consumption consists mainly of canned sprat. A traditional segment of canned sprat imported under Baltic and Polish brands is limited to an elderly clientele with a relatively low purchasing power. Those cans can be found in supermarkets and discounters. A new segment of high value smoked sprat in can is emerging, focusing on urban consumers with a high purchase power. These premium products are mainly found in speciality stores and touristic shops. Due to the overall reluctance of the Danish consumer to eat sprat, in relation to its widespread use for fishmeal and to the high levels of pollution in the Baltic Sea, a significant share of the canned sprat sold on the Danish market is distributed under the label of herring, anchovy or sardine.

Sprat can also be found in supermarkets in jar, as pickles, with characteristics close to the traditional canned sprat market. The production of sprat fishmeal for human consumption sold as a protein concentrate was also identified by one stakeholder as an emerging niche high value market. However, volumes for this product remain confidential.

According to EUMOFA, conversion ratio is 1 from live weight fish to fresh whole fish and frozen whole fish, and 1,87 from canned fish to live weight. Conversion ratio from live weight fish to fish in jar could not be identified.

Other uses

According to stakeholders, human consumption is the 3rd use of sprat in Denmark after fishmeal & oil production and other animal feed. Fishmeal and fish oil use is by far the most important use for sprat in Denmark. Animal feed used to be a very significant use for sprat landed in Denmark, as most of it was used to feed the significant mink livestock of the fur industry²¹. Mink was fed with frozen whole sprat fit for human consumption. After this activity was outlawed in 2020, this supply has been approximately equally redirected to fishmeal and oil, other animal feed & pet food and frozen exports for human consumption. Almost all the sprat volumes landed in Denmark for human consumption are exported, while most volumes used for human consumption in Denmark consist of canned imports.

Supply balance and apparent consumption: sprat for human consumption among other uses

According to Eurostat, Danish **catches** of sprat account for 93.780 tonnes LWE in 2021. Of these catches, 92.298 tonnes LWE are landed for industrial uses²² (88.933 tonnes LWE in Denmark, 3.366 abroad) and 1.930 tonnes LWE are landed for human consumption (340 tonnes LWE in Denmark, 1.141 tonnes LWE abroad).

Total **imports** in Denmark, including foreign landings, account for 81.193 tonnes LWE. Foreign landings of sprat for industrial uses reach 75.603 tonnes LWE, among which 19.958 tonnes LWE are reported as imports by Eurostat. Imports of fresh sprat by road have been estimated by subtracting landings in Denmark for industrial uses from sprat raw material used for fish meal and fish oil production. The estimated volume of catches used for other animal feed and pet food is added to this figure as this share of the catches will not be used for fishmeal & oil production. The result is an estimate of 5.700 tonnes LWE of fresh sprat imports. Imports of frozen sprat account for 329 tonnes LWE. Moreover, 61 tonnes LWE (32 tonnes product weight) are reported by Eurostat as imports of canned sprat.

National supply for sprat in Denmark, including Danish landings abroad, is 173.601 tonnes LWE including 173.102 tonnes LWE for industrial uses and 1.870 tonnes LWE for non-industrial uses.

Total **exports** from Denmark, including Danish landings abroad, account for 4.985 tonnes LWE. Danish landings abroad reached 4.139 tonnes LWE²³, among which 3.670 tonnes LWE are reported as exports by Eurostat. Among industrial uses, landings abroad account for 3.366 tonnes LWE; according to experts, there are no exports of fresh sprat by road. Among the volumes used for human consumption, landings abroad account for 1.141 tonnes LWE, exports of frozen sprat are approximately 469 tonnes LWE (according to stakeholders, a share of this volume will be used as bait), and only 5 tonnes LWE (2 tonnes product weight) are reported by Eurostat as exports of canned sprat.

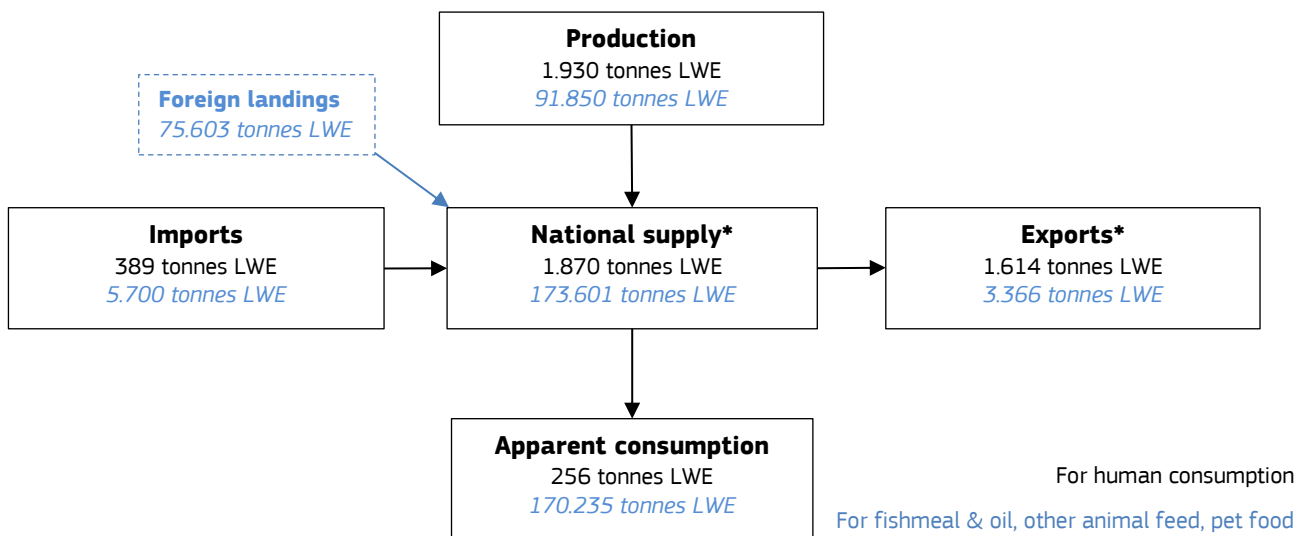
Apparent consumption for sprat in Denmark account for 170.491 tonnes LWE. Of this apparent consumption, 169.736 tonnes LWE are used in the fishmeal and fish oil industry, 500 tonnes LWE are used for pet food and other animal feed, and 256 tonnes LWE are used for human consumption. Human consumption of sprat in Denmark might be slightly underestimated as reported frozen sprat exports also include a use as bait. Sprat for human consumption mainly comes from imports (frozen whole or canned), while Danish catches which are not used by the fishmeal and fish oil industry are more likely used for exports and pet food.

²¹ Danish fur industry used to produce 40% of the world pelts, from a livestock of 15 million of mink bred annually.

²² The Danish Fisheries Agency statistics makes the distinction between sprat of industrial grade, including fishmeal and fish oil production, other animal feed, pet food, and sprat of human consumption grade.

²³ Landed, by order of volume, in Simrishamn (SE), Egersund (NO), Kalvåg (NO) and Kungshamn (SE).

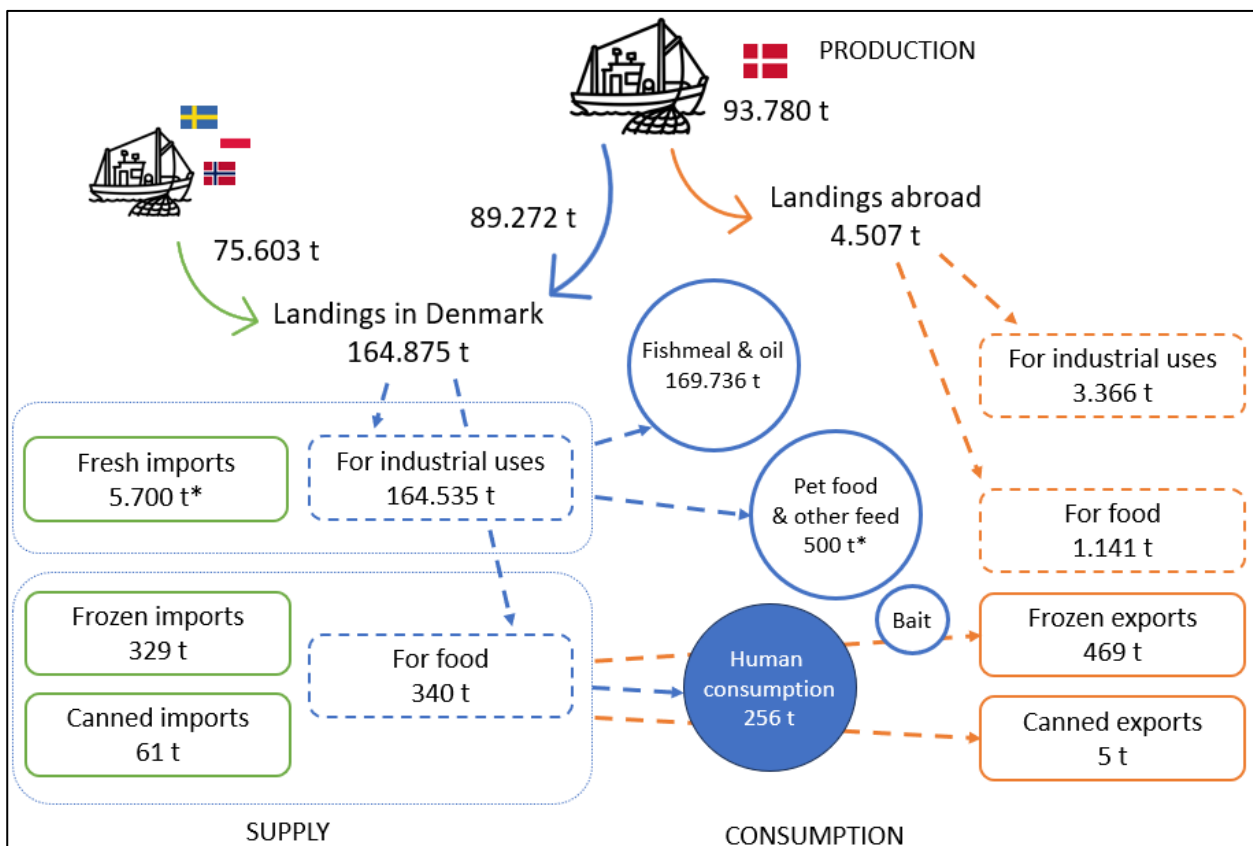
Figure 25: Supply balance for sprat in Denmark (2021, tonnes LWE)



*Note: national supply and exports include Danish landings abroad

Source: EUMOFA based on Eurostat/COMEXT, Danish Fisheries Agency, Marine Ingredients Denmark

Figure 26: Structure of the supply chain for sprat in Denmark (2021, tonnes LWE)



*Note: volumes for fresh imports (used for fishmeal and fish oil production) and uses for pet food and other feed (only from landings) are estimates based on interviews. Other elements are from raw data; stakeholder interviews have been used to link trade data with the different uses.

Source: EUMOFA based on Eurostat/COMEXT, Danish Fisheries Agency, Marine Ingredients Denmark

Sprat within the Danish fishmeal and fish oil sector

In 2021, the fishmeal and fish oil sector in Denmark accounted for 97% of the sprat production, 90% of the sprat imports by road (more than 99% of imports of foreign landings in Denmark are included as imports) and more than 98% of the sprat national supply. As this industry uses both sprat and other pelagic fishes, there is not enough data to get estimates on the sprat-based fishmeal exports, as well as on the sprat-based fishmeal apparent consumption. Danish Fisheries Agency and Marine Ingredients Denmark data provide a better understanding of the relation between sprat and fishmeal market in Denmark, which is essential to understand the sprat market dynamics. Fishmeal and fish oil are the two coproducts of the industrial use of sprat. This section only focuses on fishmeal as it takes most of the fish volume.

The conversion ratio of sprat and other fishes' live weight to fishmeal weight depend on the fish quality, which is mainly measured in terms of oil content. According to stakeholders of the fishmeal industry, sprat is the fish having the best conversion ratio. Between 2021 and 2023, the mean conversion ratio of fish live weight to fishmeal weight was 0,23 for sprat, 0,19 for other fishes, and 0,20 overall. These ratios are relatively stable. They have been applied in the following calculation over the 10 past years. In addition to fishmeal, industrial use of fish produces fish oil, with a conversion ratio of 0,05.

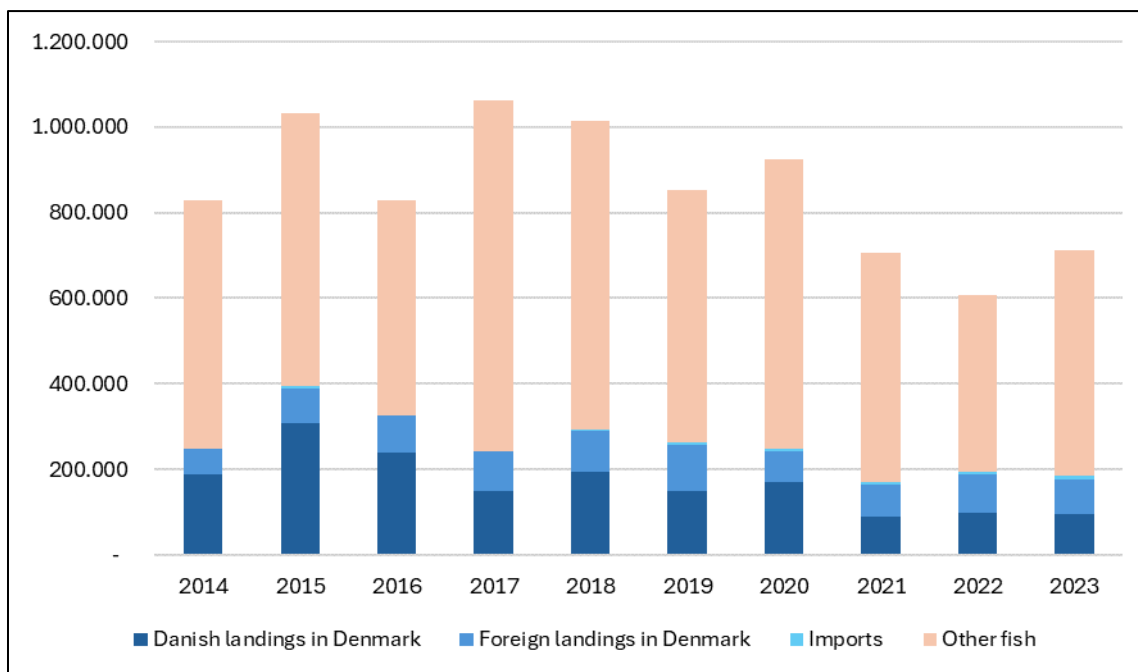
In 2021, Danish fishmeal production reached 141.591 tonnes product weight, from 707.235 tonnes LWE of fish raw material. Fishmeal produced from sprat accounted for 27%, with 38.235 tonnes product weight of sprat-based fishmeal, from 169.736 tonnes LWE of sprat raw material (24% of the total).

Sprat contribution to raw material used for fishmeal production (industrial use) varies significantly from a year to another. According to stakeholders of the fishmeal industry, these fluctuations are mainly due to changes in quotas. Other fishes' contribution to raw material compensates for the changes in sprat production to supply the market demand. For this reason, the evolution of sprat production can differ from the evolution of fishmeal production. For example, in 2017, sprat landed in Denmark for industrial use decreased while fishmeal production increased. The opposite happened in 2022, with an increase of sprat landed for industrial use, while fishmeal production was declining.

Over the past 10 years, contribution of sprat to raw material have followed a decreasing trend, from 30% in 2014 and 38% in 2015 to 26% (194.020 tonnes LWE) in 2023. At the same time, foreign landings contribution to sprat raw material have been growing, from 24% in 2014 to 44% (81.138 tonnes LWE) in 2023. According to our estimates, contribution of fresh sprat imports by road have been following a rising trend, from insignificant volumes in 2014 to 4% (7.522 tonnes LWE) of the sprat raw material in 2023.

Over the past 4 years, different events had a visible effect on the fishmeal and sprat market. The end of the mink industry in Denmark, decided in 2019 and applied in 2020, is correlated with an increase in fishmeal production, as well as the increase of contribution from Danish landings of sprat. The new requirements on landings which entered in force from April 2020 are correlated with a strong decrease in the share of sprat raw material within fishmeal production in 2021. Both events likely influenced the fishmeal industry in 2020. On the global market, other major fishmeal producer countries are Peru and Chile, whose production collapsed in 2023 (from 4 Mt to 1,7 Mt) because of El Niño effect on local anchovy's stocks. The same phenomenon happened to a lesser extent in 2022. This imbalance on the global fishmeal market likely drove fishmeal production growth in 2023. Sprat volumes used as raw material remained relatively stable due to quotas. Consequences on sprat prices are detailed in the following section.

Figure 27: Evolution of the volume of sprat used for fishmeal, by origin, within Danish fishmeal production (2021, tonnes LWE)



Source: EUMOFA elaboration based on Eurostat, Danish Fisheries Agency, Marine Ingredients Denmark

Because of its higher yield for fishmeal and fish oil production, sprat contribution to fishmeal is higher than its contribution to raw material used for fishmeal production in live weight equivalent. Sprat contributed to 34% of fishmeal product weight in 2014, and for 29% in 2023.

4.2 Sprat prices along the supply chain

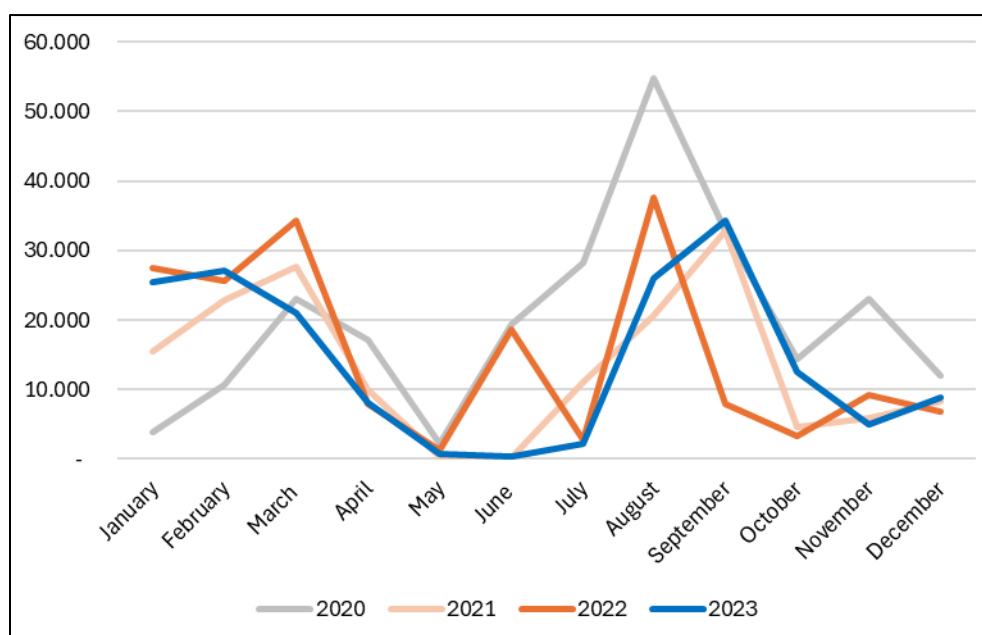
4.2.1 First sale prices

Sprat price generally depends on season, quality and destination (human consumption, animal feed/pet food or industrial catch). Price dynamics on the sprat market in Denmark are directly correlated to prices of sprat for fishmeal production.

First sale volumes seasonality

According to stakeholders in the fishery sector, sprat fishing is a very seasonal activity. Season for sprat fishing extends from mid-August to end of October. Seasonality is stronger in the North Sea, while sprat season begins earlier in the Baltic Sea. In 2023, reported first-sales in Danish ports reached more than 170.000 tonnes of sprat. For the past 3 years, sprat first-sale volumes were the highest from August to September (production levels above 25.000 tonnes per month) and from January to March (above 20.000 tonnes per month). Insights from stakeholders of the fishing sector and data on first sales volumes in 2020 show a weakening of the traditional August to October sprat season, and a rise of a new sprat season from January to March.

Figure 28: Sprat monthly first-sale volumes in Danish fishing ports (in tonnes)



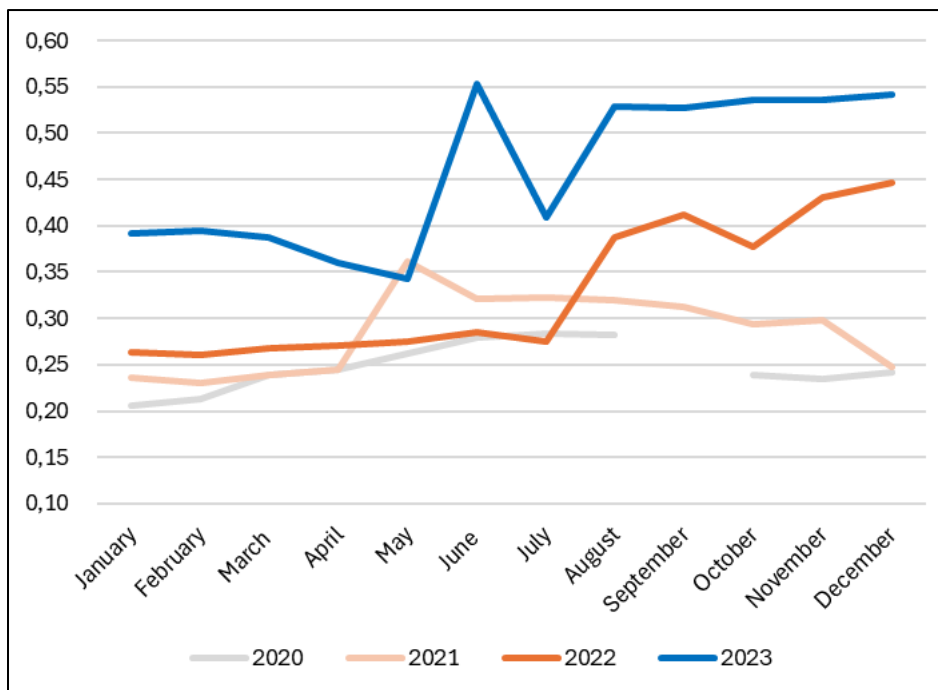
Source: EUMOFA, based on Danish ministry of food, agriculture and fisheries

First sales prices seasonality and evolution

According to stakeholders and historical data, sprat first sale prices in Denmark are not seasonal. The fishing sector and the fishmeal industry align their prices with a common price index determined separately for North Sea sprat and Baltic Sea sprat. Monthly prices for the past three years show a take-off in August 2022, with sprat price reaching over 0,35 EUR/kg and never going back under this price since. Sprat prices kept increasing over 2023, and follow the same pattern as 2022, with a sharp uptick in August and prices remaining stable afterwards.

As mentioned above, the decrease in fishmeal production on the Pacific coast of South America due to climatic reasons resulted in a reduced offer on the global market. In Denmark, this imbalance had little effect on sprat first sales volumes, as they are limited with quotas. The market effect resulted instead in a strong rise in prices in August, which also marks the beginning of anchovy season in Peru and Chile. This same price evolution can be identified in both 2022 and 2023. In the context of rising climate change, it could become either a regular pattern or disappear due to market reconfiguration. According to stakeholders, the reduced vegetable oil supply from Ukraine because of the war also led to an increased demand for fish oil from 2022 onwards, and further contributed to drive sprat prices up.

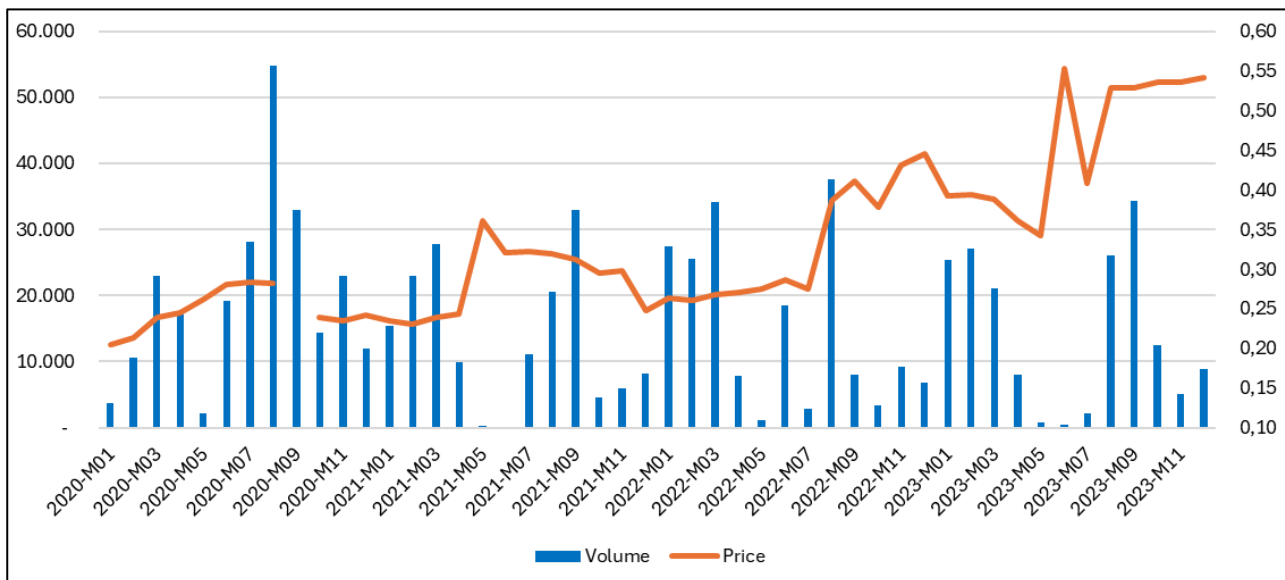
Figure 29: Average monthly first-sale price of sprat in Danish ports (in EUR/kg)



Source: EUMOFA, based on Danish ministry of food, agriculture and fisheries

Over the past four years, prices of sprat have followed an upward trend. They increased by 125% between December 2020 and December 2023, from 0,24 EUR/kg to 0,54 EUR/kg. At the same time, catches followed an overall decreasing trend, and tended to be less concentrated over the summer months.

Figure 30: Sprat monthly first-sale volumes and first-sale prices in Danish ports between from 2020 to 2023 (in 1.000 tonnes net weight and EUR/kg)



Source: EUMOFA, based on Danish ministry of food, agriculture and fisheries

Sprat for food use: first sale prices

According to Eurostat, a few first sales for food occurred in Denmark over the past four years, accounting for 389 tonnes product weight in 2021, sold in January, November and December, 61 tonnes in 2022

and 93 tonnes in 2023, sold at the beginning of the year for both years. Given the small volumes involved, analysis of annual prices is not relevant. Apart from sales at high prices at the end of 2021, prices of sprat for food are similar to prices of sprat for industrial use over the same period of the year. In 2022 and 2023, the annual price for food is significantly lower than the annual price for fishmeal, as prices increased in August both years. Prices of sprat for food also followed the market increase occurring between 2022 and 2023, driven by fishmeal and fish oil prices.

Table 23: Monthly first sales prices for food uses in Denmark 2020-2023

	2020	2021	2022	2023
January		0,19	0,38	0,34
February			0,27	0,37
March			0,34	0,37
April				0,36
May				
June				
July				
August				
September				
October				
November		0,84		
December		0,70		
Mean price	NA	0,58	0,33	0,36

Source: EUMOFA

4.2.2 Import-export prices

Prices of fresh sprat imported for fishmeal production increased by 62% over the past 10 years, from 0,24 EUR/kg in 2014 to 0,38 EUR/kg in 2023, with an increase of 69% since 2019. As most of these imports consist of foreign landings in Denmark, their prices are similar to first sale prices in Danish ports. Data from the last 10 years shows that prices of sprat for industrial use have been unstable before and that the current surge in prices is however unprecedented over this period. Export prices of fresh sprat consist mainly of first sales prices from Danish landings abroad. These landings' small volumes are divided between a small number of ports in Norway and Sweden. Price instability over the past 10 years possibly reflects different uses from these landings, including canning for human consumption.

Table 24: Import and export average prices for fresh whole sprat in Denmark, 2014-2023

EUR/kg	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Import prices	0,24	0,23	0,26	0,22	0,22	0,23	0,25	0,28	0,32	0,38
Export prices	0,30	0,28	0,17	0,48	0,74	0,44	0,62	0,83	0,52	0,57

Source: EUMOFA, based on COMEXT

Prices of traded frozen sprat are significantly higher than prices of traded fresh sprat/fresh sprat landings. In 2023, this price difference reaches 0,95 EUR/kg for both imports and exports. Prices are also significantly higher for exports of frozen sprat than for imports, with a 0,19 EUR/kg difference in 2023. Prices for frozen sprat trade are driven by the larger fresh sprat for industrial use market, in particular since the recent surge in fishmeal prices. Prices of frozen sprat imports increased by 60% over the past 10 years, with an increase of 254% since 2019. Prices of frozen sprat exports increased by 14% over the past 10 years, with an increase of 20% since 2019.

Table 25: Import and export average prices for frozen sprat in Denmark, 2014-2023

EUR/kg	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Import prices	0,83	0,81	0,55	0,48	0,64	0,38	0,46	0,80	1,14	1,33
Export prices	1,33	1,26	1,05	1,03	1,41	1,26	0,62	1,02	1,33	1,52

Source: EUMOFA, based on COMEXT

For both fresh sprat and frozen sprat trade, prices of exports are respectively 0,20 and 0,19 EUR/kg higher than imports. It is likely due to higher price levels in Denmark compared to its trade partners²⁴.

Prices of imports and exports of “prepared or preserved sprat or sardinella”, which mainly consist of canned sprat, are very unstable. For some years, such as 2018, 2020 and 2022 for exports, and 2019 for imports, prices are uncharacteristic. For other years, prices range from 1,26 EUR/kg to 9,06 EUR/kg for imports and from 3,17 EUR/kg to 11,95 EUR/kg for exports. These wide ranges are probably due to small volumes involved in a broad category that includes sprat among other small pelagic. It can also show a large range of prices on the canned sprat market. Prices would vary depending on the changing importance of individual importers and exporters specialised in different segments of the market.

Table 26: Import and export average prices for prepared or preserved sprat or sardinella in Denmark, 2013-2022

EUR/kg	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Import prices	1,41	1,26	2,07	2,31	5,56	1,39	0,26	6,76	9,06	3,30
Export prices	3,64	4,76	4,14	6,43	11,95	36,46	3,71	0,12	0,15	135,50

Source: COMEXT

4.2.3 Ex-factory prices

According to stakeholders and data from Eurostat/PRODCOM, there is no production of canned sprat in Denmark anymore.

4.2.4 Retail prices

No long time-series for retail prices for sprat for human consumption is available. Data on retail prices are provided by an online survey on retailer websites and an on-site survey in different retail locations in Copenhagen, including 4 supermarkets, a brand outlet and a specialty store. All products consist of canned sprat, either smoked or not, except for one product consisting of smoked sprat in jar.

As mentioned above, canned sprat covers a wide price range, from 26,78 EUR/kg for the cheapest product sold in a supermarket (24,34 EUR/kg online) to 67,11 EUR/kg for premium smoked sprat sold in a specialty store. The market can be divided into 3 segments:

- Sprat sold under Danish brands, labelled as herring, to a lesser extent as anchovies or sardines²⁵, prepared with ingredients other than vegetable oil including tomato sauce and vinegar, sold in supermarkets/discounter at 25-33 EUR/kg;
- Sprat sold under Baltic brands, labelled as sprat (in English), often smoked and prepared with vegetable oil, sold in supermarkets and specialty stores at 33-40 EUR/kg;
- Sprat sold under Danish brand, labelled as sprat, smoked and prepared with olive oil, only sold in specialty stores at 50-70EUR/kg.

²⁴https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Comparative_price_levels_of_consumer_goods_and_services

²⁵ The reference to sprat (*Sprattus sprattus*) appears in the ingredient list.

No sprat in jar could be found on-site. For other fish species, packaging in jar is very common and is usually cheaper than in can.

Table 27: Price of sprat for human consumption on online retail in Denmark (December 2023)

Product type	Product weight (g)	Price per unit (EUR)	Price per kg (EUR)	Origin
Canned sprat with tomato sauce	110	2,68	24,34	Latvia
Canned sprat	100	3,36	33,56	Latvia
Smoked sprat in jar	100	3,76	37,58	Latvia
Barrel-aged sprat in can	100	3,76	37,58	EU
Canned sprat	120	4,70	39,15	Latvia
Smoked sprat in can	100	5,37	53,69	Latvia

Source: online survey on retail websites.

Table 28: Price of canned sprat on retail locations in Denmark (January 2024)

Product type	Product weight (g)	Price per unit (EUR)	Price per kg (EUR)	Origin	Outlet
Canned sprat	100	2,68	26,78	EU	Supermarket
Canned sprat	100	3,08	30,81	EU	Supermarket
Canned sprat	100	3,35	33,49	Latvia	Supermarket
Smoked sprat in can with chili	120	4,02	33,50	Latvia	Supermarket
Smoked sprat in can with spices	100	5,37	53,69	Latvia	Brand outlet
Smoked sprat in can with spices	100	6,71	67,11	Latvia	Specialty store

Source: on-site survey in retail locations in Copenhagen, Denmark.

4.3 Price transmission for canned sprat on the Danish market

Due to the very small volume of sprat consumption as food in Denmark, and the fact that most of this consumption is supply from imports, it was not possible to build a standard price transmission analysis.

According to stakeholders, sprat sold as food on the Danish market is mainly canned in Latvia, to a lesser extent in Poland and possibly in other countries around the Baltic Sea. Those cans consist either of imports of foreign brands or in outsourced production of Danish companies. In both cases, all operations from raw material to packaging are likely to be conducted abroad.

The average import prices for canned sprat from Latvia was 5,50 EUR/kg in 2022. Most of these cans are likely to be sold under the first segment of the market at retail prices from 25 to 33 EUR/kg. In Denmark, VAT on food product is 25% (6,25 to 8,25 EUR/kg).

For these prices levels, costs and margins shared between the processor (if sold under Danish brand) and the retailer would range from 13,25 to 19,25 EUR/kg.

5 THE SWEDISH MARKET

5.1 Structure of the supply chain

5.1.1 Production

Characteristics of the fleet

The Swedish sprat fishing fleet consists of pelagic trawlers fishing sprat mainly for the fishmeal industry (60% of the catches). The fleet is composed of 22 vessels from 12 to 65 meters. Since 2009, rights-based management systems (individual transferable quotas, ITQs) have been used in pelagic fisheries. The introduction of ITQs with the intent to increase the fishing fleet profit resulted in a reduction in the number of pelagic fishing vessels, from 80 to 22²⁶. The fleet is divided in two categories: large vessels originating from the west coast of Sweden, fishing in the Baltic Sea but landing abroad (mainly in Denmark and Scotland); and regional smaller vessels, fishing in the Baltic Sea and landing in the Baltic Sea. There are also small fishing ships (less than 12 meters) disposing of coastal quotas and accounting for a very small fraction of Swedish sprat captures.

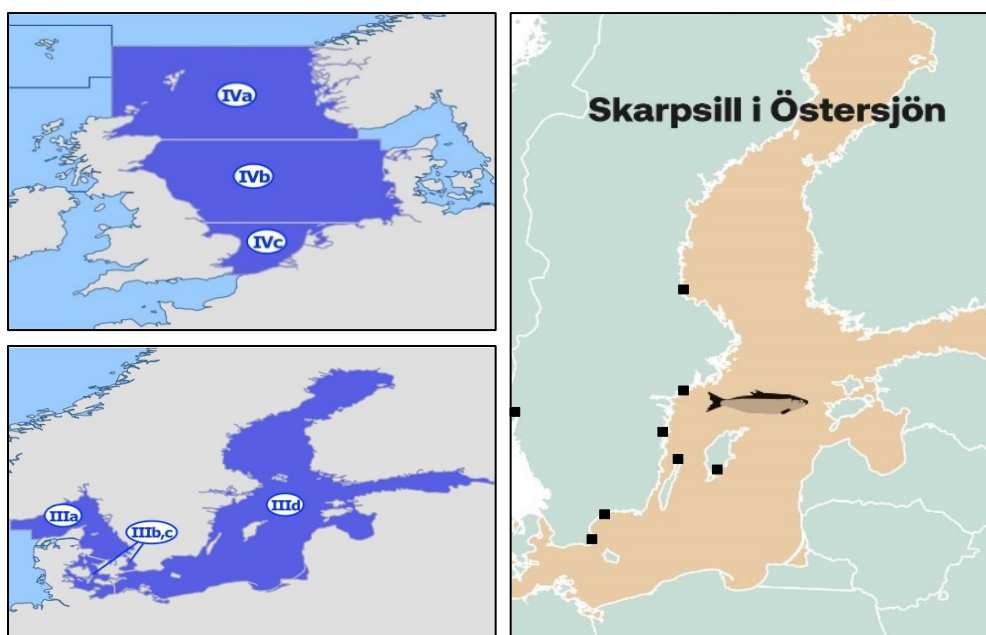
Sprat fishing vessels catch sprat during the sprat fishing season and other pelagic fishes during the rest of the year. Sprat fishing vessels operate with very little workforce, the crew is often composed of the legal minimum number of members (4 crew members for a vessel around 45 meters operating between 10 to 14 days). The load capacity of a sprat fishing boat depends on the intended use of the sprat and the volume of water put in the tanks with the sprat captured (average ratio of 80% fish and 20% water), it can reach up to 1.500 to 2.000 tonnes for the larger vessels. Vessels fishing for human consumption increase the water proportion to ensure a sprat of better quality.

Management measures

The Swedish fishing fleet has sprat quotas in the North Sea (areas 27.3.a and 27.4) and the Baltic Sea (area 27.3.d). Since the end of the 80's, the Baltic Sea is subject to dioxin contamination due to industrial production of chemicals in the surrounding countries. Sprat captured in the Baltic Sea are therefore not used for human consumption in Sweden but for industrial uses in Sweden or are landed in foreign countries where they can be processed into canned sprat. Furthermore, sprats from the North Sea are larger in size and fatter, thus more suitable for human consumption.

²⁶ Swedish Pelagic Federation Producer Organization (SPF PO)

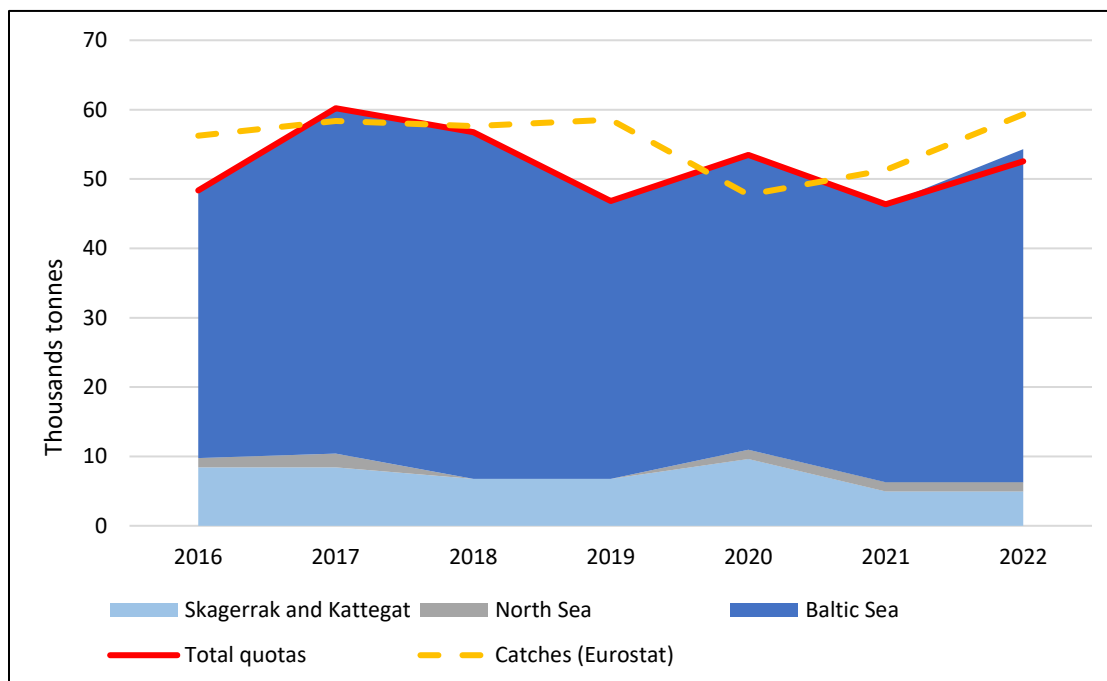
Figure 31: Swedish sprat fishing areas



Source: Fishing areas European Commission, Baltic Walters

Swedish quotas for sprat have fluctuated over the previous years with a slight increase over the period (+5%). Swedish sprat quotas consist mainly of quotas in the Baltic Sea (85% of the total Swedish sprat quotas in average during the period 2016-2022). Sprat catches have fluctuated as well, the difference between the quotas and the captures might be explained by quota swaps between member states.

Figure 32: Swedish sprat quotas from 2016 to 2022 in different fishing zones



Catches

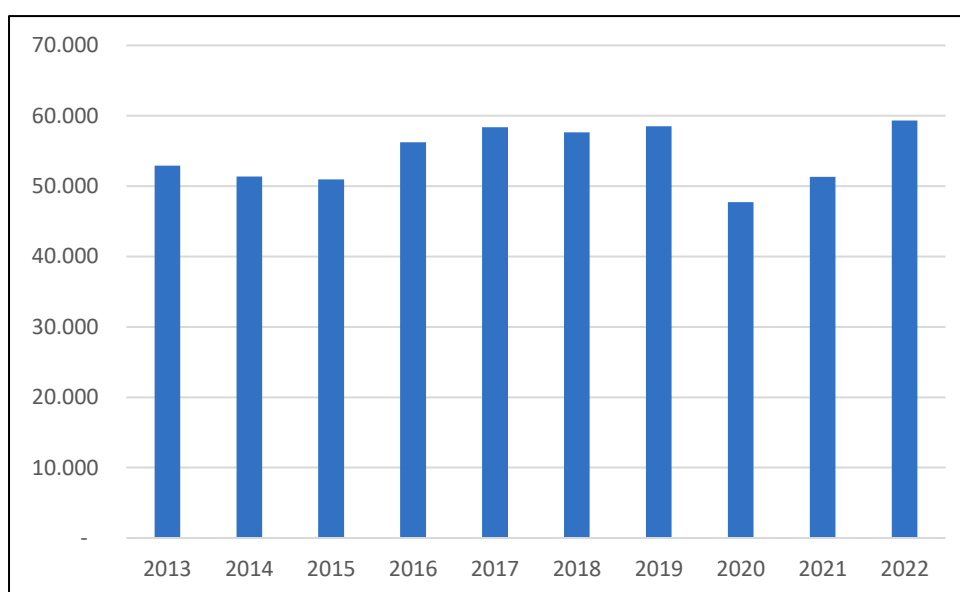
The Swedish fleet caught 59.319 tonnes of sprat in 2022. This was a 16% increase over 2021 catches, and a 12% increase compared to 2013. Overall sprat catches have been relatively stable over the past decade, with an upward trend except for 3 years of decline in 2014, 2015 and 2020. The decrease in catches between 2019 and 2020 can be explained by the Swedish sprat quota reduction in the North Sea.

Table 29: Sprat catches in Sweden between 2013 and 2022 (in tonnes, LWE)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Catches	52.909	51.377	50.980	56.246	58.386	57.635	58.532	47.735	51.301	59.319

Source: EUROSTAT

Figure 33: Evolution of Swedish sprat catches between 2013 and 2022 (in tonnes, LWE)



Source: EUROSTAT

Landings/first-sales

In terms of landings, the main Swedish ports for sprat differ based on the intended use. There are two main ports for human consumption:

- Simrishamn (East coast): 1 000-1 500 tonnes/year
- Kungshamn (West coast): 1 000-3 000 tonnes/year

Sprat for human consumption can also originate from Denmark where they are landed from Swedish fishing ships, before being transported to Sweden by lorries.

Regarding the industrial uses of sprat in Sweden, the main landing ports are located on the East coast:

- Norssundet
- Oxelösund
- Västervik
- Ronehamn
- Nogersund
- Simrishamn
- Byxelkrok

The two fish auctions are located in Göteborg and Smögen. There are only small volumes of sprat sold through the auctions (183 kg in 2022).

Swedish landings have fluctuated over the past decade, reaching 9.900 tonnes in 2022. Sprat landings in Sweden have experienced an important decrease over the 2013-2022 period (-70% in volume) due to the reduction of sprat quota in the North Sea as previously stated, as well as the lack of sprat processing factory in Sweden. Swedish fishing vessels are therefore landing in Denmark and in Baltic countries where sprat can be processed.

The major difference observed between the Swedish captures of sprat and the volume landed in Swedish ports is due to Swedish landings in foreign countries, mainly in Denmark where Swedish landings represent up to 50% of the total foreign landings.

The majority of the landings goes to industrial uses (processing into fishmeal and fish oil). In 2022, more than 6.300 tonnes were used for industrial uses (64% of the total landings), while 2.905 tonnes were used for human consumption (29%). Sprat used for industrial purposes originates from Swedish catches to a small extent (around 20% of the sprat for the industrial uses) and mainly from sprat imports from Denmark (up to 80% of the sprat used for fishmeal and fish oil). Industrial uses refer to the processing into fishmeal and fish oil while animal feed refers to the sprat used for the fur industry in Denmark (until 2020), as well as the sprat used for tuna aquaculture in the Mediterranean Sea. Finally, human consumption of sprat in Sweden consists mainly of canned sprat.

Table 30: Sprat landings in Sweden by use (in tonnes net weight)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Human consumption	24.564	18.596	14.078	15.119	16.865	14.429	6.438	3.368	2.677	2.905
Industrial uses	5.872	2.183	1.908	2.452	1.658	941	716	2.073	4.466	6.338
Animal feed	2.430	3.431	2.196	3.017	3.228	3.695	5.786	10.778	992	656
Total	32.870	24.210	18.182	20.588	21.751	19.065	12.941	16.219	8.137	9.900

Source: EUROSTAT

Table 31: Sprat first-sale volumes in Sweden (in tonnes net weight)

	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total	52.905	41.685	49.181	66.174	48.538	57.460	49.296	51.892	56.957

Source: EUMOFA

Prepared and preserved fish

It is worth noting that there is no specific CN-8 code for prepared and preserved sprat. The corresponding code is 16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved. Considering that sardinella products are not commonly found in the Swedish market, we estimate that prepared and preserved sprat and sardinella are almost exclusively composed of sprat products.

According to the PRODCOM data, the Swedish production of prepared and preserved sprat amounted to 775 tonnes net weight in 2021 and 661 tonnes in 2022 (15% decrease in volume in one year; data for the previous years is not available). Prices reached 9,55 EUR/kg in 2021 and 9,61 EUR/kg in 2022.

Table 32: Prepared and preserved sprat production in Sweden (in tonnes net weight)

	2021	2022
Volume (tonnes)	775	661
Price (EUR/kg)	9,55	9,61

Source: PRODCOM

5.1.2 Swedish trade for sprat

Fresh and frozen whole fish

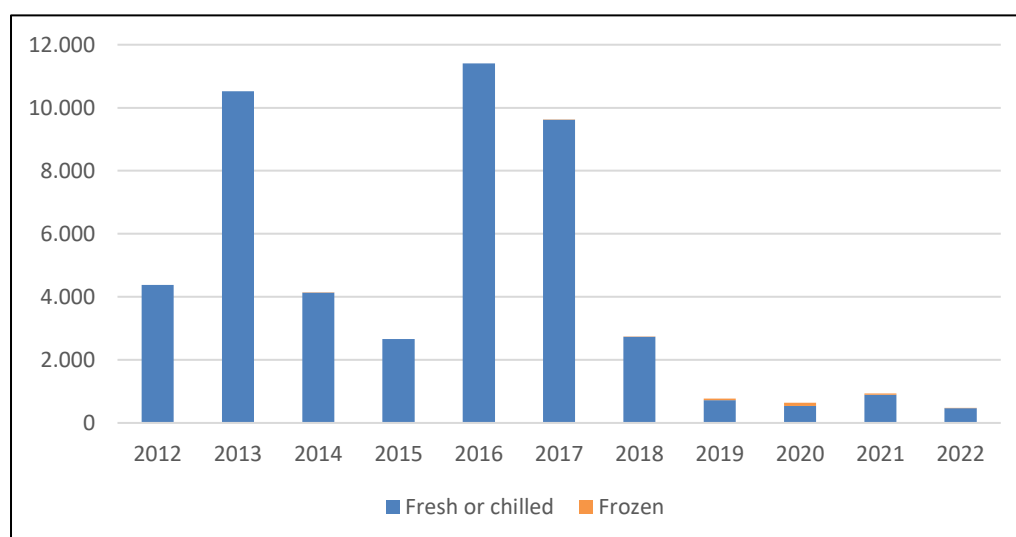
In 2022, imports of whole sprat in Sweden amounted to 415 tonnes (97% fresh, 3% frozen). In recent years, imports of whole sprat have experienced significant fluctuations across all preservation states. Imports reached a peak in 2013, 2016, and 2017 when they reached approximated 10.000 tonnes. Then they drastically decreased in 2018 (2.732 tonnes) and have fluctuated around 400-900 tonnes since 2019. All preservation states included (fresh and frozen), the main supplier was Denmark, accounting for 86% of the sprat imported value in 2022. Norway represented 11% of the sprat imported value and Hungary accounted for the last 3%. Imports of fresh sprats mainly consist of Swedish landings abroad that are then transported back by lorries to Sweden.

Table 33: Imports of sprat in Sweden in 2022

	Nominal value (1.000 EUR)	Volume (tonnes)	Price (EUR/kg)	% val. 2022
Fresh or chilled	400	465	0,86	97%
Frozen	14	6	2,34	3%
Total	415	471	0,88	100%

Source: EUROSTAT-COMEXT data

Figure 34: Evolution of Swedish whole sprat imports by preservation state (in tonnes net weight)²⁷



Source: COMEXT-EUROSTAT data

²⁷ 03024390: Brisling or sprats (*Sprattus sprattus*), excluding livers and roes, fresh or chilled; 03035390: Brisling or sprats (*Sprattus sprattus*), excluding livers and roes, frozen.

Imports of fresh sprat have decreased by 89% in volume and by 73% in value since 2012 (+141% in real terms). Fresh sprat imports have peaked in 2016 at almost 3.000 tonnes before decreasing in recent years to reach 400 tonnes in 2022. The price has increased by 150% over the period, and reached its highest value in 2022 at 0,86 EUR/kg.

Table 34: Evolution of imports of fresh sprat to Sweden between 2012 and 2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Evol 2022/2012
Nominal value (1.000 EUR)	1.509	3.280	926	667	2.994	2.039	894	356	348	595	400	-73%
Volume (tonnes)	4.382	10.521	4.136	2.664	11.412	9.622	2.730	724	543	899	465	-89%
Price (EUR/kg)	0,34	0,31	0,22	0,25	0,26	0,21	0,33	0,49	0,64	0,66	0,86	150%

Source: COMEXT-EUROSTAT data

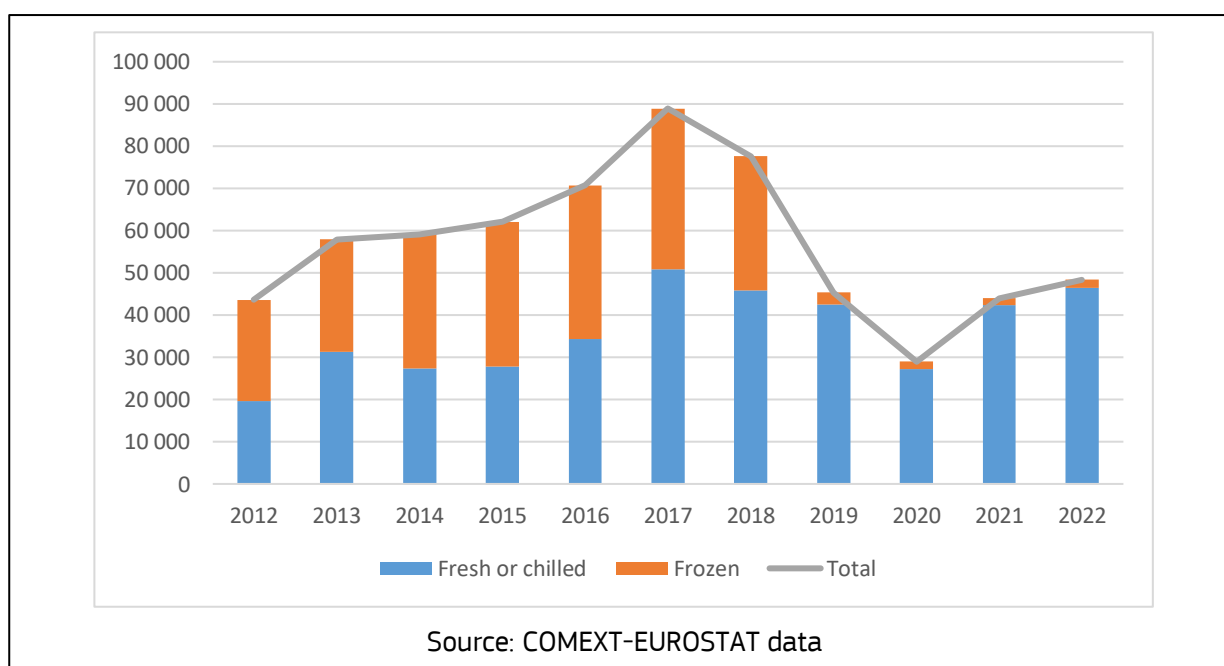
In 2022, exports of whole sprat from Sweden reached 48.340 tonnes (93% fresh and 7% frozen), amounting to EUR 16 million. In recent years, exports of whole sprat have experienced significant fluctuations for all preservation states, in relation to the reduction of sprat quotas in the North Sea. Exports have strongly declined from 2017 to 2020 and reached a low of 29.020 tonnes before increasing to reach 48.340 tonnes in 2022. All preservation states included (fresh and frozen), Denmark was the main export destination of sprat in 2022 (93% of the total exported value). The United Kingdom accounted for 3% of the sprat exported value, Poland and Latvia accounted for 2% and 1% of the exported value respectively. Exports of sprat consists mainly of landings of Swedish fishing vessels to foreign countries (mainly Denmark), where sprats can be processed and filleted in the factories for industrial and human consumption uses.

Table 35: Exports of sprat from Sweden in 2022

	Nominal value (1.000 EUR)	Volume (tonnes)	Price (EUR/kg)	% val. 2022
Fresh or chilled	14.957	46.450	0,32	93%
Frozen	1.114	1.890	0,59	7%
Total	16.071	48.340	0,33	100%

Source: EUROSTAT-COMEXT data

Figure 35: Evolution of Swedish whole sprat exports by preservation (in tonnes net weight)



Exports of fresh sprat have increased by 136% in volume and by 218% in value since 2012 (+30% in real terms). Fresh sprat exports have peaked in 2018 at 50.772 tonnes, they decreased significantly in 2020 and reached their lowest volume since 2013. Exports of fresh sprat increased in 2021 and 2022 to reach 46.450 tonnes. The price has increased by 35% over the period, and reached its highest value in 2018 (0,34 EUR/kg); in 2022 it was 0,30 EUR/kg.

Table 36: Evolution of exports of fresh sprat from Sweden between 2012 and 2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Evol 2022/2012
Nominal value (1.000 EUR)	4.699	9.835	6.210	6.607	9.021	10.475	15.156	10.942	8.211	12.205	14.957	218%
Volume (tonnes)	19.647	31.372	27.364	27.802	34.285	50.772	45.868	42.479	27.172	42.369	46.450	136%
Price (EUR/kg)	0,24	0,31	0,23	0,24	0,26	0,21	0,33	0,26	0,30	0,29	0,32	35%

Source: COMEXT-EUROSTAT data

Frozen sprat used to be mainly used for animal feed in the fur industry in Denmark, and to a smaller extent for tuna production in the Mediterranean Sea. Exports of frozen sprat have decreased by 92% in volume and by 87% in value since 2012 (+64% in real terms). Frozen sprat exports peaked in 2017 at 38.100 tonnes before decreasing drastically in 2019 due to the cessation of the fur industry in Denmark. Frozen sprat exports remained stable since 2019 and reached 1.890 tonnes in 2022. The price has increased by 70% over the period, and reached its highest value in 2020 (0,84 EUR/kg); in 2022 it was 0,55 EUR/kg.

Table 37: Evolution of exports of frozen sprat from Sweden between 2012 and 2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Evol 2022/ 2012
Nominal value (1.000 EUR)	8.286	11.458	10.234	11.012	12.253	11.433	10.979	1.441	1.533	1.364	1.114	-87%
Volume (tonnes)	23.937	26.557	31.729	34.278	36.402	38.100	31.686	2.855	1.848	1.656	1.890	-92%
Price (EUR/kg)	0,35	0,43	0,32	0,32	0,34	0,30	0,35	0,50	0,83	0,82	0,59	70%

Source: COMEXT-EUROSTAT data

Prepared and preserved fish

It is worth noting that there is no specific CN-8 code for prepared and preserved sprat. The corresponding code is 16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved. Considering that sardinella products are not commonly found in the Swedish market, we estimate that prepared and preserved sprat and sardinella are almost exclusively made of sprat products.

Figure 36: Evolution of imports and exports of prepared and preserved sprat and sardinella in Sweden (in tonnes net weight)



Source: EUROSTAT-COMEXT data

Imports of prepared and preserved sprat reached 1.680 tonnes and EUR 3 million in 2022. The main suppliers were Denmark and Norway, accounting for 68% and 23% respectively of the canned sprat imported value (EUR 2,117 million and EUR 0,709 million). These imports consist mainly of sprats landed abroad (mostly in Denmark and Norway, as well as Faroe Islands, England and Ireland to a smaller extent) that have undergone primary processing before being exported (or sent back in the case of Swedish landings abroad) to factories in Sweden according to an interview with a stakeholder of the sprat canning sector. Prepared and preserved sprat imports consisting of smoked sprats and sprats in oil or tomato (originating from Baltic countries) only account for a small share of the imported volumes.

Canned sprat production in Sweden is almost exclusively for the local market and only a small portion of the production (10%) is exported (to Norway and Finland where it sold under the brands *Stabburet* and *Abba*). Canned sprat exports reached 310 tonnes and EUR 1,885 million. The main destinations for exports of canned sprat and sardinella from Sweden were Norway accounting for 40% of the export value (EUR 0,754 million, 99 tonnes), Finland (26% of the export value), and Denmark (19%) in 2022. According to a stakeholder of the sprat canning industry in Sweden, the brand ABBA which produces canned sprat, is estimated to represent 80% of the sprat market in Sweden.

Table 38: Imports and exports of prepared and preserved sprat in Sweden in 2022

	Nominal value (1.000 EUR)	Volume (tonnes net weight)	Price (EUR/kg)
Imports	3.110	1.680	1,85
Exports	1.885	310	6,09

Source: EUROSTAT-COMEXT data²⁸

Imports of prepared and preserved sprat have increased by 69% in volume and by 95% in value since 2012 (+11% in real terms). Prepared and preserved sprat imports peaked in 2016 at over 1.500 tonnes before decreasing to almost 800 tonnes in 2019. Since 2019, imports of prepared and preserved sprat have increased gradually to reach their highest value in 2022 (1.680 tonnes imported). This increase could be due a reduction in sprat quotas, resulting in lower sprat volumes to process in Sweden and therefore increase in prepared and preserved sprat imports to meet the consumption demand. The price has increased by 15% over the period, and reached its highest value in 2014 (2,03 EUR/kg); in 2022 it was 1,85 EUR/kg.

Unlike the imports, exports of prepared and preserved sprat have decreased in volume since 2012 (-20%) but have increased in value by 6% (+28% in real terms). The volumes exported fluctuated between 200 and 430 tonnes over the past decade, and remained very low compared to the imports to Sweden. As previously stated, canned sprat production in Sweden is mostly for the Swedish market, exports of canned sprat are low and represent around 10% of the total produced volume. The price has increased by 32% over the period, it reached its highest value in 2021 (6,35 EUR/kg) and was 6,09 EUR/kg in 2022.

Table 39: Evolution of imports of prepared and preserved sprat in Sweden between 2012 and 2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Evol 2022/ 2012
Nominal value (1.000 EUR)	1.597	1.393	1.232	867	1.762	1.653	1.308	1.496	1.681	1.843	3.110	95%
Volume (tonnes)	991	734	603	568	1.519	1.363	819	894	969	1.271	1.680	69%
Price (EUR/kg)	1,61	1,90	2,04	1,53	1,16	1,21	1,60	1,67	1,73	1,45	1,85	15%

Source: EUROSTAT-COMEXT data

²⁸ There is no specific CN-8 code for prepared and preserved sprat. The corresponding code is 16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved.

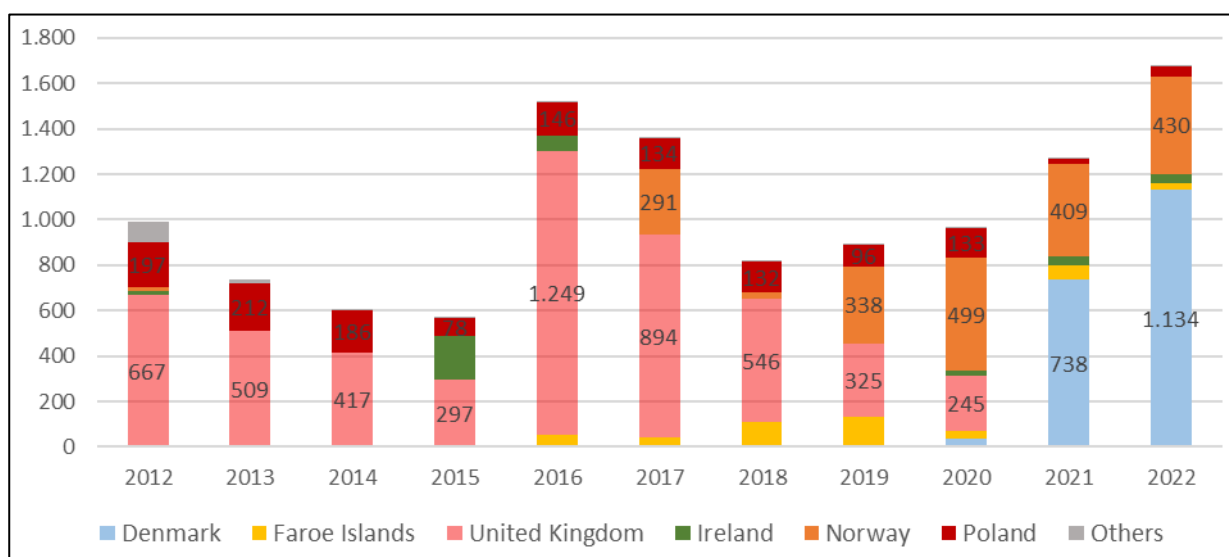
Table 40: Evolution of exports of prepared and preserved sprat from Sweden between 2012 and 2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Evol 2022/2012
Nominal value (1.000 EUR)	1.784	2.031	1.578	942	1.148	1.242	1.332	1.574	2.088	1.868	1.885	6%
Volume (tonnes)	388	430	365	193	277	266	375	352	420	294	310	-20%
Price (EUR/kg)	4,59	4,72	4,32	4,87	4,14	4,67	3,55	4,47	4,97	6,35	6,09	32%

Source: EUROSTAT-COMEXT data

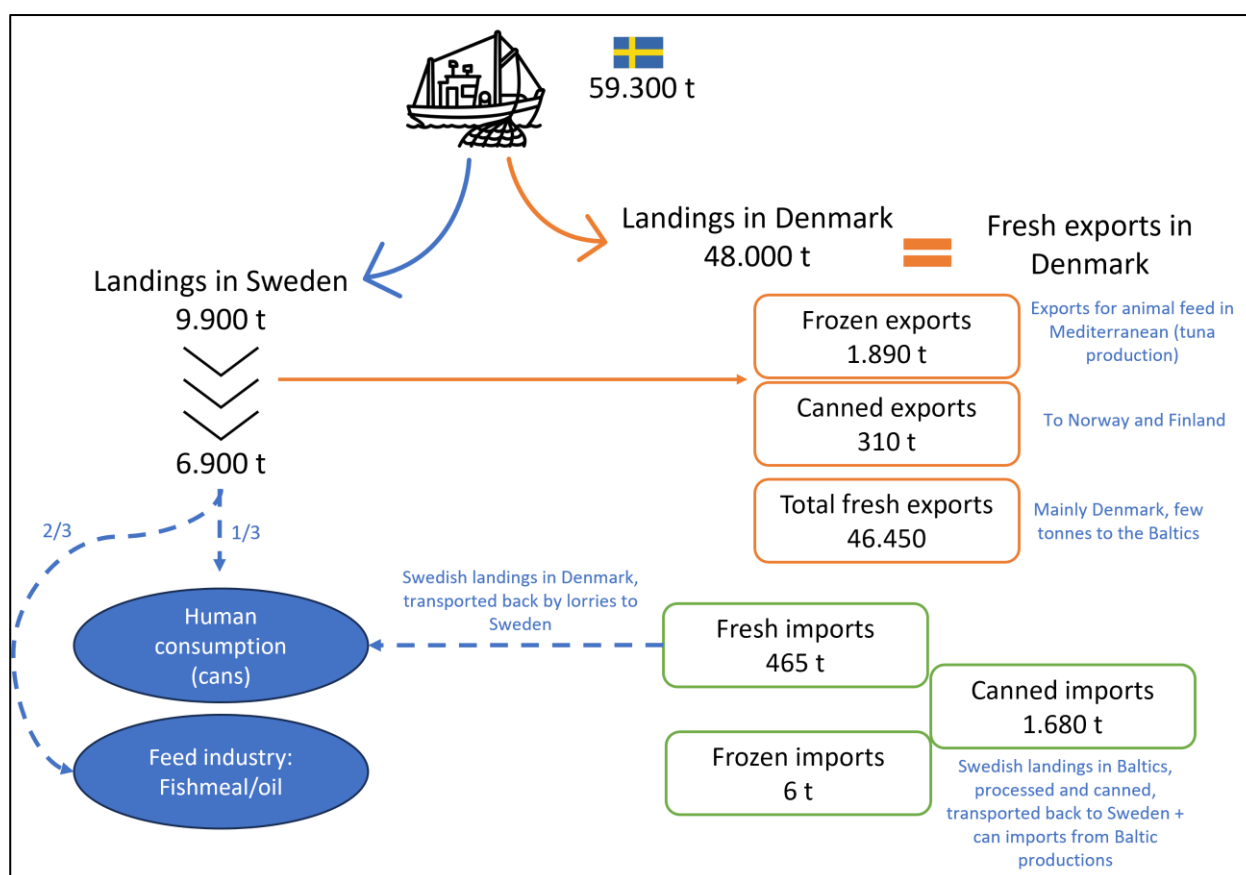
For canned sprat imports, the main Swedish partners in 2022 were Denmark (68% of import volume in tonnes net weight) and Norway (26% of the imported volume). Other suppliers were Poland (3% of imported volume), Ireland and Faroe Islands (accounting each for 2% of the imported volume). Swedish imports have decreased from 2012 to 2015, the main trading partner being the United Kingdom. There was a significant increase in total imports in 2015 and 2016, (respectively +167% and +320%), stemming mostly from the UK. Imports from the United Kingdom then gradually decreased and were null in 2021 following Brexit. Over the same period, imports from Norway increased and imports from Denmark started in 2020. Imports of canned sprat are made of different products than the ones processed in Sweden, including sprat in oil, sprat in tomato and smoked sprat that are either produced in foreign countries with their quotas, or produced in factories abroad using sprat from the Swedish quotas.

Figure 37: Evolution of Swedish imports of prepared and preserved sprat by main partners (in tonnes net weight)



Source: EUROSTAT-COMEXT data

Figure 38: Structure of the supply chain for sprat in Sweden in 2022 (in tonnes LWE)



Source: EUROSTAT-COMEXT data, interview, own elaboration

5.1.3 Apparent consumption

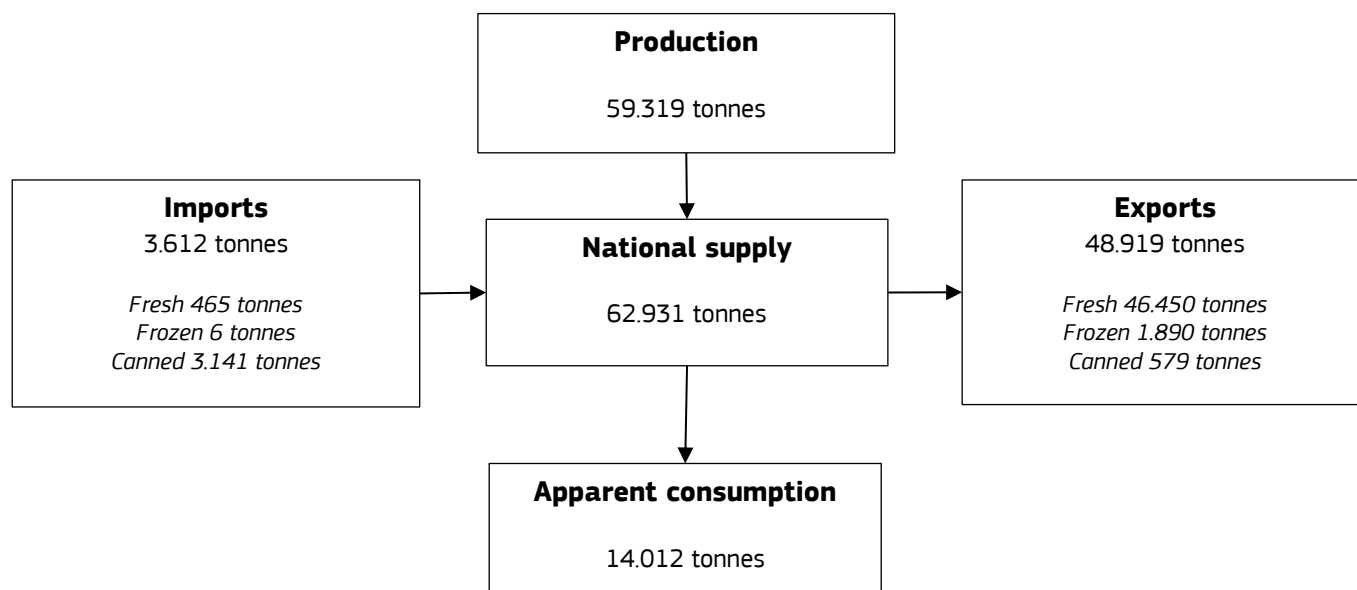
In 2020, apparent fish consumption in Sweden was larger than the global average (20,5 kg per capita) and the European average. It was estimated at 23,99²⁹ kg live weight equivalent per capita (a decrease of 5% in one year) and was mainly composed of fresh and frozen products. Loose fish consumption in Sweden (56%) was less frequent than the EU average (68%) in 2020. Sprat in Sweden are mainly used for non-human food purposes such as processing into fishmeal and oil. The canning sector is oriented towards the local market; the main products consumed for canned sprat are:

- Sprat (also marketed as “*ansjovis*”) in spices and vinegar - produced in Sweden (80% of the sprat market shares);
- Sprat in tomato sauce - imported;
- Sprat in oil - imported;
- Smoked sprat - imported.

2022, the total supply of fresh and frozen sprat in Sweden amounted to 62.931 tonnes in live weight equivalent, almost exclusively from national fisheries (94%). Imports accounted for 6% of the total supply in live weight equivalent (3.612 tonnes LWE). The majority of this supply was exported (78% of the volume in live weight equivalent, 48.919 tonnes LWE), thus 22% can be estimated as “apparent” consumption, namely 14.012 tonnes LWE.

²⁹ Country profile, Sweden, 2020 – EUMOFA available at www.eumofa.eu/documents/20178/61322/Sweden.pdf

Figure 39: Supply balance for fresh, frozen and canned sprat in Sweden (2022, tonnes of live weight equivalent)



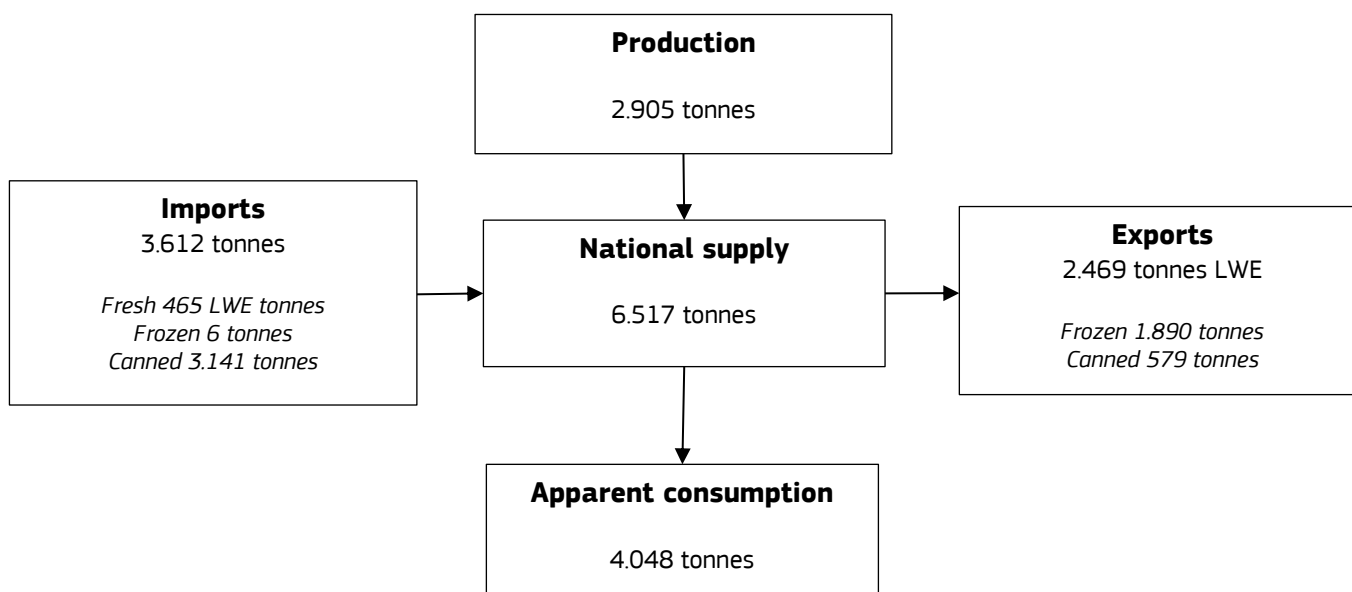
Source: based on EUMOFA

Conversion factors

According to Eurostat, the conversion ratio to be applied to fresh and frozen sprat to calculate the volumes in live weight equivalent (LWE) is 1. When calculating the LWE volumes of prepared or preserved sprat (canned sprat), the ratio is 1,87. This ratio was applied when calculating the LWE volumes of canned sprat imported from foreign countries and the volumes of canned sprat exported from Sweden to foreign countries.

However, only 5% of the production is intended for human consumption while 95% of sprat production is used to produce fishmeal, fish oil and other non-human consumption uses. Considering the very small share of sprat destined for human consumption, we calculated another apparent consumption of sprat in Sweden, focusing only on human consumption. The resulting apparent consumption amounted to 4.048 tonnes LWE in 2022 and was consistent with the information and data collected during interviews with Swedish stakeholders of the sprat market.

Figure 40: Supply balance for fresh, frozen and canned sprat for human consumption in Sweden (2022, tonnes of live weight equivalent)



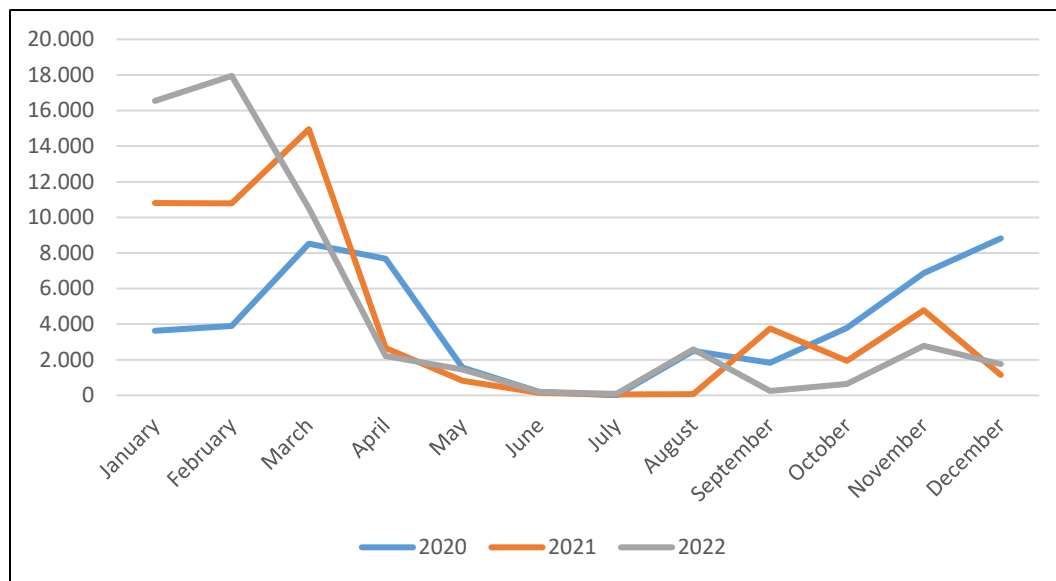
Source: own elaboration based on EUMOFA, interviews with stakeholders of the Swedish sprat market

5.2 Prices along the supply chain

5.2.1 First sale prices

Sprat prices depend on the season, quality, and destination (human consumption or industrial uses). Fisheries targeting sprat have a strong seasonal activity concentrated over the winter season (from October to March). In 2022, reported first-sale in Swedish ports reached almost 57,000 tonnes, with 83% in the first four months of the year.

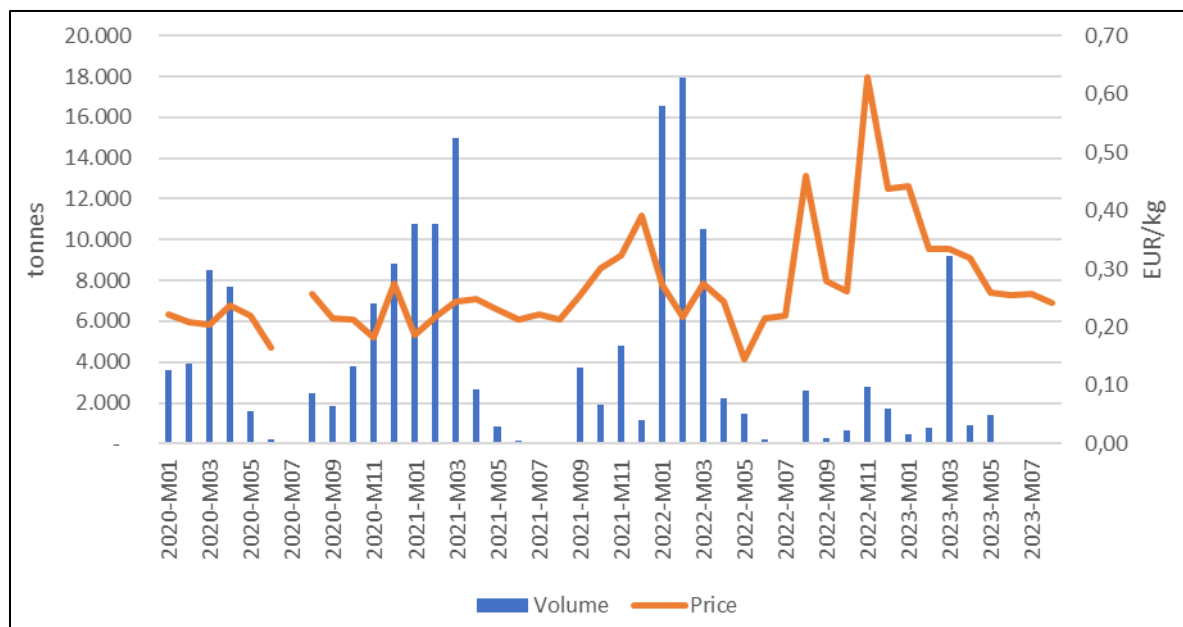
Figure 41: Sprat monthly first-sale volumes in Swedish fishing ports (in tonnes)



Source: EUMOFA, based on the Swedish Board of Agriculture

According to EUMOFA, prices of sprats landed in Swedish ports in 2020 amounted to an average of 0,218 EUR per kg. The price increased by 20% in 2021 (0,254 EUR/kg), and by 40% in 2022 where it was 0,305 EUR/kg. These fluctuations correspond to first-sales of sprat for industrial uses. Regarding sprat for human uses, contracts between fishing vessels and canning companies are established once a year, ensuring stable prices all year long, based on volumes captured.

Figure 42: Sprat monthly first-sale volumes and first-sale prices in Swedish ports between 2020 and 2022 (in 1.000 tonnes net weight and EUR/kg)



Source: EUMOFA

According to EUMOFA, first-sale prices of sprat in Sweden have drastically increased in recent years. In 2015, the average first-sale prices in the main Swedish ports ranged from 0,02 to 0,04 EUR/kg; in 2021 these prices ranged between 0,24 and 2,10 EUR/kg.

Table 41: Sprat first-sale prices in the main Swedish fishing ports between 2012 and 2022 (in EUR/kg)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Göteborg	0,07	0,04	0,04	-	-	0,02	0,02	2,95	2,10	-
Smögen	0,06	-	0,06	-	-	-	-	-	2,78 ³⁰	-
Others	0,04	0,03	0,02	0,03	0,02	0,02	0,02	0,22	0,24	0,28

Source: EUMOFA

The port statistics are available only for total landings in each port, without differentiating whether the sprat is meant for industrial (non-food) use (cheapest), or produce canned fish (more expensive) or smoked fish (the most expensive). According to EUMOFA data, sprat prices reached 2,10 EUR/kg in Göteborg and to 2,78 EUR/kg in Smögen in 2021. According to interviews, the average auction price for sprat in 2022 in Sweden amounted to 2,47EUR/kg (27,71 SEK/kg). This data must be interpreted carefully as it corresponds to auction prices and sprat volumes sold through auctions represent a very small share of the total sprat volumes.

5.2.2 Ex-factory prices

The production and average ex-factory prices for canned sprat and sardinella are only available for 2021 and 2022. In 2022, production of canned sprats in Sweden reached 661 tonnes, which represents a significant decrease compared to 2021 (-14,8%). In the meantime, the average ex-factory price has remained relatively stable (+0,6%) between 2021 and 2022, reaching 9,61 EUR/kg in 2022³¹. These ex-factory prices are estimates based on PRODCOM data and may include canned sardinella products.

5.2.3 Import-export prices

According to COMEXT-data, import-export prices of fresh, frozen, and canned sprat are lower than average ex-factory price estimates provided by PRODCOM. In 2022, import prices of canned sprat and sardinella reached 1,85 EUR/kg and export prices reached 6,09 EUR/kg, while ex-factory average prices reached 9,61 EUR/kg. The reason behind the price discrepancies may be the difference of species and quality used for traded products compared to those produced to supply the domestic market.

Table 42: Import and export average prices of fresh sprat in Sweden (EUR/kg)

	2014	2015	2016	2017	2018	2019	2020	2021	2022
Export prices (EUR/kg)	0,24	0,31	0,23	0,24	0,26	0,21	0,33	0,26	0,30
Import prices (EUR/kg)	0,22	0,25	0,26	0,21	0,33	0,49	0,64	0,66	0,86

Source: COMEXT

Table 43: Import and export average prices of frozen sprat in Sweden (EUR/kg)

	2014	2015	2016	2017	2018	2019	2020	2021	2022
Export prices (EUR/kg)	0,32	0,32	0,34	0,30	0,35	0,50	0,83	0,82	0,59

³⁰ Very low volume so not representative of the market.

³¹ Source: PRODCOM

European Market Observatory for Fisheries and Aquaculture Products – Sprat in the EU

Import prices (EUR/kg)	1,90	-	-	1,88	1,19	0,69	1,38	1,47	2,34
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Source: COMEXT

Table 44: Import and export average prices of prepared and preserved sprat and sardinella in Sweden (in EUR/kg)

	2014	2015	2016	2017	2018	2019	2020	2021	2022
Export prices (EUR/kg)	4,32	4,87	4,14	4,67	3,55	4,47	4,97	6,35	6,09
Import prices (EUR/kg)	2,04	1,53	1,16	1,21	1,60	1,67	1,73	1,45	1,85

Source: COMEXT

5.2.4 Retail price

Based on an online check of large-scale retailers in Sweden (Coop supermarket, ICA, CityGross), sprat is exclusively available as canned products. The retail price of canned sprat ranged between 14,52 EU/kg and 51,38 EUR/kg. We can identify 3 markets segments depending on the size of the can as detailed below:

- Segment 1: 55 g / consumer sales unit, under national brand: 36,18 EUR/kg;
- Segment 2: 100-125 g / consumer sales unit, under national brand: 19,10-26,16 EUR/kg;
- Segment 3: 450 g / sales unit, under national brand: 19,10 EUR/kg

The following table provides details on the price of the different products.

Table 45: Retail prices of canned sprat in Sweden in October 2023

Product	Brand	Size/sprat content	Price in SEK per unit	Price EUR per unit	Price EUR/kg
Ansjovis original (sprat fillets)	Grebbestads, Abba Seafood	55/30 g	22,50	1,99	36,18
Ansjovis original (sprat fillets)	Grebbestads, Abba Seafood	125/80 g	36,95	3,29	26,32
Ansjovis original (sprat fillets)	Grebbestads, Abba Seafood*	450/325 g	58,50	5,21	11,58
Sprat fillets (Ansjovisfileer)	Coop	100/65 g	27,95	1,91	19,10

Source: *price extracted from the COOP website (large-scale retailer) (consulted in February 2024)

Conversion rate on February 13th, 2024: 11,25 SEK = EUR 1

5.3 Price transmission in the supply chain

Our analysis is based on EUROSTAT, EUMOFA, and PRODCOM data as well as interviews with fish processors in Sweden.

The costs and margin of a 125g can of sprats in spices and vinegar (containing 80g of sprat) are detailed below:

- **Fresh whole sprat:** 1,10 EUR/kg, a can of 125g contains 80g of sprat, therefore the price of raw fish for one 125g can is 0,09 EUR.
- **Loss on raw material:** the conversion rate for fileted sprat to sprat whole is estimated at 3 based on the fish processor interviewed.
- **Primary costs and margin:** include sprat processing into barrels with spices, salt and vinegar and transport to Sweden (when landings abroad). 5% of the final product price.
 - Filleted sprat in barrel with spice: 1,50 EUR/kg.
 - Transport.
- **Material costs - package: cost of can:** 0,25 EUR/can.
- **Labour costs:** 35-40%, higher labour costs than other products because sprat is a small fish that must be processed with care during the filleting step, between the maturation and the canning.
- **Depreciation costs:** based on the average share of depreciation in the total cost of the can of 3% reported by Polish processors, 3% (0,0987 EUR/can)
- **Retail costs and net margin:** 30% (0,98 EUR/can), including transport to the retail platform and distribution costs and margin. Estimated based on the retail price and the other costs available.
- **VAT:** 12%³²;
- **Retail price:** 36,95 SEK (3,29 EUR).

Overall, it appears that the share of raw material cost (whole fish) is minor (3% of the consumer price) compared to other costs. Labour represents the most important cost (40% of the consumer price).

Price transmission

Table 46: Costs and margin for canned sprat in retail in Sweden (EUR/unit)

	Cost and margin (EUR/unit)		Cost and margin (EUR/kg)	% retail price		Step - Operator
Fish (whole)	1,10 EUR/kg = 0,09 EUR/unit		0,70	3%		Primary processing
Loss raw material filleting	0,40 EUR/kg	0,16 EUR/unit	1,32	1,5%	5%	
Other raw material (barrel, spices, salt and sugar)	= 0,05 EUR/unit					
Transport	= 0,11 EUR/unit					
Canning costs	0,25 EUR/unit		2,00	8%		

32

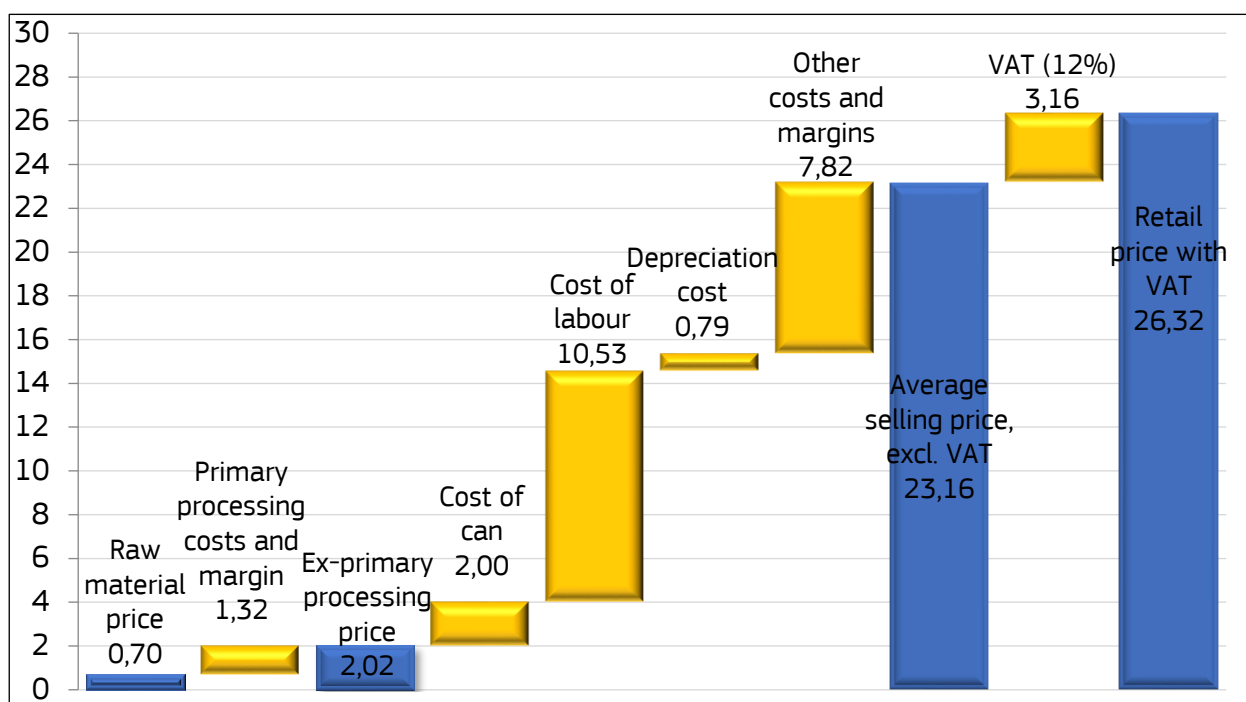
<https://skatteverket.se/servicelankar/otherlanguages/inenglishengelska/businessesandemployers/startingandrunningaswedishbusiness/declaringtaxesbusinesses/vat/vatratesongoodsandservices.4.676f4884175c97df419255d.html>

European Market Observatory for Fisheries and Aquaculture Products – Sprat in the EU

Labour costs	1,32 EUR/unit	10,53	40%	Canned sprat production
Depreciation costs	0,1 EUR/unit	0,79	3%	
Net margin				
Transport to the retail platform	0,98 EUR/unit	7,82	30%	
Distribution costs and margin				Retail
VAT	0,39 EUR/unit	3,16	12%	
Retail price (on site from COOP supermarket)	3,29 EUR/unit	26,32	100%	

Source: Own elaboration

Figure 43: Price transmission for canned sprat in spices and vinegar sold in large-scale retailer in Sweden (in EUR/kg)



Source: own elaboration based on EUROSTAT, EUMOFA and PRODCOM data as well as interviews with fish processors in Sweden.

6 COMPARISON OF THE PRICE TRANSMISSION IN THE DIFFERENT MS

This section provides a comparison of the price structure for canned sprat in Poland and Sweden. Denmark is not included in this section as there is no domestic production of canned sprat anymore and the market is only supplied by imports, mostly from Baltic countries.

The price of raw material differs depending on the MS and the type of product. In Poland, we selected a 170 g canned “smoked sprat in oil”, retailer own brand. In Sweden, we selected a 125g can of sprats in spices and vinegar (containing 80g of sprat) under a processor’s own brand, being rather a high-end product.

In the examples considered in the price transmission analysis, the first sale price ranges from 0,44 EUR/kg in Poland to 0,70 EUR/kg in Sweden.

The final price to consumer depends on the presentation (whole or filleted, in oil or in vinegar with spices, etc.), the product range (entry-level product or delicacy) and the VAT rate. The final price ranges from 6,35 EUR/kg (Poland) to 26,32 EUR/kg in Sweden.

The share of fish price in the final price is relatively low and is the highest in Poland with 7% and much lower in Sweden (3%).

Table 47: Comparison of the price transmission in Poland and Sweden for a canned sprat product sold in large-scale retailer

	PL 170 g canned “smoked sprat in oil”, retailer own brand	SE 125g canned sprat fillets in spices and vinegar
Cost of raw material	0,44	0,70
Processor costs and margins	4,71	
Retail costs and margin	1,07	22,46
Retail price (excl VAT)	6,35	23,16
Retail price (incl. VAT)	6,35	26,32

Source: EUMOFA

INTERVIEWED STAKEHOLDERS

Poland

- Fish processing companies in Poland
- Fisheries organisations
- Fish retailers

Denmark

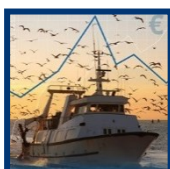
- Danmarks Fiskeriforening Producentorganisation (DFPO - Danish Fish Producer Organisation)
- Danmarks Pelagiske Producentorganisation (DPPO - Danish Pelagic Producer Organisation)
- Dansk Fiskeristyrelse (Danish Fisheries Agency, Ministry of Food, Agriculture and Fisheries)
- Marine Ingredients Denmark (Fishmeal and fish oil sector association)
- Danish Seafood Association (Seafood sector association)
- Processors: canning company

Sweden

- Processors: canning company
- Swedish Pelagic Federation Producer Organisation (SPF PO)
- Sjömatfrämjandet (Seafood promotion)

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