European Commission

FISHMEAL AND FISH OIL

PRODUCTION AND TRADE FLOWS IN THE EU

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CONTENTS

INTRODUCTION

The aim of this report is to provide an overview of the fishmeal and fish oil sectors derived from forage fisheries in the European Union (EU). Landings destined for non-food use vary depending on the level of quotas and catches. Regardless of variations in catches, the EU is not self-sufficient for fishmeal and fish oil. The gap is thus filled with imports.

As fishmeal and fish oil are global commodities, the market dynamics and price drivers are also affected by factors outside the EU. The study is therefore supplemented with a global overview of catch and production trends.

The study focuses on fishmeal and fish oil produced from fish catches with details by species.

The production data on fishmeal and fish oil also contains production of fish waste and by-products from the processing industry, but it is not possible to separate data on fishmeal produced from raw material from fisheries *versus* by-products and other. Therefore, the figures in the study contain volumes from all types of raw material. However, the report has a separate part covering EU imports and exports of "other non-food use" products.

The study consists of following sections:

1 **Non-food uses in a global perspective** covers global fishery landings and their share destined for non-food use. The section analyses the development in the global production of fishmeal and fish oil and the main producing countries, as well as global price trends. The section also highlights, in a global perspective, the share of fishmeal/fish oil coming from direct fisheries versus waste/trimmings.

2 **World fishmeal/fish oil market use by sector** explores the market segments in which the global fishmeal and fish oil volumes are used.

3 **EU landings for non-food use** covers the main species landed in the EU which are destined for non-food use.

4 **EU production of fishmeal and fish oil** covers the development of the fishmeal and fish oil production in the EU and the price development in the EU internal market and other European markets.

5 **Import - export** covers the trends of international trade flows over the years, the trade balances, markets, and prices. A short highlight on the trade flows of other non-food use products besides fishmeal and fish oil is also provided.

1 SUMMARY

The global production of fishmeal and fish oil remains relatively stable with an average of 5,1 million tonnes of fishmeal and around 1,2 million tonnes of fish oil the past 10 years. Out of this, the EU produces from 370.000 tonnes to above 520.000 tonnes of fishmeal and from 90.000 tonnes to 140.000 tonnes of fish oil. This constitutes each year from 8-12% of the global production.

The high-quality production is based on landings of small, oily, short-lived species such as blue whiting, capelin, sandeel, Norway pout and sprat as well as trimmings from the fish processing sector. Denmark is by far the largest producer in the EU, accounting for 35% to 50% of the total EU production. The fisheries destined to produce fishmeal and fish oil in the EU are limited by quotas and the demand for human consumption. The raw material from fisheries varies dependent on quotas.

The price level of European fishmeal and fish oil follows global prices to a large degree, which depend highly on the production in South America (Peru, Chile). Over the past 12 years, European (Oil world price) fish oil prices on average increased by 117% and fishmeal prices on average increased by 3% (adjusted for inflation).

EU consumption of fishmeal decreased by around 27% from 2010 to 2024 to around 460.000 tonnes.

The imports of fishmeal in the EU decreased by 41% from 2014 to 2024. The difference between import and export varies from year to year depending on domestic production, but the EU is still a net importer of fishmeal. Imports from Peru decreased by nearly 93% in the period and reached no more than 9.500 tonnes in 2024; the import share of imports from Peru on total EU imports decreased from 41% to 5%. Morocco, Norway and South Africa are top three fishmeal suppliers in 2024. EU import of fish oil decreased by 28% to 144.000 tonnes from 2014 to 2024, and exports decreased by 6% to 137.000 tonnes.

EU exports go to several countries worldwide with Norway and the UK as top destination markets. EU exports of fishmeal decreased by 33% in the 2014-2024 period and fish oil exports decreased by 6% during the same period.

In 2024, around 77% of the exports of fish oil from the EU was exported to Norway and 15% to UK.

2 NON-FOOD USES IN A GLOBAL PERSPECTIVE

The type of products known as non-food products are mainly fishmeal and fish oil, but also different types of live ornamental fish, fish waste, dead fish, seaweeds, and algae unfit for human consumption, as well as frozen fish roes used for the manufacture of acids or sulphates.

2.1 Fishmeal and fish oil

Fishmeal is a product obtained by cooking, pressing, drying, and grinding fresh raw fish or shellfish. Typical species are small fatty species like anchovy, sprat, herring, capelin, and krill. After the cooking and drying process, the fish is turned into a coarse brown flour: the fishmeal. Fishmeal is an excellent protein source mainly used in the feed for aquaculture species and livestock.

Fish oils are produced whenever fatty fish is processed into fishmeal. It is a 100% marine oil with high content of omega-3 fatty acids. Fish oil is mainly used to produce feed for farmed fish and refined fish oil for human consumption (fish oil capsules).

Virtually, any fish or shellfish in the sea can be used to make fishmeal. Most of the world's fishmeal is made from whole fish, and the pelagic species are the most utilized for this purpose, but an increasing share is coming from better utilization of trimmings. When a catch is solely destined for the fishmeal industry, it is referred to as an "industrial fishery".

100 kg of raw material produces around 21 kg of fishmeal and between 2 and 6 kg of fish oil.

Countries with major industrial fisheries are Peru, Iceland, Denmark, Chile, USA, Norway, and South Africa.

- High-value feed ingredients

Fishmeal and fish oil are, without comparison, the most valuable feed ingredients. Their nutritional composition, and high digestibility, support the growth and optimal physiological function and welfare of farmed fish and livestock, making fishmeal and fish oil strategic for providing those essential nutrients in formulated feeds.

- Health benefits

Fishmeal and fish oil provide a balanced amount of all essential amino acids, minerals, phospholipids, and omega-3 fatty acids, and help bring those into the human food chain. EPA and DHA are central components in all cell membranes, particularly important for the development of the brain and vision early in life. They also contribute to the function of the heart, blood system and immune system[1].

- Low carbon footprint

Marine ingredients have a lower carbon footprint compared to other feed ingredients like soya, rape and wheat[2].

[1] European Fishmeal and fish oil producers, Production – European Fishmeal

[2] *Ibidem*

2.2 Global landings destined for non-food use

The yearly world landings of fish, shellfish and crustaceans are stable at around 90-95 million tonnes. Of this, around 70-75 million tonnes are used as food for human consumption and around 20 million tonnes are destined for non-food use. Of the 20 million tonnes for non-food use, FAO states that 15 million tonnes are channelled into fishmeal and fish oil production. The rest is largely used for ornamental purposes, fingerlings, bait, pharmaceutical uses, and as raw material for direct feeding in aquaculture[3].

The species used for feed, especially sandeels, sprat, Norway pout, capelin, and South American anchoveta, have relatively short lifecycles, so population numbers can rise and fall substantially depending on fishing pressure and other environmental variables. Stocks of anchoveta, for instance, are well known to be influenced by the periodic El Niño climatic events and stocks of most feed fish species are thought likely to be affected by climate change[4].

Fishery is a limited resource and the competition between landing for human consumption and non-food use goes in the favour of human consumption due to better prices and government decisions to use as much as possible for food or reserve certain fisheries for human consumption. The share of fishmeal and fish oil in feed for aquaculture is increasingly replaced by vegetable sources which is necessary for further growth. There was once a time when nearly all the world's fishmeal and fish oil supplies were obtained from fisheries. These fisheries are those that have a very limited direct food market for human consumption and are based on using high-abundance, low-trophic level fish with annual recruitment cycles. Still to this day, some of these fisheries, like the Peruvian anchoveta, the blue whiting, menhaden and North Atlantic capelin fisheries are among the largest single-species fisheries on earth. However, the introduction of strict fishery quotas in the 1990's and 2000's led to a reduction in the volumes of forage fish being harvested in many key fisheries across the world. The use of rest raw material from the fishery processing industry is therefore increasing and necessary to maintain and if possible, increase the global fishmeal and fish oil production[5].

From 2002 to 2023, there was a 22% decrease in the non-food use share of total landings. The reason for this was the increased use for human consumption and a decrease in the fishing for feed production due to reduced quotas and better fishery management[6].

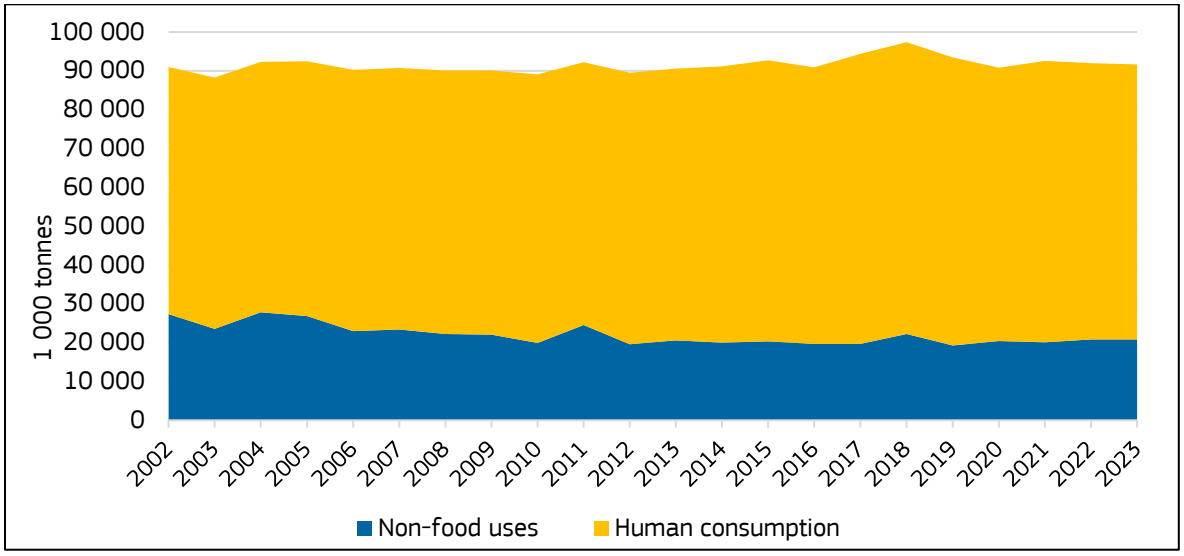
[3] Source: Fishmeal and fish oil facts and figures, Seafish, March 2018 (link: https://www.seafish.org/document/?id=1b08b6d5-75d9-4179-9094-840195ceee4b)

[4] Source: Marine Policy, Volume 175, May 2025,106631, 'The impact of climate change and economic development on the catches of small pelagic fisheries', Xiaohan Fang and Ying Zhang, https://www.sciencedirect.com/science/article/pii/S0308597X25000466

[5] By-Product Based Fishmeals: Growing the Future of Fishmeal Production | IFFO - The Marine Ingredients Organisation

[6] https://www.fao.org/common-pages/search/en/?q=Pelagic%20fishery%20management

Figure 1: Global landings by destination use



Source: FAO

2.3 Global production of fishmeal and fish oil

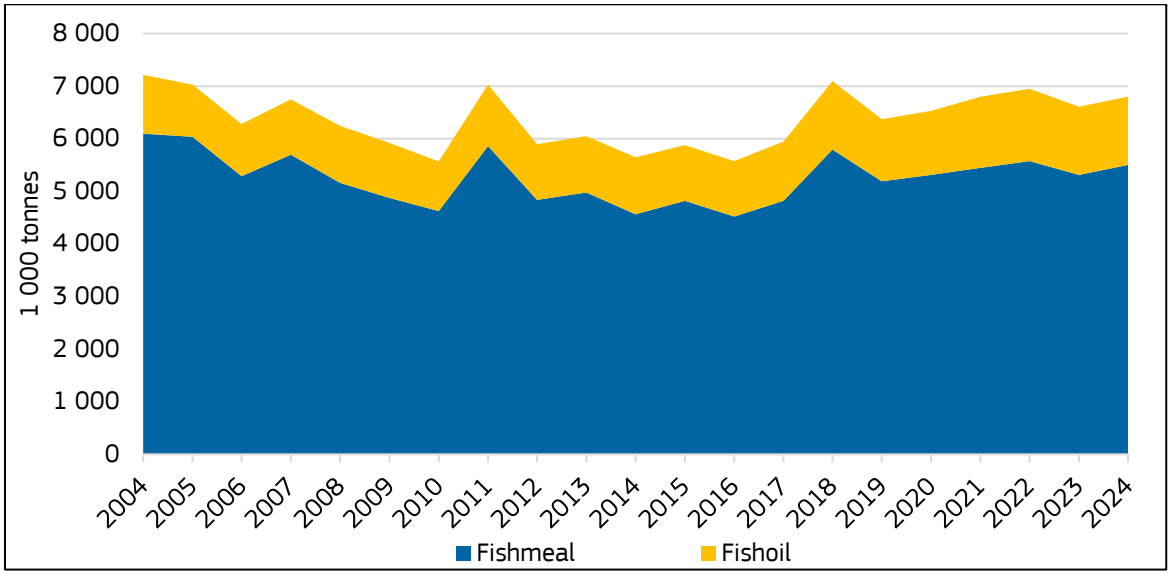
The share of world fisheries destined to produce fishmeal and fish oil has decreased over the past 20 years, but increased focus and exploitation of rest raw material from the processing industry has contributed to maintain the fishmeal and fish oil production. From 2004 to 2014, average yearly fishmeal production was above 5,3 million tonnes, while from 2014 to 2024 it was around 5,2 million tonnes. The production of fish oil amounts to 1-1,3 million tonnes annually.

The variations from one year to another are much affected by the supply of forage fish and particularly by the Peruvian anchoveta fisheries, the latter being the world's largest in terms of volume, varying between 3 and 7 million tonnes a year. The strong variations in the landings of this species are closely linked to the periodic El Niño[7] climate events which bring warm water into the upwelling areas. In years when this arises, fisheries suffer, and catches might decrease by several million tonnes in one season.

In 2018, global fishmeal production reached its highest level since 2011 at 5,8 million tonnes, a 20% increase from 2017. Fish oil production was nearly 1,3 million tonnes. The increased production was a result of high catches of Peruvian anchoveta. The global production in 2023 and 2024 is estimated with 5,3 and 5,5 million tonnes of fishmeal respectively, and 1,29 and 1,3 million tonnes of fish oil. The variations from year to year is much dependent on catches in Peru and variations in oil yield in the fish.

[7] Source: U.S. Department of Commerce – National Oceanic and Atmospheric Administration (link: https://oceanservice.noaa.gov/facts/ninonina.html)

Figure 2: Global production of fishmeal and fish oil



Source: Marine Ingredients Organization (IFFO)

There are many countries producing fishmeal and fish oil to a greater or lesser extent. In 2024, the nine largest producers accounted for 63% of the total fishmeal production and 65% of the fish oil production. The 25 largest accounted for 90% of the fishmeal production and 93% of the fish oil production[8].

The world's largest producer is Peru, contributing on average with around 20% of global fishmeal production and between 10% and 15% of the global fish oil production since 2015. In 2024, Peru and Chile together accounted for 28% of the global fishmeal production and 23% of the global fish oil production recovering after a year with unusual low production in Peru due to bad fishery. Since Peru has very little domestic consumption, the fishmeal and fish oil are sold in the global markets. On the other hand, in Chile, a significant share of fishmeal and fish oil production is used in the domestic production of salmon and trout feed.

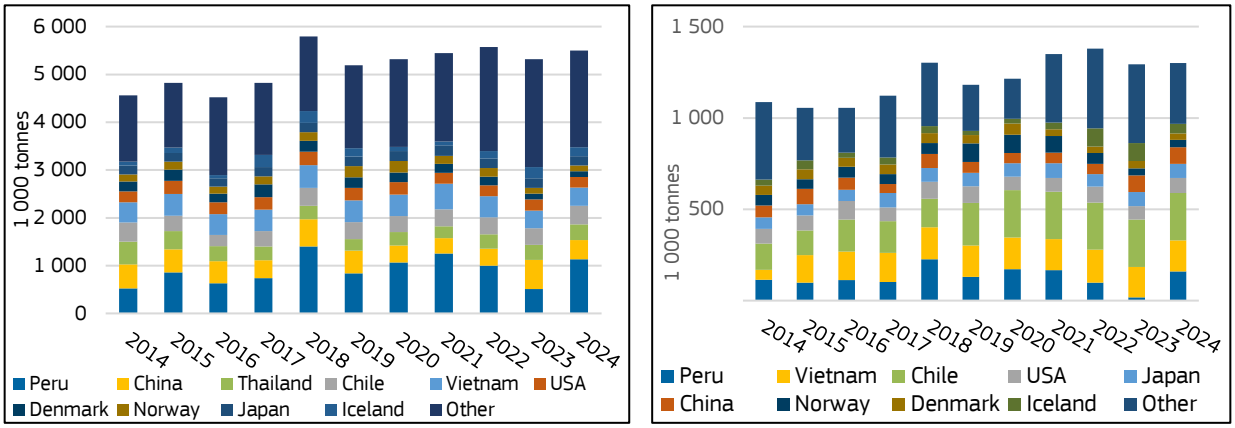
In Asia, China, Thailand, and Vietnam are ranked as the three largest fishmeal producers, producing 1,1 million tonnes in 2024, whereof the majority was consumed within the Asian markets.

In 2024, US fishmeal and fish oil production amounted to 217.000 tonnes and 82.000 tonnes, respectively. Catches of menhaden species form the basis to produce both.

In Europe, Norway and Denmark together produced above 250.000 tonnes of fishmeal and 55.000 tonnes of fish oil in 2024. Due to its aquaculture production (salmon and trout), Norway is one of the world's largest consumers of fishmeal and fish oil.

[8] Members Area | IFFO - The Marine Ingredients Organisation

Figure 3: World fishmeal and fish oil production by producing countries (fishmeal left, fish oil right)



Source: IFFO/FAO

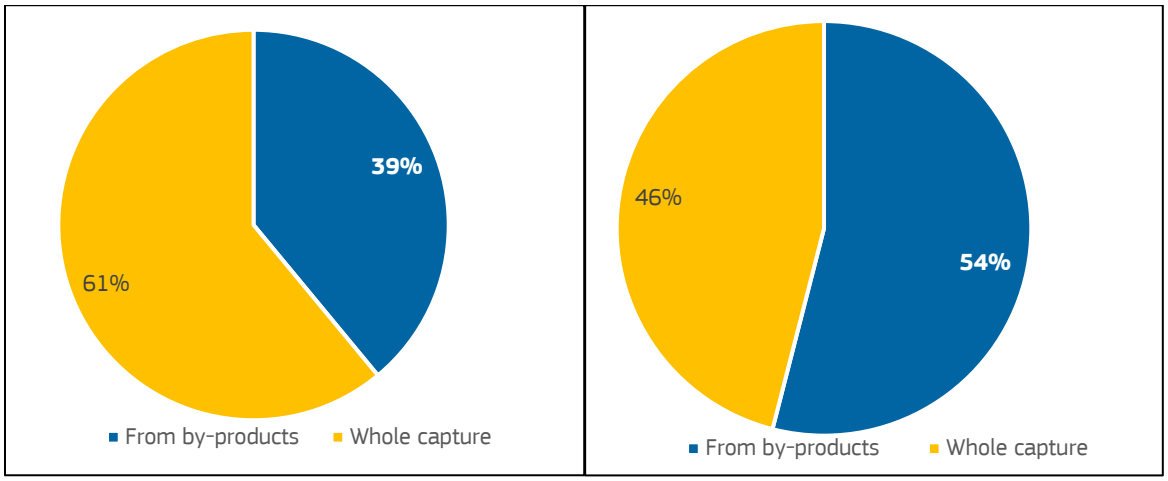
At the same time as fishmeal and fish oil produced from fisheries has declined, a growing share of fishmeal and fish oil is produced from fish by-products coming from the processing industry, thus reducing waste and improving resource valorization. Fish processing generates large quantities of by-products such as heads, skins, bones, scales and viscera, constituting 30% to 70% of the whole fish, depending on the species and type of processing. By-products can come from wild caught fish or farmed fish processing. Most of the raw material comes from finfish such as white fish trimmings (pollock, cod, hake, haddock and others), pelagic such as herring and mackerel, as well as other species such as salmon (wild and from aquaculture), tuna, pangasius and tilapia[9].

According to the estimates of the IFFO, in 2023, 39% of the global production of fishmeal and 54% of the total production of fish oil were obtained from by-products. Back in 2010, 75% of the raw material for fishmeal production came from whole fish and 25% from by-products[10]. This utilization of by-products has helped to keep the overall amount of fishmeal and fish oil reasonably stable at, respectively, around 5 million tonnes and around 1,2 million tonnes in product weight, despite the decline in the share obtained from whole fish. It is worth noting that fishmeal from by-products have a different nutritional value, being lower in protein but richer in minerals compared with fishmeal obtained from whole fish[11]. It is worth noting that the data for 2023 reflect the impact of the El Niño phenomenon, which significantly disrupted fishing activities and, in turn, temporarily influenced the percentage range between the use of by-products and whole fish[12].

[9] Update on by-product marine ingredients | IFFO - The Marine Ingredients Organisation
[10] *Ibidem*
[11] The State of World Fisheries and Aquaculture 2024
[12] Update on by-product marine ingredients | IFFO - The Marine Ingredients Organisation

2.4 Raw material sources

Figure 4: World fishmeal and fish oil production by raw material source in 2023 (fishmeal left, fish oil right)

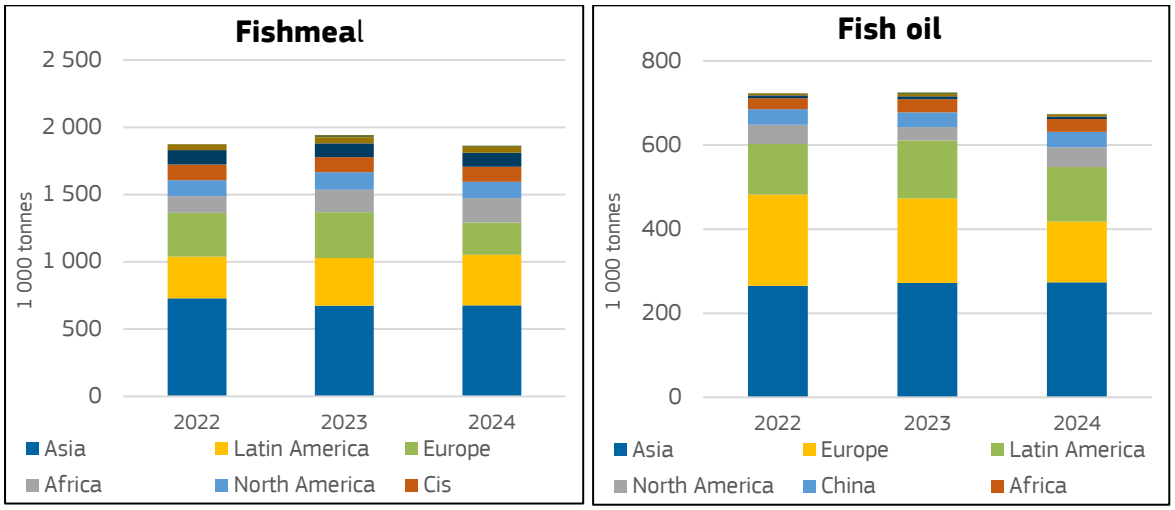


Source: IFFO

In 2024, the volumes of fishmeal coming from by-products reached nearly 1,9 million tons whereof 36% was produced in Asia mainly from by-products from small pelagic species (52%), tuna by-products (24%) and pangasius by-products (23%). The second largest region producing fishmeal from by-products was Latin America, which accounted for around 20% of the fishmeal coming from by-products. Main by-product sources were small pelagic (46%), tuna by-products (26%) and salmon by-products (17%). The third largest fishmeal producing region from by-products is Europe, accounting for 13% in 2024. Main sources were by-product from small pelagic (71%), tuna (15%) and salmon (14%).

In 2024, the volumes of fish oil coming from by-products reached around 675.000 tonnes whereof 41% was produced in Asia mainly from by-products from pangasius (69%), small pelagic (22%) and tuna (9%). The second largest region producing fish oil from by-products was Europe, accounting for 21% of the global production. Fish oil from by-products in Europe was mainly derived from salmon by-products (62%) and small pelagic (34%). The third largest fish oil producing region from by-products is Latin America, accounting for 19% in 2024. Main sources were by-products from salmon (66%) and small pelagic (20%).

Figure 4: World fishmeal and fish oil production from by-products (fishmeal left, fish oil right)



Source: IFFO

2.5 Peruvian prices

The development in the global fishmeal and fish oil prices is largely linked to the Peruvian prices. Peru is the biggest source of fishmeal and fish oil output today and the world's largest producer and exporter of fishmeal and fish oil, so the big consumers always have an eye on Peru. The Peruvian fishmeal and fish oil markets have been highly sensitive to environmental conditions and fish stock levels, leading to considerable price volatility over the past decade.

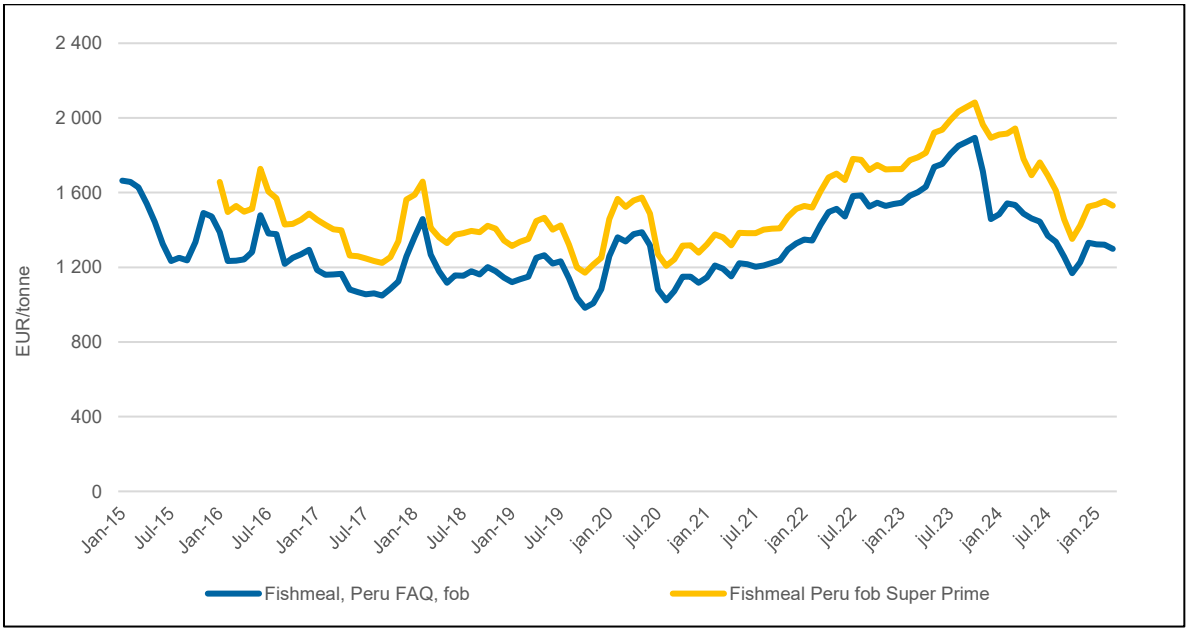
The 2023-2024 El Niño event had a significant impact on Peruvian production leading to global price pressure on fishmeal and fish oil. This event was one of the most powerful El Niño occurrences in recorded history, leading to widespread environmental disruptions. The onset of El Niño in mid-2023 caused a reduction in anchovy catches, leading to a sharp increase in fish oil and fishmeal prices. The scarcity of anchovy in Peru, a key ingredient, drove prices up significantly. A rather extreme increase in fish oil prices was seen from June 2022 when Peruvian fish oil price was noted at 2.780 EUR/tonne till the price peaked in November 2023 at 6.138 EUR/tonne.

Throughout 2024, Peruvian catches recovered resulting in improved global supply which balanced the markets and calmed the price level[13].

During the past 15 – 20 years, China became increasingly important as a destination market for Peruvian fishmeal, accounting for 87% of total Peruvian export in 2024. By comparison, in 2009, fishmeal exports to China accounted for around 48% of total Peruvian fishmeal export. Exports to the EU showed an opposite trend, as 22% of the Peruvian fishmeal went to the EU in 2009 and only 1% in 2024[14].

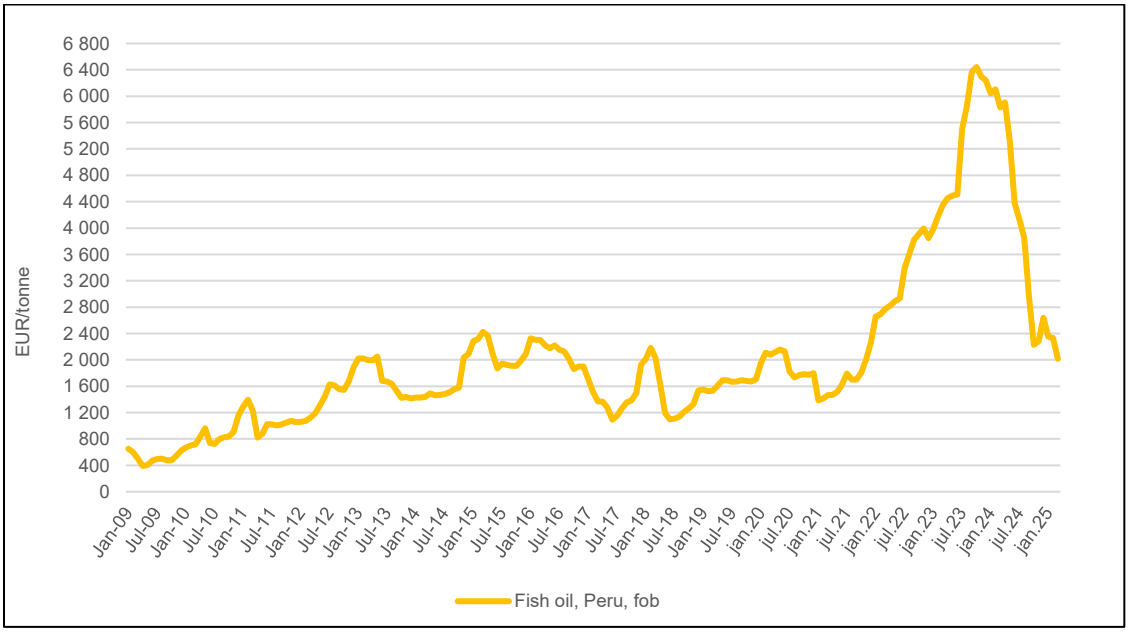
[13] Statistics Division (ESS) | FAO | Food and Agriculture Organization of the United Nations
[14] Source: Superintendencia Nacional de Aduanas y de Administración Tributaria (link: http://www.sunat.gob.pe/operatividadaduanera/index.html)

Figure 4: Prices of fishmeal exported by Peru



Source: Oilworld. Values are deflated by using deflator (base=2020).

Figure 5: Prices of fish oil exported by Peru



Source: Oilworld. Values are deflated by using deflator (base=2020)[15].

[15] Eurostat (ESTAT) - EU monitor

3 WORLD FISHMEAL/FISH OIL MARKET USE BY SECTOR

Marine feed ingredients are limited resources with relatively stable production over the past 10 years. Most of the fishmeal is used as a high protein (60-72%) ingredient in feed for aquaculture species and farmed animals. Fish oil is used mainly in the feed of farmed marine fish and for human consumption. Very little is used in land animal feed.

To meet the demand for fishmeal and fish oil from the growing aquaculture industry, and in particular the farming of marine species, the composition of feed has changed considerably over the last decades from mainly marine ingredients to inclusion of a substantial part of plant ingredients[16].

There are several challenges associated with use of non-marine proteins and oils from plants in the feed for marine fish in terms of quality of feed, energy balance, fish health, growth, and the final quality of the product.

3.1 Fishmeal use

The global fishmeal uses by sector remained stable for many years but during the past 4-5 years we have seen an increased share going into aquaculture. In 2009, the share of fishmeal used in the aquaculture sector was 63%. The share remained stable at around 70% from 2010 till 2017 but rose in the years after and was 92% in 2023. In 2023, around 23% of the fishmeal going into aquaculture was used to feed crustaceans, 16% to feed salmon and trout, 20% to feed marine fish and 18% to feed freshwater species. The rest was divided between tilapias, cyprinids, and eels.

Most fishmeal in aquaculture feed is consumed in Asia. In 2023, 43% of the fishmeal was used in China and 26% in other Asian countries. 11% of the fishmeal was used in Europe, 12% in Latin-America and 5% in the Middle East.

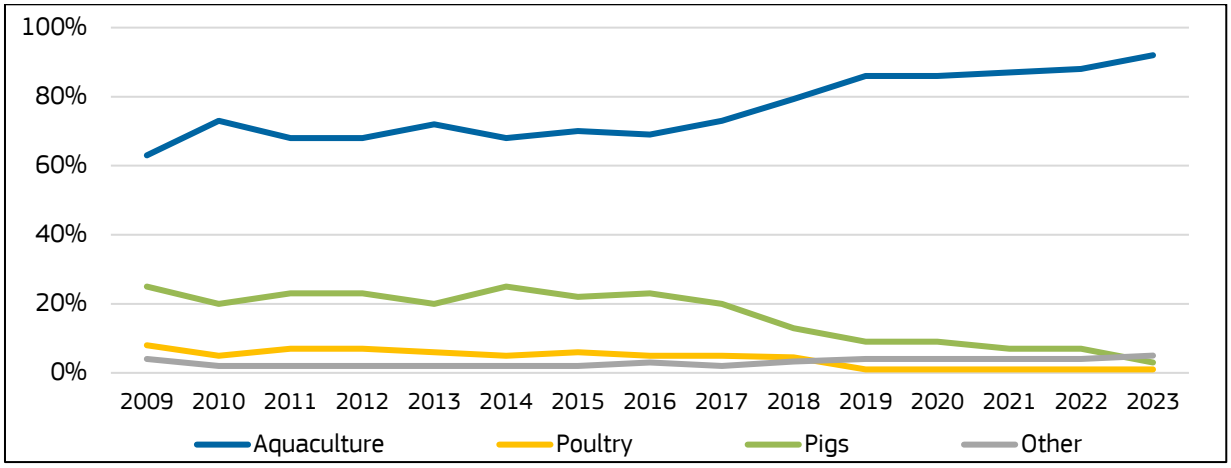
The pig industry fishmeal use has gone from a 25% share in 2009 to only 3% in 2023 and was the third largest consumer of fishmeal. Fishmeal in poultry feed accounted for 1% of total consumption in 2023. 5% of the global consumption was used as a feed ingredient in other sectors[17].

The pressure for aquaculture to improve efficiency of fishmeal use also reflects the increasing competition for fishmeal on the global animal feed markets between aquaculture and livestock producers. Given the substantial and sustained growth of aquaculture that is projected, the overall amount of fishmeal that goes toward aquaculture will likely continue to grow. Higher feed prices will imply that only feed-efficient and high-valued aquaculture products can be profitable with such inputs[18].

Aquaculture production is growing and is expected to grow further in the coming years. Fishmeal and fish oil production remains stable or is slightly increasing as the utilization of by-products increases and new investment is done in developing other raw material sources (algae, krill, insects etc.).

[16] Source: NOFIMA (link: http://www.nofima.com)
[17] Source: IFFO (link: http://www.iffo.net/)
[18] Source: FAO (link: http://www.fao.org/3/i3640e/i3640e.pdf)

Figure 5: World fishmeal use by sector



Source: IFFO

3.2 Fish oil use

The main use of fish oil is for aquaculture – especially for carnivorous fish such as salmonids (salmon and trout) and marine species. Direct use in human foods and capsules are increasingly significant outlets. Other uses include carrier for pesticides, in paints, and in leather making. The use in nutraceuticals has been increasing even more rapidly than that in aquaculture, at around an average of 10% per year over the last 10 years[19].

Due to lower shares of fish oil in the feed formulas, the limited available volumes of fish oil have not limited the growth in the global aquaculture production. In 2009, 81% of the global uses was in the feed for aquaculture species which constituted nearly 830.000 tonnes of fish oil consumption. In 2023, 63% of the global uses was for aquaculture, constituting around 820.000 tonnes of the fish oil consumption that year.

In 2023, nearly 54% of the fish oil consumption in aquaculture was used to feed salmon and trout, 24% was used in the feed of marine fish, 15% in the feed for crustaceans, 6% in the feed for other species.

In 2023, 37% of the fish oil used in aquaculture was consumed in Europe, 18% in Latin America, 15% in China, 11% in the Middle East and 12% in Asia (excluding China), and the rest in other areas.

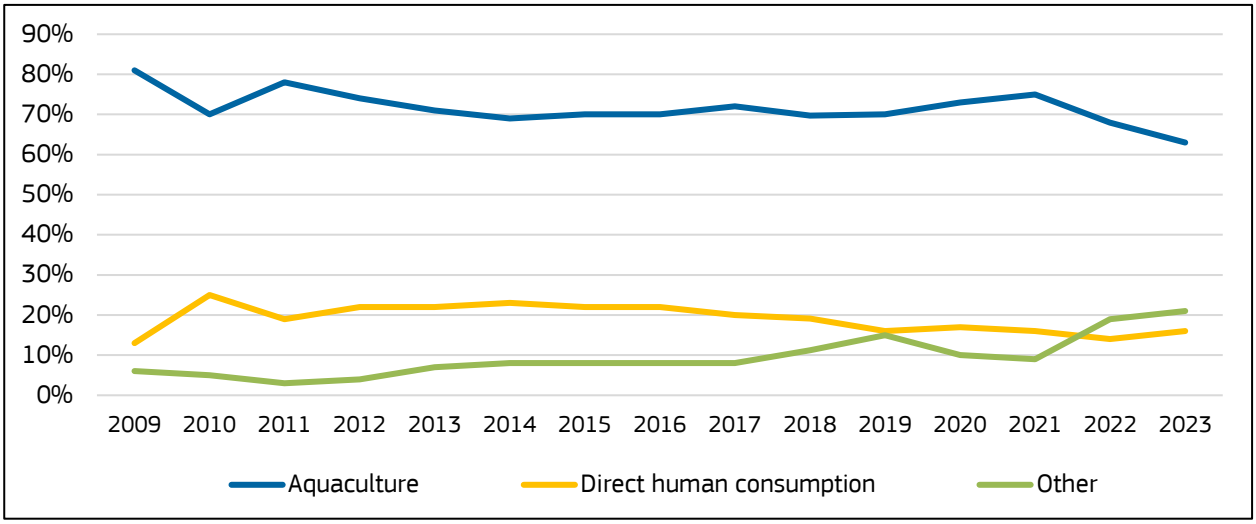
Farmed fish, and particularly marine fish, need to be provided the beneficial omega-3 fatty acids (EPA and DHA) through their feed[20]. This will secure a final product comparable and as healthy as their wild counterparts. Fish oil is currently the only economically viable source of these essential fats for feed purposes[21]. Access to omega-3 resources in fish feed is therefore a limiting factor for growth in aquaculture. New oil sources for fish feed are therefore of big interest for the aquaculture producers as well as the human consumption sector.

[19]Source: IFFO (link: https://www.iffo.net/system/files/LipidTechpaper-finalpdf.pdf)

[20] Source: Nofima;' The level of omega-3 in feed is important for the welfare of salmon', https://nofima.com/results/the-level-of-omega-3-in-feed-is-important-for-the-welfare-of-salmon/

[21] Source: FAO (link: http://www.fao.org/in-action/globefish/fishery-information/resource-detail/en/c/338773/)

Figure 6: World fish oil use by sector



Source: IFFO

4 EU LANDINGS FOR NON-FOOD USE

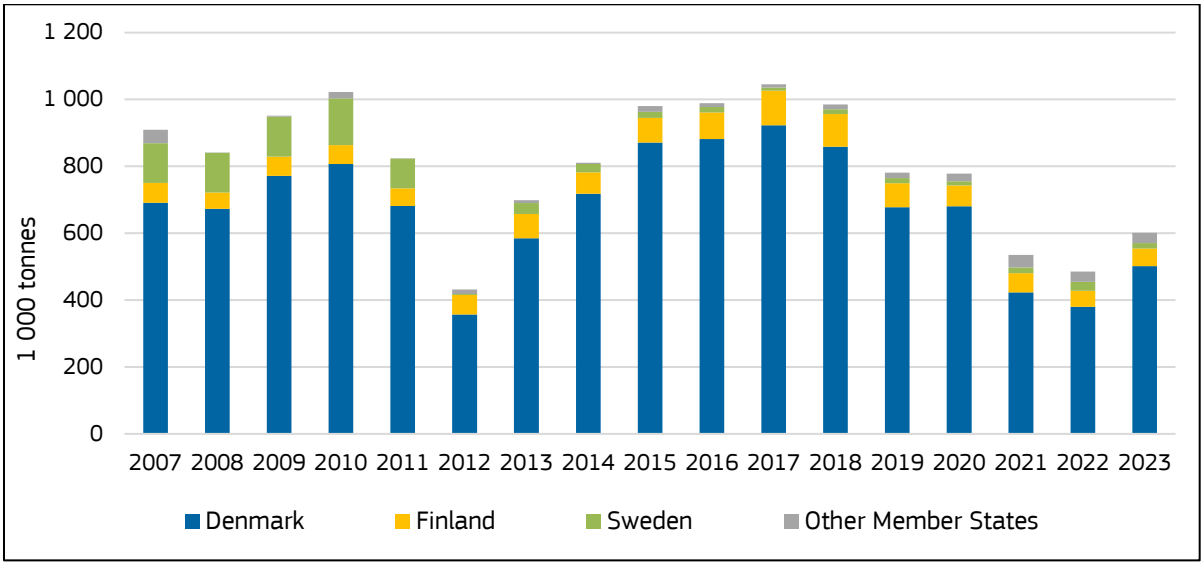
In the period from 2007 to 2023, EU landings destined for non-food use varied between 432.000 tonnes at its lowest (2012) to nearly 1,05 million tonnes at its highest (2017). This is due to the strong variations in the fishing quotas/landings. In particular this is the case for sandeel. The size of this stock might vary strongly from one year to another and so will the fishing opportunities. See table 1 below and the landings of the different species in 2012 and 2017.

Denmark is the largest of the EU industrial fishing Member States, accounting for 78% of total EU landings in 2022 and 83% in 2023. The country has a large part of the EU quotas for principal pelagic species such as sandeels, sprat and blue whiting which is used for fishmeal and fish oil. The feed fish fisheries constitute a substantial part of the Danish fishery sector accounting for 31% of the values produced in 2023 and 24% in 2024[22].

Other important EU countries catching feed fish are Sweden and Finland. In 2023, Finland was the second largest accounting for 9% of total industrial EU catch.

[22] Landinger - LFST

Figure 7: EU landings for non-food use by Member State



Sources: Eurostat, fiskeridir.dk

The major fish species landed for industrial uses in the EU are sandeels, blue whiting, sprat and herring whereof sandeels and sprat historically were the two main species. Blue whiting has increasingly become important over the past years accounting for 23% of total landings in 2023. Herring is mainly destined for human consumption, but of the large volumes caught and subsequent low prices, some are used in the production of fishmeal and fish oil. Due to significant variations in the quotas for the different species utilized for non-food uses, the availability in the EU fisheries vary from year to year. From 2016 to 2017, there was a large increase in the landings of sandeels (+900%) due to a quota increase of the same proportion. In 2023, landings of sandeels reached 140.000 tonnes, a 64% growth from 2022.

Table 1: EU landings for non-food use by species (volume in 1 000 tonnes)

Species	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Sandeel	204	204	37	40	410	202	114	200	86	85	140
European sprat	185	253	391	330	258	296	255	241	170	192	183
Blue whiting	70	174	185	155	191	250	165	114	139	103	138
Herring	117	116	131	149	154	197	160	120	75	30	25
Norway Pout	38	28	15	26	15	12	40	66	43	21	3
Boarfish	65	15	17	18	16	10	11	15	17	20	20
Capelin	8	10	3	0	0	4	0	0	0	0	0
Other	17	11	201	3	2	14	36	22	5	34	92
Total	**704**	**812**	**979**	**722**	**1 046**	**985**	**781**	**779**	**535**	**485**	**601**

Source: Eurostat, https://fiskeristatistik.fiskeristyrelsen.dk/stat/industri/ugetabel18.html_The totals may differ from the sums in columns due to rounding

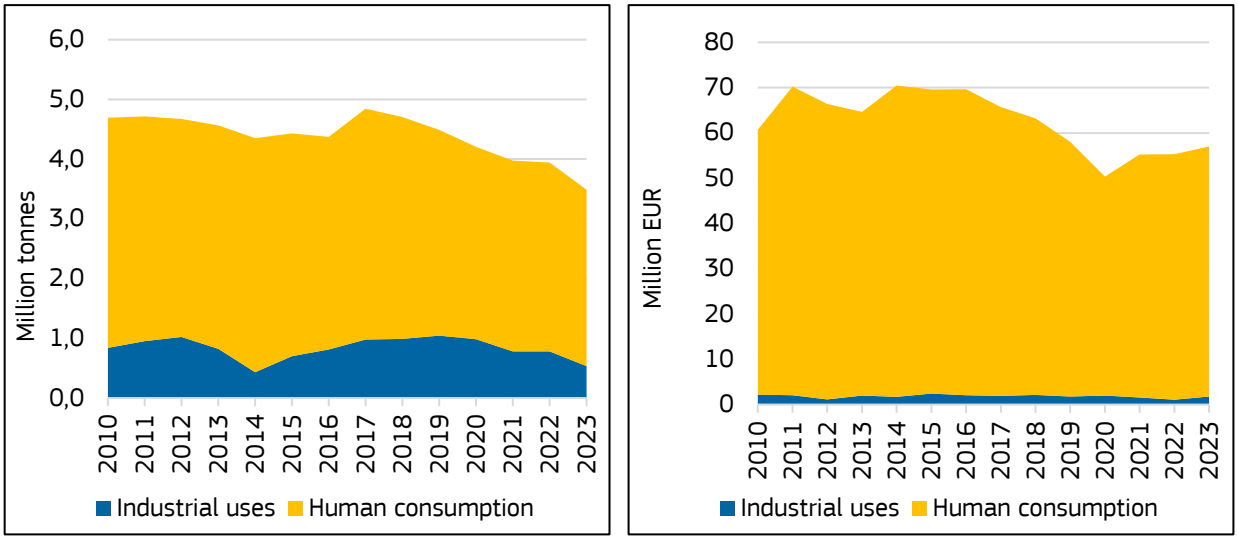
From 2022-2023, total EU landings of all species for industrial uses increased by 24% to 601.000 tonnes. The increase was mainly due to increased landings of sandeels and blue whiting.

Most sandeel is caught in the North Sea, whilst sprat is caught in the Baltic, North Sea and Kattegat/Skagerrak. Blue whiting is taken as a directed fishery in the North Sea and East Atlantic. Norway pout is caught in the North Sea, Kattegat, and Skagerrak[23].

[23] Source: working paper of the European Parliament (link: https://www.europarl.europa.eu/RegData/etudes/etudes/join/2003/341942/IPOL-PECH_ET(2003)341942_EN.pdf)

In 2023, fishery landings in the EU were 3,55 million tonnes, of which 17% was destined for fishmeal and fish oil production. Economically, the fish for industrial uses is relatively small compared to other fisheries. In 2023, the value of fish for industrial uses constituted 3% of total EU landings.

Figure 8: Total landings in the eu per destination use (volume left, value right)[24]



Sources: Eurostat, Fiskeristyrelsen

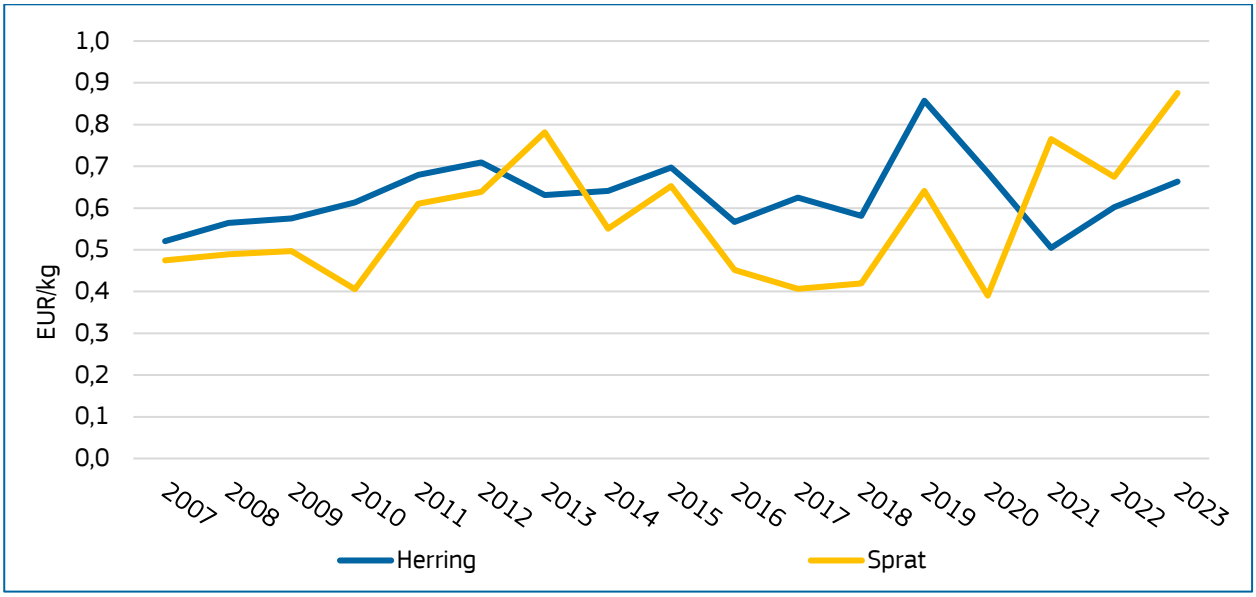
4.1 First-sale prices

In 2023, EU landings of European sprat for non-food use amounted to 183.000 tonnes, of which 95% was landed in Denmark. The comparison between catches and landings shows that several EU fleets landed sprat in Denmark (Sweden, Poland, Germany, Lithuania)[25]. The main reason is that sprat is used as raw material for the fishmeal and fish oil producers in Denmark, which need significant volumes of fresh fish. The yearly first sale price of sprat varied between 0,39 EUR/kg and 0,85 EUR/kg from 2007 to 2023, and herring prices varied between 0,49 EUR/kg to 0,82 EUR/kg. The price fluctuations for the raw material used in the reduction industry is closely linked to volumes landed in Denmark and the price level on fishmeal and fish oil. The price is an average first sale price for all uses.

[24] Eurostat only provides value data for 2022 and 2023 for all countries except Denmark. Value data for 2022 and 2023 is therefore sourced from national statistics in Denmark.

[25] Source: Fiskeristyrelsen (link: https://fiskeristatistik.fiskeristyrelsen.dk/stat/industri/ugetabel23.html)

Figure 9: First sale price of herring and sprat in EU



Source. EUMOFA (https://eumofa.eu/sources-of-data)[26]. Values are deflated by using deflator (base=2020)[27].

5 EU PRODUCTION OF FISHMEAL AND FISH OIL

In the 2007-2017 period, the annual average EU fishmeal production in the EU was around 430.000 tonnes, while it was around 480.000 tonnes in the period from 2018 to 2022. The increasing trend in the 2017-2022 period is connected to increased utilization of rest raw material from the processing industry (herring, mackerel, whitefish etc.) and a good supply from dedicated fishing for feed production[28].

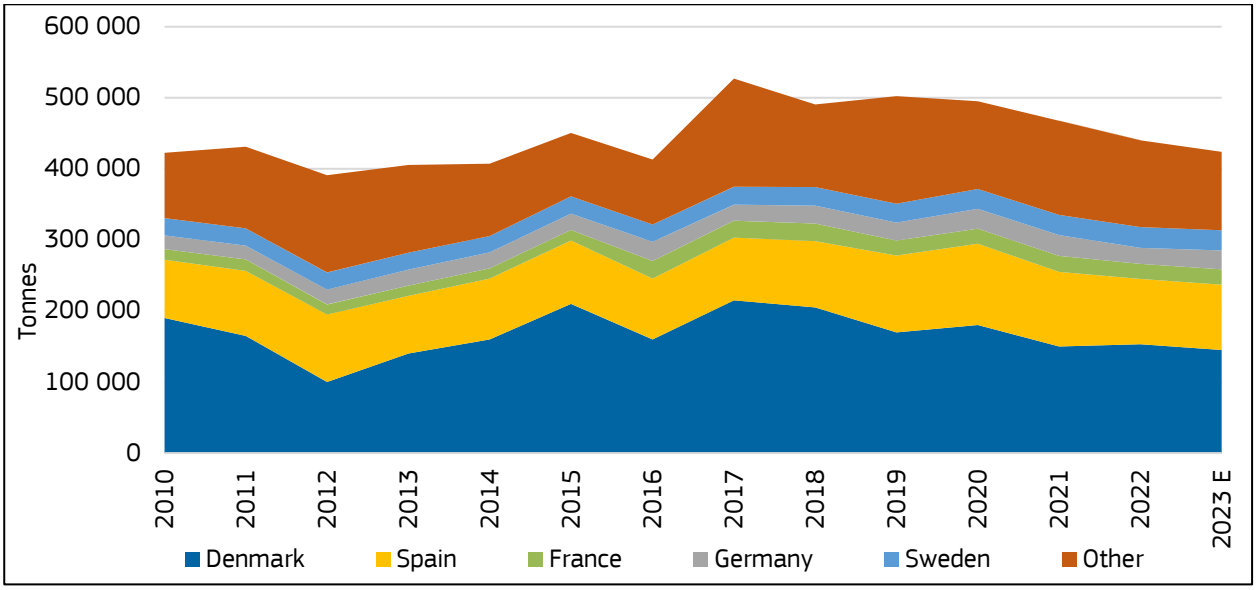
The largest EU producing country is Denmark accounting for around 35% of the total EU fishmeal output in 2023. The production in Denmark is mainly based on landings of small pelagic species like blue whiting, sandeels, Norway pout and sprat. Spain is the second largest producer constituting 22% of the total. Fishmeal and fish oil in Spain are produced from waste/trimmings from the processing industry and the production is increasing. In the 2020-2023 period, fishmeal production in Spain was well above the 10-year average.

[26] *The countries covered by the first sale data are: Belgium Denmark, Estonia, France, Latvia, Lithuania, Netherlands, Poland, Sweden, Ireland, Germany, Italy, Spain, Bulgaria, Greece*

[27] Eurostat (ESTAT) - EU monitor

[28] Source: Seafish (link: https://www.seafish.org/media/Publications/Seafish_FishmealandFish oil_FactsandFigures2018.pdf)

Figure 9: EU production of fishmeal

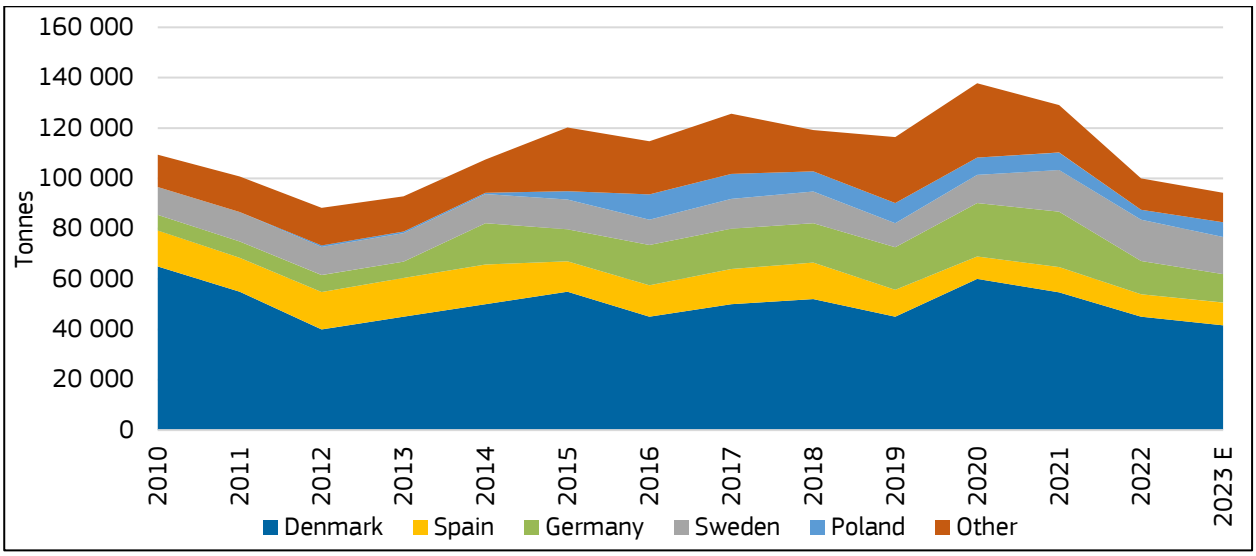


Sources: FAO, IFFO

Fish oil production has fluctuated from a minimum of 88 000 tonnes (2012) to a maximum of 137.000 tonnes (2020) over the years from 2010-2023. Average yearly production in the same period was 143.000 tonnes. In 2023, fish oil production is estimated to 95.000 tonnes, a 6% decrease from 2022.

Denmark is the largest producer accounting for 44% of total EU production in 2023. The primary sources for fish oil production are small pelagic species like sprat, sand-eels, blue whiting, and herring, as well as trimmings from the fish processing industry. The production is regulated by quotas, and the availability of raw materials depends on these quotas. Mainly due to decreased landings of sandeels and other species used for the purpose; the Danish fish oil production decreased 36% from 2010-2023.

Figure 10: EU production of fish oil



Sources: FAO, IFFO

5.1 European fishmeal and fish oil prices

With some local variations, the fishmeal and fish oil prices in Europe (EU, Norway, UK, Iceland) are highly correlated to the global prices, which are linked to the supply situation in South America (Peru and Chile) and demand from Asia (primarily China).

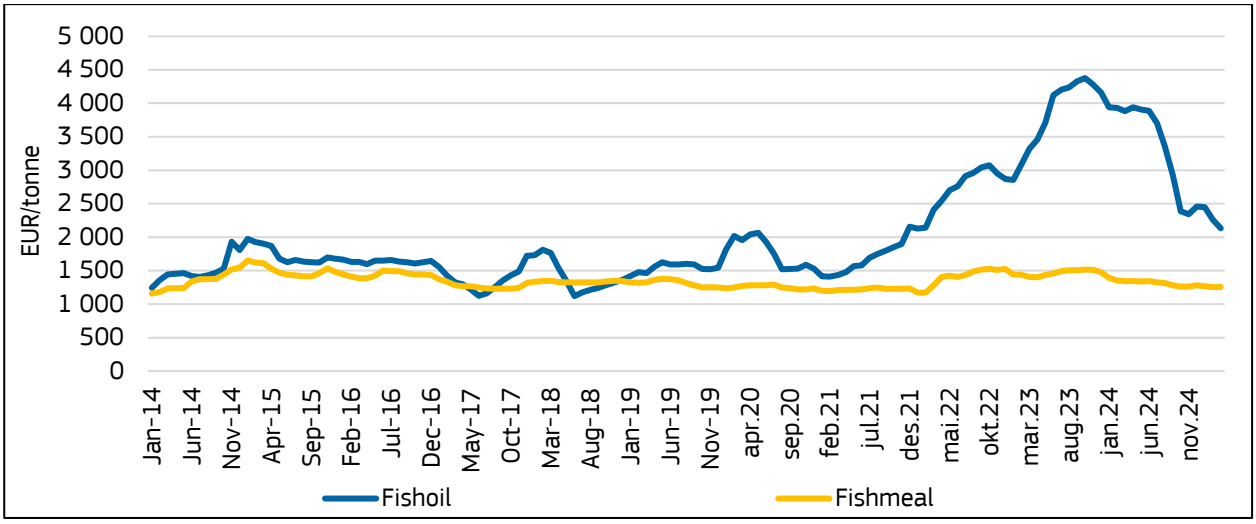
From January 2015 to January 2025, European fishmeal prices increased 9% (in real terms) to 1.266 EUR/tonne. During that period, the price level experienced several ups and downs in line with global price trends. A general higher price increase was seen for fish oil which increased 97% to 2 449 EUR/tonne in that period.

The growth in the prices of fishmeal and fish oil is driven by rising demand and reflects the high quality of the nutritional contribution that these materials supply to feed. The growth in the global aquaculture industry favours species consuming feed with low inclusion rates of marine ingredients (e.g., tilapia and Pangasius) or those species that receive high market prices (e.g., salmon and shrimp)[29].

Over the past two years, the prices of fishmeal and fish oil in Europe have shown notable fluctuations, influenced heavily by global market conditions, particularly production levels in South America. In 2023, fishmeal prices in Europe ranged from approximately 1.600 EUR/tonne to 1.730 EUR/tonne. Fish oil prices ranged from 3.200 EUR/tonne to above 5.000 EUR/tonne.

During 2024, the global supply situation improved, and prices started to decrease reaching around 1.500 EUR/tonne for fishmeal and 2.900 EUR/tonne for fish oil in January 2025. The first Anchovy season in Peru is in full progress with a quota of 3 million tonnes, the largest in many years, and the outlook for a good production season in Peru and stable prices throughout the year is good. At this point it seems that the total quota will be landed which will make 2025 a very good year so far.

Figure 11: Fishmeal and fish oil prices in europe



Source: Oilworld. Values are deflated by using the GDP deflator (base=2020)[30].

[29] Source: Seafood Source (link: https://www.seafoodsource.com/news/aquaculture/iffo-head-aquaculture-growth-portends-bright-profitable-future-for-marine-ingredients-industry)

[30] Eurostat (ESTAT) - EU monitor

5.2 EU fishmeal and fish oil industry

Industrial fisheries in the EU are conducted by both EU registered vessels and non-EU vessels landing in EU ports. The number of fishmeal plants has fallen the last 20 years. In particular, the Danish sector has seen a reduction from 20 plants to 3, situated in Esbjerg, Skagen and Hanstholm.

6 IMPORT – EXPORT

6.1 EU trade balance

6.1.1 Fishmeal

The EU can maintain a high level of fishmeal and fish oil consumption by sourcing it from other countries in addition to their own production, but the long trend is that the trade deficit (export *minus* import) has decreased. In the long term, during 2014-2024 EU imports of fishmeal decreased by 41% in volume and 30% in value to 199.000 tonnes and EUR 268 million, respectively. From its lowest level in 2017, imports increased in 2020 - 2024.

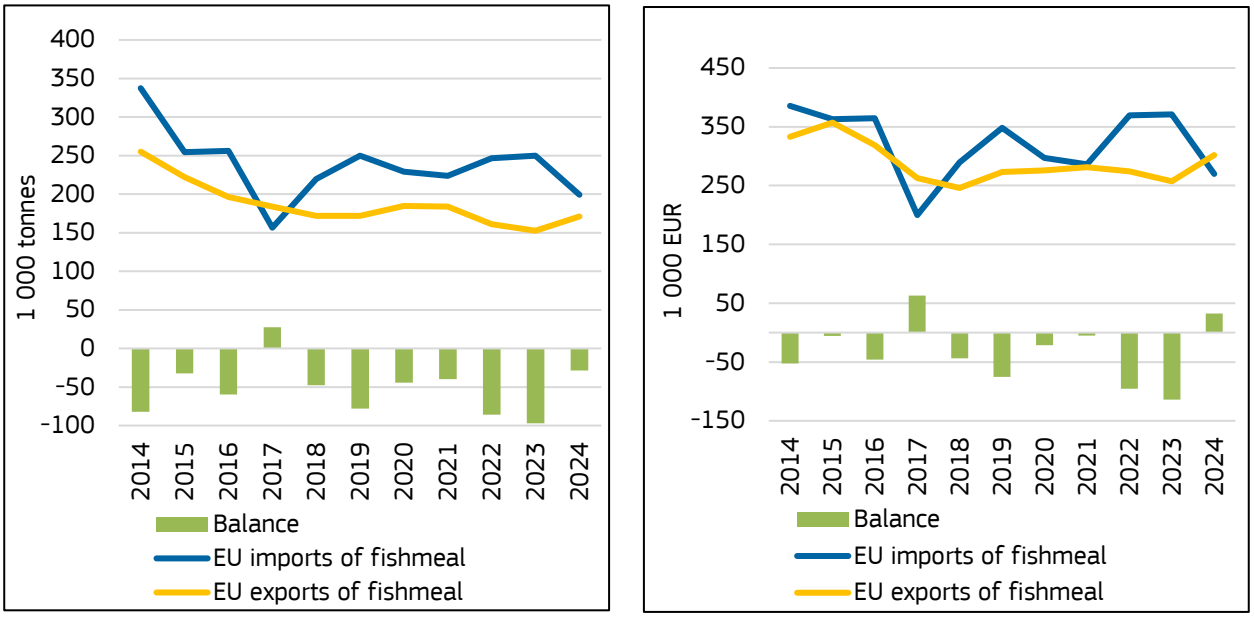
From 2014 to 2024, export volumes decreased by 33% and values decreased by 10% to 171.000 tonnes and EUR 300 million, respectively.

In 2024, the trade deficit was EUR +32 million and the difference between export and import volumes was 28.500 tonnes higher fishmeal import than export.

EU fishmeal consumption decreased by 9% from 2014 to 2024 to around 455.000 tonnes.[31]

[31]USDA,'Oilseeds and Products Annual', https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Oilseeds%20and%20Products%20Annual_Vienna_European%20Union_E42024-0009

Figure 12: EU27 fishmeal trade (volume left, value right)



Source: EUMOFA elaboration of Eurostat-COMEXT data. Values are deflated by using deflator (base=2020)[32].

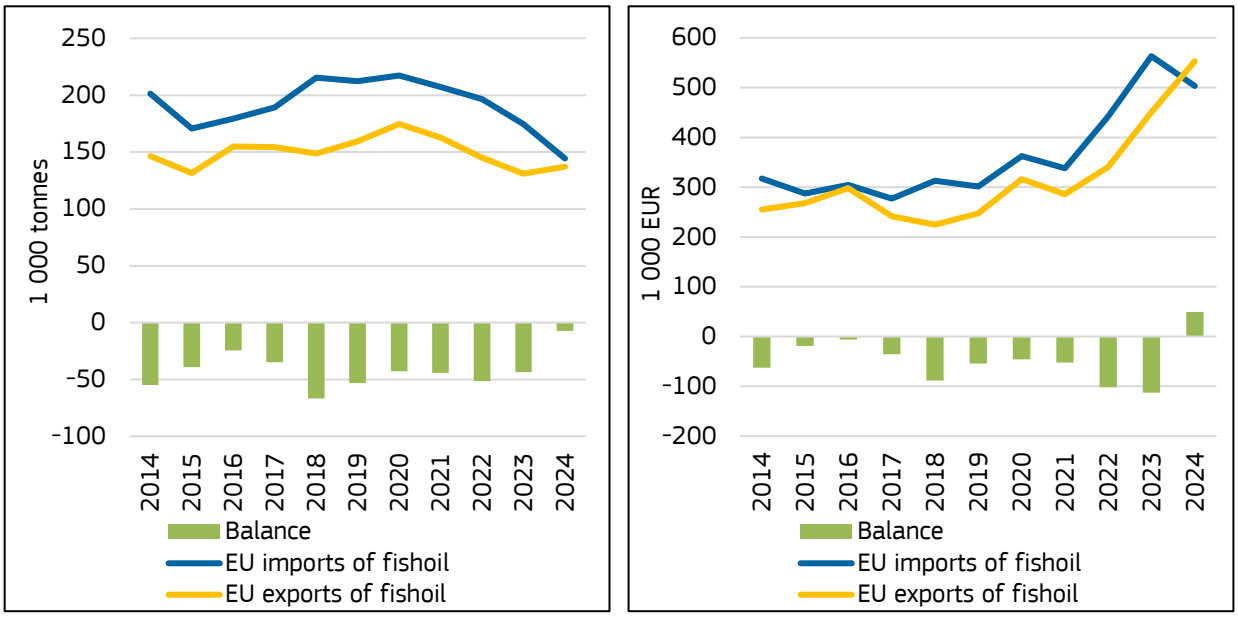
6.1.2 Fish oil

In the 2014-2024 period, EU imports of fish oil decreased by 28% in volume and increased by 58% in value to 144.000 tonnes and EUR 503 million. Export volume decreased by 6% and values increased by 117% to 137.000 tonnes and EUR 551 million in the same period.

The difference between export and import was on its highest in 2018 amounting to around -66.500 tonnes and EUR -88 million. In 2024, the balance between import and export was -7.000 tonnes in volume and EUR +50 million in terms of value.

[32] Eurostat (ESTAT) - EU monitor

Figure 13: EU27 fish oil trade (volume left, value right)



Source: EUMOFA elaboration of Eurostat-COMEXT data. Values are deflated by using deflator (base=2020)[33].

6.2 Imports

6.2.1 Fishmeal

Over the past 10 years, between 75% and 90% of the fishmeal import (both in terms of volume and value) to the EU were sourced from nine countries. In terms of volume, imports decreased by 41% from 2014 to 2024 and value decreased by 30%. In 2024, fishmeal imported by the EU amounted to 199.500 tonnes, a 20% decrease from 2023 and a 19% decrease from the 2022 level. In terms of value, fishmeal imports in 2024 decreased by 26% compared to 2023 and by 24% compared to 2022.

The three largest suppliers are Morocco, Norway and South Africa.

Peru was the main supplier 10 years ago accounting for 41% of the fishmeal volume and 45% of the value in 2014. By 2024, Peruvian supply to the EU was reduced by 93% in terms of both volume and value, accounting for only 5% of the volumes and 4% of the values.

Imports from Morocco increased by 101% in volume and 138% in value from 2014 to 2024, and Morocco increased its volume share from 9% in 2014 to 30% in 2024 and its value share from 8% to 27%.

Imports from South Africa increased by 200% in volume and by 191% in value from 2014 to 2024, and South Africa increased its volumes share from 3% to 15% and its value share from 3% to 13%.

Imports from Norway decreased by 25% in volume and increased by 85% in value from 2014 to 2024, and Norway increased its volume share from 11% to 14% and its value share from 7% to 19%.

Around 85% of fishmeal volumes imported to the EU is absorbed by Spain, Denmark, Greece and Germany in 2024. The same countries accounted for 84% of the import values.

[33] Eurostat (ESTAT) - EU monitor

Table 2: EU27 fishmeal imports by trade supplier (volume in tonnes)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Supplier	**Volume**	**Volume**	**Volume**	**Volume**	**Volume**	**Volume**	**Volume**	**Volume**	**Volume**	**Volume**	**Volume**
Morocco	29 500	35 100	50 600	28 200	28 000	39 500	46 600	49 400	56 600	62 900	59 400
South Africa	9 700	10 300	20 500	10 400	15 900	24 400	26 800	19 200	21 100	18 200	29 100
Norway	37 900	54 600	30 400	15 200	22 700	28 100	29 300	32 200	19 900	33 500	28 600
Chile	44 800	17 800	18 400	20 200	19 400	26 800	26 300	22 400	18 000	21 600	17 500
Faroe Islands	10 500	14 000	8 700	7 100	21 200	9 000	9 700	12 300	14 500	31 800	14 700
Peru	139 900	43 100	62 300	18 600	27 900	40 500	42 400	29 500	43 200	13 900	9 500
Iceland	11 400	42 700	10 900	22 700	22 700	7 300	3 500	24 700	28 900	27 000	8 400
Senegal	1 400	1 500	2 700	2 900	100	100	600	2 000	5 800	7 400	6 800
United Kingdom	3 100	2 000	2 600	9 600	9 900	9 000	13 800	8 900	4 600	8 200	5 800
Other	49 400	33 400	49 000	21 600	51 900	65 300	30 400	23 100	34 000	25 400	19 700
Total	**337 600**	**254 500**	**256 100**	**156 500**	**219 700**	**250 000**	**229 400**	**223 700**	**246 600**	**249 900**	**199 500**

Source EUMOFA elaboration of Eurostat-COMEXT data

Table 3: EU27 fishmeal imports by supplier (nominal value in 1 000 EUR)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Supplier	**Value**	**Value**	**Value**	**Value**	**Value**	**Value**	**Value**	**Value**	**Value**	**Value**	**Value**
Morocco	30 552	49 671	65 793	31 152	31 551	46 589	52 222	57 047	76 962	85 038	73 262
Norway	27 154	64 242	42 319	23 591	37 272	48 547	49 328	51 831	37 301	59 638	50 510
South Africa	12 287	14 170	28 814	12 505	20 498	30 721	31 859	24 433	32 373	26 572	35 977
Chile	55 783	29 795	28 901	27 180	27 803	38 262	34 691	29 975	27 181	32 685	26 253
Faroe Islands	13 388	20 801	13 383	9 285	30 714	14 769	13 534	15 405	25 018	50 362	21 073
Iceland	15 756	68 554	17 761	28 698	32 788	12 170	4 288	32 337	42 188	44 982	11 770
Peru	172 067	61 122	90 219	24 999	35 933	57 461	52 884	38 593	68 496	19 507	11 738
Senegal	1 296	1 786	3 231	2 921	113	151	928	1 807	6 458	9 217	8 053
United Kingdom	4 721	4 413	4 727	6 983	6 703	11 648	16 978	4 166	3 511	5 225	4 427
Other	52 557	48 315	69 660	32 508	66 108	88 146	40 557	30 732	49 834	37 735	26 739
Total	**385 561**	**362 870**	**364 810**	**199 821**	**289 483**	**348 464**	**297 268**	**286 327**	**369 321**	**370 960**	**269 803**

Source EUMOFA elaboration of Eurostat-COMEXT data

6.2.2 Fish oil

Over the past 10 years, 75-89% of the fish oil import volume and 66-80% of the value to EU were sourced from nine countries. In terms of volume, imports decreased 28% from 2014 to 2024 while import value increased by 64%, reflecting the general increasing price level of fish oil. In 2024, fish oil imported to the EU amounted to 144.300 tonnes, which was a 17% decrease from 2023. In terms of value, fish oil imports decreased by 12% from 2023 to EUR 507 million.

Peru, Norway, and USA are the top three suppliers in terms of value accounting for 51% of total import volume and 46% of the value in 2024.

Peru, the main supplier 10 years ago, accounted for 28% of the fish oil volume and 29% of the value back in 2014 but reduced its volume by 59% and increased its value by 27% in the 2014-2024 period. By 2024, Peru accounted for 16% of EU import volume and 22% of the value.

In the 2014 – 2024 period, imports from Norway decreased by 6% in volume and increased by 56% in value to 38.100 tonnes and EUR 112 million and Norway increased its volume share from 20% to 26% while its value share remained stable at 15%.

Imports from USA decreased by 52% in volume and increased by 18% in value to 12.500 tonnes and EUR 44 million from 2014 to 2024. The volume share decreased from 13% to 9% and the value share decreased from 12% to 9%.

In 2024, around 38% of fish oil imported in the EU is absorbed by Denmark, where 54.100 tonnes were sold in 2024. In Denmark, fish oil is used as animal nutrition and pet food, in aquaculture and as dietary supplements[34]. France and Spain follow, covering 17% and 16% respectively in 2024.

Table 4: EU27 fish oil imports by supplier (volume in tonnes)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Supplier	**Volume**	**Volume**	**Volume**	**Volume**	**Volume**	**Volume**	**Volume**	**Volume**	**Volume**	**Volume**	**Volume**
Norway	40 400	53 100	56 300	54 100	47 900	53 800	72 200	64 100	64 500	47 900	38 100
Peru	56 800	45 800	20 100	31 700	58 300	37 100	16 500	60 000	34 300	2 900	23 200
Chile	19 500	7 900	5 300	2 200	5 900	27 700	14 500	19 000	19 500	26 700	14 500
USA	26 200	13 200	39 900	25 200	25 000	14 800	18 400	10 100	3 700	800	12 500
Panama	2 300	3 600	2 500	6 300	6 800	11 800	7 500	4 400	100	16 200	7 000
Morocco	21 500	17 500	10 800	8 500	7 300	11 600	22 900	9 400	11 600	10 500	6 000
Oman	0	0	0	0	2 100	4 600	7 200	2 900	7 800	12 000	4 900
United Kingdom	6 700	5 800	6 700	9 200	10 300	14 000	12 200	7 500	5 400	4 500	4 900
Iceland	3 700	4 400	7 700	9 200	3 800	2 300	11 400	5 200	10 100	8 600	4 600
Other	24 100	19 000	29 900	42 700	48 100	34 800	34 400	24 400	39 500	44 400	28 600
Total	**201 200**	**170 300**	**179 200**	**189 100**	**215 500**	**212 500**	**217 200**	**207 000**	**196 500**	**174 500**	**144 300**

Source EUMOFA elaboration of Eurostat-COMEXT data The totals may differ from the sums in columns due to rounding

Table 5: EU27 FISH OIL IMPORTS BY SUPPLIER (nominal value in 1 000 EUR)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Supplier	**Value**	**Value**	**Value**	**Value**	**Value**	**Value**	**Value**	**Value**	**Value**	**Value**	**Value**
Peru	88 133	93.331	45.266	50.256	86.418	65.678	34.902	114.366	110.068	15.967	112.540
Norway	47 580	60.870	66.383	58.558	54.169	61.356	89.244	78.631	95.040	96.129	74.661
USA	37 043	27.068	69.103	36.839	30.397	19.823	30.437	16.621	11.580	3.138	44.156
Chile	24 937	11.434	5.445	2.432	9.066	41.896	27.881	26.330	45.376	99.454	43.608
Morocco	32 245	33.799	23.776	21.538	18.287	20.824	40.463	18.426	32.754	45.337	32.806
Panama	3 531	6.235	4.499	6.954	8.454	15.945	13.793	5.737	304	64.174	24.349
China	2 005	6.777	5.283	8.729	10.496	9.035	7.795	11.366	16.659	19.373	23.860
Oman	0	0	0	46	2.802	6.646	12.080	4.291	14.580	33.310	21.513
South Africa	1 849	0	4.135	3.056	5.117	2.341	6.098	5.732	21.988	22.729	21.007
Other	71 140	68.420	92.811	97.407	110.776	79.217	107.577	64.761	117.214	178.489	108.299
Total	**308 463**	**307 934**	**316 700**	**285 816**	**335 981**	**322 760**	**370 271**	**346 260**	**465 564**	**578 099**	**506 798**

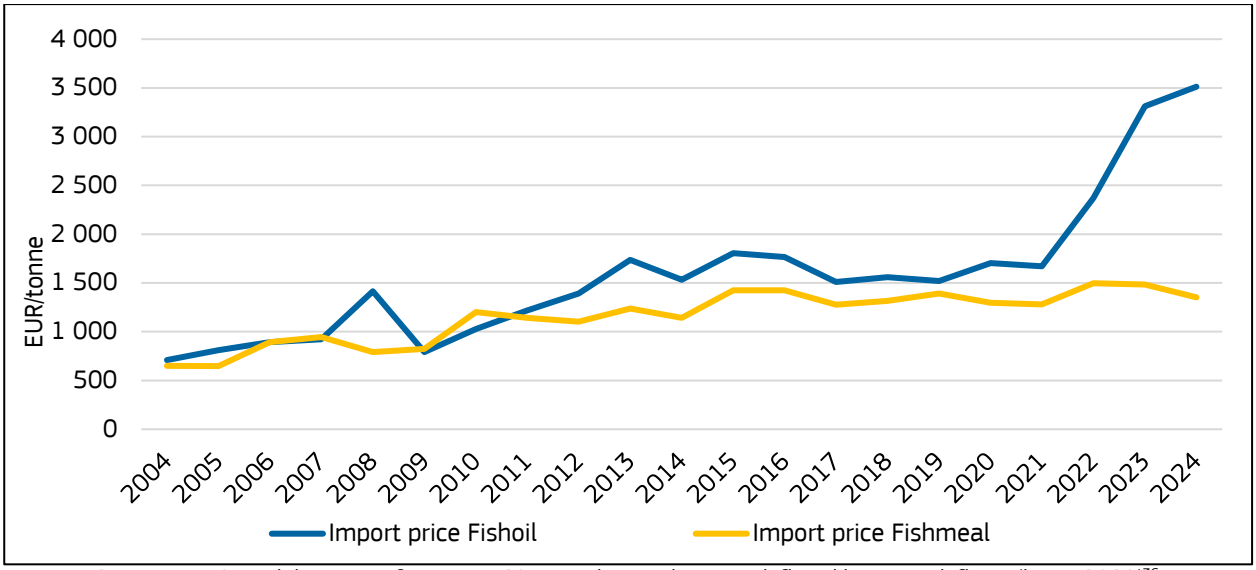
Source EUMOFA elaboration of Eurostat-COMEXT data

[34] Denmark Fish Oil Market: Industry Analysis and Forecast 2030

6.2.3 Import prices of fishmeal and fish oil

The average yearly import prices of fishmeal and fish oil to the EU showed growth over the past 15-20 years with some ups and downs in line with global price trends. Between 2004 and 2024, the yearly average fish oil price increased by 392% to 3.490 EUR/tonne and the average fishmeal price increased by 107% to 1.344 EUR/tonne. During 2022 to 2024 there was an unusual strong growth in fish oil prices driven by low supply from key producing countries (Peru) and strong demand from aquaculture feed producers. The global market dynamics including trade disruptions and economic factors played a role in driving up prices[35]. Prices has eased considerable throughout 2025 and is expected to remain on a reasonable level throughout the coming months due to a good resource situation in Peru and outlook for fishmeal and fish oil supply above average the coming months.

Figure 14: EU IMPORT PRICES OF FISHMEAL AND FISH OIL



Source: EUMOFA elaboration of Eurostat-COMEXT data. Values are deflated by using deflator (base=2020)[36].

6.2.4 Other non-food use products

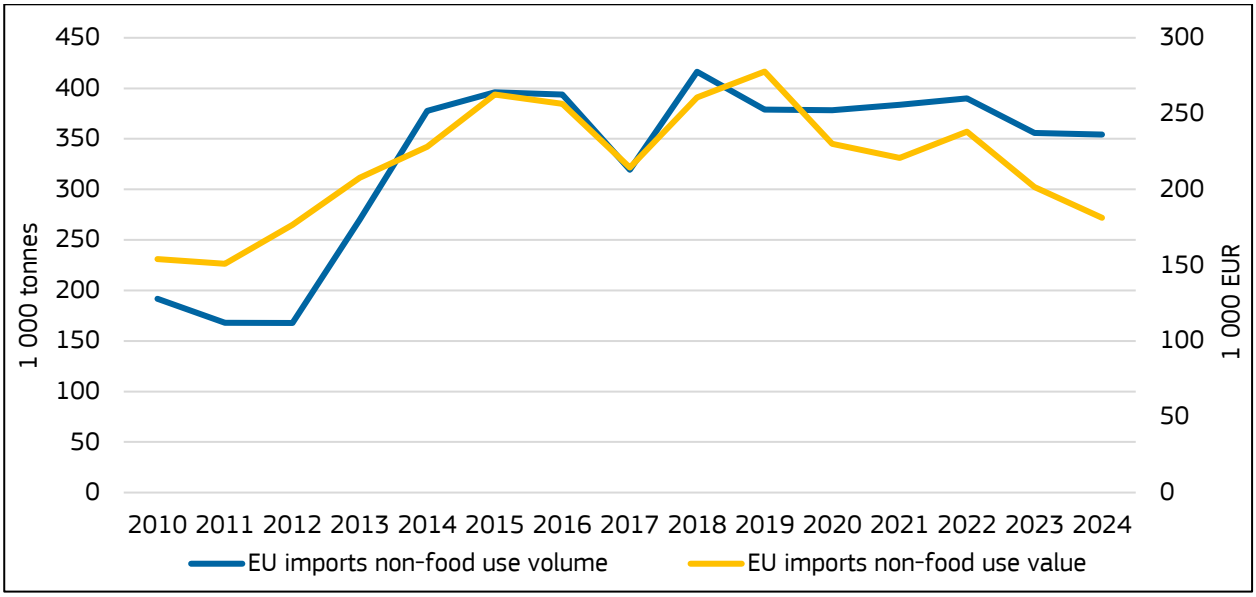
The EU import of other non-food use products mainly include fish waste, seaweeds and other algae, crustaceans and molluscs unfit for human consumption, marine mammal soluble and different types of live ornamental fish. In 2024, these products accounted for 99% of the volume and 97% of the value in the category “other non-food use”. The total import of other non-food uses products accounted for 51% of the volume (354.000 tonnes) and 19% (EUR 215 million) of the value in the non-food use category.

The EU import of other non-food use products varied between 416.000 (2018) tonnes at its highest to 167.000 (2012) tonnes at its lowest in the period from 2010-2024. During that period, import values increased by 17% to EUR 180 million.

In terms of volume, fish waste, seaweed and algae and different products of crustaceans and molluscs constituted 97% of the volume. A large share of the volume goes to Denmark (120.000 tonnes in 2024) and Ireland (125.000 tonnes in 2024) and is used in feed for the fur industry and other livestock.

[35] Fishmeal and fish oil | FAO GLOBFISH | Food and Agriculture Organization of the United Nations
[36] Eurostat (ESTAT) - EU monitor

Figure 15: EU27 imports of other non-food use products



Source: EUMOFA elaboration of Eurostat-COMEXT data. Values are deflated by using deflator (base=2020)[37].

6.3 Export

6.3.1 Fishmeal

During the past 10 years, between 74-92% of the fishmeal export volumes and between 70-93% of the values from EU were exported to nine countries.

In terms of volume, exports decreased by 33% from 2014 to 2024 and values decreased by 9% reflecting the general increasing price level on fishmeal. In 2024, fishmeal exports from the EU amounted to 171.000 tonnes, a 12% increase from 2023. In terms of value, fishmeal exports increased by 17% compared to 2023 reaching EUR 302 million.

The three largest destination countries in terms of value are Norway, the UK, and China together accounting for 76% of the volumes and 76% of the values in 2024.

Exports to Norway, the main destination country the past 10 years, decreased by 37% in volume and 17% in value from 2014 to 2024 accounting for 56% of the volumes and 57% of the values in 2014 and 52% of the volumes and 53% of values in 2024. From 2023 to 2024, export volumes increased by 8% and values increased by 18% to 89.200 tonnes and EUR 158 million.

Exports to the UK decreased by 38% in volume and 28% in value from 2014 to 2024, accounting for 19% of the volumes and 19% of the values in 2014 and 17% of the volumes and 15% of the values in 2024. One should have in mind that UK left the EU in January 2020 so data before and after Brexit is compared. From 2023 to 2024, export to the UK increased by 26% in volume and 21% in value to 29.300 tonnes and EUR 45 million.

Exports to China increased by 30% in volume and 123% in value from 2014 to 2024, accounting for 3% of the volumes and 4% of the values in 2014 and 7% of the volumes and 9% of the values in 2024. From 2023 to 2024, export volumes increased by 47% and values by 124% to 11.300 tonnes and EUR 26 million.

[37] Eurostat (ESTAT) - EU monitor

Table 6: EU27 fishmeal export by destination (volume in tonnes)

Supplier	2014 Volume	2015 Volume	2016 Volume	2017 Volume	2018 Volume	2019 Volume	2020 Volume	2021 Volume	2022 Volume	2023 Volume	2024 Volume
Norway	141 900	85 700	97 800	54 100	52 700	69 400	70 700	78 400	78 900	82 800	89 200
United Kingdom	47 500	40 100	40 500	36 000	39 100	47 800	57 400	40 400	23 000	23 200	29 300
China	8 700	16 600	9 700	22 700	13 900	7 700	6 400	10 900	10 200	7 700	11 300
Canada	5 400	5 700	7 100	8 400	8 100	11 300	10 000	11 400	9 100	7 600	8 400
Serbia	1 700	1 900	2 000	2 300	2 400	2 300	3 000	4 100	4 100	4 800	6 600
Australia	0	2 000	1 000	800	0	0	0	0	0	5 200	4 500
USA	1 400	2 800	4 600	3 000	6 100	3 600	3 300	3 800	7 100	4 500	4 300
Ukraine	1 600	1 100	1 600	2 500	2 700	3 000	2 300	2 700	2 100	2 400	2 800
Taiwan	3 400	8 100	6 400	10 600	7 500	4 400	6 700	6 800	4 800	1 300	1 700
Other	42 700	57 800	25 600	43 300	39 200	22 300	24 800	25 400	21 600	13 100	12 900
Total	**254 300**	**221 800**	**196 300**	**183 700**	**171 700**	**171 800**	**184 600**	**183 900**	**160 900**	**152 600**	**171 000**

Source EUMOFA elaboration of Eurostat-COMEXT data The totals may differ from the sums in columns due to rounding.

Table 7: EU27 fishmeal export by destination (nominal value in 1.000 EUR)

Supplier	2014 Value	2015 Value	2016 Value	2017 Value	2018 Value	2019 Value	2020 Value	2021 Value	2022 Value	2023 Value	2024 Value
Norway	189 980	131 745	157 183	78 310	75 067	114 488	105 553	123 596	137 641	138 009	159 317
United Kingdom	61 991	61 238	63 613	49 770	56 943	69 780	84 866	60 805	37 071	37 711	44 896
China	11 878	28 776	16 012	31 179	21 195	12 479	9 873	15 898	15 549	12 084	26 600
Canada	8 283	10 567	13 156	14 923	14 384	20 557	17 191	19 488	17 288	14 189	14 022
Serbia	2 502	3 193	3 525	3 537	3 809	3 654	4 768	6 997	7 648	10 452	13 395
USA	2 809	5 634	9 394	6 715	9 535	7 185	6 250	6 642	14 331	9 346	9 450
Australia	4	3 178	1 831	997	0	0	0	223	54	7 943	6 065
Ukraine	1 867	1 627	2 764	3 406	4 069	4 727	3 271	3 545	3 054	4 050	4 426
Thailand	1 370	2 976	2 439	3 852	2 353	4 042	3 848	3 780	4 563	3 847	4 190
Other	51 557	107 755	48 879	69 618	58 378	35 859	40 359	40 141	36 743	19 580	19 719
Total	**332 242**	**356 688**	**318 795**	**262 308**	**245 733**	**272 770**	**275 978**	**281 115**	**273 941**	**257 212**	**302 081**

Source EUMOFA elaboration of Eurostat-COMEXT data The totals may differ from the sums in columns due to rounding

6.3.2 Fish oil

Over the past 10 years, from 89% to 98% more of the fish oil export volumes and between 84-97% of the values from EU were exported to nine countries.

In terms of volume, exports decreased by 6% from 2014 to 2024 and values increased by 125% reflecting the general increasing price level on fish oil. In 2024, fish oil exports from the EU amounted to 137.000 tonnes, a 5% increase from 2023 and a 5% decrease compared to 2022. In terms of value, fish oil exports increased by 20% from 2023 and by 55% compared to 2022.

Exports to Norway, the main destination country the past years, decreased by 7% in volume and increased by 146% in value from 2014 to 2024 accounting for 78% of the volumes and 66% of the values in 2014 and 77% of the volumes and 72% of the values in 2024. From 2023 to 2024, export volumes to Norway increased by 10% and values increased by 23% to 105 900 tonnes and EUR 402 million.

Between 70% and 90% of the yearly EU exports is sourced from Denmark. France and Belgium are second and third each accounting for 8% of the export volumes to non-EU countries in 2024.

Table 8: EU27 fish oil export by destination (volume in tonnes)

Supplier	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume
Norway	113 400	92 300	114 100	113 700	118 600	128 000	125 100	109 900	99 700	96 400	105 900
United Kingdom	25 200	24 000	28 400	28 900	18 400	20 600	20 900	30 100	25 300	17 300	20 300
Iceland	300	0	0	300	500	300	1 800	4 000	4 000	3 600	3 000
USA	200	300	1 700	1 200	1 200	100	500	400	1 000	1 100	1 700
China	400	300	200	0	0	0	100	0	100	500	1 100
Switzerland	900	400	600	700	900	700	200	300	200	300	700
Serbia	100	100	200	200	300	400	600	1 000	900	1 200	600
Chile	0	0	0	0	900	800	3 500	200	1 400	500	500
Ukraine	0	0	0	0	0	100	200	200	200	200	500
Other	5 800	14 200	9 600	9 100	7 800	8 200	21 800	16 700	12 200	9 700	2 900
Total	**146 300**	**131 600**	**154 800**	**154 100**	**148 600**	**159 200**	**174 700**	**162 800**	**145 000**	**130 800**	**137 200**

Source EUMOFA elaboration of Eurostat-COMEXT data the totals may differ from the sums in columns due to rounding

Table 9: EU27 fish oil export by trade partner – in 1.000 EUR (nominal value)

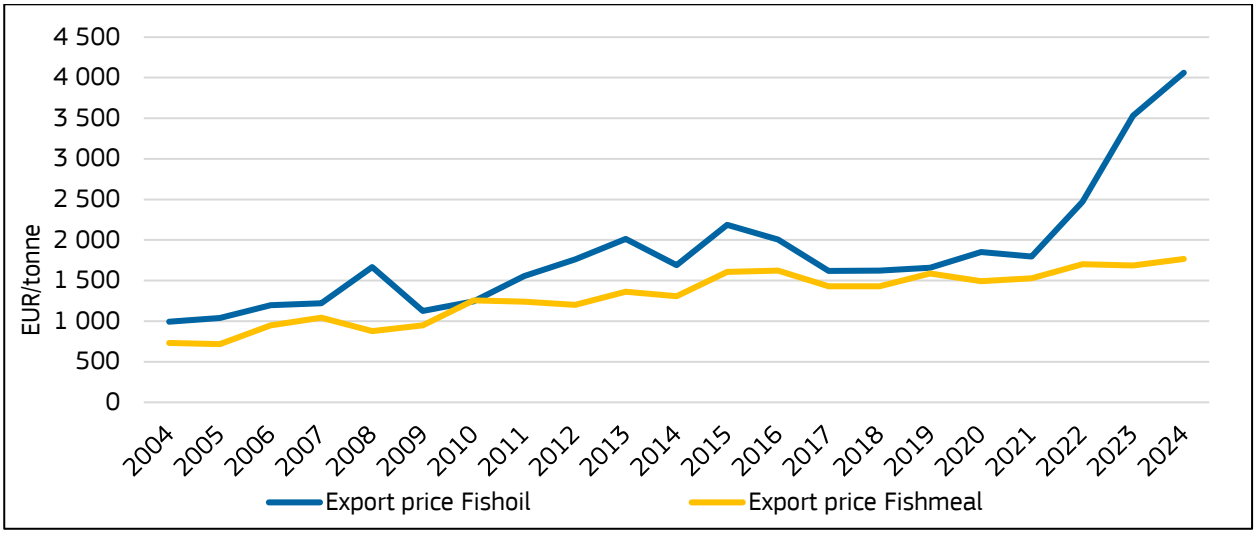
Supplier	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Norway	163 849	174 966	202 258	166 973	171 657	196 484	220 173	183 012	227 292	326 902	402 367
United Kingdom	45 209	56 522	61 155	50 492	33 998	37 026	39 248	50 311	69 414	63 131	82 328
Iceland	1 429	19	80	759	841	611	3 853	8 922	9 744	13 336	19 665
China	4 235	3 421	2 735	157	1 057	1 105	1 951	1 118	2 098	6 380	14 142
USA	2 080	1 442	4 232	3 844	3 723	1 700	1 545	1 252	3 129	3 479	10 189
Switzerland	5 160	1 059	3 227	3 056	4 536	3 980	1 884	3 416	1 932	2 611	6 059
Russia	1 570	3 332	3 941	3 547	4 135	4 794	5 031	4 949	5 102	3 398	2 755
Serbia	107	200	460	281	473	562	801	1 340	1 837	2 976	1 668
Canada	2 147	282	3 412	1 396	2 412	601	2 942	5 379	1 163	5 373	1 534
Other	21 657	46 206	29 054	18 862	18 252	17 569	45 935	32 860	36 751	34 971	16 037
Total	**247 443**	**287 450**	**310 555**	**249 367**	**241 084**	**264 433**	**323 364**	**292 559**	**358 464**	**462 558**	**556 743**

Source EUMOFA elaboration of Eurostat-COMEXT data The totals may differ from the sums in columns due to rounding

6.3.3 Export prices of fishmeal and fish oil

The average yearly export prices of fishmeal and fish oil from the EU to non-EU countries showed a strong growth the past 15-20 years with some ups and downs in line with global price trends. Between 2004 and 2024, the yearly average fish oil price increased by 306% to 4.061 EUR/tonne and the average fishmeal price increased by 139% to 1.767 EUR/tonne. A particular strong growth was seen throughout 2023 and 2024 due to very tight global supply caused by the drop in supply from Peru.

Figure 16: EU EXPORT PRICES OF FISHMEAL AND FISH OIL



Source: EUMOFA elaboration of Eurostat-COMEXT data, Values are deflated by using deflator (base=2020)[38].

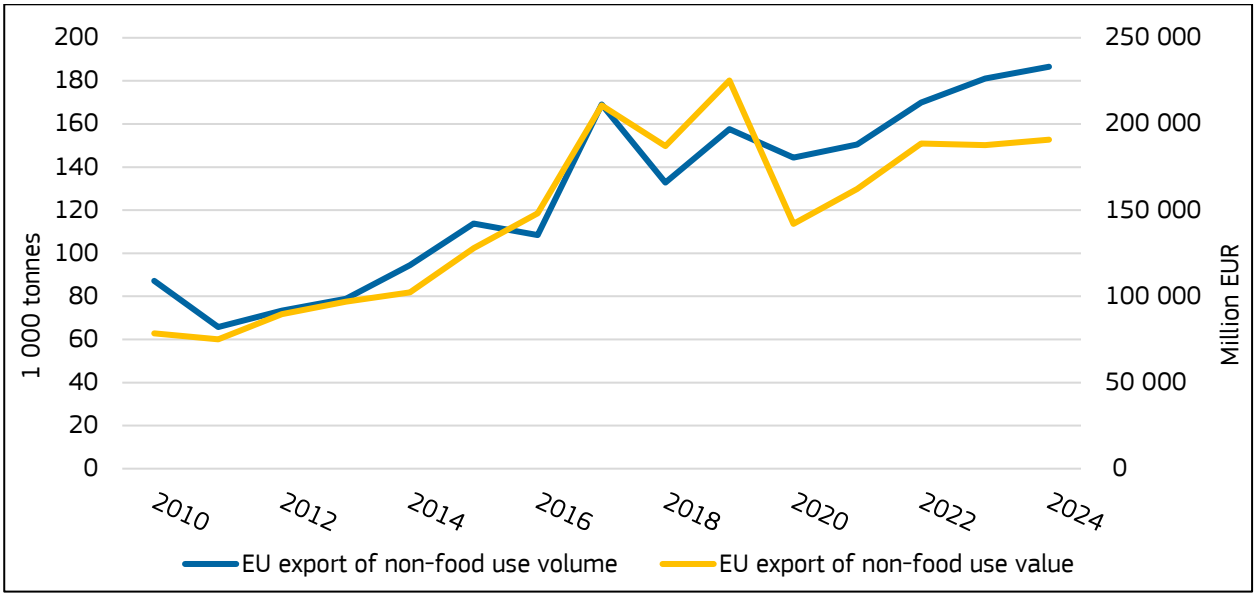
6.3.1 Other non-food use products

Exports of other non-food use products mainly comprise seaweeds and algae and products of fish or crustaceans, fish waste and marine mammal soluble. Total exports of other non-food use products accounted for 38% (186.000 tonnes) of the volumes and 18% (EUR 215 million) of the values in the non-food use category in 2024. Of this, around 44% of the volumes was fish or marine mammals soluble, 30% was products of fish or crustaceans, molluscs or other aquatic invertebrates unfit for human consumption, 16% Seaweeds and other algae, 7% was fish waste and the rest (3%) was live ornamental fish. The EU exports of other non-food use products varied between 66.000 tonnes (2011) at its lowest to 187.000 tonnes (2024) at its highest in the period from 2010-2024. During that period export values increased 143% to EUR 191 million.

In terms of volume, fish or marine mammal soluble, fish waste, seaweed and algae and different products of crustaceans and molluscs constituted between 99% and 100% of the volumes in 2024.

[38] Eurostat (ESTAT) - EU monitor

Figure 17: EU27 exports of other non-food use products



Source: EUMOFA elaboration of Eurostat-COMEXT data. Values are deflated by using deflator (base=2020)[39].

[39] Eurostat (ESTAT) - EU monitor

7 GROWTH, TRENDS, AND OUTLOOK

The future of fishmeal and fish oil production presents both promising opportunities and significant challenges.

The production of fishmeal and fish oil is projected to grow moderately in the coming years driven by better utilization of by-products from the fish processing industry, and development of other raw material sources like krill, algae, and insects[40]. The expanding aquaculture industry will be a key driver behind this growth. According to the OECD[41], the contribution of aquaculture to global fish production (i.e. excluding algae and seaweed) will continue to rise. In 2023, aquaculture production surpassed capture fisheries by nearly 6 million tonnes reaching 97,6 million tonnes. Capture fisheries exceeded 91,7 million tonnes.

By 2033, aquaculture production is projected to reach 112 million tonnes and is expected to account for around 55% of global fish production[42]. The largest potential for growth in fishmeal and fish oil lies in the increasing volumes of by-product from the aquaculture industry. If all fish by-products generated globally were fully utilized, it could result in an estimated production of between 1,44 and 2 million tons of fishmeal and 400.000 to 800.000 tonnes of fish oil[43]. On average, 180 to 250 kilograms of fishmeal and 50 to 100 kilograms of fish oil can be extracted from one ton of by-products. The remainder-between 65% and 77% is composed of water, non-usable solids, or secondary by-products, which can be repurposed for other industries, such as fertilizer production or energy generation[44].

The proportion of world fisheries reduced to fishmeal and fish oil is expected to remain stable over the coming 10-year period. However, the production of fishmeal and fish oil is expected to grow by 15% and 17% respectively by 2033, reaching 6,0 Mt and 1,7 Mt in product weight. This rise predominantly reflects the growing share of fishmeal and fish oil obtained from fish waste[45]. Exploring alternative sources such as krill, algae, and insects can also reduce dependency on traditional fish stocks and provide sustainable options for fishmeal and fish oil production. Insect-based feeds, such as black soldier fly (BSF) larvae, and microalgae have emerged as promising solutions. BSF larvae provide protein, lipids, and minerals, offering significant cost savings and enhanced growth in aquaculture species. Similarly, microalgae, rich in essential amino acids, lipids, vitamins, and pigments, supports digestibility and aquaculture sustainability while lowering production costs and environmental impacts[46].

Many factors can influence the evolution and dynamics of world fishmeal and fish oil production, consumption, and markets. These include external factors like climate and environmental conditions, fisheries management, trade policies etc.

Climate change presents major challenges for global capture fisheries. Increasing sea surface temperature will lead to changes in where fish are found as well as their size, growth rates and survival. Climate-driven geographical redistribution of fish stocks will be uneven across the globe. Higher latitude regions are expected to see an increase in catch potential while tropical regions could see a decrease. By 2030, almost one in four transboundary stocks are expected to move, shifting the distribution of fish stocks across maritime borders[47].

Climate-driven events (e.g. marine heatwaves, cyclones, droughts, floods) are increasing in frequency and severity, with impacts which are hard to predict, can occur quickly and have rapid and long-lasting

[40] https://www.iffo.com/product-based-fishmeals-growing-future-fishmeal-production
[41] Organisation for Economic Co-operation and Development
[42] Global Search Page | OECD
[43] Room for Growth in Global fishmeal and fish oil production
[44] Room for Growth in Global fishmeal and fish oil production
[45] Global Search Page | OECD
[46] Waste not, want not: unlocking the innovative potential of organic and eco-friendly insect and algal resources for future aquaculture | Aquaculture International
[47] OECD Review of Fisheries 2025 | OECD

impacts on both fisheries and aquaculture. Climate impacts and the outcomes of the adaptation strategies implemented to address them introduce significant sources of uncertainty to the projections.

Overfishing of small pelagic species (anchovy, sardines etc.), which are primary sources, poses a threat to marine ecosystems and thereby the supply situation. The variability in fish catches due to changing ocean conditions lead to an unpredictable supply of raw material and causes price fluctuations which are challenging for the feed producers and end consumers[48].

The demand for high-quality protein and omega-3 fatty acids in aquaculture, pet food, and dietary supplements continue to drive market growth in this industry. With the expected growth in global aquaculture production, the need for high-quality feed is driving innovations in fishmeal and fish oil formulas stating the importance of these products in diets for farmed fish. The pet food industry is also growing and has included fishmeal and fish oil in the feed to improve the health for pets. The pharmaceutical industry and health-conscious consumers are driving demand for omega-3 rich products from fish oil.

Navigating the challenges while leveraging opportunities will be key to the future success of the fishmeal and fish oil industry. Innovations in by-product utilization and possible new protein sources (insects, algae etc.) will contribute to ensuring market growth[49]. .

[48] Fishmeal and Fish oil Market Size | Industry Trends [2025-2033]
[49] *Ibidem*

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