European Commission

THE EU FISH MARKET

2023 EDITION

HIGHLIGHTS
THE EU IN THE WORLD
MARKET SUPPLY
CONSUMPTION
IMPORT – EXPORT
LANDINGS IN THE EU
AQUACULTURE

EUMOFA

European Market Observatory for Fisheries and Aquaculture Products

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Scope

"The EU fish market" aims at providing an economic description of the whole European fisheries and aquaculture industry. It replies to questions such as what is produced/exported/imported, when and where, what is consumed, by whom and what are the main trends.

A comparative analysis allows to assess the performance of fishery and aquaculture products in the EU market compared with other food products. In this report, value and price variations for periods longer than five years are analysed by deflating values using the GDP deflator (base=2015); for shorter periods, nominal value and price variations are analysed.

This publication is one of the services delivered by the European Market Observatory for Fisheries and Aquaculture Products (EUMOFA).

This edition is based on data available as of September 2023. The analyses included in this report do not take into account possible updates occurred in the sources used after this date.

More detailed and complementary data are available in the EUMOFA database: by species, place of sale, Member State, partner country. Data are updated daily.

EUMOFA, developed by the European Commission, represents one of the tools of the Market Policy in the framework of the Common Fisheries Policy. [Regulation (EU) No 1379/2013 on the common organisation of the markets in fishery and aquaculture products, Article 42].

As a market intelligence tool, EUMOFA provides regular weekly indicators, monthly market trends and annual structural data along the supply chain.

The database is based on data provided and validated by Member States and European institutions. It is available in all 24 EU languages.

EUMOFA website, publicly available as from April 2013, can be accessed at www.eumofa.eu.

Foreword

Welcome to the 2023 edition of the EU Fish Market report.

In recent years, the European fisheries and aquaculture sector has faced a succession of crises, ranging from the covid-19 pandemic to Russia's unjust and illegal war in Ukraine. The impact of these crises was often severe, particularly affecting energy and production costs and, ultimately, inflation.

But despite these challenges, the EU remains a leading global player. The EU's internal market is the world's second largest market of fishery and aquaculture products in terms of trade, after China. In terms of consumption, it is the world's third largest market, behind only China and Indonesia.

The EU producers and processors can draw on centuries of tradition and many lessons learned. This knowledge, combined with innovative thinking and the sustainable management of our resources, allows them to supply the market with a wide variety of products of the highest quality. At the same time, however, our appetite for seafood makes us also extremely dependent on imports from non-EU countries. This is especially the case with salmon, cod or shrimp.

The EU Fish Market report, developed by the European Union Market Observatory for Fisheries and Aquaculture Products (EUMOFA), details everything you need to know about the production, consumption and trade of fishery and aquaculture products in the EU and globally, per species or by Member State.

This report goes well beyond market data. It is a companion to help you understand the complexities and interdependencies of this fascinating sector – a sector that employs tens of thousands of people across the EU and is vital for our long-term food security.

I wish you insightful reading.

***Virginijus Sinkevičius**, EU Commissioner for Environment, Oceans and Fisheries*

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METHODOLOGICAL BACKGROUND

The present report is mainly based on consolidated and exhaustive volume and value data collected through different sources and published by EUMOFA at all stages of the supply chain. Within EUMOFA, data on fisheries and aquaculture products are harmonised into "Main commercial species", each referring to "Commodity groups", in order to allow comparisons along the different supply chain stages. At the following links, users can view and download:

- The list of EUMOFA Main commercial species and Commodity groups

  http://www.eumofa.eu/documents/20178/24415/Metadata+2+-+DM+-+Annex%2B1_%2BList%2Bof%2BMCS%2Band%2BCG.pdf/0d849918-162a-4d1a-818c-9edcbb4edfd2

- The correlation table used for harmonizing data on fish species at ERS[1] code level (data on catches, landings, aquaculture production) to the EUMOFA standards

  http://www.eumofa.eu/documents/20178/24415/Metadata+2+-+DM+-+Annex+3+Corr+of+MCS_CG_ERS.PDF/1615c124-b21b-4bff-880d-a1057f88563d

- The correlation table used for harmonizing data at CN-8 code level[2] (data on EU trade) to the EUMOFA standards

  http://www.eumofa.eu/documents/20178/24415/Metadata+2+-+DM+-+Annex+4+Corr+CN8-CG-MCS+%282002+-+2014%29.pdf/ae431f8e-9246-4c3a-a143-2b740a860291

MAIN SOURCES OF DATA

EUMOFA, EUROSTAT, national administrations of the EU, FAO, OECD, Federation of European Aquaculture Producers (FEAP), Europanel/Kantar/GFK, Trade Data Monitor (TDM) and Euromonitor. The sections below in this Methodological background provide detailed information on the sources used.

CATCHES

Catches include all products fished by a country's fleet in any fishing area (both marine and inland waters), independently from the area of landing/selling. Data excludes marine mammals, crocodiles, corals, pearls, mother-of-pearl, shells, and sponges. Catches data are provided in this report in live weight equivalent.
The main sources of data on catches are FAO (for non-EU countries) and Eurostat (for EU Member States, online data code: fish_ca_main, extraction made on 5th June 2023). In line with Eurostat's guidelines on the production and dissemination of statistical data by Commission services after the UK withdrawal from the EU, since the most recent reference period is year 2021, UK is excluded from the EU aggregations of each year. For the purpose of properly conducting an analysis on EU-27 catches, since Eurostat does not provide data on catches in inland waters, EUMOFA has integrated EU data with data collected from the FAO database.

1 The acronym "ERS" refers to the Electronic Reporting System established by Council Regulation (EU) N° 1966/2006.
2 The acronym "CN" refers to the Combined Nomenclature, i.e. the goods classification used within the EU for the purposes of foreign trade statistics. This classification is based on the Harmonised Commodity Description and Coding System (HS) managed by the World Customs Organisation (WCO). The HS uses a six-digit numerical code for the coding of products and the Combined Nomenclature is further breaking down the coding into an eighth digit level according to EU needs.

In addition, in case data for some species were confidential on Eurostat, figures from FAO were used, if available. The list below reports such instances (for all other instances not reported in this list, only Eurostat data were used):

- Denmark: 2018-2019 data on Northern prawn.
- Greece: 2016, 2017, and 2018 data on several species.
- Ireland: 2018-2019-2020-2021 data on several species, as well as 2010-2011 data on horse mackerels other than Atlantic horse mackerel.
- Latvia: 2021 data on cod and 2017, 2018 and 2019 data on several species.

Moreover, other issues to consider are the following:

- data include FAO forecasts for most of non-EU and EU countries.
- for some EU Member States, Eurostat data include estimates and provisional figures, as below listed:
    - Bulgaria: 2017 and 2020 data are national estimates.
    - Denmark: data on Northern prawn are national estimates for 2017, while those of 2021 are provisional.
    - Germany: 2017 data for almost all species are provisional.
    - Ireland: 2017 data on saithe, haddock and "anglerfishes nei" are national estimates.
    - France: 2018-2019-2020-2021 data are provisional.
    - Italy: 2018 data, 2020 data, and most of 2019 data are provisional.
    - Romania: 2017 data are national estimates.
    - Finland: 2016 and 2017 data are national estimates, and 2020-2021 data are provisional.

AQUACULTURE

The source of data on aquaculture production in non-EU countries is FAO, most of them representing estimates or forecasts. For EU countries, the main source used by EUMOFA for aquaculture data is Eurostat. As aquaculture data are available up to 2021, in line with Eurostat's guidelines on the production and dissemination of statistical data by Commission services after the UK withdrawal from the EU, UK is excluded from the EU aggregations of each year.

For the purpose of properly conducting an analysis on aquaculture production in the EU, in some instances EUMOFA has integrated Eurostat EU data (online data code: fish_aq2a, extraction made on 18th July 2023) with data deriving from FAO, national sources and sector associations. The list below reports such instances, as well as those instances for which data are estimates or provisional figures. For all other instances not reported in this list, only Eurostat data were used.

- Belgium

  2016 Eurostat confidential data were integrated with FAO estimates.
  2017-2021 data were collected from FAO.

- Bulgaria

  2011 data on catfish and the grouping "other freshwater fish" were collected from FAO.
  2013 and 2014 data on mussel Mytilus spp. and pike were collected from FAO.
  2014 data on freshwater crayfish were collected from FAO.
  2016-2017 values for seaweed and eel were collected from FAO.
  2018 data for seaweed were collected from FAO.
  2019-2020 data for oyster were collected from FAO.
  2020 data on the grouping "other freshwater fish" were integrated with

figures from FAO.

- Czechia

  2011 data on freshwater catfish and the grouping "other freshwater fish" were collected from FAO.
  2020 data on freshwater catfish were integrated with figures from FAO.

- Denmark

  Data on salmon were collected from FAO.
  2013 data on turbot, char, sturgeon, and pike-perch were collected from FAO.
  2015-2018 data for seaweed were collected from FAO, those of 2015 and 2016 being forecasts.
  2014, 2015 and 2016 Eurostat confidential data were integrated with figures from FAO (those on eel for 2016 being forecasts).
  2011, 2017 and 2018 data for pike-perch were collected from FAO.
  2017-2018 data for the groupings "other salmonids" and "other freshwater fish" were collected from FAO.
  2018 data on eel are FAO forecasts.
  2019 and 2021 data on values were integrated with figures from FAO, those on 2021 being estimates.
  2020 data on most of the species were integrated with figures from FAO.

- Germany

  Data on carp for the years 2011-2012 and 2014, 2015, 2016 and 2018 were collected from FAO.
  2011-2021 Eurostat confidential data for some species were integrated with figures from FAO, those of oyster and those on the value of tilapia being estimates.
  2011 Eurostat confidential data on the grouping "other freshwater fish" were integrated with figures from FAO.
  2011 Eurostat confidential data for trout, pike, pike-perch and eel were integrated with figures collected from the national source (DESTATIS).

- Estonia

  2012, 2014 and 2015 Eurostat confidential data were integrated with figures from FAO.
  2016-2019 Eurostat confidential data on the grouping "other freshwater fish" were integrated with figures from FAO.
  2019 Eurostat confidential data on trout were integrated with figures from FAO.
  2021 Eurostat confidential data on sturgeon were integrated with figures from FAO.
  2020-2021 data for the grouping "other freshwater fish" were collected from FAO.

- Ireland

  For 2014, values are National estimates available in Eurostat except from scallop and the grouping "Other molluscs and aquatic invertebrates", whose confidential values were integrated with figures from FAO.
  For 2015, Eurostat confidential values of the grouping "Other molluscs and aquatic invertebrates" were integrated with figures from FAO.
  2016 data on the grouping "other molluscs and aquatic invertebrates" were collected from FAO.
  2017-2018 data are National estimates available in Eurostat.
  2020 data for molluscs were integrated with figures from FAO.

- Greece

  2013 Eurostat confidential data were integrated with figures from FAO.
  2015 and 2016 Eurostat confidential data on the grouping “other freshwater fish” were integrated with figures from FAO.
  2017 data are National provisional figures available in Eurostat.

- Spain

  2019-2020 data on most of the species were integrated with figures from FAO.

- France

  For sole, data are FAO forecasts.
  For salmon, 2015-2017 data are FAO forecasts. 2010-2014 data were integrated with figures provided by FEAP and respective values were estimated by multiplying the volumes to its 2008-unit price, as available in Eurostat.
  For turbot, 2015-2017 data are FAO forecasts. 2009-2014 data were integrated with figures provided by FEAP and respective values were estimated by multiplying the volumes to its 2008-unit price, as available in Eurostat.
  2012-2013 and 2016-2017 data on carp, catfish and other freshwater fish include National estimates available in Eurostat.
  2018-2019 data on values of carp, pike, pike-perch and on the grouping “other freshwater fish” include National estimates available in Eurostat.
  2019-2020 data for abalone are FAO’s forecasts.

- Croatia

  2020 data the grouping “other freshwater fish” were integrated with figures from FAO.
  2021 data were collected from FAO.

- Hungary

  2016 data for the grouping “other freshwater fish” were collected from FAO.
  2020 data for freshwater catfish were integrated with figures from FAO.

- Italy

  2015 data are National estimates and forecasts available in Eurostat.
  2017 data on grooved carpet shell are FAO forecasts.
  2020 data for warmwater shrimps were collected from FAO.

- Latvia

  2014-2015 and 2017-2018 Eurostat confidential data were integrated with figures from FAO.
  2019 data for pike and pike-perch were collected from FAO.

- Lithuania

  2019-2020 data for pike-perch were collected from FAO.

- Netherlands

  For eel, freshwater catfish and the grouping “other marine fish”, 2012, 2015, 2018 and 2019 values are National estimates available in Eurostat.

For mussel, data of 2012 and 2014-2016 are National estimates available in Eurostat.
For turbot, 2012 data are National estimates available in Eurostat, and data of 2008-2010 and 2013-2017 are FAO forecasts.
For pike-perch, all data are FAO forecasts.
2019-2020 data on most of the species were integrated with figures from FAO.

- Austria

2011-2019 Eurostat confidential data were integrated with figures from FAO.

- Poland

2011 data for freshwater crayfish, pike, trout, salmon and other freshwater fish are National provisional figures available in Eurostat.
2016 data on tilapia are FAO forecasts.
2019-2020 data on the grouping "other freshwater fish" were integrated with FAO's forecasts.
2021 data were collected from FAO, most of them being estimates.

- Portugal

2013 and 2014 data on clam are National estimates available in Eurostat.
For 2015, data on trout and clam are National estimates available in Eurostat while data on all other species are National provisional figures available in Eurostat.
2015-2018 data on sea mussels were collected from FAO.
2020 data on the grouping "other marine fish" were integrated with figures from FAO.

- Romania

2015 data are National estimates available in Eurostat.
For turbot, 2015-2016 data are FAO forecasts.
2019 data are National estimates available in Eurostat.
2020 data on freshwater catfish and on the grouping "other freshwater fish" were integrated with FAO's forecasts.

- Slovenia

2012 data on mussel Mytilus spp. were collected from FAO (the latter being forecasts).
2013- 2016 Eurostat confidential data were integrated with figures from FAO.
2016 and 2018 data on European seabass, and 2015, 2017 and 2018 data on clam are FAO forecasts.
2017 and 2019 Eurostat confidential data on the groupings "other freshwater fish" and "other salmonids" were integrated with figures from FAO, and those on European seabass with FAO forecasts.
2020 data on European seabass and on the groupings "other marine fish" and "other freshwater fish" were integrated with FAO's forecasts.

- Slovakia

For 2019, data on pike and pike-perch are FAO forecasts. In addition, data on the following species were integrated with FAO forecasts: carp, freshwater catfish, trout.
2020 data for most of the species were integrated with FAO's forecasts.
2021 data for most of the species were integrated with FAO's estimates, including Eurostat confidential data on catfish.

- Sweden

  Salmon data 2013, 2014 and 2016 were collected from FAO.
  2019 Eurostat confidential data on mussel, and on the groupings "other freshwater fish" and "other salmonids" were integrated with FAO's forecasts.
  2021 Eurostat confidential data on the value of rainbow trout and arctic char were integrated with FAO's estimates.

SUPPLY BALANCE SHEET

The supply balance is a proxy that allows to follow the evolutions of the EU internal supply of fishery and aquaculture products destined for human consumption and their "apparent consumption". In the light of this, the supply balance and apparent consumption should be used in relative terms (e.g. analysing trends) rather than in absolute terms. The supply balance is built on the basis of the following equation, calculated in live weight equivalent:

(catches + aquaculture production+ imports) – exports

=

apparent consumption

Data included in the supply balance available in EUMOFA are broken down by commodity group and main commercial species. Possible discrepancies in totals are due to rounding. The sources used are as follows:

- Catches: products caught by fishing vessels of the EU Member States. Amounts of catches not destined for human consumption were estimated using proxies based on destination use of landings (as available in EUROSTAT). Catches data are available in live weight equivalent. Source: EUROSTAT for catches in marine areas (reference dataset: fish_ca_main), integrated with FAO for catches in inland areas.

- Aquaculture production: products farmed in the EU Member States. Aquaculture data are available in live weight equivalent. Source: EUROSTAT (reference dataset: fish_aq2a). The data cover the aquaculture sector from the point of view of farm-gate production available for human consumption. An exception from the "for human consumption" criteria is being made since the reference year 2016 for aquatic plants, which are included regardless of their final use. To be noted, however, that seaweed in the EU is almost exclusively harvested. Data are integrated with data from FAO, FEAP and national administrations (for sources' details by year and country, please refer to the related section of this methodological background).

- Imports - Exports: fishery and aquaculture products imported/exported by the EU Member States from/to non-EU countries. Non-food use products are not included. Import and export data are available in net weight. For the supply balance purposes, net weight is converted into live weight equivalent in order to have a harmonized supply balance sheet (for conversion to live weight equivalent, please refer to the specific section below in this methodological background). Through the assessment of origin of imports and exports in terms of production method, it is possible to estimate the share of imports/exports originating from aquaculture and captures by making use of FAO data (for the method applied, please refer to the specific section below in this methodological background). Source: EUROSTAT–COMEXT (reference dataset: DS-045409).

- Apparent consumption (total and per capita): amount of fishery and aquaculture products estimated to be consumed in the EU. Per capita consumption indicates the amount by each individual person in the EU.

CONVERSION OF NET WEIGHT INTO LIVE WEIGHT EQUIVALENT

Since EUROSTAT provides production data in live weight, import/export net volumes are converted by using conversion factors (CF) for the purpose of building a harmonized supply balance sheet.
Example of CF for the item whose CN8 code is 03044410: this item corresponds to "Fresh or chilled fillets of cod '*Gadus morhua, Gadus ogac, Gadus macrocephalus'* and of fish of the species *"Boreogadus saida"*". The CF is set at 2,85, representing an average of those found for skinned and boned fillets for this species in EUROSTAT and FAO publications.
For the complete list of CFs used for the EUMOFA purposes, please refer to the Metadata published within the EUMOFA website at the link http://www.eumofa.eu/documents/20178/24415/Metadata+2+-+DM+-+Annex+7+CF+per+CN8_%252707-%252714.pdf/7e98ac0c-a8cc-4223-9114-af64ab670532.

ASSESSMENT OF ORIGIN OF IMPORTS AND EXPORTS IN TERMS OF PRODUCTION METHOD

The objective of the assessment of origin in terms of production methods is to quantify the role of aquaculture in the EU supply balance analysis. For each EU Member State, on the basis of the total volumes of extra-EU imports and extra-EU exports, the production methods of the countries of origin of imports and destination of exports is assessed, averaging the latest three years of production volumes in terms of catches and aquaculture.
Further assessment provides an estimate of a weighted average share of aquaculture in the total production (aquaculture + capture) and it is expressed as a coefficient.
Through this proxy, the origin of imports and destinations of exports in terms of production methods is determined, i.e. if imports/exports of a given EU Member State derive from farming or fishery activities.

EXPENDITURE AND PRICES FOR FISHERY AND AQUACULTURE PRODUCTS

EU expenditure data are provided by EUROSTAT. These data are compiled basing on a common methodology elaborated within the "EUROSTAT – OECD PPP Programme" (http://www.oecd.org/std/prices-ppp/eurostat-oecdmethodologicalmanualonpurchasingpowerparitiesppps.htm).
In "The EU fish market" report, the "Nominal expenditure (in euro)" and the "Nominal expenditure per inhabitant (in euro)" have been used. The "expenditure" is taken as a component of the Gross Domestic Product and concerns the final consumption expenditures on goods and services consumed by individual households.
Expenditure is provided in Purchasing Power Parities (PPPs) which are spatial deflators and currency converters that eliminate the effects of the differences in price levels between Member States/countries, thus allowing volume comparisons of GDP components and comparisons of price levels. For the countries outside the Euro-zone, Price Level Indices (PLIs) are used for harmonising different currencies in a single currency (euro in this case). PLIs are obtained as ratios between PPPs and current nominal exchange rates, therefore, PPPs and PLIs values coincide in the Euro-zone countries.
Price indices refer to the Harmonised Index of Consumer Prices (HICP) which gives comparable measures of inflation. It is an economic indicator that measures the change over time of the prices of consumer goods and services acquired by households. In other words, it is a set of consumer price indices calculated according

to a harmonised approach and a set of definitions as laid down in Regulations and recommendations.

"Food" is an aggregate of products, corresponding to COICOP 01.1 (https://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL&StrNom=HICP_2019&StrLanguageCode=EN&IntPcKey=43907206&StrLayoutCode=HIERARCHIC). It includes all food products purchased for consumption at home. In this report, analyses are provided for the following items belonging to the "Food" aggregate:

- "Fishery and aquaculture products", corresponding to COICOP 01.1.3. It includes "fresh or chilled", "frozen", "dried, smoked or salted", and "other preserved or processed products", as well as land crabs, land snails and frogs, as well as fish and seafood purchased live for consumption as food.
- "Meat", corresponding to COICOP 01.1.2. It includes "fresh, chilled or frozen, dried, salted or smoked meat and edible offal" and "other preserved or processed meat and meat-based preparations". It also includes meat and edible offal of marine mammals and exotic animals, as well as animals and poultry purchased live for consumption as food.

HOUSEHOLD CONSUMPTION OF FRESH FISHERY AND AQUACULTURE PRODUCTS

Data are collected from EUROPANEL and refer to households' purchases of selected fresh species in 11 EU Member States, which are then aggregated for the EUMOFA purposes into "Main commercial species".

Households' purchases are recorded daily by a sample of households in supermarkets, discount shops, micro-markets, groceries, fishmongers and online sales (Amazon Fresh included), who reports to EUROPANEL many information, among which species, quantities and values.

The sample of households (i.e., "panel") is composed in order to be representative of the population of each country and to appropriately estimate its characteristics. Below, specifications regarding panels from which data derive are provided:

Member State	Sample size (Households)
Denmark	3.000
Germany	30.000
Ireland	5.650
Spain (excluding Canary Islands)	12.000
France	20.000
Italy	10.000
Hungary	4.000
Netherlands	10.000
Poland	8.000
Portugal (excluding Madeira and Azores Islands)	4.000
Sweden	4.000

For each country surveyed (except Hungary), household consumption data cover a selection of most consumed fresh species *plus* the additional item "other unspecified products", aggregating all other fresh species recorded by household panels but not available at disaggregated level. Products monitored include either packaged or loose fish, always without any additional ingredients. Below the complete lists of "main commercial species" monitored for each country is reported:

Denmark	France	Germany	Ireland
Cod	Cod	Alaska pollock	Cod
Dab	Gilthead seabream	Carp	Haddock
Flounder	Hake	Cod	Hake
Halibut	Mackerel	Herring	Mackerel
Mackerel	Monk	Mussel *Mytilus*	Saithe (=Coalfish)
Mussel *Mytilus*	Saithe (=Coalfish)	Plaice	Salmon
Salmon	Salmon	Saithe (=Coalfish)	Shrimps
Trout	Sardine	Salmon	Other unspecified products
Other unspecified products	Trout	Shrimps	
	Whiting	Trout	
	Other unspecified products	Other freshwater fish	
		Other unspecified products	

Italy	Netherlands	Poland	Portugal
Anchovy	Cod	Carp	Clam
Clam	Herring	Mackerel	European seabass
European seabass	Mackerel	Salmon	Gilthead seabream
Gilthead seabream	Mussel *Mytilus*	Trout	Hake
Hake	Pangasius	Other unspecified products	Mackerel
Mussel *Mytilus*	Plaice		Octopus
Octopus	Salmon		Salmon
Salmon	Shrimp Crangon spp		Sardine
Squid	Other shrimps		Scabbardfish
Swordfish	Trout		Shrimps
Other unspecified products	Other unspecified products		Other unspecified products

Spain	Sweden	Hungary
Cod	Cod	Unspecified products
European seabass	Flounder	
Gilthead seabream	Haddock	
Hake	Halibut	
Mackerel	Herring	
Monk	Pike-perch	
Salmon	Salmon	
Sardine	Other salmonids	
Sole	Other unspecified products	
Tuna		
Other unspecified products		

RETAIL SALES AND OUT-OF-HOME CONSUMPTION

Data for retail sales and out-of-home consumption are provided by Euromonitor International[1] (https://www.euromonitor.com/), whose data and estimates could be different from other statistics available at national level, as different methodological approaches may be used. They refer to "unprocessed" and "processed" products.

Unprocessed products

Data are provided for the category "fish and seafood", as well as for the sub-categories finfish, crustaceans and molluscs and cephalopods, more detailed below:

Fish and seafood: This is the aggregation of finfish, crustaceans and molluscs and cephalopods. This category includes packaged and unpackaged unprocessed fish and seafood (fresh, chilled, frozen). Chilled and frozen fish and seafood can be cleaned, gutted, peeled/trimmed/filleted/cut to a different extent, but not cooked and no sauces, herbs or condiments can be added.

- Crustaceans: includes all fresh, chilled and frozen but uncooked crustaceans (i.e. animals living in water with firm body and have a hard-outer shell) such as lobsters, shrimps and crabs, whether sold packaged or unpackaged.
- Finfish: includes all fresh, chilled and frozen but uncooked freshwater and marine finfish (wild caught or farmed), whether sold packaged or unpackaged, cut or whole.
- Molluscs and cephalopods: includes all fresh, chilled and frozen but uncooked molluscs (shellfish such as oysters and clams) and cephalopods (such as the octopus, squid, cuttlefish), whether sold packaged or unpackaged.

Processed products

Data are provided for the category "processed fish and seafood", as well as for the subcategories shelf-stable seafood, chilled processed seafood and frozen processed seafood, more detailed below:

Fish and seafood: This is the aggregation of shelf-stable, chilled and frozen fish and seafood.

- Shelf-stable: includes shelf-stable fish, shellfish and seafood typically sold in cans, glass jars or aluminium/retort packaging. It is also usually preserved in oil, brine, salt water or with a sauce (e.g. sardines in tomato sauce). Pickled fish/seafood sold ambient is also included. Product types include: cod, haddock, mackerel, sardines, tuna, prawns, crab, mussels, anchovies, caviar etc.
- Chilled processed: includes all packaged processed chilled fish/seafood products and smoked fish sold in the self-service shelves of retail outlets. Processed fish/seafood products sold together with a sauce and cooked prawns are included. Note: herring products sold in chiller/refrigerator cabinets, and which have a shelf-life of more than 6 months are excluded. These products, which are very common in Scandinavian countries, are included in shelf-stable seafood as they have similar shelf-life to shelf-stable fish sold ambient.
- Frozen processed: includes all processed fish and seafood products which are further prepared with the addition of other ingredients, including breading/batter, sauce, seasoning, etc. Product types include: fish fingers, fish pies, battered or breaded fish, fish with any type of sauce, fish balls, cuttlefish balls, scampi, calamari, etc.

IMPORT-EXPORT

The trade flows of fishery and aquaculture products are analysed for the items referring to the list of CN-8 codes at the link http://www.eumofa.eu/documents/20178/24415/Metadata+2+-+DM+-+Annex+4+Corr+CN8-CG-MCS+%282002+-+2014%29.pdf/ae431f8e-9246-4c3a-a143-2b740a860291.

The source used for collecting import-export data is EUROSTAT – COMEXT (online data code: DS-045409, extraction made on 12th April 2023). For more information on the methodology and principles behind EUROSTAT's recording of "country of origin" and "country of destination", please visit EUROSTAT's "Quality Report on International Trade Statistics", at https://ec.europa.eu/eurostat/web/products-statistical-reports/w/ks-ft-22-010.

It must be specified that data do not comprehend instances in which volumes or values are not reported due to confidentiality. The principal of statistical confidentiality of Eurostat is explained at the link: https://ec.europa.eu/eurostat/web/research-methodology/statistical-confidentiality.

EXTRA-EU TRADE FLOWS

They encompass all transactions between European Union (EU) Member States and countries outside the EU (non-member countries). The source used for these trade flows is EUROSTAT - COMEXT. In line Eurostat's guidelines on the production and dissemination of statistical data by Commission services after the UK withdrawal from the EU, and since most recent reference period is year 2022, UK is excluded from the EU aggregations of each year. This means that UK is dealt with as extra-EU country of origin/destination of EU-27 imports and exports.

Finally, it is important to underline that while imports are reported as such by Eurostat-COMEXT according to flows recorded by national customs, in most cases the EU Member States are not the actual destinations. Rather, they are "points of entry" for the fisheries and aquaculture products imported to the EU, which are then traded within the internal market.

INTRA-EU TRADE FLOWS

They encompass all transactions declared by Member States of the European Union (EU) with one another. For the analysis of intra-EU trade, only export flows have been considered. The source used for these trade flows is EUROSTAT - COMEXT.

In general, bilateral comparisons between Member States of intra-EU flows reveal major and persistent discrepancies, thus comparisons dealing with intra-EU trade statistics and related results must be taken into account cautiously and should consider the existence of these discrepancies. This is the official explanation from Eurostat: considering that the intra-EU trade data are based on common and largely harmonised rules, one might expect the intra-EU trade balance to be zero or at least close to it. However, it is worth underlining that a perfect match is made impossible first of all by the CIF/FOB[3] approach: the import value should be higher than the mirror export value as it includes extra transport costs.

A close match could nevertheless be legitimately expected given that trading partners within the EU are often neighbouring countries, but deliveries to vessels and aircraft are another methodological reason preventing this: such movements of goods create asymmetries in intra-EU ITGS as specific legal provisions state that only dispatches are to be reported.

[3] Cost, Insurance and Freight (CIF) and Free on Board (FOB) are international shipping agreements used in the transportation of goods. The CIF rule places an obligation on the seller to arrange insurance for the consignment. If the FOB rule is used, once the goods have been loaded on board, risk transfers to the buyer, who bears all costs thereafter.

At global level, most methodological reasons for asymmetries disappear. The remaining issues are in data reporting (e.g. missing Intrastat declarations, and trade in specific goods like sea-going vessels and aircraft not being properly captured).

LANDINGS

Eurostat data regarding landings (online data code: fish_ld_main, data collected on 5th June 2023) comprise the initial unloading of any fisheries products from on board a fishing vessel to land in a given EU Member State. As landings data are available up to 2021, in line with Eurostat's guidelines on the production and dissemination of statistical data by Commission services after the UK withdrawal from the EU, UK is excluded from the EU aggregations of each year. Data include landings made by vessels from EU Member States and from Canada, Faroe Islands, Greenland, Kosovo, Iceland, Norway and the UK. Data also include landings of species not destined for human consumption and seaweed. The following issues should be mentioned regarding data used for the "Landings in the EU" chapter:

- Confidentiality. As indicated by national data providers to Eurostat, landings are confidential when they originate from less than three vessels. Therefore, in some instances, Member States provide data at more aggregated level, in others data are just not available. Details for these instances, broken down by country, year and species involved, are listed below:
    - Denmark:

      For 2017, some confidential figures are excluded, related to destination use and/or presentations/preservations of some specific species belonging to the following main commercial species: eel, pike, cod, sole, sardine, bluefin tuna, crab, cold-water shrimps, Norway lobster, oyster, clam and the groupings "other freshwater fish", "other groundfish", "miscellaneous small pelagics" and "miscellaneous tunas". Only totals are available and were collected from Statistics Denmark.

      For 2019, data do not include the following confidential figures:
        - for blue whiting, landings of the Irish fleet
        - for herring, landings of the German and UK fleets destined for industrial use
        - for Atlantic horse mackerel, landings of the Danish fleet destined for industrial use
        - for sandeels, landings of the German fleet
        - for sprat (= Brisling), landings of the German and Estonian fleets as well as landings of the Latvian fleet destined for industrial use.

      For 2020, data do not include the following confidential figures:
        - for herring and sprat, the value of landings of the German fleet destined for industrial use and animal feed, respectively.
        - for sprat, the value of landings of the Lithuanian and Polish fleets destined for animal feed and industrial use, respectively.
        - for blue whiting, the value of landings from the UK fleet.
        - for clam, the value of landings of the species Spisula solida from the Danish fleet.

      For 2021, data do not include the following confidential figures:
        - for blue whiting, the value of landings from the Irish and Icelandic fleets
        - for herring, the value of landings of the Dutch fleet.
        - for clam, the value of landings of the species Spisula solida from the Danish fleet
        - for sandeels, the value of landings of the German fleet
        - for boarfishes (included in the main commercial species "Other marine fish"), the value of landings of the UK fleet.

- Ireland

  2018 data are confidential for the following main commercial species: abalone, dab, dogfish, European flounder, grenadier, Atlantic halibut, ray's bream, redfish, sardine, scabbardfish, sea cucumber, European seabass, seabreams, swordfish, bluefin tuna and weever. Furthermore, for all other main commercial species, some confidential figures are excluded, related to vessels' flag, destination use and/or presentations/preservations of some specific species.

  2019 data are confidential for the following main commercial species: anchovy, European flounder, grenadier, Greenland halibut, mussel Mytilus spp., sardine, sea urchin, warmwater shrimps, swordfish. Furthermore, for all other main commercial species, several confidential figures are excluded, related to vessels' flag, destination use and/or presentations/preservations of some specific species.

  2020 data are confidential for the following main commercial species: eel, European flounder, grenadier, haddock, Atlantic halibut, herring, horse mackerel, redfish, sea cucumber, bigeye tuna, weever. Furthermore, for all other main commercial species, several confidential figures are excluded, related to vessels' flag, destination use and/or presentations/preservations of some specific species.

  2021 data are confidential for the following main commercial species: Greenland halibut, mussel Mytilus spp. (blue mussel), salmon, sardine, swordfish, and bluefin tuna. Furthermore, for all other main commercial species, several confidential figures are excluded, related to vessels' flag, destination use and/or presentations/preservations of some specific species.

  In addition, the following data were collected from SFPA (Sea-Fisheries Protection Authority) and Central Statistics Office:

  - 2013, 2014, 2018 and 2019 data regarding hake
  - 2014 data regarding mackerel
  - 2016 data regarding herring
  - 2018 data regarding blue whiting and monk
  - 2019 data regarding the value of mackerel and blue whiting

- Greece

  2016 and 2017 data are confidential for those landings made by one single vessel operating in Atlantic, Eastern Central regarding the following main commercial species: cuttlefish, flounder (other than European flounder), John dory and the grouping "other flatfish". Only for 2017, data do not include confidential figures for frozen deep-water rose shrimp.
  Furthermore, for 2016, 2017 and 2018, some confidential figures are excluded related to destination use and/or presentations/preservations of some specific species. They concern:

  - For 2016-2017: some species belonging to the following main commercial species: octopus, red mullet, seabream (other than gilt-head seabream), squid, and the groupings "other sharks" and "other marine fish". Only for 2017, data do not include confidential figures for some species belonging to the grouping "warmwater shrimps".
  - For 2018: some species belonging to the following main commercial species: crab, John dory, octopus, red mullet, squid, seabream (other than gilthead seabream) and the grouping "other marine fish".

  - Malta: All data regarding landings made by vessels with Cyprus flag are excluded as they are confidential.

- Provisional data
  - France: 2018, 2019, 2020 and 2021 volumes and values are provisional data available in Eurostat.
  - Italy: 2018, 2019 and 2020 volumes and values are provisional data available in Eurostat.

- Estimates
  - Bulgaria: 2017 and 2020 volumes and values are national estimates available in Eurostat.
  - Denmark: Values for 2019, 2020 and 2021 include national estimates available in Eurostat.
  - Ireland: Volumes and values for 2017, and values for 2020, include national estimates available in EUROSTAT.
  - Lithuania: Volumes and values for 2017 are national estimates available in EUROSTAT.
  - Netherlands: Volumes and values for 2017, 2018, 2019, 2020 and 2021 include national estimates available in Eurostat.
  - Portugal: Volumes and values for 2018, 2019, 2020 and 2021 include national estimates available in Eurostat.
  - Romania: Volumes and values for 2017 are national estimates available in Eurostat.

HIGHLIGHTS

EU HOUSEHOLD EXPENDITURE AND CONSUMPTION OF FISH AFFECTED BY RISE OF PRICES

In 2022, household spending on fishery and aquaculture products in the EU-27[4] surged by nearly 11% compared to 2021, accelerating the upward trend that began in 2018. The 2022 increase was closely tied to the spike in inflation linked to the Russian invasion of Ukraine.

The escalating inflation had a significant impact on the prices of food, particularly of fish, causing their prices to rise by more than 10% from 2021 to 2022. As most of the EU supply of fish comes from imports, this growth was aligned with the increased prices of imported products. Inflation resulted in a significant decrease in at-home fish consumption, which saw volume drop nearly 17% in the highest consuming EU countries from 2021 to 2022, according to Europanel/Kantar/GfK data. Further, this may have led to substitution effects, with EU consumers opting for cheaper animal protein products and reduced portion size, and also cutting back on the frequency of purchasing meat and fish.

EU TRADE FLOWS RECORD SPIKES IN VALUE

In 2022, the EU trade flows[5] of fishery and aquaculture products saw a 1,5% decrease in volume but a significant 20% increase in nominal value. This translated to a 14% growth in real terms, from 2021 to 2022. Extra-EU imports reached EUR 32 billion, a 23% increase from 2021, while their volume decreased by 2%, dropping below pre-pandemic levels. This decline in import volumes and increase in values can be partially attributed to the widespread food price increases that arose in 2022. On the other hand, extra-EU exports totalled EUR 8 billion, which represented a 19% increase from 2021.

Intra-EU exchanges amounted to 6 million tonnes and EUR 31,5 billion, growing by 17% in value but remaining almost unchanged in volume compared to 2021. Over the past decade, they grew by 59% in real value, surpassing the growth rates of 47% for extra-EU imports and 23% for exports. Intra-EU trade briefly exceeded extra-EU imports in value in 2021, but this trend reversed in 2022.

While the post-COVID-19 recovery drove up demand and prices, lower supply also played a role in this spike in value. At the same time, the Russian military invasion of Ukraine raised energy and production costs, contributing to inflation. The Russian aggression also impacted exchange rates, which influenced EU and global trade.

It is important to note that while most purchases are made in US dollar (USD) or Norwegian krone (NOK), they are reported in euro (EUR) in this report. This is particularly relevant in this edition of the EU fish market, as the euro exchange rate was consistently volatile in 2022. In late 2022, the USD/EUR exchange rate hit an historic low, falling below the 1:1 threshold. However, the euro has rebounded in 2023 and, in the case of the NOK/EUR exchange rate, reached its highest level in four years.

[4] In line with Eurostat's guidelines on the production and dissemination of statistical data by Commission services after the UK withdrawal from the EU, since the most recent reference period is year 2020, UK is excluded from the EU aggregations of each year. In addition, EU data include Croatia since 2013, date of the EU's enlargement to this country.

[5] Extra-EU imports + extra-EU exports + intra-EU trade flows.

DETERIORATION OF THE EU TRADE BALANCE AND OTHERS MAIN NET IMPORTERS OF FISH

As the value of imports grew more than the value of exports, the EU trade deficit[6] was 25% or EUR 4,73 billion higher in 2022 than in 2021. In the 2013–2022 decade, the deficit grew by 56% in real terms. All EU countries with deficits greater than EUR 1 billion saw a worsened situation from 2021 to 2022. Of note, most EU countries observed value increases in both exports and imports while volumes decreased. The deficit also increased in the United States and Japan, which are the second and third largest net importers of fishery and aquaculture products in the world after the EU. In the US, the deficit grew to EUR 22 billion while in Japan it totalled slightly above EUR 12 billion, representing a 20% increase from 2021 for both countries.

2021: RISE OF APPARENT CONSUMPTION AND OF CONSUMED FARMED PRODUCTS

Every year, EUMOFA estimates the total supply of fishery and aquaculture products for EU consumers by adding catches + aquaculture production + imports. Then, by subtracting exports, this formula provides an approximation of EU apparent consumption. As consolidated data on EU production of fishery and aquaculture products are available up to 2021, the estimates have been made up to 2021 as well. In 2021, apparent consumption[7] of fishery and aquaculture products in the EU recovered to an estimated 10,60 million tonnes LWE, marking a 2% increase from 2020. This was linked to a growth in farmed production that partially compensated for decreased catches. Indeed, the per capita apparent consumption of farmed products is estimated to have increased from 6,47 kg LWE in 2020 to 6,80 kg LWE in 2021.

Landings of fishery products, including species not destined for human consumption and seaweed, have been following a downward trend since 2018. The volume of 2021 landings in the EU totalled 3,25 million tonnes worth EUR 5,85 billion, which was the lowest recorded in the 2012–2021 decade. That same year, the EU also saw a rise of nearly 30.000 tonnes LWE in imports from 2020, alongside a significant drop of over 164.000 tonnes LWE in exports.

According to EUMOFA and national estimates, Portugal's apparent per capita consumption of fishery and aquaculture products[8] stands out as the highest in the EU, as confirmed in 2021. That said, in contrast to the increase estimated at EU level from 2020 to 2021, decreases were estimated for the major EU consuming countries, including Portugal. However, estimates have also been increasing in some of the countries which traditionally show lower levels of per capita apparent consumption. For example, they increased every year of the last decade in Hungary, Romania and Slovakia.

RECENT DYNAMICS FOR SOME MAIN SPECIES

In 2022, imports of salmon in the EU decreased 3% from 2021, but their value increased by 28%, reaching a ten-year high of EUR 8,4 billion. This significant increase in value must be seen in relation to global production of both farmed and wild-caught salmon which was lower in 2022 than 2021[9]. Farmed production of salmon remained stable, which was unusual, as during the 2013-2022 decade, it has been increasing at an average annual growth rate of 5%, while wild caught production dropped significantly, mainly due to reduced captures of pink salmon. Salmon imports from Norway accounted for 83% of the value increase seen in 2022, with a 33% increase in their average import price compared with 2021.

Shrimps[10], which accounted for 10% of the volume and 15% of the value of EU imports in 2022, saw a 2% increase in import volume and 17% increase in import value

[6] Extra-EU exports *minus* extra-EU imports.
[7] The definition of "apparent consumption" is available in the "Supply balance sheet" section of the Methodological background.
[8] It is worth underlining that the methodologies for estimating apparent consumption at EU and Member State levels are different, the first based on data and estimates as described in the Methodological background, the latter also requiring the adjustment of abnormal trends due to the higher impact of stock changes.
[9] Kontali (2023). Salmonid production models. Edge by Kontali, link https://edge.kontali.com/
[10] Shrimps include warmwater shrimp, coldwater shrimp, deep-water rose shrimp, shrimp *Crangon* spp., and miscellaneous shrimp.

compared with 2021. Warmwater shrimp species[11], of which 48% were from Ecuador, made up 53% of the volume and 54% of the value of shrimp imports. These were followed by other shrimp species[12], which accounted for 35% of volume and 38% of value and were mainly imported from Argentina (30% of volume), India (15% of volume) and Vietnam (13% of volume). Finally, coldwater[13] shrimp species accounted for 10% of volume and 6% of value, with 86% of their volume imported from Greenland. In 2022, Ecuador, India and Vietnam increased their market shares by between 1% and 2% in volume, and accounted for 89% of the value increase of shrimp imports. Argentina, on the other hand, lost about 3% of its market share from 2021 to 2022.

Cod is one of the most popular species among EU consumers. In 2022, Norway/Russia cod quotas in the Barents Sea were reduced by 20% and supply to the EU market fell by 7%[14]. Average product price for cod increased by 29%, going from 5,05 to 6,53 EUR/kg, and causing import value to soar by 20% above the 2021 value. Cod prices continued to increase in the first two quarters of 2023, then stabilised in the third quarter. However, prices are expected to remain high going into 2024, when the Norway/Russia quota will once again be reduced by 20%[15]. The main contributors to the value increase were imports from Russia (contributing 37% to the total value increase) and Norway (31%), mainly because of increased average product prices.

Tuna[16], another favourite among EU consumers, constitutes one of the top five consumed species. In 2022, tuna accounted for 10% of the total volumes and values of fish imported in the EU, with a 1% increase in volume and a 29% increase in value compared with 2021. Skipjack tuna accounted for 53% of the imported volume and 49% of the imported value, followed by yellowfin tuna which accounted for 32% of volume and value. Bluefin tuna achieved the highest average product price at 13,30 EUR/kg. Tuna imported from Ecuador made up 24% of the total value increase for 2022, of which 58% was from imports of skipjack tuna. Overall, import of tuna fillets increased by 4% from 2021, while import of whole tuna decreased by 8%.

Alaska pollock is an important species for the EU processing industry. While its import volume remained stable in 2022, its import value soared by 31% to EUR 986 million. Market shares by volume changed significantly from 2021 to 2022, with Russian market shares increasing 9% while US market shares decreased 11%, accounting for 30% and 22% of the total, respectively. China and Russia contributed the most to the increase in import value, thanks to their respective increases of 3% and 40% in import volume, and their respective 35% and 29% increases in average product price.

MACROECONOMIC TRENDS

In 2022, the euro depreciated by 6,2% against the American dollar (USD) but appreciated against other currencies of importance to operators in the fishery and aquaculture industry. This included appreciation of 3,6% against the British pound (GBP), 4,4% against the Norwegian krone (NOK) and 3,2% against the Icelandic króna (ISK). During the first three quarters of 2023, the euro depreciated 0,9% against the USD, 2,3% against the GBP and 6,3% against the ISK. However, it appreciated by 6,9% against the NOK.

The European Central Bank (ECB) interest rate was raised four times in 2022, totalling an increase of 2%, and it has continued to rise in 2023[17]. After six further increases of

[11] Shrimps of the genus *Penaeus*.
[12] The most imported product in this group was "Frozen shrimps and prawns, even smoked, whether in shell or not, incl. shrimps and prawns in shell, cooked by steaming or by boiling in water (excl. "Pandalidae", "*Crangon*", deepwater rose shrimps "*Parapenaeus longirostris*" and "*Penaeus*")", CN8 code: 03061799.
[13] Shrimps of the genus *Pandalus*.
[14] Institute of Marine Research (2022). *Barents Sea: Cod quota*. https://www.hi.no/en/hi/news/2022/september/barents-sea-cod-quota-of-maximum-566,784-tonnes-recommended-for-2023
[15] The Fishing Daily (2023). *Norwegian Cod Advice for 2024*. https://thefishingdaily.com/latest-news/norwegian-cod-advice-for-2024-the-lowest-since-2008/
[16] Tuna includes skipjack tuna, yellowfin tuna, bigeye tuna, albacore tuna, bluefin tuna and miscellaneous tuna.
[17] European Central Bank (2023). *Key ECB interest rates*. https://www.ecb.europa.eu/stats/policy_and_exchange_rates/key_ecb_interest_rates/html/index.en.html

the interest rate to combat inflation, it was up by 4% as of 20 September 2023. The annual average inflation rate for the EU-27 reached 9,2% in 2022, the highest seen for more than a decade[18]. The inflation rate continued to rise in the first quarter of 2023, before decelerating in May. As of August 2023, the 12-month average inflation rate was at 8,8% for the EU-27[19].

Marine fuel prices, which increased throughout the first ten months of 2022 in most EU Member States, were impacted by the Russian war of aggression against Ukraine[20]. During this period, prices averaged around 1,00 EUR/l, peaking in July at 1,15 EUR/l. Since October 2022, prices have decreased considerably, averaging around 0,70 EUR/l in the first eight months of 2023. Compared with the same period in 2022, this corresponded to a 24% decrease in marine fuel price.

The consumer price index for fishery and aquaculture products in the EU steadily increased in 2022, growing by 17% from January to December[21]. The index continued to increase in the first half of 2023 but started to decline in July. As of August 2023, the index had increased an additional 5% since December 2022.

[18] Eurostat (2023). HICP – inflation rate. https://ec.europa.eu/eurostat/databrowser/view/tec00118__custom_7876880/default/table?lang=en
[19] Eurostat (2023). HICP – monthly data. https://ec.europa.eu/eurostat/databrowser/view/PRC_HICP_MV12R/default/table?lang=en&category=prc.prc_hicp
[20] EUMOFA (2023). Macroeconomic dashboard. https://www.eumofa.eu/macroeconomic
[21] Eurostat (2023). Food price monitoring tool. https://ec.europa.eu/eurostat/databrowser/view/prc_fsc_idx__custom_7878159/default/table?lang=en

1/ THE EU IN THE WORLD

1.1 GLOBAL PRODUCTION

From 2020 to 2021, total world production[22] from catches[23] and aquaculture increased by 2%. Of this, the total volumes produced rose from close to 213,8 million tonnes to almost 218,2 million tonnes, hitting a ten-year peak. This increase was mainly influenced by the growth in aquaculture production, which rose by 3%, reaching 126 million tonnes, the highest volume of the decade. Catches also increased, growing by 1% and reaching 92 million tonnes, reversing the negative trend that had characterised both 2019 and 2020.

All major Asian aquaculture producers reported increases, with the exception of Indonesia, where fishery production decreased by 2% or 240.000 tonnes. The most significant Asian increases were in China where farmed production grew 3% or 2,3 million tonnes, and in India which saw a 9% or 767.000-tonne increase. As for fishery production, the biggest increases were recorded in Peru which had a 16% or 900.000-tonne growth, and Ecuador, which saw a 36% or 228.000-tonne increase. In the EU, the volume of aquaculture production grew by 4% while catches decreased by 7% – to the lowest level in ten years. Nevertheless, the share of EU contribution to world fishery and aquaculture production remained the same as in 2020, namely 4% and 1%, respectively.

Details on production by continent are illustrated in Chart 1 and commented below, with a focus on major producing countries and their comparison with EU production.

TABLE 1

TOP-15 PRODUCERS IN 2021 (1.000 TONNES)

Source: Eurostat (online data codes: fish_ca_main and fish_aq2a) and FAO. Possible discrepancies in % changes and totals are due to rounding. More details can be found in the Methodological background.

	Catches	Aquaculture	Total production	% of total	% evolution of total production 2021/2020
China	13.143	72.805	85.948	39%	+2%
Indonesia	7.206	14.607	21.812	10%	-0,1%
India	5.025	9.408	14.433	7%	+2%
Viet Nam	3.540	4.749	8.290	4%	+3%
Peru	6.576	151	6.727	3%	+16%
Russian Federation	5.168	319	5.487	3%	+2%
United States of America	4.282	449	4.731	2%	+1%
EU	**3.591**	**1.129**	**4.720**	**2%**	**-5%**
Bangladesh	1.982	2.639	4.621	2%	+3%
Norway	2.556	1.665	4.221	2%	+3%
Japan	3.151	964	4.115	2%	-2%
Philippines	1.840	2.273	4.112	2%	-3%
Chile	2.390	1.444	3.834	2%	+4%
Republic of Korea	1.315	2.428	3.743	2%	+1%
Myanmar	1.666	929	2.595	1%	-13%
Others	28.734	10.054	38.787	17%	+3%
Total	**92.164**	**126.011**	**218.175**	**100%**	**+2%**

[22] The source of production data for non-EU countries is FAO. To be noted that in this chapter, in line with FAO database, Russian figures included in the European production encompass total production in Russia.

[23] Catches include all products fished by a country's fleet in any fishing area (both marine and inland waters), independently from the area of landing/selling. In line with Eurostat's guidelines on the production and dissemination of statistical data by Commission services after the UK withdrawal from the EU, since the most recent reference period is year 2021, UK is excluded from the EU aggregations of each year. In addition, EU data include Croatia since 2013, date of the EU's enlargement to this country.

Aquaculture's share of total world production has increased continuously since 2000, and its production has been higher than that of catches since 2013. This trend has been driven by Asian countries, where aquaculture production accounted for close to 91% of the world's total farmed production in 2021.

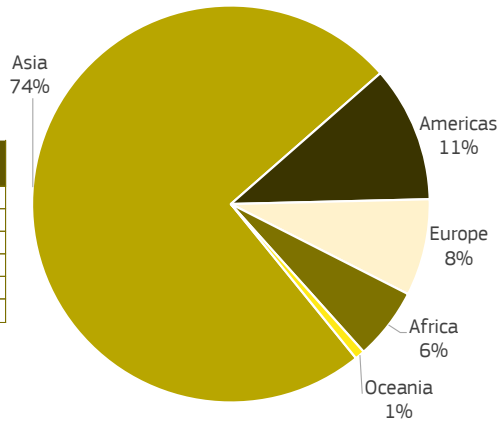
Asia is home to the world's four top-producing countries and, in each, the majority of production is from aquaculture. This means that aquaculture accounts for more than 85% of production in China, and for 67% in Indonesia, 65% in India and close to 60% in Vietnam. By contrast, in the Americas, Europe (including EU and non-EU countries) and Africa, aquaculture only accounts for one fifth of total production. The share of aquaculture in total production is even lower in Oceania.

CHART 1

WORLD PRODUCTION BY CONTINENT IN 2021

Source: Source: Eurostat (online data codes: fish_ca_main and fish_aq2a) and FAO. More details can be found in the Methodological background.

Continent	Volume (1.000 tonnes)	% catches	% aquaculture
Asia	162.268	30%	70%
Americas	24.160	80%	20%
Europe	17.198	81%	19%
Africa	12.805	81%	19%
Oceania	1.744	86%	14%
World	**218.175**	**43%**	**57%**



ASIA

Asia not only leads the world in farmed production, it also leads in fisheries production. In 2021, Asia's farmed production reached 115 million tonnes, up 3% from 2020, while its wild production continued a downward trend that began in 2019, settling at close to 47 million tonnes, which was 2% less than 2020 and the lowest peak of the ten-year period.

Most of the wild production in Asia consists of catches of bony fish (Actinopterygii), which account for one fourth of the continent's total catches. However, the largest increases from 2020 to 2021 were catches of squid, mainly in China and Taiwan; mackerel, in China and Japan; and sardines, in China and Indonesia. At the same time, China registered a significant drop in catches of marine fish[24] which was the main contributor to the overall decrease at continent level. Indeed, China is the largest Asian producer of both fishery and aquaculture products and thus the largest contributor to the overall trend at continent level. Indeed, it is responsible for 28% of Asia's fishery production and 64% of its aquaculture production.

China is also the largest fishery and aquaculture producer at world level, followed at a distance by Indonesia. In 2021, with its production of 72,8 million tonnes of farmed products and 13 million tonnes of catches, China alone accounted for 58% of world farmed production and for 14% of world fishery production.

China's most farmed species are carps which account for 25% of its production and seaweed which accounts for 13%. As for carp, its production volume recorded a slight increase from 18,2 million tonnes in 2020 to 18,4 million tonnes in 2021, while seaweed dropped a staggering 53% from close to 21 million tonnes in 2020 to 9,8 million tonnes in 2021. If compared with the global farmed production of these two

[24] No detail is available in terms of species. Catches were recorded under "Marine fishes nei".

species, China accounted for more than 84% of carp and 45% of seaweed. By comparison, 77.511 tonnes of carp were farmed in the EU in 2021, which represented only 0,4% of global farmed production of this species, and it harvested almost 85.000 tonnes of seaweed. However, EU seaweed production largely originates from wild harvesting for non-food purposes, which limits the relevance of the comparison with Chinese production.

AMERICAS

Production of fishery and aquaculture products in the Americas – namely North, Central and South America – is the second highest of the five continents. Its 2021 production, which totalled 24,1 million tonnes, represented a ten-year peak for American production. Of this, the vast majority – almost 20 million tonnes – was from catches. Catches in the Americas mainly comprise Peruvian catches of anchoveta (*Engraulis ringens*) designated for fishmeal production. In 2021, Peru's anchoveta production reached 5,3 million tonnes, which covered 90% of world production of this species. US catches of Alaska pollock also reached significant volumes in 2021, remaining almost stable with just a miniscule drop of 0,1% from 2020, ending at almost 1,5 million tonnes. On the other hand, Peruvian catches of anchoveta continued to grow, increasing by 20% from 2020. A comparison with the EU is not relevant in this case, as all Alaska pollock consumed in the EU is imported. EU catches of anchovy, which reached 104.881 tonnes in 2021, only include the species *Engraulis encrasicolus*, which is destined for human consumption.

American aquaculture production, on the other hand, reached 4,5 million tonnes in 2021, largely comprising salmon production in Chile and warmwater shrimp production in Ecuador. Chile's salmon production reached 938.502 tonnes, accounting for 21% of the total aquaculture production of the entire continent, while warmwater shrimp production in Ecuador, at 890.386 tonnes, represented 20% of the total aquaculture production of the Americas. By comparison, in 2021, the EU's farmed production of salmon totalled 14.896 tonnes, while its farmed production of warmwater shrimps was only 342 tonnes.

EUROPE

Production of fishery and aquaculture products in Europe – including both EU and non-EU countries – is the third highest in the world. In 2021, production totalled 17,2 million tonnes, of which 13,7 million tonnes came from catches which reported a slight 2% decrease from 2020. Farmed products accounted for the remaining 3,6 million, and showed a 9% increase from 2020.

Total EU fishery and aquaculture production amounted to 3,6 million tonnes, which represented more than one fourth of European production. Similar shares were observed in terms of catches, where the EU accounted for 26% of total European catches, and of aquaculture, of which the EU accounted for 31% of European production.

Five species represent more than half of Europe's total fishery production. These include: herring with 1,8 million tonnes produced in 2021 (-5% from 2020), Alaska pollock with 1,7 million tonnes (-4%), cod with 1,3 million tonnes (+6%), and blue whiting (-18%) and mackerel (+2%), each with slightly more than 1,2 million tonnes.

European catches of Alaska pollock only include fish caught by the Russian fleet. As for production of other main species by EU Member States, EU herring production, which primarily originated from Denmark, the Netherlands and Sweden, stood at around 462.000 tonnes in 2021 (25% of the total catches of herring in Europe). However, this was lower than production from two non-EU countries, namely Norway and the Russian Federation. Norway alone accounted for one third of the total volumes of European catches of herring catches, with 585.649 tonnes, while the Russian Federation, with 529.774 tonnes, accounted for almost 30% of the total.

As for cod, almost all European catches in 2021 were made by Russia with 522.028 tonnes; Norway with 376.109 tonnes; and Iceland with 270.984 tonnes. EU catches of mackerel amounted to 261.158 tonnes in 2021, a 14% drop from 2020, while catches of blue whiting declined by 7% to 277.220 tonnes, and catches of cod dropped 21% to 41.541 tonnes.

As for production of blue whiting, EU catches of 258.172 tonnes ranked second to the Faroe Islands which produced 289.124 tonnes in 2021. Norwegian production came next with 233.939 tonnes, due to a drop by 34% from 2020, when it used to be second in the ranking. Regarding mackerel, the EU ranked third in total volume for European catches of this species, behind Russia with 271.551 tonnes and Norway with 270.658 tonnes. The EU drop in production was mainly driven by decreases recorded in Spain and Germany.

Aquaculture production in Europe grew 6% from 2020 to 2021 and totalled 3,6 million tonnes, 44% of which was represented by production of farmed salmon in Norway. It is worth noting that of the total volumes of wild and farmed salmon[25] produced in the world, Norwegian farmed salmon accounted for 39% of the global total. This was followed by salmon farmed in Chile accounting for 23%; wild salmon produced by Russia accounting for 13% and the United States for 9%; and UK's farmed salmon, which accounted for 5%.

AFRICA

Production of fishery and aquaculture products in Africa is the fourth highest in the world. It totalled almost 13 million tonnes in 2021, increasing by 5% from 2020. African production is mainly composed of catches, which increased by 6% from 2020 and accounted for over 80% of the total African production of fishery and aquaculture products in 2021, driving the overall increase.

More specifically, the main driver for this growth was the increase of catches of marine fish[26], horse mackerel and mackerel, which respectively accounted for 15%, 5% and 5% of the overall African wild production. However, sardine remains the main species produced in Africa, with its catches of 2 million tonnes that represented 20% of total fishery production in Africa. Morocco is the main producer, with total catches of 789.737 in 2021, followed by Mauritania with 466.865 tonnes. By comparison, EU catches of sardine totalled only 452.853 tonnes.

Aquaculture production in Africa mainly comprises Nile tilapia. In 2021, its total production increased by 7% and reached 1,3 million tonnes. It is mainly farmed in Egypt, which accounted for 75% of the overall volume in 2021.

OCEANIA

Oceania is responsible for only 1% of total world fishery and aquaculture production. In 2021, its production reached 1,74 million tonnes, 85% of which was wild caught. However, it should be noted that while its catches are decreasing, its use of aquaculture has increased in recent years, although the gap remains wide.

Skipjack tuna is by far the main species caught in Oceania, covering more than 40% of the total with 601.268 tonnes of catches registered in 2021. To note, this was more than three times higher than the EU production of skipjack tuna. The continent's most important producers of skipjack tuna are Kiribati, Micronesia and Papua New Guinea, while New Zealand leads in the production of grenadier with 105.250 tonnes in 2021. Oceania accounts for almost two thirds of the world's grenadier catches.

[25] Farmed salmon production largely includes Atlantic salmon (*Salmo salar*).
[26] No detail is available in terms of species. Catches were recorded under "Marine fishes nei".

1.2 IMPORT-EXPORT[27]

EU

In 2022, the EU's trade in fishery and aquaculture products – the sum of its imports and exports with third countries – reached 8,4 million tonnes with a total value close to EUR 40 billion. This amount was second only to that of China. The EU had surpassed China in 2020, the year of the COVID-19 pandemic outbreak, but China regained its lead in 2021 and continued its growth in 2022, reaching a trade volume of 11,5 million tonnes with a value of EUR 45 billion.

The EU's 2022 imports of fishery and aquaculture products reached EUR 31,9 billion and 6,1 million tonnes, representing a 23% increase in value but a 3% decrease in volume compared with 2021. Similarly, the value of the EU's exports increased by 19% reaching EUR 8,1 billion, but its volume continued the downward trend observed in 2021, decreasing by 5% to 2,3 million tonnes.

Several factors influenced EU trade flows in 2022. The main factor was a surge in inflation, in part linked to the COVID-19 recovery which led to an increase in demand, and in turn, to price increases. Further, the Russian aggression in Ukraine had a significant impact, as it increased energy and production costs, contributing to global inflation which affected currency exchange rates. In addition, supply constraints due to quota reductions and increased competition for raw materials contributed to the decline in volumes which also contributed to the rise in prices.

This section focuses on the fishery and aquaculture trade flows (imports + exports) of the world's top five non-EU traders of fishery and aquaculture products: China, the US, Norway, Japan and Canada. It ranks the countries by value and compares their trade flows with the EU.

Of note: Chapter 4 of this report presents detailed analyses of EU Member States' imports and exports by partner country and as well as a focus on the development of main currency exchange rates.

CHINA

China's market flows showed a positive growth in 2022, with a 7% increase in volume and 31 % increase in value. The main driver of this growth was its significant increase in imports, which grew by 12% in volume and 46% in value, reaching 6,6 million tonnes and EUR 22,2 billion.

That said, the volume of Chinese trade has not yet returned to pre-pandemic levels. This is particularly true for exports which totalled 4,9 million tonnes in 2022, with a value of EUR 23 billion. Although relatively stable compared with 2021, it was still 10% lower than 2019.

As for the main destinations of Chinese exports, 13% were destined to the EU, 11% to Japan, and 10% to both the Republic of Korea and the United States.

Of the total volumes sold to the EU, the largest shares are represented by products not destined for human consumption (37%) and frozen fillets of Alaska pollock (22%).

China's main exports to Japan are frozen prepared and filleted marine fish[28], which accounted for 37% of the total export volume and 26% of the total export value to Japan in 2022.

As for imports, China reported increases in both volume and value in 2022. This was mainly due to increased imports from the Russian Federation, China's main supplier of fishery and aquaculture products. After Russia, China mainly imports from Peru and Vietnam, closely followed by Ecuador.

[27] Sources used in this chapter are Eurostat for EU (online data code DS-045409), StatBank Norway and Trade Data Monitor (TDM) for other non-EU countries.
[28] No detail is available in terms of species.

China's main import from the Russian Federation, frozen whole Alaska pollock, accounted for 53% of all volumes of fishery and aquaculture products imported in China in 2022. Once imported, the product is processed and re-exported as frozen fillets/blocks.

As for Peru and Vietnam, China mainly imports fishmeal which is an important product for its thriving fish-farming industry. Fishmeal accounted for 87% of total import volumes from Peru and 36% from Vietnam in 2022. Miscellaneous shrimps accounted for 94% of China's imports from Ecuador, with fishmeal accounting for the rest.

The EU ranks only 10th among China's suppliers of fishery and aquaculture products. In 2022, China's fish import from the EU reached 166.069 tonnes valued at EUR 720 million. Of this, 24% of total volume was frozen whole Greenland halibut, and 20% was frozen cold-water shrimps, both largely supplied by Denmark.

UNITED STATES

In 2022, the total volume of fishery and aquaculture flows (imports + exports) in the US decreased to 6,3 million tonnes, which was 3% less than in 2021. However, the value of these flows reached EUR 36,8 billion, a significant 19% increase from the EUR 30,8 billion value reached in 2021.

US exports of fishery and aquaculture products reached 2,5 million tonnes with a value of EUR 7,4 billion, which represented an 8% decline in volume and a 19% rise in value from 2021. On the other hand, a surge was recorded in imports – which was the main driver behind the overall increase in total US trade value. US imports saw a 19% increase in value with a slight 1% rise in volume, reaching 3,8 million tonnes with a value of EUR 29 billion. As a result, the US trade deficit grew to EUR 22 billion in 2022, representing a 20% increase from 2021.

In 2022, the top three destinations for US exports by value were Canada, the EU and China, which accounted for 22%, 17% and 17% respectively, of the total value of the US exports of fishery and aquaculture products.

US exports to Canada were primarily composed of non-food-use products[29] that covered 49% of the total volumes, followed by salmon and lobster which together accounted for 21% of the total. US exports to the EU mainly consisted of frozen fillets of Alaska pollock, which accounted for 23% of the total volume, with hake and salmon following closely, accounting for 15% and 10% of the total volume, respectively. The US exports to China were primarily non-food-use products[30], which represented 44% of the total volume imported from the US, while whole or gutted frozen salmon accounted for 14% of the total value of these exports.

In terms of import value, the EU ranked 8th among US suppliers after Canada, Chile, India, Indonesia, Vietnam, China and Ecuador. Most of the value of US imports from the EU included Alaska pollock (36%), anchovy (22%) and blue whiting (11%).

NORWAY

In 2022, Norway's total trade flows reached 4,3 million tonnes worth EUR 17 billion, showing a very slight 1% increase in volume but a 28% increase in value. The trade surplus amounted to EUR 12,7 billion. Of this, exports were particularly remarkable and ranked second globally to China. This was partly due to Norway's exports of salmon, which reached 1,2 million tonnes worth EUR 10,4 billion in 2022 and made up almost 70% of the total value of Norwegian exports and 40% of their volume.

Total exports amounted to EUR 15 million and totalled 3,1 million tonnes, increasing a significant 27% in value but with a 3% decrease in volume. The average unit price of exported salmon increased 34% from 2021, mirroring the general situation of rising

[29] This category is composed by fishmeal, that accounted for 5% of the total; while there is not detail available in terms of species for the rest.
[30] This category is composed by fishmeal, that accounted for 9% of the total; while there is not detail available in terms of species for the rest.

prices. In addition, the increase in demand for salmon in 2022 combined with the lower supply played a major role in the price increase.
The EU is the major destination for Norway's exports, accounting for 57% of their value and 53% of their volume. Other main destinations for exported fishery and aquaculture products from Norway are, in terms of volume, China (5%), the United Kingdom (4%) and the US (4%).
From 2021 to 2022, Norway's imports increased 12% in volume and 39% in value, reaching 1,2 million tonnes and amounting to EUR 2,4 billion.
The EU is Norway's main supplier of fishery and aquaculture products, accounting for 20% of its total imports of fishery and aquaculture products in 2022. Brazil, the UK, Peru and Iceland follow. Most of the imports of fishery and aquaculture products in Norway include fishmeal and fish oil used for breeding salmonids in the aquaculture industry, which has a growing demand for fish feed. With more than 1 million tonnes for EUR 1,83 billion, they accounted for more than 80% of the volumes of Norway's imports of fishery and aquaculture products in 2022, while their share in terms of value was 76%.

JAPAN

Japan's trade flows grew by 1% in volume and 20% in value from 2021 to 2022, reaching 3 million tonnes amounting to EUR 17,4 billion. Its trade deficit was slightly above EUR 12 billion, which was 20% higher than 2021. This was due to the import flow, which had the largest weight in Japan's trade flows and grew by 1% in volume and 20% in value, thus reaching EUR 14,8 billion and 2,4 million tonnes, and covering 85% of the total value of Japan's trade flows in 2022.
The main products imported by Japan were frozen shrimps, frozen whole or gutted salmon, and frozen and prepared-preserved marine fish[31]. Other products not destined for human consumption accounted for 10% of the total volume in 2022, but covered only 3% of the total value. Most of the volumes of fishery and aquaculture products imported in Japan were from China, the US and Chile. Russia is another major country of origin as well: it ranked only 7th in terms of volume but 4th in terms of value, due to its supplying salmon and caviar. The EU ranked 8th among Japan's suppliers in both volume and value terms, exporting mainly frozen tuna from Malta, Spain and Croatia.
In 2022, Japan's exports decreased a slight 1% in volume but grew 19% in value, reaching 650.689 tonnes worth EUR 2,6 billion.
Its most traded species are scallops and small pelagics[32] exported to other Asian countries, namely China, Republic of Korea, Thailand, Hong Kong, Vietnam and Taiwan.
The US is another important market in value terms for Japan, mainly due to exports of frozen fillets of marine fish[33]. The EU is a minor market for Japan exports.

CANADA

Canada recorded a trade surplus of EUR 2,5 billion in 2022, which was a 15% decrease from 2021. With its total flows amounting to 1,5 million tonnes worth EUR 10,5 billion, Canada ranks fourth globally among the main exporters of fishery and aquaculture products and fifth among the main importers.
Its 2022 exports grew by 4% in value from 2021 and reached EUR 6,5 billion. As for volume, its total of 721.033 tonnes was 45.910 tonnes less than 2021.
The US is the main destination for Canadian exports, accounting for 65% of its total value and 59% of its total volume. In terms of value, the major export species include crab, lobster *Homarus spp.* and salmon, which collectively represent 67% of the total value, with respective shares of 27%, 21%, and 20%. Non-food products accounted

[31] ibidem.
[32] ibidem
[33] ibidem

for 33% of the total volume, but only for a small portion of the total value. China, as the second-largest destination for Canadian fish exports, primarily imports lobster *Homarus* spp., crab and cold-water shrimps which account for 78% of the total value and 65% of the total volume, The EU ranks third, mostly importing lobster *Homarus spp*. and scallop.

Canada imported 822.232 tonnes of fishery and aquaculture products worth EUR 4 billion in 2022. Compared with 2021, this represented a volume decrease of 2% against a significant 21% increase in value. The US is by far Canada's largest supplier, followed at a distance by China and Vietnam. As for EU imports, Canada mainly imports fishmeal and other products not destined for human consumption.

TABLE 2

EXPORTS OF FISHERIES AND AQUACULTURE PRODUCTS OF MAIN WORLD TRADERS (VOLUME IN MILLION TONNES AND NOMINAL VALUE IN EUR BILLION) AND % OF EXPORTS DESTINED FOR THE EU ON TOTAL IN 2022

Source: EUMOFA elaboration of data from EUROSTAT (for EU trade flows, online data code DS-045409), StatBank Norway and Trade Data Monitor (for other non-EU countries). Possible discrepancies in % changes are due to rounding.

	2018		2019		2020		2021		2022		2022 / 2021	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
China	5,42	19,52	5,44	18,96	4,91	17,11	4,86	19,25	4,87 (13% to the EU)	22,97 (9% to the EU)	+0,1%	+19%
Norway	2,76	10,29	2,64	10,74	2,77	9,86	3,16	11,88	3,06 (53% to the EU)	15,05 (57% to the EU)	-3%	+27%
EU	**2,55**	**7,13**	**2,56**	**7,29**	**2,57**	**6,97**	**2,42**	**6,76**	**2,30**	**8,07**	**-5%**	**+19%**
US	2,99	6,45	2,87	6,41	2,74	5,59	2,74	6,22	2,52 (12% to the EU)	7,38 (17% to the EU)	-8%	+19%
Canada	0,78	4,78	0,77	5,28	0,72	4,48	0,77	6,24	0,72 (8% to the EU)	6,50 (7% to the EU)	-6%	+4%
Japan	0,73	2,03	0,61	2,05	0,61	1,81	0,66	2,17	0,65 (1% to the EU)	2,58 (3% to the EU)	-1%	+19%

TABLE 3

IMPORTS OF FISHERIES AND AQUACULTURE PRODUCTS OF MAIN WORLD TRADERS (VOLUME IN MILLION TONNES AND NOMINAL VALUE IN EUR BILLION) AND % OF IMPORTS ORIGINATING FROM THE EU ON TOTAL IN 2022

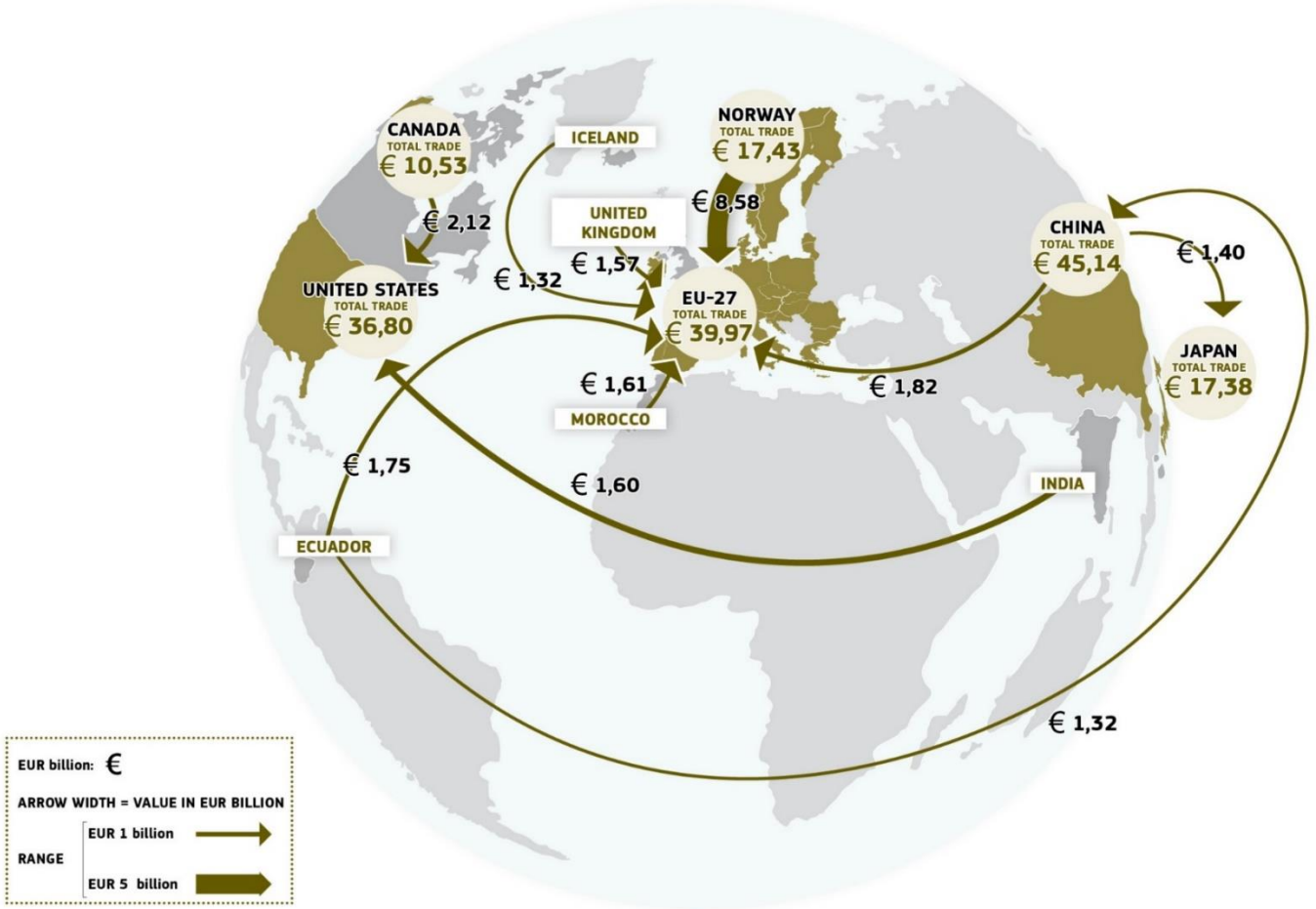
Source: EUMOFA elaboration of data from EUROSTAT (for EU trade flows, online data code DS-045409), StatBank Norway and Trade Data Monitor (for other non-EU countries). Possible discrepancies in % changes are due to rounding.

	2018		2019		2020		2021		2022		2022 / 2021	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
EU	**6,20**	**25,55**	**6,18**	**26,05**	**6,16**	**24,23**	**6,24**	**25,85**	**6,13**	**31,90**	**-2%**	**+23%**
US	3,21	19,66	3,21	20,30	3,30	19,47	3,81	24,64	3,84 (7% from the EU)	29,41 (5% from the EU)	+1%	+19%
China	5,28	12,62	6,29	16,51	5,75	13,54	5,89	15,14	6,62 (3% from the EU)	22,17 (3% from the EU)	+12%	+46%
Japan	2,56	13,42	2,60	13,88	2,40	12,03	2,36	12,34	2,38 (5% from the EU)	14,80 (5% from the EU)	+1%	+20%
Canada	0,78	2,76	0,80	3,02	0,78	2,77	0,84	3,33	0,82 (5% from the EU)	4,02 (5% fromthe EU)	-2%	+21%
Norway	0,61	1,08	0,61	1,19	1,17	1,68	1,12	1,71	1,25 (20% from the EU)	2,39 (22% from the EU)	+12%	+39%

CHART 2

TOP-10 TRADE FLOWS IN VALUE OF FISHERY AND AQUACULTURE PRODUCTS IN THE WORLD (2022, NOMINAL VALUES)

Source: EUMOFA elaboration of data from EUROSTAT (for EU trade flows, online data code DS-045409), StatBank Norway and Trade Data Monitor (for other non-EU countries).



1.3 CONSUMPTION

According to the OECD-FAO Agricultural Outlook forecasts[34], in 2022 the EU ranked 12th in terms of per capita fish consumption, amounting to less than half of the forecast for the top three ranked countries – Malaysia, Korea and Norway. However, it is showing an upward trend and is expected to reach almost 25,6 kg per capita by 2028. Moreover, when looking at total consumption, the EU ranked 3rd after two major consumers, namely China and Indonesia.

TABLE 4

PER CAPITA CONSUMPTION OF FISH, TOP-15 OECD COUNTRIES (FORECASTS, VOLUMES IN KG). COUNTRIES ARE RANKED ACCORDING TO 2022 PER CAPITA CONSUMPTION.

Source: OECD

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Malaysia	58,52	58,23	57,48	57,76	57,66	57,51	57,01	56,84	56,93	57,05
Korea	57,41	57,55	57,13	57,65	57,61	57,54	57,00	56,86	56,59	56,42
Norway	54,56	54,86	54,77	55,48	55,87	56,36	56,37	56,65	57,03	57,57
Japan	46,74	46,10	45,59	45,55	45,26	45,05	44,53	44,43	44,14	44,05
China	40,42	40,89	41,16	42,26	42,63	42,98	43,09	43,49	43,91	44,28
Viet Nam	40,73	40,92	40,98	42,23	43,11	43,62	43,98	44,19	44,99	45,27
Indonesia	38,98	39,63	39,97	39,68	40,72	40,85	42,15	42,04	42,43	42,95
Thailand	28,07	28,40	28,49	29,13	29,59	29,98	30,19	30,61	31,05	31,52
New Zealand	27,58	27,44	27,27	27,49	27,55	27,62	27,40	27,42	27,34	27,38
Philippines	26,47	26,38	26,23	26,28	26,11	25,89	25,51	25,29	25,11	24,85
Australia	25,07	25,39	25,37	25,61	25,72	25,86	25,76	25,84	25,81	25,89
EU	**23,82**	**23,98**	**24,16**	**24,55**	**24,74**	**24,99**	**24,99**	**25,22**	**25,36**	**25,59**
Egypt	24,07	24,07	24,29	24,39	24,53	24,89	25,08	25,10	25,39	25,43
United States	22,90	22,91	23,05	23,37	23,53	23,75	23,71	23,76	23,67	23,71
Israel	22,16	22,23	22,45	22,75	22,92	23,19	23,16	23,35	23,36	23,54
World	**20,66**	**20,73**	**20,72**	**20,96**	**21,07**	**21,12**	**21,13**	**21,16**	**21,21**	**21,26**

TABLE 5

TOTAL CONSUMPTION OF FISH, TOP-15 OECD COUNTRIES (FORECASTS, VOLUMES IN 1.000 TONNES). COUNTRIES ARE RANKED ACCORDING TO 2022 TOTAL CONSUMPTION.

Source: OECD

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
China	60.386	61.133	61.657	63.376	64.043	64.655	64.910	65.586	66.224	66.787
Indonesia	11.981	12.214	12.360	12.333	12.674	12.760	13.177	13.192	13.350	13.544
EU	**11.308**	**11.360**	**11.419**	**11.572**	**11.644**	**11.733**	**11.712**	**11.796**	**11.836**	**11.915**
India	11.043	11.205	11.416	11.496	11.694	11.749	12.062	12.166	12.284	12.382
United States	8.842	8.899	8.998	9.157	9.269	9.400	9.444	9.521	9.543	9.613
Japan	6.395	6.279	6.173	6.132	6.064	6.001	5.902	5.856	5.782	5.735
Viet Nam	4.844	4.905	4.957	5.130	5.275	5.379	5.466	5.543	5.656	5.716
Peru	5.058	4.945	4.216	4.587	4.668	4.728	4.762	4.077	4.792	4.837
Russian Federation	3.500	3.506	3.508	3.547	3.570	3.582	3.568	3.574	3.573	3.579
Korea	3.192	3.204	3.187	3.218	3.218	3.218	3.191	3.186	3.173	3.164
Philippines	2.861	2.894	2.919	2.966	2.989	3.006	3.002	3.016	3.033	3.040
Egypt	2.435	2.478	2.543	2.595	2.652	2.733	2.796	2.839	2.915	2.961
Thailand	2.448	2.447	2.425	2.443	2.454	2.476	2.485	2.512	2.536	2.562
Mexico	2.168	2.225	2.239	2.293	2.356	2.393	2.415	2.430	2.463	2.524
Brazil	1.971	2.017	2.049	2.098	2.140	2.181	2.212	2.250	2.291	2.332
Others	40.000	40.508	40.656	41.591	42.404	43.113	43.689	44.209	45.051	45.758
World	**178.432**	**180.221**	**180.722**	**184.533**	**187.114**	**189.107**	**190.793**	**191.753**	**194.503**	**196.449**

[34] There is no consolidated data available at the time of writing, so forecasts are used to indicate the annual trend. Data in this section are collected from the OECD website (Organization for Economic Co-operation and Development). More details available at the link https://stats.oecd.org/viewhtml.aspx?datasetcode=HIGH_AGLINK_2019&lang=en#

2/ MARKET SUPPLY

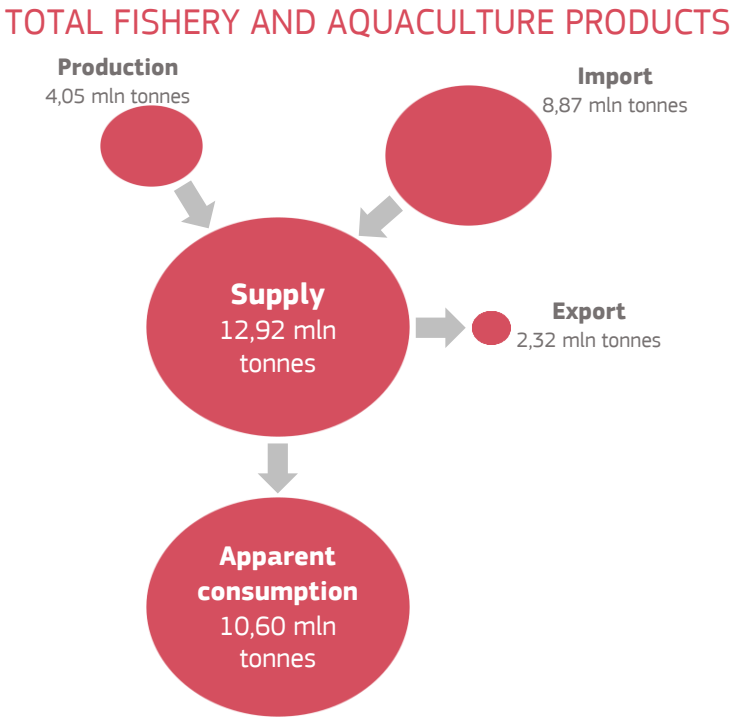
2.1 SUPPLY BALANCE AND SELF-SUFFICIENCY OVERVIEW

The EU[35] supply of fishery and aquaculture products for human consumption includes both domestic production and imports. In 2021, this supply totalled 12,92 million tonnes in live weight equivalent (LWE), which was just a 0,2% increase of 27.608 tonnes LWE from 2020. Yet, despite remaining almost constant, the supply in 2021 was still much lower than its 10-year average of circa 13,5 million tonnes LWE.

The slight increase from 2020 to 2021 followed a drop observed from 2019 to 2020, when both imports and production of aquaculture and, more significantly, from fishery decreased. In 2021, a growth in farmed production of more than 40.000 tonnes LWE from 2020 partially compensated for a 43.000-tonne LWE decrease in catches. Additionally, imports rose by almost 30.000 tonnes LWE, thus further contributing to the overall increase in supply.

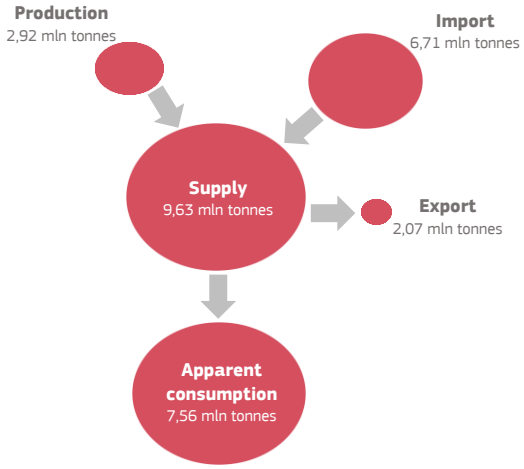
Of additional note, exports registered a 7% decrease of more than 164.000 tonnes LWE, ending at 2,32 million tonnes LWE in 2021. Consequently, the EU's apparent consumption[36] was estimated to have grown from 10,41 million tonnes LWE to 10,60 million tonnes LWE, after a three-year negative trend. However, its apparent consumption in 2021 was still 450.000 tonnes lower than its 10-year average of circa 11,05 million tonnes LWE.

CHART 3
EU SUPPLY BALANCE (2021, LIVE WEIGHT EQUIVALENT, FOOD USE ONLY)
Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, fish_aq2a and DS-045409) and FAO data. Details on the sources and on the methodological approach used for assessing the production method of imports and exports and the destination use of catches can be found in the Methodological background.



[35] In line with Eurostat's guidelines on the production and dissemination of statistical data by Commission services after the UK withdrawal from the EU, since the most recent reference period is year 2021, UK is excluded from the EU aggregations of each year. In addition, EU data include Croatia since 2013, date of the EU's enlargement to this country.
[36] The definition of "apparent consumption" is available in the "Supply balance sheet" section of the Methodological background.

FISHERY PRODUCTS



AQUACULTURE PRODUCTS

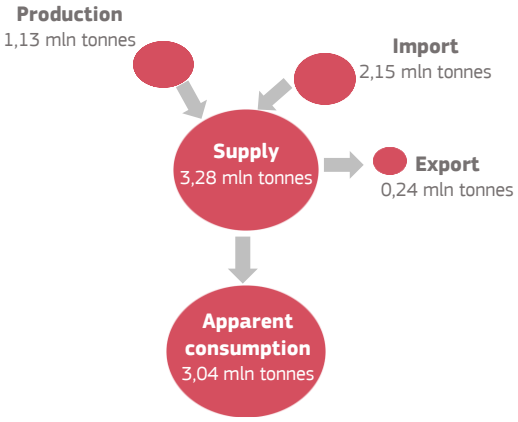


TABLE 6

EU SUPPLY BALANCE FOR FISHERY AND AQUACULTURE PRODUCTS BY COMMODITY GROUP AND PRODUCTION METHOD (2021, LIVE WEIGHT EQUIVALENT, FOOD USE ONLY)

Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, fish_aq2a and DS-045409) and FAO data. Details on the sources and on the methodological approach used for assessing the production method of imports and exports and the destination use of catches can be found in the Methodological background.

Commodity group	Production (tonnes)		Import (tonnes)		Export (tonnes)		Apparent consumption (tonnes)			Apparent consumption per capita (kg)		
	Wild	Farmed	Wild	Farmed	Wild	Farmed	Wild	Farmed	Total	Wild	Farmed	Total
Bivalves and other molluscs and aquatic invertebrates	165.663	552.669	147.213	168.857	39.283	23.081	273.593	698.445	972.038	0,61	1,56	2,17
Cephalopods	84.282	0	658.002	1	62.514	1	679.770	0	679.770	1,52	0	1,52
Crustaceans	120.328	734	466.352	426.561	149.042	4.645	437.639	422.650	860.289	0,98	0,95	1,92
Flatfish	112.327	13.132	158.834	676	82.691	405	188.470	13.403	201.873	0,42	0,03	0,45
Freshwater fish	90.686	106.749	56.095	175.243	6.203	5.984	140.577	276.008	416.585	0,31	0,62	0,93
Groundfish	534.673	1	2.482.400	543	513.964	0	2.503.109	544	2.503.653	5,60	0	5,60
Miscellaneous aquatic products	84.358	538	322.310	0	64.773	0	341.894	538	342.432	0,76	0	0,77
Other marine fish	228.551	226.067	380.585	115.153	155.195	40.167	453.941	301.052	754.994	1,02	0,67	1,69
Salmonids	12.666	211.348	65.177	1.267.165	470	158.164	77.373	1.320.350	1.397.722	0,17	2,95	3,13
Small pelagics	1.089.132	0	725.592	0	662.599	0	1.152.125	0	1.152.125	2,58	0	2,58
Tuna and tuna-like species*	397.533	17.921	1.251.417	565	336.635	10.441	1.312.316	8.045	1.320.361	2,94	0,02	2,95
Total	**2.920.199**	**1.129.159**	**6.713.976**	**2.154.764**	**2.073.368**	**242.888**	**7.560.806**	**3.041.034**	**10.601.841**	**16,91**	**6,80**	**23,71**

Data as of August 2023. Data may differ from those currently available on the EUMOFA website as these are constantly updated. Possible discrepancies in totals are due to rounding.

* Apparent consumption of the commodity group "tuna and tuna-like species" includes 97% tuna and 3% swordfish.

The average EU citizen was estimated to have consumed 23,71 kg LWE of fishery and aquaculture products in 2021, which represented a 2%-increase from 2020. Most EU consumption of fishery and aquaculture products consists of wild products and, more specifically, of imported fishery products[37]. Indeed, wild products accounted for 16,91 kg LWE of total per capita apparent consumption, and farmed products accounted for the remaining 6,80 kg LWE.

This data on catches included in the supply balance and analysed in this chapter only refers to catches for human consumption. It should be noted that catches of the EU fleet can also be destined for non-food use. According to EUMOFA estimates, catches for food use decreased from 2020 to 2021, as did catches for non-food use[38]. As above mentioned, the first decreased by 43.000 tonnes LWE, while the latter plummeted by 235.000 tonnes LWE, mainly due to the drop of Danish catches of sandeels, one of the major species produced in the EU for non-

[37] For the assessment of the origin of imports and exports in terms of production method, please refer to the Methodological background.
[38] For the estimation of the catches considered not to be destined to human consumption, please refer to the Methodological background.

food use. On the other hand, decreased catches of herring by Denmark and of mackerel by Denmark and Spain were the main contributors to the overall decrease in catches for human consumption. At the same time, they were offset by increased catches of skipjack tuna, hake and algae for food use.

TABLE 7

EU PRODUCTION (TONNES, LIVE WEIGHT)

Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main and fish_aq2a) and FAO data. Details on the sources and on the methodological approach used to assess the destination use of catches can be found in the Methodological background. Possible discrepancies in totals are due to rounding.

		2017	2018	2019	2020	2021
Food use	Catches	3.915.983	3.815.200	3.502.248	2.963.241	2.920.199
	Aquaculture	1.229.511	1.134.819	1.126.709	1.088.399	1.129.159
Total production destined for food use		**5.145.494**	**4.950.019**	**4.628.957**	**4.051.641**	**4.049.358**
Non-food use	Catches	785.498	840.197	703.690	905.728	671.050

Self-sufficiency, which is the capacity of EU Member States to meet demand from their own production, can be estimated by calculating it as the ratio of domestic production over domestic consumption.
The EU is mainly able to maintain a high level of apparent consumption of fishery and aquaculture products by importing them from other regions of the world.

TABLE 8

SELF-SUFFICIENCY RATES BY COMMODITY GROUP

Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, fish_aq2a and DS-045409), FAO, national administrations and FEAP data. Details on the sources used can be found in the Methodological background.

Commodity groups and share of total apparent consumption in 2021	Self-sufficiency rates									
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Groundfish (24%)	20%	21%	24%	25%	22%	25%	23%	23%	22%	21%
Salmonids (13%)	19%	19%	17%	17%	18%	18%	17%	17%	17%	16%
Tuna and tuna-like species (12%)	32%	34%	39%	31%	33%	31%	38%	33%	29%	31%
Small pelagics (11%)	121%	115%	130%	121%	107%	108%	107%	102%	96%	95%
Bivalves and other molluscs and aquatic invertebrates (9%)	63%	58%	59%	65%	68%	77%	78%	82%	73%	74%
Crustaceans (8%)	17%	18%	18%	18%	17%	17%	20%	18%	16%	14%
Other marine fish[39] (7%)	69%	69%	66%	64%	62%	62%	57%	56%	59%	60%
Cephalopods (6%)	19%	20%	21%	18%	15%	13%	12%	12%	13%	12%
Freshwater fish (4%)	28%	30%	33%	36%	38%	42%	39%	39%	45%	47%
Miscellaneous aquatic products (3%)	13%	20%	17%	6%	16%	14%	13%	23%	17%	25%
Flatfish (2%)	71%	73%	69%	70%	66%	67%	64%	63%	67%	62%
Total	**43,5%**	**43,7%**	**45,9%**	**44,4%**	**43,6%**	**44,5%**	**43,4%**	**41,6%**	**38,9%**	**38,2%**

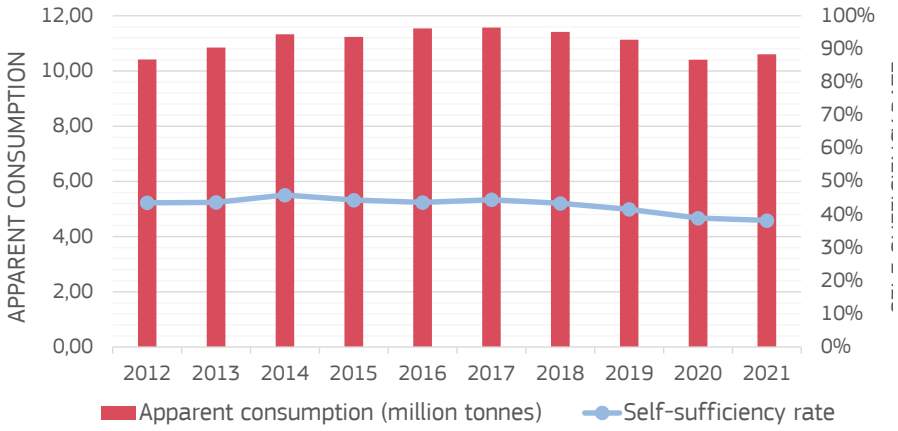
[39] Species belonging to this group are gilthead seabream and other seabreams, seabass, monk, sharks, ray, red mullet, gurnard, scabbardfish, cusk-eel, dogfish, picarel, John Dory, smelt, ray's bream, weever, cobia, and marine species not included in other commodity groups. For more information, please consult the "Harmonisation" page of the EUMOFA website at the link http://www.eumofa.eu/harmonisation.

The highest level of self-sufficiency – 46% – was reached in 2014, mainly due to a good level of production, especially in the fishery segment. In more recent years, the EU's self-sufficiency has been following a negative trend since 2018. In this period, it first decreased by 2% from 2017 to 2018 and by 4% from 2018 to 2019. In the first case it was due to both the downward trend of EU total production and the increase of imports. The drop seen in 2019 was mainly linked with a drop in wild production, as imports slightly decreased and farmed production remained almost stable. In 2020, despite imports dropped, the self-sufficiency dropped by another 6% from the previous year, which was largely due to a significant decrease in catches. In 2021, the EU's self-sufficiency was estimated to have reached its lowest level in ten years at 38,2%, which was 5% below its decade average.

CHART 4

EU APPARENT CONSUMPTION AND SELF-SUFFICIENCY RATES FOR FISHERIES AND AQUACULTURE PRODUCTS

Source: EUMOFA, based on EUROSTAT (online data codes: online data codes: fish_ca_main, fish_aq2a and DS-045409), FAO, national administrations and FEAP data. Details on the sources used can be found in the Methodological background.



2.2 ANALYSIS BY MAIN SPECIES

TABLE 9

SELF-SUFFICIENCY RATES OF TOP-15 MOST CONSUMED PRODUCTS IN THE EU (2021)

Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, fish_aq2a and DS-045409) and FAO data. Details on the sources used can be found in the Methodological background.

Products[40] and share of total apparent consumption	Per capita consumption (kg, live weight equivalent)	Self-sufficiency rate
Tuna (12%)	2,86	31%
Salmon (11%)	2,60	1%
Cod (7%)	1,75	5%
Alaska pollock (7%)	1,68	0%
Shrimps (7%)	1,63	10%
Mussel (5%)	1,25	80%
Hake (4%)	1,02	43%
Herring (4%)	1,00	72%
Squid (3%)	0,72	12%
Surimi[41] (3%)	0,62	n.a.
Sardine (2%)	0,54	74%
Mackerel (2%)	0,53	96%
Trout (2%)	0,49	88%
Clam (2%)	0,37	62%
Saithe (=Coalfish) (2%)	0,36	12%

[40] Some species are grouped in a single product, namely: mussel (*Mytilus* spp. + other mussels), tuna (skipjack, yellowfin, albacore, bigeye, bluefin and miscellaneous) and shrimp (warmwater shrimps, coldwater shrimps, deep-water rose shrimps, shrimp *Crangon* spp. and miscellaneous shrimps).
[41] As surimi is made of different species and there are no statistics specifically referring to surimi production, the self-sufficiency rate cannot be calculated for this product.

Meeting the demand for fishery and aquaculture products in the EU chiefly relies on imports, mainly of tuna, salmon, cod, Alaska pollock and shrimps. In 2021, the EU had an overall self-sufficiency of just 11% for these five species, which at the same time represented 43% of the EU's total apparent consumption of fishery and aquaculture products.
The paragraphs below focus on the evolution of self-sufficiency for the 15 products with the highest apparent consumption in the EU.

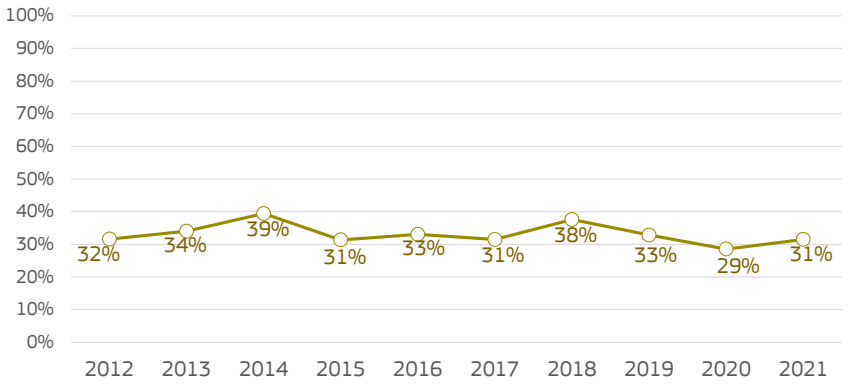
TUNA

Apparent consumption of the commodity group "tuna and tuna-like species" includes 97% tuna and 3% swordfish. Overall, the self-sufficiency rate of this category was 31% in 2021, the same as the level of tuna only.
The Autonomous Tariff Quotas (ATQs)[42] for tuna increased from 2013 to 2014, following the establishment of free trade agreements with major producing countries which contributed to the higher imports. Consequently, due to increased imports of yellowfin and skipjack tuna, the level of self-sufficiency dropped from 39% in 2014 to 31% in 2015 and remained almost stable until 2017. In 2018, it rose again – reaching 38% – driven by increased catches of skipjack tuna by the Spanish and French fleets and reduced imports. However, these catches started a downward trend in 2019 which continued in 2020, causing a new decrease in self-sufficiency. From 2020 to 2021, the self-sufficiency slightly recovered from 29% to 31% thanks to a drop in imports, which reached their lowest level since 2016, as well as to increased catches.

CHART 5

SELF-SUFFICIENCY RATE FOR TUNA

Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, fish_aq2a and DS-045409) and FAO data. Details on the sources used can be found in the Methodological background.



SALMONIDS

SALMON, TROUT

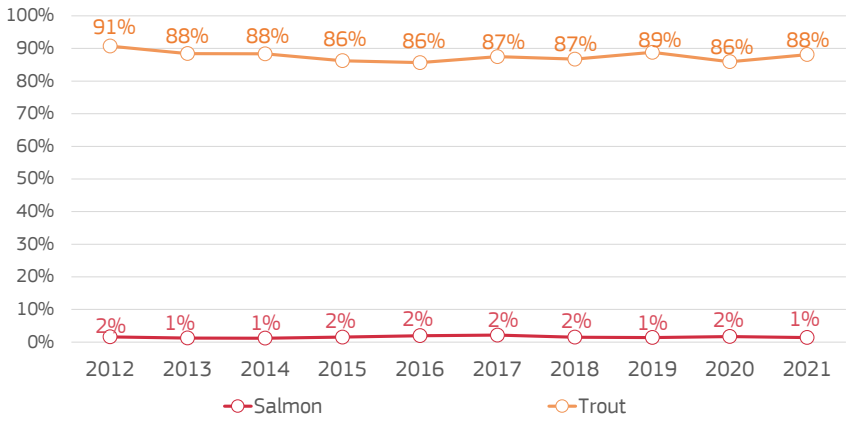
It is estimated that in 2021, only 1% of the salmon consumed in the EU was produced internally, as Norway is responsible for most of the salmon supplied to the EU as well as globally. As for trout[43], the EU maintained a good level of close to 90% of self-sufficiency during the 2012-2021 decade.

[42] Autonomous Tariff Quotas aim to stimulate economic activity of Union industries, improving competitive capacity, creating employment, modernising structures etc. They are normally granted to raw materials and semi-finished goods or components which are available in the EU but in insufficient quantities. More information is available at the link https://taxation-customs.ec.europa.eu/customs-4/calculation-customs-duties/customs-tariff/quota-tariff-quotas-and-ceilings_en.
[43] This consists of freshwater and ocean farmed trout.

CHART 6

SELF-SUFFICIENCY RATE FOR MOST CONSUMED SALMONIDS

Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, fish_aq2a and DS-045409) and FAO data. Details on the sources used can be found in the Methodological background



GROUNDFISH

COD, ALASKA POLLOCK, HAKE, SAITHE

Four groundfish species, namely cod, Alaska pollock, hake and saithe, had a combined per capita apparent consumption of 4,81 kg LWE in 2021, which accounted for close to 30% of the EU's total apparent consumption of products from wild fishery, a share that drops to 20% if also considering consumption of products from aquaculture.

As all Alaska pollock available in the EU is imported, Member States are completely dependent on non-EU countries to meet their demand.

For the other three species of this group, EU self-sufficiency totalled 18% in 2021.

Cod, the species ranking second after salmon in terms of apparent consumption in the EU, dropped to its lowest level of self-sufficiency in 10 years, namely 5%, which was half its decade average of 10%. This mainly due to the downward trend of Spanish, Danish, French and Polish catches. That said, of these main producing countries, Poland registered an increase from 2020 to 2021.

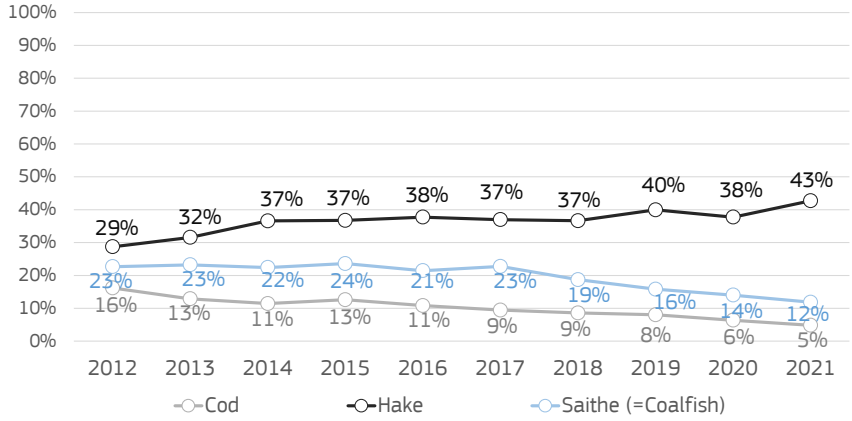
Saithe self-sufficiency also continued to drop, reaching 12% in 2021 and thus its lowest level of the decade analysed. In this case, this was almost half its decade average of 20%. The decline was mainly caused by increased apparent consumption relying on imports while EU catches were decreasing. The most significant drop in catches from 2020 to 2021 was recorded by Germany, while catches of the French fleet, the major producer of this species, registered a slight decrease.

On the other hand, the self-sufficiency for hake grew from 38% in 2020 to 43% in 2021, reaching a 10-year peak. This was mainly due to the remarkable growth of catches in Spain, the major producing country, as well as to decreased imports. Imports had also decreased from 2019 to 2020, but not enough to offset the drop that affected Spanish catches.

CHART 7

SELF-SUFFICIENCY RATE FOR MOST CONSUMED GROUNDFISH

Source: EUMOFA, based on EUROSTAT data (online data codes: fish_ca_main and DS-045409). Details on the sources used can be found in the Methodological background.



SMALL PELAGICS

HERRING, MACKEREL SARDINE

With 1,09 million tonnes LWE of catches, small pelagics accounted for 27% of the total volume of all fishery and aquaculture products produced in the EU in 2021, a share that increases to 37% if only considering the total EU wild production. This is much higher than EU imports of small pelagic species, which totalled just above 725.000 tonnes LWE in the same year, meaning the EU is fully capable of meeting the overall EU demand for these products. Indeed, when looking at the three most consumed species of this group, namely herring, sardine and mackerel, in some years the EU had a combined self-sufficiency of 100% or higher.

In 2021, herring's self-sufficiency dropped to 72%, a remarkable decline from 93% in 2019 and 79% in 2020. The drop was due to decreased quotas, which resulted in decreased catches.

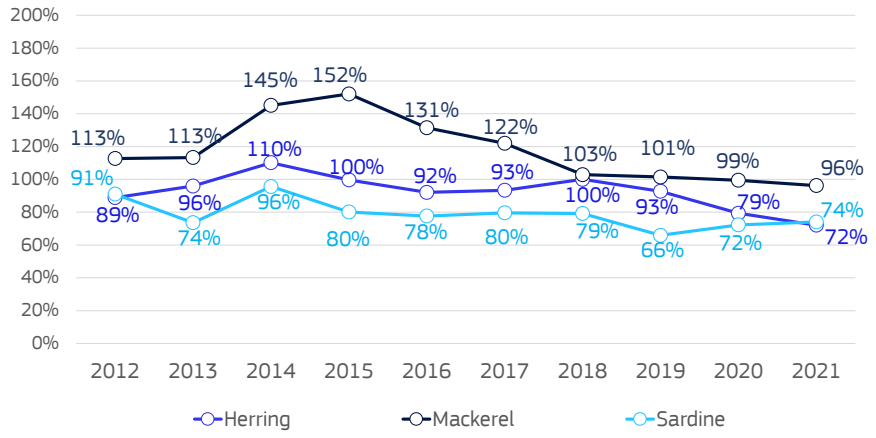
As regards mackerel, the EU was fully capable of meeting the overall EU demand up from 2012 to 2019, showing self-sufficiency rates above 100% each year. Then, the self-sufficiency declined to 99% in 2020 and 96% in 2021. Indeed, catches of mackerel have been experiencing a decreasing trend since 2018, which has also meant a slight decrease in terms of self-sufficiency.

As concerns sardine, EU self-sufficiency continued the recovery initiated in 2020. Catches of this species had recorded a drop from 2018 to 2019 which, accompanied by increased imports, brought self-sufficiency down from 79% to 66%. Then in 2020, all major producers – Croatia, France, Spain, the Netherlands and Portugal – had increased catches, which offset the decreases in the catches of the Italian and Greek fleets and a new increase in imports. In 2021, imports dropped while catches grew slightly, thus generating an increase in self-sufficiency which rose from 72% in 2020 to 74% in 2021.

CHART 8

SELF-SUFFICIENCY RATE FOR MOST CONSUMED SMALL PELAGICS

Source: EUMOFA, based on EUROSTAT data (online data codes: fish_ca_main and DS-045409). Details on the sources used can be found in the Methodological background.



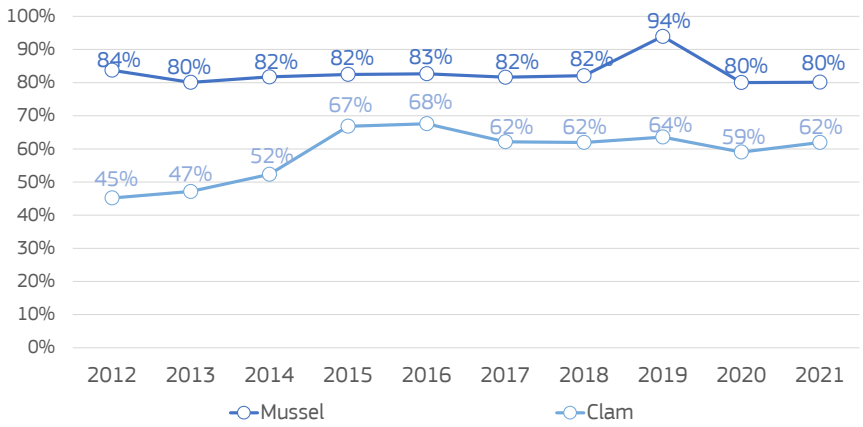
BIVALVES

MUSSEL, CLAM

Mussel is one of the few among the EU's most consumed species that has a high level of self-sufficiency. From 2012 to 2018, its level averaged 82%, then it boosted to 94% in 2019, after which it dropped to 80% in both 2020 and 2021. This trend reflected the decline in Spanish farmed production.

The self-sufficiency for clam grew until 2016, when it reached a decade peak of 68%. The following three years, it settled at an average level of 63% due to decreases in the volume of aquaculture production in Italy, its major producer. From 2019 to 2020, despite increased wild fishery production in Italy, the self-sufficiency declined to 59%, its lowest level in six years. In 2021, it increased again to reach 62%, driven by the significant increases in the wild production of the Netherlands and Denmark.

CHART 9
SELF-SUFFICIENCY RATE FOR MOST CONSUMED BIVALVES
Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, fish_aq2a and DS-045409), FAO and national administrations data. Details on the sources used can be found in the Methodological background.

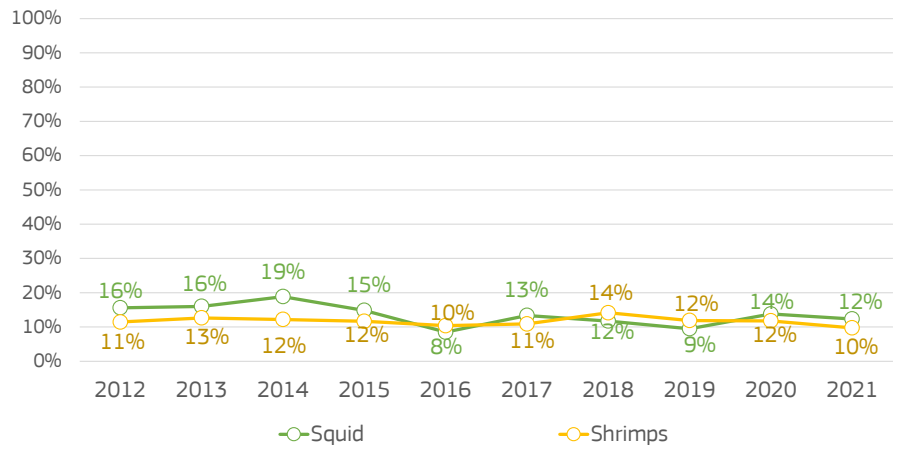


OTHER PRODUCTS OF DIFFERENT COMMODITY GROUPS

SHRIMPS, SQUID, SURIMI

Other highly consumed products in the EU are shrimps (of the group crustaceans), squid (cephalopods) and surimi (miscellaneous aquatic products).
Of these, the EU is highly dependent on imports of shrimps and squid.
The self-sufficiency for shrimps averaged 12% in the 10-year period analysed, without showing notable variations. The most consumed shrimp species, which are mainly supplied through imports, are warmwater shrimps and Argentine red shrimp, in the form of frozen or prepared/preserved products.
As for squid, its self-sufficiency of 12% in 2021 represented a decrease from the 14% it had registered in 2020, which was linked with a significant increase in imports.
Surimi, on the other hand, is a human-made combination of species, and thus, statistics referring to its production do not exist, which means its self-sufficiency rate cannot be calculated.

CHART 10
SELF-SUFFICIENCY RATE FOR OTHER MOST CONSUMED PRODUCTS
Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, fish_aq2a and DS-045409) and FAO data. Details on the sources used can be found in the Methodological background.



3/ CONSUMPTION

3.1 OVERVIEW FOR TOTAL FISHERY AND AQUACULTURE PRODUCTS

APPARENT CONSUMPTION

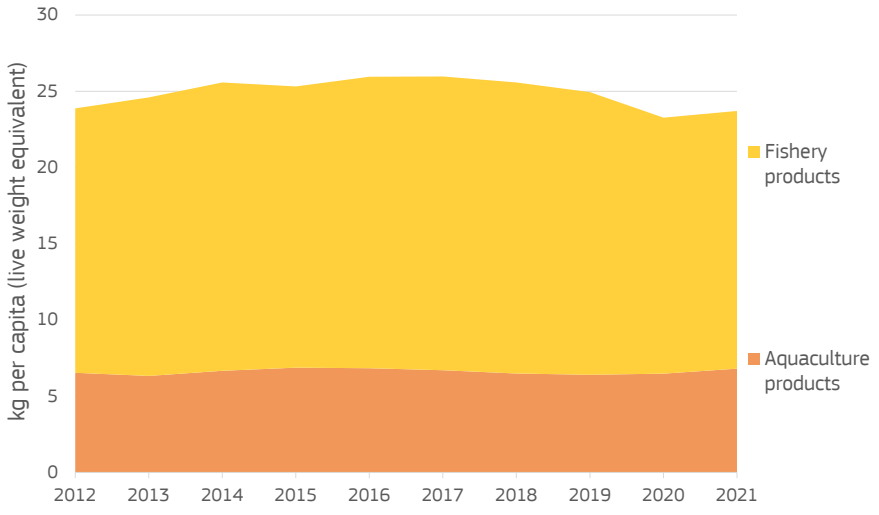
In 2021, after three years of decreases, apparent consumption of fishery and aquaculture products in the EU recovered to an estimated 10,60 million tonnes LWE.

In 2021, after three years of decreases from its 2017 peak of 11,57 million tonnes, apparent consumption[44] of fishery and aquaculture products in the EU[45] recovered to an estimated 10,60 million tonnes LWE, which represented a 2% increase from 2020. Overall, the increase of EU apparent consumption from 2020 to 2021 was linked to a growth in farmed production of more than 40.000 tonnes LWE which partially compensated for decreased catches. The EU also saw imports increase by almost 30.000 tonnes LWE, alongside a significant drop in exports of more than 164.000 tonnes LWE. The most significant increases in imports were observed for blue whiting, squid, shrimps and salmon, while those of farmed production mainly included mussel and European seabass. On the other hand, the main drops in catches were seen for herring, mackerel and horse mackerel, and decreased exports mainly included herring and salmon.

During the 10-year period under analysis, the shares of wild and farmed products on total remained similar until 2019, at around 75% for wild products and 25% for farmed products. Then, during 2020–2021, in line with decreased EU production from fisheries activity, the share of apparent consumption of wild products on total declined to just above 70%. In addition, the per capita apparent consumption of farmed products is estimated to have increased from 6,47 kg LWE to 6,80 kg LWE from 2020 to 2021, which was the highest since 2016. The per capita apparent consumption of wild products is estimated to have increased as well, even if slightly, rising from 16,80 kg LWE to 16,91 kg LWE.

CHART 11
PER CAPITA APPARENT CONSUMPTION OF FISHERY AND AQUACULTURE PRODUCTS

Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, fish_aq2a and DS-045409) and FAO data. Details on the sources and on the methodological approach used for assessing the production method of imports and exports and the destination use of catches can be found in the Methodological background.



[44] The definition of "apparent consumption" is available in the "Supply balance sheet" section of the Methodological background.
[45] In line with Eurostat's guidelines on the production and dissemination of statistical data by Commission services after the UK withdrawal from the EU, since the most recent reference period is year 2021, UK is excluded from the EU aggregations of each year. In addition, EU data include Croatia since 2013, date of the EU's enlargement to this country.

According to EUMOFA and national estimates[46], Portugal stands out as the major EU consumer of fishery and aquaculture products. Portugal's standing was confirmed in 2021, although its per capita apparent consumption has been on a downward trend since peaking in 2018 at close to 61,00 kg LWE.

That said, in contrast to the increase estimated at EU level from 2020 to 2021, decreases were estimated for the major EU consuming countries. However, it is worth highlighting that estimates have been increasing in some of the countries which traditionally show lower levels of per capita apparent consumption. For example, they increased every year of the last decade in Hungary, Romania and Slovakia.

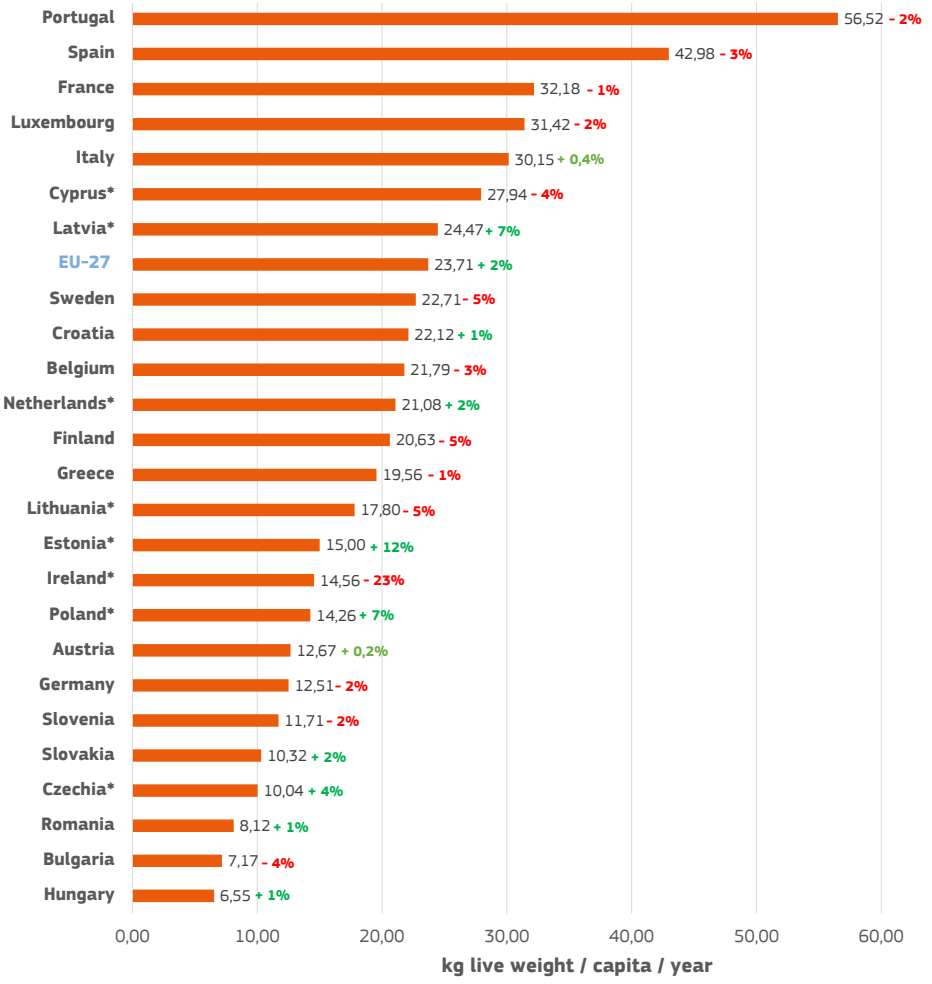
CHART 12

PER CAPITA APPARENT CONSUMPTION OF FISHERY AND AQUACULTURE PRODUCTS BY MEMBER STATE IN 2021 AND % VARIATION 2021/2020

Source: EUMOFA estimates.

*Data were provided by the following National sources: CZSO Czech Statistical Office (Czechia), Estonian Institute of Economic Research - EKI (Estonia), Latvia University of Life Science and Technology and Ministry of Agriculture of Latvia (Latvia), Agricultural Data Center (Lithuania), Dutch Fish Marketing Board (Netherlands) and Institute of Agricultural and Food Economics - National Research Institute (Poland). The Department of Fisheries and Marine Research of the Ministry of Agriculture, Rural Development and Environment of Cyprus, and the Irish Sea Fisheries Protection Authority could not provide any estimates. As for Ireland, the decrease from 2020 to 2021 was confirmed though.

Denmark and Malta are not included in this Chart. For Denmark, the Danish Fisheries Agency could not provide any estimates but, according to estimates made by the University of Copenhagen for the latest years, per capita apparent consumption in Denmark has been between 20,00-25,00 kg LWE. For Malta, given the significant relevance of imports of frozen fish likely used directly as fish feed in the Maltese bluefin tuna fattening industry, available data and information for Malta do not allow to produce precise estimates. Also, in small countries such as Malta, the presence of tourists has a relevant impact on total consumption. Considering this, annual per capita apparent consumption can be estimated between 30-40 kg LWE.



[46] It is worth underlining that the methodologies for estimating apparent consumption at EU and Member State levels are different, the first based on data and estimates as described in the Methodological background, the latter also requiring the adjustment of abnormal trends due to the higher impact of stock changes. Where EUMOFA estimations on per capita apparent consumption continued to show high annual volatility even with these adjustments, national contact points were contacted to confirm these estimates or to provide their own figures. These are marked with a * in Chart 12.

Salmon is by far the species showing the highest apparent consumption throughout the whole 10-year period under analysis. However, the reader should bear in mind that in this chapter, the product "tuna" includes several main commercial tuna species[47], which result in its higher apparent consumption compared with that of salmon. The same applies to the aggregation of shrimp and prawn species included in the product "shrimps".

The table below show the EUMOFA estimates of per capita apparent consumption for the 15 most consumed products in the EU.

TABLE 10

APPARENT CONSUMPTION OF TOP-15 MOST CONSUMED PRODUCTS (2021)

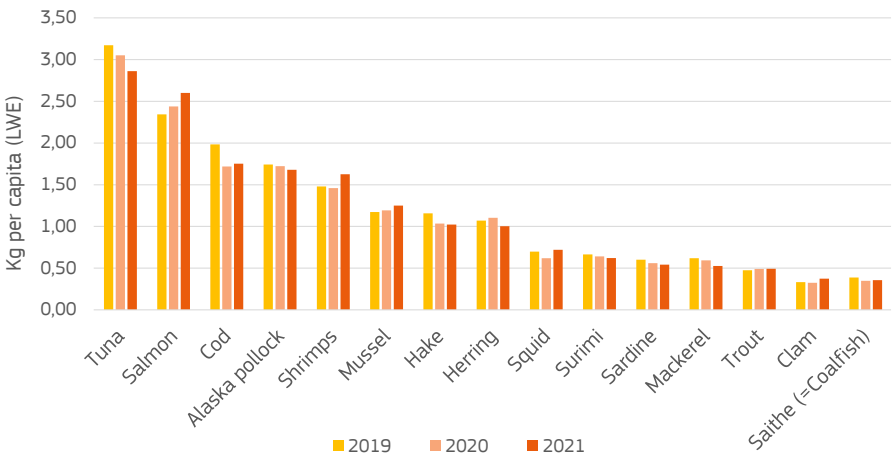
Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, fish_aq2a and DS-045409) and FAO data. Details on the sources and on the methodological approach used for assessing the production method of imports and exports and the destination use of catches can be found in the Methodological background.

Products	Per capita consumption (kg, LWE)	Consumption evolution 2021/2020	% wild	% farmed
Tuna	2,86	-6%	99,4%	0,6%
Salmon	2,60	+7%	5,6%	94,4%
Cod	1,75	+2%	99,9%	0,1%
Alaska pollock	1,68	-3%	100%	0%
Shrimps	1,63	+11%	44,3%	55,7%
Mussel	1,25	+5%	5,8%	94,2%
Hake	1,02	-1%	100%	0%
Herring	1,00	-9%	100%	0%
Squid	0,72	+16%	100%	0%
Surimi	0,62	-3%	100%	0%
Sardine	0,54	-3%	100%	0%
Mackerel	0,53	-11%	100%	0%
Trout	0,49	+0,3%	1,6%	98,4%
Clam	0,37	+15%	70,0%	30,0%
Saithe (=Coalfish)	0,36	+2%	100%	0%
Other products	6,29	+5%	73,8%	26,2%
Total	**23,71**	**+2%**	**71,3%**	**28,7%**

CHART 13

APPARENT CONSUMPTION OF TOP-15 MOST CONSUMED PRODUCTS, THREE-YEAR TREND

Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, fish_aq2a and DS-045409) and FAO data. Details on the sources and on the methodological approach used for assessing the production method of imports and exports and the destination use of catches can be found in the Methodological background.



[47] Skipjack, yellowfin, albacore, bigeye, bluefin and miscellaneous tunas.

TUNA

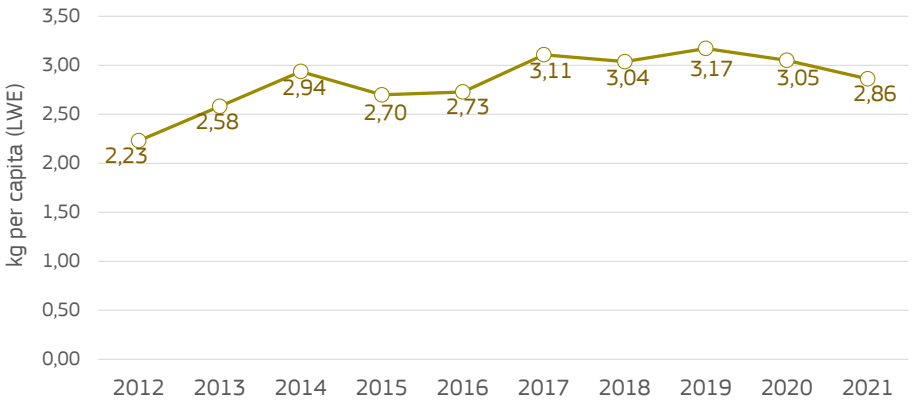
Tuna's apparent consumption in the EU peaked at 3,17 kg LWE in 2019, due to a significant increase of imports. Indeed, average EU self-sufficiency was 33% over the last decade and, thus, EU consumption of tuna is largely supported by imports (the), and to a lesser extent by internal production which mainly consists of Spanish and French catches of skipjack tuna. However, it should be considered that a significant share of these Spanish and French catches is landed abroad, further processed there into mainly canned tuna, and then re-exported.

In 2020 and 2021, apparent consumption of tuna showed a downward trend with several factors contributing to the decreases. This decline from 2019 to 2020 was linked to a 20% drop in tuna catches which did not compensate for a 2% increase in imports; one year later, catches increased by only 8% while imports dropped by 9%.

CHART 14

APPARENT CONSUMPTION OF TUNA

Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, fish_aq2a and DS-045409) and FAO data. Details on the sources and on the methodological approach used for assessing the production method of imports and exports and the destination use of catches can be found in the Methodological background.



SALMONIDS

SALMON, TROUT

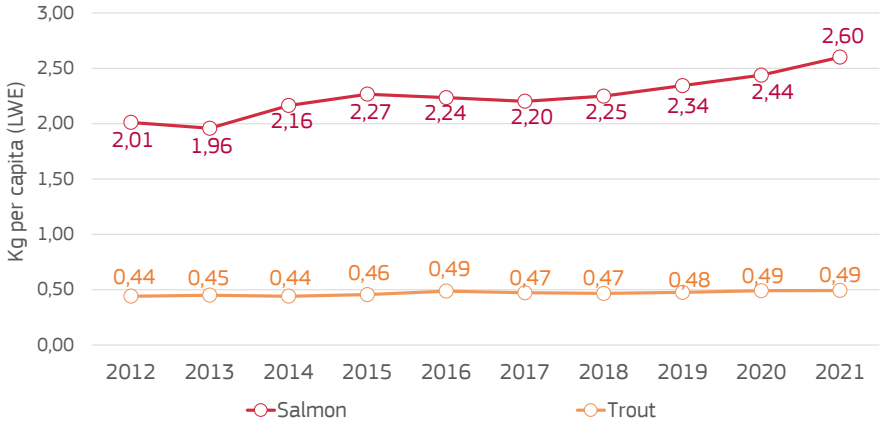
Apparent consumption of salmon has been on the rise in recent years, primarily supported by imports from Norway, and to a much lesser extent by aquaculture production in Ireland. On average, each individual person in the EU is estimated to have consumed 2,60 kg LWE of salmon in 2021, which was a decade peak. Despite several challenges, this indicates that European producers, traders and processors of salmon managed to maintain a robust supply chain during the outbreak of the pandemic in 2020 as well as the following year.

Apparent consumption of trout in the EU remained close to 500 grams LWE per capita each year of the decade analysed. This was in line with an almost flat trend of the volumes farmed in main producing Member States.

CHART 15

APPARENT CONSUMPTION OF MOST CONSUMED SALMONIDS

Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, fish_aq2a and DS-045409) and FAO data. Details on the sources and on the methodological approach used for assessing the production method of imports and exports and the destination use of catches can be found in the Methodological background.



GROUNDFISH

COD, ALASKA POLLOCK, HAKE, SAITHE (=COALFISH)

Four groundfish species – cod, Alaska pollock, hake and saithe (coalfish) – account for more than one fifth of EU apparent consumption of fishery and aquaculture products.

EU cod consumption is mainly supplied by imports from Norway, Iceland and Russia. It has been decreasing since its 2016 peak of 2,20 kg LWE per capita, due to the downward trend of supply from imports and catches in the 2017-2021 period. The cod apparent consumption in 2021, namely 1,75 kg LWE, represented a slight increase from the 1,72 kg LWE estimated for 2020, which was mainly linked to decreased exports – which meant more product available for the EU consumers.

Since the EU does not catch Alaska pollock, apparent consumption is estimated as the total of imports *minus* exports. During the decade analysed, this averaged at 1,70 kg LWE.

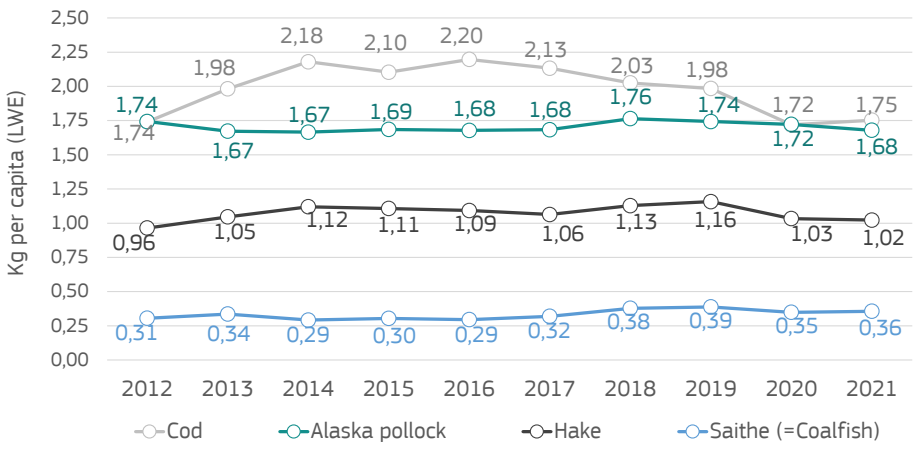
Apparent consumption of hake was estimated just above 1,00 kg LWE per capita in 2021. It peaked in 2019, when both catches and imports were at their highest, but they both dropped in 2020, causing a decrease in apparent consumption. In 2021, catches recovered but could not offset decreased supplies from non-EU countries and increased exports, which generated a new decline in apparent consumption.

Apparent consumption of saithe, which is largely supplied by imports from Norway and Iceland, did not show significant variations during the decade analysed, averaging 330 grams LWE per capita.

CHART 16

APPARENT CONSUMPTION OF MOST CONSUMED GROUNDFISH

Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, and DS-045409). Details on the sources and on the methodological approach used for assessing the production method of imports and exports and the destination use of catches can be found in the Methodological background.



SMALL PELAGICS

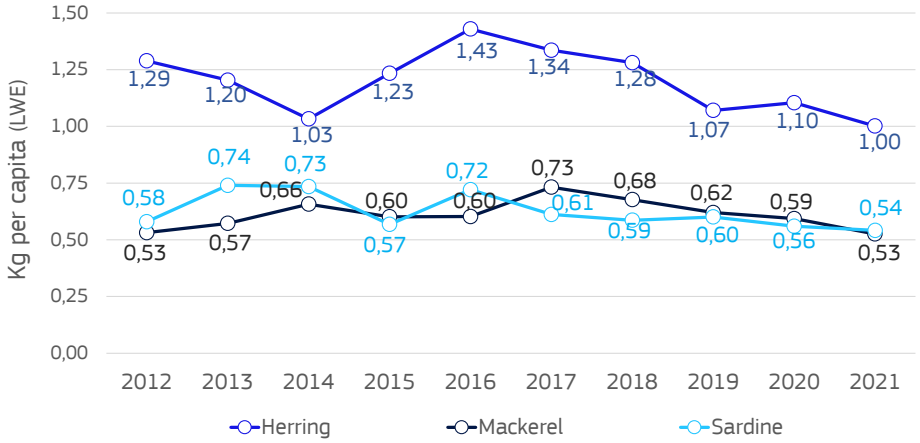
HERRING, MACKEREL, SARDINE

The EU produces significant quantities of small pelagics, mainly including herring with the Netherlands and Denmark as main fishing nations; mackerel, mostly caught by Irish vessels; and sardine, mainly caught by the Croatian and Spanish fleets. In addition, their availability in the EU market is largely fed by supplies from non-EU countries, in particular from Norway and the UK, which supply herring and mackerel, and Morocco which supplies sardine. Also of note, EU exports play an important role in the supply balance for these species.

In 2021, apparent consumption of herring was only 1,00 kg LWE per capita, the lowest in ten years. This was mainly due to decreased catches, also the lowest in ten years, at 322.743 tonnes, as well as to decreased imports.

As regards mackerel and sardine, during the decade under analysis, their annual apparent consumption per capita remained between 500 grams LWE per capita and 750 grams LWE per capita. In 2021, their apparent consumption was estimated at 530 grams LWE per capita and 540 grams LWE per capita.

CHART 17
APPARENT CONSUMPTION OF MOST CONSUMED SMALL PELAGICS
Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, and DS-045409). Details on the sources and on the methodological approach used for assessing the production method of imports and exports and the destination use of catches can be found in the Methodological background.



BIVALVES

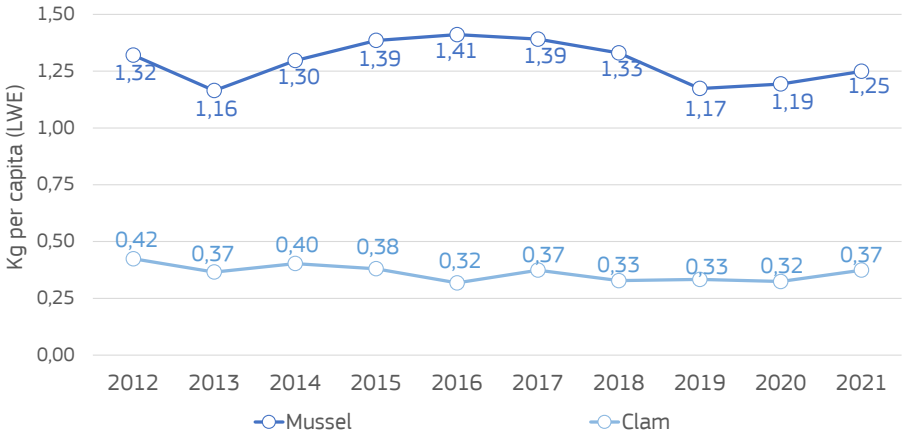
MUSSEL, CLAM

Mussel is by far the main product farmed in the EU in volume terms– especially in Spain. It is followed at a distance by trout. However, in terms of apparent consumption, salmon plays a more significant role due to the important amounts imported from Norway.

In 2021, mussel's apparent consumption showed signs of recovery after the drop observed during 2019–2020 that was linked to a drop in production. It was estimated at 1,25 kg LWE per capita, which was lower than the 1,35 kg LWE per capita average of the period 2014–2018.

As regards clam, apparent consumption of clam in the EU remained just above 300 grams LWE per capita during 2018, 2019 and 2020, in line with an almost flat trend of imports and production. To note, it was higher in 2017, at close to 400 grams LWE, when aquaculture production in Italy was at one of its higher levels of the decade. In 2021, a 15% increase in apparent consumption was observed, which reached 370 grams LWE per capita. In this case, the increase was linked with increased wild production in the Nethelands and Denmark.

CHART 18
APPARENT CONSUMPTION OF MOST CONSUMED BIVALVES
Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, fish_aq2a and DS-045409) and FAO data. Details on the sources and on the methodological approach used for assessing the production method of imports and exports and the destination use of catches can be found in the Methodological background.



OTHER PRODUCTS OF DIFFERENT COMMODITY GROUPS

SHRIMPS, SQUID, SURIMI

Apparent consumption of shrimps includes equal shares of wild and farmed products. It largely relies on imports from Ecuador, India, Vietnam, Thailand, Indonesia, Argentina, and Greenland. After reaching a peak of 1,60 kg LWE per capita in 2018, apparent consumption of shrimps in the EU remained below 1,50 kg LWE per capita during 2019 and 2020, largely due to decreased Dutch and German production of *Crangon*. However, for the EU's most imported shrimp species – namely frozen or prepared/preserved warmwater shrimps and Argentine red shrimp – apparent consumption did not show remarkable changes in the same period. Then in 2021,

shrimps' apparent consumption reached a new peak of 1,63 kg LWE per capita, due to increased supplies from Ecuador and Argentina.

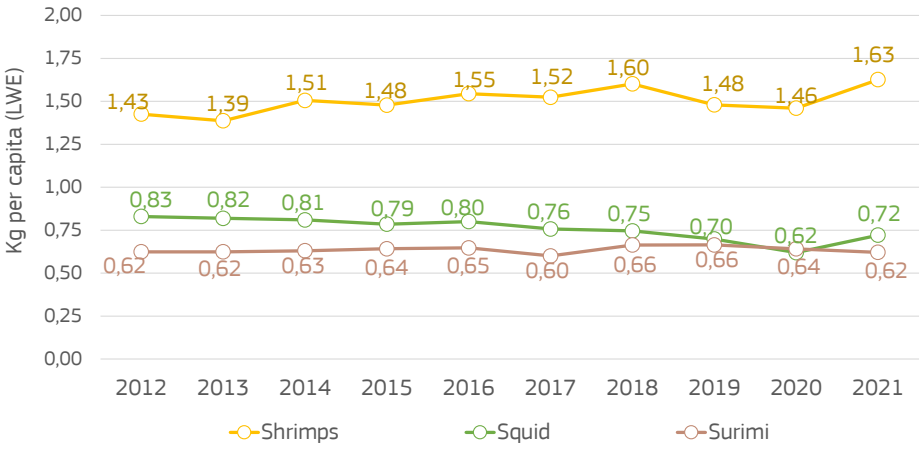
Apparent consumption of squid in the EU largely relies on imports. It dropped in 2020 due to reduced imports from the Falkland Islands, which is the EU's major supplier of this species. However, per capita apparent consumption then grew to 720 grams LWE in 2021, thanks to increased imports from the Falkland Islands.

As concerns surimi, no statistics concerning its production are available, as it is made of different species. Therefore, apparent consumption is calculated as the result of imports *minus* exports. During the decade under analysis, per capita apparent consumption of surimi in the EU was 650 grams LWE on average, largely comprising surimi imported from the United States.

CHART 19

APPARENT CONSUMPTION OF OTHER MOST CONSUMED PRODUCTS

Source: EUMOFA, based on EUROSTAT (online data codes: fish_ca_main, fish_aq2a and DS-045409) and FAO data. Details on the sources and on the methodological approach used for assessing the production method of imports and exports and the destination use of catches can be found in the Methodological background.



HOUSEHOLD EXPENDITURE AND PRICES

In 2022, household expenditure on fishery and aquaculture products in the EU reached EUR 62,9 billion, marking an 11% increase from 2021. This growth represented a significant decade rise of over 34% in real terms compared with 2013[48] and continued the upward trend registered since 2018.

Of note, as shown in Chart 20, 22 EU Member States experienced increases of more than 10% in household expenditures on fishery and aquaculture products, with 8 of them recording increases of more than 15%. These figures suggest that the 11% annual growth was a result of an overall increase throughout the EU. Indeed, 2021 and 2022 were the only two years in which a simultaneous increase in spending was recorded in all EU countries.

Household expenditure rose in all EU countries, overall increasing by 11%. The biggest driver of the 2022 rise was inflation.

Increases in total household expenditure were recorded in both 2020 and 2021, mainly as a consequence of COVID-19 restrictions which had led to households buying more fish to consume at home. Then in 2022, a new increase in total household expenditure was recorded, which was linked to the rising inflation related to the economic and geopolitical situation. Indeed, according to Europanel/Kantar/GfK data, the total consumption of fish at home dropped by almost 17% in the highest consuming EU countries from 2021 to 2022. The post-pandemic economic recovery led to increased demand which usually brings to higher prices. Further, the Russian military aggression against Ukraine had important repercussions, particularly affecting energy and transport costs, as well as trade flows. Additionally, competition for raw materials tightened in 2022 due to increased market share from outside the EU, especially in Asia. Factors such as the US import ban on fish from Russia, the heavy tariffs imposed by the UK on imports of fish from Russia, the strong demand in the US market, and the removal of COVID-19 import restrictions contributed to

[48] In this report, value and price variations for periods longer than five years are analysed by deflating values using the GDP deflator (base=2015); for shorter periods, nominal value and price variations are analysed.

price increases. It also reduced availability of certain species in the EU market where consumption mainly relies on imports, such as salmon, cod and, to a lesser extent, shrimps.

Italy, historically having the highest total expenditure on fishery and aquaculture products, experienced the largest absolute increase in household spending, with a rise of over EUR 1,4 billion in 2022, representing an 11% relative increase. Spain closely followed with a 10% growth of EUR 1,3 billion, while France ranked third in terms of total expenditure on fish, with an 8% increase of EUR 733 million. Portugal, historically the largest per capita consumer of fishery and aquaculture products in the EU, saw its per capita expenditure reach EUR 413 in 2022, almost three times the EU average of EUR 140, and EUR 143 more than second-ranked Spain. Portugal and Spain also had the highest increases in per capita expenditure in the EU, growing by EUR 47 and EUR 27 respectively.

CHART 20

HOUSEHOLD NOMINAL EXPENDITURE ON FISHERY AND AQUACULTURE PRODUCTS IN 2022 AND % VARIATION 2022/2021 (out-of-home consumption is excluded)

Source: EUROSTAT (online data code: prc_ppp_ind)
Purchasing Power Parities PPPs – nominal expenditure

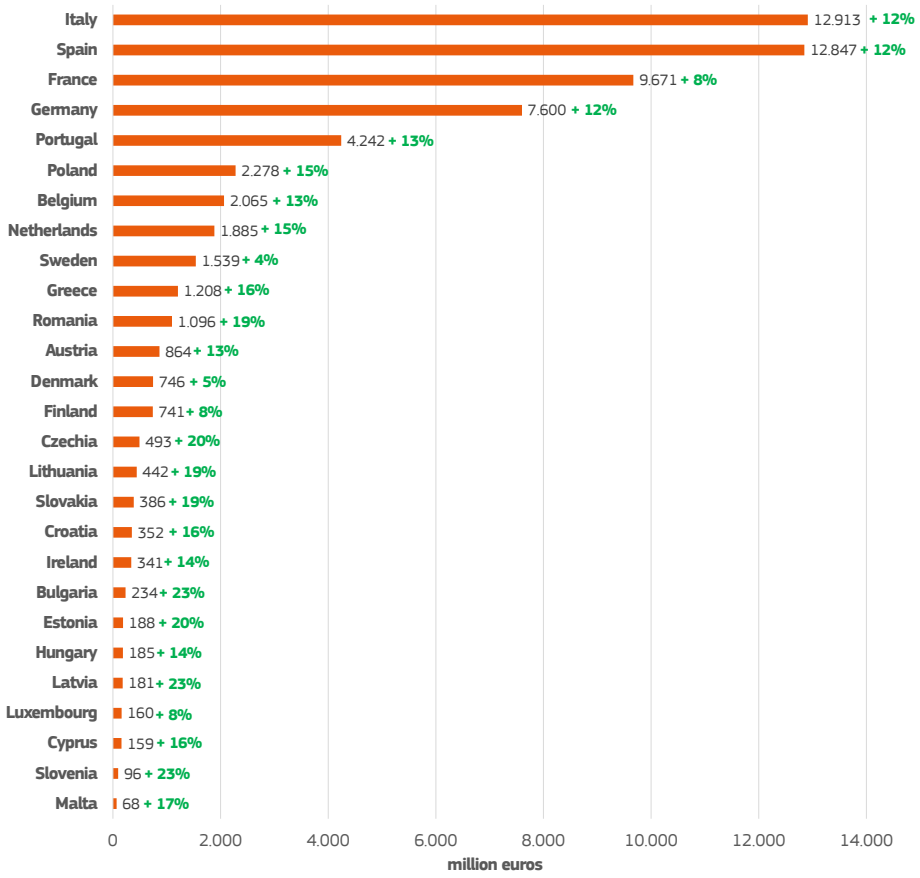
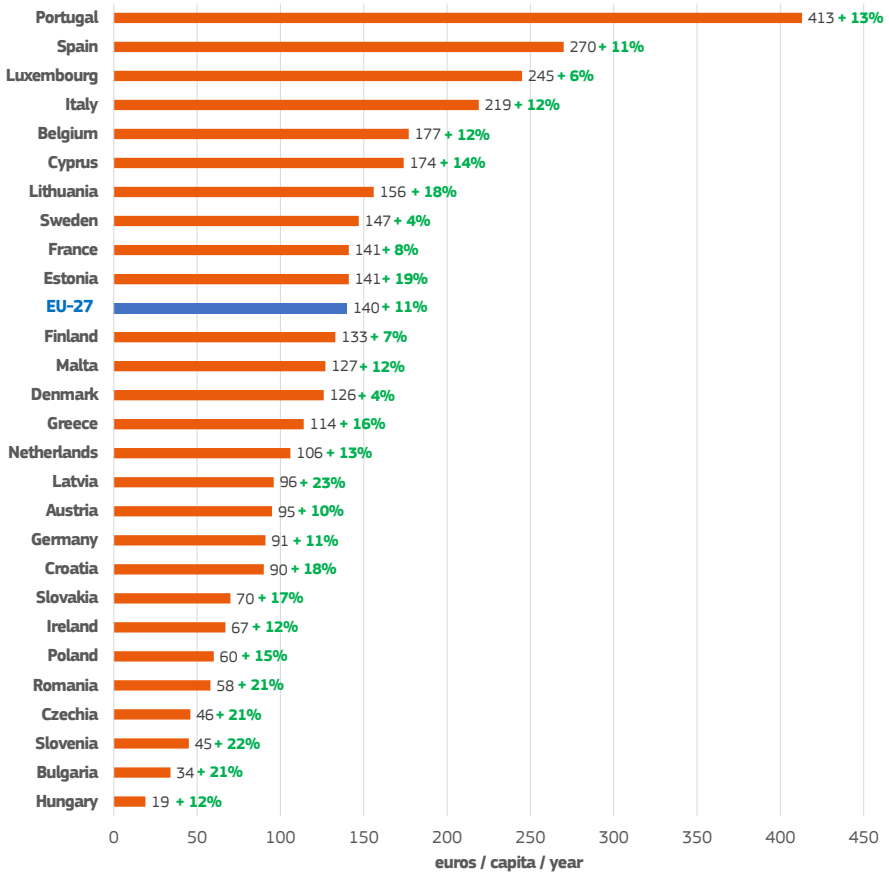


CHART 21

PER CAPITA HOUSEHOLD NOMINAL EXPENDITURE ON FISHERY AND AQUACULTURE PRODUCTS IN 2022 AND % VARIATION 2022/2021 (out-of-home consumption is excluded)

Source: EUROSTAT (online data code: prc_ppp_ind)
Purchasing Power Parities PPPs – nominal expenditure per inhabitant



FISHERY AND AQUACULTURE PRODUCTS VS. MEAT AND FOOD IN GENERAL

In all EU countries, expenditure on meat is historically higher than expenditure for fishery and aquaculture products. This is also the case when it comes to volumes consumed[49]. On average, EU household expenditure for fishery and aquaculture products is around one fourth of the amount spent on meat. In 2022, EU households spent EUR 244 billion on meat and EUR 63 billion on fishery and aquaculture products.

Of all the Member States, the ratio between the two categories is most balanced in Portugal, as can be seen in Chart 22. In 2022, fish accounted for 44% of Portuguese household expenditure for fish and meat, while meat accounted for the remaining 56%. The greatest imbalances were seen in Hungary, which spent 5% for fishery and aquaculture products, and Romania and Czechia, which spent 7% and 9%, respectively, of the total for fishery and aquaculture products.

In the four countries with highest consumption of fish – namely Italy, Spain, France and Germany – different habits can be observed. In Italy, the amount households spend on fish is only one fourth of what they spend on meat. In Spain, the expenditure on fish is slightly less than one third of the expenditure on meat. In France, households spend less than one fifth on fish compared with meat, and in Germany, it is around one sixth.

[49] This is confirmed by OECD (link: https://stats.oecd.org/viewhtml.aspx?datasetcode=HIGH_AGLINK_2019&lang=en#).

CHART 22
HOUSEHOLD NOMINAL EXPENDITURE ON FISHERY AND AQUACULTURE PRODUCTS VS. MEAT IN THE EU IN 2022 (out-of-home consumption is excluded)
Source: EUROSTAT (online data code: prc_ppp_ind)
Purchasing Power Parities PPPs – nominal expenditure

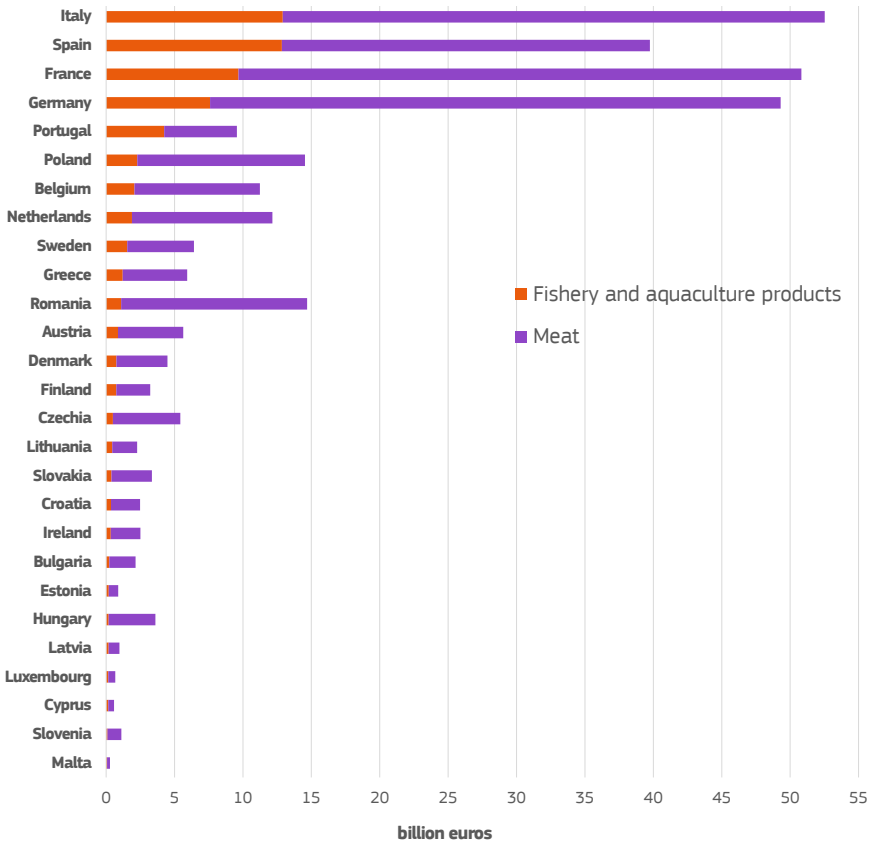


Chart 23 below clearly shows how prices recorded a steep rise in 2022 and have continued to grow remarkably in 2023.

CHART 23
CONSUMER PRICES INDICES (2015=100)
Source: EUROSTAT (online data code: prc_ppp_ind)
Purchasing Power Parities PPPs – nominal expenditure

In 2022, rising inflation heavily impacted the prices of fishery and aquaculture products, which increased by more than 10% from 2021 to 2022. It is interesting to note that, in 2022, fish prices increased less than the prices of meat and food in general: with food prices increasing by more than 12% and meat prices by 11,6%. Moreover, recent data indicate that the first five months of 2023 saw a significant 9% increase in prices of fish, while meat increased 8,7% and food in general increased 11,9%.

From 2014 to 2023[50], consumer prices of fishery and aquaculture products increased an average of 3,6% per year. This was slightly higher than the 3,1% growth rate recorded for the prices of meat and the 3,5% growth rate for all food commodities in general. Until 2022, the gap in the three growth rates had been wider, reaching 3% for fish, 2,5% for meat and 2,6% for food in general. The average prices of fish began to increase significantly in 2016, and by 2022, they had risen by 42% in real terms compared with 2013. This price growth was aligned with the increased prices of imported products, as the EU relies heavily on imports to meet consumer demand for fishery and aquaculture products. The prices of meat and food also grew during the same period, but at lower rates.

TABLE 11
YEARLY EVOLUTION OF CONSUMER PRICES (2015=100)
Source: EUROSTAT (online data code: prc_fsc_idx)
Harmonised Index of Consumer Prices HICP

Sector	2018	2019	2020	2021	2022	2023 (up to May)	2023 / 2018
Food	+1,9%	+2,2%	+2,7%	+1,5%	+12,2%	+11,9%	**+33,8%**
Meat	+1,5%	+2,7%	+4,5%	+1,3%	+11,6%	+8,7%	**+31,9%**
Fishery and aquaculture products	+2,1%	+1,7%	+2,1%	+1,5%	+10,1%	+9,0%	**+26,4%**

RELEVANCE BY PRESERVATION STATE

With regard to statistics concerning household expenditure for fishery and aquaculture products, Eurostat provides *"shares of the total household final monetary consumption expenditure"*[51] for four preservation states, which are listed in Table 12.

TABLE 12
ITEM WEIGHTS OF EU HOUSEHOLD EXPENDITURE ON "TOTAL GOODS AND SERVICES"
Source: EUROSTAT (online data code: prc_hicp_inw)
Harmonised Index of Consumer Prices HICP.

Category	2021	2022
FOOD (Meat + FAPs + Other food)	16,423%	15,871%
Meat	3,892%	3,759%
Fishery and aquaculture products	0,995%	0,976%
Fresh or chilled	*48%*	*48%*
Frozen	*20%*	*20%*
Dried, smoked or salted	*10%*	*10%*
Other preserved or processed and preparations	*22%*	*22%*
Other food	11,536%	11,136%
OTHER GOODS AND SERVICES	83,577%	84,129%
TOTAL GOODS AND SERVICES	100%	100%

Fishery and aquaculture products account for less than 1% of all goods and services purchased by EU households, which is much less meat's 3,9% share.
The overall share of expenditure on food commodities decreased by 3,4% between 2021 and 2022. This decrease can be observed in the 2% reduction in share of expenditure on fish products, 3,4% reduction in the share of expenditure on meat, and 3,5% reduction in the share of expenditure on other food products.
At national level, the share of expenditure on fishery and aquaculture products in total goods and services declined in most EU Member States, a trend that is confirmed when looking at data for the first months of 2023. The largest drops – 23% recorded in Ireland and 17% Lithuania – were due to a decrease in all

[50] Data as of May 2023.
[51] Metadata are available at https://ec.europa.eu/eurostat/cache/metadata/en/prc_hicp_esms.htm.

conservation categories. However, the worst performances were recorded in Lithuania for dried, smoked or salted fish and seafood and for frozen products, while in Ireland it was mainly fresh products.

3.2 HOUSEHOLD CONSUMPTION OF FRESH FISHERY AND AQUACULTURE PRODUCTS

This chapter analyses the household consumption[52] of fresh fishery and aquaculture products for 11 EU Member States, namely Spain, Italy, France, Portugal, Germany, Poland, Netherlands, Denmark, Ireland, Sweden and Hungary, ranked according to the highest volumes consumed in 2022[53]. It can be assumed that these 11 countries are among the most important in the EU in terms of fish consumption. Indeed in 2022, they accounted for 86% of the total EU household expenditure on fishery and aquaculture products[54].

From 2021 to 2022, household consumption of fresh fishery and aquaculture products plummeted in the main consuming countries.

As shown in Table 13, the volumes of fresh fish consumed by the households in all these 11 countries dropped almost 17% from 2021 to 2022, leading to a more than a 10% decrease in their purchase value. One of the most significant drops was seen in Germany, where consumption of salmon in 2022 decreased by more than 25% from the previous year. Fresh salmon consumption decreased in all countries surveyed[55], for an overall drop of more than 50.000 tonnes. Several factors impacted negatively on EU household consumption of salmon in 2022. First of all, the price increase which was driven by the overall inflation: the average unit value among the 11 countries included in this analysis rose by 16% reaching 17,53 EUR/kg compared with 2021. Other contributing factors included a slight decrease in European salmon production; a higher share of the European salmon production being sold to markets outside the EU compared with previous years; and a "comeback" of the HoReCa sector after its softening during the COVID-19 pandemic.

Besides salmon, it is worth noting that decreases were seen for almost all most popular species. Indeed, this general decline in household consumption followed a less significant 2% decrease from 2020 to 2021 and the 4% increase seen from 2019 to 2020. This evolution is most likely linked to the current economic and geopolitical climate that has increasingly affected household consumption and impacted its purchasing power. EU Member States are experiencing high inflation which weighs heavily on the consumer side at retail level. In fact, high inflation has led to substitution effects, with consumers opting for cheaper animal protein products and reducing the frequency of purchasing meat and fish. Comparatively, the consumer price index for meat, fish and seafood experienced similar 21%[56] increases from June 2021 to February 2023, indicating the impact of inflation[57]. Multiple factors contributed to this surge in inflation, including the economic recovery after the COVID-19 crisis led to an increase in demand, and the Russian military aggression against Ukraine and its consequences which weighed especially on energy costs and

[52] Data analysed in this chapter originate from representative household panels that record volumes and values of every item purchased. More details can be found in the Methodological background.
[53] For six of these countries (namely Germany, Spain, France, Italy, Netherlands and Portugal), as well as for Austria and Belgium, EUMOFA also collects online shops retail prices of a selection of products. Data can be consulted at https://www.eumofa.eu/online-shop-retail-prices.
[54] EU expenditure data are provided by EUROSTAT. These data are compiled based on a common methodology elaborated within the "EUROSTAT – OECD PPP Programme" (http://www.oecd.org/std/prices-ppp/eurostat-oecdmethodologicalmanualonpurchasingpowerparitiesppps.htm). More details can be found in the Methodological background.
[55] As one of the most popular species in the EU, salmon consumption is monitored in 10 out of the 11 countries covered in this chapter. Only for Hungary, total consumption is monitored without any details by species.
[56] Source: EUMOFA elaboration based on DG AGRI (https://agridata.ec.europa.eu/extensions/DataPortal/agricultural_markets.html).
[57] Question time: Food price inflation in Europe (europa.eu)

trade flows. In addition, the competition for raw materials tightened in 2022 due to markets outside the EU taking a larger share, especially in Asia; plus, the US and UK import ban on fish from Russia; the strong demand in the US market; and removal of COVID-19 import restrictions. The situation drove prices up and, for some species, the availability down on the European market.

An overview of the COVID-19 pandemic shows its impact in household consumption in 2022 was secondary to previous years. During the first waves throughout 2020, when quarantine measures were very strict, most consumption had to take place at home, but foodservice restrictions became less stringent in 2021. However, it should be noted that the level of household consumption of fish in 2022, when the situation was finally back to "normal"[58], was even lower than before the pandemic. This is why the explanation behind this decrease cannot be solely linked to the rise in out-of-home consumption and the lifting of COVID-19 restrictions.

TABLE 13

HOUSEHOLD CONSUMPTION OF FRESH FISHERY AND AQUACULTURE PRODUCTS, IN VOLUME (TONNES) AND NOMINAL VALUE (1.000 EUR)

Source: EUMOFA elaboration of Europanel/Kantar/GfK data. Possible discrepancies in totals and % changes are due to rounding.

Member state	2018		2019		2020		2021		2022		2022 / 2021	
	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume
Spain	4.644.167	601.267	4.696.180	590.559	5.326.492	645.631	5.156.691	590.616	4.505.083	486.679	-12,6%	-17,6%
Italy	3.370.637	325.465	3.455.738	333.585	3.224.659	308.035	3.548.918	324.426	3.262.448	279.537	-8,1%	-13,8%
France	2.459.174	220.789	2.499.538	216.180	2.643.167	221.443	2.763.768	231.195	2.504.751	196.749	-9,4%	-14,9%
Portugal	413.675	65.559	462.169	71.773	506.155	76.966	504.384	73.639	466.015	61.736	-7,6%	-16,2%
Germany	819.850	59.089	979.918	67.497	1.190.620	78.718	1.219.189	84.354	976.829	61.089	-19,9%	-27,6%
Poland	294.770	51.667	297.868	48.581	310.118	48.862	344.842	50.186	341.924	44.252	-0,8%	-11,8%
Netherlands	488.919	32.338	520.569	33.307	604.515	37.608	628.424	38.098	598.609	32.735	-4,7%	-14,1%
Denmark	183.761	11.465	199.942	12.177	225.936	13.620	238.039	13.819	213.285	11.703	-10,4%	-15,3%
Ireland	183.805	12.695	198.287	13.333	196.773	13.160	201.230	13.110	191.518	11.678	-4,8%	-10,9%
Sweden	117.650	8.803	124.172	9.310	153.627	12.385	145.469	11.016	114.719	7.745	-21,1%	-29,7%
Hungary	29.440	5.326	32.635	6.085	34.710	6.316	36.869	6.035	32.347	4.395	-12,3%	-27,2%
Total	**13.005.849**	**1.394.462**	**13.467.016**	**1.402.386**	**14.416.773**	**1.462.744**	**14.787.824**	**1.436.495**	**13.207.527**	**1.198.297**	**-10,7%**	**-16,6%**

FOCUS ON THE TOP THREE CONSUMING COUNTRIES

In 2022, Spain, Italy and France accounted for almost 80% of the total volume and value of fresh fishery and aquaculture products consumed by households in the 11 countries surveyed.

SPAIN

Spain alone covered 41% of the total volumes consumed and 34% of the total value of household consumption of fresh products in the 11 countries under analysis. In 2022, Spanish households consumed 486.679 tonnes of fish with a value of EUR 4,51 billion, representing a decrease of 18% in volume and 13% in value compared with 2021.

In 2022, household consumption of all monitored fresh fishery and aquaculture products dropped, except for mackerel and tuna. While their values decreased by 5% and 9%, respectively, the volumes consumed registered a slight increase.

During the 5-year period under analysis, several different patterns can be observed. The main one concerns the consumption of salmon, which showed a steady growth. Salmon consumption reached its peak in 2021, when it became the main species consumed in Spanish households, reaching a total of 68.449 tonnes and overtaking hake for the first time. This increase in volume was accompanied by a relative decline in its unit value. It decreased each year between 2018 and 2021 to reach its lowest

[58] Source: COVID-19 Stringency Index (https://ourworldindata.org/explorers/coronavirus-data-explorer?uniformYAxis=0&hideControls=true&Interval=7-day+rolling+average&Relative+to+Population=true&Color+by+test+positivity=false&country=USA~ITA~CAN~DEU~GBR~FRA&Metric=Stringency+index).

point of 9,77 EUR/kg in 2021. In 2022, however, there was a dramatic 29% drop in salmon consumption that represented a 48.536-tonne decrease, while its unit value peaked at 12,19 EUR/kg, a staggering increase of 25% over 2021.

As for consumption of hake, although it regained its position as the most consumed species in 2022, its steady decline in consumption continued over the years. In 2022, it reached its lowest level in five years with 52.607 tonnes. Whereas the previous average decrease was around 11%, the 2021 to 2022 drop was 16%. This downward trend was accompanied by an increase in the unit value, which reached a 5-year high of 9,71 EUR/kg in 2022, an increase of 5% from 2021. Although the unit value has steadily risen each year since 2018, the total value of hake consumption has followed a downward trend due to the decrease in volumes consumed.

Sardines are the third most consumed fresh species in Spanish households. They account for 10% of total consumption, slightly less than salmon. The unit value plunged by 6% to 5,96 EUR/kg in 2022, along with a 15% decrease in volume and 21% decrease in total value, which represented the lowest values in the 5-year period considered.

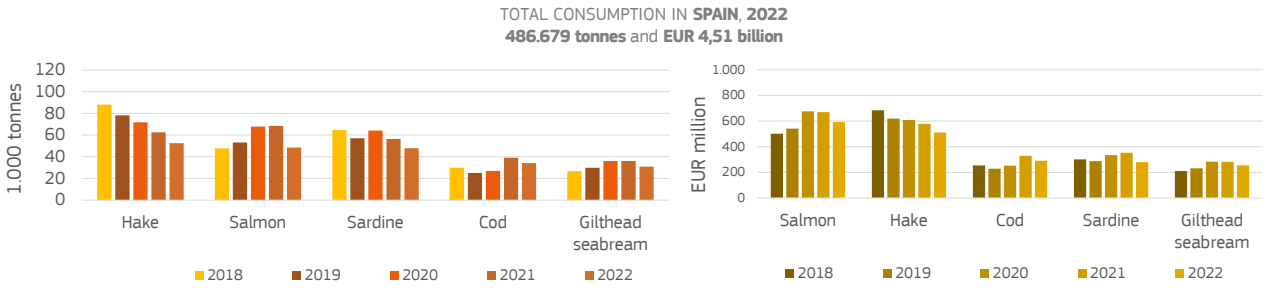
One quarter of Spain's total household consumption of fresh fish in 2022 was represented by cod, European seabass, gilthead seabream, sole and monk. These five species' consumption followed a similar pattern, with their consumption dropping against the growth of their unit values. Cod consumption decreased by 13%, totalling 34.138 tonnes, while its unit value recorded a slight increase of 2%, reaching 8,53 EUR/kg, arriving at a 12% drop in total value. European seabass reached an all-time low, with a 25% drop to 22.447 tonnes, its worst "performance" of the 5-year period. The same was true for sole and monk, with sole ending the year at 22.805 tonnes which was 19% less than 2021, and monk ending at 9.253 tonnes, or 14% below 2021.

As mentioned, consumption increased only for tuna and mackerel, which together accounted for 5% of the total volumes consumed. For tuna, the unit value increased by 8% compared with 2021, reaching 11,45 EUR/kg. Mackerel, on the other hand, had a unit value of 5,91 EUR/kg in 2022, which was 6% lower than in 2021.

CHART 24

TOP-FIVE FRESH SPECIES (IN VOLUME AND NOMINAL VALUE) CONSUMED BY HOUSEHOLDS IN SPAIN

Source: EUMOFA elaboration of Europanel/Kantar data



ITALY

In 2022, Italian household consumption plummeted to 279.536 tonnes. Even though the level of consumption in Italy had been volatile over the 5-year period covered by the analysis, the 2022 level represented an all-time low. However, it should be noted that the decrease in consumption by Italian households, namely drops of 14% in volume and 8% in value compared to 2021, was lower than the annual average of the countries surveyed, which recorded drops of 17% in volume and 10% in value in 2022. This was accompanied by a steady increase in unit values, which could be one of the main reasons that the total value of consumption did not drop as much as the volume. All the products surveyed reached their highest unit values over the 5-year period, clams being the only exception. Gilthead seabream remained the most popular product, with unit values up by 9% but quantities back to pre-pandemic levels of consumption.

A notable exception is mussel *Mytilus* spp., which showed only a small 1% growth in consumption, the only rise among the products surveyed, but also had a remarkable 22%, increase in unit value which reached 3,54 EUR/kg.

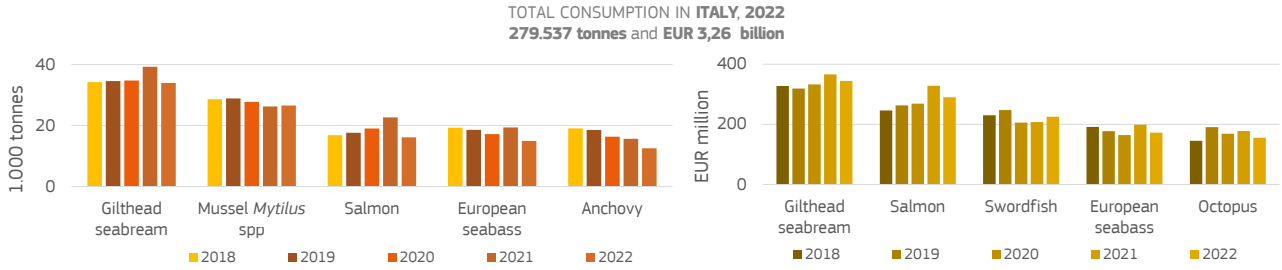
In Italy, as in Spain and in most of the other countries analysed, household consumption of salmon, after increasing in the last three years and reaching its peak in 2021, dropped to its lowest volume and totalled 16.150 tonnes in 2022. Meanwhile, its unit value spiked up by 24%, reaching 19,97 EUR/kg.

Consumption of the other monitored species also followed this negative direction. The consumption of European seabass, which had partly driven the growth in Italian household consumption in 2021, plummeted by 23% in 2022, reached its lowest volume and its peak unit value, namely 14.932 tonnes and 11,45 EUR/kg, of the last five years. Household consumption of anchovies continued the decline observed since 2018.

CHART 25

TOP-FIVE FRESH SPECIES (IN VOLUME AND NOMINAL VALUE) CONSUMED BY HOUSEHOLDS IN ITALY

Source: EUMOFA elaboration of Europanel/GfK data



FRANCE

In 2022, household consumption in France hit a 5-year low for fresh fish and aquaculture products, dropping by 15% in volume compared with 2021, which had been the peak year for consumption during the period under analysis. Salmon and cod accounted for almost 40% of this drop[59]. In terms of value, which decreased by 9% compared with the previous year, rising prices could have partially softened the impact of reduced consumption.

Salmon and cod showed the most significant unit value increase, with both reaching 5-year peaks. The unit values rose by 14% and 13%, respectively, compared with 2021, to reach 20,35 EUR/kg and 20,15 EUR/kg, respectively. However, the spike in prices did not compensate the lower volumes. Thus, the value of salmon consumption reached almost EUR 590 million which was 12% less than in 2021. It was followed by cod with 17% decrease from 2021 arriving at a total value of EUR 270 million.

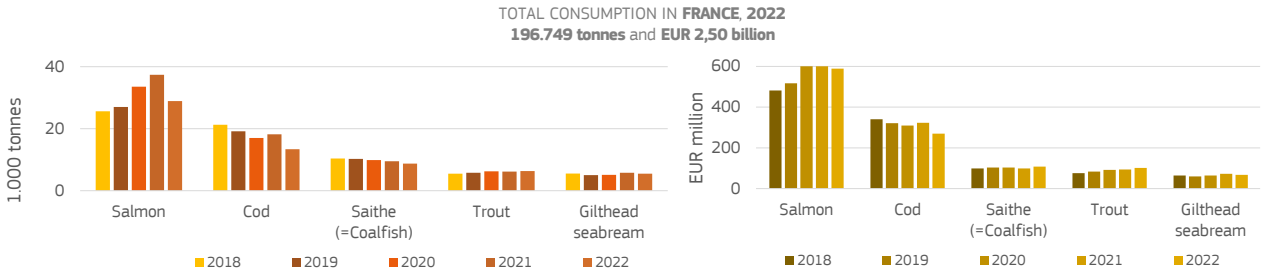
Consumption of other major species in France did not register significant variations in the period under analysis. It is worth noting that hake, monk, mackerel, sardine, gilthead seabream and trout, which cover 14% of total household consumption, showed a steady level in terms of both unit value and consumption.

[59] Salmon and cod accounted for 39% of the difference, while the category of "undefined other products", an aggregation of all other fresh species recorded by household panels but not available at disaggregated level, accounted for 59%. The remaining 2% is the outcome of the decrease in household consumption aggregated among the other species covered by the analysis.

CHART 26

TOP-FIVE FRESH SPECIES (IN VOLUME AND NOMINAL VALUE) CONSUMED BY HOUSEHOLDS IN FRANCE

Source: EUMOFA elaboration of Europanel/Kantar data



MAIN TRENDS IN OTHER COUNTRIES

PORTUGAL

Household consumption in Portugal reached a decade low in 2022. After three years of growth, it had already started to decline in 2021, but in 2022 it plummeted to a level lower than the pre-pandemic one, registering a 16% decrease and totalling 61.736 tonnes. The total value of consumption also dropped by 8% after four consecutive years of growth. This was linked to a decrease in both volume and value for all monitored species, especially European seabass, gilthead seabream and salmon.

Household consumption of European seabass plummeted by 36% from 2021 to 2022, reaching 3.404 tonnes. Its unit value grew by 20% to reach 8,56 EUR/kg. Even gilthead seabream, which is by far the main species consumed in the country, decreased by 14% in volume, while the value decreased by only 8%, which could be linked to the 10% rise of its unit value at 6,54 EUR/kg. It is the first time in the 5-year period that gilthead seabream recorded a drop in consumption in both volume and value. Consumption of salmon, less popular in Portugal than in the other countries surveyed, fell to 31% lower than in 2021. Its 2022 salmon consumption was lower than before the COVID-19 outbreak, and 20% compared to 2019. On the other hand, the unit value increased by 28% and reached EUR 11,25/kg.

GERMANY

From 2021 to 2022, consumption in Germany dropped by 28% after four consecutive years of growth.

This was due to a general decline in volumes for most species, but especially for salmon, which had been the main driver of consumption growth in the country. In 2022, consumption was 1% lower than before COVID-19 (2019), while its unit value increased by 17% to reach EUR 18,69/kg. Nevertheless, the decrease in the value of salmon accounted for 27% of the total decrease in the value of German consumption in 2022. Cod and trout also decreased in volume, dropping by 27% and 15% respectively from 2021. At the same time, the unit values for both species were the highest since 2018, namely 20,68 EUR/kg for cod and 13,53 EUR/kg for trout.

POLAND

Household consumption plummeted by 12% in Poland in 2022, dropping to 44.252 tonnes, with all species monitored, except trout, showing a decrease. However, its total value remained close to 2021, decreasing a slight 1% with a value of EUR 342 million. In fact, value increased for all species except salmon, which recorded the largest decrease in both volume and value, decreasing 21% and 10% respectively. In contrast, trout and carp continued their upward trends, reaching record values of EUR 45 million and EUR 40 million respectively. Similarly, their unit values which have continued to increase since 2018, reached 6,87 EUR/kg for trout and 7,40 EUR/kg for carp, their highest values to date.

NETHERLANDS

Household consumption of fresh fishery and aquaculture products in the Netherlands decreased by 14% in 2022, totalling 32.734 tonnes. The main driver of this decline was salmon, by far the main species consumed in the country, which for the first time in five years recorded both a decline in consumption against an increase in its unit value. In this case, consumption declined 11% and unit value increased 12% to 23,83 EUR/kg.

Meanwhile, the total value of in-house consumption decreased by 5%. This was linked to the drop in the value of cod, which fell by 27%. The unit price increased to 18,98 EUR/kg but was not enough to compensate for the 29% drop in consumption. Herring, on the other hand, which accounts for 9% of Dutch household consumption, increased 8% in value despite a 6% decrease in consumption from 2021. The main explanation for this lies in the increase in its unit value, which rose by an average annual increase rate of 6% every year from 2018 to 2021, but then rose by 14% in 2022, reaching 18,77 EUR/kg.

DENMARK

In Denmark, household consumption of fresh fishery and aquaculture products dropped by 15% in volume and by 10% in value. Danish consumption is notably dominated by salmon, which accounts for more than a third of the total. However, in 2022, salmon consumption plunged to less than 4.000 tonnes. This was a 5-year low and represented a 21% drop from 2021 which generated the overall decrease of fishery and aquaculture products consumption in the country. To note, the price of fresh salmon in Denmark is the highest of the countries surveyed. While it remained stable over the years, in 2022 it increased by 12% and attested at 26,12 EUR/kg. Starting in 2020, flounder, the second most consumed species in Denmark, began experiencing a decline in consumption. From 2021 to 2022, it recorded a 25% drop in volume but it had a 7% increase in terms of unit value reaching 17,48 EUR/kg.

IRELAND

Household consumption in Ireland had been stable in recent years, with few fluctuations. However, in 2022, it dropped by 11% to 11.678 tonnes, while its total value decreased by 5% to EUR 192 million. The decrease was linked to the most important consumed species in the country, namely salmon. The unit value of salmon, that had not recorded remarkable variations during the previous years, rose by 9%, reaching 18,88 EUR/kg, while volume and value dropped by 10% and 2%, respectively. All other species, with the exception of haddock, showed a reduction in consumption and a 5% average rise in unit values.

SWEDEN

Sweden, in 2022, experienced the biggest drop in consumption of all the countries surveyed. A slight decline had been already recorded in 2021, but the decrease in 2022 amounted to 30% compared to the year before. This was linked to the 36% drop in salmon consumption, which accounted for 82% of the total consumption collapse. Indeed, salmon is by far the most consumed species in Sweden, even though its share of total consumption dropped from 67% in 2020–2021 to only 60% in 2022.

HUNGARY

In 2022, household consumption of fresh fishery and aquaculture products[60] in Hungary plummeted by 27%, reaching 4.395 tonnes, after a slight decrease already recorded in 2021. In value terms, consumption amounted to EUR 32 million. This represented a 12% decrease compared to the previous year and a return to pre-pandemic levels of consumption, registering just a 1% drop from 2019.

[60] For Hungary, total consumption is monitored without details by species. According to EUMOFA estimates on "apparent consumption", carp is by far the main species consumed in the country.

3.3 RETAIL SALES AND OUT-OF-HOME CONSUMPTION

The fishery and aquaculture industry supplies fish and seafood to consumers through different sale channels: retail, which mostly includes fishmongers and large-scale retailers (LSRs); foodservice, which includes catering, restaurants and take-away sales; and institutional channels, which include schools, canteens, hospitals and prisons. Foodservice and institutional channels are referred to as "out-of-home consumption".

This section[61] of "The EU fish market" analyses the retail sales and consumption of processed[62] products through the foodservice channels of all EU countries[63].

In addition, it analyses the retail sales and all out-of-home consumption channels of unprocessed[64] fishery and aquaculture products in five of the highest consuming EU countries – Germany, Spain, France, Italy, Poland[65] – and in the UK.

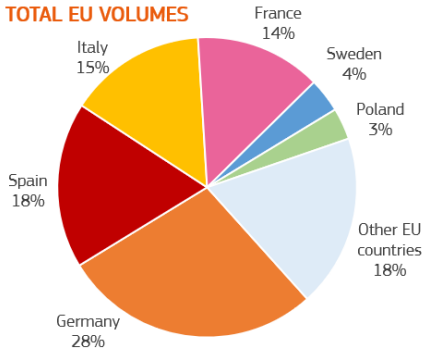
PROCESSED PRODUCTS

In the EU, consumption of processed fish and seafood through foodservice and retail sales was almost 2,2 million tonnes in 2022. These volumes are highly concentrated, with the top four countries, namely Germany, Spain, Italy, and France, accounting for 75% of the total. Germany alone accounted for close to 30% of the total. However, when looking at volumes per capita, the situation was much more diversified, with France and Poland having lower rankings compared with the shares in terms of total volumes consumed.

CHART 27
LARGEST EU CONSUMING COUNTRIES OF PROCESSED PRODUCTS IN 2022: % OF TOTAL VOLUMES SOLD THROUGH RETAIL AND FOODSERVICES

Source: Euromonitor International, Packaged Food, 2023

% OF TOTAL EU VOLUMES



Czechia, Portugal, Belgium, Austria, Denmark	2% each
The Netherlands, Finland, Croatia, Slovakia, Greece, Romania, Ireland, Lithuania	1% each
Latvia, Hungary, Bulgaria, Estonia, Slovenia, Cyprus, Malta, Luxembourg	less than 1% each

% OF TOTAL EU VOLUMES PER CAPITA

Spain	8%
Sweden	7%
Germany	7%
Denmark	6%
Italy	5%
Croatia	5%
Lithuania	5%
Latvia	4%
Czechia	4%
France	4%
Malta	4%
Estonia	4%
Austria	4%
Portugal	4%

Finland	3%
Belgium	3%
Slovakia	3%
Luxembourg	3%
Ireland	3%
Cyprus	2%
Slovenia	2%
Poland	2%
Greece	2%
Netherlands	2%
Bulgaria	2%
Romania	1%
Hungary	1%

[61] Data analysed in this section are collected from Euromonitor international (https://www.euromonitor.com/). For more details, see the Methodological background.
[62] Processed products are defined as the aggregation of shelf-stable, chilled processed and frozen finfish, crustaceans, molluscs and cephalopods. For more details, see the Methodological background.
[63] The UK is excluded from the EU aggregate each year.
[64] Unprocessed products are defined as the aggregation of fresh, chilled and frozen finfish, crustaceans, molluscs and cephalopods, packaged and unpackaged. For more details, see the Methodological background.
[65] For Poland, no detail is available in terms of sale channel.

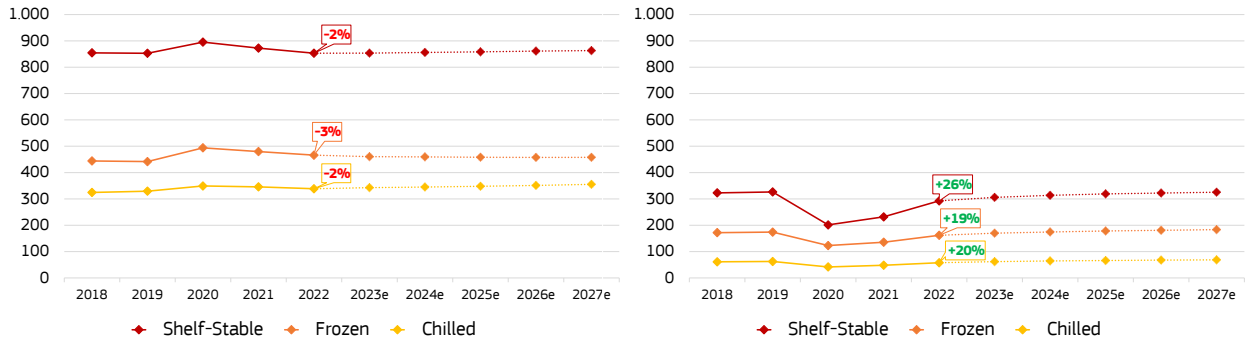
The retail channel accounted for the largest shares of total sales of processed fish and seafood in almost all countries, with coverage ranging from a minimum of 63% in Germany to a maximum of 92% in Italy. That said, in Greece, sales were split between foodservice (50%) and retail (50%).

As can be seen in Chart 28, retail sales and consumption through foodservice have followed different evolutions in the last years. As one can expect, due to the outbreak of COVID-19, retail sales increased significantly in 2020 against a drop in sales through the foodservice. Starting from 2021, along with gradual re-openings, opposite trends were recorded. From 2021 to 2022, sales through the foodservice in the EU grew a significant 23% and reached more than 510.000 tonnes. However, they were still 9% lower than before the pandemic in 2019 when they had totalled more than 560.000 tonnes. According to Euromonitor estimates[66], this level will not be reached until 2025, but there are several exceptions at country level. Indeed, in 2022, sales in most of the countries reached levels close to the year 2019, although slower increases were registered in Germany, Spain and France, the top three consuming countries, which thus influenced the trend at EU level.

CHART 28

SALES OF PROCESSED PRODUCTS THROUGH RETAIL (LEFT) AND FOODSERVICE (RIGHT) BY CATEGORY. VOLUMES IN 1.000 TONNES. % VARIATIONS ARE FOR 2022 VS. 2021

Source: Euromonitor International, Packaged Food, 2023

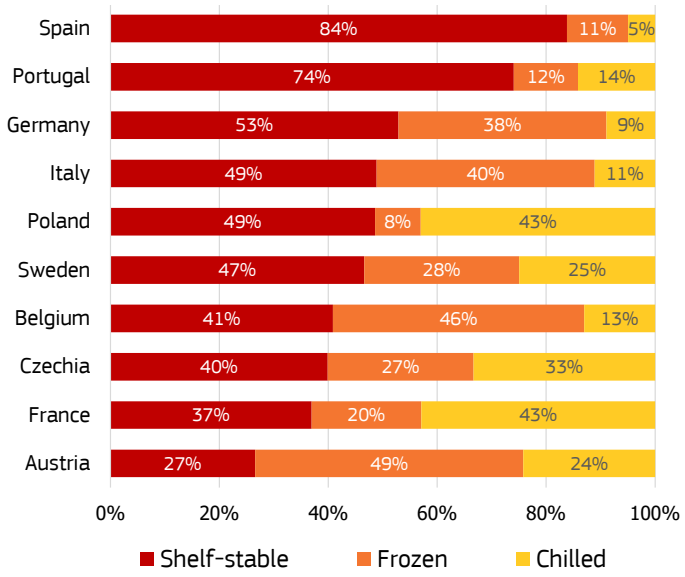


Shelf-stable[67], the main category of processed fish and seafood products sold via retail and foodservice channels, totalled 1,1 million tonnes of sales across the EU in 2022, followed by almost 630.000 tonnes of frozen products and 400.000 tonnes of chilled products. Shelf-stable products' share of total processed fish and seafood varied among countries. In 2022, it ranged from 11% in Croatia, where frozen products are preferred, to 84% in Spain.

[66] Euromonitor International blends statistical modelling with local market observations and judgment-based predictions. Euromonitor analysts firstly identify factors driving the growth in the past: both hard/macro drivers (demographics, GDP, taxation, inflation, population etc.) and soft drivers (category growth trends, product life cycle, consumer lifestyles, price, manufacturer perspective, weather, regulation etc.). Combined with their knowledge of the market, Euromonitor then speaks to the industry players about these factors along with gauging the potential for new factors to arise. Finally, the analysts further gather information about projected sales of major players in the next five years and/or projected forecasts of industry growth, and begin to generate a consensus estimate of industry growth in the forecast period.

[67] Shelf-stable products include products typically sold in cans, glass jars or aluminium/retort packaging and usually preserved in oil, brine, salt water or with a sauce. Pickled products sold ambient are also included.

CHART 29
MAIN CATEGORIES OF PROCESSED PRODUCTS IN 2022 SOLD THROUGH RETAIL AND FOODSERVICES (% OF TOTAL VOLUMES IN TOP-10 EU COUNTRIES)
Source: Euromonitor International, Packaged Food, 2023



Consumption of shelf-stable products through foodservice and retail is by far the highest in Germany and Spain, each accounting for 28% of total sales in this category and each having sales of over 320.000 tonnes. Further, Spain's 7 kg per capita consumption was by far the highest in the EU, accounting for 15% of the 2022 total per capita consumption, while in Germany, it was less than 4 kg per capita.

As for consumption of frozen products, Germany had the highest, with more than 320.000 tonnes sold in 2022, followed by Italy with close to 130.000 tonnes. Croatia had the highest per capita consumption of frozen fish and seafood, with more than 3,5 kg consumed per capita in 2022. Croatia was followed by Germany with almost 3 kg, and then by Italy, Sweden and Austria which each had consumption of just above 2 kg per capita.

When it comes to chilled products, France was the major EU consumer, with over 125.000 tonnes sold in 2022, which was 32% of the total. Germany followed with almost 55.000 tonnes or close to 15% of the total. Then came Italy with almost 36.000 tonnes or 9%, and Poland with close to 32.000 tonnes or 8%. However, the data on per capita consumption showed a different situation, as Baltic countries held the highest amounts: Lithuania and Estonia each consumed more than 3 kg per capita in 2022, followed by Denmark with just above 2 kg, and Sweden and Latvia at almost 2 kg. France came next with less than 2 kg consumed per capita.

UNPROCESSED PRODUCTS

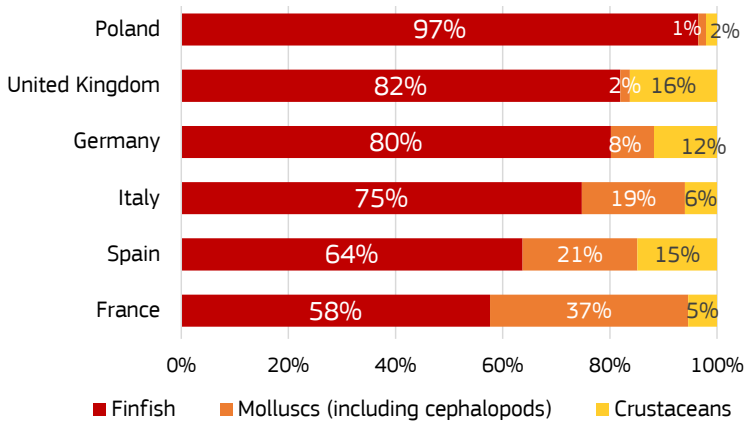
As mentioned at the beginning of this chapter, sales of unprocessed products through all channels (retail + foodservice + institutional) were analysed in Germany, Spain, France, Italy, Poland and in the UK.

Finfish had a pivotal role in all countries surveyed, followed at a distance by molluscs (which include cephalopods) and crustaceans. The mollusc products played a more notable role in the southern Member States: cephalopods and mussels in Spain, oysters and mussels in France, and clams, mussels, and cephalopods in Italy. Crustaceans, on the other hand, commanded relatively low shares.

CHART 30

SALES OF UNPROCESSED PRODUCTS THROUGH RETAIL, FOODSERVICE AND INSTITUTIONAL CHANNELS IN 2022 (% OF TOTAL VOLUME)

Source: Euromonitor International, Fresh Food, 2023

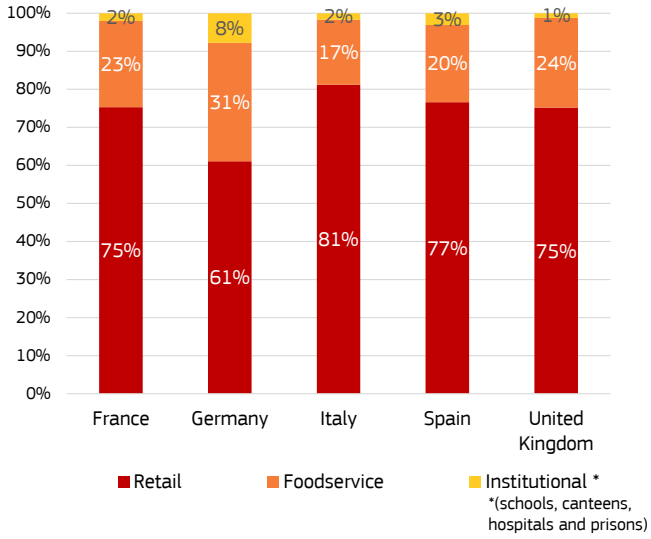


As with processed fish, the retail channel accounted for the largest shares of total sales for unprocessed fish in five of the surveyed countries[68].

CHART 31

SALES OF UNPROCESSED FISHERY AND AQUACULTURE PRODUCTS BY CHANNEL IN 2022 (% OF TOTAL VOLUME)

Source: Euromonitor International, Fresh Food, 2023



The effects of the COVID-19 pandemic are quite apparent when looking at the annual evolution of retail sales and out-of-home consumption. As was seen with processed products, there were also dramatic drops in out-of-home consumption in all surveyed countries during 2020, followed by a period of recovery that began in 2021 and is expected to stabilise during 2024 to 2027. Germany was the only country among those under analysis that recorded an out-of-home consumption decrease from 2021 to 2022. However, sales had already begun to recover in early 2023.

On the other hand, from 2019 to 2020, retail sales grew an average of 9% in each of the five surveyed countries, after which they did not record major variations, averaging a minor 1% decrease from 2020 to 2021. This was followed by a 4% average decrease from 2021 to 2022, with the most significant drop recorded in Germany, which saw a 13% decrease in retail sales. The economic context in 2022, a year characterised by significant inflation and its parallel decrease in EU consumers' purchasing power, was the main reason for such decrease.

As shown in Chart 32, Spain's retail sales and out-of-home consumption of unprocessed products in 2022 were outstanding compared with other countries surveyed, total more

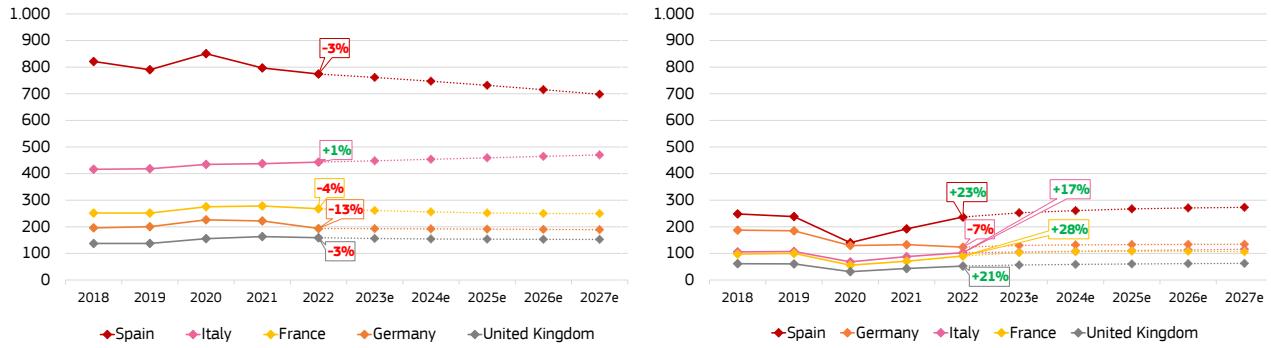
[68] No detail by sale channel is available for Poland.

than 1 million tonnes equal to 21,3 kg per capita. Italy was second but followed at a distance, with 546.000 tonnes sold or 9,3 kg per capita.

CHART 32

SALES OF UNPROCESSED PRODUCTS THROUGH RETAIL (LEFT) AND OUT OF-HOME CONSUMPTION (FOODSERVICE+ INSTITUTIONAL CHANNELS, RIGHT). VOLUMES IN 1.000 TONNES. % VARIATIONS ARE FOR 2022 VS. 2021

Source: Euromonitor International, Fresh food, 2023



FOCUS ON ORGANIC PRODUCTS

Organic products represent a niche market in the EU. This section focuses on the four EU countries with highest consumption of fish – Germany, Spain, France and Italy – as well as the UK, which has a leading role in European production of organic salmon and is a major supplier of the EU market.

In 2022, an average 1,9% of the total consumption of unprocessed[69] fishery and aquaculture products through retail, foodservice and institutional channels was organic in these five countries. More in detail, the coverage was 2,9% in the UK, 2,8% in France, 2,7% in Germany, 0,6% in Italy and 0,3% in Spain. All these shares have shown increases in the last ten years according to Euromonitor. In absolute terms, France consumed the largest amounts of organic fish and seafood, corresponding to around 10.000 tonnes in 2022, followed by Germany with 8.500 tonnes and the UK with just above 6.000 tonnes. Italy and Spain followed at a distance with less than 3.500 tonnes each.

By comparing the development of retail sales and out-of-home consumption of all unprocessed fish and seafood with those of organic products in particular, it emerges that from 2019 to 2020, the average 2% decrease observed for organic products was less significant than the overall 5% decrease reported for all unprocessed fish and seafood. However, the sector did not show the same resilience in 2022, and according to stakeholders, it actually suffered a drop in demand due to inflation.

On the production side, according to Eurostat[70], the total organic aquaculture production[71] in the EU was close to 99.300 tonnes in 2021[72], accounting for 9% of the total EU aquaculture production. More than two thirds of organic production take place in three countries: Ireland which produced almost 33.000 tonnes in 2021, mainly salmon and mussel, Italy 23.700 tonnes, mainly mussel and finfish, and the Netherlands 15.300 tonnes, mainly mussel. Thanks to a growth in organic mussel production, the overall EU organic production of fish and seafood increased notably from 2015, when it had reached just above 46.000 tonnes. The increase from 2020 to 2021 was mainly driven by the increased production of organic mussels in Italy and the Netherlands.

[69] It should be underlined that the most important organic species in these countries are salmon and trout, and to a lesser extent tropical shrimps and mussel, which are for a large share marketed as processed products (such as smoked salmon, smoked trout, cooked shrimp, etc.), so not included in the data analysed in this report.
[70] Source: Eurostat (online data code: org_aqtspec)
[71] To note, organic fish and seafood is by definition farmed.
[72] The total does not include France, whose data is not available at the time of writing. Production in France had been just above 9.000 tonnes in 2020.

3.4 EU QUALITY SCHEMES: GEOGRAPHICAL INDICATIONS AND TRADITIONAL SPECIALTIES

The EU registers quality schemes that recognize and promote the geographical or traditional aspects of specific products. Currently, it has two quality schemes that are based on geographical indications (GIs), namely the Protected Designations of Origin (PDOs) and Protected Geographical Indications (PGIs). A third scheme – the Traditional Specialties Guaranteed (TSG) – recognizes the traditional aspects of products. According to the EU's 2023[73] registry, of the 72 names registered under EU quality schemes in the seafood sector, 46 or 64% are PGIs, 22 or 31% are PDOs, and 4 or 6% are TSGs. The number of GIs increased an enormous 240% over the last decade, growing from 20 GIs in 2010 to 68 in 2023. Beyond the seafood sector, the number of GI names registered in other sectors, such as agri-food, wine and spirit drinks, has grown 27% from 2010, and more than 3.500 names are now registered at EU level.
Of the six seafood sector names registered in the last year, three are finfish and three are shellfish. Among these, three are registered in Sweden, which now has a total of six names registered in the seafood sector. These recent names registered in the EU are:

- PGI "Peitzer Karpfen" from Germany – registered 05/10/2022 – is a mirror carp (*Cyprinus carpio carpio*) produced in a few municipalities in the federal state of Brandenburg. It covers all types of presentation and preservation: live, fresh, frozen, whole filleted and smoked. This is the fifth PGI for carp species in Germany.
- PGI "Salacgrīvas nēģi" from Latvia – registered 22/11/2022 – covers river lamprey caught with pot fishing weirs, which is a traditional method. The PGI covers both fresh lamprey and cooked lamprey set in aspic. This is the second GI registered in Latvia's seafood sector. The first, PGI "Carnikavas nēģi", which also covers lamprey, was registered in 2015.
- PDO "Rökt Vättersik" from Sweden – registered 24/04/2023 – covers smoked whitefish (*Coregonus* ssp) caught in Sweden's Lake Vättern.
- PDO "Grebbestadostron" from Sweden – registered 22/05/2023 – covers a wild European flat oyster hand-picked by divers or caught with nets by wading fishermen. The production remains small-scale as the fishery is limited to 70.000 units, estimated at 6 tonnes per year[74] with the assumption of 12 oysters per kg.
- PDO "Bohusläns blåmusslor" from Sweden – registered 19/06/2023 – covers mussels grown on lines.
- PDO "Novigradska dagnja" from Croatia – registered 28/06/2023 – covers mussels. This is the second GI registered in the seafood sector in Croatia. The first one, PDO "Malostonska kamenica, covers shellfish but its focus is oyster rather than mussels.

In 2023, among the 68 registered GIs, 47 or 69% originated from EU countries and 21 or 31% originated from non-EU countries. The applications of the four TSGs originated from EU countries. The countries with the largest number of names registered are Germany, France, Italy, Spain, Sweden, Hungary and Romania with four to seven names registered each. These are followed by Czechia, Finland, Croatia and Latvia which have

[73] Source: EU register eAmbrosia, 8 September 2023 – https://ec.europa.eu/info/food-farming-fisheries/food-safety-and-quality/certification/quality-labels/geographical-indications-register/
[74] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.C_.2023.034.01.0033.01.ENG&toc=OJ%3AC%3A2023%3A034%3ATOC

two names each. Belgium, Greece, Ireland, the Netherlands, Poland and Portugal have one name each. In non-EU countries, 14 of the registered names come from the UK, followed by China with five, and Norway and Vietnam with one name each.

Among the 72 current denominations, 53 or 73,6% cover finfish, 17 or 23,6% cover molluscs, and two or 2,8% cover crustaceans. Further, of these denominations, 33 or 46% refer to marine species, 28 or 39% refer to freshwater species, and ten or 14% refer to migratory species with life cycles that alternate between the marine environment and fresh water. One GI – the Belgian PGI "Escavèche de Chimay" – includes both marine and freshwater fish.

The main species covered by GIs and TSGs include carp with 13 names registered, notably in Germany and Hungary; mussels with 8 names in France, Italy, Spain, Sweden, Croatia the UK and China; salmon with 5 names, including 4 in the UK and 1 in Ireland; oyster with names registered in France, Croatia, Sweden and the UK; anchovy and vendace each with 4 products; and trout and tuna, each with 3 products.

TABLE 14

QUALITY SCHEMES REGARDING FISHERIES AND AQUACULTURE PRODUCTS REGISTERED UP TO SEPTEMBER 2023

Source: based on eAmbrosia, DG AGRI

Country	Protected Designations of Origin (PDO)		Protected Geographical Indications (PGI)		Traditional Specialties Guaranteed (TSG)		TOTAL
	Number	Species concerned	Number	Species concerned	Number	Species concerned	
Germany			7	Carp (5 PGIs), Herring, Trout			**7**
France	1	Mussel	4	Oyster, Anchovy, Scallop, Whelk	1	Mussel	**6**
Italy	3	Mussel, Tench, Anchovy	3	Trout, Arctic char, Anchovy			**6**
Spain	1	Mussel	4	Tuna (mojama) (2 PGIs), Tuna, Mackerel			**5**
Sweden	5	Vendace (roes), whitefish (*Coregonus* spp.), oyster, mussel					**5**
Hungary	1	Carp	3	Brown trout, Carp, Carp & pike-perch			**4**
Romania			3	Carp, Pontic shad, other Danube delta species (roes)	1	Carp	**4**
Latvia			2	Lamprey			**2**
Czechia	1	Carp	1	Carp			**2**
Finland	1	Vendace	1	Vendace			**2**
Croatia	2	Oyster, mussel					**2**
Belgium			1	Several species			**1**
Greece	1	Grey mullet (roes)					**1**
Ireland			1	Salmon			**1**
Netherlands					1	Herring	**1**
Poland	1	Carp					**1**
Portugal					1	Cod	**1**
China			5	Freshwater crayfish (2 PGIs), Mussel, Clam, Japanese seabass			**5**
Norway			1	Cod			**1**
United Kingdom	4	Pollan, Mussel, Oyster, Scallop	10	Salmon (4 PGIs), Sea trout, Eel, Sardine, Cod, Haddock, Oyster			**14**
Vietnam	1	Anchovy (sauce)					**1**
TOTAL	**22**		**46**		**4**		**72**

More than half or 53% of the products covered by GIs/TSGs are wild products consisting mainly of anchovy, cod, tuna and vendace, while 47% are farmed products, mainly including carp, shellfish and salmon[75].

Almost half or 46% of the names refer to unprocessed products, even if some of them may be used as ingredients in processed products, such as the Spanish mussel PDO "Mejillón de Galicia" used by the canning industry. More than one third or 35% of the

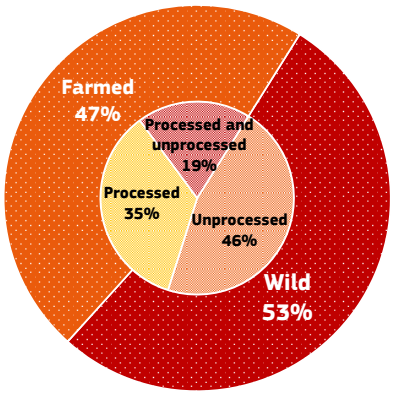
[75] This includes three names which cover both farmed and wild fish.

names cover specifically processed products, for example PGI "Acciughe sotto sale del Mar Ligure" is an Italian anchovy, which is salted and cured by a traditional method. Further, 19% of the names cover both processed and unprocessed products[76], such as the Czech PGI "Třeboňský kapr", which is placed on the market live, fresh or processed, and smoked or marinated.

CHART 33

TYPES OF PRODUCTS UNDER EU QUALITY SCHEMES IN THE SEAFOOD SECTOR (SEPTEMBER 2023)

Source: based on eAmbrosia, DG AGRI



	Unprocessed	Processed	Processed and unprocessed	Total
Wild	12	20	6	**38**
Farmed	21	5*	8	**34**
Total	**33**	**25**	**14**	**72**

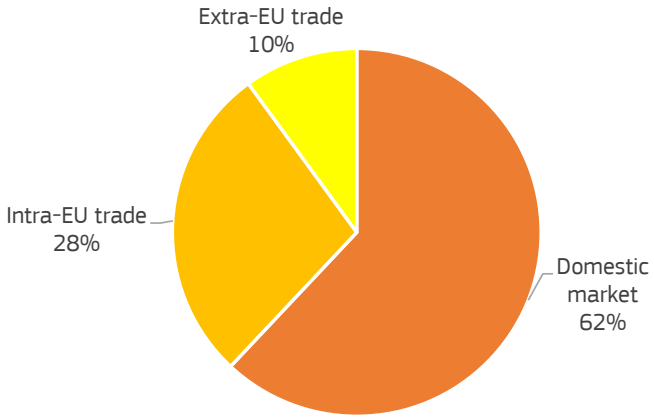
*The PGIs "London Cure Smoked Salmon" (2017, the United Kingdom), "Escavèche de Chimay" (2021, Belgium) and TSG "Salată tradițională cu icre de crap"(2021) are based on both wild caught and farmed products.

Sales of fish, molluscs and crustaceans under GI/TSG were estimated to have reached 246.709 tonnes and EUR 1,42 billion at EU-28 level[77,78] in 2017. This accounted for about 4% of the sales value in the EU-28 seafood sector[79]. The domestic market accounted for EUR 0,88 billion or 62% of the sales value, followed by intra-EU trade which reached EUR 0,4 billion or 28%, and extra-EU trade which reported EUR 0,14 billion, or 10% of the sales value.

CHART 34

SHARE OF SALES VALUE BY MARKET FOR FISH, MOLLUSCS AND CRUSTACEANS UNDER GI/TSG IN 2017 (EU-28)

Source: Study on economic value of EU quality schemes, geographical indications (GIs), and traditional specialties guaranteed (TSGs), AND International for DG AGRI, 2019



PGIs accounted for 71% of the sales value, followed by TSGs with 22%, and PDOs with 7%. The average economic size of each TSG and PGI tends to be higher than the average size of each PDO, with TSGs amounting to EUR 36 million, PGIs to EUR 32 million, and PDOs to EUR 8 million in 2017.

[76] Processed products cover filleted, smoked, dried, salted or preserved products, as well as other types of preparations (for instance fish roes or fish-based products). Unprocessed products may be live, fresh (gutted or not) or frozen.
[77] Source: Study on economic value of EU quality schemes, geographical indications (GIs) and traditional specialties guaranteed (TSGs), AND International for DG AGRI, 2019 - https://op.europa.eu/en/publication-detail/-/publication/a7281794-7ebe-11ea-aea8-01aa75ed71a1 and country fiches - https://op.europa.eu/fr/publication-detail/-/publication/73ad3872-6ce3-11eb-aeb5-01aa75ed71a1/language-fr
[78] This covers the 43 GIs/TSGs registered at EU-28 level before 2017.
[79] Based on EUROSTAT and EUMOFA data, sales value of the fishery and aquaculture sector at EU-28 level can be estimated between EUR 28 billion (processing and preserving activities only) and EUR 40 billion (processing and preserving activities + landings + aquaculture; this is however an overestimate with double counts).

4/ IMPORT - EXPORT[80]

From 2021 to 2022, the total value of EU trade flows increased by 20% in nominal terms (+14% in real terms), against a volume decrease by 1,5%.

During the 2013–2022 decade, the total value of EU trade flows[81] of fishery and aquaculture products increased at a compound annual growth rate of 5%. This included imports and exports between the EU and the rest of the world, as well as exchanges between EU Member States. The value of the 2022 total trade flows was 49% higher than 10 years before in real terms[82], while volume increased 13%. As for the more current situation, from 2021 to 2022, there was a 1,5% decrease in volume and a significant 20% increase in nominal value, which represented a growth of 14% in real terms.

In 2022, extra-EU imports accounted for 45% of the value and 42% of the volume of all fishery and aquaculture products traded both within the EU and with third countries. Valued at EUR 32 billion, 2022's imports represented a 23% increase from 2021 – reaching the highest value of the past decade. However, despite the increase in value, the volume of these transactions decreased by 2%, falling below pre-pandemic levels.

Extra-EU exports play a far less important role, which makes the EU a net importer. In 2022, their value reached EUR 8 billion, which was a 19% increase from 2021, but it still represented only 11% of the total value of EU trade flows. As for volume, they decreased by 5%, dropping to 2,3 million tonnes.

On the other hand, intra-EU exchanges totalled 6 million tonnes with a value of EUR 31,5 billion, accounting for 44% in value and 42% in volume of total EU trade flows. In real value terms, they grew by 59% compared with 10 years before, which was the largest increase of the trade flows analysed in this chapter, as the value of extra-EU imports grew by 47% and that of extra-EU exports grew by 23%. To note, in 2021, intra-EU trade had exceeded extra-EU imports in value for the first time in the decade, but the trend reversed again in 2022.

The impressive growth in the value of EU trade flows from 2021 to 2022 cannot be solely attributed to the consequences of the COVID-19 pandemic recovery, which led to sudden spikes in demand and increases in prices. In this case, growth was also a consequence of lower supply contributing to price increase, which was due to lower quotas for major species and tightened competition for raw materials. Moreover, the Russian military invasion of Ukraine heavily contributed to the rise in value, affecting energy costs, therefore affecting production costs and contributing to the spike in inflation. The Russian aggression also had a significant impact on exchange rates, which played a crucial role in the value increase, affecting trade between countries on a global scale. Despite a slight decrease in volumes compared to 2021, volumes were 1% higher when compared to before the pandemic in 2019, indicating a slight positive trend.

[80] In line with Eurostat's guidelines on the production and dissemination of statistical data by Commission services after the UK withdrawal from the EU, since the most recent reference period is year 2021, UK is excluded from the EU aggregations of each year. This means that UK is dealt with as country of origin/destination of EU imports and exports.

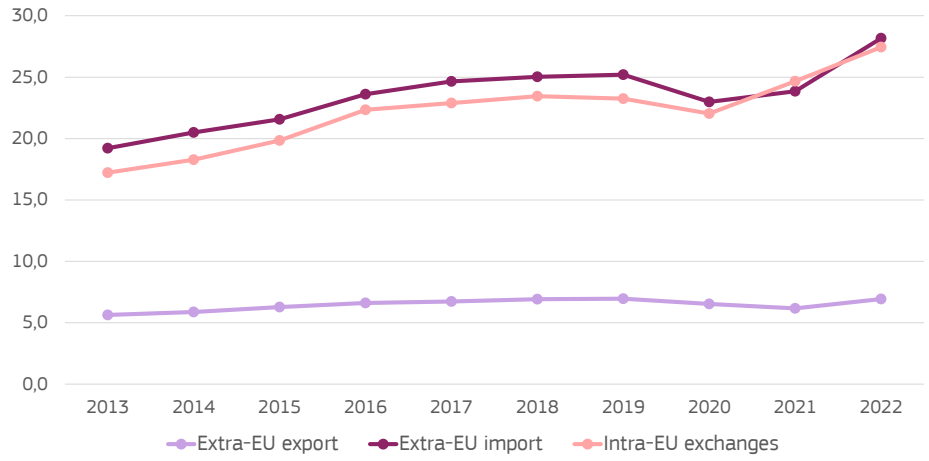
[81] Sum of extra-EU imports, extra-EU exports and intra-EU exchanges. Intra-EU exchanges are based on intra-EU exports. For more details, please refer to the Methodological background.

[82] In this report, value and price variations for periods longer than five years are analysed by deflating values using the GDP deflator (base=2015). For shorter periods, nominal value and price variations are analysed.

CHART 35

EU TRADE FLOWS OF FISHERY AND AQUACULTURE PRODUCTS, IN VALUE (EUR BILLION)

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409). Values are deflated by using the GDP deflator (base=2015).



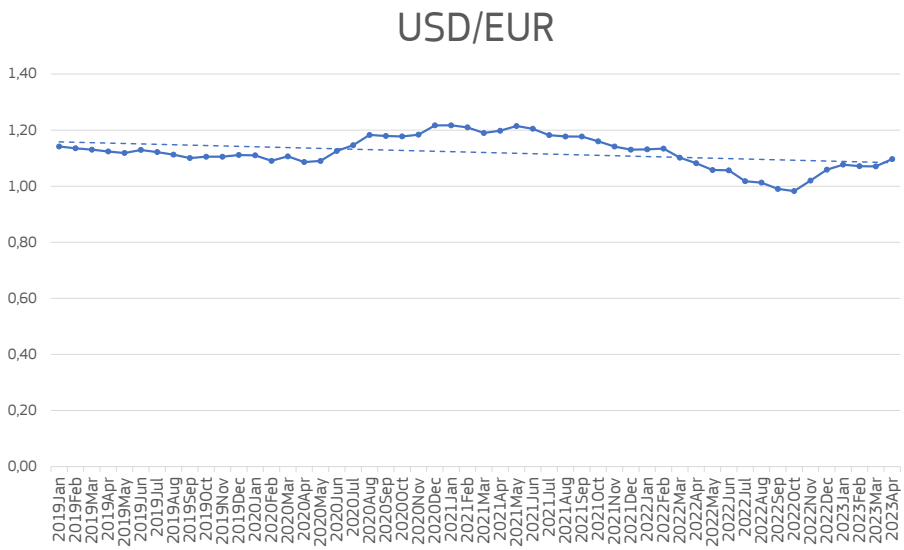
This chapter of The EU Fish Market provides detailed data and analyses of extra-EU imports, extra-EU exports and intra-EU exchanges, focusing on the major species traded and countries involved. It is important to note that, since the most recent reference period of available data for EU trade is year 2022 – well after UK's withdrawal from the EU – UK data is excluded from the EU aggregations for each year analysed in this chapter. This means that UK is dealt with as a country of origin/destination of extra-EU imports and extra-EU exports, and thus excluded from the analysis of intra-EU exchanges.

Before moving on, it is also important to note that the value of imports and exports is reported in this report in EUR, regardless of the currency used in the transactions. Indeed, these purchases can be made into different currencies. The charts below show the trend of the USD/EUR exchange rate during the 2019-2022 period. It also shows the trend of the NOK/EUR exchange rate, given the relevance of EU imports of salmon from Norway, which in 2022 made up 15% of the volumes of all extra-EU imports of fishery and aquaculture products. Charts 36 and 37 illustrate the trends of monthly exchange rates, showing how the EUR gained strength during 2020, experienced a slight decline during 2021, but still maintained a higher value than in 2019. However, since February 2022, the EUR has been on a downward trajectory, partially for the fear of an economic recession that was also linked to the Russian aggression against Ukraine. In the months of October and November 2022, the USD/EUR exchange rate reached an historic low, dropping below the threshold of USD=EUR (1:1). This was a significant development, as it marked the first time since the early days of the EUR's entry into the financial market that the exchange rate had reached this level. In 2023, however, the EUR has recovered and, in the case of NOK/EUR exchange rate, has reached its highest value of the last four years.

CHARTS 36 AND 37

EXCHANGE RATES
US DOLLAR/EUR
AND NOK/EUR

Source: European Central Bank



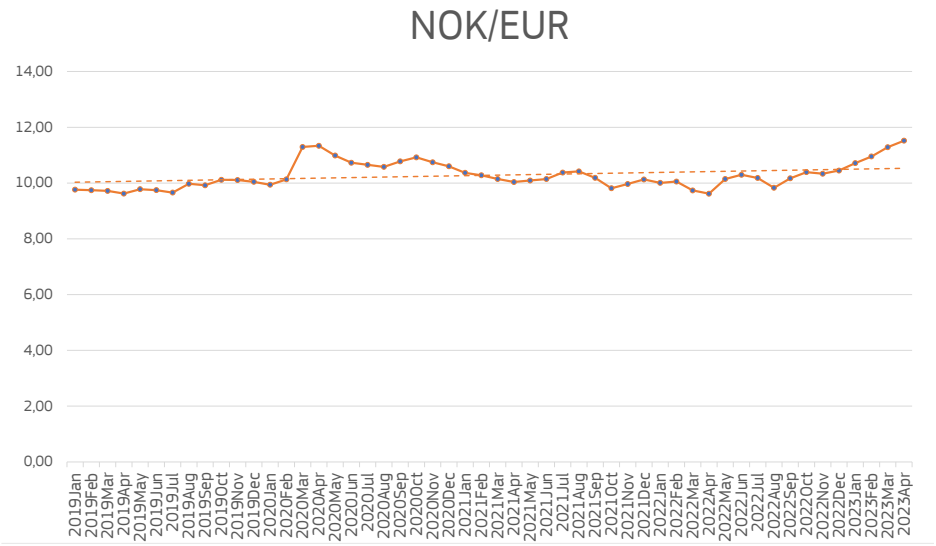


CHART 38

TOP-10 EXTRA-EU TRADE FLOWS IN 2022, IN NOMINAL VALUE (EUR BILLION)

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409).

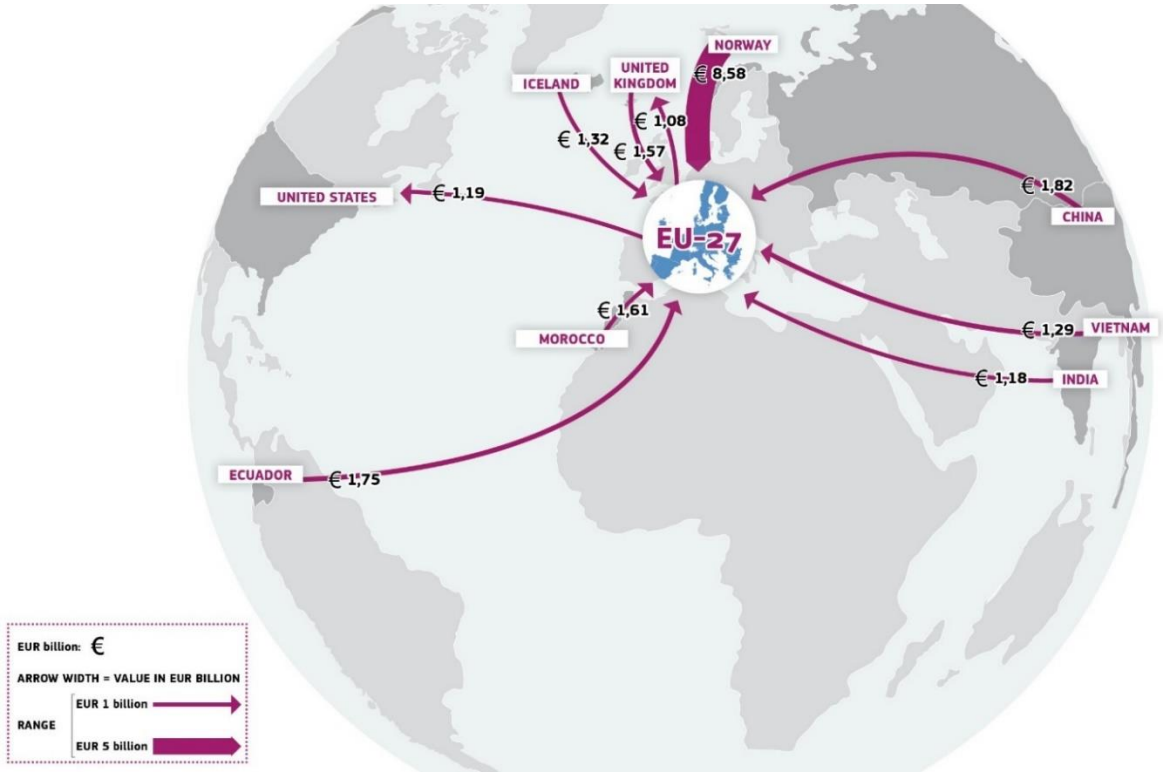
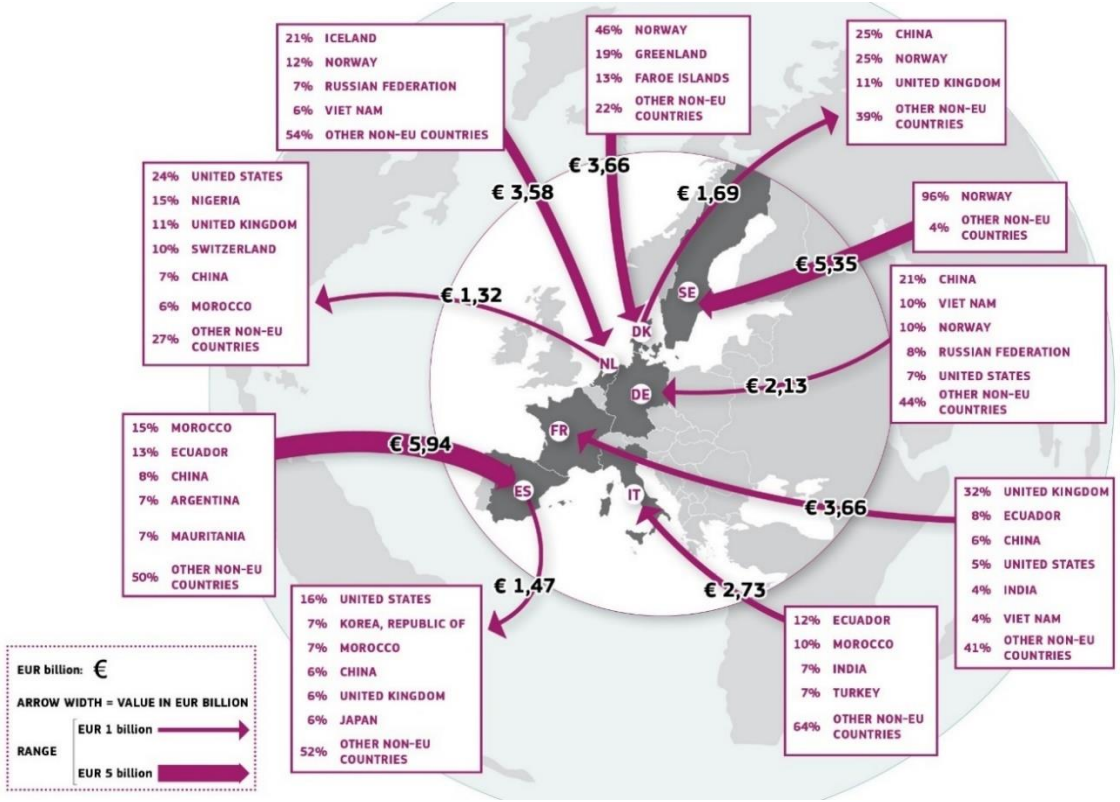


CHART 39

MOST RELEVANT EXTRA-EU TRADE FLOWS BY MEMBER STATE IN 2022, IN NOMINAL VALUE (EUR BILLION)

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409).



4.1 EXTRA-EU TRADE BALANCE

In 2022, the extra-EU trade balance[83] showed a higher deficit than in 2021 due to increased value of imports compared with exports. The deficit was 25% or EUR 4,73 billion higher than the previous year. Moreover, in the decade from 2013 to 2022, the deficit grew by 56% in real terms. All EU countries with deficits greater than EUR 1 billion, saw a worsened situation from 2021 to 2022. To note, the countries listed in Table 15 are also major entry points for high-value products originating outside the EU and destined for the internal market. Also, to note, most EU countries saw value increases in their exports as well as their imports. However, they decreased in terms of volume. These figures should be read keeping in mind the significant increase in prices and the volatility of exchange rates that affected trade flows in 2022.

TABLE 15
TRADE BALANCE FOR FISHERY AND AQUACULTURE PRODUCTS OF THE EU AND MAIN EU NET IMPORTERS (NOMINAL VALUE IN EUR BILLION)
Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409).

	TRADE BALANCE 2021	TRADE BALANCE 2022	VARIATION 2022-2021
EU-27	**-19,09**	**-23,82**	**-4,73**
Sweden	-4,24	-5,26	-1,02
Spain	-3,69	-4,48	-0,79
France	-2,60	-3,21	-0,61
Italy	-2,16	-2,43	-0,27
Netherlands	-1,87	-2,26	-0,39
Denmark	-1,49	-1,97	-0,48
Germany	-1,17	-1,60	-0,43

As the value of imports grew more than the value of exports, the deficit also increased in the United States and Japan, which are the second and third largest net importers of fishery and aquaculture products in the world after the EU. That said, when looking at absolute values, China is the third largest importer in the world after the EU and the US, but is not reported here because it is a net exporter country.
For a more detailed comparative analysis of EU trade and the trade of other main players in the world, see Chapter 1.3.

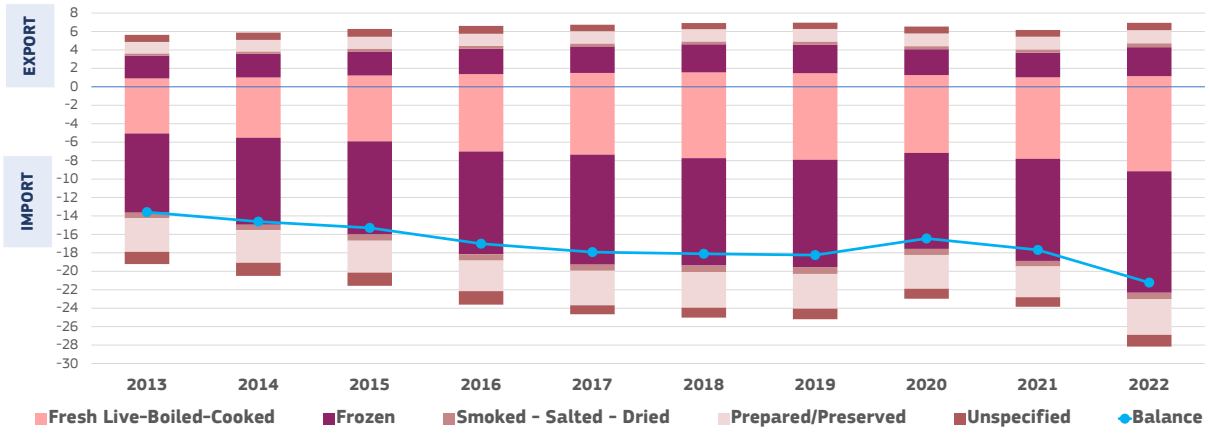
[83] Extra-EU exports *minus* extra-EU imports.

TABLE 16
TRADE BALANCE FOR FISHERY AND AQUACULTURE PRODUCTS OF MAJOR NET IMPORTERS (NOMINAL VALUE IN EUR BILLION)
Source: EUMOFA elaboration of Eurostat-COMEXT (online data code: DS-045409) and Trade Data Monitor data.

	TRADE BALANCE 2021	TRADE BALANCE 2022	VARIATION 2022-2021
EU-27	**-19,09**	**-23,82**	**-4,73**
United States	-18,42	-22,03	-3,61
Japan	-10,17	-12,22	-2,05

Frozen products accounted for the largest deficit, reaching EUR 10,03 billion or 47% of the total, followed by fresh products with a deficit of EUR 8 billion, or 38% of the total. Third was the prepared-preserved product category, which had a deficit of EUR 2,44 billion, representing 11% of the total deficit. The trade deficit in 2022 increased mainly in the fresh and frozen categories when compared to 2021.

CHART 40
EXTRA-EU TRADE BALANCE FOR FISHERY AND AQUACULTURE PRODUCTS BY PRESERVATION STATE, (EUR BILLION)
Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409. Values are deflated by using the GDP deflator (base=2015).



4.2 COMPARISON BETWEEN IMPORTS OF FISHERY AND AQUACULTURE PRODUCTS AND MEAT

In 2022, the combined value of EU imports of agri-food *plus* fishery and aquaculture products totalled EUR 203,66 billion[84]. Of this, fish accounted for 13% and meat for 3%[85]. The EU is a net importer of fishery and aquaculture products, while it is a net exporter of meat. Chart 41 compares the values of fish and meat imports from 2013 to 2022, excluding prepared and non-edible products. The chart's blue line illustrates

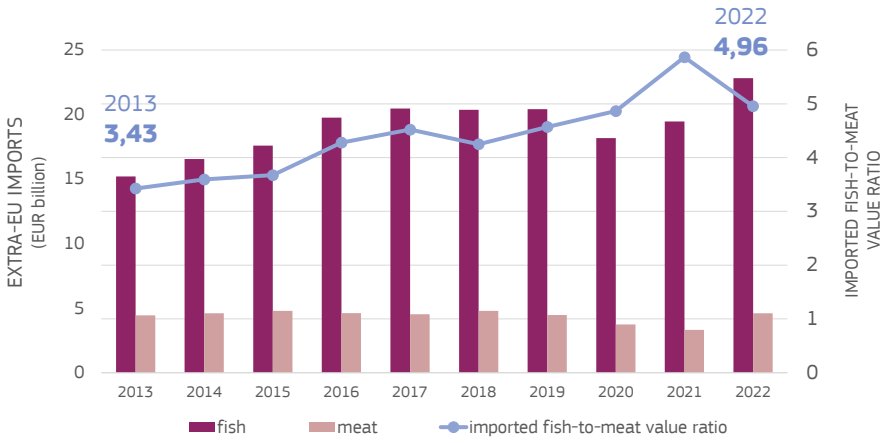
[84] This total amount includes extra-EU imports of the items referring to fishery and aquaculture products monitored by EUMOFA (list by CN-8 code available at the link http://www.eumofa.eu/documents/20178/24415/Metadata+2+-+DM+-+Annex+4+Corr+CN8-CG-MCS+%282002+-+2014%29.pdf/ae431f8e-9246-4c3a-a143-2b740a860291) and extra-EU imports of agri-food products (source: DG AGRI).
[85] For the sake of clarity, the comparison refers to "Fish" (which includes all items reported under chapter "03 - Fish and crustaceans, molluscs and other aquatic invertebrates" of the Combined Nomenclature commodities) and "Meat" (which includes all items reported under chapter "02 - Meat and edible meat offal") of Section I "Live animals; animal products" of the Combined Nomenclature commodities.

the evolution of the ratio between the value of imports of fish and meat, showing that the ratio plummeted to just below 5 in 2022. This meant that the value of imported fish was nearly five times higher than the value of imported meat. The upward trend from 2018 to 2021 was due to the value of meat imports decreasing more than the value of fish imports. In 2022, the value of imported meat and fish both grew notably, with the 17% increase in real terms recorded for fish being less significant than the 39% increase in real terms recorded for meat.

CHART 41

EXTRA-EU IMPORTS TREND AND RATIO OF IMPORTED FISH VS. MEAT, IN VALUE (EUR BILLION)

Source: EUMOFA elaboration of Eurostat-COMEXT (online data code: DS-045409) and DG AGRI data. Values are deflated by using the GDP deflator (base=2015).



4.3 EXTRA-EU IMPORTS

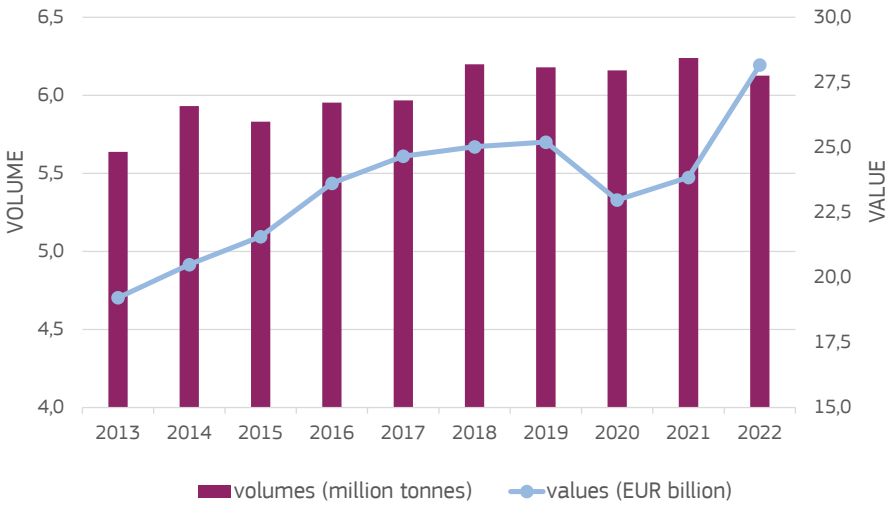
In 2022, the total value of extra-EU imports of fishery and aquaculture products amounted to EUR 31,90 billion, with a volume of 6,13 million tonnes. The value increased by 23% from 2021, a gain of EUR 6 billion, while the volume recorded a loss of 113.356 tonnes. Indeed, major imported species such as salmon experienced a decrease in volume but an increase in value. However, there were some notable exceptions, namely warmwater shrimps, squid, and fishmeal, which recorded an increase in volume as well.

Taking a longer decade perspective, comparing 2013 with 2022, total imports rose by 9% or 487.803 tonnes in volume and by 47% in value in real terms, worth EUR 8,47 billion. It is important to note that in 2022, the volume of extra-EU imports reached its lowest level of the past five years and was one of the lowest of the decade analysed, falling below pre-pandemic levels. This decline in import volumes and increase in values can be partially attributed to the widespread price increases that affected 2022. This trend can be attributed to different factors, as already explained, including the EUR's loss of value against the USD. Starting in January 2022, the EUR/USD fluctuating exchange rates trended down, making all trade exchanges that use USD as currency much more expensive than in the past years. As a result, imports were severely impacted by the weakened purchasing power of the EUR. The EUR/NOK exchange rate also experienced significant fluctuations in 2022, resulting in imports from Norway becoming more expensive in 2022 than in 2021. As a considerable portion of extra-EU imports originate from Norway, this factor contributed significantly to the overall increase in value. To note, the EU market of fish and seafood is highly dependent on imports from third countries, especially for the raw material used in the processing sector, such as fresh salmon, fresh cod, fresh saithe, canned tuna and sardines, frozen tropical shrimps, and frozen Alaska pollock.

CHART 42

EXTRA-EU IMPORTS OF FISHERY AND AQUACULTURE PRODUCTS

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409). Values are deflated by using the GDP deflator (base=2015).



Salmon, by far the main species imported in the EU, accounted for 17% of total extra-EU imports in volume and 30% in value in 2022, with Norway and the UK as its main countries of origin. In volume terms, cod is the second most imported species after salmon, again with Norway being the main supplier, followed by Russia and Iceland to a lesser extent.

Among most valued species, on the other hand, shrimps come after salmon, specifically warmwater shrimps (frozen shrimps of the genus Penaeus, mainly imported from Ecuador), as well as miscellaneous shrimps and prawns[86] – not including the Pandalidae, *Crangon*, deep-water rose shrimps (*Parapenaeus longirostris*) and *Penaeus species,* which primarily originate from Argentina India, Vietnam and Greenland.

China, Ecuador and Morocco are the three main countries of origin of EU imports of fishery and aquaculture products. EU imports from China are primarily frozen fillets of Alaska pollock, while imports from Morocco are more varied, with sardines and fishmeal accounting for the majority of volume. The value of imports from Morocco is primarily made up of octopus, but also of squid which largely originates from the Falkland Islands. Skipjack tuna is also among top-valued species imported in the EU, with Ecuador as its largest supplier. It should be noted that a share of these imports consists of tuna caught by the EU fleet, landed in Ecuador for processing and then re-imported in the EU.

[86] No detail is available in terms of species.

CHART 43

TOP EXTRA-EU COUNTRIES OF ORIGIN IN 2022 (IN VALUE)

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409)

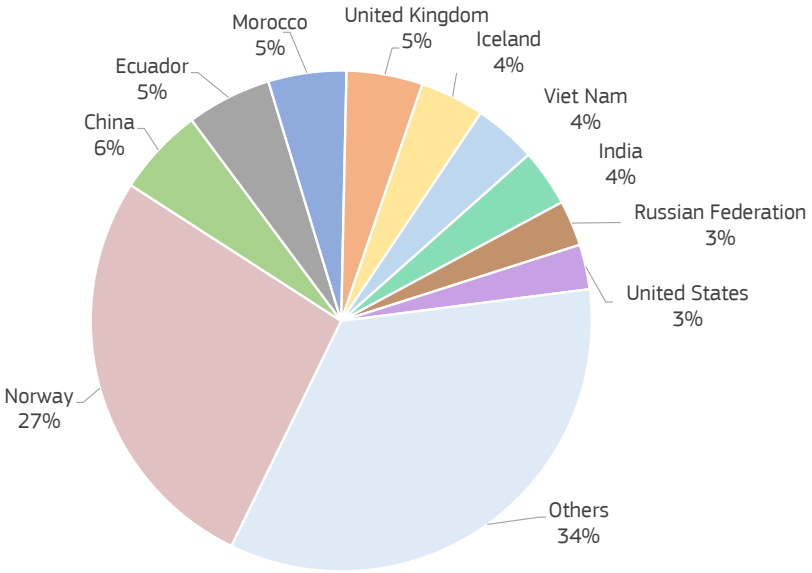
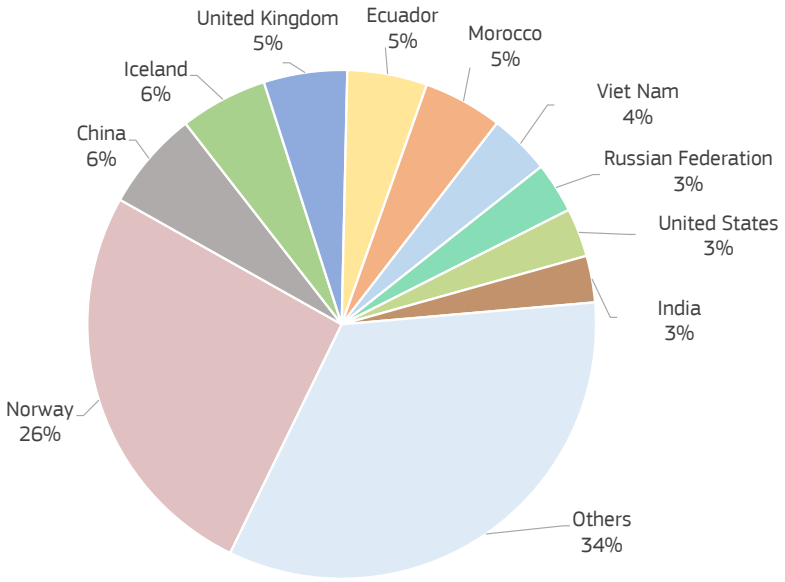


CHART 44

TOP EXTRA-EU COUNTRIES OF ORIGIN IN 2022 (IN VOLUME)

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409)

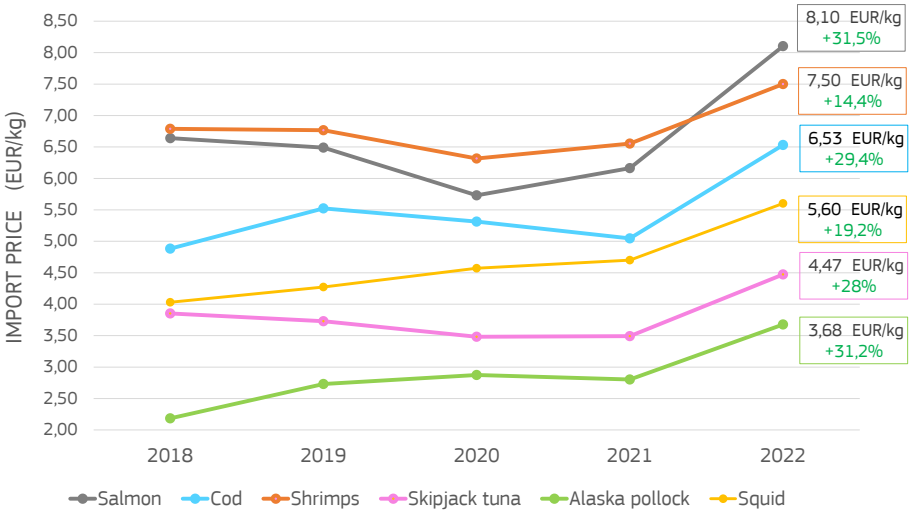


As mentioned, 2022 was characterised by a remarkable increase in prices. Chart 45 illustrates the 2018–2022 trend. It follows the average import prices of some of the top valued main commercial species imported in the EU, and clearly shows the steep upward curve between 2021 and 2022. The species that experienced the highest inflation was salmon, which had already seen price increase from 2020 to 2021. In 2022, salmon saw an increase of 31,5%, reaching 8,10 EUR/kg, indicating a deviation from the trend of previous years. In fact, until 2021, salmon had experienced a steady increase in imported quantities and a slow decline in its average price, whereas in 2022, the price grew while its imports decreased by 3%. In volume terms, no major variation was observed for these top species: imports of Alaska pollock remained stable, imports of squid and shrimps increased 2% each, and imports of cod, salmon and skipjack tuna decreased by 7%, 3% and 2%, respectively.

CHART 45

NOMINAL PRICES OF SOME OF THE TOP VALUED MAIN COMMERCIAL SPECIES IMPORTED IN THE EU AND % VARIATIONS 2022/2021

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409)



It is important to underline that imports are reported by Eurostat-COMEXT according to flows recorded by national customs, but in most cases, the EU Member States are not the actual final destinations. Rather, these "importers" are points of entry for the fisheries and aquaculture products imported to the EU, which are then traded within the internal market[87].

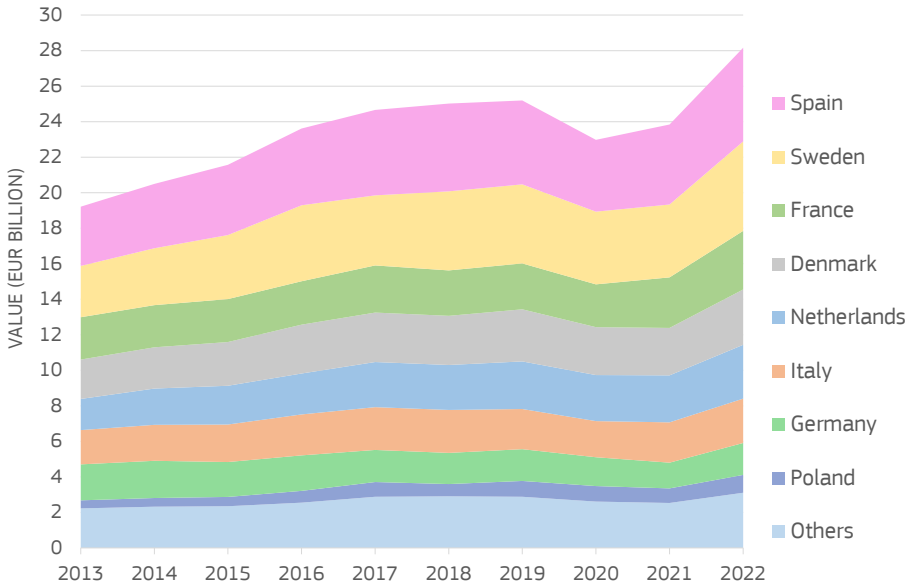
Bearing this in mind, the top-five EU "importers" are Spain, Sweden, France, Denmark and the Netherlands. The precise amounts of the main EU importing Member States are shown Charts 47 and 48. In 2022, Spain was the top extra-EU importer in terms of value, with an 17% increase from 2021, followed by Sweden, which recorded a 24% increase in value from 2021, mainly due to the increased value of its salmon imports, which accounted for 99% of the difference.

As illustrated in Chart 46, every country registered a growth in value terms that is mainly explained by the overall increase in prices.

CHART 46

VALUE OF EXTRA-EU IMPORTS PER MEMBER STATE (EUR BILLION)

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409). Values are deflated by using the GDP deflator (base=2015).



[87] This phenomenon is known as "the Rotterdam effect".

CHART 47

NOMINAL VALUE OF EXTRA-EU IMPORTS BY MEMBER STATE IN 2022 AND % VARIATION 2022/2021

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409)

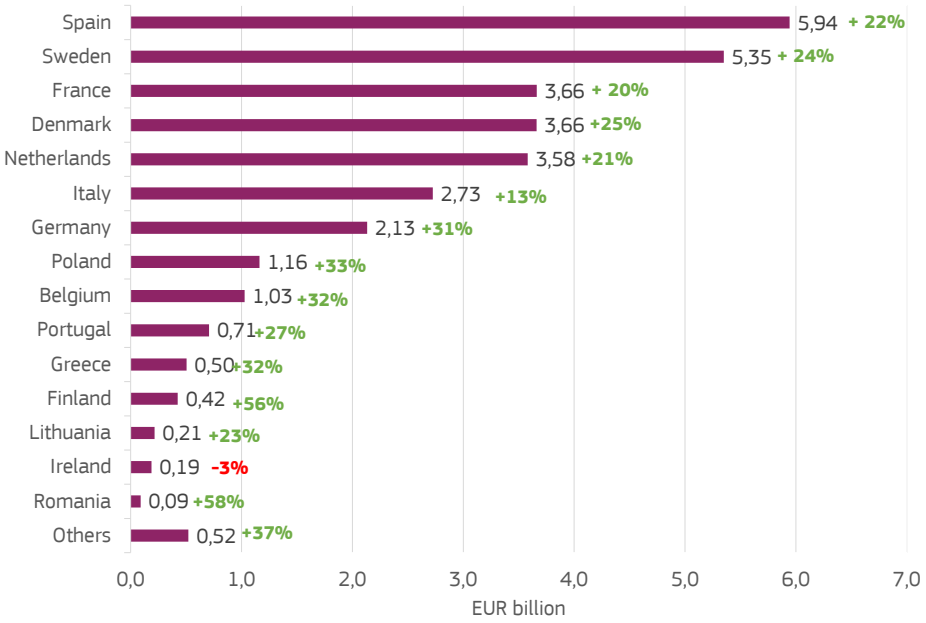
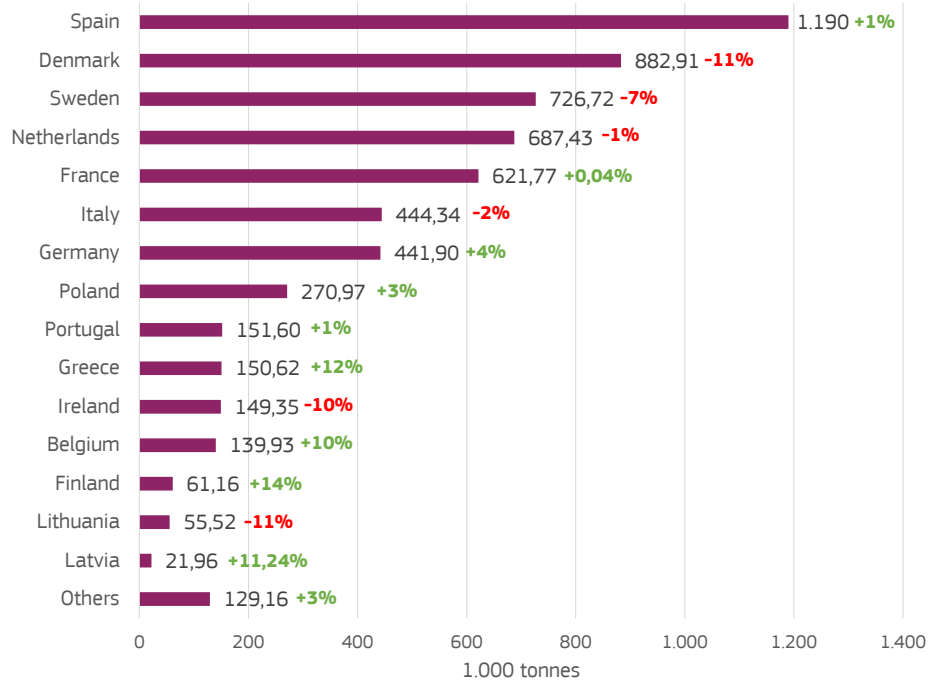


CHART 48

VOLUME OF EXTRA-EU IMPORTS BY MEMBER STATE IN 2022 AND % VARIATION 2022/2021

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409)



4.3.1 ANALYSIS BY MAIN SPECIES

SALMONIDS

Salmon, the main species imported in the EU, accounted for 17% of the total volume of extra-EU imports of fishery and aquaculture products in 2022, and slightly more than 25% of the total in value. Among imports of salmonids, which also include trout and other salmonid species, salmon represented 97% of the total in both volume and value.

SALMON

In 2022, salmon imports reached a lower quantity than the two previous years, totalling 1,03 million tonnes, which was 3% less than 2021. The decrease in imports may have been related to the 31% increase in the average unit price, which reached 8,10 EUR/kg. The total value in 2022 increased by 28%, equivalent to approximately EUR 1,84 billion.

Salmon imports mainly consist of fresh whole products from Norway, which in 2022 amounted to 775.056 tonnes worth EUR 5,25 billion, with Sweden as the first point of entry. As observed in the general trend, imports from Norway to the EU decreased by 3% in volume from 2021 to 2022, while they increased by 26% in value, in line with the general trend. Overall, Norway's salmon imports grew at a compound rate of 3% in volume and 7% in value over the past ten years. United Kingdom and Faroe Islands occupy the second and third position in the ranking, both for volume and value of extra-EU imports covering 10% and 11% of the total respectively. On the other hand, imports from the US – which mainly consist of American wild salmon – were the most expensive in terms of unit price, reaching 9,67 EUR/kg. The least expensive were from China, where the unit prices rose by 33% and reached 7,07 EUR/kg.

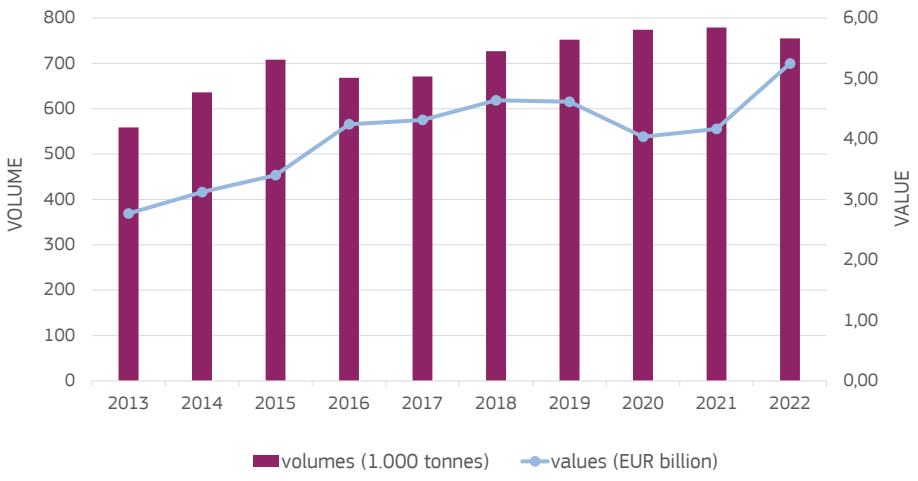
Chart 49 provides an overview of extra-EU salmon imports over a 10-year period, showing that 2022 is only the second time since 2016 that Norwegian salmon imports have decreased in volume compared to the year before. The chart shows how the value of salmon imports dropped from 2019 to 2020 during the COVID-19 outbreak due to trade restrictions but also due to closures in the HO.RE.CA. sector, which is usually the main target for such popular and high-valued species. In 2021, both the volumes and values of salmon imports grew, while despite a volume decrease from 2021 to 2022, imports were still higher than the pre-pandemic level, rising to 0,4% higher than in 2019.

From 2021 to 2022, the average price of salmon from Norway grew by 33%, from 5,98 EUR/kg to 7,97 EUR/kg. The average price of the second and third countries of origin of extra-EU salmon imports – the United Kingdom and Faroe Island – also increased, growing by 23% and 26%, respectively. This surge in value is in trend related to the overall economic situation and the overall increase in prices. However, in this case, it was worsened by the reduction in supply due to the lower harvest and the increase in demand, especially from China after the COVID-19 outbreak, both of which contributing to a spike in prices.

CHART 49

FRESH WHOLE SALMON IMPORTED IN THE EU FROM NORWAY

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409). Values are deflated by using the GDP deflator (base=2015).



CRUSTACEANS

In 2022, EU imports of crustaceans continued to grow, following the trend observed in 2021, in contrast to the slight but consistent decline seen from 2018 to 2020.

In 2022, crustacean imports marked a ten-year peak, with a nominal value of EUR 5,64 billion and 687.810 tonnes. Shrimps represent more than 90% of total volumes and 83% of total values of crustacean imports in the EU. They mostly include

warmwater shrimps, as well as miscellaneous shrimps and prawns[88] (not including the *Pandalidae*, *Crangon*, deep-water rose shrimps "*Parapenaeus longirostris*" and "*Penaeus*" species). Both categories (warmwater and miscellaneous) were main contributors to the value peak of crustacean imports.

WARMWATER SHRIMPS

Warmwater shrimps imported in the EU consist of frozen shrimps of the genus *Penaeus*. In 2022, their imports reached a decade peak and amounted to 328.824 tonnes, 8% more than in 2021, for a total import of EUR 2,52 billion, while their average import price increased 16% to 7,68 EUR/kg. The EU imports of warmwater shrimps mainly came from Ecuador (48% of the total volumes imported), with India (14%) and Vietnam (10%).

Imports from Ecuador drove the overall value increase, with their average price increasing to 6,24 EUR/kg, 11% higher than 2021. Their total volume amounted to 158.207 tonnes, corresponding to EUR 987 million. They were mainly "destined for" Spain, France and the Netherlands, although it should be noted that these may not be the final destinations. Indeed, Vigo in Spain, and Rotterdam in the Netherlands are often transit points for further distribution to other EU Member States.

On the other hand, imports from India saw a 39% increase in volume and a 79% increase in value from 2021, with their average price of 9,08 EUR/kg representing a 22% increase.

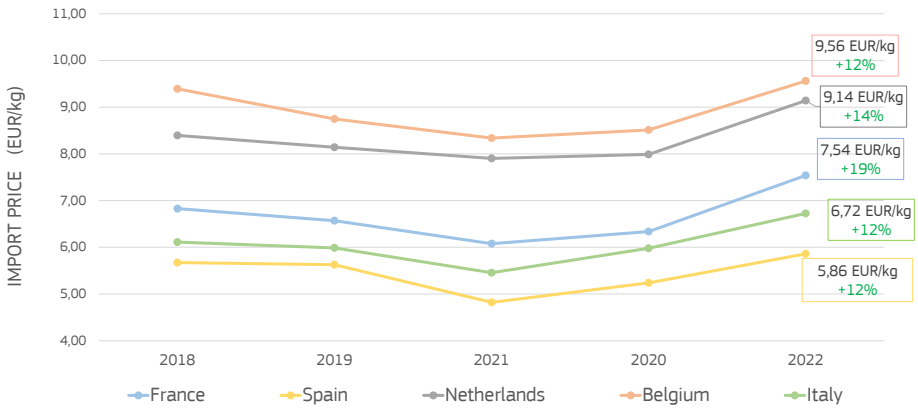
Vietnam, the third in the country-of-origin ranking, also recorded a rise in average prices, which reached 10,28 EUR/kg for a 26% growth, and an increase in volume and in value, which grew 12% and 36%, respectively.

As concerns the shrimps from Vietnam and India, they are mostly destined for the Netherlands and Belgium[89], and have higher prices than those from Ecuador. Indeed, Ecuador only produces whiteleg shrimp (*Penaeus vannamei*), while India and Vietnam also export the higher-value giant tiger shrimp (*Penaeus monodon*). In addition, most of the shrimps exported from Ecuador are head-on-shell (HOSO), while the majority of shrimps exported from India are peeled.

CHART 50

NOMINAL IMPORT PRICES OF WARMWATER SHRIMPS IN THE TOP FIVE EU IMPORTERS AND % VARIATIONS 2022/2021

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409)



MISCELLANEOUS SHRIMPS

In 2022, EU imports of shrimps and prawns – not including the Pandalidae, Crangon, deep-water rose shrimps "Parapenaeus longirostris" and "Penaeus" species – totalled 219.074 tonnes and EUR 1,78 billion. In 2022, EU imports of shrimps and prawns decreased 6%, after a 13% increase in 2021. This was driven mostly by a 26% drop in imports from Argentina, which nevertheless remained the top exporter of shrimps and prawns to the EU.

[88] No detail is available in terms of species.

[89] The Netherlands and Belgium might not be the final destinations. Indeed, Rotterdam (NL) and Antwerp (BE) are important ports for landings of frozen seafood from Far East suppliers, and these ports act as "hubs" for shrimps arriving in the EU, so the "actual" destinations might be other countries.

Despite the 6% drop in import volume, the total value of EU imports of shrimps and prawns remained slightly higher than in 2021, increasing by 1%. To note, the average price of shrimps and prawns increased by 12% and reached 8,13 EUR/kg.

GROUNDFISH

In 2022, groundfish imported in the EU totalled 1,08 million tonnes with a value of EUR 4,97 billion. Cod and Alaska pollock, by far the main species imported within this category, are also two of the EU's most imported fishery and aquaculture products.

COD

In 2022, extra-EU imports of cod reached a decade low of 376.499 tonnes. This decline is in line with the trend of the last five years (2018–2022), which has seen cod imports decrease by an average of 4% per year. Their total value, on the other hand, increased by 20%, reaching their second highest value since 2013, namely EUR 2,46 billion, due to the overall price increase that occurred in 2022.

Among cod imports, 35% of the volume originated in Norway, 24% in Russia, 20% in Iceland, and 10% in China. Those from Norway and Iceland are more diversified, comprising similar shares of fresh, frozen and salted products, while imports from Russia and China largely include frozen products.

Cod imports from its major suppliers decreased, especially those from Norway, which exported 9% less cod to the EU than in 2021, although their total value increased by 3%. The EU countries that imported less cod from Norway were Sweden and Denmark. This could be related to higher average prices: the price of cod exported from Norway rose from 5,12 EUR/kg to 6,89 EUR/kg between 2021 and 2022.

Russia, on the other hand, recorded a slight increase of 2% in its cod exports to the EU in 2022, thus following an upward trend since the year before. This increase was primarily driven by Poland, which imported 7% more cod from Russia than in 2021. Additionally, the value of these imports increased by an impressive 43%, thanks to a rise in prices from 3,92 EUR/kg to 5,53 EUR/kg. China stood at third in the ranking, with its EU cod exports remaining unchanged from 2021, but with a 33% increase in value. The quantity of imported cod from China is still much lower than pre-pandemic time, with 29% less in 2022 than 2019.

ALASKA POLLOCK

In 2022, imports of Alaska pollock remained almost unchanged in terms of volume, growing by 0,2% compared with 2021, while their value rose by 31%, reaching almost EUR 1 billion. As shown in Chart 45, the price of Alaska pollock increased a significant 31%, reaching 3,68 EUR/kg. The majority of this species is imported as frozen fillets, especially from China, which covers 49% of frozen fillet imports, but also 46% of total imports, which comprises all preservation and presentation states. Russian imports of Alaska pollock ranked second in 2022, accounting for 30% of the total and surpassing the United States, which covered only 21% of total imports. In 2022, EU imports of Alaska pollock from Russia grew notably, reaching decade peaks of 80.765 tonnes and more than EUR 300 million, which represented increases of 40% in volume and 82% in value from 2021.

Germany was by far the main EU destination of all these main origin countries, covering 52% of the total volume of Alaska pollock imports, followed at a distance by France, the Netherlands and Poland, which accounted for 15%, 12% and 10% of the total, respectively.

TUNA AND TUNA-LIKE SPECIES

This group includes tunas and swordfish species. In 2022, total extra-EU imports of both increased by 1% in volume reaching 650.770 tonnes and by 28% in value to EUR 3,23 billion. Processed tuna – 30% frozen and 70% prepared-preserved products (mainly canned) – accounted for the largest share of this category in volume terms. In terms of species, skipjack tuna accounted for 52% of the total, followed by yellowfin tuna at around 31%. To be noted, these imports partly consist of tuna

caught and landed by the Spanish and French fleets in remote places close to the fishing areas of Ecuador, China, El Salvador, Guatemala, Seychelles, Papua New Guinea, Côte d'Ivoire, and Ghana. The catches were processed in those countries and then re-imported into the EU as prepared-preserved products.

SKIPJACK TUNA

Almost all skipjack tuna imported in the EU is imported as prepared-preserved products.

Total extra-EU imports of skipjack tuna decreased 2% from 2021, reaching 337.103 tonnes, while their value grew by 28%, reaching EUR 1,51 billion. Its main importers are Spain, Germany and Italy, followed by Netherlands and France. The Netherlands had been second in that ranking, but lost its place due to a whopping 46% decrease in skipjack tuna imports from 2021. This drop was partly balanced by an average 17% increase in imports by Germany, Italy and France, plus a 3% increase in Spain.

Ecuador remains the main country of origin, accounting for 29% of all extra-EU imports of prepared-preserved skipjack tuna, despite a slight decrease from 2021 that affected the decrease in total imports. However, skipjack tuna imports from Ecuador accounted for EUR 467 million and 96.393 tonnes, while the average price in 2022 reached 4,84 EUR/kg, the highest of the ten-year period.

Papua New Guinea and China accounted respectively for 10% and 9% of these imports, with China increasing 2% from 2021, when it had dropped by 33%.

Although the average price of imports of skipjack tuna from China increased by 23% to EUR 3,82/kg, it was lower than the average price of EUR 4,47/kg from all origins.

YELLOWFIN TUNA

In 2022, extra-EU imports of yellowfin tuna increased 6% in terms of volume and 28% in value, reaching 202.131 tonnes and EUR 0,99 billion respectively. However, despite this increase compared to 2021, the level of imports remained much lower than the pre-pandemic level.

The main countries of origin of this species in 2022 included Seychelles, Ecuador, Papua New Guinea and the Philippines. Imports from the Seychelles, which accounted for 19% of the total, increased steadily between 2020 and 2022, with an average growth rate of 10%, while imports from Ecuador remained stable in 2022. On the other hand, imports from Papua New Guinea and the Philippines, which have been very volatile in recent years, showed volume increases of 48% and 54%, respectively, in 2022. More than half of these imports, 55%, were composed of prepared-preserved products and frozen tuna, which accounted for 44% of the total. To note, prepared-preserved products sold at 6,14 EUR/kg in 2022, which was more than twice the 3,05 EUR/kg price of frozen products in 2021. For frozen products, Spain prevails among importing countries and is also responsible for further dispatches within the EU. Imports of prepared-preserved products are more diversified in terms of destinations, with Spain, Italy and France as the largest importers, together accounting for 95% of total imports.

NON-FOOD USE PRODUCTS

Extra-EU imports of non-food use products in 2021 totalled 832.802 tonnes worth EUR 1,16 billion, which represented increases of 2% in volume and 34% in value from 2021. The products included a share of 30% for fishmeal and 24% for fish oil, while the rest concerned other products not destined for human consumption, such as fish waste and seaweed. According to available level of detail of data, however, it is not possible to identify the products included in this latter category more precisely.

FISHMEAL

In 2022, the EU's fishmeal imports increased by 11% from 2021, reaching figures similar to the pre-pandemic level and totalling 247.234 tonnes. Despite a 37% drop in imports from Norway, one of the major EU suppliers, the recorded increase was

possible due to other key countries such as Morocco, Peru and Iceland increasing their share in fishmeal imports by 14%, 46% and 17% respectively. The overall value of fishmeal imports grew by 37% and reached EUR 403 million in 2022. The average price of fishmeal imports was 1.603 EUR/tonne, with Norway recording the highest price at 2.167 EUR/tonne and Morocco the lowest at 1.469 EUR/tonne.
Germany, the largest EU importer of fishmeal, imported 62.485 tonnes in 2022 which was 17% more than in 2021. Imports increased in Spain, Denmark and Greece, by 12%, 11% and 23%, respectively, while they decreased in Italy by 11%. Germany remains a major entry point to the EU market, primarily due to the logistics of its harbours that have overseas routes and trading partnerships. Germany is also a hub for the further distribution of fishmeal, primarily for the aquafeed segment.

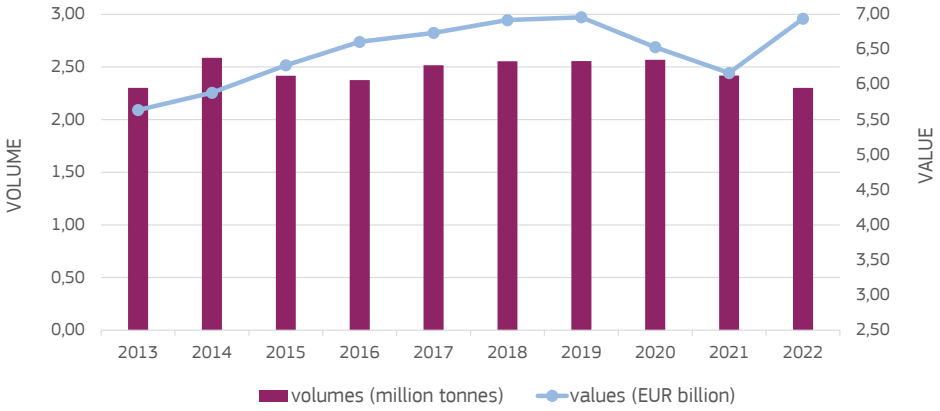
FISH OIL

The largest shares of the EU supplies of fish oil originate from Norway and Peru. In 2021 they together accounted for 50% of total EU imports of fish oil. However, in 2022, fish oil imports decreased 5% in terms of volume while its value reached its ten-year peak of EUR 500 million. The volume-decrease was mainly driven by a 43% drop in Peru imports, which totalled only around 34.300 tonnes, while in 2021, their volume reached almost 60.000 tonnes. In value, they showed an increase, growing from EUR 117 million to EUR 119 million.
Denmark received most of extra-EU imports of fish oil in 2022 (namely 83.629 tonnes valued at EUR 211 million), followed at a distance by Greece and the Netherlands.

4.4 EXTRA-EU EXPORTS

In 2022, EU exports of fishery and aquaculture products to third countries reached a five-year low of 2,3 million tonnes, which was a 5% decrease from 2021. However, when compared with ten years ago, the volume remained stable with a slight growth of 0,04%.
In terms of value, there was a 13% increase in 2022, equivalent to a growth of EUR 773 million. One possible explanation for this value increase concerns the increase in prices due to the spiking of demand post-COVID and rising inflation. It can be argued that this combination of events was a factor in both the increase in the total value of extra-EU exports and the decrease in their total volume. Another factor to consider is how the different species performed, which can be influenced by the quantity/price ratio of the exported fish and aquaculture products. Indeed, the value of some species that have less impact on the total volume due to their low weight has increased compared to previous years. This is true for coldwater shrimps, that had a volume increase of 2% and a value increase of 34%. It also saw a price increase, growing from 3,74 EUR/kg to 4,94 EUR/kg.

CHART 51
EXTRA-EU EXPORTS OF FISHERY AND AQUACULTURE PRODUCTS
Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409). Values are deflated by using the GDP deflator (base=2015).



The EU mainly exports blue whiting, herring, fishmeal and fish oil not destined for human consumption, skipjack tuna, mackerel and salmon. To be noted that extra-EU exports of tuna partly comprise tunas caught by the Spanish and French fleets in remote places which are processed there, and then imported in the EU as prepared-preserved products or frozen loins. In both cases, these landings are also recorded as exports.

Salmon exports, first in terms of value in extra-EU exports, experienced a steep decline from 2020 to 2021. The situation improved in 2022, with exports growing by 10% in volume and 35% in value. However, these are still far from pre-pandemic exports. The collapse in 2021 was a consequence of an 86% drop in exports to the UK, which decreased again by 4% in 2022.

Indeed, in 2022, the UK lost its position as the top destination of EU exports of fishery and aquaculture products, as it was overtaken by the US in terms of value and Norway in terms of volume. Furthermore, the US is the largest recipient of extra-EU salmon exports, having imported 35.054 tonnes worth EUR 549 million in 2022, which represented a 14% increase in volume and 40% in value compared with 2021. Salmon accounted for slightly less than half of extra-EU exports to the US in value and for a quarter of their volume.

Exports to Norway mainly consist of fish oil and fishmeal. In 2022, they accounted for 62% of the exports to Norway.

Among main countries of destination of extra-EU exports in volume terms there is Nigeria, which mainly receives blue whiting and herring.

In 2022, extra-EU exports to China registered a 47% growth in value compared with 2021 and ranked third among main countries of destination of extra-EU exports in value terms, surpassing Norway and Switzerland. The growth of the export value of coldwater shrimps was the main driver of this increase, as their average export price of this species rose by 33%, from 4,31 EUR/kg to 5,74 EUR/kg. In addition to coldwater shrimps, China is also the main destination for Greenland halibut exported by the EU, covering two thirds of the total extra-EU exports for this species.

CHART 52

TOP EXTRA-EU COUNTRIES OF DESTINATION IN 2022 (IN VOLUME)

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409)

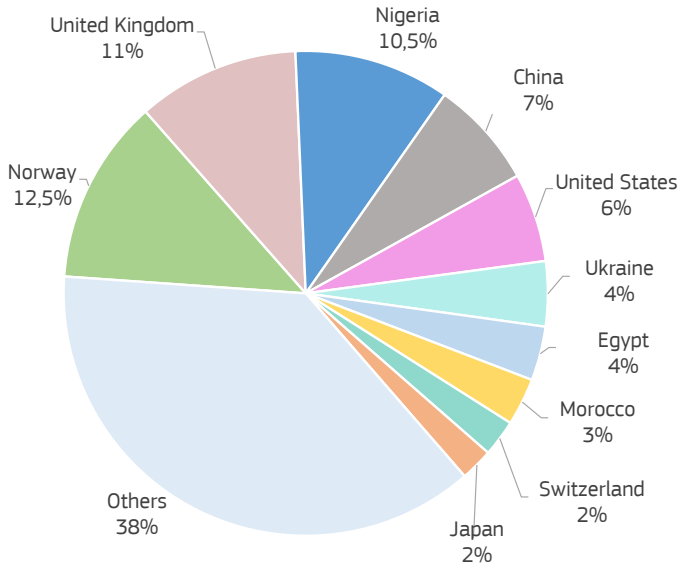


CHART 53

TOP EXTRA-EU COUNTRIES OF DESTINATION IN 2022 (IN VALUE)

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409)

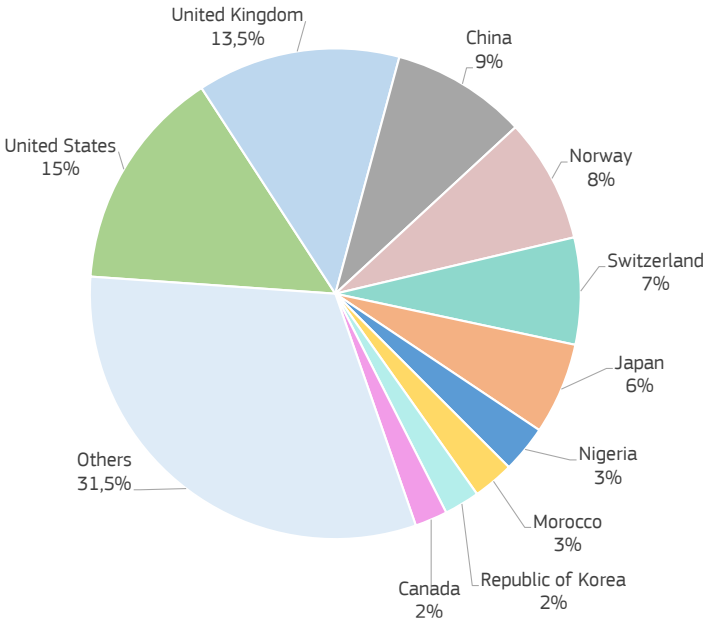


CHART 54

VALUE OF EXTRA-EU EXPORTS BY MEMBER STATE (EUR BILLION)

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409). Values are deflated by using the GDP deflator (base=2015).

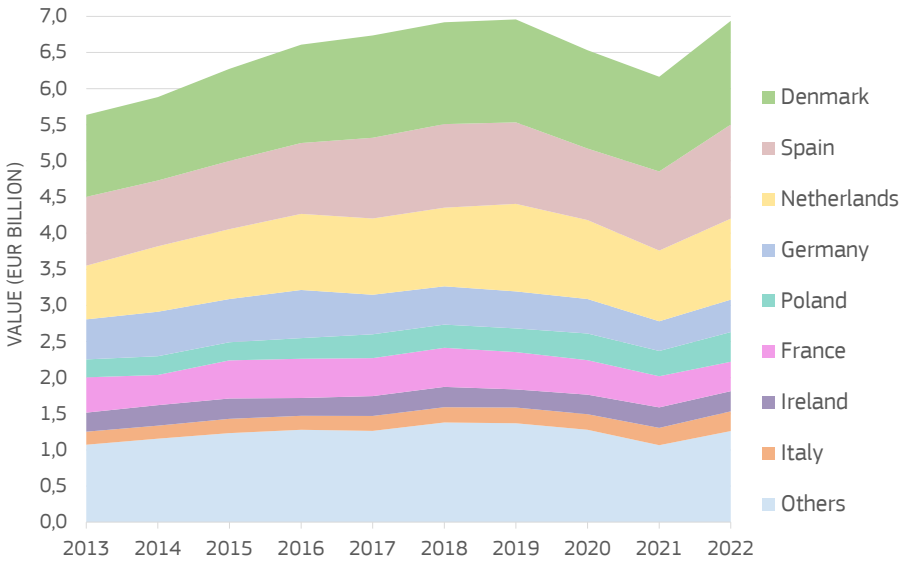


CHART 55

NOMINAL VALUE OF EXTRA-EU EXPORTS BY MEMBER STATE IN 2022 AND % VARIATION 2022/2021

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409)

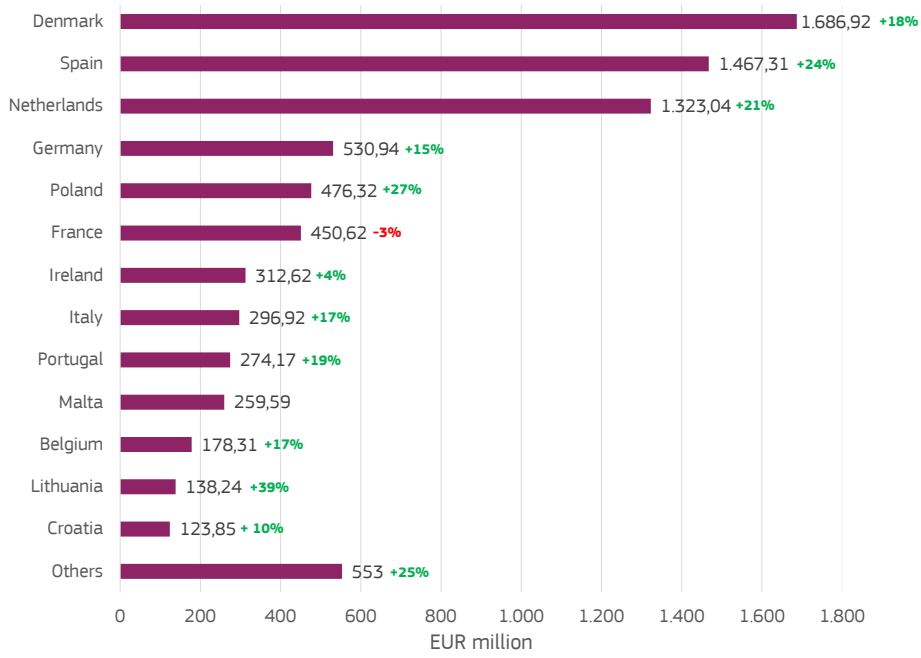
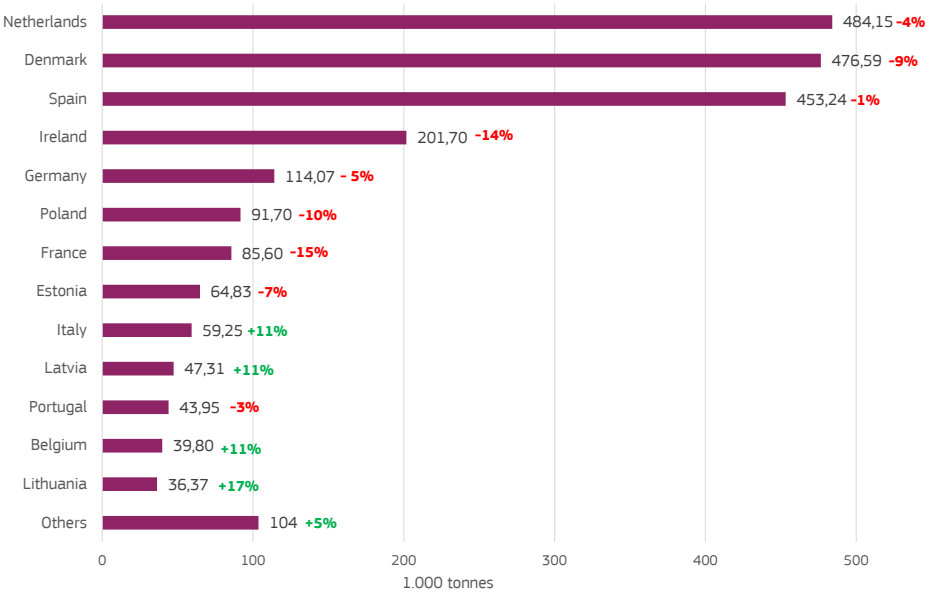


CHART 56

VOLUME OF EXTRA-EU EXPORTS BY MEMBER STATE IN 2022 AND % VARIATION 2022/2021

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409)



4.4.1 ANALYSIS BY MAIN SPECIES

SALMONIDS

Salmon is by far the most valued species exported by the EU. It represented 94% of the total value of extra-EU exports of salmonids in 2022 (a group that also includes trout and other salmonid species).

SALMON

Extra-EU exports of salmon reached 94.389 tonnes and EUR 1,24 billion in 2022, which represented increases of 10% in volume and 35% in value. This was a positive signal after salmon's 2021 drop in volume, although the 2022 figures were still registering 30% lower than the 2019 pre-pandemic level. The average price of exported salmon increased 23% to 13,15 EUR/kg, following an upward trend that started in 2021, when the average price increased 30%, reaching 10,72 EUR/kg.

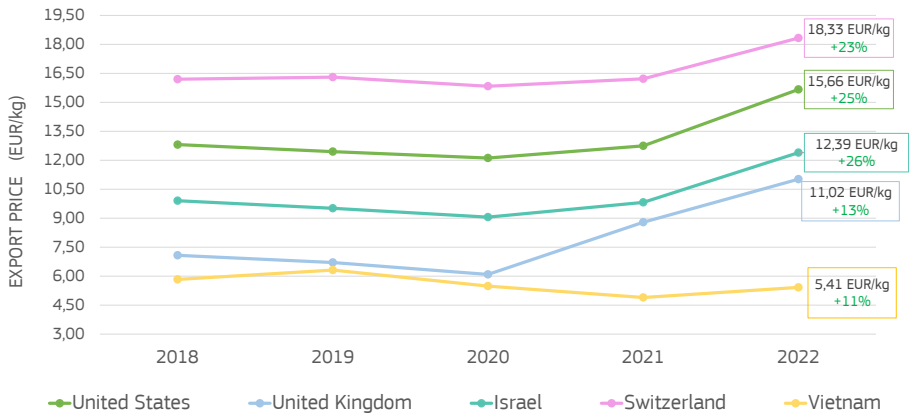
The main exporting country is the Netherlands. It primarily markets fresh fillets as well as smoked salmon. Poland and Denmark closely follow, with their main exports consisting of frozen fillets and smoked salmon.

Chart 57 shows the five-year trend of the average price of salmon exported to main extra-EU destinations. The highest price was seen in Switzerland, where salmon is mainly exported as smoked or fresh fillets. A possible explanation could be that exports of salmon to Switzerland largely consist of special quality grade salmon such as *Label Rouge* and organic. The second highest price – 15,66 EUR/kg – was registered by exports to the US, which mainly imports live/fresh salmon. The third highest at 12,39 EUR/kg was Israel, which mainly imports frozen and fresh fillets. Exports to the UK, mainly comprising prepared/preserved and smoked products, had an average price of 11,02 EUR/kg. The price of salmon exports to Vietnam, which mainly receives frozen fillets, ranked fifth.

CHART 57

NOMINAL EXPORT PRICES OF SALMON TO THE TOP-5 EXTRA-EU DESTINATIONS AND % VARIATIONS 2022/2021

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409)



SMALL PELAGICS

In 2022, EU exports of small pelagics to third countries reached 541.420 tonnes, slightly less than one fourth of the total volume of all fishery and aquaculture products exported by the EU. In value terms, value of the small pelagicsamounted to EUR 902 million.

Herring and mackerel, the two main commercial species in this group, together accounted for 331.030 tonnes. They represented 9% and 6%, respectively, of the total volumes of extra-EU exports of fishery and aquaculture products.

HERRING

Extra-EU exports of herring had dropped to a 10-year low in 2021, but in 2022, volume increased 8% to 195.189 tonnes and value increased 25% to EUR 170 milion. As shown in Chart 58, this was still not enough to reach the volume of herring exports before the outbreak of COVID-19; they remained 16% less in 2022, than 2019.

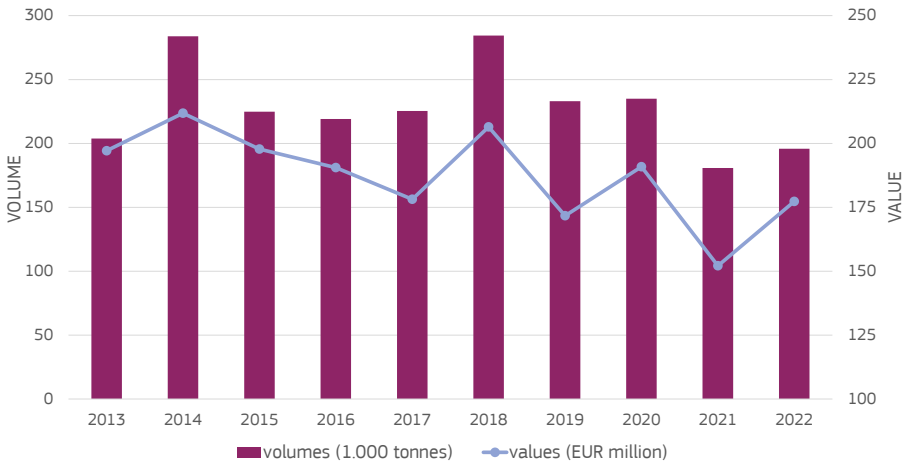
This was mainly driven by decreased exports from the Netherlands, by far the major EU supplier of herring to third countries, but was also related to reduced quotas from 2020 to 2021. The Dutch exports rose again in 2022, but were still 20% less than 2019.

Overall, most EU exports of herring are destined for Nigeria which imported almost 70.000 tonnes in 2022. It was followed at a distance by Ukraine with close to 30.000 tonnes and Egypt with 24.500 tonnes. From 2021 to 2022, exports to Nigeria increased by 18% in volume and 33% in value. On the other hand, extra-EU exports to Egypt saw a 13% decrease in volume with a 6% increase in value, while those to Ukraine declined 17% in value and rose 15% in value.

CHART 58

HERRING EXPORTED FROM THE EU TO THIRD COUNTRIES

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409). Values are deflated by using the GDP deflator (base=2015).



MACKEREL

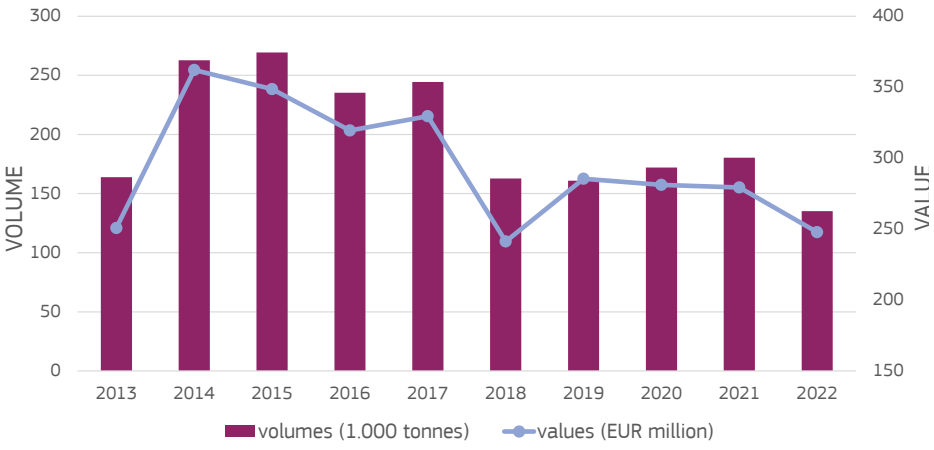
Extra-EU exports of mackerel plummeted from 2017 to 2018, as did EU catches. From 2019 to 2021, there was a slight but steady growth in terms of volume, but in 2022 it dropped 25% from 2021, to a 10-year low of 135.200 tonnes.

As for value, mackerel exported by the EU amounted to EUR 286 million in 2022. On a ten-year perspective, when looking at values in real terms, this was the second lowest ever recorded – only 3% more than 2018. However, it should be noted that, in 2018, the average price reached 1,53 EUR/kg, while in 2022, it reached 2,12 EUR/kg. Indeed, in 2022, export prices increased for all major exporters, namely the Netherlands, Ireland and Denmark, where export prices spiked at 22%, 27% and 20%, respectively.

CHART 59

MACKEREL EXPORTED FROM THE EU TO THIRD COUNTRIES

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409). Values are deflated by using the GDP deflator (base=2015)



GROUNDFISH

In 2022, extra-EU exports of groundfish species totalled 330.804 tonnes and EUR 726 million, with cod being responsible for 49% of the total in value and 16% of the total in volume. In volume terms, blue whiting prevailed in the export of this group of species,, accounting for 60% of the total volumes, but was second to cod in value, with a share of 20% of the total.

COD

Exports of cod, in 2022, followed the downturn trend that began in 2020, dropping to a decade low of 53.598 tonnes, which was 7% less than 2021. This drop was due to decreased exports of frozen cod fillets from the Netherlands, its main exporter, to China and the UK.

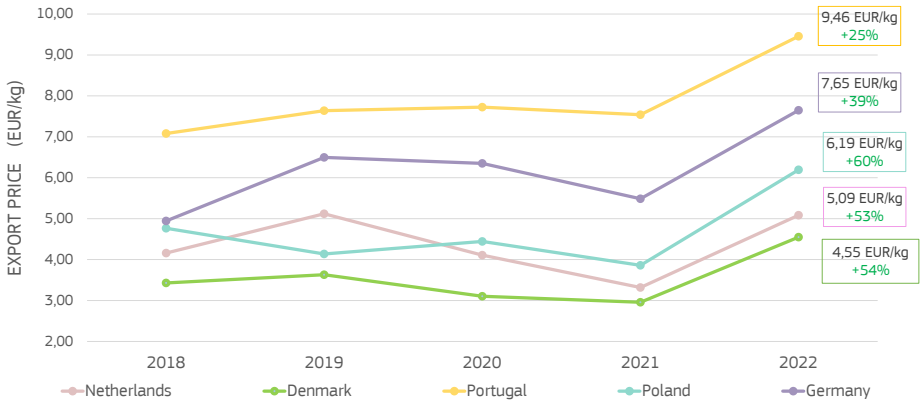
Their value, on the other hand, increased by 27% reaching EUR 355 million, thus recovering from 2021 when it posted one of the lowest levels of the past ten years. This was mainly due to an increase in prices. As shown in Chart 60, in 2022, all prices from major exporters reached a five-year peak, while cod exported by Portugal and

Germany had the highest prices. This was due to the value addition created by the higher number of processing steps needed before selling it, as Portugal mainly exports dried fillets or other cuts, and Germany mainly exports frozen fillets.

CHART 60

NOMINAL EXPORT PRICES OF COD FROM MAIN EU EXPORTERS AND % VARIATIONS 2022/2021

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409)



BLUE WHITING

Extra-EU exports of blue whiting recorded a 11% decrease compared with 2021, dropping to 197.995 tonnes in 2022. In terms of value, they reached a 10-year peak at EUR 145 million. This followed increases in volume (+7%) and value (+0,4%) from 2020 to 2021.

Nigeria is by far the major importer, while the leading EU exporters are the Netherlands and Ireland.

The 2020–2021 volume-increase was mostly linked with the significant increase recorded by Ireland's exports to Nigeria (+118%), and at a lesser extent by the increase of Dutch exports to Nigeria (+6%). In 2022, Dutch exports to Nigeria dropped 19% from 2021, while those from Ireland plummeted 32%.

Ireland's average export price to Nigeria of 0,66 EUR/kg was still slighty less than the average export price of blue whiting from the EU to third countries, but it was 27% more than its 2021price of 0,49 EUR/kg.

NON-FOOD USE PRODUCTS

Of all fishery and aquaculture products exported by the EU, those not destined for human consumption accounted for 20% of the volume in 2022, and their value covered 11% of the total. These amounted to 471.463 tonnes worth EUR 875 million, corresponding to a 5% decrease in volume but a 17% increase in value. It was the highest value recorded over the 2013–2022 decade, in both nominal and real terms.

FISHMEAL

Extra-EU exports of fishmeal totalled 161.245 tonnes, which was a 13% decrease from 2021 as well as a decade low. However, its value which reached EUR 298 million, marked a 3% increase. This was mainly linked to a spike in prices: on average, the price rose by 18%, reaching 1.856 EUR/tonne. Most of extra-EU exports of fishmeal are destined for Norway.

Denmark, responsible for the largest part of these exports, saw its export volume dropping to 98.388 tonnes and value to EUR 181 million. This represented a 28% decrease in volume and a 16% decrease in value from 2021. Specifically, those destined to Norway recorded a drop of 24.046 tonnes and reached 52.209 tonnes, which was 32% less than 2021, while its price increased 17%, reaching 1.868 EUR/tonne.

In 2022, Germany became the second largest exporter of fishmeal, a "position" held by Ireland during 2021. Indeed, German exports of fishmeal grew from less than 10.000 tonnes to 30.315 tonnes, for a value growth from EUR 16 million to EUR 58 million.

FISH OIL

Fish oil exports decreased 12% from 2021 to 2022, dropping to 141.591 tonnes, which was the second lowest amount of the decade analysed. In contrast, their value increased 28%, to EUR 375 million, which was the highest of the decade. This was due to the average price of fish oil exports from the EU to third countries increasing 45% from 2021 – reaching 2.650 EUR/tonnes.

Denmark, the largest EU exporter, accounted for 73% of the total volume. It mainly impacted the general trend by decreasing exports to Norway, the major destination. This trend started in 2021, when it dropped 14% in volume and then plummeted by another 16% in 2022. These exports totalled 83.504 tonnes worth EUR 201 million.

4.5 INTRA-EU TRADE

In 2022, intra-EU trade[90] of fishery and aquaculture products amounted to 6 million tonnes worth EUR 27,4 billion.

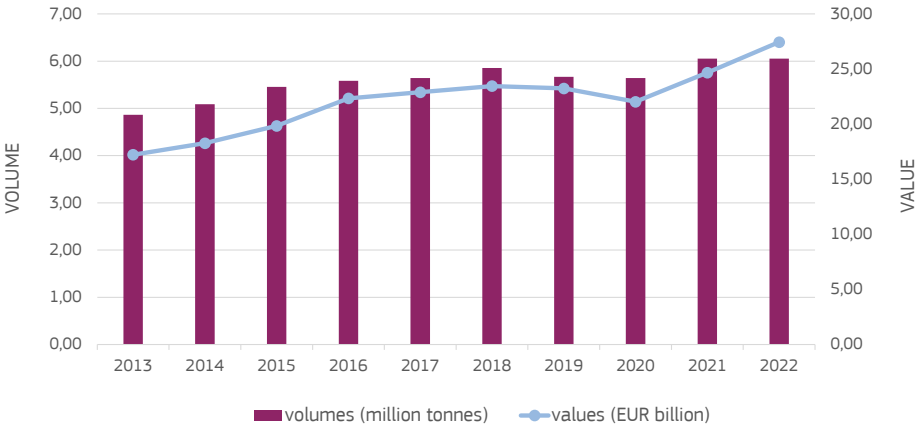
In volume terms, intra-EU trade remained almost unchanged from 2021, while its total value increased by 11%. To be noted, exchanges within the EU largely consist of re-exports of products originally imported from third countries[91]. These products may also be subject to multiple exchanges and processing steps taken by Member States once they enter the EU market. The creation of added value along the often complex supply chains and multiplication of cross-border flows contribute to inflating the value of intra-EU exports.

The 15 flows with the highest value at country and main commercial-species levels in 2022 are shown in Chart 62.

CHART 61

INTRA-EU TRADE OF FISHERY AND AQUACULTURE PRODUCTS

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409). Values are deflated by using the GDP deflator (base=2015).



[90] Intra-EU trade analysis is based on intra-EU exports only, due to the fact that intra-EU imports and intra-EU exports should coincide. For more details, please refer to the Methodological background.

[91] It has to be underlined that despite "exports" are reported as such by Eurostat-COMEXT according to flows recorded by national customs, in most cases the northern EU Member States are not the actual exporters but rather countries through which products are transported.

CHART 62

TOP 15 FLOWS OF FISHERY AND AQUACULTURE PRODUCTS WITHIN THE EU IN 2022 (IN NOMINAL VALUE)

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409)

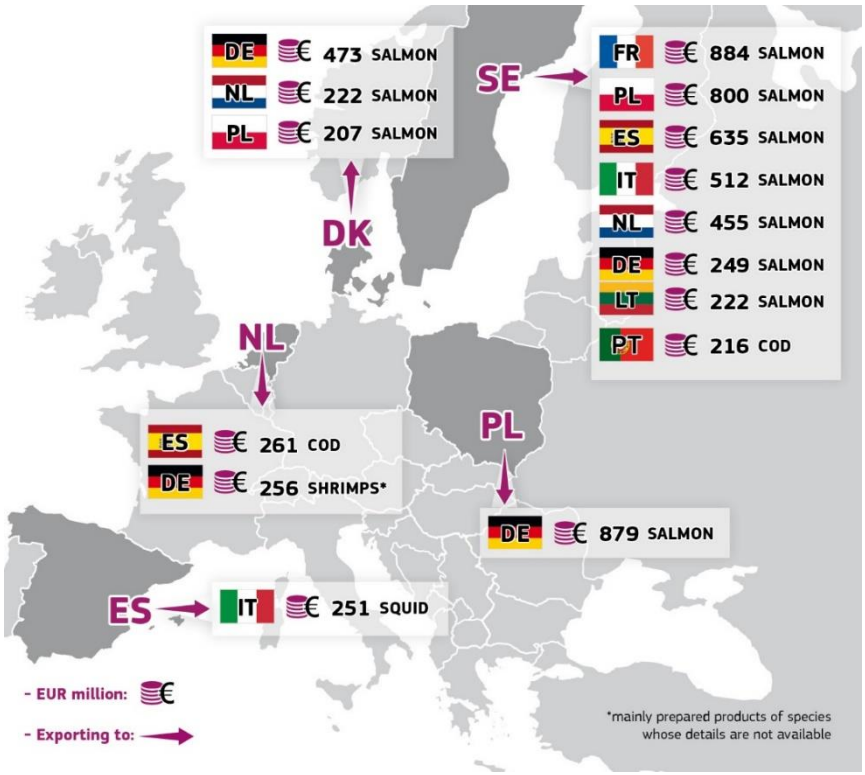


CHART 63

VALUE OF INTRA-EU EXPORTS PER MEMBER STATE (EUR BILLION)

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409). Values are deflated by using the GDP deflator (base=2015)

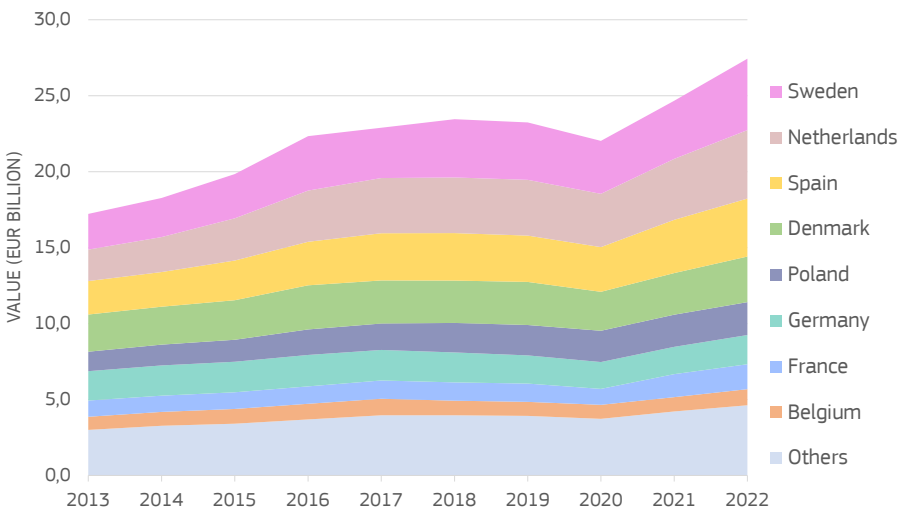


CHART 64

NOMINAL VALUE OF INTRA-EU EXPORTS BY MEMBER STATE IN 2022 AND % VARIATION 2022/2021

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409)

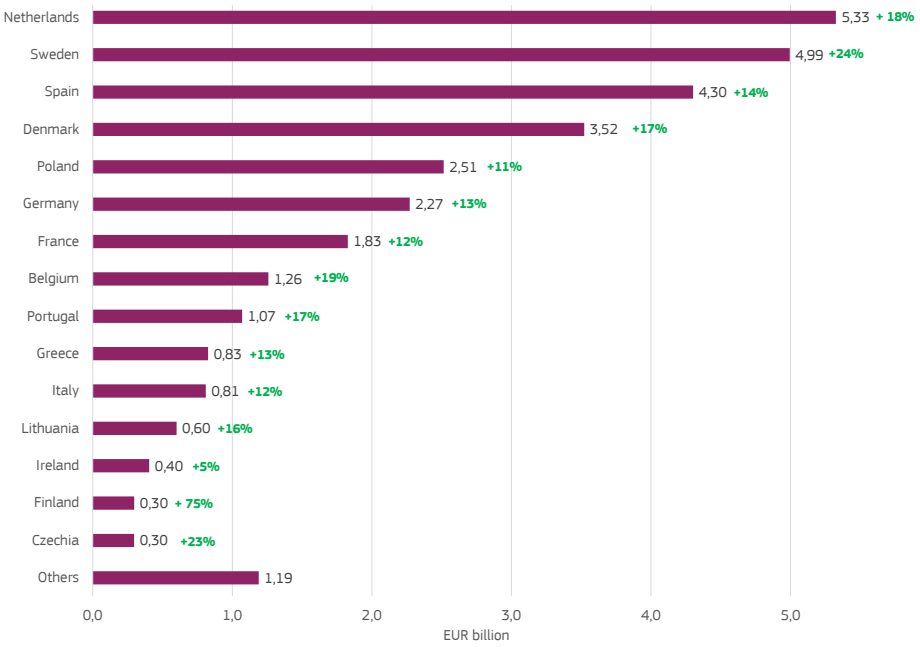
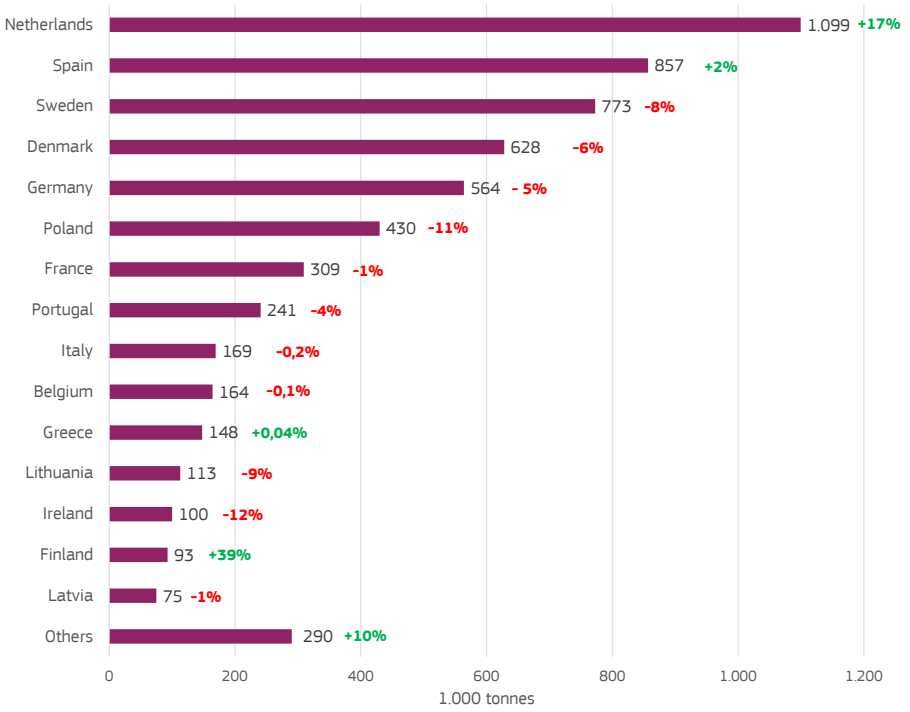


CHART 65

VOLUME OF INTRA-EU EXPORTS BY MEMBER STATE IN 2022 AND % VARIATION 2022/2021

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409)



4.5.1 ANALYSIS BY MAIN SPECIES

SALMONIDS

Exports of salmon prevail in the intra-EU trade of fishery and aquaculture products[92]. In 2022, intra-EU exchanges of salmon amounted to 1,05 million tonnes worth EUR 10 billion, accounting for 32% of the total intra-EU trade in value and 17% of the total in volume.

Among salmonids, which also include trout and other salmonid species, salmon represented 92% of total volume and 94% of total value.

[92] *Ibidem.*

SALMON

Three Member States – Sweden, Denmark and Poland – accounted for 76% of the intra-EU exports of salmon in 2022[93]. According to Eurostat-COMEXT, Sweden ranked first and covered slightly less than half of the total, while Denmark accounted for 17% and Poland 11%. Since Poland has a thriving smoking industry, which is mainly for salmon from Norway, its exports mainly include smoked products and, to a lesser extent, fresh products. On the other hand, exports from Denmark and Sweden consist almost entirely of fresh products.

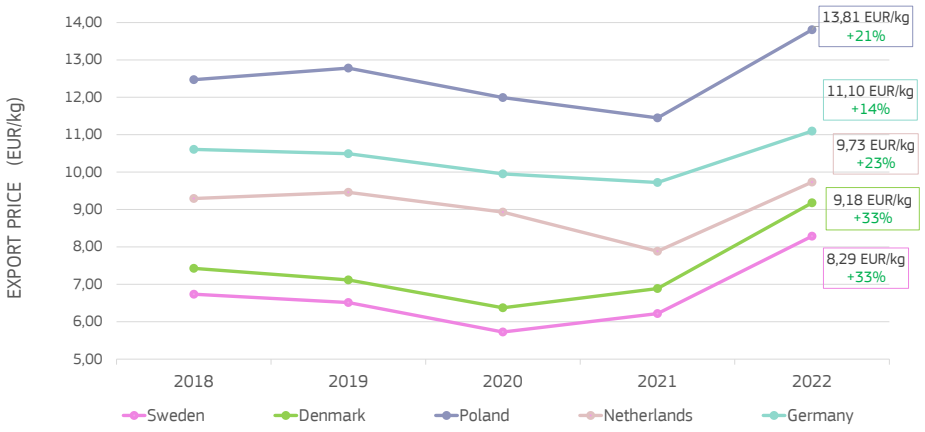
Overall, the total volumes of intra-EU exchanges of salmon decreased by 2% in volume from 2021 to 2022. The three major "dealers" of salmon within the internal market saw exports decreases: exports from Sweden declined by 5% to 511.192 tonnes; exports from Denmark decreased by 0,4% to 176.426 tonnes; exports from Poland dropped by 6% to 111.578 tonnes. On the other hand, the Netherlands, which followed at a distance, recorded an 11%-rise in intra-EU exchanges, reaching a 10-year peak at 70.000 tonnes.

In terms of value, the intra-EU trade of salmon achieved a 10-year peak at 10 billion, increasing more than EUR 2 billion or 25% from 2021 to 2022. This was linked to a increase in the average export price, that grew by 27% from 7,49 EUR/kg to 8,53 EUR/kg. As shown in Chart 66, Denmark and Sweden recorded the highest percentage increases (+33% each), while Poland had the highest price, namely 13,81 EUR/kg, because as mentioned, Polish exports of salmon mainly comprise smoked products.

CHART 66

NOMINAL PRICES OF SALMON IN THE INTRA-EU TRADE BY THE TOP EXPORTERS IN 2022 AND % VARIATIONS 2022/2021

Source: EUMOFA elaboration of Eurostat-COMEXT data (online data code: DS-045409)



GROUNDFISH

In 2022, the volume of groundfish traded in the EU reached 774.067 tonnes, which was an 8% decrease from 2021. However, in terms of value, it showed a significant 15% increase, reaching EUR 4,06 billion. The main contributor to this category was cod, which accounted for a significant portion of the groundfish traded in the EU and drove the overall trend.

COD

Cod is the second most valued species among all fishery and aquaculture products traded in the EU[94]. In 2022, 346.386 tonnes of cod with a value of EUR 2,42 billion were exported by EU countries to other Member States. This marked an 11% increase in value, reaching a ten-year peak. However, there was a slight decline in volume, with a 5% decrease compared to 2021. Despite the decrease in volume, the increased value reflected strong market demand and higher prices for cod.

The Netherlands[95] accounted for over one-third of the total cod exports, with 128.768 tonnes, a 2% increase from 2021. The majority of these exports went to Spain and France.

[93] *Ibidem.*
[94] *Ibidem.*
[95] *Ibidem.*

In Spain, frozen fillets were the main product, with an average price of 6,03 EUR/kg, a 33% increase from 2021. The Netherlands also mainly exported fillets to France, with average prices of 6,66 EUR/kg (frozen fillets) and 12,40 EUR/kg (fresh fillets). Compared with 2021, the price of frozen fillets grew by 19%, while that of fresh fillets remained stable.

Other major cod exporters within the EU are Denmark and Sweden. However, their exports in 2022 followed the overall decreasing trend, dropping by 12% in Denmark and 18% in Sweden, which amounted to 65.821 tonnes and 50.993 tonnes, respectively. Denmark primarily exports fresh whole/gutted cod to the Netherlands and fresh fillets to France. The price of fresh whole/gutted cod for the Netherlands increased by 24% to 5,45 EUR/kg, while fresh fillets for France rose by 22% to 12,71 EUR/kg. The price difference is due to the different production steps required for the type of products.

Sweden's exports of cod are mainly destined for Portugal, where cod is sold as dried and salted products. In 2022, the average export prices of these two products were 10,47 EUR/kg and 7,62 EUR/kg respectively. Both recorded increases compared with 2021: the price of dried cod grew by 29%, while that of salted cod increased by 43%.

5/ LANDINGS IN THE EU

5.1 OVERVIEW

TOTAL EU

In 2021, EU landings reached their lowest volume of the decade analysed (2012-2021), totalling 3,25 million tonnes. Their total value, EUR 5,85 billion, was 9% higher than in 2020 though.

Data on landings in the EU[96] analysed in this report cover the initial unloading of any fisheries products from a fishing vessel in each EU Member State[97]. In addition to landings of species destined for human consumption, it includes those destined for industrial use, as well as seaweed.

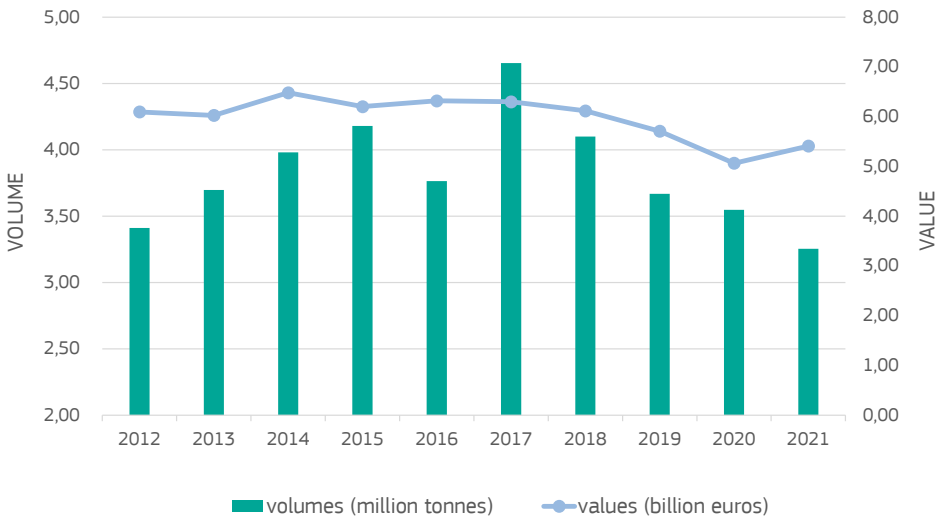
In 2021, landings in the EU totalled 3,25 million tonnes with a value of EUR 5,85 billion. Of note, the volume of 2021 landings in the EU was the lowest recorded in the decade analysed (2012–2021), and it continued the downward trend observed since 2018 when landings had dropped by 12% in volume compared with the previous year and value had decreased 2%.

Specifically, the 2021 volume decreased by 293.549 tonnes or 8% from 2020. However, at the same time, the total value of landings increased for the first time in five years, recording a 9% growth of EUR 484 million from 2020.

When compared with 2012[98], 2021 landings were 5% or 156.973 tonnes lower in volume and 11% or EUR 686 million lower in value.

CHART 67
TOTAL LANDINGS IN THE EU

Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main) and national sources' data.
More details on the sources used can be found in the Methodological background.
Values are deflated by using the GDP deflator (base=2015).



Looking at volume, landings of several main commercial species decreased in the EU from 2020 to 2021. As shown in Chart 68, sprat, herring and mackerel recorded the most significant drops in volume .

[96] In line with Eurostat's guidelines on the production and dissemination of statistical data by Commission services after the UK withdrawal from the EU, since the most recent reference period is year 2021, UK is excluded from the EU aggregations of each year. In addition, EU data include Croatia since 2013, date of the EU's enlargement to this country.
[97] Data regarding landings do not refer to landlocked countries (Czechia, Luxembourg, Hungary, Austria and Slovakia). The data analysed in this report cover products landed in EU by vessels of: EU Member States, Canada, Faroe Islands, Greenland, Kosovo, Iceland, Norway and the UK.
[98] In this report, value and price variations for periods longer than five years are analysed by deflating values using the GDP deflator (base=2015); for shorter periods, nominal value and price variations are analysed.

In 2021, Denmark reported a significant 33% decrease in fresh sprat landings compared with 2020. This contributed to the EU's overall volume decrease.

Decreases in herring landings were mainly observed in Sweden, especially for frozen products, which saw landings drop by 43%. This was followed by Denmark and Finland, which reported decreases of 13% and 14% respectively.

Landings of mackerel totalled 222.010 tonnes in 2021, compared with landings of close to 270.000 tonnes in 2020 (-18%). Ireland, which saw the strongest decrease, drove the overall trend, dropping by 30%, or 23.534 tonnes lower than 2020. Ireland was followed by Spain, which recorded a 25% or 13.843 drop, and Denmark, with a 35% decrease of 8.202 tonnes.

Although sandeel is not listed as a "main commercial species", the trend related to sandeel[99] landings is highlighted here due to its impact on the overall volume of EU landings. In Denmark, the landings of sandeel for industrial use experienced a significant decline in 2019, followed by a remarkable increase in volume in 2020. However, in 2021, the trend reversed once again, with Denmark recording a 59% drop totalling 99.256 tonnes.

In terms of value, as shown in Chart 69, the value of key species generally increased from 2020 to 2021, even though their volume did not necessarily follow the same trend. This can be attributed to rising costs and a rising general inflation, primarily driven up by decreasing volumes and the rebound of the demand on the global market after the COVID-19 pandemic.

Blue whiting experienced the highest growth in value between 2020 and 2021, with Ireland leading the way with a remarkable 141% increase accompanied by a slight 0,3% decrease in volume. The total value of landings of skipjack tuna also saw a significant 36% rise. Indeed, its unit value grew by 19%, going from 1,22 EUR/kg to 1,44 EUR/kg, while its volume increased by 15%, reaching 152.098 tonnes. However, it should be understood that 2020 represented an exception to the general trend, as it was strongly influenced by COVID-19. Distant water fishing fleets, such as the Spanish and Portuguese fleets, which catch most of the skipjack landed in the EU, were particularly affected by the COVID-19 travel restrictions. In fact, when compared with 2019, 2021 shows a 15% decrease in volume while a 4% rise in value.

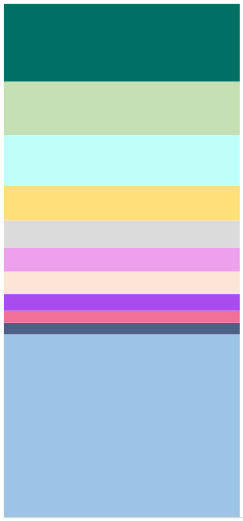
Among major changes, it is worth noting that landings of anchovy saw value increase by 88% in Italy and 17% in Spain.

[99] Sandeel does not constitute a "main commercial species" because of its limited market for human consumption. It thus falls under the aggregation "other groundfish".

CHART 68

MOST IMPORTANT MAIN COMMERCIAL SPECIES LANDED IN THE EU
VOLUME IN 2021, % OF TOTAL AND % VARIATIONS 2021 / 2020

Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main) and national sources' data.
More details on the sources used can be found in the Methodological background.



	1.000 tonnes	% of total	% variation 2021/2020
Herring	492	15%	-10%
Blue whiting	339	10%	+4%
Sprat (=Brisling)	320	10%	-19%
Mackerel	222	7%	-18%
Sardine	171	5%	-1%
Skipjack tuna	152	5%	+15%
Hake	143	4%	+6%
Anchovy	105	3%	+1%
Atlantic horse mackerel	77	2%	+2%
Clam	73	2%	+29%
Others*	1.162	37%	-13%

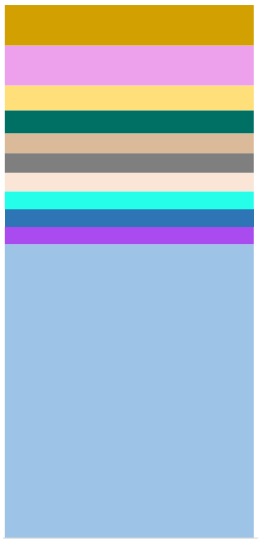
Total: 3,25 million tonnes

*Others largely include the EUMOFA aggregation "other groundfish" – mainly comprising sandeels that covered alone 9% of total volumes landed.

CHART 69

MOST IMPORTANT MAIN COMMERCIAL SPECIES LANDED IN THE EU
NOMINAL VALUE IN 2021, % OF TOTAL AND % VARIATIONS 2021 / 2020

Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main) and national sources' data.
More details on the sources used can be found in the Methodological background.



	million euros	% of total	% variation 2021/2020
Shrimps*	444	8%	+6%
Hake	439	8%	+8%
Mackerel	273	5%	-6%
Herring	251	4%	+13%
Skipjack tuna	219	4%	+36%
Common sole	215	4%	+10%
Anchovy	203	3%	+34%
Norway lobster	197	3%	+23%
Blue whiting	193	3%	+44%
Monk	192	3%	+4%
Others**	3.223	55%	-5%

Total: EUR 5,85 billion

* "Shrimps" includes *Crangon* spp., coldwater shrimps, deep-water rose shrimps, warmwater shrimps and miscellaneous shrimps.

**Among other main commercial species, the ones with the highest landing value in 2021 were octopus, clam and yellowfin tuna, each covering 3% of the total.

TABLE 17
AVERAGE NOMINAL PRICES AT LANDING STAGE OF TOP MAIN COMMERCIAL SPECIES IN THE EU (EUR/KG)

Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main) and national sources' data.
More details on the sources used can be found in the Methodological background.
Possible discrepancies in % changes are due to rounding.

Main commercial species	2017	2018	2019	2020	2021	2021/2020	2021/2017
Anchovy	1,67	1,51	1,75	1,46	1,93	+33%	+16%
Atlantic horse mackerel	0,88	0,96	0,90	1,04	1,31	+27%	+48%
Blue whiting	0,23	0,27	0,31	0,41	0,57	+38%	+142%
Clam	3,34	3,08	2,82	2,38	2,34	-2%	-30%
Cod	2,54	3,19	3,21	3,95	4,14	+5%	+63%
Crab	2,27	2,40	2,59	2,22	2,41	+8%	+6%
European plaice	1,88	2,52	2,44	2,62	2,37	-10%	+26%
Haddock	2,11	2,13	2,08	1,79	1,83	+2%	-13%
Hake	3,30	3,18	3,05	3,01	3,07	+2%	-7%
Herring	0,36	0,35	0,33	0,41	0,51	+25%	+42%
Mackerel	0,82	0,90	1,13	1,08	1,23	+14%	+49%
Monk	4,62	5,28	5,34	4,93	5,41	+10%	+17%
Mussel *Mytilus* spp.	0,24	0,23	0,25	0,29	0,31	+5%	+27%
Norway lobster	9,30	9,72	9,27	9,37	9,98	+7%	+7%
Sardine	0,82	0,96	0,98	0,86	0,99	+15%	+20%
Scallop	2,77	2,65	2,69	2,81	2,61	-7%	-6%
Seaweed and other algae	0,08	0,09	0,07	0,07	0,06	-5%	-23%
Shrimp *Crangon* spp.	7,76	3,81	2,89	3,60	4,11	+14%	-47%
Skipjack tuna	1,11	1,08	1,18	1,22	1,44	+19%	+30%
Sprat (=Brisling)	0,20	0,22	0,24	0,23	0,25	+9%	+27%
Yellowfin tuna	4,09	1,93	2,12	1,82	2,48	+36%	-39%

BY MEMBER STATE

Spain recorded the highest landed volume as well as the highest value of landings in 2021. The value it achieved, which far outdistanced other EU Member States, was mainly due to landings of hake, skipjack and yellowfin tuna. Also of note, Spain is where almost all EU landings of skipjack tuna take place.

Denmark saw its landing volume decline a significant 30% or 269.807 tonnes from 2020 to 2021 but still ranked second among EU Member States. The country's landings primarily consist of sprat, sandeel, and herring, all of which saw notable decreases of 33%, 58%, and 13% respectively in 2021. In contrast, the Netherlands saw a significant increase in the volumes landed, growing by 15% or 65.431 tonnes in 2021, primarily driven by herring, mackerel, and Atlantic horse mackerel.

As for value changes, the majority of EU Member States recorded a rise in total value, mainly due to a rise in prices rather than a rise in landed volumes. The largest increase was recorded in Spain, where the 11% growth of EUR 179 million was mostly driven by a rise in value of key species such as skipjack, yellowfin and bigeye tuna, hake and swordfish. The Netherlands and Italy also recorded a consistent rise in value, with the Netherlands increasing by 31% or EUR 149 million and Italy by 17% or EUR 111 million.

CHART 70

VOLUMES OF LANDED PRODUCTS IN MAIN EU COUNTRIES IN 2021 AND % VARIATIONS 2021 / 2020

Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main) and national sources' data.
More details on the sources used can be found in the Methodological background.

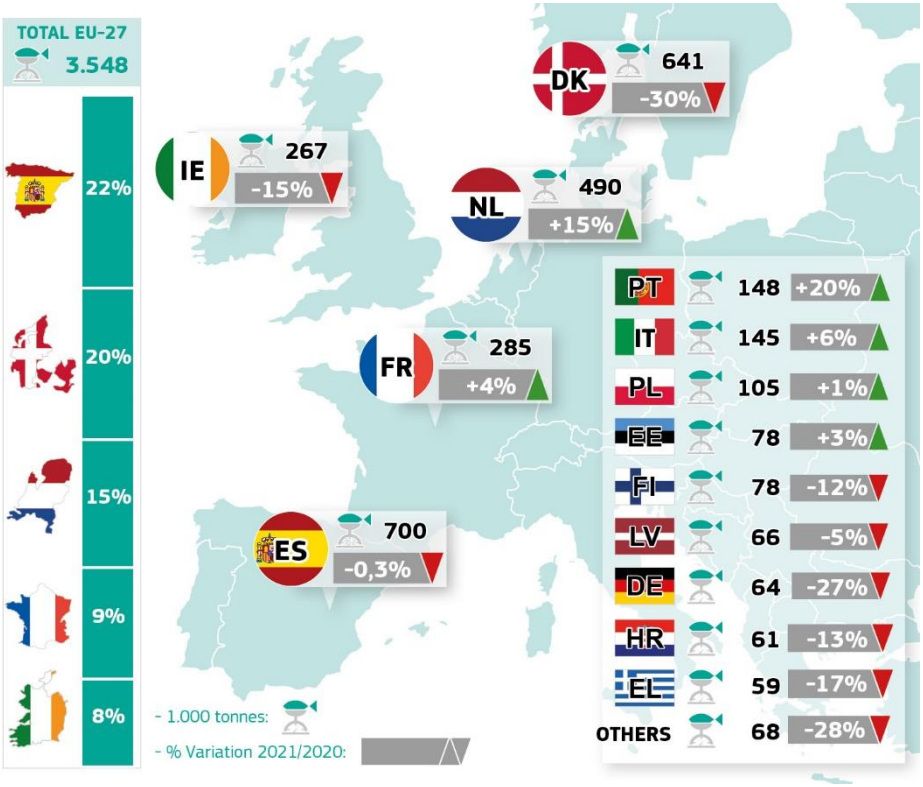
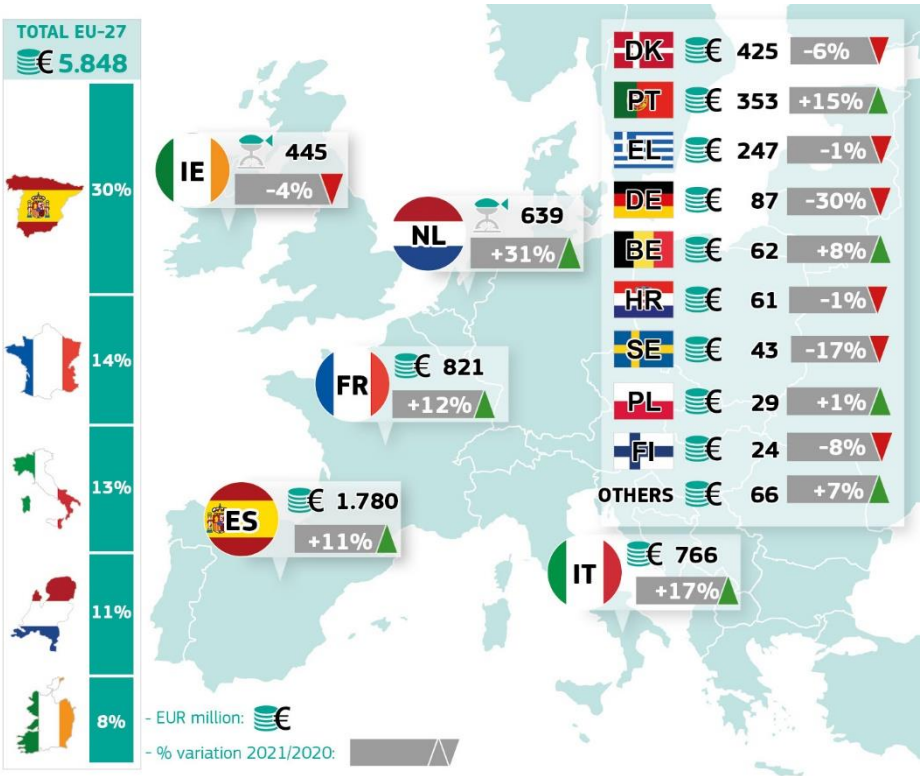


CHART 71

NOMINAL VALUES OF LANDED PRODUCTS IN MAIN EU COUNTRIES IN 2021 AND % VARIATIONS 2021 / 2020

Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main) and national sources' data.
More details on the sources used can be found in the Methodological background.



5.2 ANALYSIS BY MAIN SPECIES

SMALL PELAGICS

In 2021, landings of small pelagics in the EU decreased to 1,45 million tonnes, while total value increased to EUR 1,14 billion. The volume total represented a decrease of 161.318 tonnes or 10% compared to 2020. This decline reached a 10-year low that also continued the downward trend that started in 2018. At the same time, the overall value of small pelagic fish landings in 2021 recorded a significant increase of 12% or EUR 121 million compared with 2020.

This 2021 value increase was primarily driven by an overall rise in unit value for all species of the "small pelagics" aggregation. However, when compared with the figures from 10 years before, there was a notable decrease in both volume and value. The volume had decreased by 8% or 127.319 tonnes while the value in real terms had decreased by 13%or EUR 153 million.

When taken together, five of the small pelagics' main commercial species – namely herring, sprat, mackerel, sardine and anchovy – accounted for 30% of landed volumes for all commercial species in 2021.

HERRING

In 2021, herring, the most landed main commercial species, reached 492.291 tonnes, accounting for 15% of the total volumes of fish landed in the EU. This represented a decrease of 54.781 tonnes or 10% compared to 2020, went to a 10-year low and also continued the downward trend that had begun in 2018.

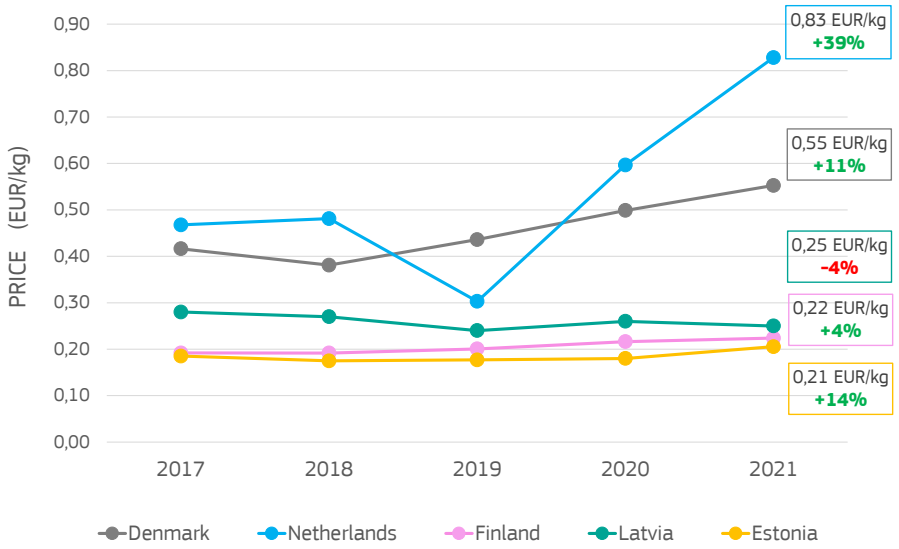
In terms of value, the landings of herring in 2021 amounted to EUR 251 million, which represented an increase of EUR 28 million or 13% compared to 2020. The value increase was due to the average price of herring landed in the EU rising a significant 25% from EUR 0,41/kg to EUR 0,51/kg.

More than half of the herring was landed in Denmark and the Netherlands, which accounted for 28% and 27% of the total respectively. Finland accounted for 13% of the landings, while the rest was mainly landed in other northern EU Member States.

Of note, most of the herring landed in EU countries is intended to be sold fresh, with only landings in the Netherlands being processed and sold as frozen products. The Netherlands recorded a 14% increase in landings of this species but saw its total value increase by 58%. Indeed, in 2021, the Netherlands recorded the highest unit value for first sales of herring in the EU, recording an increase by 39% from 2020, from 0,61 EUR/kg to 0,83 EUR/kg.

However, the price increase at EU level was driven by price increases in all major landing countries. It should be recognized that landings of herring originate from different stocks, including North Sea stock, Atlantic spring spawning stock and Baltic stock. Each of these has unique characteristics that cater to specific market preferences. Thus, they bring different prices on the market. Also of note, and especially relevant for Denmark and Sweden, is that the share of landings destined for industrial use and those destined for human consumption vary from year to year, resulting in significant price differences.

CHART 72
AVERAGE NOMINAL PRICES OF HERRING LANDED IN MAIN EU MEMBER STATES (EUR/KG)
Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main) and national sources' data. More details on the sources used can be found in the Methodological background.



SPRAT

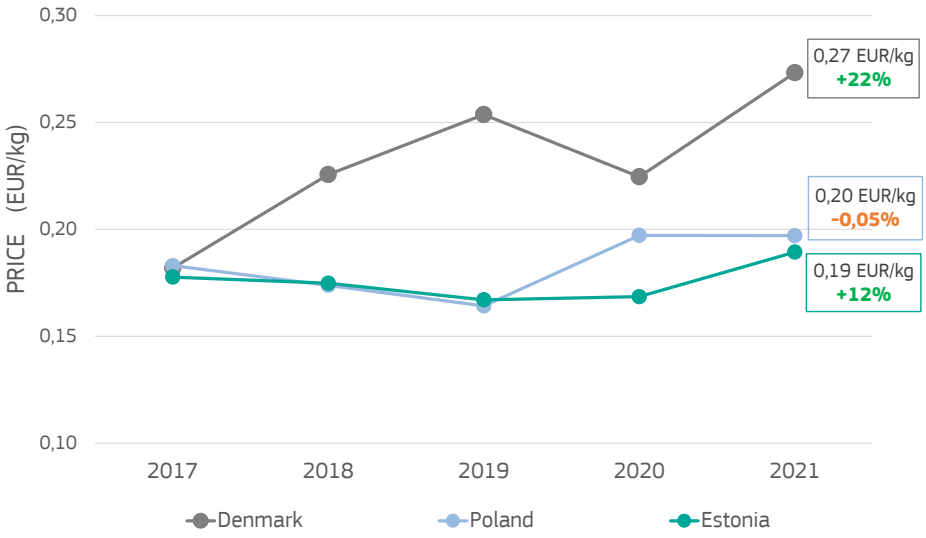
In 2021, the landings of sprat in the EU reached 319.583 tonnes, with a total value of EUR 80 million. This represented significant decreases of 19% or 73.511 tonnes in volume and 11% or EUR 10 million in value compared with 2020, and reached a 10-year low. Following the decrease in volume, the average unit value of sprat rose by 9% from 0,23 EUR/kg to 0,25 EUR/kg.

Denmark, sprat's main landing country by far, accounted for 50% of EU volume in 2021, mainly consisting of products destined for the fishmeal industry[100]. However, it experienced a significant decrease of 33% in volume and 19% in value, reaching a 10-year low of 160.934 tonnes worth EUR 44 million and impacting the overall volume of sprat landings in the EU. In 2022, The average unit value of sprat landed in Denmark increased by 22% to reach 0,27 EUR/kg.

Landings of sprat in Poland and Estonia followed far behind, with both recording increases in volume and in value compared to 2020. Landings of sprat in Poland grew by 17% both in volume and value, totalling 52.202 tonnes and EUR 10 million while the average unit value remained stable at 0,20 EUR/kg.

In Estonia, sprat landings increased by 12% in volume, from 31.831 tonnes to 35.638 tonnes and by 29% in value, from EUR 5,4 million to EUR 6,7 million. In addition, Estonia's unit value for sprat rose 12%, reaching 0,19 EUR/kg, the highest of the past five years.

CHART 73
AVERAGE NOMINAL PRICES OF SPRAT LANDED IN MAIN EU MEMBER STATES (EUR/KG)
Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main) and national sources' data. More details on the sources used can be found in the Methodological background.



[100] More information on this can be found in the EUMOFA study on EU fishmeal and fish oil production available at the link https://www.eumofa.eu/market-analysis#thematic.

MACKEREL

Landings of mackerel in the EU amounted to 222.010 tonnes worth EUR 273 million in 2021. This representeda decline of 18% in volume and of 6% in value from 2020.

Mackerel landings have experienced a fluctuating trend in recent years. In terms of volume, they declined by 20% in 2018 and 10% in 2019, then increased by 14% in 2020 only to drop again in 2021. Fishing quotas have played a part in this volatile trend. A significant quota reduction was made in 2019 due to the decline of mackerel's biomass stock. Although this was partially revised during the year, it still had a significant impact on 2019's mackerel landings and contributed to the 14% growth recorded in 2020. In 2021, however, the consequences of Brexit caused a general decline in mackerel quotas, especially for Ireland, which recorded a 30% or 23.534 tonne drop in mackerel landings.

The three largest mackerel-landing countries – the Netherlands, Ireland and Spain – were responsible for 76% of the EU total in volume and 78% of the total in value in 2021. The Netherlands was responsible for one third of total mackerel landings, with volume increasing 7% to reach 71.798 tonnes, and value increasing 34% to EUR 93 million. The Dutch average unit value for landed mackerel grew by 25% and reached 1,30 EUR/kg.

Landings of mackerel in Ireland decreased by 30% in volume and 27% in value from 2020. They reached 55.720 tonnes for EUR 75 million, while the unit price slightly increased by 4% and reaching 1,35 EUR/kg. Mackerel landings in Spain also decreased in 2021, dropping by 25% in volume to 40.904 tonnes. The value only decreased by 10%, ending at EUR 46 million, as the average unit value rose by 20% from 0,93 EUR/kg to 1,11 EUR/kg.

SARDINE

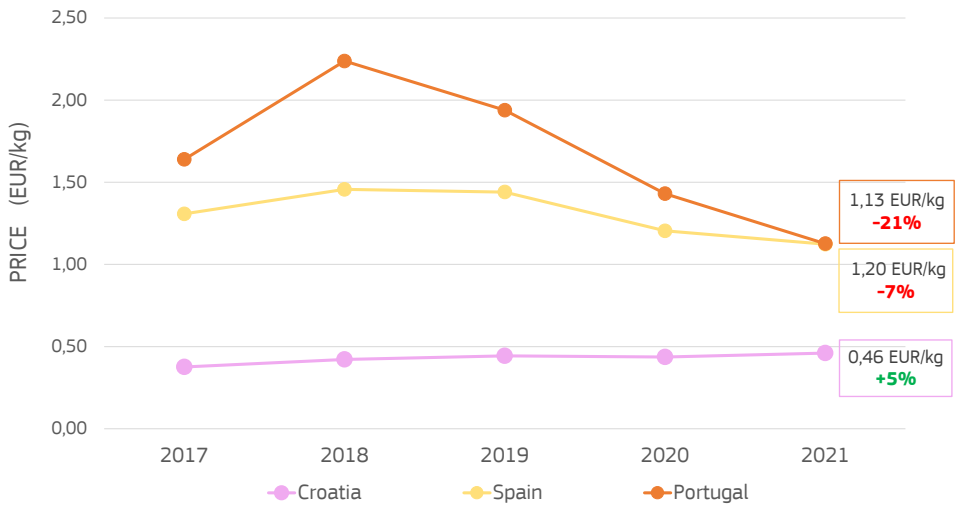
In 2021, EU landings of sardine totalled 170.591 tonnes with a value of EUR 168 million, which represented a 1% decrease in volume but a 14% increase in value. This rise in value was linked to the average unit value rising by 15% from 0,86 EUR/kg to 0,99 EUR/kg. The decline in volume continued a trend that has been constant since 2017, with the exception of a temporary increase in 2020.

Croatia, with sardine landings of 40.877 tonnes valued at EUR 19 million, accounted for 24% of total EU sardine landings and 11% of their total value. However, it must be noted that 2021 sardine landings in Croatia actually decreased by 19% in volume and 15% in value from 2020. Spain and Portugal followed Croatia, with Spain landing 35.029 tonnes with a value of EUR 39 million and Portugal landing 26.876 tonnes with a value of EUR 39 million. Also of note, Spain and Portugal both recorded increases in volume and value but unit value declined, with Spain showing growth of 31% in volume and 22% in value, while its unit value declined by 7% to 1,12 EUR/kg, and Portugal saw a 74% increase in volume, a 34% increase in value but saw its unit value decline by 21% reaching EUR 1,12/kg. The decreases in unit value of sardines for Spain and Portugal can be attributed to the increased supply of the species.

Of note, sardine landings in France experienced a decline of 25% in volume and 24% in value. This decrease amounted to a loss of 6.858 tonnes, equivalent to EUR 6 million, while the unit value increased a slight 2% and reached 0,91 EUR/kg.

In 2020, sardine landings in France accounted for 17% of the total value and 16% of the total volume of the EU landings of this species. However, in 2021, their contribution decreased, reaching 11% in overall value and 12% in overall volume.

CHART 74
AVERAGE NOMINAL PRICES OF SARDINE LANDED IN MAIN EU MEMBER STATES (EUR/KG)
Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main) and national sources' data. More details on the sources used can be found in the Methodological background.



ANCHOVY

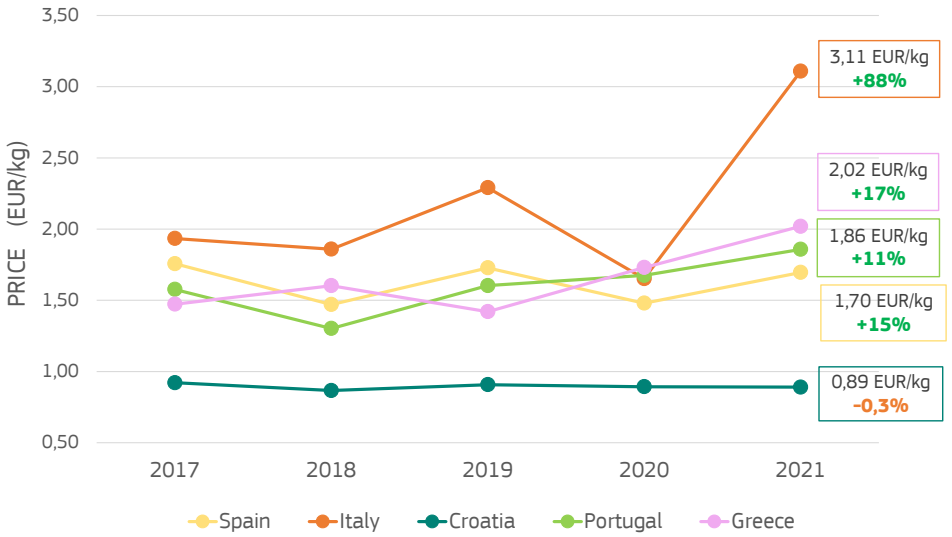
In 2021, landings of anchovies in the EU reached 104.776 tonnes with a total value of EUR 203 million. This represented a slight 1% increase in the landing volume which served to interrupt the downward trend that had started in 2019. At the same time, the value of landings showed a significant 34% increase. This was attributed to the remarkable 33% growth in the unit value which brought it to its highest level since 2014, both in nominal and real terms, and also played a significant role in driving up the overall value of anchovy landings.

Spain and Italy accounted for 74% of the total volume of anchovy landings in the EU in 2021, and for 78% of the total value. Spain led the ranking with a slight growth of 2% in volume and an increase of 17% in value, which brought its landings to 49.582 tonnes with a value of EUR 84 million.

In Italy, landings of anchovy were almost unchanged from 2020 to 2021, totalling 23.725 tonnes. However, they experienced an impressive 88% growth in value reaching a total worth of EUR 74 million. This growth was made possible by a spike in the unit value of anchovies. The unit value not only reached 3,11 EUR/kg which was Italy's highest level of the last 10 years, it was also the highest recorded in the EU in 2021.

Other significant EU countries for anchovy landings include Croatia, Portugal, and Greece. Croatia experienced a growth of 19% in volume and 18% in value, with landings reaching 11.621 tonnes and EUR 10 million. The unit value for anchovies in Croatia, generally lower than in other countries, remained stable at 0,89 EUR/kg. On the other hand, Portugal witnessed a remarkable increase of 75% in volume and 98% in value, placing the country among the top 5 countries with the highest anchovy landings. The total landings in Portugal amounted to 9.638 tonnes and EUR 18 million. On the other hand, Greece recorded a decrease in anchovy landings, with a 35% drop in volume to 7.322 tonnes. Its total value of EUR 15 million corresponded to a 24% decrease. However, its unit value grew by 17%, rising from 1,73 EUR/kg to 2,02 EUR/kg.

CHART 75
AVERAGE NOMINAL PRICES OF ANCHOVY LANDED IN MAIN EU MEMBER STATES (EUR/KG)
Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main) and national sources' data. More details on the sources used can be found in the Methodological background.



GROUNDFISH

In 2021, groundfish landings in the EU continued the downward trend that had started in 2018, although with a brief recovery in 2020. The total volume of groundfish landings reached 686.362 tonnes, valued at EUR 923 million. This represented a decline of 18% or 148.953 tonnes in volume, while the decrease in value was a relatively low 0,5% or EUR 4 million.

The decline in groundfish landings, particularly in volume terms, was strongly influenced by the decrease in sandeel landings. In 2021, sandeel landings dropped by more than half compared with 2020, declining by 59% from 240.104 tonnes to 99.256 tonnes. Their value decrease was only slightly lower, with a 48% decline from EUR 66 million to EUR 35 million. This decrease was primarily driven by the reduced landings in Denmark. Of note, sandeel landings follow the demands of the sector, and sandeel are only caught by a few vessels at specific times of the year to supply a specialised industry. Further, the sandeel fishing quota in Denmark was reduced from 2020 to 2021, partly due to Brexit. In addition, the difficulty of reaching an agreement on these quotas delayed the start of the sandeel fishing season by two weeks[101] – especially impactful as the season only lasts from 1 April to the end of July.

BLUE WHITING

Among groundfish, blue whiting is the most landed main commercial species in the EU. In 2021, it accounted for 49% of total volumes of this commodity group, followed by hake which accounted for 21%, and cod, which accounted for 2%.

It is worth noting that most of the blue whiting landings in the EU are not destined for human consumption, with the exception of Mediterranean catches and a small share of Atlantic catches destined for the export markets involved in production of surimi. Indeed, the majority of landings of this species is destined for the production of fishmeal and fish oil[102].

In 2021, blue whiting landings in the EU recorded a 4% increase, reaching a total of 338.725 tonnes. This marked the first year of growth since 2019. Moreover, 2021 stood out as the peak year within the 2012–2021 period, as it reported a remarkable 44% growth in value, resulting in an overall value of EUR 193 million. Also in 2021, the average unit value of landed blue whiting increased by 38%, rising from 0,41 EUR/kg to 0,57 EUR/kg.

[101] Danish sandeel fishery 2021 postponed until the middle of April (thefishingdaily.com)
[102] More information on this can be found in the EUMOFA study on EU fishmeal and fish oil production available at the link https://www.eumofa.eu/market-analysis#thematic.

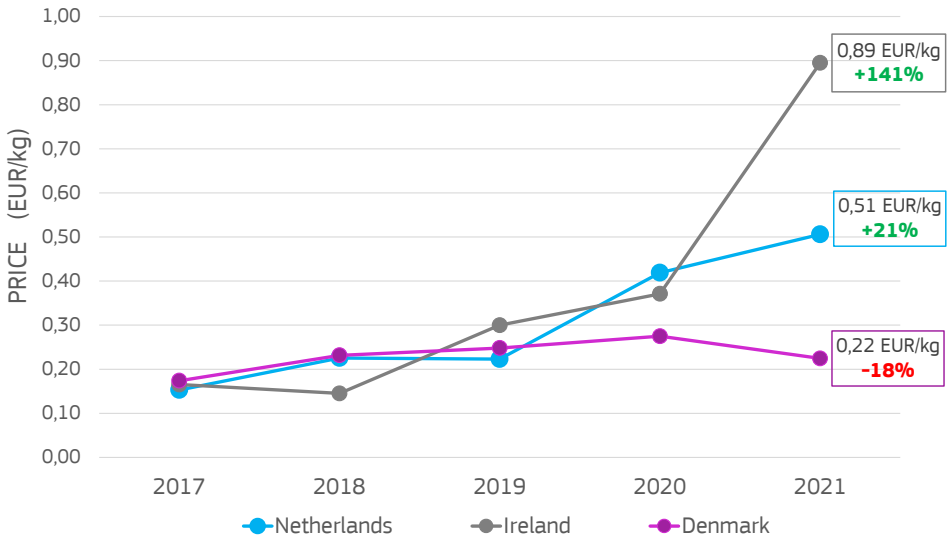
In 2021, 90% of EU blue whiting landings was registered in the Netherlands, Ireland and Denmark, which accounted for 40%, 26% and 24%, respectively, of the total volume. The slight increase in volume at EU level was mainly driven by the Netherlands, the largest landing country, which saw an increase of 17% or 19.518 tonnes, and reached 135.665 tonnes. The Netherlands also saw a value increase of 41% or EUR 20 million, reaching a total of EUR 69 million. However, the impressive growth in value of landed blue withing was led by Ireland, which recorded a slight decrease of 0,3% in volume but had a 141% increase in its value. This corresponded to a total of 87.469 tonnes and EUR 78 million and to an increase of the unit value from EUR 0,31/kg to EUR 0,89/kg, as can be seen in Chart 76. This sharp increase could be related to a larger proportion of blue whiting landed in Ireland for human consumption. Indeed, blue whiting is of the highest quality when caught off the Irish coast.

Denmark, the third in the ranking, recorded a slight decline in landed volumes of 2% or 1.757 tonnes, and a 20% or 5 EUR million drop in value, totalling 79.890 tonnes worth EUR 18 million.

CHART 76

AVERAGE NOMINAL PRICES OF BLUE WHITING LANDED IN MAIN EU MEMBER STATES (EUR/KG)

Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main) and national sources' data. More details on the sources used can be found in the Methodological background.

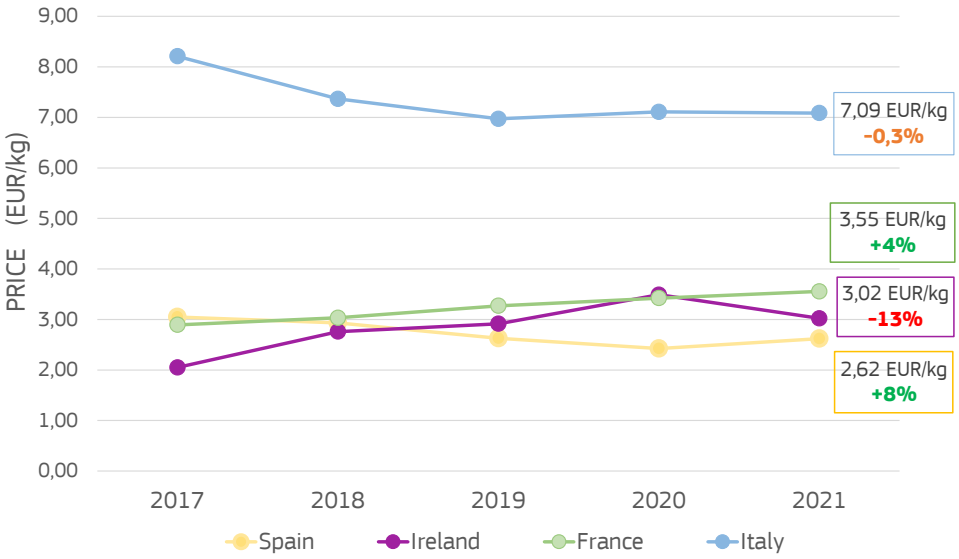


HAKE

Landings of hake in the EU in 2021 amounted to 143.065 tonnes worth EUR 439 million, up 6% and 8%, respectively in volume and value from 2020. The unit value of hake landings in the EU increased a slight 2%, from 3,01 EUR/kg to 3,07 EUR/kg. In terms of volume, main species landed were European hake (*Merluccius merluccius*), which accounted for half of the total, followed by Argentine hake (*Merluccius hubbsi*) which covered 40% of the total.

In 2021, Spain accounted for more than two thirds of total EU hake landings, with a slightly higher share of landings of Argentine hake than of European hake. Overall, the volume of hake landings in Spain increased by 17% to just over 100.000 tonnes, the second highest in the 2012–2021 period after the peak year of 2019. In terms of value, Spanish hake landings in 2021 were worth EUR 262 million, an increase of 21% from 2020. Ireland, which ranked second among hake landing countries, was far behind Spain, landing 15.323 tonnes of almost entirely European hake in 2021. This was a 16% or 2.928 tonne decrease from 2020 and the lowest volume recorded since 2013. As for the value, it dropped by 27%, or EUR 17 million, reaching EUR 46 million. Indeed, the unit value of landed hake in Ireland decreased by 13%, as seen in Chart 77, to reach 3,02 EUR/kg.

CHART 77
AVERAGE NOMINAL PRICES OF HAKE LANDED IN MAIN EU MEMBER STATES (EUR/KG)
Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main) and national sources' data. More details on the sources used can be found in the Methodological background.



COD

In 2021, cod landings in the EU amounted to 16.490 tonnes with a value of EUR 68 million. These figures represented significant declines from 2020, dropping by 33% in volume and 30% in value, thus continuing the downward trend that began in 2016 and reaching the lowest levels of the past 10 years for both volume and value. In 2021, the average unit value of cod increased slightly, rising by 5% from 3,95 EUR/kg to 4,14 EUR/kg.

The largest landing Member States for cod in the EU were Germany and Denmark, contributing 30% and 23% of the total volumes, respectively. They were followed by Spain and Portugal, accounting for 18% and 11% of the total, respectively.

With the exception of the Netherlands and Finland, which contributed only a small share, decreases in cod landings were recorded throughout the EU. The largest decrease was recorded in Germany, where landings of 3.809 tonnes worth EUR 19 million dropped by 46% in terms of volume, or 3.252 tonnes, and 42% in terms of value, or EUR 13 million.

CRUSTACEANS

In 2020, landings of crustaceans in the EU increased by 4% in volume and 8% in value, reaching 108.114 tonnes with a value of EUR 786 million.

SHRIMPS

Shrimps, presented as all shrimp species combined, are the highest valued product landed in the EU.[103] After reaching a 10-year peak in 2018, their volume and value dropped in both 2019 and 2020. However, in 2021, although the volume of shrimps decreased by 3% or 54.855 tonnes, their value showed a positive trend – growing 6% and reaching EUR 444 million.

Crangon shrimp is by far the most landed shrimp. In 2021, landings of this species accounted for 47% of the total volume of shrimps landed in the EU, but only 22% of their total value. It was mainly landed in the Netherlands, where it totalled 14.263 tonnes worth EUR 54 million. From 2020, landed volumes decreased by 9%, while values registered a 6% increase. The unit value of the *Crangon* shrimp in the Netherlands increased by 17%, to reach 3,79 EUR/kg. Similar increases observed in Germany recorded a 10% rise to 4,06 EUR/kg, while unit value in Denmark grew by 19%, reaching 5,20 EUR/kg.

Other types of coldwater shrimps besides *Crangon* were mainly landed in Denmark and Sweden. In Denmark, while the volume of these landings experienced a significant decrease of 20%, or 509.300 tonnes, their value showed a slight 1% increase and amounted to EUR 9 million, thanks to higher prices. On the other hand, landings of

[103] The aggregation "Shrimps" includes the species: Shrimp *Crangon* spp.,coldwater shrimps (mainly Nothern prawn "*Pandalus borealis*"), deepwater-rose shrimps ("*Parapenaeus longirostris*"), warmwater shrimps (mainly Camarote prawns "*Penaeus kerathurus*") and miscellaneous shrimps (mainly giant red shrimps "*Aristaeomorpha foliacea*", blue and red shrimps "*Aristeus antennatus*" and striped red shrimps "*Aristeus varidens*").

coldwater shrimps in Sweden reached 935 tonnes with a value of EUR 11 million. In addition to dropping 27% in volume and 21% in value, this was a 10-year low.

Italy, Spain and Greece, the three main landing countries for deep-water rose shrimps (*Parapenaeus longirostris*), together covered more than 91% of the total landed volumes in 2021. Italy led the ranking with a 2% increase in volume, but the total value declined by 20% due to a corresponding 20% decrease in their unit value, which dropped from 6,56 EUR/kg to 5,13 EUR/kg. Deep-water rose shrimps landed in Spain recorded a higher unit value than those landed in Italy. In 2021, it increased by 5% and reached 10,11 EUR/kg. Spain also had a significant 14% growth in volume, totalling 5.318 tonnes, and a 19% increase in value, amounting to EUR 54 million and marking a 10-year peak for the total value of deep-water rose shrimps in Spain. In Greece, there was a 4% decrease in volume while the total value increased by 10%, reaching 5.445 tonnes worth EUR 16 million. The unit value reached 4,70 EUR/kg, indicating a growth of 14% from 2020, although it remained lower than that of Italy and Spain.

The group "miscellaneous shrimps" mainly includes giant red shrimp (*Aristaeomorpha foliacea*), blue and red shrimp (*Aristeus antennatus*), and striped red shrimp (*Aristeus varidens*). Italy and Spain together accounted for over 90% of all these shrimps' landings recorded in the EU in 2021, both in volume and value. While landings in Italy mainly included giant red shrimp, those in Spain mainly comprised striped red shrimps, and blue and red shrimps.

In Spain, landings of "miscellaneous shrimps" totalled 3.255 tonnes and EUR 77 million, which meant increases of 9% in volume and 23% in value from 2020. On the other hand, while Italy's landings increased by 11% in volume, its total value decreased by 9%, hence totalling 3.181 tonnes and EUR 71 million.

TABLE 18

AVERAGE NOMINAL PRICES OF SHRIMPS IN THE EU COUNTRIES WHERE MOST LANDINGS WERE RECORDED IN 2021 (EUR/KG)

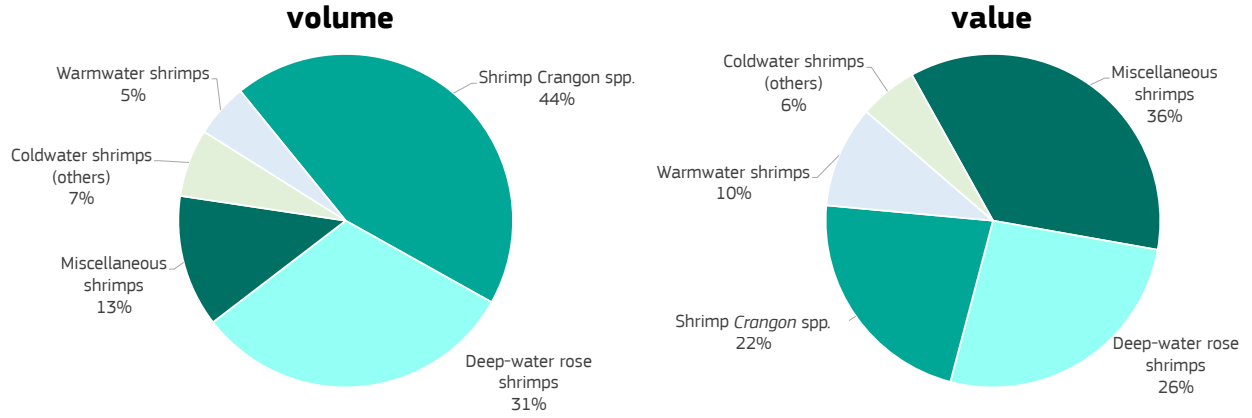
Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main) and national sources' data.
More details on the sources used can be found in the Methodological background.

Main commercial species	Member State	2017	2018	2019	2020	2021	2021/2020	2021/2017
Shrimp *Crangon* spp.	Netherlands	7,28	3,34	2,77	3,25	3,79	+17%	-48%
	Germany	7,99	3,92	2,72	3,70	4,06	+10%	-49%
Other coldwater shrimps mainly Northern prawn (*Pandalus borealis*)	Denmark	4,44	5,41	4,97	3,55	4,51	+27%	+2%
	Sweden	9,69	10,37	11,92	10,97	11,90	+9%	+23%
Deep-water rose shrimps (*Parapenaeus longirostris*)	Italy	6,20	5,77	6,84	6,56	5,12	-22%	-17%
	Spain	10,35	8,40	8,95	9,64	10,11	+5%	-2%
	Greece	3,80	4,58	4,36	4,11	4,70	+14%	+24%
Warmwater shrimps mainly caramote prawn (*Penaeus kerathurus*)	Spain	14,92	18,52	20,35	11,23	15,91	+42%	+7%
Miscellaneous shrimps mainly giant red shrimp (*Aristaeomorpha foliacea*), blue and red shrimp (*Aristeus antennatus*), and striped red shrimp (*Aristeus varidens*)	Spain	17,03	23,93	21,38	20,97	23,61	+13%	+39%
	Italy	21,61	20,25	21,73	27,15	22,32	-18%	+3%

CHART 78

LANDINGS OF SHRIMPS IN THE EU IN 2021

Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main) and national sources' data.
More details on the sources used can be found in the Methodological background.



TUNA AND TUNA-LIKE SPECIES

Landings of tuna and tuna-like species in the EU totalled 317.697 tonnes with a value of EUR 805 million in 2021. Compared with 2020, this represented a volume increase of 6% or 17.806 tonnes which was the first such increase since 2018, as well as a 15% or EUR 100 million increase in value.

Spain is the country where most tuna is landed in the EU, and skipjack is by far the main tuna species landed. In 2020, landings of skipjack tuna covered 48% of total volumes of tuna and tuna-like species landed in the EU.

SKIPJACK TUNA

Landings of skipjack tuna in 2021 totalled 152.098 tonnes and EUR 219 million, which were increases of 15% and 36% respectively compared with 2020. This sharp increase was mainly linked to a decrease in landings of skipjack tuna in 2020 due to COVID-19 restrictions. Although the value increased in 2021, the volumes were still below 2019 pre-pandemic levels. Of the total volume, 92% was landed in Spain and mainly included frozen products.

Spain thus determined the overall EU trend, recording a 9% increase in volume and reaching 140.568 tonnes, while the value grew by 32% and reached EUR 202 million.

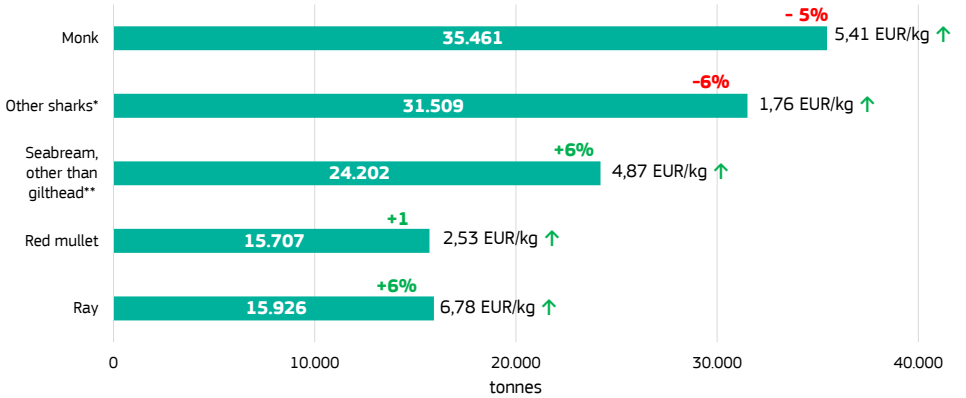
OTHER MARINE FISH

In 2021, the landings of the group "Other marine fish" in the EU reached 254.858 tonnes worth EUR 858 million. Chart 79 provides an overview of the landings of main commercial species belonging to this group.

CHART 79

MAIN SPECIES OF "OTHER MARINE FISH": VOLUME LANDED IN 2021, % VARIATIONS 2021/2020 AND NOMINAL PRICES AT LANDING STAGE

Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main). More details on the sources used can be found in the Methodological background.



The grouping "Other sharks" mainly includes blue shark (62% of the total), small-spotted catshark (16%), smooth-hounds (10%), shortfin mako (6%), and tope shark, catsharks nei and catsharks, smooth-hound (1% each).
**The grouping "Seabream, other than gilthead" mainly includes bogue (34% of the total), black seabream (13%), common pandora (12%), white seabream (6%), red porgy (6%), axillary seabream (6%), blackspot seabream (4%), saddled seabream and sand steenbras (3% each), common dentex, common two-banded seabream and sargo breams nei (2% each), large-eye dentex, annular seabream, pink dentex and dentex nei (1% each).

MONK

In 2021, landings of monk in the EU reached 35.461 tonnes, which marked a decrease of around 2.000 tonnes which was 5% less than 2020, and also continued the downward trend started in 2019. Its value amounted to EUR 192 million, which was 4% or EUR 7 million more than in 2020. Of the total volume, 51% was reported under "monkfishes nei[104]" (*Lophius spp*), 24% under "angler" (*Lophius piscatorius*) and 16% under "blackbellied angler" (*Lophius budegassa*). The rest was reported under "anglerfishes nei" (*Lophiidae*), "American angler" (*Lophius americanus*), "Whalehead dreamer" (*Lophodolos acanthognathus*) and "Devil anglerfish" (*Lophius vomerinus*).

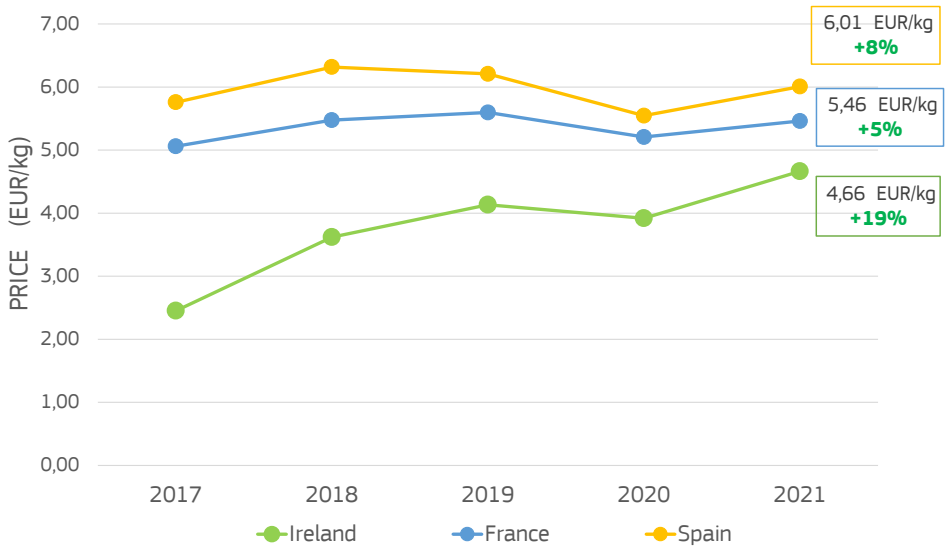
Ireland, Spain and France together accounted for 84% of total volumes of monk landed in 2021. Ireland saw a decrease in volume but an increase in price and value, while France recorded an increase in both volume and value terms. Monk landings in Spain, on the other hand, dropped by 29% in volume and 23% in value.

From 2017 to 2021, as shown in Chart 80, France and Spain followed a similar trend in average prices, while Ireland recorded a lower average price. However, in 2022, all of them recorded price increases.

CHART 80

AVERAGE NOMINAL PRICES OF MONK LANDED IN MAIN EU MEMBER STATES (EUR/KG)

Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main) and national sources' data. More details on the sources used can be found in the Methodological background.



SEAWEED AND OTHER ALGAE

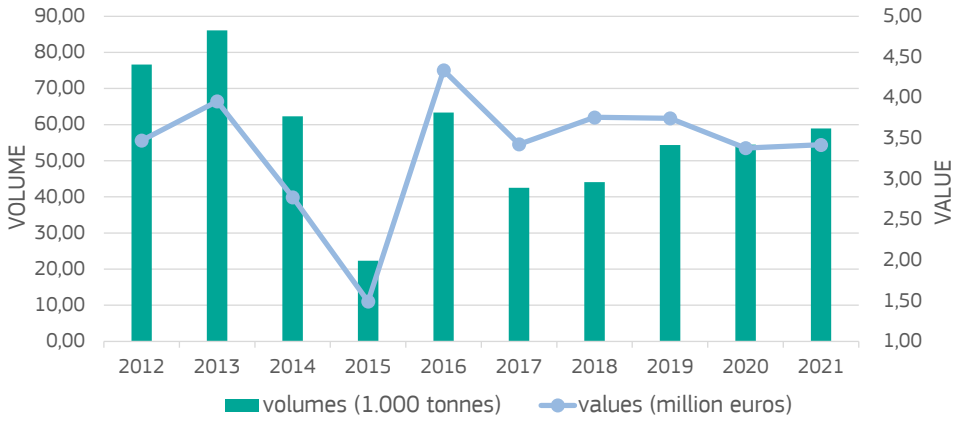
Seaweeds and other algae account for minor shares of total landings of fishery products in the EU.

In 2021, their landings settled at 58.928 tonnes and EUR 3,69 million, most of which was landed in France, with Spain following behind.

CHART 81

TOTAL LANDINGS OF SEAWEED AND OTHER ALGAE IN THE EU

Source: EUMOFA, based on EUROSTAT (online data code: fish_ld_main) and national sources' data. More details on the sources used can be found in the Methodological background



[104] Not elsewhere included.

From 2020 to 2021, landings of seaweed in the EU recorded an increase of 8% in volume and 3% in value, mainly driven by the increase experienced in Spain.

There is a clear price difference between landings of these species in France and Spain. In 2021, the average price in France was 0,04 EUR/kg, while in Spain it was 0,52 EUR/kg, or 12% less than in 2020. Tangle (*Laminaria digitata*), the most common seaweed landed in France, is harvested offshore. It is used in manufacturing alginic acid, mainly for industrial uses, such as comestics.

Data for Spain do not distinguish the seaweed species so there is no way to determine the most landed seaweed in the country.

6/ AQUACULTURE[105]

6.1 OVERVIEW

TOTAL EU

In 2021, EU[106] aquaculture production reached a total of 1,13 million tonnes, with a value of EUR 4,17 billion. This represented a volume increase of 4%, or 40.759 tonnes, and a value increase of 14%, or EUR 502 million, in nominal value from 2020. It also marked the first year of growth in aquaculture production for both volume and value since 2017. Mussel and trout confirmed their roles as the major species in volume and value, respectively.

Both the volumes and the value of EU aquaculture production increased from 2020 to 2021, for the first time since 2017.

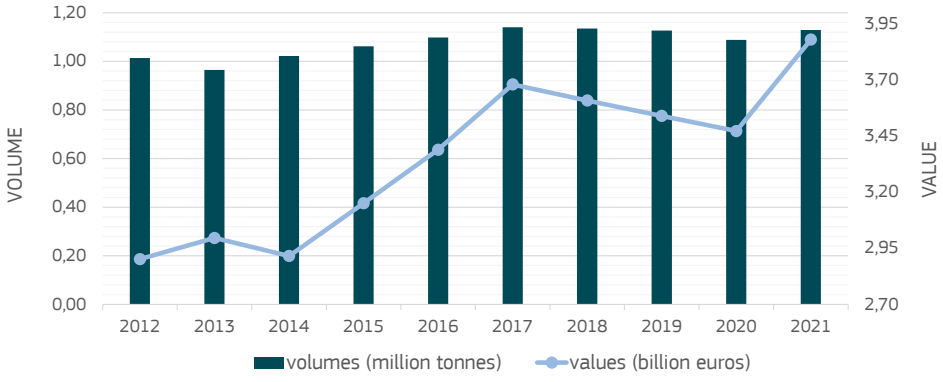
Looking at the decade perspective[107], total EU aquaculture production increased by 115.281 tonnes or 11% from 2012 to 2021, while its value grew a noteworthy 34% in real terms, which meant an increase of EUR 978 million.

During the decade under analysis, most of the value increase of EU aquaculture production was reported during the 2015–2017 period, followed by negative trends for both values and volumes until 2021. The increase in value from 2020 to 2021 had a significant impact on this trend, as can be seen in Chart 82. It was the most significant growth recorded during the decade, mainly due to increased production associated with the recovery from the COVID-19 market impact, as well as rising inflation. It's important to bear in mind, however, that Chart 82 below, as well as other charts showing trends for periods longer than 5 years, display deflated values.

The overall value increase of EU aquaculture production was due to increased production of high value species, such as trout, salmon, seabass and bluefin tuna, combined with the strong price increase of some major species, such as gilthead seabream, oyster, clam and seaweed. Also, it was partially connected to other factors that came into play, such as prices increasing as a consequence of a supply decrease linked to the high mortality of species such as oysters, and the increased production of organic products.

CHART 82
AQUACULTURE PRODUCTION IN THE EU

Source: EUMOFA, based on EUROSTAT (online data code: fish_aq2a), FAO, national administrations and FEAP data. Details on the sources used can be found in the Methodological background.
Values are deflated by using the GDP deflator (base=2015).



[105] The main source of data for EU aquaculture production is EUROSTAT. The data cover the aquaculture sector from the point of view of farm-gate production available for human consumption. It is important to note that the production is accounted for at first sale. Thus, production for own consumption is not reported, nor eggs and hatchlings produced for on-growing on the same farm without selling. An exception from the "for human consumption" criteria is being made since the reference year 2016 for aquatic plants, which are included regardless of their final use.
Data were integrated using FAO, FEAP and national sources for several Member States: more details on the integrations made and on data collected for each country can be found in the Methodological background.

[106] In line with Eurostat's guidelines on the production and dissemination of statistical data by Commission services after the UK withdrawal from the EU, since the most recent reference period is year 2021, UK is excluded from the EU aggregations of each year. In addition, EU data include Croatia since 2013, date of the EU's enlargement to this country.

[107] In this report, value and price variations for periods longer than 5 years are analysed by deflating values using the GDP deflator (base=2015); for shorter periods, nominal value and price variations are analysed.

The most important groups of species farmed in the EU are shown in Charts 83 and 84. As the Charts show, bivalves and other molluscs and aquatic invertebrates are responsible for half of EU aquaculture production volume, mainly due to the production of mussel in Spain and oyster in France. The groupings "other marine fish", which mainly includes gilthead seabream and European seabass, and "salmonids", which mainly includes trout and salmon, accounted respectively for 20% and 19% of the total 2021 volumes farmed. As for gilthead seabream and European seabass, the largest producer is by far Greece, which alone was responsible for almost 70% of EU production of gilthead seabream and more than 50% of EU production of European seabass. In 2021, more than half of the EU trout volume was produced in Italy, France and Denmark, while almost 90% of salmon from aquaculture in the EU was produced in Ireland. Freshwater species are also relevant for EU aquaculture production. Covering 9% of the total volume in 2021, they largely comprise carps which are produced mainly in Poland, Czechia and Hungary.

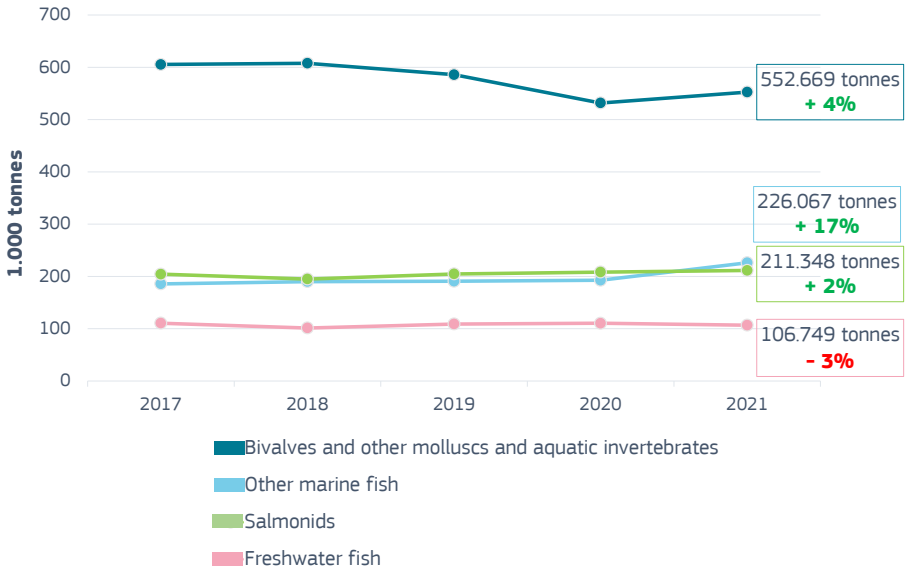
The remaining share is distributed among other groups of species, which together accounted for an average annual production of about 38.000 tonnes between 2017 and 2021.

A general upward tendency can be observed from 2020 to 2021, especially in value but also in volume. In the case of bivalve production, there was a 4% increase in volume in 2021. In 2020, it had dropped to its lowest level since 2013, mainly due to a drop in mussel production in Spain[108]. The value of bivalves, on the other hand, increased by 26% in 2021, mainly due to a rise in the production value of clam in Italy and Portugal, oyster in France, and mussel in Spain. The groupings "salmonids" and "other marine fish" recorded increases in both volume and value terms. Freshwater fish recorded a 3% decrease in production volume, but an 11% increase in value.

CHART 83

VOLUMES OF MOST PRODUCED COMMODITY GROUPS FARMED IN THE EU AND % VARIATIONS 2021/2020

Source: EUMOFA, based on EUROSTAT (online data code: fish_aq2a) and FAO data. More details on the sources used can be found in the Methodological background.



[108] The report "Impacts of the COVID-19 pandemic on EU fisheries and aquaculture, available at the link https://op.europa.eu/en/publication-detail/-/publication/07e5b4e2-1116-11ec-9151-01aa75ed71a1, suggests that mussel production in Spain (the main producing country) was negatively impacted, with main producers reporting negative impacts on production performance and across the value chain due to a drop in out-of-home consumption.

CHART 84

NOMINAL VALUES OF MOST VALUED COMMODITY GROUPS FARMED IN THE EU AND % VARIATIONS 2021/2020

Source: EUMOFA, based on EUROSTAT (online data code: fish_aq2a) and FAO data. More details on the sources used can be found in the Methodological background.

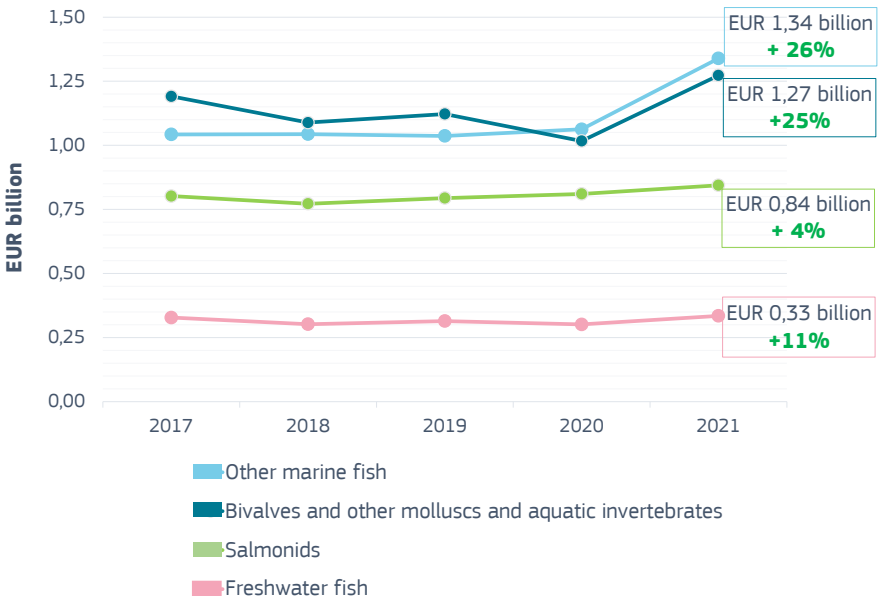


CHART 85

COMPOSITION OF EU AQUACULTURE PRODUCTION BY MAIN COMMERCIAL SPECIES (IN VOLUME): 2012 VS. 2021

Source: EUMOFA, based on EUROSTAT (online data code: fish_aq2a), FAO and FEAP data.
More details on the sources used can be found in the Methodological background.

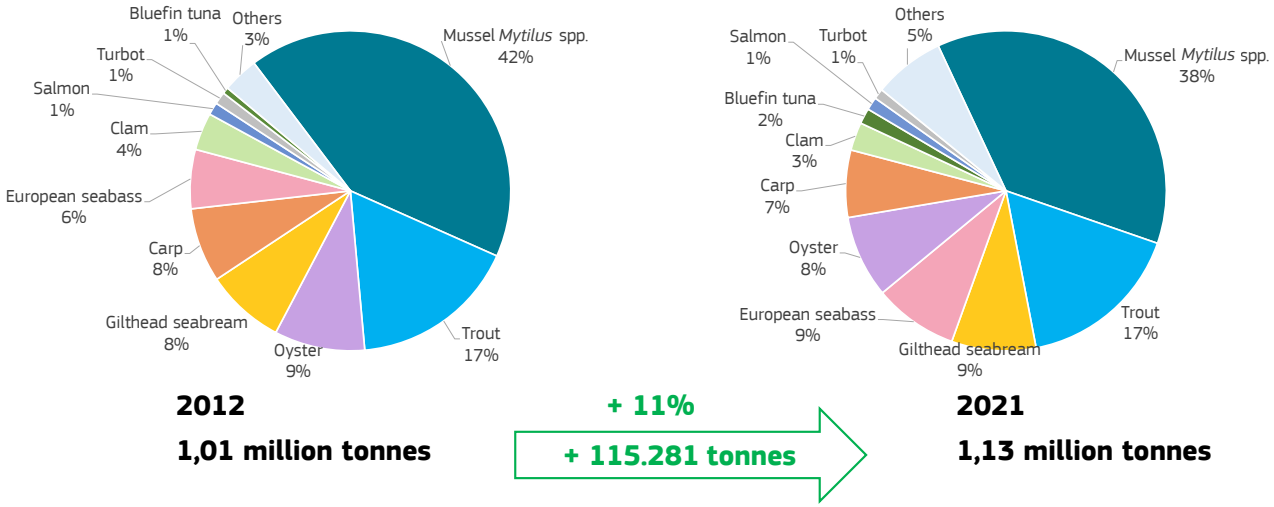
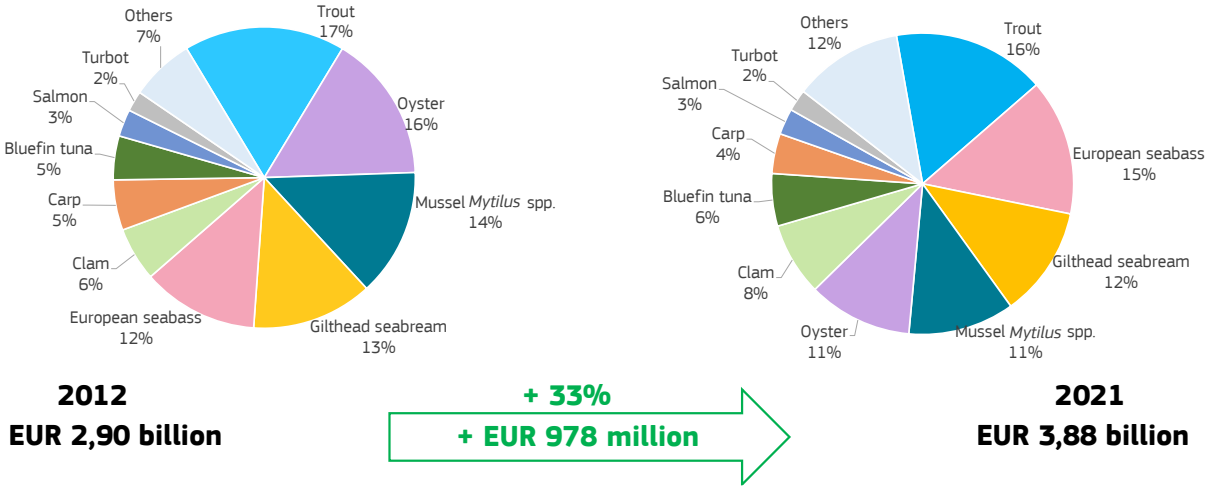


CHART 86

COMPOSITION OF EU AQUACULTURE PRODUCTION BY MAIN COMMERCIAL SPECIES – IN REAL VALUE (BASE=2015) 2012 VS. 2021

Source: EUMOFA, based on EUROSTAT (online data code: fish_aq2a), FAO and FEAP data.
More details on the sources used can be found in the Methodological background. Values are deflated by using the GDP deflator.

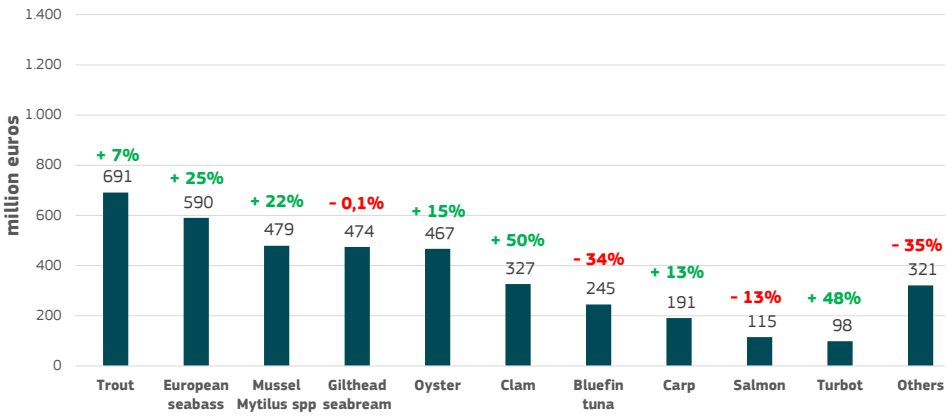


The species composition of EU aquaculture production remained similar to that of the previous 10 years, both in terms of volume and value, with mussels being the most farmed species and trout the most valuable. However, some minor changes in the structure of EU aquaculture production can still be observed. For example, the value and volume of production of mussels and oysters increased, but their shares in total production decreased due to more significant increases of other important species. In 2021, mussel's shares decreased from 42% to 38%, while still being the species with the highest production in terms of volume. The share of European seabass increased from 6% to 9% in volume and from 12% to 15% in value, making it the species with the second highest value in 2021 after trout, that covered 16% of the total value of EU aquaculture production. It is also worth mentioning that in real value terms, a significant increase was recorded by freshwater catfish, which is included as the "others" in both charts, as it is not among the top-10 species. Its value grew from less than EUR 14 million to close to EUR 27 million.

The growth of bluefin tuna's share of the total was mainly linked to an exceptional trend in Maltese production from 2012 to 2021, when it soared 290% in volume and 134% in value, an increase of more than 10.000 tonnes and slightly more than EUR 100 million, even after adjusting for inflation[109]. However, when comparing 2021 with 2020, Malta's bluefin tuna production decreased by 21% in volume and 3% in value, dropping to 13.549 tonnes and less than EUR 200 million.

[109]The increase seen in Maltese bluefin tuna production could also be related to illegal and unreported farming of the species in Malta. In 2020, both the EU and the Maltese Fisheries Department has filed a criminal case against tuna farmers previously accused of having bought bluefin tuna quotas in excess of what was granted to them.

CHART 87
NOMINAL VALUES OF MAIN SPECIES FARMED IN THE EU IN 2020 AND % VARIATION 2021/2020
Source: EUMOFA, based on EUROSTAT (online data code: fish_aq2a) and FAO data. More details on the sources used can be found in the Methodological background.



BY MEMBER STATE

Aquaculture in the EU is characterised by the production specialisations of a few Member States: Greece for gilthead seabream and European seabass, Spain for mussel, France for oyster, mussel and trout, Italy for clam and trout, Poland for carp, Denmark for trout, Ireland for salmon and Malta for bluefin tuna.

The five largest producers in 2021 by volume were Spain, France, Italy, Greece and Poland, while France, Spain, Greece, Italy and Malta recorded the highest production in value terms. In 2021, more than two-thirds of the total EU aquaculture production, both in volume and value, was accounted for by these top seven producing countries, with Spain, France and Italy alone accounting for more than half of the total.

As mentioned, 2021 marked the first year of growth in aquaculture production since 2017, in both volume and value. This general trend can also be seen when looking at the performances of each Member State in Tables 19 and 20. The volume of aquaculture production in Spain has remained practically unchanged since 2020, while the value has increased by 12%. This increase is partly explained by a higher value of farmed mussel, for which Spain recorded a 30% increase in value with a 1% decrease in volume.

TABLE 19
VOLUME OF AQUACULTURE PRODUCTION IN THE EU TOP-5 PRODUCING COUNTRIES (1.000 TONNES)
Source: EUMOFA, based on EUROSTAT (online data code: fish_aq2a), and FAO data. More details on the sources used can be found in the Methodological background. Discrepancies in % changes are due to rounding.

Member State	2017	2018	2019	2020	2021	2021/2020
Spain	315	319	307	277	277	-0,2%
France	182	188	194	191	193	+1%
Italy	159	143	132	123	146	+19%
Greece	126	132	129	131	144	+10%
Poland	35	37	43	46	45	-3%

TABLE 20
NOMINAL VALUE OF AQUACULTURE PRODUCTION IN THE EU TOP-5 PRODUCING COUNTRIES (MILLION EUROS)
Source: EUMOFA, based on EUROSTAT (online data code: fish_aq2a), and FAO data. More details on the sources used can be found in the Methodological background.

Member State	2017	2018	2019	2020	2021	2021/2020
France	736	689	759	723	781	+8%
Spain	578	648	633	582	649	+12%
Greece	546	536	508	552	641	+16%
Italy	555	439	446	392	547	+40%
Malta	180	243	162	215	210	-2%

Important developments were also recorded by the other main producers. France, Italy and Greece recorded increases in both volume and value. France's growth was mainly led by oyster value increasing 13% from 2020, while the production volume for this species remained stable. Italian aquaculture production reached its highest level since 2017. The biggest driver of its volume growth was the increase in trout and mussel production, while in terms of value, the main factor was the increase of value for clam, which grew by 50%, against a 2% decline in volume. Greece hit a 10-year peak both in volume and value, mainly due to an increase in European seabass production.

On the other hand, bluefin tuna production in Malta has shown an unstable trend in recent years, with highs and lows alternating from year to year. In 2021, it plummeted by 21% in volume and 3% in value, after rebounding in 2020 from a drop in production in 2019.

Poland's aquaculture production recorded a decade value peak in 2021, at EUR 150 million. However, it decreased by 3% in volume due to lower production of carp and trout.

Ireland ranked sixth among the top producing countries by value, mainly due to the country's large salmon production, of which 100% is certified as organic.

CHART 88
VOLUME OF AQUACULTURE PRODUCTION IN THE MAIN EU PRODUCING COUNTRIES IN 2021 AND % VARIATION 2021/2020
Source: EUMOFA, based on EUROSTAT (online data code: fish_aq2a) and FAO data. More details on the sources used can be found in the Methodological background.

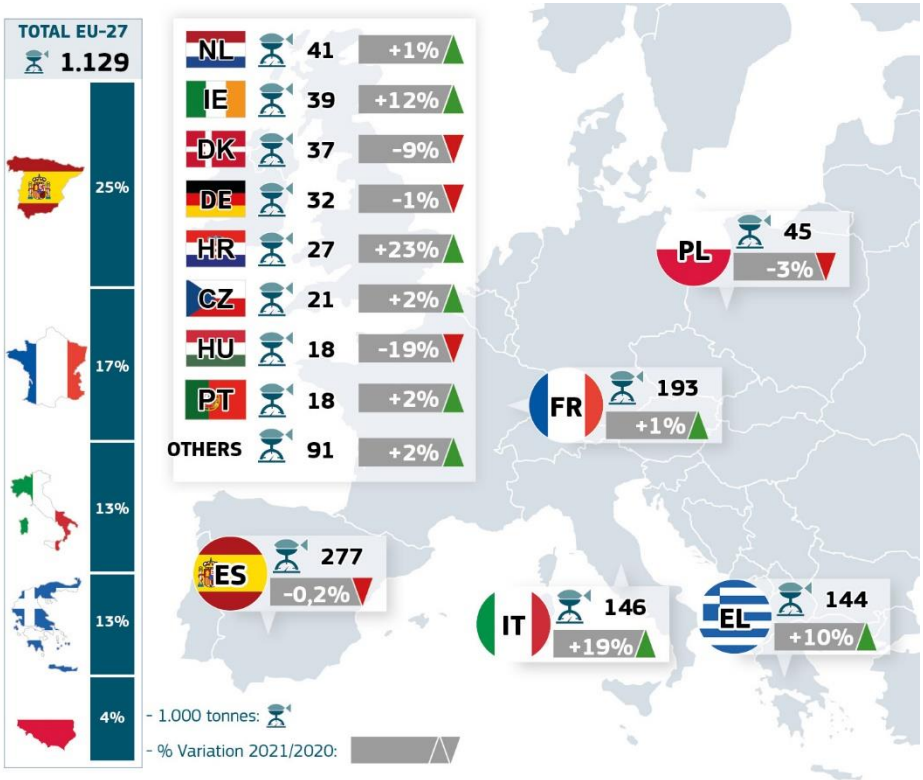
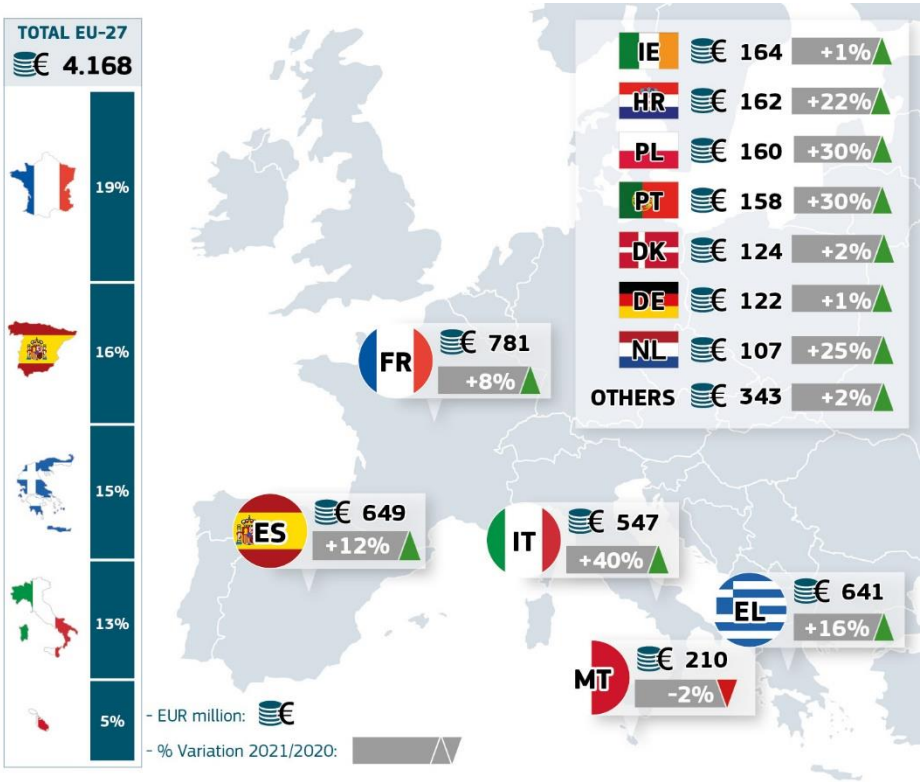


CHART 89
VALUE OF AQUACULTURE PRODUCTION IN THE MAIN EU PRODUCING COUNTRIES IN 2021 AND % VARIATION 2021/2020
Source: EUMOFA, based on EUROSTAT (online data code: fish_aq2a) and FAO data. More details on the sources used can be found in the Methodological background.



6.2 ANALYSIS BY MAIN SPECIES

BIVALVES AND OTHER MOLLUSCS AND AQUATIC INVERTEBRATES

In 2021, EU Member States farmed 552.669 tonnes of bivalves and other molluscs and aquatic invertebrates. This was a 4% increase in volume compared with 2020, while their value reached EUR 1,27 billion, a significant increase of 25% from 2020 and a 10-year peak. Oyster, mussel and clam accounted for more than 99% of the total volume and value of EU aquaculture production of this group.

MUSSEL

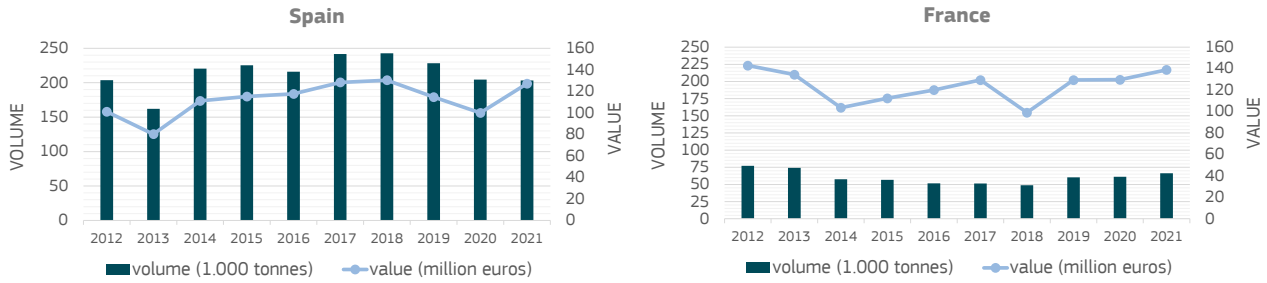
Mussel covers more than one third of the total volume of aquaculture production.
In 2021, the EU's production of mussel amounted to 425.242 tonnes worth EUR 479 million, the highest value recorded in the decade under analysis. Compared with 2020, it increased by 5% or 18.332 tonnes in volume, and by 22% or EUR 86 million in value. However, it should be noted that until 2020, the EU farmed production of mussel had been on a downward trend while it had been increasing in the rest of the world.
In terms of volume, 2021 marked the first year of growth since 2017. This was mostly due an increase of production in Italy, where it grew by 23% or 11.584 tonnes, and France, where it grew by 8% or 5.102 tonnes.
However, in 2021, Spain, the most important mussel producing country in the EU, continued its downward trend which had started in 2019, but at a much slower rate. While production volume dropped by 6% in 2019 and 10% in 2020, it decreased by only 0,6% in 2021. This could have been due to a set of causes, such as diseases, lack of mussel seed (spat) and low profitability, although in 2021 the value of this production rose by 30%. Overall, production of mussel in Spain in 2021 amounted to 203.226 tonnes for a total of EUR 137 million.
Spain mainly uses the off-bottom raft technique, which is also used in Italy and the French Mediterranean. Bottom culture is mostly used in the northern EU countries of the Netherlands, Germany and Ireland.

To be noted, Spain and Italy mainly produce Mediterranean mussel (*Mytilus galloprovincialis*), which sold at average prices of 0,68 EUR/kg and 0,90 EUR/kg, respectively, in 2021. Both countries used a large share of these volumes as raw material for processing. France, on the other hand, mostly produces the more valuable blue mussel (*Mytilus edulis*), which was sold at an average price of 2,26 EUR/kg in 2021.

CHART 90

PRODUCTION OF FARMED MUSSEL IN MAIN EU PRODUCING COUNTRIES

Source: EUMOFA, based on EUROSTAT data (online data code: fish_aq2a). Values are deflated by using the GDP deflator (base=2015).



CLAM

In 2021, EU clam production grew for the first time since 2018, reaching 32.420 tonnes with a value of EUR 327 million. As in the case of mussels, this represented the highest overall value, both in real and nominal terms, in the 2012–2021 decade.

Italy alone produces around 70% of the EU's farmed clams, reaching 23.082 tonnes for a total value of EUR 212 million in 2021, largely comprising Japanese carpet shell species. This represented a 6% decrease in volume of 1.370 tonnes but also a staggering 50% or EUR 71 million increase in value from 2020. Indeed, the ex-farm price of clams in Italy increased by almost 60% from 2020 to 2021, reaching 9,20 EUR/kg.

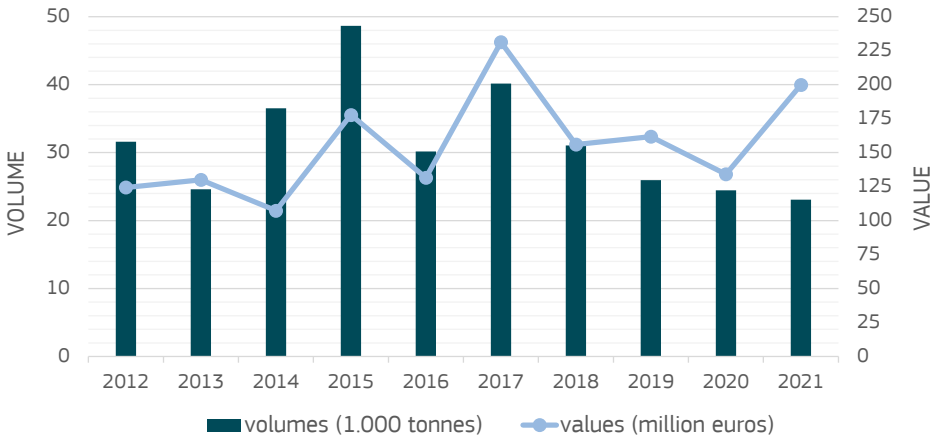
Portugal and France also produce clams, but at very different prices than Italy. In Portugal, the average price of 15,59 EUR/kg was 22% higher than in 2020, while in France, the price of clams was 5,71 EUR/kg, a 7% decrease from 2020. This difference could be related to the different species of clams farmed: grooved carpet shell in Portugal, and common edible cockle and Japanese carpet shell in France.

With regard to the methods used, clams of all species are generally bottom farmed in the EU. The Mediterranean coastal environment is particularly suitable for clam farming, thanks to its brackish waters, low tidal movements, the presence of a rather shallow mixed-texture (sand-mud) seabed and, above all, an abundance of nutrients in the form of phytoplankton.

CHART 91

PRODUCTION OF FARMED CLAM IN ITALY

Source: EUMOFA, based on EUROSTAT (online data code: fish_aq2a) and FAO data. More details on the sources used can be found in the Methodological background. Values are deflated by using the GDP deflator (base=2015).



OYSTER

In 2021, the EU farmed 94.968 tonnes of oysters with a total value of EUR 467 million. This amounted to an increase of 2% in volume and 15% in value from 2020, which represented the first year of growth in production since 2018. The increase was mainly due to increased production in Ireland, where production recorded a 16% growth of 1.115 tonnes.

The drops in total EU production of oyster recorded in 2019 and 2020 could be explained by the occurrence of noroviruses *(gastroenteritis virus)* in some areas of production in France since December 2019. The outbreaks had led to temporary closures and several sales bans in the Nouvelle-Aquitaine region during 2020. The slight increase in volume recorded in 2021 was mainly due to an increase in oyster production in Ireland and Portugal while the increase in the French production was the main driver for the rise in value.

The main producer is France, with almost 85% of EU oyster production taking place on its Atlantic coast. France is also a major consuming market, as most French production is marketed domestically. In 2021, farmed oysters in France were sold at an average ex-farm price of 4,99 EUR/kg, which was 13% more than in 2020.

A few niches of production have also emerged in Ireland and the Netherlands, which are more export-oriented.

In Ireland, 2021 production amounted to 8.020 tonnes with a value of EUR 39 million. Irish production recorded a 16% growth in farmed volumes of 1.115 tonnes while its value increased 35% or EUR 10 million. The price also increased, growing 18% from 4,10 EUR/kg to 4,84 EUR/kg.

Pacific cupped oyster (*Crassostrea gigas*) is by far the main oyster species farmed in France and Ireland and, as a result, in the EU.

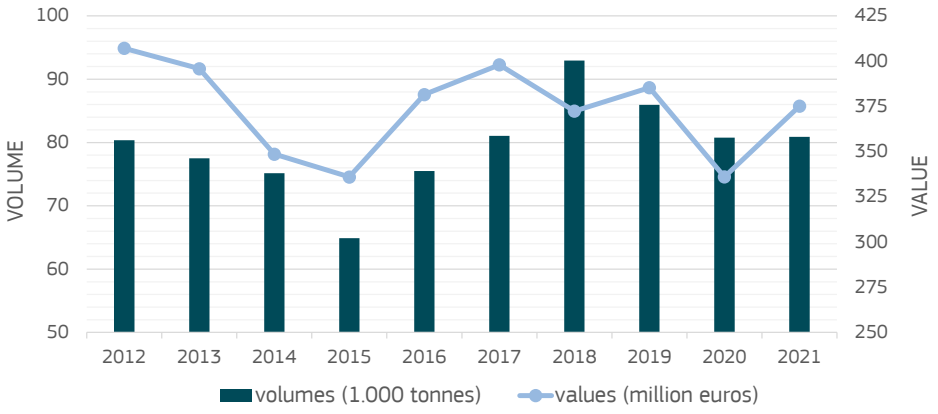
In the Netherlands, on the other hand, oyster production hit its lowest level since 2013 for both volume and value – dropping to 2.069 tonnes worth EUR 6 million, which meant a decrease of 12% in volume and 21% in value compared with 2020. The drop in value was mainly due to the 36% price decrease for cupped oyster. Accounting for 89% of Dutch production, the price of this oyster species fell from 3,52 EUR/kg to 2,26 EUR/kg.

Although oyster production traditionally takes place in intertidal zones with bottom culture, cases of rack-and-bag production are not uncommon.

CHART 92

PRODUCTION OF FARMED OYSTER IN FRANCE

Source: EUMOFA, based on EUROSTAT data (online data code: fish_aq2a). Values are deflated by using the GDP deflator (base=2015).



SALMONIDS

Salmonids accounted for more than 20% of the value of EU farmed production in 2021, and 19% of its volume.

TROUT

Trout alone accounted for 17% of total volume and value of EU aquaculture production.

In 2021, the EU produced 190.150 tonnes of trout – mostly rainbow trout (*Oncorhynchus mykiss*) that was valued at EUR 691 million and hit a ten-year peak both in volume and in value.

Compared with 2020, trout production grew by 3% in volume and 7% in value, continuing an upward trend that started in 2019. Its average price also registered a slight 4% increase, rising from 3,49 EUR/kg to 3,63 EUR/kg.

The main driver for this growth was a rise in Italian production of farmed trout that reached the highest level of the decade under analysis at 41.875 tonnes worth EUR 143 million. This resulted in a 21% increase in volume and 35% increase in value from 2020 while the average ex-farm price grew by 11% reaching 3,40 EUR/kg.

More than half of EU trout production takes place in Italy, France and Denmark, which in 2021 accounted for 22%, 18% and 14% of total volume, respectively. As shown in Table 21, of the top EU producers, only Italy registered an increase in volume.

Polish production decreased a slight 3% from 2020 to 2021 but grew by 30% in value, ending at 19.298 tonnes and EUR 77 million, the highest value of the 2012–2021 period. This impressive value growth was mainly linked to a 36%-increase in the average price of rainbow trout, which reached 4,00 EUR/kg.

Spain production increased by 14% in volume and 19% in value, reaching 18.056 tonnes and EUR 62 million, while Finland followed a similar trend to Poland, decreasing by 5% in volume and increasing by 13% in value, with the average price of rainbow trout, the main trout farmed in Finland, increasing by 20% to 4,32 EUR/kg.

The production systems for rainbow trout are similar throughout the EU. Fish are cultured in sea and brackish water with flow-through systems consisting of earthen ponds and concrete raceways or cages. Freshwater systems include earthen and concrete ponds, flow-through raceways, cages and recirculating systems.

TABLE 21
PRODUCTION OF FARMED TROUT IN MAIN EU PRODUCING COUNTRIES
Source: EUMOFA, based on EUROSTAT data (online data code: fish_aq2a). More details on the sources used can be found in the Methodological background

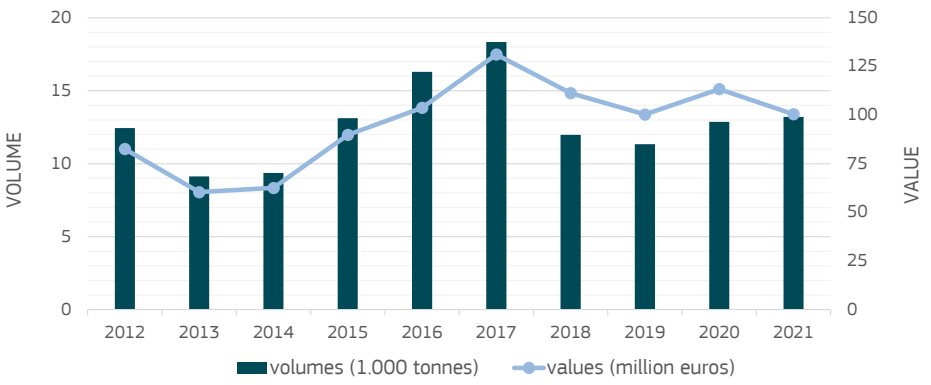
	2021			% variations 2021/2020		
Member State	Volume (tonnes)	Price (EUR/kg)	Value (million euros)	Volume	Price	Value
Italy	37.200	3,40	143	+21%	+11%	+35%
France	34.424	4,04	139	-7%	+9%	+1%
Denmark	29.479	3,47	92	-10%	+6%	-4%

SALMON

EU production of salmon reached 14.897 tonnes in 2021, a 14% decrease from 2020 and one of the lowest amounts since 2014. This was mainly related to adverse environmental events, such as a toxic algal bloom that caused huge losses at the salmon-farming facilities in Mowi, Ireland. Meanwhile in Denmark, a large recirculating salmon farm burned, resulting in significant losses. Salmon was sold at an average ex-farm price of 7,69 EUR/kg in 2021, recording a slight increase of 1%. Overall, value dropped by 13% or EUR 17 million to a total of EUR 115 million.

Salmon is largely farmed in Ireland, which produced 86% of the EU total in 2021, accounting for 13.214 tonnes of salmon with a value of EUR 106 million. This represented a 3% increase in volume but an 11% drop in value compared with 2020. This is also linked to the 13% decrease in the average price, which dropped from 9,24 EUR/kg to 8,03 EUR/kg. Ireland's prices are higher than those of other producing countries, such as Denmark and Poland, because Ireland's salmon production is exclusively organic.

CHART 93
PRODUCTION OF FARMED SALMON IN IRELAND
Source: EUMOFA, based on EUROSTAT data (online data code: fish_aq2a). Values are deflated by using the GDP deflator (base=2015).



FRESHWATER FISH

Freshwater species farmed in the EU largely comprise carps and eels.

CARP

In 2021, carp accounted for 7% of the EU's aquaculture production volume and 5% of its total value. The overall production totalled 77.511 tonnes worth EUR 191 million, a 2% decrease in volume but a 13% increase in value compared with 2020.

Most carp production in the EU takes place in Poland, Czechia and Hungary, which together account for just under two-thirds of the total, producing 24%, 24% and 16% respectively. The main contributor to the slight 2%-decrease in volumes of EU carp production was Polish production, which dropped by 11% from 2020 to 2021 reaching 18.941 tonnes. However, the overall value of farmed carp in Poland grew by 29% to EUR 191 million, thanks to a 46% increase in its average price which reached 3,00 EUR/kg.

Czechia's production reached 18.709 tonnes and EUR 36 million; and Hungary's reached 12.704 tonnes and EUR 27 million. For Czechia, this represented increases of 2% in volume and 14% in value from 2020 to 2021, while production in Hungary decreased by 4% in volume but grew by 8% in value. The average price of carp in Czechia was 1,93 EUR/kg and in Hungary 2,14 EUR/kg. which represented an increase of 12% and 13% respectively.

EEL

EU production of eel in 2021 hit a ten-year low, dropping to 5.102 tonnes which was a 4% decrease from 2020. Production is highly concentrated in three countries, namely the Netherlands with just under 2.000 tonnes farmed in 2021, and Germany and Denmark, each with around 1.160 tonnes. In value terms, total production was worth EUR 53 million, which was 14% more than 2020. This increase was mainly due to price rises in the Netherlands, where it increased by 12% to 9,50 EUR/kg, and in Denmark, where it almost doubled and reached 8,78 EUR/kg.

OTHER MARINE FISH

Two species of this commodity group, namely gilthead seabream and European seabass, accounted for over 11% and 14%, respectively, of the total value of EU aquaculture production in 2021, while they each accounted for a 9% share of the total volume. They are usually farmed in the same sites in the Mediterranean, prevalently in Greece, Italy and Spain.

GILTHEAD SEABREAM

In 2021, the EU production of gilthead seabream reached its 10-year peak in volume, totalling 97.096 tonnes and growing by 4% from 2020. The overall production reached EUR 474 million, indicating a stable trend compared with 2020. On a longer perspective, 2021 production showed a 20% increase from 2012 and its value in real terms increased by 22%.

Greece, by far the leading producer in the EU, accounted for almost 70% of the EU total in volume and 62% in value in 2021. It produced 67.058 tonnes worth EUR 295

million, recording an 8% increase in volume and a 2% increase in value. Other major farming countries included Italy and Croatia which each accounted for 8%, and Cyprus which accounted for 5%, totalling 8.031, 7.519 and 5.097 tonnes respectively.

However, individual countries showed very different trends.

Greece has shown a trend of continuous growth in recent years, culminating, in 2021 when it reached a ten-year peak in production volume. Italy, on the other hand, showed a turnaround between 2020 and 2021, with its production growing by 30% after four years of declining production. Croatia, where production slightly flexed in 2021, showed a 152% increase compared with 2013.

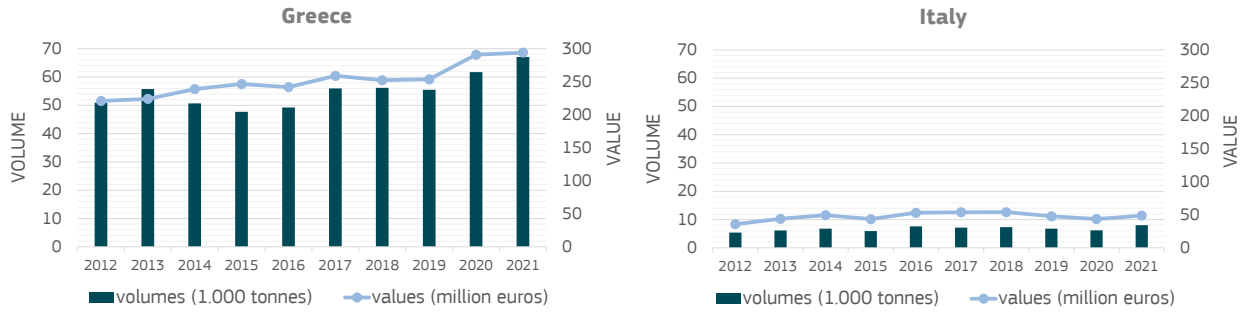
Spain, on the other hand, had been the second largest producer of seabream after Greece until 2019, but its production plummeted in 2020 and again in 2021. When compared with 2019, Spanish production of seabream in 2021 had decreased by 88%, reaching 1.515 tonnes worth EUR 11 million, its lowest of the decade. This is likely due to the Spanish seabream sector experiencing heavy losses due to damages caused by Storm Gloria in 2020.

Almost all production in the EU is raised in offshore farming facilities with cages and open net pens.

CHART 94

PRODUCTION OF FARMED GILTHEAD SEABREAM IN MAIN EU PRODUCING COUNTRIES

Source: EUMOFA, based on EUROSTAT (online data code: fish_aq2a) and FAO data. More details on the sources used can be found in the Methodological background. Values are deflated by using the GDP deflator (base=2015).



EUROPEAN SEABASS

The EU seabass aquaculture industry grew strongly during the last decade. In 2021, it peaked in both volume and value, ending at 97.090 tonnes for a total value of EUR 590 million. Compared with 2020, it represented a 20% increase in volume and a 25% increase in value.

The most important producers, Greece and Spain, produced 53% and 24% respectively of the total seabass volume. Other relevant producers are Croatia, Italy, France and Cyprus.

The 2021 production increase was led by Greece, the largest producing country, where production rose by 27% in volume and 35% in value, reaching a ten-year peak of 51.232 tonnes and EUR 275 million. On the other hand, Spain only recorded a 1% increase in volume and a 6% increase in value, ending 2021 at 23.037 tonnes and EUR 154 m.

Croatia and Italy contributed to this growth in 2021, the former increasing by 35% to 9.039 tonnes and the latter by 55% to 7.282 tonnes. The total value of this production increased in proportion to the increase in volume, reaching EUR 54 million in Croatia and EUR 59 million in Italy, as the average price of European seabass farmed in Croatia and Italy did not change significantly.

The average price in Greece increased 6% to 5,27 EUR /kg, while in Spain it rose by 5% reaching 6,64 EUR/kg. At the same time, the average seabass price in Italy

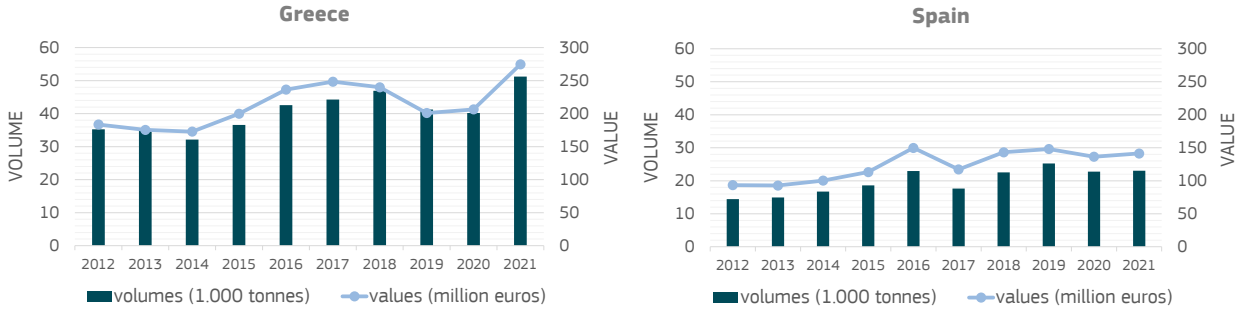
remained stable but higher than the other producers, reaching 8,14 EUR/kg, and Croatia recorded a slight 1% decrease in average price, attesting at 5,96 EUR/kg.

Seabass is cultured intensively, predominantly in cages or open net-pens in the coastal waters of southern EU. The market for seabass production in the EU is dominated by *Dicentrarchus labrax*. Only a negligible percentage is accounted for by other marine fish belonging to the Moronidae family.

CHART 95

PRODUCTION OF FARMED EUROPEAN SEABASS IN MAIN EU PRODUCING COUNTRIES

Source: EUMOFA, based on EUROSTAT (online data code: fish_aq2a) and FAO data. More details on the sources used can be found in the Methodological background. Values are deflated by using the GDP deflator (base=2015).



MISCELLANEOUS AQUATIC PRODUCTS

From 2020 to 2021, the EU production of miscellaneous aquatic products increased 10% and reached 538 tonnes. However, the overall production reached EUR 10 million, which was 9% less than in 2020.

Miscellaneous aquatic products encompass several different products which are not ascribable to specific species, but only to macro groups of products characterized by different preservation states and gradings. EUMOFA monitoring of the species covered under this group included seaweed, sponges, sea urchins, terrapins, turtles and frogs.

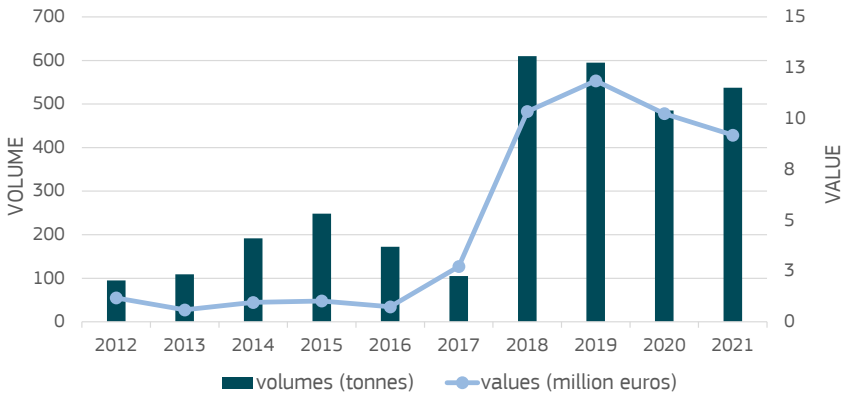
SEAWEED AND OTHER ALGAE

Aquaculture production of seaweed and other algae, presently reported in five EU countries – Bulgaria, France, Greece, Ireland and Spain – is at an early stage of development in Europe in terms of production volumes and number of production units. Algae production in the EU remains limited, accounting for only 0,048% of the total aquaculture volume and 0,24% of the value. Nevertheless, compared with 2012, volume of algae production from aquaculture in EU grew 466%, while its value increased by 682% in real terms.

CHART 96

PRODUCTION OF SEAWEED AND OTHER ALGAE IN EU

Source: EUMOFA, based on EUROSTAT data (online data code: fish_aq2a). Values are deflated by using the GDP deflator (base=2015).



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